EXHIBIT G

Supplemental Comments of the Conservation Law Foundation Opposing Issuance of 301(h) Variance and Related NPDES Permit For City of Portsmouth Wastewater Treatment Facility

U.S. EPA Public Hearing
City of Portsmouth Council Chambers
May 9, 2005

The Conservation Law Foundation (CLF) appreciates the opportunity to provide these supplemental comments opposing the City of Portsmouth's request for a Section 301(h) waiver from the Clean Water Act's secondary-treatment requirements for its publicly owned treatment works, and urging the U.S. EPA (EPA) to deny such waiver and amend its Draft NPDES Permit (No. NH0100234) accordingly. CLF supplements its comments submitted March 15, 2005 (original comments)[1] as follows.

I. The time has come for Portsmouth to invest in secondary treatment to protect the Piscataqua River and related estuarine waters.

Portsmouth's wastewater treatment facility (WWTF, or facility) discharges an average of 4.8 million gallons per day of wastewater effluent into the Piscataqua River, a saline estuarine water body that is a critical part of the larger Great Bay estuary ecosystem. The facility provides only advanced primary treatment, as opposed to the secondary levels of treatment generally mandated by the Clean Water Act. Accordingly, Portsmouth's WWTF has been required to meet an average monthly removal rate of only 30 percent for five-day biochemical oxygen demanding material (BODs) and total suspended solids (TSS), as opposed to the minimum 85 percent removal rates associated with secondary treatment.

Nearly every community in the United States with a sewage treatment plant (many thousands) is providing secondary treatment to its wastewaters. The U.S. EPA's website indicates that there are just 20 sewage treatment plants in the continental United States that are not required to meet secondary treatment standards. (www/epa.gov/owow/oceans/discharges/301list/html). In New Hampshire, Portsmouth's facility is the *only* wastewater treatment facility not required to provide secondary treatment. Similarly, each and every other wastewater treatment facility in the watershed of the Great Bay estuary – which includes facilities located in Maine – is required to provide secondary treatment. The wastewater treatment plant for the nearby town of Newington, New Hampshire was recently recognized by the EPA for its exemplary performance.[2]

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[1] CLF hereby incorporates its original comments, as if fully set forth herein, for consideration by the EPA as part of its decision-making process.

[2] EPA Office of Public Affairs, Release #sr050115 (Jan. 31, 2005).

Since the time of its original 301(h) waiver and NPDES permit issuance in 1985, and following the 1990 expiration of its NPDES permit, Portsmouth has experienced numerous problems with its facility. For example, the EPA has found that the facility cannot meet water quality standards for total residual chlorine and whole effluent toxicity. Further, the Administrative Record reveals that the facility cannot pass the LC 50 acute toxicity tests.[3] These and other problems also are discussed in CLF's original comments, as well as below.

Portsmouth's proposal to simply extend its discharge pipe and add a 20-port diffuser represents yet another band-aid approach to addressing important water pollution issues critical to the health of the Piscataqua River and associated estuarine resources. The need for a meaningful, sustainable, long-term approach to effectively treating Portsmouth's significant volumes of sewage is long overdue. Simply put, the time has come for the EPA to insist on secondary treatment at Portsmouth's facility, and for Portsmouth to promptly proceed with plans to implement such treatment.

II. The "blanket prohibition" established in 1987 amendments to the Clean Water Act unambiguously mandates denial of a Section 301(h) waiver.

A. Section 301(h), as amended, provides strong, critically important protections for our nation's valuable estuaries.

As set forth in CLF's original comments, Congress enacted important new protections for estuarine water bodies in the Water Quality Act of 1987. Among those protections, Congress amended Section 301(h) of the Clean Water Act by adding the following prohibition:

> No permit issued under this subsection shall authorize the discharge of any pollutant into saline estuarine waters which at the time of application do not support a balanced indigenous population of shellfish, fish and wildlife, or allow recreation in and on the waters or which exhibit ambient water quality below applicable water quality standards adopted for the protection of public water supplies, shellfish, fish and wildlife or recreational activities or such other standards necessary to assure support and protection of such uses. The prohibition contained in the preceding sentence shall apply without regard to the presence or absence of a causal relationship between such characteristics and the applicant's current or proposed discharge.

[3] The LC 50 is defined as the percentage of effluent that would be fatal to 50% of the test organisms during an exposure of 48 hours. (See, e.g., Toxicological Evaluation, February 16, 2001, Envirosystems, Inc.; Toxicity Identification Evaluation, February 25, 2003, New England Bioassay, Inc.). The test organisms are minnows, and juvenile sea urchins. In a March 15, 2005 Memorandum, Portsmouth admits that its whole effluent toxicity and LC 50 tests violate standards.

33 U.S.C. § 1311(h) (CWA § 301(h)). This language unambiguously establishes a blanket prohibition against Section 301(h) waivers when receiving estuarine waters fail to satisfy any one of the above-stated mandatory critieria, namely: support for a balanced indigenous population of aquatic species and other wildlife; support for recreational uses; and ambient water quality that meets water quality standards designed to protect public water supplies, aquatic species and other wildlife, and recreational activities. According to this language, any Section 301(h) waiver request involving a proposed discharge into saline estuarine waters *must*, as a threshold matter, establish that the estuarine waters satisfy these mandatory criteria.

As the above provisions make clear, a critical *first* step in the analysis is to determine the conditions of the estuarine waters. If the waters fail to meet any one of the mandatory criteria, a Section 301(h) waiver must, as a matter of law, be denied. 33 U.S.C. § 1311(h) (CWA § 301(h)). The unambiguous "blanket" nature of this prohibition is bolstered by the second sentence of the above-quoted language, which makes clear that a Section 301(h) shall not be granted *even if* the proposed discharge would not cause or contribute to the failure of the estuarine waters to satisfy the above mandatory criteria.[4] Simply put, and quoting the EPA's website relative to the Section 301(h) program, "POTWs discharging to stressed estuaries are not eligible for a 301(h) waiver." *Amendments to Regulations Issued, the Clean Water Act Section 301(h) Program*, http://www.epa.gov/owow/oceans/discharges/301h.html. This blanket prohibition, as a matter of law, precludes the 301(h) waiver requested by Portsmouth.

B. The estuarine resources at issue fail to satisfy the mandatory criteria set forth in the 1987 amendments to Section 301(h) and related regulations.

The critical value of the Piscataqua River and the larger Great Bay estuary of which it is such a critical part cannot be overstated. The estuary contains a broad diversity of habitat types, including eel grass meadows, salt marshes, mudflats, channel bottom, and rocky intertidal zones. This diversity makes the estuary a critical breeding and nursery ground for finfish, shellfish and other invertebrates. Finfish species depending on the estuary are numerous. In fact, the estuary is designated Essential Fish Habitat (EFH) by the National Marine Fisheries Service for numerous fish species in various life stages. Those species include: Atlantic cod, Atlantic herring, Atlantic sea scallop, haddock, pollock, red hake, white hake, window-pane flounder, yellowtail flounder, Atlantic mackerel, and bluefish.[5] The Cocheco River, which is a tributary to the Piscataqua River, is designated EFH for Atlantic salmon for all of its life stages.[6]

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[4] As the EPA has acknowledged: "No permits may be issued for discharges into estuarine waters which exhibit certain specified stressed conditions, *without regard to whether the applicant's discharge is causing or will cause those conditions.*" 56 Fed. Reg. 2814 (emphasis added). *See also id.* at 2821 ("WQA section 303(e) makes clear that discharges into stressed estuary waters *are prohibited in all cases, without regard to whether the stressed conditions are caused by the applicant's discharge.*") (emphasis added).

[5] http://www.nero.noaa.gov/hcd/efhtables.pdf

[6] *Id.*

In addition to EFH-designated species, the estuary supports numerous other species, including striped bass, smooth flounder, rainbow smelt, Atlantic sturgeon, American shad, black sea bass, American eel, white perch, sea lamprey and Atlantic silversides. Many of the finfish that rely on the estuary also spend portions of their life cycles in the Gulf of Maine, where they become part of the food web supporting other marine species, including commercial fisheries. In addition to finfish, the estuary also supports a number of shellfish species such as lobsters, oysters, mussels and clams.[7]

The estuary's diversity of habitats and aquatic species also support a wide variety of birds and mammals. Birds depending on the estuary and its abundant food sources include numerous birds of prey (including bald eagles, osprey, and peregrine falcon), numerous seabirds (including various terns, cormorants and gulls), numerous wading birds (including various herons, bitterns and egrets), numerous shore birds (including a variety of plovers and sandpipers), numerous salt marsh birds (including Virginia Rail, American Kestrel and a number of hawk species), and numerous waterfowl[8] and diving birds (including common loon, Canada and snow goose, and a broad variety of ducks). Mammals that use the estuary include harbor seals, otter, beaver, mink, white-tail deer and red fox.[9]

In addition to the above wildlife values, the estuary provides important recreational values, including recreational fishing, boating, and swimming. Fishing and boating take place throughout the estuary. Swimming is known to take place at locations including (but not necessarily limited to) two beaches in Portsmouth Harbor: a beach at or near Fort Foster, on Gerrish Island, in Kittery, Maine; and a beach in New Castle, New Hampshire.

As discussed in CLF's original comments, the estuary faces numerous significant threats to its health and sustainability. Among those threats are intense population growth, and development. Specifically, New Hampshire's Seacoast continues to be one of the fastest growing regions in New England's fastest growing state. Between 1990 and 2004, New Hampshire far outpaced all other New England states with a 17.2% increase in population.[10] In fact, for four straight decades New Hampshire has been the fastest growing state not only in New England, but in all of the nine-state Northeast region.[11] A substantial amount of this growth has taken place, and is projected to

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[7] Short, Fredrick T. 1992. (ed.) *The Ecology of the Great Bay Estuary, New Hampshire and Maine: An Estuarine Profile and Bibliography.* NOAA – Coastal Ocean Program Publ., Ch. 8.
[8] Seventy-five (75) percent of New Hampshire's overwintering waterfowl are found on Great Bay. *N.H. Estuaries Project Management Plan* at 2-18 (2000).
[9] *Id.*
[10] Society for the Protection of New Hampshire Forests, *New Hampshire's Changing Landscape* (2005). As compared to New Hampshire's 17.2% growth in population, other New England states experienced population growth during the same period as follows: Maine, 7.3%; Vermont, 10.4%; Massachusetts, 6.7%; Connecticut, 6.7%; Rhode Island, 7.7%. *Id.*
[11] *Id.*

continue, in New Hampshire's Seacoast. Between 2000 and 2025, the population of Rockingham and Strafford Counties are projected to increase by 79,400 and 30,600 people, respectively.[12] This population growth in the Seacoast will place ever-increasing demands on the region's wastewater treatment facilities. Absent major changes in the way development occurs in the region, it also will result in significant sprawl development.

Development trends in the Seacoast show that the region is, and continues to be, increasingly sprawling.[13] Low-density sprawl already has led, and will continue to lead, to the loss, fragmentation and degradation of wetlands, buffers and open spaces within the estuary's watershed. It also has led, and will continue to lead, to more impervious surface-coverage from roads, parking lots and driveways. In New Hampshire's coastal watershed, impervious-surface coverage recently increased by 11,154 acres, from 24,349 acres in 1990 to 35,503 acres in 2000. The unnecessary addition of impervious surfaces associated with inefficient sprawl development, in turn, poses a significant threat to the health of the Great Bay estuary as a result of polluted stormwater runoff and by preventing natural groundwater recharge. As stated in the most recent *State of the Estuaries* report, the accelerated consumption of land associated with sprawl "is a threat to the habitats, health, and aesthetic quality of the watershed."[14]

As a result of these and other threats, the estuarine resources that are affected by Portsmouth's WWTF are exhibiting significant signs of stress. As set forth in CLF's original comments, these signs of stress include numerous violations of state water quality standards (both New Hampshire and Maine standards) throughout the estuary, including in the lower Piscataqua River, as well as the closure of significant shellfish beds. With specific regard to shellfish, it is important to note that – in addition to the issues identified in CLF's original comments – the oyster fishery in Great Bay has been decimated in recent years, declining from a standing stock of more than 125,000 bushels of harvestable-size oysters in 1993, to a mere 3,579 bushels in 2002.[15] Additionally, in Portsmouth Harbor, concentrations of polyaromatic hydrocarbon (PAH) in blue mussels were found to have increased 30 percent as a result of annual tissue analyses conducted between 1993 and 2000.[16]

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[12] *Id.*

[13] *See* N.H. Estuaries Project *State of the Estuaries Report* (2003) at p. 28.

[14] NHEP *State of the Estuaries* (2003) at 26. *See also* N.H. Estuaries Project Management Plan (2000) at 3-1 ("The greatest environmental risks to the estuaries are from population growth and development, which can have significant impacts on water quality and living resources, and can result in loss and fragmentation of habitat and open space.").

[15] NHEP *State of the Estuaries* (2003) at 12. The major cause of this precipitous decline is thought to be the protozoan pathogens MSX and Dermo. *Id.*

[16] *Id.* at 6. According to the *State of the Estuaries* (2003): "PAHs are constituents of petreoeum and are residuals of the combustion of petroleum products and other organic compounds. Increased stormwater runoff from impervious surfaces (e.g. parking lots) and fuel spills into the estuary are two of many possible reasons for the increasing PAH concentrations in blue mussel tissues." *Id.*

In addition to the above, the estuary is exhibiting other significant signs of stress. One stress-indicator of substantial concern is the increasing level of nitrogen concentrations in Great Bay.[17] Increased loadings of nutrients, such as nitrogen, can result in eutrophication, with far-reaching impacts to the estuary's health. According to Frederick T. Short, Ph.D., Research Professor, Jackson Estuarine Laboratory, UNH:

1) Despite the fact that the Great Bay Estuary appears pristine, numerous signs of ecosystem degradation are evident throughout the estuary. The Great Bay Estuary is a stressed ecosystem as a result of high loading of nitrogen into the estuary from many sewage treatment plants and from non-point sources as well.

2) The Portsmouth sewage treatment plant is the largest input of nitrogen to the estuary, and, despite the discharge location between Pierce and Seavey Islands, half the time, the sewage input goes up the estuary rather than seaward, due to the strong tidal influence.

3) When nitrogen from the Portsmouth plant is flushed into the Great Bay Estuary, it enriches the waters, producing excess growth of macroalgae. The production of these nuisance algae are detrimental to the overall health of the estuarine ecosystem: as a result of nitrogen loading, estuarine systems are known to become eutrophic, as evidenced in Chesapeake Bay, Boston Harbor, and Waquoit Bay on Cape Cod. Under eutrophic conditions, the estuarine ecosystem is disrupted, low oxygen events occur (anoxia), fish kills occur, eelgrass beds are lost, and many functions of the estuary are lost.

4) When nitrogen from the Portsmouth plant is flushed out of Portsmouth Harbor seaward, it forms a plume which moves down the coast to the south along the New Hampshire beaches, where again it stimulates the excessive growth of nuisance macroalgae, as described in Popular Science (2002): "The Green Globs".

5) The "State of the Estuary" report (2003) produced by the New Hampshire Estuaries Project (NHEP) documents progressive increases in nitrate + nitrite in the estuary from 1994 to 2002. This alarming increase of nitrogen levels in the estuary is accompanied by more abundant nuisance algae growth throughout the estuary, an indicator of eutrophication from nutrient over-enrichment.

6) The use of a newly developed Nutrient Pollution Indicator (NPI) (Short et al. 2004) clearly demonstrates elevated nitrogen levels in the area of the Portsmouth sewage treatment plant. From these studies, it is clear that the

[17] NHEP *State of the Estuaries* (2003) at 8.

> primary treated sewage from the Portsmouth plant makes a detectable contribution to the degradation of the Great Bay Estuary.

(Attachment 1).

Also, Professor Arthur Mathieson of the University of New Hampshire's Jackson Estuarine Laboratory states:

> Basically there are several signs of biological stress that are evident within benthic communities as follows:
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> (1) the ulvoid green algae (i.e. Ulva and Enteromorpha) are becoming increasingly dominant within these ecosystems and they typify eutrophication problems as documented in Boston Harbor, etc. - i.e. the sea letturce problem noted by Sawyer;
>
> (2) another filamentous brown alga Pilayella littoralis, which has a similar reputation as in the Nahant, Mass areas, is also becoming increasingly abundant; presently its winter-spring period of dominance is being expanded temporally and spatially and it is now compromising many shellfish and other plant communities (i.e. seagrass);
>
> (3) the occurrence of many green algal blooms and entangled masses of Chaetomorpha picquotiana (i.e. green thread) on our nearshore open coastal areas should also be noted as it has become a prevalent problem during the past few years;
>
> (4) lastly, the abundance of diverse epiphytic algae on eelgrass should be noted as it is stressing these key communities- again this is a strong indication of increased nutrient discharge.
>
> In summary, there are several biological indicators of nutrient stress and we must try to terminate all major sources of primary sewage discharge such as that in Portsmouth.[18]

Finally, with respect to sewage inputs into the Piscataqua River and water bodies that are either part of or flow into the Great Bay estuarine system, it is critical to note the numerous toxic chemicals at issue. In addition to containing nutrients and biological oxygen-demanding materials, sewage can contain a broad range of pathogens (including numerous types of bacteria, viruses, protozoa and helminths (worms)), and toxins (including heavy metals – such as mercury, cadmium and lead – and myriad chemicals

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[18] Written communication from Arthur C. Mathieson, Professor of Plant Biology, Jackson Estuarine Laboratory, Univ. of New Hampshire to Thomas F. Irwin, Conservation Law Foundation (May 6, 2005).

discharged from industrial, commercial, institutional and household activities).[19] These inputs, particularly those associated with untreated combined-sewer-overload discharges, as well as Portsmouth's primary-only treated discharges, expose the already-stressed estuary to a multiplicity of threats.

In sum, the Piscataqua River and larger Great Bay estuary are critically valuable resources that are exhibiting signs of stress that, as a matter of law, prohibit the issuance of a Section 301(h) waiver for the Portsmouth WWTF.

III. Significant compliance issues militate against the issuance of a 301(h) waiver and demand comprehensive improvements, including secondary treatment.

To reiterate, the unambiguous prohibition set forth in Section 301(h) and EPA's regulations mandates that Portsmouth's waiver request be denied. Because, as a threshold matter, Portsmouth's waiver request cannot overcome this prohibition, no further analysis is necessary. Without in any way waiving its argument that Portsmouth is ineligible for a Section 301(h) waiver, CLF further notes that serious compliance issues militate against allowing further variance from the secondary-treatment requirements of the Clean Water Act.

As set forth in CLF's original comments, Portsmouth's compliance with the Clean Water Act and its 1985 NPDES permit has been less than exemplary. The details of the facility's many compliance issues are described in the EPA Fact Sheet and the Administrative Record. Standing alone, Portsmouth's compliance history militates against allowing the facility to continue operations without secondary treatment.

What is *not* reflected in the EPA Fact Sheet or the Administrative Record is that on October 20, 2003, the N.H. Department of Environmental Services (DES) issued a Notice of Findings to Portsmouth detailing sixteen (16) violations occurring at the facility and the sewage collection system. *See* Attachment 2.[20] The numerous violations include:

- failure of the chlorine disinfection system;
- broken valves at the filter building;
- multiple pump and valve failures;
- compressor failures;
- control system failures;
- clogs in the grit cyclone;
- alarm failures;
- ruptured force main power failures;

[19] Natural Resources Defense Council, Environmental Integrity Project, *Swimming in Sewage* (2004) at 6-15.

[20] To the contrary, the EPA Tentative Decision Document states: "The plant has had at least one raw sewage event..." This statement is inaccurate and misleading. (Tentative Decision Document, p. 10).

- line blockages; and
- operator errors.

Each of these violations resulted in the discharge of raw and/or un-chlorinated sewage into estuarine waters. Portsmouth admits that 7,371,500 million gallons of such raw and/or untreated sewage was discharged. The Notice of Findings evidences substantial doubts regarding the structural and mechanical integrity of the WWTF and collection system. The Notice of Findings raises concerns regarding the City's maintenance program; the diligence of its facility supervisors; and the training of its operators and employees.

CLF's investigation of the status of the Notice of Findings reveals that the issues raised have not be resolved, and that enforcement of the Notice of Findings has been ceded to the EPA. On April 4, 2005, K. Moratt, Enforcement Manager, Office of Environmental Stewardship, issued a Request for Information to the City. *See* Attachment 3 (Moratt letter). The City has not yet responded. The Moratt letter requests information regarding dry and wet weather pollutant discharges at the WWTF; unpermitted points in the collection system; any DES enforcement actions; wastewater discharge gallonages; any efforts to fix the problems; maintenance reports; sewer projects, including project status report and project completion schedules for those items Portsmouth detailed in its January 20, 2004 response to DES' Notice of Findings.

The Moratt letter requests detailed information about Portsmouth's Deer Street Pumping Station. The Deer Street Station has been the subject of New Hampshire DES scrutiny, and now EPA scrutiny, as a result of an October 17, 2001 pump failure. The pump failure caused a substantial discharge of untreated sewage into the Estuary. The discharge caused the manager of the NH DES Shellfish Program to order closure of shellfishing in all the approved shellfishing areas in the Great Bay Estuary. *See* Attachment 2. Substantial questions remain regarding Portsmouth's estimate of the gallonage of the overflow sewage; the state of maintenance of the Deer Street pumps and backups; why the temporary discharge line valve was inoperable; when did it become inoperable; and who knew that the valve was inoperable. The results of this detailed EPA inquiry regarding the Deer Street incident may shed light on the overall credibility of the 301(h) waiver request here at issue.

Of overarching importance is why one office within EPA Region 1 has thus far appeared willing – at least preliminarily – to allow Portsmouth to continue operating under a waiver from the Clean Water Act's secondary treatment requirements *while at the same time* another office within EPA Region 1 is investigating the structural and mechanical integrity of the facility including its connectors and pump stations; warning equipment; the maintenance program; and the training and supervision of its employees. This is not to suggest that the EPA need refrain from rendering a denial of Portsmouth's 301(h) until the above investigation has been completed. Rather, as discussed above, the existing conditions of the saline estuarine waters of the Piscataqua River and larger Great

Bay estuary require, as a matter of law, that the 301(h) waiver request be denied. Nonetheless, past problems associated with the WWTF's operation further militate against issuance of the requested waiver.

IV. Critical issues regarding the impacts of the proposed improvements have not been adequately addressed.

Again, the EPA can and must deny Portsmouth's 301(h) waiver request in light of the blanket prohibition discussed above. Notwithstanding this fact, and without in any way waiving this argument, CLF further notes that the impacts of Portsmouth's proposal have not been fully and adequately assessed, as required by Section 301(h) and the EPA's regulations.

In addition to the blanket prohibition discussed above, the Water Quality Act of 1987 amended Section 301(h) to include the following provision:

> In order for a permit to be issued under this subsection for the discharge of a pollutant into marine waters, such marine waters must exhibit characteristics assuring that water providing dilution does not contain significant amounts of previously discharged effluent form such treatment works.

33 U.S.C. 1311(h). The above language is essential to ensuring that dynamic systems such as the Piscataqua River and associated estuarine waters are not adversely affected by the discharge of primary-only treated sewage. As in the case of the Piscataqua River, for example, the "water providing dilution" travels both "upstream" (i.e., into Little Bay and Great Bay) and "downstream" (i.e., into Portsmouth Harbor and Little Harbor). The estuarine system includes numerous coves, embayments, shallows and eddies where the "waters providing dilution" may travel and deposit pollutants, and where tidal conditions and natural characteristics could contribute to adverse accumulations and impacts. These conditions, natural characteristics, and the impacts of Portsmouth's proposed discharge have not been properly assessed, as specifically required by the above-quoted language of the Clean Water Act, and by EPA regulations, such as those set forth in 40 CFR 125.62. For example, CLF notes the following:

- The Administrative Record has inadequate data regarding the effects of ambient currents and stratifications in dispersion and transport of the discharge plume and wastefield. Again, the strongly tidal, dynamic nature of the estuary, coupled with its natural characteristics (coves, embayments, shallows, eddies, etc.) makes detailed analysis essential.

- The current speed data was taken in Portsmouth Harbor, not at the outfall site. The current speed originally selected by Portsmouth's consultant was rejected by EPA as too high. The new current speed data generated a very dramatic reduction in the resultant theoretical dilution (from 473 to 177). *See* Outfall Evaluation,

Administrative Record. A small manipulation of the data changed the result in a way that raises concerns about the other data. Why are there no tide tables of record, nor any explanation why such tables would not have provided current speed data at the outfall location, rather than a location in Portsmouth Harbor selected by a Portsmouth consultant.

- Portsmouth used Cormix modeling to calculate the theoretical dilution factor at the edge of the ZID, but this limited artificially constructed conclusion is inadequate to support the requested 301(h) waiver. The proprietary Cormix organization had modeling available to fully address all the wastefield, plume destination and dimensions, recirculation, buoyancy, and waterbody boundary questions.[21] However, the available Cormix methodology was not used. The Cormix modeling done by Portsmouth falls far short of that needed to fully assess the wastefield characteristics in the estuary.[22] *See* Schnurbusch, appended as Attachment 4, pp. 33-39.

In addition to the above, CLF reiterates its concerns regarding whether and to what extent Portsmouth's proposal will interfere with the movement of fish species. These are critical questions in light of the numerous finfish and shellfish species that move through the Piscataqua River. Nonetheless, the Administrative Record does not provide answers to whether the wastefield/plume discharge will interfere with the passage of fish and other organisms. Attachment D, EPA Fact Sheet, is a scale topographical map of the WWTF showing the existing outfall pipe and the additional 197 feet of the diffuser pipe. The combination extends halfway across the Piscataqua River. Of particular concern, is that the proposed outfall pipe extension would virtually reach the area where the river becomes dramatically more shallow. Regrettably, the EPA's finding regarding the matter of fish passage is pure speculation. See Tentative Decision Document, p. 9. Whereas 40 CFR 125.62(c)(4)(ii) states that the discharge must not *interfere* with the estuarine migratory pathways, the EPA's Tentative Decision merely states: "...it is highly unlikely that the discharge plume would ever stretch from bank to

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[21] *See* www.cormix.info/methodology.php.

[22] In addition to the above-quoted 1987 amendment to Section 301(h) and the EPA's regulations, such as 40 CFR 125.62, *see also* Schnurbusch, Stephen A., Portland State University, *A Mixing Zone Guidance Document Prepared for the Oregon Department of Environmental Quality*, pp.33-39, appended as Attachment 4. The Schnurbusch document is an excellent paper which provides, *inter alia*, the following analytical guidance at pages 4-5:

- What materials exist in the sewage that will cause acute toxicity to aquatic life?
- What materials will settle to form objectionable deposits?
- What about floating debris, oil, scum?
- What about materials that cause fungal or bacterial growth?
- Are the waters outside the mixing zone free from materials that will cause chronic toxicity?
- Will the mixing zone allow passage of fish and other aquatic organisms? Schnurbusch notes at p. 20 of his Guidance Document that the US Department of the Interior (1968) recommended a zone of passage of 75% of the close sectional area and/or a volume flow of the stream or estuary.

bank...." Even if accurate,[23] this finding does not necessarily answer the question whether the plume will *interfere* with fish passage.

Other significant flaws regarding the impacts of Portsmouth's proposed discharge include:

- The EPA conclusion regarding dissolved oxygen (DO) is flawed because the diffusion is limited to DO concentrations "in the vicinity of the improved discharge." (Tentative Decision Document, p. 4). 40 CFR 125.62(a) requires an answer to this question.

- The EPA conclusion regarding TSS suffers the same flaw as its conclusion relative to DO. (Tentative Decision Document, pp. 5-6).

- The EPA conclusion relative to impacts on benthic population, and migratory pathways for fish and wildlife, is wrong factually and violates the EPA regulatory framework. (Tentative Decision Document, p. 9). As stated, shellfishing in the estuary is frequently closed. *See* CLF's original comments.

- The presence of, and proposed discharge's impacts on, distinctive eel grass beds have not been adequately addressed.

- The EPA determination that Portsmouth's discharge is not an "ongoing problem," and, therefore, there will be no impact on recreational activities, e.g., swimming, diving, boating, fishing, and picnicking is shockingly wrong. As discussed above, Portsmouth has had sixteen unresolved documented violations involving discharges of raw sewage, not "at least one raw sewage overflow event" as described in the Tentative Decision Document (p. 10). There are at least two swimming beaches in the vicinity of the outfall, one in Maine and one in New Hampshire. These beaches are not even noted in the Tentative Decision Document.

- The EPA conclusion (at Tentative Decision Document, p. 11) that a dilute sewage discharge into waters already impaired for enterrococcus is permissible violates the express language of the 1987 Water Quality Act amendments to the Clean Water Act. Standing alone, the existing impairments require EPA to deny the 301(h) waiver.

- The EPA determination that Portsmouth is not required to have an industrial pretreatment program as required by 40 CFR 125.68(b)(1) is not supported by the facts. (Tentative Decision Document, p. 14). CLF investigation of DES records, and documents collected by DES from Portsmouth, show that there are at least three industrial dischargers into the system: Highliner Foods, Liberty Mutual, and Portsmouth Regional Hospital. Each should have pretreatment programs based upon broad spectrum toxics analysis.

[23] CLF does not concede this fact.

V. The New Hampshire Department of Environmental Services failed to fully address the Portsmouth 301(h) waiver application as required by 40 CFR § 125.61(b)(2).

The New Hampshire Department of Environmental Services is obligated to evaluate whether the proposed modified discharge will comply with the applicable provisions of New Hampshire law, including water quality standards. The determination should have included a discussion of the basis for the conclusion reached. NH DES signed off on the Portsmouth waiver by letter dated May 17, 2004. (*See* Administrative Record). The discussion of water quality issues was cursory and unsupported by data, analysis, or independent testing or investigation. The work done by NH DES (if any) certainly did not include the quality of discussion that is deserved by the priceless Great Bay Estuary.

Conclusion

For the reasons set forth in these comments, as well as in CLF's original comments, the EPA must, as a matter of law, deny the City of Portsmouth's request for a 301(h) waiver. CLF urges the EPA to do so without delay, and to require Portsmouth to develop and implement an aggressive schedule to achieve secondary treatment of its wastewater.

Respectfully submitted,

Thomas F. Irwin,
Staff Attorney

Arthur B. Cunningham

Date: May 9, 2005

Encls.

ATTACHMENT 1

UNIVERSITY of NEW HAMPSHIRE
Jackson Estuarine Laboratory, 85 Adams Point Road, Durham, New Hampshire 03824 Tel. 603-862-5134, Fax. 603-862-1101

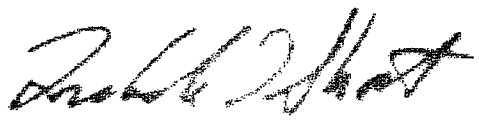
To: Thomas F. Irwin,
Conservation Law Foundation

Regarding the waiver that has been requested by the City of Portsmouth to avoid upgrading the sewage treatment plant to secondary treatment, I would like to provide the following information. I am a Research Professor at the Jackson Estuarine Laboratory, University of New Hampshire and have worked on the Great Bay Estuary for more than 20 years.

1) Despite the fact that the Great Bay Estuary appears pristine, numerous signs of ecosystem degradation are evident throughout the estuary. The Great Bay Estuary is a stressed ecosystem as a result of high loading of nitrogen into the estuary from many sewage treatment plants and from non-point sources as well.
2) The Portsmouth sewage treatment plant is the largest input of nitrogen to the estuary, and, despite the discharge location between Pierce and Seavey Islands, half the time, the sewage input goes up the estuary rather than seaward, due to the strong tidal influence.
3) When nitrogen from the Portsmouth plant is flushed into the Great Bay Estuary, it enriches the waters, producing excess growth of macroalgae. The production of these nuisance algae are detrimental to the overall health of the estuarine ecosystem: as a result of nitrogen loading, estuarine systems are known to become eutrophic, as evidenced in Chesapeake Bay, Boston Harbor, and Waquoit Bay on Cape Cod. Under eutrophic conditions, the estuarine ecosystem is disrupted, low oxygen events occur (anoxia), fish kills occur, eelgrass beds are lost, and many functions of the estuary are lost.
4) When nitrogen from the Portsmouth plant is flushed out of Portsmouth Harbor seaward, it forms a plume which moves down the coast to the south along the New Hampshire beaches, where again it stimulates the excessive growth of nuisance macroalgae, as described in Popular Science (2002): "The Green Globs".
5) The "State of the Estuary" report (2003) produced by the New Hampshire Estuaries Project (NHEP) documents progressive increases in nitrate + nitrite in the estuary from 1994 through 2002. This alarming increase of nitrogen levels in the estuary is accompanied by more abundant nuisance algae growth throughout the estuary, an indicator of eutrophication from nutrient over-enrichment.
6) The use of a newly developed Nutrient Pollution Indicator (NPI) (Short et al. 2004) clearly demonstrates elevated nitrogen levels in the area of the Portsmouth sewage treatment plant. From these studies, it is clear that the primary treated sewage from the Portsmouth plant makes a detectable contribution to the degradation of the Great Bay Estuary.

The bottom line: the Great Bay Estuary is suffering from excess nitrogen inputs, with contributions from the Portsmouth sewage treatment plant representing a large portion of the excess. Permitting waiver renewal for secondary treatment will increase the nutrient problem and possibly lead to the kind of ecological disruption that has occurred in other estuaries.

Sincerely,



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