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STATE OF RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF ADMINISTRATIVE ADJUDICATION

IN RE: Woonsocket Wastewater Treatment Facility
 RIPDES Permit No.: RI0100111

REQUEST FOR ADJUDICATORY HEARING

Permittee, the City of Woonsocket ("Woonsocket") hereby requests an adjudicatory hearing on certain issues raised in the Modification dated June 27, 2005 ("Modification") of RIPDES permit RI0100111, issued July 15, 2000 (the "Permit"), and as further detailed in the letter from the Department of Environmental Management, Office of Water Resources (the "OWR") dated June 27, 2005 (the "OWR Letter") containing OWR's summary responses to comments on the Draft Permit Modification, which includes Woonsocket's comments submitted on February 11, 2005. Woonsocket seeks this appeal based on the contents of the Modification and supporting documents provided by OWR.

Specifically, Woonsocket appeals, contests and seeks reconsideration of the conditions of the Modification establishing effluent limitations, monitoring requirements, and operational requirements for total Nitrogen, TKN, Total Nitrite, and Total Nitrate as specified in Attachment A to the Modification.

Included herein is a summary of the concerns related to the conditions in the Modification. In addition, and in accordance with Rule 49(b), Woonsocket incorporates in this request its comments submitted on February 11, 2005 to the Draft Permit (attached as Exhibit A).

Woonsocket engaged the services of Camp, Dresser and McKee ("CDM") to examine the proposed nitrogen limit and supporting materials supplied by DEM in response to the December 23, 2004 Draft Permit Modification issued by OWR and has requested that CDM re-examine and respond to the nitrogen limit proposal, as well as the additional supporting materials supplied by OWR with the Modification. CDM's analysis dated July 27, 2005 is attached hereto and its contents are incorporated as the basis for Woonsocket's request for an adjudicatory hearing to appeal, contest and obtain reconsideration of the effluent limitations, monitoring requirements, and operational requirements detailed in the Modification (attached as Exhibit B).

CDM's analysis demonstrates that DEM's supporting evaluation, along with the additional work attempting to identify the contribution of the wastewater treatment plants on the Blackstone River, fails to present a cohesive analysis of dissolved oxygen dynamics of the Providence and Seekonk Rivers, is inconsistent with prior studies, and ignores the significant differences in conditions between the River System and Narragansett Bay. In addition, the strategy implicit in the proposed limits ignores the significant nitrogen reduction programs in many Rhode Island communities and the substantial reductions achieved by Woonsocket. Woonsocket has already demonstrated it meets and exceeds the legislative mandate for 50% reduction in nitrogen loading from the Woonsocket Wastewater Treatment Facility against the base line utilized by OWR.

In addition, Woonsocket, through its special counsel, Sean Coffey of Burns & Levinson LLP, has analyzed the Modification and supporting documentation supplied by OWR. Mr. Coffey's memorandum of July 27, 2005 is attached hereto and its comments are incorporated as further basis for Woonsocket's appeal of the Modification (attached as Exhibit C). Woonsocket contests the Modification because, in establishing the new nitrogen limits, OWR has failed to

follow its own regulatory requirements and a Superior Court Consent Order entered on May 19, 2000. In addition, Woonsocket has already met and exceeded the legislative mandate for 50% reduction in nitrogen loading from its wastewater treatment facility. Further, Woonsocket has failed to complete a TMDL to provide the necessary basis for determining appropriate limits for nitrogen discharge which would be applicable to the Woonsocket Wastewater Treatment Facility.

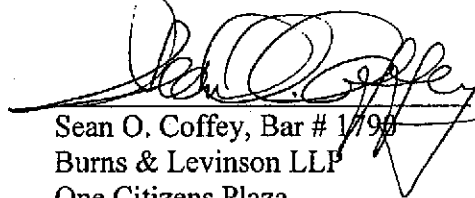
The Woonsocket Wastewater Treatment Facility has been in substantial compliance with its current RIPDES Permit for more than two years and has reduced its nitrogen level by almost 70% as compared to the baseline conditions used by DEM to justify the Modification. The Modification would require that Woonsocket invest well in excess of another \$20,000,000, necessitating rate increases of 30% or more to cover debt service and operating costs, for further plan improvements in DEM's phased approach to reduce nutrients in Narragansett Bay, over the \$30,000,000 invested in the last decade on improvements to reduce the impact of the wastewater treatment plant on the Blackstone River and Narragansett Bay. This additional investment would be required despite the small nitrogen reduction and nitrogen discharge and despite the lack of evidence, or even consensus within the scientific community, about the impact of nitrogen reduction on the Providence/Seekonk River System and on Narragansett Bay. Given the lack of scientific basis for the Modification and the speculative nature of the benefits to the River System and the Bay, the nitrogen limits should not be imposed without a commitment from the State of Rhode Island to pay for the nitrogen reduction improvements through a state-wide bond issue supporting a construction grant program for improvements to the wastewater treatment plants to enhance nitrogen removal necessitated by the Modification.

The Modification purportedly takes effect August 1, 2005 with respect to Woonsocket's existing RIPDES Permit which expired by its terms on July 1, 2005. While the Permit effectively remains in force pending issuance of a new Permit, given the complexity of the issues involved, the requirements of the Modification should be addressed in the next comprehensive RIPDES Permit for Woonsocket which should identify and address constituents of Woonsocket's wastewater with limiting characteristics for the Blackstone River and Narragansett Bay, including evaluation of dissolved oxygen needs of the receiving waters.

For the foregoing reasons as further detailed in the exhibits attached, Woonsocket requests an adjudicatory hearing to appeal, contest and obtain reconsideration of the requirements imposed in the Modification and requests that the requirements of the Modification establishing effluent limitations, monitoring requirements, and operational requirements for Total Nitrogen, TKN, Total Nitrite and Total Nitrate be vacated and rescinded.

Respectfully submitted,

CITY OF WOONSOCKET



Sean O. Coffey, Bar # 1796
Burns & Levinson LLP
One Citizens Plaza
Suite 1100
Providence, RI 02903
Tel: (401) 831-8330
Fax: (401) 831-8359

Certification

I hereby certify that on the 27th day of July, 2005, I hand delivered the within Request for Adjudicatory Hearing to:

Bonnie Stewart, Clerk
Administrative Adjudication Division
Rhode Island Department of Environmental
Management
235 Promenade Street
Providence, RI 02908-5767 and

Angelo Liberti, III
Office of Water Resources
Chief, Surface Water Protection
Rhode Island Department of Environmental
Management
235 Promenade Street
Providence, RI 02908-5767

A handwritten signature in black ink, appearing to read "Angelo Liberti, III", written over a horizontal line.

MICHAEL ANNARUMMO
DIRECTOR



Exhibit A
SUSAN D. MENARD
MAYOR

CITY OF WOONSOCKET
DEPARTMENT OF PUBLIC WORKS.

CITY HALL - 169 MAIN STREET - WOONSOCKET, RI 02895 - TEL. 401-762-6400 - EXT. 209 - FAX 401-766-7876

February 11, 2005

Joseph B. Haberek, P.E.
Rhode Island Department of
Environmental Management
Office of Water Resources
RIPDES Program
235 Promenade Street
Providence, RI 02908-5767

Re: Woonsocket Wastewater Treatment Facility
Proposed Modification of RIPDES
Permit No. RI0100111
Comments on Draft RIPDES Permit
Modification Issued December 23, 2004
Submitted on Behalf of the City of Woonsocket

Dear Mr. Haberek:

Comments contained in this letter and the enclosed materials are being submitted on behalf of the City of Woonsocket, Rhode Island (the "City") in response to Public Notice Number PN04-15, issued by the Department of Environmental Management, Office of Water Resources, RIPDES Program ("DEM") on December 23, 2004 to address the modification of Permit No. RI 0100111 proposed by DEM. The Public Notice requires that interested parties submit comments to DEM by 4:00 p.m. February 11, 2005.

Prior to the formal issuance of proposed permit modification, DEM in July supplied to the City preliminary draft permit modifications and supporting materials. The City responded in writing on August 2, 2004 raising significant concerns about the scientific support for the proposed nitrogen limit, its impact on water quality in Narragansett Bay and the significant costs of compliance. The City incorporates its letter of August 3, 2004 from the undersigned to Angelo Liberti of DEM (copy attached) and incorporates the statements contained therein as part of the City's comments in response to the Public Notice.

While the December draft permit modification does not address the issues raised in the City's August letter responding to DEM's July preliminary draft permit modification, the City engaged the services of Camp Dresser and McKee ("CDM") to closely examine the proposed nitrogen limit and the supporting materials supplied by DEM with the December draft permit

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modification. CDM's analysis dated February 11, 2005 is attached hereto and its contents are incorporated as the City's comments to the December draft permit modification.

As you will see when you review the CDM analysis, DEM's supporting evaluation fails to present a cohesive analysis of dissolved oxygen dynamics of the Providence and Seekonk Rivers, is inconsistent with prior studies, and ignores the significant differences in conditions between the River system and the Bay. In addition, the strategy implicit in the proposed limits ignores the significant nitrogen reduction programs in many Rhode Island communities and the substantial reductions achieved by the City.

In addition, the City requested that its special counsel, Sean Coffey of Burns & Levinson LLP provide comments to the draft permit modification detailing the City's legal and regulatory objections. Mr. Coffey's letter of February 11, 2005 addressed to me is attached hereto and its contents are incorporated as the City's comments to the draft permit modification.

As you will see when you review Mr. Coffey's memorandum, the City objects to the draft permit modification because in establishing the new nitrogen limits DEM has failed to follow its own regulatory requirements and further that the City has already met and exceeded the legislative mandate for a 50% reduction in nitrogen loading from the City wastewater treatment facility.

The City has a clear record of improving environmental conditions and has invested well over \$30 million in the last decade on improvements to reduce the impact of the wastewater treatment plant on the Blackstone River and Narragansett Bay. The plant has been in substantial compliance with its current RIPDES permit for over two years and has reduced its nitrogen load by almost 70% as compared to the baseline conditions used by DEM to justify the permit modification. The draft permit modification, if it is put into effect, would require that the City invest well in excess of another \$20 million in plant improvements in DEM's phased approach to reduce nutrients in Narragansett Bay. This investment would be required despite the small reduction in nitrogen discharge and despite a lack of evidence, and even consensus within the scientific community, about the impact of nitrogen reduction on the Providence/Seekonk River System.

Given the controversy surrounding the proposed nitrogen limits, the City intends to request that the General Assembly pass legislation to establish a state construction grants program funded by a state bond issue to pay for improvements to wastewater treatment plants to enhance nitrogen removal necessitated by the proposed permit modifications. Given the fact that the hoped for improvements to the Bay will benefit the entire State and the speculative nature of the claims that the modifications will have the desired benefits to the Bay, it is appropriate that state funds support what is essentially a noble, but very expensive, experiment.

The City continues to support efforts to improve the discharge from its wastewater treatment plant and is willing to work with DEM to address issues in its next comprehensive

Joseph B. Haberek, P.E.
February 11, 2005
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RIPDES permit to identify and address constituents of its wastewater with limiting characteristics for the Blackstone River and Narragansett Bay. As part of this effort, the City would work with DEM to study the dissolved oxygen needs of the receiving waters to develop permit limits which will have the desired result of improving conditions in the River and in the Bay. In the meantime we urge DEM to defer any action with respect to the proposed nitrogen limit draft permit modification.

Very truly yours,

CITY OF WOONSOCKET

By: Michael A. Annarummo
Director of Administration/Public Works

FEB 10 2005

MICHAEL ANNARUMMO
DIRECTOR



SUSAN D. MENARD
MAYOR

August 3, 2004

CITY OF WOONSOCKET
DEPARTMENT OF PUBLIC WORKS

CITY HALL - 169 MAIN STREET - WOONSOCKET, RI 02895 - TEL. 401-762-6400 - EXT. 209 - FAX 401-766-7876

Mr. Angelo S. Liberti, P.E.
Chief Surface Water Protection
Rhode Island Department of Environmental Management
235 Promenade Street
Providence, RI 02908

Re: Newly Proposed RIDEM Standards to Deal with Nitrogen

Dear ~~Mr.~~ Liberti;

I am writing in response to your July 2, 2004, letter to Mayor Menard and your July 7, 2004, email to me regarding RIPDES permit modifications and the justification basis for the permit modifications.

So that my comments are taken in the proper perspective, I wish to clarify that I have not participated in any Technical Advisory Committee ("TAC") meetings or discussions and as such have not had any inputs into the formation of the proposed modifications or the underlying technical studies referenced in your email. The comments provided in this letter are my first opportunity to provide such inputs.

As you know, during my tenure as the City's Director of Public Works and Administration, the City of Woonsocket has a documented record of improving environmental conditions and lessening the impact of our wastewater treatment plant's (WWTP's) discharge on the Blackstone River. While significant industrial facilities have closed in Woonsocket since 1999 and thereby lessened and changed the nature of the discharge from our WWTP, we have continued to make improvements to both facilities and operations. This decade has seen over \$20 million of capital invested into WWTP facilities with an additional \$10-15 million in the early stages of permitting and subsequent construction. In Woonsocket's case, and I presume the same for others, the RIDEM requirements and the subsequent facility plans implemented to date have been built upon technically sound and comprehensive assessments and have been subject to third party review and comment. Unfortunately, the current actions announced by RIDEM are not following this successful and essential protocol.

In your letter dated July 2, 2004, you state that the Rhode Island Department of Environmental Management ("DEM") intends to implement and enforce a significant reduction in the nitrogen discharge limits allowed the City of Woonsocket and other wastewater treatment facilities which discharge ultimately to the Seekonk or Providence Rivers. Based on DEM's own estimate of the capital requirements, the Woonsocket pro-rata share could exceed

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\$20 million and result in a similar increase in operating costs over the twenty (20) year term of any bond financing. By DEM's own admission there is no scientific evidence that supports either the necessity of the proposed reduction in nitrogen limits or demonstrates that an appreciable beneficial impact on Narragansett Bay would be achieved. Overall, the DEM report does not seem to provide a sound or defensible basis for the proposed new standards and the resulting imposition of significant capital and operating costs on Rhode Island communities. Many reasons support this conclusion, including the following:

- 1) DEM acknowledgement of its inability to develop sound, technically based models for performing the impact analysis.
- 2) Data and "tank testing" techniques utilized by DEM varying in age from 23 years old to as "recent" as 1995 and failing to recognize the fundamental changes in the industrial discharges connected to the wastewater systems or the facility/operational improvements that have been implemented at the treatment facilities since 1995.
- 3) The DEM acknowledgement of the inability of the "tank testing" technique used by DEM to provide comparability to the Blackstone River and Narragansett Bay specifics and the significant differences in the "flushing rates" used in the tank test as compared to the actual receiving waters.
- 4) The DEM data base of discharge information and impacts on the receiving waters dates from a 1995 study. As noted earlier, Woonsocket has experienced a significant reduction in industrial discharges to the Woonsocket WWTP since 1995.

According to your letter, this unfunded mandate is compelled by legislation developed by the Governor's Narragansett Bay and Water Shed Planning Commission, introduced on the Governor's behalf, passed by the General Assembly and signed into law by the Governor June 24, 2004. The specific legislation I am referencing is "Act Relating to Waters and Navigation - Water Pollution", Bill No. 2004-S 3040 Substitute A as amended, now Chapter 146 of the Public Laws of Rhode Island, 2004. To my knowledge this legislation was developed and considered by the General Assembly and signed into law without any meaningful consultation with mayors and municipal leaders of the communities impacted by the legislation, public works officials, or third party technical resources. In short, you cite the legislation as the justification for imposing the ensuing unfunded mandate to reduce nitrogen loading but do not appear to have developed a sound technical analysis or subjected the analysis to third party review.

The letter dated July 2, 2004, invites our comments by August 6, 2004. You indicate in the July 2nd letter that shortly after August 6th DEM intends to provide notice of the draft permit modifications to the City and the other communities and authorities which operate wastewater treatment facilities. Then, following issuance of a final decision with respect to these permit modifications, DEM intends to enter into a consent agreement with the City and the other communities to provide interim limits and a compliance schedule, we assume to begin the planning, engineering and other work required to finance and construct modifications to the wastewater treatment facilities to meet the new nitrogen limits.

Preliminary discussions with the City's wastewater consultants, including CDM, have raised serious questions regarding the viability of the tank testing technique utilized by DEM, the data used by DEM, the ability of current technologies to consistently achieve the nitrogen discharge limits specified in your letter, and the appropriateness of the dollar cost estimates developed for usage in your analysis. Further, the study you present does not provide a prediction basis for the likely nitrogen level improvements that would be achieved and fails to account for the considerably larger flows received from Massachusetts facilities.

DEM's "order of magnitude" cost estimate projects costs for the wastewater facility improvements of \$208,000,000 to reach the 5 mg/L limit for nitrogen. If more stringent limits are pursued by DEM to achieve a phased reduction of nutrients in the Bay, these capital cost estimates are projected to exceed \$350,000,000 according DEM. Significant increases in operational costs will also be necessitated for the proper operation and maintenance of these facilities. And all this is to be done according to DEM on the basis of data purportedly reflecting the condition of the receiving waters and discharges from the treatment plants using a twenty three (23) year old tank testing technique of limited applicability to the site specifics of the identified river systems and Narragansett Bay., water quality monitoring which "cannot be successfully calibrated and validated", the acknowledgement by DEM that "some uncertainty remains regarding predicted water quality improvements and the loading reductions necessary to meet water quality standards", DEM's uncertainty that the experimentation used "does not provide sufficient data to fully assess compliance with recently established EPA guidelines regarding cumulative periods of low dissolved oxygen." Even more startling is the total absence in the DEM approach of involvement by the U.S. Environmental Protection Agency and the Massachusetts Department of Environmental Protection in requiring three Massachusetts wastewater treatment facilities to reduce their nitrogen loading. As DEM indicates, the Upper Blackstone Water Pollution Abatement District (which services the Worcester area) discharges flows 3-1/2 times larger than the City of Woonsocket.

Based on the acknowledged limitations of the tank testing technique, the age of the data that DEM appears to rely on, and the changed circumstances since 1995 of local industrial dischargers for at least Woonsocket, I am concerned that the DEM analysis is utilizing questionable scientific/analytical methods to support an outdated "fact case" for determining its proposed course of action. From the DEM report, it is clear that DEM has not taken into consideration the dramatic reduction in actual flows from the Woonsocket wastewater treatment facility occasioned by closure in the past few years of high water usage textile industries. Apparently totally absent from this undertaking is any meaningful consultation and discussion with the affected communities of the implications of these proposed nitrogen reductions, particularly the substantial financial impact. Before DEM proceeds any further with the proposed nitrogen reduction limits and new discharge permit requirements, I would urge you to require the following.

- 1) First, that DEM should commission a scientific peer review of the studies and conclusions reached by DEM with respect to the appropriateness of the scientific/analytical techniques used by DEM and the appropriateness and necessity of creating new nitrogen discharge standards, as required by the new legislation, based upon the DEM analysis.

2) Second, the costs of achieving the standard at each of the wastewater treatment facilities in Rhode Island where the standard would be applied should be carefully estimated and should include both capital and operating cost impacts for the necessary facilities.

3) Third, completion of a comprehensive, scientific study of the impacts of implementation of the nitrogen standard utilizing currently relevant data of water quality of the Blackstone River, Seekonk River, Providence River and Narragansett Bay should be completed and subjected to the appropriate level of peer review.

4) Fourth, DEM should establish a Technical Advisory Committee ("TAC") with active City participation and should meet jointly with representatives of all the affected communities and authorities that operate wastewater treatment plants to discuss the cost and methods of financing the necessary improvements required to achieve the desired water quality in the Bay for the benefit of the State of Rhode Island.

On behalf of the Mayor and the City of Woonsocket, I request that formal public notice of the draft permit be deferred until the issues raised in this response can be addressed and resolved. I will enthusiastically welcome your initiation of the four (4) point program outlined in this letter. I look forward to active participation and the opportunity to contribute.

Sincerely,

Michael Arharummo ✓
Director of Public Works/Administration

cc Governor Donald L. Carcieri
General Assembly Delegation
The Honorable William J. Murphy, Speaker of the House
Senate Majority Leader Joseph A. Montalbano
Frederick Vincent, Director, RIDEM
The Honorable City Council
Mayor Scott Avedisian, City of Warwick
Town Manager Wolfgang Bauer, Town of West Warwick
Mayor Stephen Laffey, City of Cranston
Acting City Manager William Conley, Jr., City of East Providence
Paul Pinault, Executive Director, Narragansett Bay Commission

file:libertistandardsnitrogen



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February 11, 2005

Mr. Michael Annarummo
Director of Public Works/Administration
Woonsocket City Hall
169 Main Street
Woonsocket, RI 02895

Subject: RIDEM Proposed RIPDES Permit Modification
Review of Technical Basis for Proposed Limits

Dear Mr. Annarummo:

As you have requested, CDM has conducted a review of the information and analysis prepared by the Rhode Island Department of Environmental Management in support of its proposed modifications to the discharge limit on total nitrogen included in the City's RIPDES permit.

It is our view that the analysis presented by RIDEM fails to make a comprehensive technical argument in support of its proposed permit limits for the following major reasons:

- RIDEM appears to ascribe all of the observed low levels of oxygen to the discharge of nitrogen, ignoring physical factors such as stratification and temperature and other sources of oxygen demanding pollutants, which impact the dissolved oxygen condition of the Providence and Seekonk Rivers.
- RIDEM fails to justify its application of experiments conducted at URI on Narragansett Bay to the Providence and Seekonk River system. There are significant physical differences between the two systems that RIDEM acknowledges, but then elects to neglect as it develops the limits.
- RIDEM has made conceptual assumptions concerning the sources of nutrients in the Blackstone River that are inconsistent with earlier work it has done, and as a result makes mathematical errors concerning the impact of Woonsocket's discharge on the Providence and Seekonk River systems.



Mr. Michael Annarummo
February 11, 2005
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- In developing its strategy, RIDEM has failed to take into account the significant reductions in nitrogen loading that have been, or are currently being made by Rhode Island communities. In particular, they seemed to have ignored the fact that Woonsocket has recently completed an upgrade of its treatment plant that resulted in a 69 % (810 pound per day) reduction in total nitrogen load, and that the load now discharged is approximately half the load allowed under the permit. Full compliance with the permit would reduce the current load by only 24 pounds per day in the deep summer months.

Attached please find a more comprehensive discussion of these and other points for your use in your discussions with the Department.

Should you have any questions on these matters, please do not hesitate to contact me.

Very truly yours,

A handwritten signature in black ink, appearing to read 'John J. Gall for'.

John J. Gall
Vice President

Camp Dresser & McKee Inc.

cc: Sean Coffey, Burns and Levinson

Analysis of the Rhode Island Department of Environmental Management's
*Evaluation of Nitrogen Targets and WWTF Load Reductions for the
Providence and Seekonk Rivers*

In December of 2004 RIDEM issued a study entitled *Evaluation of Nitrogen Targets and WWTF Load Reductions for the Providence and Seekonk Rivers* ("The 2004 Evaluation"). The study attempts to provide the substantiation of the permit limits for Total Nitrogen proposed by RIDEM for the treatment plants discharging into the Providence and Seekonk River systems. It uses research conducted by the Marine Ecosystems Research Laboratory (MERL) at the University of Rhode Island in the early 1980's on nutrient enrichment of Narragansett Bay, and data collected in 1995 and 1996 to support its conclusions. The study was developed by RIDEM when its initial efforts to construct a more formal total maximum daily load (TMDL) analysis using a numerical model to simulate the Providence/Seekonk River systems were unsuccessful.

Based on our review as described further below, the central problems with this analysis are that:

It does not present a cohesive analysis of the dissolved oxygen dynamics of the Providence and Seekonk Rivers. The analysis ignores fundamental and critically important factors, including local sources of oxygen demanding substances and the impacts of physical processes such as elevated temperature and stratification on the oxygen dynamics of the Providence and Seekonk Rivers.

It is inconsistent with previous studies, including studies of their own, about the sources of nitrogen discharged to the Providence/Seekonk River systems and Narragansett Bay.

In extrapolating the results of the MERL experiments it generally ignores the significant differences between the conditions in Narragansett Bay that the MERL simulates, and the Providence and Seekonk River system.

In crafting its nitrogen reduction strategy, DEM appears to have ignored the significant nitrogen reduction programs now underway or already undertaken by numerous Rhode Island communities. By ignoring the progress made since the 1995/1996 timeframe they fail to put the impact of its recommendations into perspective, and leaves one with the impression that nothing has been done since 1995/1996.

This is particularly vexing for Woonsocket, because there has been a substantial decline in the volume of wastewater discharged since the 1995/1996 time frame, owing to the loss of several large manufacturing companies with high sewer use. But more importantly, because the City has invested over \$20 million in its wastewater plant, RIDEM seems to ignore that the City has reduced its total nitrogen load by almost 70 % from their baseline conditions.

Our concerns are more fully discussed below.

The analysis fails to properly analyze the oxygen deficits in the Providence River system.

The oxygen dynamics of an urban river/estuary system that receives discharges of oxygen demanding pollutants from multiple sources is very complicated. Any analysis of the conditions should take into account all potential sources of oxygen demanding substances, the impacts of physical conditions such as stratification, temperature, tidal stage, wind induced mixing and re-aeration, as well as the potential impacts of algae on the oxygen conditions. The complexity of these interactions is presumably the reason that RIDEM originally undertook to establish a model of the Seekonk and Providence River systems to develop a TMDL.

Having failed in its initial attempt to develop a numerical model of the system, RIDEM has then turned to an overly simplistic adaptation of local research. RIDEM'S analysis is based entirely on an extrapolation of the concept that excess nitrogen leads to algal growth, which can lead to diminished DO. The work is based solely on the nitrogen flux into the Providence river system, and draws from the system loading response in the Marine Ecosystems Research Laboratory (MERL) studies conducted at URI in the 1980's. The analysis completely ignores any other pollutant sources that impact the local oxygen conditions, and fails to consider major differences between the physical characteristics of the Providence and Seekonk River systems, and that of Narragansett Bay which the MERL experiments were built to simulate.

While the literature is quite clear that nutrient over-enrichment can lead to low dissolved oxygen, it is imperative that one fully understands the reasons for low dissolved oxygen before one launches a nitrogen reduction program based on the DO in the Providence River. Careful attention must be given to these other DO sinks that may be as important, or more important than the nitrogen flux in order to avoid the inappropriate expenditure of limited public funds.

Inaccuracies with respect to Watershed Sources of Nitrogen.

RIDEM's analysis incorrectly assigns all the nitrogen discharged from the Blackstone River to two wastewater treatment plants (WWTP) and makes conceptual and computational errors in estimating the delivery of these loads to the Seekonk River. These errors and inaccuracies magnify the potential impacts of the City's discharge on the Seekonk and Providence River System.

RIDEM attributes essentially all the N discharged at the mouth of the Blackstone river to the UBWPAD and Woonsocket WWTPs. See page 20 of The 2004 Evaluation, where RIDEM asserts that compared to these discharges "other watershed sources [of nitrogen] are assumed to be negligible". This assertion apparently serves to justify the analysis presented on page 18 of The 2004 Evaluation that expresses the level of discharge of Nitrogen from the Blackstone into the Seekonk river as a function of the level of discharge of from the treatment plants.

This analysis is correct only to the extent that there are no other sources of nitrogen in the Blackstone system. However, virtually all studies done on the Blackstone River suggest that the two treatment plants contribute on the order of 60 % of the nitrogen discharged into the Blackstone River system, as follows.

The Blackstone River Initiative studies in which RIDEM participated indicated that in dry weather, these large plants represent between 40 and 60 % of the N load. (See data and analysis on pages 4-11 and 4-15 of the BRI May 2001 Report). During wet weather, the two large plants represent about 60 % of the ammonia and 33 % of the nitrate (see page 7-50 of the BRI May 2001 Report). As a practical matter, then the BRI suggests that the large plants are approximately 60 % of the watershed loads of Nitrogen.

The Governor's Panel on Nutrient and Bacteria Pollution recognized the importance of other sources when it says ... "Other analyses show general agreement regarding total loading but decompose the "river/stream" component to provide more insight into sources by recognizing that it is, in large part, due to wastewater treatment facilities (WWTFs) and atmospheric deposition. Alexander et al. (2001) estimated that 62% of the total came from point sources, 19% from non-agricultural nonpoint sources, 6% from fertilizer and 3% from livestock in addition to the 10% from atmospheric deposition. Castro et al. (2001) estimated 73% of their total loading figure came from human sewage (through WWTFs and Individual Sewage Disposal Systems (ISDSs)), 13% from atmospheric deposition, 10.5% from agricultural runoff, and 3% from urban nonpoint sources. The analysis reported by Roman et al. (2000) estimated that wastewater treatment facilities contributed 73% of the nitrogen load, atmospheric deposition 23%, and agriculture 4%. RIDEM (2000)5 estimated that WWTFs contributed 66% of the total nitrogen to Upper Narragansett Bay; rivers and runoff (not including WWTFs) 30%, and direct atmospheric deposition 4%. Moore et al. (in press), using a similar but higher resolution technique than Alexander et al. (2001), estimated that total nitrogen load from the Providence / Seekonk River was 68% municipal wastewater, 15% atmospheric deposition, 14% runoff from developed lands, and 3% runoff from agricultural lands. All these analyses agree that wastewater treatment plants are the major source of nitrogen to the Bay. (See <http://www.ci.uri.edu/GovComm/Documents/Phase1Rpt/Docs/Nutrient-Bacteria.pdf>, Page 2).

Finally, studies conducted by the USGS indicate that for the Providence River system, approximately 68 % of the total nitrogen load is from municipal wastewater treatment plants, with the remainder attributed to nonpoint sources. (see http://water.usgs.gov/pubs/sir/2004/5012/SIR2004-5012_report.pdf, page 23).

The erroneous assumptions adopted by RIDEM significantly impact their analysis, and overstate the impacts of the Blackstone River treatment plants on the receiving waters. It can be shown by simple algebra that if the WWTP discharge is 60 % of the total

nitrogen load, and that the amount discharged from the Blackstone River to the Seekonk River is 87 % of the amount discharged by the WWTP's, then the River Delivery Factor is more on the order of 52 %, rather than 87 %. This issue is important because it indicates that a discharge of 10 mg/l into the Blackstone might be more like a discharge of 5 mg/l directly into the Providence and Seekonk rivers simply because of natural attenuation of the nitrogen load.

RIDEM is imprecise with respect to its citation of supporting source documents.

RIDEM makes reference to studies conducted on Long Island Sound to support its analysis of River Delivery Factors. The River Delivery Factor is used to estimate the amount of nitrogen that makes it to the Providence and Seekonk Rivers as a function of the amount discharged at its source. The River Delivery Factor accounts for the biological and physical process that serve to reduce the delivery of nitrogen downstream, either through instream denitrification, or through permanent burial of nitrogen in bottom sediments. RIDEM cites studies conducted on the Long Island Sound system, and suggests that river delivery factors in that study ranged from 52 to 90 %. This is apparently intended to justify RIDEM's use of an 87 % river delivery factors, presumably on the theory that it is within the range of estimated values from the Long Island Sound studies.

A more complete discussion of the Long Island Sound Studies, would however, show that the report actually says that "...losses during river transport are generally modest except for the highly impounded Housatonic River where long travel times allow for almost a 50 percent loss from the upper reaches to Long Island Sound". (see <http://dep.state.ct.us/wtr/lis/nitrocntr/tmdl.pdf>, page 28) Since the Blackstone is a highly impounded river system, it is logical to expect that some greater attenuation of the nitrogen load would be achieved on this system, as compared to other systems discharging into the Seekonk and Providence rivers. In fact, the delivery assigned by RIDEM to the Blackstone was the highest of all three systems contributing nitrogen to the Providence River.

Contradictory Data are Presented in the Analysis.

In support of its arguments RIDEM presents a variety of plots and data from the MERL experiments as well as from a cruise in the summers of 1995 and 1996. The MERL data are synthesized in figures 1 through 11 of The 2004 Evaluation, and information for the 1995 and 1996 cruises are presented in figures 13 through 18 of The 2004 Evaluation. The MERL data show that high levels of chlorophyll result in increasing average dissolved oxygen, but lower instantaneous oxygen concentrations, owing to diurnal swings in oxygen production and consumption by phytoplankton. The plots presented by DEM appear to indicate that low values for dissolved oxygen (associated with the 8x, 16 and 32x loading conditions) occur simultaneously with the high chlorophyll values (See figures 3 and 9 of The 2004 Evaluation).

In contrast, the data from 1995 and 1996 show that the occurrence of low DO and high chlorophyll in the Providence and Seekonk river systems are not occurring

simultaneously. On pages 13 through 16 of The 2004 Evaluation, RIDEM presents plots of oxygen and chlorophyll-a concentrations at depth along a transect from the upper reaches of the Seekonk River, down to the Upper portions of Narragansett Bay. The plots show that the year with the worst DO problem (1996) has far less chlorophyll-a than 1995. The extent of hypoxia, both vertically in the water column and longitudinally along the length of the Rivers, is far greater in 1996 than in 1995, whereas the 1995 chlorophyll data show far greater algal abundance. As discussed by RIDEM, there is a 10 fold difference in chlorophyll a from 1995 to 1996. This contradiction is further highlighted by the charts on page 17 of The 2004 Evaluation that show the higher the chlorophyll-a, the higher the DO. These points are highly inconsistent with the underlying hypothesis of RIDEM and points out the importance of thoroughly understanding all the DO demands before establishing a DO restoration plan.

We should note that our preliminary investigations of the climatic conditions of the summers of 1995 and 1996 indicate that they were so radically different that they may not be simply averaged in the way that RIDEM has done without great caution. The summer of 1995 was among the driest recorded for 132 years of record at a location in the Blackstone watershed (34th driest), while the summer of 1996 was amongst the wettest (9th wettest). The difference could markedly impact the fate of pollutants in such a way as to make simple averaging of data across the two years inappropriate.

This extreme differences in climatic conditions is contrary to the claim made by RIDEM that its samples were taken during "typical summer season flows" (page 10 of The 2004 Evaluation), which would lead one to believe that the summers sampled reflected average or normal conditions. But it is consistent with the arguments made by RIDEM to explain the difference between 1996 and 1995 chlorophyll levels (page 11), where the difference in flushing times owing to higher river flows - which was a result of greater rainfall - is used to explain the year on year differences in chlorophyll a concentrations.

Unsubstantiated extrapolation of the MERL experiments to the Providence/Seekonk River System.

The use of the MERL data to analyze the Seekonk and Providence River system is questionable in that there are several critical and important differences between the conditions in the Bay and in the Providence and Seekonk River systems.

As RIDEM points out, on page 12 of The 2004 Evaluation, the MERL experiments were conducted under simulated flushing conditions that are almost 7.8 times lower than the conditions in the Providence River (27 day flushing time in the Bay versus 3.5 day flushing time in the River). The higher flushing rates of the Providence River would lead to lower nutrient loadings (expressed as mass per unit volume) and therefore much less algal activity. Indeed, RIDEM uses exactly this logic to explain why the observed chlorophyll a values in 1996 are an order of magnitude lower than observed in 1995. While RIDEM suggests that for some pollutants the hydraulic residence time might overstate the transport of the pollutant out of the river segment, no explanation, data or other information is presented as to how this would operate in the Providence and Seekonk River systems.

As a first approximation, the relationship between the standing concentration and flushing rates out varies inversely with respect to each other. Thus, an increase in flushing rate by a factor of 7.8 would result in a decrease in concentration of by a factor of 7.8. Stated another way, a loading rate of 32 x in the Seekonk River will have the effect of a loading rate of 4X in the bay at large system.

Unsubstantiated Time Period for Nitrogen Control.

RIDEM's analysis of the conditions of the Providence and Seekonk River systems is based on data from May 31, 1995 through September 21 of 1995 and from May 2, 1996 through November 14, 1996. The data presented suggests that DO problems commence in the Providence and Seekonk systems in June, and have dissipated by approximately September. We believe this actually the result of the onset of elevated temperature and stratification of the system in the June time frame, and the occurrence of major late summer, early fall storms that serve to break up the stratification of the system and provide robust and deep mixing which reoxygenates the water column.

Although the period of DO problem is typically the summer, RIDEM has established total nitrogen limitations for the period of April 1 thorough October 31, without any specific justification as to these specific dates. This is an issue for wastewater treatment facilities (especially the early April time frame) because this is often a period of high flow and low water temperatures, which requires facilities to be constructed larger than otherwise needed to accommodate the biological kinetics of nitrification and denitrification processes.

RIDEM Fails to Incorporate All available Information into its Analysis.

RIDEM uses data from the 1995/1996 time frame to analyze the condition of the Providence and Seekonk River systems. They appeared to have ignored other readily available sources of information concerning the dynamics of dissolved oxygen in the Providence and Seekonk rivers that could serve to validate their analyses. In particular, RIDEM participated in an EMPACT program that deployed continuous recording sensors (salinity, temperature, dissolved oxygen, amongst other parameters) at various locations in the Providence and Seekonk River systems for upwards of two years. That information is available on the worldwide web at <http://www.narrabay.com/empact/>. Combined with concurrent discharge monitoring reports from the various wastewater treatment plants and flow data gathered from USGS gages, this would result in an extensive data set that could serve to validate RIDEM's conclusions. The lack of analysis of this information in the December 2004 report is surprising.

RIDEM ignores the fact that Woonsocket already meets the essential elements of the new permit.

The new permit imposes limits of 667 pounds per day of total nitrogen, and a concentration limit of 5 mg/l. These reflect reductions from 1,175 pounds per day and an average of at least 19.1 mg/l used as the 1995/1996 baseline loading conditions in

RIDEM's analysis. With respect to the impacts on the Providence/Seekonk system and Narragansett Bay, it is the mass emission rate that is most important; the volume of flow discharged by Woonsocket is insignificant, and does not perceptibly impact the concentration of pollutants in the Providence/Seekonk system or the Bay. Whether Woonsocket discharges 667 pounds of nitrogen in 1 or 5 or 15 million gallons per day of effluent is not material to the receiving waters.

For the period April through October of 2004, monthly data submitted to RIDEM by the City shows that the City discharged an average of only 364 pounds per day of Nitrogen, which is a 69 % reduction from the baseline condition, and only 55 % of the mass allowed by the proposed permit. The average concentration was approximately 6.5 mg/l. Although slightly above the 5.0 mg/l limit of the permit, the City is well within the far more important mass emission rates.

RIDEM appears not to have considered these facts at all in developing its approach for nitrogen control, nor has it considered other efforts being undertaken by local dischargers to effect similar Nitrogen load reductions. Recognizing all the uncertainties admitted to by RIDEM concerning the studies, and the issues presented herein, it would seem prudent to consider these factors in the development of a nitrogen control strategy.

RIDEM presents no rationale for its two tier permit structure.

RIDEM's permitting strategy establishes permit limits of 5 mg/l for the Woonsocket facility, as well as for those of the Narragansett Bay Commission. For four other plants, East Providence, Cranston, West Warwick and Warwick, the 2004 Evaluation sets limits at 8 mg/l. No rationale is presented for this difference, and none is readily apparent from the technical information presented.

Governor's Narragansett Bay and Watershed Planning
Commission

Nutrient and Bacteria Pollution Panel

Initial Report

March 3, 2004

Narragansett Bay Nutrient Pollution

- **The Issue**

Excessive nutrient loading or eutrophication is one of the most significant problems facing estuaries worldwide¹. Narragansett Bay, although relatively well-mixed and less susceptible than other estuaries to eutrophication, exhibits an increasing array of symptoms – low dissolved oxygen, fish kills, eelgrass loss, macroalgae blooms, benthic community changes, and a shift from benthic to pelagic as the dominant fish community in the Bay².

- **Sources**

9100 metric tons/yr (9100 x 10³ kg N/yr) is the most commonly used estimate of total nitrogen loading to Narragansett Bay³. Reflecting the measurement methods, this estimate was composed as follows:

	NO ₂ +NO ₃	NH ₄	DIN	DON	PN	total	%
(all units of metric tons/yr)							
Atm. Dep.	266	78	336	78	----	420	5
River/stream	2478	1582	4060	1344	168	5600	62
Urban runoff	~56	~182	238	252	28	518	6
WWTFs	87	1904	1988	420	140	2562	28
Totals	2884	3752	6622	2100	336	9100	

Most nutrient loading (approximately 60%) was shown to enter through the upper Bay, particularly through the Providence/Seekonk Rivers.

Other analyses⁴ show general agreement regarding total loading but decompose the "river/stream" component to provide more insight into sources by recognizing that it is, in large part, due to wastewater treatment facilities (WWTFs) and atmospheric deposition. Alexander et al. (2001) estimated that 62% of the total came from point sources, 19% from non-agricultural nonpoint sources, 6% from fertilizer and 3% from livestock in addition to the 10% from atmospheric deposition. Castro et al. (2001) estimated 73% of their total loading figure came from human sewage (through WWTFs and Individual Sewage Disposal Systems (ISDSs)), 13% from atmospheric deposition, 10.5% from agricultural runoff, and 3% from urban nonpoint sources. The analysis reported by Roman et al. (2000) estimated that wastewater treatment facilities contributed 73% of the nitrogen load, atmospheric deposition 23%, and agriculture 4%. RIDEM (2000)⁵ estimated that WWTFs contributed 66% of the total nitrogen to Upper Narragansett Bay; rivers and runoff (not including WWTFs) 30%, and direct atmospheric deposition 4%. Moore et al. (in press), using a similar but higher resolution technique than Alexander et al. (2001), estimated that total nitrogen load from the Providence/Seekonk River was 68% municipal wastewater, 15% atmospheric deposition, 14% runoff from developed lands, and 3% runoff from agricultural lands. All these analyses agree that wastewater treatment plants are the major source of nitrogen to the Bay.

Nutrient loading to Narragansett Bay has increased by more than a factor of five since historical times and continues to increase, although at a slower rate. Dissolved inorganic nitrogen, the most biologically-available form of nitrogen, alone has increased by a factor of five⁶. Bay watershed population, the major factor driving loading, has doubled since 1900⁷ and, although slowed in the recent decade, is predicted continue to increase at 0.5-0.6% annually in the coming years. Suburban and rural communities, particularly coastal communities, are projected to grow more rapidly.

Estimation of Total Nitrogen and Phosphorus in New England Streams Using Spatially Referenced Regression Models

By Richard Bridge Moore, Craig M. Johnston, Keith W. Robinson, and
Jeffrey R. Deacon

In cooperation with the
New England Interstate Water Pollution Control Commission and
U.S. Environmental Protection Agency

Scientific Investigations Report 2004-5012

**U.S. Department of the Interior
U.S. Geological Survey**

Table 6. Predicted nitrogen loads by major basin and state from the New England SPARROW model for total nitrogen.

 [km², square kilometers; values not adjusted for the stream loss downstream of the reach of nutrient origin]

River or lake basin State/Province	Drainage area (km ²)	Total nitrogen (metric tons)	Predicted percent of nitrogen load from			
			Atmospheric deposition	Agricultural lands	Developed lands	Municipal wastewater
Connecticut:	29,172	18,489	49	14	14	23
Vermont	10,162	4,367	65	21	4	9
New Hampshire	7,941	3,568	66	16	7	12
Massachusetts	7,048	6,470	37	10	15	38
Connecticut	3,726	3,978	35	12	28	25
Quebec	294	96	65	30	4	0
Maine	1	0	100	0	0	0
Merrimack:	12,944	10,796	39	9	19	32
New Hampshire	9,840	6,250	52	12	15	20
Massachusetts	3,105	4,546	22	5	24	50
Lake Champlain:	19,212	9,851	51	32	6	11
Vermont	10,766	5,726	47	36	6	11
New York	7,102	3,518	60	22	4	14
Quebec	1,344	607	43	50	7	0
Providence:	2,251	4,913	15	3	14	68
Rhode Island	1,258	2,987	16	2	15	67
Massachusetts	993	1,913	18	4	14	65
Penobscot:						
Maine	21,866	4,299	78	8	4	10
Kennebec (excluding Androscoggin):						
Maine	15,320	4,552	65	18	5	12
Housatonic:	5,036	3,880	45	16	18	21
Connecticut	3,185	2,762	41	14	20	26
Massachusetts	1,294	816	53	17	18	11
New York	557	302	60	34	7	0
Androscoggin:	9,135	3,546	66	16	6	12
Maine	7,284	2,960	62	18	7	13
New Hampshire	1,851	585	87	3	2	8
Thames:	3,807	2,591	50	19	16	15
Connecticut	3,006	2,038	52	21	16	10
Massachusetts	644	490	39	10	17	34
Rhode Island	156	63	82	12	5	0

A Total Maximum
Daily Load Analysis to
Achieve Water Quality
Standards for Dissolved
Oxygen in Long Island
Sound

Prepared in Conformance
with Section 303(d) of the
Clean Water Act and the
Long Island Sound Study

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opportunities at one facility versus another. Likewise, the states, working with affected municipalities, may reallocate the WLA between two facilities in different management zones as long as the new allocations result in equal or greater water quality improvements, as defined by the use of equivalency factors (Table 7). These adjustments and trades will affect the "edge of Sound" loading expressed as the TMDL/WLA/LA. For this reason, the TMDL "edge of Sound" loading may be adjusted on an ongoing basis, but will maintain an equal or greater DO improvement.

These equivalency factors account for two nitrogen loss effects from discharge point to oxygen impact in Long Island Sound: 1) attenuation during river transport and 2) transfer efficiency from the "edge-of-Sound" to areas of hypoxia. Losses during river transport are generally modest except for the highly impounded Housatonic River where long travel times allow for almost a 50 percent loss from the upper reaches to Long Island Sound. In-Sound losses are high from the eastern half of Connecticut and the lower East River in New York City, mostly because of hydrodynamics that force much of the nitrogen from those areas out of the Sound through The Race and New York Harbor, respectively. Exchange ratios are a combination of the two effects and are presented as an equivalency factor that describes the portion of the nitrogen from a geographic area that has an effect on DO in the Sound.

Exchange ratios are a critical component of any reallocation or "trading" of nitrogen among the zones because they account for the relative impact of each zone's nitrogen load. Application of these ratios among sources preclude any compromise of the anticipated oxygen benefit for Long Island Sound when trades are made between management tiers or zones. In no case will a WLA be revised upward if it would cause localized adverse water quality impacts.

This flexibility to reallocate nitrogen source reductions among all sources as plans are formalized for each management zone or trading programs are implemented, is expected to result in significant cost savings and increase nitrogen control program efficiency. Revisions in the nitrogen loading numbers may include reallocations in the WLAs within a management zone and reallocations of WLAs among management zones using the equivalency factors, but, again, the total oxygen improvement expected in Long Island Sound will not be altered by any of those actions.

Any reallocations of LAs among management zones, or reallocations between WLA and LAs within and among management zones, will be reflected in a revised TMDL to ensure that there is a reasonable assurance that the modified LAs could be achieved. This approach could be modified pending development of a trading program that lays out the framework and requirements necessary to provide reasonable assurance on achievement of LAs.

The planned Phase III reduction target of 58.5 percent was applied to in-basin point and nonpoint sources using the LIS 3.0 unit response matrix described above. Phase III actions would also yield reductions in TOC, roughly 10 percent from both point and nonpoint sources. The DO improvement from the TOC reductions were also estimated using the LIS 3.0 unit response matrix. Compared with the base condition, the hourly minimum dissolved oxygen improvement would be about 1.9 mg/l in the critical cell of response region 2 (Figure 3) in New York waters and about 0.7 mg/l in the critical cell of response region 6 in Connecticut waters (Table 8). As

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February 11, 2005

Michael Annarummo
Director of Public Works/Administration
City of Woonsocket
169 Main Street
Woonsocket, RI 02895

**Re: *RIDEM Proposed RIPDES Permit Modification
Review of Legal Authority and Requirements***

Dear Mr. Annarummo:

You have asked me to review the legal authority and requirements for DEM's proposed issuance of a modification to the RIPDES permit issued by DEM on July 15, 2000 regulating the operation of Woonsocket's Regional Wastewater Treatment Facility. In a letter addressed to the Mayor dated July 2, 2004, Angelo Liberti, Chief of RIDEM's Surface Water Protection Program advised that DEM intends to implement a "phased nitrogen reduction approach" involving the establishment of seasonal WWTF total nitrogen limits ranging from 5.0mg/L to 8.0 mg/L to achieve a 50% reduction in nitrogen loading from the facility. According to the draft permit modification, the requirement would set an average monthly discharge limitation for total nitrogen at 667 pounds per day and average monthly concentration to 5.0 mg/L from April through October and would require that the City "operate the treatment facility to reduce the discharge of total nitrogen, during the months of November through March, to the maximum extent possible using all available treatment equipment in place at the facility."

The current permit, which is due to expire on July 1, 2005, contains an average monthly concentration of 10 mg/L imposed as a supplemental environmental project as part of the settlement of a Superior Court suit against the City by DEM (PC 99-1380). The Superior Court Consent Order entered on May 19, 2000, resolving the Superior Court suit provides within Section 8 that the City and DEM agreed to a permit limit of 10 mg/L per liter of total nitrogen in the 2000 RIPDES permit with the proviso that "both parties understand that RIDEM reserves the right to modify the permit limit of 10 mg/L through RIDEM's administrative rules of practice and procedure."

The existing nitrogen limitation in the RIPDES permit contains a footnote that states "this limitation is included as a supplemental environmental project as part of settlement of the Department's Superior Court complaint P.C. 99-1380 and is subject to a change in accordance

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with Part G." The existing RIPDES permit details conditions including Part G.1., the re-opener provision. This section of the permit reads as follows:

1. Re-Opener Provision. In accordance with Rule 23 of the RIPDES Regulations, this permit may be re-opened and modified (following proper administrative procedures) to include the appropriate effluent limitations (and compliance schedule, if necessary), or other appropriate requirements. The Department may determine that cause exists to re-open or modify the permit including but not limited to the following events:
 - (a) Water Quality Standards: The water quality standards of the receiving water(s) to which the permittee discharges are modified in such a manner as to require different effluent limits than those contained in this permit.
 - (b) Waste Load Allocation: A waste load allocation is developed and approved by the state and/or EPA for incorporation in this permit.
 - (c) Water Quality Management Plan: A revision to the current water quality management plan is approved and adopted which calls for different effluent limitations than those contained in this permit.

The RIDEM Regulations for the Rhode Island Pollutant Discharge Elimination System (June 26, 1984, amended February 5, 2003, effective February 25, 2003 (RIPDES Regulations)) provide for modification of permits in Rule 23. Rule 23 allows the Department to modify a permit in circumstances where the Department has received new information (other than revised regulations, guidance, or test methods) which was not available at the time the permit was issued and would have justified the application of different permit conditions at the time of issuance. (Rule 23(b)(2)). In addition, Rule 23 allows a permit or a permit condition to be modified after promulgation of new or amended water quality standards, effluent limitation guidelines by EPA or judicial decisions where a permit or permit condition was based on a prior water quality standard or effluent limitation guidelines which have been altered or revoked (Rule 23(b)(3)(i)). The RIPDES Regulations also provide for modification of the RIPDES permit under Rule 36 at the initiation of the Department within 90 days of the adoption of new limitation guidelines and authorize the Department to provide a schedule for compliance in accordance with Rule 20 (Rule 23(3)).

The RIDEM Water Quality Regulations (promulgated August 6, 1997, amended March 25, 1998, amended June 23, 2000) establish water quality standards for the state's surface water to restore, preserve and enhance the integrity of the waters of the state through water use classification and water quality criteria. These regulations contain very general language suggesting that nutrients should not be present in concentrations that "impair any usages specifically assigned to the class or cause undesirable nuisance aquatic species associated with cultural eutrophication."

On June 24, 2004 the Governor signed into law Chapter 146 of the Public Laws of Rhode Island, 2004, which includes amendments to the state Water Pollution Act in R.I.G.L. Chapter 46-12. Among the changes to Chapter 46-12 is the addition of Section 46-12-2(f) which authorizes RIDEM to:

establish, administer and enforce standards for nutrients as necessary to protect, maintain and/or improve the ecological functions of the marine and aquatic resources of the state; and to prepare, adopt and implement plans as necessary and appropriate to accomplish the purposes of managing nutrient loadings and preventing, abating and/or eliminating the deleterious effects of nutrients including, but not limited to, eutrophication To implement the purposes of this subsection, the Department shall implement measures to achieve an overall goal of reducing nitrogen loadings from wastewater treatment facilities by fifty percent (50%) by December 31, 2008, which date, and its implementation, may be adjusted to be consistent with compliance with permit modifications, through wastewater treatment facility upgrades scheduled to be undertaken by December 31, 2006, and through proposed permit modifications, which shall be issued by the Department on or before July 1, 2004.

It is difficult to determine from either DEM's July 2, 2004 letter, or the subsequent December 23, 2004 Public Notice of the proposed permit modification whether the proposed modification is based on a waste load allocation (G.1.(b)) or modification of water quality standards for the receiving waters of the Providence and Seekonk Rivers (G.1(a)). It appears that the Department is not specifically proposing a total maximum daily load (TMDL) for the area, but rather is relying on DEM's extrapolation of experiments conducted at URI on Narragansett Bay to reach a conclusion that the existing water quality standards for the Seekonk and Providence Rivers (minimum 5.0 mg/L "except as naturally occurs") cannot be achieved without significant reductions in total nitrogen discharges from wastewater treatment facilities.

DEM's effort to modify the permit to lower the nitrogen limit, while unclear in the correspondence and draft permit modification provided by RIDEM, appears to be based on a legislative mandate. As noted above, the new legislation authorizes RIDEM to implement measures to reduce nitrogen loadings from wastewater treatment facilities by 50% through proposed permit modifications. The legislation also authorizes DEM to "establish, administer and enforce standards for nutrients as necessary to protect, maintain or improve ecological conditions and to prepare, adopt and implement plans as necessary and appropriate to accomplish the purposes of managing nutrient loadings" to prevent or reduce harmful impacts.

In mandating a 50% reduction of nitrogen loading from WWTFs, the new legislation may amount to a new waste load allocation or water quality standard under the RIPDES rules and reopener provision under the RIPDES Permit. While this may provide DEM the authority to issue a permit modification, the scientific basis for the 5.0 mg/L limit clearly is not adequate to

Michael Annarummo
February 11, 2005
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demonstrate that the proposed limit is necessary to protect or improve the ecology of the receiving waters. DEM's studies, which represent the scientific basis for the new nitrogen limit, were not subject to extensive third party or peer review as had earlier studies, such as the Blackstone River Initiative Study.

It is clear from the analysis prepared by Camp, Dresser and McKee (CDM) that the scientific basis of the proposed modification is suspect, is based upon unsubstantiated application of the URI studies to the Providence and Seekonk River systems and ignores important ongoing efforts of Rhode Island municipalities to remove nitrogen. It is equally clear that DEM's scientific work cannot even conclude that the proposed nitrogen reductions will have any appreciable impact on water quality in the Blackstone River or in Narragansett Bay.

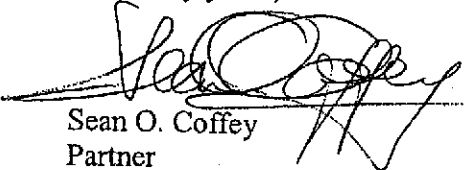
In all respects the proposed limit appears to be a water quality based effluent limit based on the new legislation, rather than based on a TMDL, as required by the 2000 Superior Court Consent Decree and RIPDES Permit and the RIPDES Regulations (Rules 3 and 17) and without complying with TMDL regulations and guidance documents or obtaining EPA approval.

In effect, DEM has exceeded its authority under the 2000 Superior Court Consent Decree and RIPDES permit and applicable RIPDES regulations in proposing this permit modification.

In addition to these significant issues of regulatory authority, the CDM report establishes based on the information contained in the materials supplied by DEM in support of the proposed permit modifications, that the City already meets the legislative goal of "reducing nitrogen loadings by fifty percent (50%)..." The proposed permit modification would set nitrogen discharge from the City wastewater treatment plant at 667 pounds per day from April to October. During this period in 2004, the City achieved an average of 364 pounds per day, which represents a load reduction to 69 % from the 1995/1996 baseline used by DEM in its studies. Therefore, the City has complied with the nitrogen reductions mandated in PL Chapter 146. On this basis, no reduction in the discharge limit for nitrogen contained in the 2000 RIPDES permit is necessary.

For all the foregoing reasons DEM should withdraw the proposed permit modifications. Further, in the event DEM imposes the permit modification, it is our recommendation that DEM's action be contested.

Very truly yours,


Sean O. Coffey
Partner

SOC:jhd

Exhibit B

STATE OF RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANGEMENT
OFFICE OF ADMINISTRATIVE ADJUDICATION

IN RE: Woonsocket Wastewater Treatment Facility
RIPDES Permit No.: RI 0100111

TECHNICAL MEMORANDUM OF CITY OF WOONSOCKET
IN SUPPORT OF REQUEST FOR ADJUDICATORY HEARING

Analysis of Rhode Island Department of Environmental Management
Response to Technical Comments of the City of Woonsocket
RIPDES Permit Number RI0100111

The Rhode Island Department of Environmental Management (RIDEM) has issued a RIPDES permit modification to the City of Woonsocket containing revised effluent limits for Total Nitrogen. The permit is essentially the same as Noticed in its Draft Permit, with one modification to the monthly permit limit for the Month of April. This permit is one of several noticed for modification on the same date.

RIDEM received numerous comments with respect to the permits, including technical comments from the City of Woonsocket. See Exhibit A to the City of Woonsocket Request for Adjudicatory Hearing for a copy of the technical comments submitted on behalf of the City.

In issuance of the final permit, RIDEM has issued a consolidated set of responses to comments, setting forth their analysis of the comments and position adopted with respect to the final permit.

The following is an analysis of RIDEM's responses to comments. This analysis shows that RIDEM:

- Failed to answer several comments of the City;
- Provided incomplete responses to certain comments;
- Made erroneous and / or unsupported statements with respect to the results of their findings

Collectively the responses provided by RIDEM fail to answer the substantive issues raised by the City and will compel the expenditure of significant monies that will be of no measurable benefit to the receiving waters of Rhode Island.

1. RIDEM's Response to Comments are unclear with respect to the water quality objective that it seeks to achieve with the nitrogen limits as proposed in the new permit.

In various places RIDEM claims that the nitrogen reductions sought are 40% to 50 % as compared to the 95-96 loads;

This is described as a consensus of scientists who attended a Sea Grant Nutrient Symposium (RTC, pages 23 and 24).

It is also the objective sought by RI-GL 121-29(f), which has the overall goal of reducing nitrogen loadings from WWTF's by over 50 % (RTC, page 3 of 41).

It is the recommendation of the Nutrient and Bacteria Pollution Panel of the Governor's Narragansett Bay and Watershed Planning Commission, which the full Commission has also endorsed. (RTC, page 28).

As was noted in the City's comments on the permit, the City has already achieved this objective through the upgrading of its wastewater treatment facility, resulting in a 69 % reduction in nitrogen load since the mid 1990's. Moreover, the facility now discharges approximately half the mass of nitrogen allowed under the proposed permit, and only fails to meet the concentration limit, even though the concentration of nitrogen in Woonsocket's discharge is immaterial to the River and Bay systems. (See Exhibit A to the City of Woonsocket Request for Adjudicatory Hearing)

2. Notwithstanding the fact that the City has achieved the objectives sought by the Law, the Governor's Commission and the Sea Grant scientists, RIDEM claims that more needs to be done. Their analysis of this system according to the MERL experimental results indicates the need to impose a "level of technology treatment" in order to achieve water quality standards. However, numerous comments indicated that extrapolation of the MERL experimental results to the Providence and Seekonk Rivers was inappropriate because of the significantly different conditions between the Rivers and those of Narragansett Bay that the MERL experiments were intended to simulate. In particular, the comments indicated that area loading rates were inappropriate because the River systems flush at substantially faster rates than the Bay. Because of this, the concentration of nutrients in the river will be less than in the Bay at the same area loading rate, and the level of algal productivity comparably lower. (See Exhibit A to the City of Woonsocket Request for Adjudicatory Hearing)

In its response to comments, RIDEM provides no information to refute this observation, or to justify their position. Instead they make a series of erroneous statements that appear to justify their analysis, but in fact do the opposite, as follows:

In response the Massachusetts Department of Environmental Protection's comment that RIDEM did not consider the importance of detention time

and hydrodynamics of the river system, RIDEM characterizes the Providence and Seekonk Rivers as "poorly flushed". (RTC, page 13). In reality, according to RIDEM's own work, and as commented upon by the City (See Exhibit A to the City of Woonsocket Request for Adjudicatory Hearing), the Providence and Seekonk Rivers flush far more rapidly than does the Bay. Since flushing controls concentrations of nutrients, which control productivity, the use of the MERL experiments is incorrect.

In response to a comment made by the Narragansett Bay Commission concerning the same issue, RIDEM states that "The behaviour of dissolved oxygen and algae (chlorophyll a) observed in the Providence and Seekonk River systems is very similar to that observed in the MERL experiment. This is, however, not true, as was indicated the City's comment entitled "Contradictory Data are presented in the Analysis (See Exhibit A to the City of Woonsocket Request for Adjudicatory Hearing). Those comments pointed out that the MERL studies showed a congruence of low dissolved oxygen and high chlorophyll-a, while the 1995/1996 data relied on by RIDEM showed high DO with high chlorophyll-a, and low DO with low chlorophyll-a.

The net effect of this improper extrapolation of the MERL experiments is that RIDEM concludes that "level of technology" treatment is required, and that a phased approach to achieving this objective ought to be undertaken. Yet their phased approach discounts the achievements the City has made in compliance with the other objectives. It requires that the City expend significant sums of monies to remove, based on 2004 operating data, an average of only 44 pounds per day of nitrogen or 4 % of the 1995/1996 loading. Having spent over \$ 20 million to achieve a 69 % reduction in nitrogen load, the City finds that RIDEM has provided a technical analysis that does not support, justify or merit the spending of another \$ 20 million to reduce 4 % more.

The City believes that RIDEM should have required all dischargers to reduce their nitrogen contributions to the Bay by 50 % as compared to 1995/96, consistent with the law, the Governor's Commission and the Sea Grant scientists recommendations; that RIDEM should re-establish the efforts to produce a holistic model of the Bay to assess the overall management strategies necessary to protect this important resource; and that it should then take such steps as are appropriate, having been informed by the impacts of actual reductions and serious attempts at producing an analytical tool to guide future decisions.

3. RIDEM fails to respond to the City's comment that it has not taken all potential oxygen demanding sources into account in its analysis of the dissolved oxygen problem. (See Exhibit A to the City of Woonsocket Request for Adjudicatory Hearing) The City is concerned that other DO "sinks" could have contributed to the low dissolved oxygen in the Providence and Seekonk Rivers, and that nutrient reductions may not serve to reduce the observed DO problem. This is especially

important in light of the fact that the observed 1996 and 1995 DO patterns are inconsistent with the MERL experiments, suggesting that other factors may be at play.

4. RIDEM failed to answer the City's comment that substantial, newer DO data was available through the EMPACT program which it could have attempted to use to validate its conclusions. (See Exhibit A to the City of Woonsocket Request for Adjudicatory Hearing)
5. The City has commented that RIDEM erroneously attributed all the nitrogen discharged into Narragansett Bay via the Blackstone River to two wastewater treatment plants, while numerous cited authors and RIDEM's own Blackstone River Initiative data indicated otherwise. (See Exhibit A to the City of Woonsocket Request for Adjudicatory Hearing). RIDEM has failed to provide any analysis of the information presented by the City, except to make reference to "several" analyses that say otherwise, while citing only one (Pryor, 2004). And that one analysis is not included in the list of references included in the supporting documentation.
6. RIDEM has provided ostensible new information with respect to the issue of attenuation of the nitrogen loads of the City in response to the City's comment (See Exhibit A to the City of Woonsocket Request for Adjudicatory Hearing)). This appears to be based on work conducted as part of a dissertation for a degree at the University of Rhode Island, and utilizes a steady state model to predict nitrogen concentrations at various locations in the river. The complete analysis of the system has not been documented. RIDEM only produces a summary explanation of the methods used, which is insufficient to assess the complete validity of the analysis. The results of a model run of only one dry weather flow event (of three sampled) are presented to validate the model, and that validation was presented only so far as the MA/RI border. No data representing validation of the Rhode Island section of the Blackstone River, which receives the City's discharge, has been presented.

The validation run presented shows, contrary to RIDEM's earlier assumption of 87 % delivery of the Upper Blackstone Nitrogen to the Seekonk River, that the delivery factor for the Upper Blackstone Load under the conditions of DWS3 (claimed to be August, 2002) was actually 69 % at the MA/RI line, and presumably greater at the point of discharge to the Seekonk River. Thus, as far as can be told from the RIDEM analysis, the prior comment of the City – that the delivery factor for wastewater plants in the Blackstone River was significantly understated – is correct.

RIDEM conducts further analyses of the systems, apparently under extreme low flow conditions to assess the potential delivery factors in the future. The thrust of this analysis is that since there will be substantially lower algal productivity in the future owing to nutrient removal through wastewater treatment, there will be less

nutrient cycling in plants and through sediments. However, because this analysis limits itself to only low flow conditions, it fails to consider the impact of nutrients from other sources that enter the system during the other times of the year. Since these other sources can continue to support algal growth, the basic thrust of the Departments further analysis is incorrect.

7. In response to the City's comment that the state has adopted a two tier permit system without justification (See Exhibit A to the City of Woonsocket Request for Adjudicatory Hearing)., RIDEM explains its justification for a two tier permit system – 8 mg/l for certain dischargers, and 5 for others - as being related to location. RIDEM makes reference to its delivery factor analysis, which had ascribed greater factors for other tributaries than for the Blackstone. This logic is flawed for two reasons: first, the analysis of the delivery factors discussed above clearly indicates that the Blackstone factor was underestimated, and secondly, the department has issued a permit to one discharger directly into the Providence River for 8 mg/l. Thus, RIDEM's justification on this point is contradictory and wrong.

For all the foregoing reasons DEM should withdraw the Modifications. The City requests an adjudicatory hearing to contest all issues contained in the Modification.

Respectfully submitted,
City of WOONSOCKET
Camp Dresser & McKee Inc.
John J. Gall
Vice President

Certification

I hereby certify that on the 27th day of July, 2005, I hand delivered the within Technical Memorandum in Support of Request for Adjudicatory Hearing to:

Bonnie Stewart, Clerk
Administrative Adjudication Division
Rhode Island Department of Environmental
Management
235 Promenade Street
Providence, RI 02908-5767 and

Angelo Liberti, III
Office of Water Resources
Chief, Surface Water Protection
Rhode Island Department of Environmental
Management
235 Promenade Street
Providence, RI 02908-5767

A handwritten signature in black ink, appearing to read "Angelo Liberti, III", with a horizontal line drawn underneath the signature.

Exhibit C

STATE OF RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF ADMINISTRATIVE ADJUDICATION

IN RE: Woonsocket Wastewater Treatment Facility
RIPDES Permit No.: RI0100111

LEGAL MEMORANDUM OF CITY OF WOONSOCKET
IN SUPPORT OF REQUEST FOR ADJUDICATORY HEARING

This memorandum is submitted in support of the Request for Adjudicatory Hearing ("Hearing Request") submitted by the City of Woonsocket ("City") concerning a modification to the RIPDES Permit RI0100111, proposing changes to the permitted discharge of nitrogen as detailed in the Hearing Request. This memorandum examines the legal authority and requirements for DEM's issuance of a Modification dated June 27, 2005 ("Modification") to the RIPDES permit issued by DEM on July 15, 2000 regulating the operation of Woonsocket's Regional Wastewater Treatment Facility. According to the Modification, the requirement would set an average monthly discharge limitation for total nitrogen at 667 pounds per day and average monthly concentration to 5.0 mg/L from May through October and require that the City "operate the treatment facility to reduce the discharge of total nitrogen, during the months of November through March, to the maximum extent possible using all available treatment equipment in place at the facility, except methanol addition."

The current permit, which expired on July 1, 2005, contains an average monthly concentration of 10 mg/L imposed as a supplemental environmental project as part of the settlement of a Superior Court suit against the City by DEM (PC 99-1380). The Superior Court Consent Order entered on May 19, 2000, resolving the Superior Court suit provides within Section 8 that the City and DEM agreed to a permit limit of 10 mg/L per liter of total nitrogen in the 2000 RIPDES permit with the proviso that "both parties understand that RIDEM reserves the

right to modify the permit limit of 10 mg/L through RIDEM's administrative rules of practice and procedure."

The existing nitrogen limitation in the RIPDES permit contains a footnote that states "this limitation is included as a supplemental environmental project as part of settlement of the Department's Superior Court complaint P.C. 99-1380 and is subject to a change in accordance with Part G." The existing RIPDES permit details conditions including Part G.1., the re-opener provision. This section of the permit reads as follows:

1. Re-Opener Provision. In accordance with Rule 23 of the RIPDES Regulations, this permit may be re-opened and modified (following proper administrative procedures) to include the appropriate effluent limitations (and compliance schedule, if necessary), or other appropriate requirements. The Department may determine that cause exists to re-open or modify the permit including but not limited to the following events:

(a) Water Quality Standards: The water quality standards of the receiving water(s) to which the permittee discharges are modified in such a manner as to require different effluent limits than those contained in this permit.

(b) Waste Load Allocation: A waste load allocation is developed and approved by the state and/or EPA for incorporation in this permit.

(c) Water Quality Management Plan: A revision to the current water quality management plan is approved and adopted which calls for different effluent limitations than those contained in this permit.

The RIDEM Regulations for the Rhode Island Pollutant Discharge Elimination System (June 26, 1984, amended February 5, 2003, effective February 25, 2003 (RIPDES Regulations)) provide for modification of permits in Rule 23. Rule 23 allows the Department to modify a permit in circumstances where the Department has received new information (other than revised regulations, guidance, or test methods) which was not available at the time the permit was issued and would have justified the application of different permit conditions at the time of issuance. (Rule 23(b)(2)). In addition, Rule 23 allows a permit or a permit condition to be modified after promulgation of new or amended water quality standards, effluent limitation guidelines by EPA or judicial decisions where a permit or permit condition was based on a prior water quality standard or effluent limitation guidelines which have been altered or revoked (Rule 23(b)(3)(i)). The RIPDES Regulations also provide for modification of the RIPDES permit under Rule 36 at the initiation of the Department within 90 days of the adoption of new limitation guidelines and authorize the Department to provide a schedule for compliance in accordance with Rule 20 (Rule 23(3)).

The RIDEM Water Quality Regulations (promulgated August 6, 1997, amended March 25, 1998, amended June 23, 2000) establish water quality standards for the state's surface water to restore, preserve and enhance the integrity of the waters of the state through water use classification and water quality criteria. These regulations contain very general language suggesting that nutrients should not be present in concentrations that "impair any usages specifically assigned to the class or cause undesirable nuisance aquatic species associated with cultural eutrophication."

On June 24, 2004 the Governor signed into law Chapter 146 of the Public Laws of Rhode Island, 2004, which includes amendments to the state Water Pollution Act in R.I.G.L. Chapter

46-12. Among the changes to Chapter 46-12 is the addition of Section 46-12-2(f) which authorizes RIDEM to:

establish, administer and enforce standards for nutrients as necessary to protect, maintain and/or improve the ecological functions of the marine and aquatic resources of the state; and to prepare, adopt and implement plans as necessary and appropriate to accomplish the purposes of managing nutrient loadings and preventing, abating and/or eliminating the deleterious effects of nutrients including, but not limited to, eutrophication To implement the purposes of this subsection, the Department shall implement measures to achieve an overall goal of reducing nitrogen loadings from wastewater treatment facilities by fifty percent (50%) by December 31, 2008, which date, and its implementation, may be adjusted to be consistent with compliance with permit modifications, through wastewater treatment facility upgrades scheduled to be undertaken by December 31, 2006, and through proposed permit modifications, which shall be issued by the Department on or before July 1, 2004.

It is difficult to determine from either DEM's July 2, 2004 letter, or the subsequent December 23, 2004 Public Notice of the proposed permit modification whether the proposed modification is based on a waste load allocation (G.1.(b)) or modification of water quality standards for the receiving waters of the Providence and Seekonk Rivers (G.1(a)). It appears that the Department is not specifically proposing a total maximum daily load (TMDL) for the area, but rather is relying on DEM's extrapolation of experiments conducted at URI on Narragansett Bay to reach a conclusion that the existing water quality standards for the Seekonk and

Providence Rivers (minimum 5.0 mg/L "except as naturally occurs") cannot be achieved without significant reductions in total nitrogen discharges from wastewater treatment facilities.

In the Responses to Comments Received on Proposed Permit Modifications ("Responses") which accompanied the Modification, DEM attempts to address this issue by asserting "As provided in Rule 23(b)(2) of the RIPDES Regulations, the proposed permit modifications are based upon new information: namely the DEM evaluation and the amendments to Chapter 46-12-2(f) signed into law in 2004." (Responses, p.30)

As noted above, while "new information" may provide a basis for modification of a RIPDES permit, the DEM must demonstrate that the information "was not available at the time of permit issuance and would have justified the application of different permit conditions at the time of issuance." Rule 23(b)(2).

Clearly, in this case, the "new information" which comprises the "DEM evaluation" relied on to justify the Modification has been available for decades, well before the RIPDES Permit was issued to the City on July 15, 2000. The "DEM evaluation" cannot in and of itself, be characterized as "new information" where the underlying data (mid-1990's) and the studies relied upon (Merl, 1980's) had been available for many years prior to the issuance of the 2000 RIPDES Permit.

DEM's basis to modify the permit to lower the nitrogen limit, while unclear in the correspondence and draft permit modification provided by RIDEM, is justified by DEM in part based on a legislative mandate described above. As noted above, the new legislation authorizes RIDEM to implement measures to reduce nitrogen loadings from wastewater treatment facilities by 50% through proposed permit modifications. The legislation also authorizes DEM to

"establish, administer and enforce standards for nutrients as necessary to protect, maintain or improve ecological conditions and to prepare, adopt and implement plans as necessary and appropriate to accomplish the purposes of managing nutrient loadings" to prevent or reduce harmful impacts.

In mandating a 50% reduction of nitrogen loading from WWTFs, the new legislation may amount to a new waste load allocation or water quality standard under the RIPDES rules and reopener provision under the RIPDES Permit. While this may provide DEM the authority to issue a permit modification requiring a 50% reduction, the scientific basis for the 5.0 mg/L limit clearly is not adequate to demonstrate that the proposed limit is necessary to protect or improve the ecology of the receiving waters. DEM's studies, which represent the scientific basis for the new nitrogen limit, were not subject to extensive third party or peer review as had earlier studies, such as the Blackstone River Initiative Study.

It is clear from the analysis prepared by Camp, Dresser and McKee (CDM) that the scientific basis of the Modification is suspect, is based upon unsubstantiated application of the URI studies to the Providence and Seekonk River systems and ignores important ongoing efforts of Rhode Island municipalities to remove nitrogen. It is equally clear that DEM's scientific work cannot even conclude that the proposed nitrogen reductions will have any appreciable impact on water quality in the Blackstone River or in Narragansett Bay.

The CDM report establishes, based on the information contained in the materials supplied by DEM in support of the Modification, that the City already meets the legislative goal of "reducing nitrogen loadings by fifty percent (50%)..." The proposed permit modification would set nitrogen discharge from the City wastewater treatment plant at 667 pounds per day from

April to October. During this period in 2004, the City achieved an average of 364 pounds per day, which represents a load reduction of 69 % from the 1995/1996 baseline used by DEM in its studies. Therefore, the City has complied with the nitrogen reductions mandated in PL Chapter 146. On this basis, no reduction in the discharge limit for nitrogen contained in the 2000 RIPDES permit is necessary.

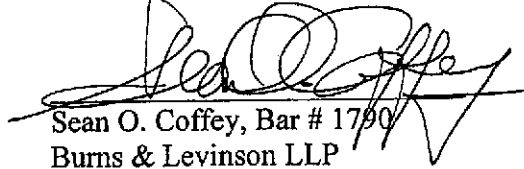
The new effluent limit for nitrogen is based on the new legislation and outdated, inapplicable and inadequate information, rather than based on a TMDL as required by the 2000 Superior Court Consent Decree and RIPDES Permit and the RIPDES Regulations (Rules 3, 17 and 23) and without complying with TMDL regulations and guidance documents or obtaining EPA approval.

In effect, DEM has exceeded its authority under the 2000 Superior Court Consent Decree and RIPDES permit and applicable RIPDES regulations in promulgating this permit Modification.

For all the foregoing reasons DEM should withdraw the Modifications. The City requests an adjudicatory hearing to contest all issues contained in the Modification.

Respectfully submitted,

CITY OF WOONSOCKET



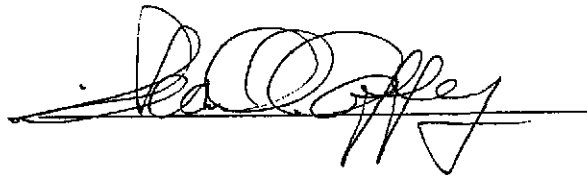
Sean O. Coffey, Bar # 1790
Burns & Levinson LLP
One Citizens Plaza
Suite 1100
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Tel: (401) 831-8330
Fax: (401) 831-8359

Certification

I hereby certify that on the 27th day of July, 2005, I hand delivered the within Legal Memorandum of City of Woonsocket in Support of Request for Adjudicatory Hearing to:

Bonnie Stewart, Clerk
Administrative Adjudication Division
Rhode Island Department of Environmental
Management
235 Promenade Street
Providence, RI 02908-5767 and

Angelo Liberti, III
Office of Water Resources
Chief, Surface Water Protection
Rhode Island Department of Environmental
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STATE OF RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF ADMINISTRATIVE ADJUDICATION

AND

DIVISION OF WATER RESOURCES

IN RE: Woonsocket Wastewater Treatment Facility
RIPDES Permit No.: RI0100111

REQUEST FOR STAY OF MODIFICATION CONDITIONS

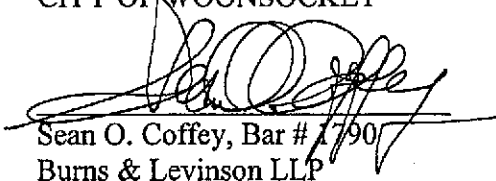
Permittee, the City of Woonsocket ("Woonsocket") hereby requests that the Chief of the Division of Water Resources grant a stay of the conditions contained in the Modification dated June 27, 2005 ("Modification") of RIPDES permit RI0100111, issued July 15, 2000 (the "Permit") pending resolution of Woonsocket's appeal of the Modification Conditions. The reason for this request is that immediate compliance with the requirements would result in irreparable economic dislocation to the City of Woonsocket, substantial investments will be required in extensive engineering and construction of wastewater treatment plant improvements and modifications to meet the discharge limitations and other requirements of the Modification without any known or appreciable benefit to the Blackstone/Seekonk River System or the Narragansett Bay. Further, irreplaceable environmental resources will not be impacted by a stay of the discharge limits and other conditions contained in the Modification.

In the interim, Woonsocket will continue to comply with the requirements of the RIPDES Permit issued July 15, 2000.

In support of this request for a stay, Woonsocket submits its Request for Adjudicatory Hearing with respect to the Permit Modification, along with the supporting documents and materials appended thereto as exhibits.

Respectfully submitted,

CITY OF WOONSOCKET



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Certification

I hereby certify that on the 27th day of July, 2005, I hand delivered the within Request for Stay of Modification Conditions to:

Bonnie Stewart, Clerk
Administrative Adjudication Division
Rhode Island Department of Environmental
Management
235 Promenade Street
Providence, RI 02908-5767 and

Angelo Liberti, III
Water Resources
Chief, Surface Water Protection
Rhode Island Department of Environmental
Management
235 Promenade Street
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