RESPONSE TO PUBLIC COMMENTS ON DRAFT PERMIT NO. MA0103284 FOR MASSACHUSETTS WATER RESOURCES AUTHORITY

On February 3, 1998, the U.S. Environmental Protection Agency ("EPA") and the Massachusetts Department of Environmental Protection ("MADEP") released for public notice and comment a draft National Pollutant Discharge Elimination System ("NPDES") permit for the Massachusetts Water Resources Authority ("MWRA"), MA, NPDES No. MA0103284. EPA and the MADEP held joint public hearings on the draft NPDES MWRA permit in Boston, Nahant, and Barnstable, on March 25, 1998, April 16, 1998 and April 23, 1998, respectively. EPA and the MADEP also held numerous discussion-formatted public meetings throughout Massachusetts. The public comment period for this draft permit expired on June 25, 1998. This is a response to the comments received. General comments are included as a subsection, in each of the major sections, within this document. Since the general comments within this document are included for informational purposes only, and are not substantive in nature, they do not include a response. Whenever possible, commenters have been identified by name or by their organizational name. Some comments that were submitted by numerous commenters, appear once below and do not include each of the commenters' names.

GENERAL COMMENTS ON THE DRAFT PERMIT:

Comment:
The Massachusetts Audubon Society wishes to compliment the EPA and the MADEP for drafting the most stringent and environmentally protective permit of which we are aware. A good example is the requirement for monthly toxicity tests which is three times as frequent as usual for Wastewater Treatment Facilities. We are particularly pleased to see the MWRA Contingency Plan and the Outfall Monitoring Plan as part of the permit. These are keys to insuring that the water quality and living resources of Massachusetts Bays are not harmed by discharge. We support the adaptive management approach that these represent.

Comment:
The Massachusetts Bays National Estuary Program (MBP) finds the permit to be comprehensive and detailed in the issues that are covered, and this permit sets a new high standard for future NPDES permits. EPA and the MADEP are to be commended on their collaborative efforts.

Comment:
The Association for the Preservation of Cape Cod (APCC) feels that it is imperative that the largest outfall pipe in the world have the best permit in the country. Though this permit is quite comprehensive, some components of the permit still fall short. Additionally, even if all of the concerns of every interested party are addressed and included in the permit, the true consequences of actions taken to dispose of the sewage from forty-three Boston municipalities will not be realized until some time in the future. "Dilution is not the solution to pollution." Clearly new methods are needed to conserve and preserve water resources and to reuse, or recycle, waste instead of discharging it.

Comment:
Save the Harbor/Save the Bay, founded in 1986, has followed this project very closely and we commend the EPA, DEP, and MWRA for their hard work over the past 12 years. I would like to congratulate the DEP and EPA on their efforts to create a permit that will maintain the integrity of the Mass Bay ecosystem. Given the magnitude of this project, and the many unknowns concerning the impacts the new outfall may have on our coastal waters, it is critical that we ensure that the permit protects human health and the environment.

Comment:
The Cetacean Research Unit would like to commend the EPA for doing such a thorough and credible job on the draft permit. It is clear from reading the document that a tremendous amount of thought went into its preparation, and the result is worthwhile. It is clearly a permit which sets a new standard for future efforts in this realm. Further, we would like to whole-heartedly commend the EPA for including both the MWRA Contingency plan and Monitoring plan as legally enforceable, yet changeable, documents as attachments to the permit.

Comment:
The Boston Harbor Association strongly supports the Draft NPDES permit for the MWRA. We urge the Environmental Protection Agency (EPA) to resolve issues raised during the public comment period and issue a Final Permit as soon as possible so that the outfall can be used to discharge effluent when it becomes operational. We appreciate the EPA's willingness to allow for thorough public review of the Draft NPDES for the MWRA by providing an extended comment period, and hosting a series of public meetings throughout the region. The EPA, the MWRA and the MADEP are to be commended for conducting a joint permitting process for the federal NPDES Permit and the state water quality standards designations, and for resolving complex technical issues associated with the Draft NPDES Permit in a cooperative manner. We also appreciate the time and effort of EPA, DEP, and MWRA staff members who attended numerous meetings of The Boston Harbor Association's Environment Committee, and responded to our technical questions regarding the draft permit.

Comment:
The Boston Water and Sewer Commission (BWSC) appreciates the opportunity to comment on the Permit. BWSC, as MWRA's largest customer, purchases approximately 38 percent of all the water MWRA provides to its member communities and contributes approximately 29 percent of the average daily wastewater flow to MWRA's treatment plants. BWSC has a vested interest in the proposed provisions and cost implications of the MWRA's draft NPDES permit. In general EPA and DEP have clearly defined the goals of the permit and the provisions set forth to meet those goals. The permit will serve as an effective mechanism to better insure and enforce compliance with water quality standards for wastewater treatment and discharges. Performance oriented permit provisions are generally flexible and will enable MWRA to develop effective approaches to pollution prevention practices.

Comment:
Neponset River Watershed Association congratulates the EPA and the MADEP for proposing such a strong permit and addressing the complexity of issues related to MWRA's discharge. We particularly applaud the acknowledgment of the relationship between the MWRA sewer system and stresses placed on streams in the Ipswich, Charles and Neponset basins.

Comment:
The Coastal Advocacy Network would first like to commend the EPA for the thoroughness of this permit. We recognize that it is the most stringent NPDES permit issued to date. The inclusion of the Contingency Plan and the Outfall Monitoring Plan is extremely important to those of us within the environmental community. We would also like to thank the EPA for extending the comment period on this draft from 60 to 90 days; the permit's density and complexity required very careful reading and the extra time was appreciated.

Comment:
Overall, the Outfall Monitoring Task Force (OMTF) would like to commend EPA and the DEP for a very thorough permit and for the extended 90-day comment period. We have submitted comments on the draft NPDES permit which were approved by the Task Force. Please note that dissenting opinions and additional commentary which were not reviewed by the entire Task Force, are listed along with the names of the authors. OMTF members from EPA and DEP have abstained from commenting.

Comment:
The City of Melrose commented that MWRA is an agency which is only a little past its tenth birthday, since the Commonwealth’s Enabling Act of 1984 which created the authority to take over the M.D.C. from its financial morass and near collapse of the area infrastructure. The member communities and the authority have thus far done an exemplary job in the rapid recovery of the quality of the Salt Water Bay area through attaining the milestones set forth in the mandated documents. The member communities and the Authority will continue to work just as hard to continue this good work. However, since the permit is overly stringent, we are concerned that the general public will derive a much different impression.

Comment:
Mrs. Polly Bradley of Safer Waters in Massachusetts stated: “Thank you so very much for your concern, understanding, thoughtfulness, hard work.”

Comment:
The MWRA Advisory Board is concerned, in general, that the permit seeks to incorporate so many requirements and assurances going well beyond what the permit should be seeking to do. The very structure of the Authority itself and the independence that the enabling legislation provided should provide the capability and assurances that the Authority will be able to accomplish the goals and intent of the draft NPDES permit. The permit should establish the framework to promote environmentally sound policies and acceptable discharge results. It should not be the vehicle for implementing other policies or correcting the weaknesses of other institutional structures or their program implementation.

Comment:
The Riverways Program commented that the draft NPDES permit for the MWRA is the most thorough of any written for a point discharge in MA and reflects the complexity and magnitude of the Deer Island discharge and the existing combined sewer overflows. The draft permit includes several commendable requirements. We are encouraged to see the emphasis on water conservation, public education, and pollution prevention. We agree that directing resources toward preventing hazardous materials in the influent and working to reduce water consumption is a cost effective method for reducing impacts to receiving waters and source waters. Our program is founded on the merit of education as a strong tool to motivate individuals toward proactive protection of resources.

PUBLIC'S RESPONSE TO THE GENERAL COMMENTS:

Public's Response:
Stop The Outfall Pipe's (STOP) concern is not limited to the specific factors discussed by the MWRA. We find ourselves increasingly worried by the tone of their response, as well.

STOP has been involved in the discussion of the new outfall since June of 1991. We are, by no means, the only individuals with an interest in or fear for the potential damage to Massachusetts and Cape Cod Bay posed by the new outfall's discharge. An impressive list of researchers, scientists, and agencies have expressed doubts as to the outcome of changing the location of the discharge.

The tone of the MWRA's response makes it clear that they continue to doubt the need for concern, and in many cases, the need to be vigilant in face of these concerns. Many of the comments by MWRA imply that the concerns raised by these parties are without merit. In some cases, the comments go so far as to imply a lack of professionalism upon the part of those scientists who dared to express doubt or demand accountability.

This lack of understanding about the factual basis for opponents' concerns is chilling. It further erodes our faith that the MWRA will be truly committed to monitoring and correcting any problems once the discharge is on line. We urge the EPA to hold the line on the existing standards within the draft permit, as well as strengthening it in those areas where lingering doubts remain. The permit continues to be the most comprehensive and objective legal document which prescribes the standards and behaviors expected of MWRA and it should not be weakened in any way.

Public's Response:
MWRA stated that EPA and the MADEP received hundreds of pages of comments on the draft NPDES permit, and many of the comments were related directly or indirectly to concerns about potential environmental impacts from the effluent discharge through the new outfall. These concerns are understandable, given the universal recognition of the Massachusetts/Cape Cod Bay ecosystem as a highly valued regional treasure, with which MWRA wholeheartedly agrees. However, most of these concerns appear to assume that the level of treatment to be provided is marginal or inadequate, that scientific understanding of the Bays system is so limited that the discharge of effluent from outfall TO1 poses a significant threat to substantial portions of the system, and, because of those "threats," that MWRA's Ambient Monitoring and Contingency Plans are inadequate, based upon incomplete scientific review, and in need of substantial elaboration. Another major theme in the comments, especially those received from individuals and groups on Cape Cod, is that Massachusetts and Cape Cod Bays should not be degraded in the name of improving conditions in Boston Harbor.

Given the high level of concern, it may be useful to step back and recall that the discharge through outfall TO1 is one of the final steps in a more than ten-year program to achieve pollution reduction, in which the ratepayers of the metropolitan Boston area have invested more than $3 billion. More than $97 million was invested in the design of the treatment plant and outfall, with a primary goal of minimizing the overall environmental impacts from treated wastewater. Similarly, efforts to predict and assess the environmental effects of this improved treatment have been a top priority for MWRA throughout the entire process, and MWRA has been a proactive partner with EPA, DEP, the Outfall Monitoring Task Force (OMTF), and other groups in the identification of technical and environmental issues and the allocation of resources to respond to them. In Fiscal Year (FY) 1999 alone, MWRA will spend nearly $12 million on efforts to minimize the discharge of contaminants into the waste stream, track plant performance and monitor the effects of MWRA discharges into the Bays' system. In addition, MWRA will spend more than $60 million in the coming year to operate and maintain its treatment facilities effectively.

All information available to MWRA leads it, and should lead EPA and DEP, to conclude with confidence that the level of public concern expressed in the comments on the permit is not justified by any of the research and monitoring carried out to date, and that the various "worst-case scenarios" contained in the permit comments are, at best, implausible. In fact, all indications are that the outfall discharge will have detectable, but small, impacts in the immediate vicinity of the discharge, and that these impacts will not be detectable more than a few kilometers from the discharge.

To review:

- In the Clean Water Act, Congress established secondary treatment as the national standard to achieve nondegradation of marine waters. EPA and DEP have concurred that the MWRA facilities now in operation and under Court-monitored construction at Deer Island will meet Clear Water Act requirements for secondary treatment.

- Three major Federal technical reviews of the outfall (EPA's Supplemental Environmental Impact Statement (1988) EPA's Biological Assessment (1993), and the National Marine Fisheries Services (NMFS) Biological Opinion (1993) have led to unanimous conclusions that the discharge from the outfall poses no appreciable threat to the Massachusetts and Cape Cod Bay ecosystem, including identified endangered or threatened species.

- MWRA has carried out extensive studies of effluent contaminant concentrations and toxicity, documenting that the concentrations and loadings of most toxic contaminants will be substantially less than estimated during the comprehensive Federal project reviews noted above. A list of technical reports issued by MWRA since 1991 is attached.

Public's Response:
The Bays Legal Fund commented that it appears from MWRA's comments on the draft permit that the MWRA does not accept the possibility that the outfall could affect water quality in Cape Cod Bay. Qualified scientists involved in the review of the draft permit have identified real concerns about potential water quality degradation that might result from the relocation of the MWRA outfall.

SPECIFIC COMMENTS ON THE DRAFT PERMIT:

PROMPT TRANSFER TO THE NEW DEER ISLAND OUTFALL:

Comment:
Mr. Graber of Winthrop stated that there should be no delay in the scheduled start up date. During periods of higher than normal tides or high wastewater flows due to rainfall or snowmelt, or a combination of high flows and high tides, treatment plant effluent is discharged through the near-shore Deer Island outfalls (Outfalls 001 and 002). Despite certain mitigation measures installed by MWRA, the risks of such discharges include flooding of Winthrop basements with contaminated coastal waters; contamination of Winthrop swimming beaches; and damage to sensitive organisms of the local ecosystem (shellfish, kelp, etc.), particularly if the temporary dechlorination equipment fails to prevent residual chlorine toxicity of effluent dispersed in the shallow waters along the Deer Island shoreline and in Winthrop Bay. By comparison, Part III of

the Fact Sheet accompanying the Draft NPDES Permit explains that the new outfall is 9.45 miles from Deer Island (5.6 miles from Nahant) in an area with an initial dilution of about 70:1. It is also in an area of much more vigorous far-field mixing and, as pointed out in the Fact Sheet, is far enough from the shore so that particles (e.g., bacteria) cannot be transported directly to the shore on the next incoming tide. Thorough studies have demonstrated important improvements in overall water quality to be gained by moving the discharges out of Boston Harbor and into the deeper waters of Massachusetts Bay. One of the most important of those is the expected reduction in algae blooms. Any risks of discharging through the new outfall are much smaller than the very real risks associated with continuing to discharge through the Deer Island Boston Harbor outfalls.

AGENCY'S RESPONSE:
EPA and MADEP are aware of the concerns expressed by Winthrop concerning the continued discharge to Boston Harbor. A provision has been added to the final permit under Part I.18.e. requiring that the MWRA report to EPA and the MADEP each month on the status of outfall construction and plans for both the treatment plant and outfall startup. This report will include a timetable for the completion of key tasks.

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS:

Sample Collection:

Comment:
Mr. Graber of Winthrop commented that the previous permit, at Attachment E, Paragraph l.b, reflects a comment provided by the Winthrop Board of Selectmen in its letter of October 1, 1985 regarding representative sampling. The paragraph stipulated that to obtain representative samples that reflect industrial wastewater contributions, samples shall be collected on Tuesday, Wednesday or Thursday, excluding holidays and the day before or after such a holiday. We had also requested that such samples be collected during daytime hours (such as between noon and 4:00 pm). Please add those requirements to the new permit, or explain why they are not included.

AGENCY'S RESPONSE:
Representative sampling for industrial wastewater contributions is important and, therefore, the following language has been added to the final permit under Part I.1.a.18.: "All samples described in Part I.1.a. that are not required to be reported once per day shall be collected on Tuesday, Wednesday or Thursday, excluding holidays and the day before or after such a holiday. All samples described in Part I.1.a. shall be collected during normal business hours."

Total Fecal Coliform and Total Residual Chlorine Limitation:

Comment:
Massachusetts Audubon supports the innovative approach being used in setting the limits for fecal coliform. If the limit proves to be successful, it will allow the reduced use of chlorine which may be a greater danger to the marine environment than pathogens. We note, based on our own examination of Discharge Monitoring Reports for North Shore NPDES permit holders, that chlorine is the parameter that is most frequently in noncompliance, hence we support an approach that reduces reliance on it. Clearly, this is one aspect of the project that needs to be closely examined and where the adaptive management approach is particularly appropriate.

Comment:
Mr. Graber of Winthrop stated that, except for the use of "geometric mean" as discussed below, he believes the Draft Permit reflects a sensible balance between chlorine toxicity, fecal coliform, and the economics of chlorination and dechlorination. It provides for the attainment of a stringent chlorine toxicity limit and the Class SA fecal coliform limit (200/100 ml) at the edge of the diffuser mixing zone.

Winthrop has long advocated the combination of approaches subsequently incorporated in the Deer Island disinfection and outfall facilities and now in the Draft Permit. These include chlorination with barged sodium hypochlorite or on-site hypochlorite generation (now being considered); chlorine contact in the outfall pipe; a residual simulator flow loop; dechlorination in the outfall; attainment of chlorine toxicity limits at the edge of the mixing zone; relaxation of the customary

200/100 ml secondary treatment effluent requirement; and diffusers of sufficient length, location, and design to allow lower than normal chlorine dosages and initial and far-field dilution resulting in acceptable bacterial reduction at beaches and shellfish areas.

Permit pages 6 (Footnote 13) and 7 (Footnote 16a) call for the use of geometric means for fecal coliform bacteria. The geometric mean should be replaced by the arithmetic mean for measuring compliance with coliform limits, to give more realistic reporting of coliform levels. The geometric mean is defined as the nth root of the product of *n* observations, as compared to the arithmetic mean (the most common type of average) which is the sum of the observations divided by the number of observations. The geometric mean makes the results look much more favorable.

We previously noted (in our April 3, 1997 letter to EPA and January 2, 1992 letter to MWRA which was attached thereto) a numerical example demonstrating the need for such improvement, which we will repeat here. On October 31, 1991, the three fecal coliform results were 5,000,000, 5, and 5. The geometric mean is given by the cube root of the product of those three numbers, i.e., $(5{,}000{,}000 \times 5 \times 5)^{1/3} = 500$; whereas the arithmetic mean is given by $(5{,}000{,}000 + 5 + 5)/3 = 1{,}666{,}670$. If each of the three samples was assumed to be associated with an equal volume of sewage, then the arithmetic mean would give the mixed concentration. No physical significance can be attached to the geometric mean in this application, and it obscures the results. The geometric mean of that one day's samples failed to indicate a disinfection failure during one of the samples, the one for which the coliform level was 5,000,000 per 100 ml. The arithmetic average would have revealed that failure.

Comment:
Concerns have been raised about potential negative impacts on marine life and marine habitat from chlorination. The Boston Harbor Association supports the proposed chlorination and subsequent dechlorination of the effluent before it is discharged into Massachusetts. We support the performance-based approach to dechlorination which takes advantage of the unique conditions in the long outfall pipe for potentially dechlorinating the effluent without the addition of chemicals.

Comment:
The specified chlorine residuals of 456 microgram/liter and 631 for average monthly and maximum daily concentrations may be unnecessarily high given the stated sampling at the inlet of the outfall pipe. The chlorine residual is that remaining after the bulk of the disinfection and dechlorination (if any) processes have been accomplished. The fecal coliform levels are also specified as 14000/100 ml at the same sampling point on the basis that with 70:1 dilution of the effluent at the diffusers an ambient concentration of 200/l00 ml for swimming beach water criteria can be automatically met even without further disinfection. Yet with three additional hours of contact time available during the fluid transit of the outfall pipe, the pathogen concentrations would be further reduced by approximately a factor of 1000 under almost all conditions even if the maximum chlorine residual values at the pipe inlet were 200 and 300 microgram/liter respectively. Given the significant potential impact from adverse marine impacts from the unnecessary discharge of activated chlorine species, further reduction of the specified chlorine residual values are warranted. EPA and DEP should reduce the specified permit limits given the opportunity to utilize the extended contact time available in the outfall pipeline to both complete disinfection and minimize chlorine residual requirements and chlorine residual discharge into the marine environment

Chlorine is a toxic chemical and its hazardous material safety requirements are well known. If an industrial user were to have an unreported chlorine release equivalent to the amount of chlorine residual permitted under this NPDES permit each day, that user would be subject to fines. This permitted release should be reduced. The adverse impact of this discharge is exacerbated in that a relatively short excursion above the permitted value may not be caught in a grab sample or may not cause an exceedance in a daily averaged number. Yet, the environmental recovery period for marine plant and animal life may be significantly longer and for some species with annual growth cycles may be a year.

Discharge of reactive chlorine species into the marine environment should be treated as conservatively as outlined above for the added reason that the residual chorine is not tested as an acute in the testing procedures outlined in this draft and many other existing NPDES permits. As clearly stated in Attachments Q and R, the samples taken for freshwater or marine acute toxicity testing are first treated to eliminate chlorine residual before running toxicity tests. Thus, the toxic effects of chlorine in the effluent is untested in the laboratory toxics monitoring procedures specified in the permit.

AGENCY'S RESPONSE:
The chlorine residual limitations for this permit are based on the current State Water Quality Standards, and the dilution allowed is as conservative as possible. Use of the geometric mean is specified by State Water Quality Standards and required to be utilized in all Massachusetts surface water discharge permits. The permit limitations would be too high for an industrial facility, if the available dilution of the receiving water for the industrial's discharge was less than 1 part effluent to 70 parts receiving water. The National Water Quality Guidelines are based on laboratory tests which examine survival rates for sensitive test species.

Comment:
Similarly the permit is silent on any limitations on the injection of dechlorinating agents into the outfall pipeline after the sampling point. MWRA representatives state that current plans are that no dechlorinating agents will be used. If dechlorinating agents are used, the sampling point specified for the toxicity monitoring, that is the inlet of the outfall pipeline, will be inadequate for allowing a representative sample of the effluent to be gathered for toxicity testing since the dechlorination agent injection station has been represented to me as being 850 ft after the sampling point. The reducing agents used for dechlorinating have known toxic effects in marine environments. In fact, current planning, to proceed without dechlorination, is based on early MWRA pilot testing of effluent toxicity during pilot plant testing of secondary clarifier modules in which dechlorinating agents were found to give larger toxic responses in biological monitoring protocols than other components of the effluent as reported to the OMTF at their meetings by MWRA representatives during the last 6 months.

As I mentioned at the public hearing in Nahant, if you review the available environmental monitoring data from the Lynn outfall, for example, you may find as I did that the sea urchin fertilization test was not passed in the second or third quarter of 1997. The test was passed in the first quarter. This is entirely reasonable in that the Lynn permit calls for seasonal operation of the chlorination/dechlorination facility to protect local swimming beaches. Thus, these final operating processes would have been operating in the second and third quarters, but not in the first. The unsatisfactory performance in this environmental monitoring test mirrors the complaints of local fisherman that seasonal fishing at the most productive time of the year has changed dramatically for the worst and that observable marine life, plant and animal, has been seriously affected.

Comment:
The Association for the Preservation of Cape Cod commented that Section 5.43 within the draft permit mentions that the MWRA can lower the rate of sodium hypochlorite addition to a level that treats bacteria, but does not result in residual toxicity. Why not lower the rate of sodium hypochlorite addition initially?

Comment:
The organization, Stop the Outfall Pipe (STOP), is concerned about the chlorine in the treatment system and feels that the amounts that are being used are too great. There are other technologies, such as UV radiation, that are being used elsewhere to kill pathogens in secondarily treated wastewater and we urge EPA to consider requiring that such technology be explored and developed by the MWRA.

Public's Response:
The MWRA commented that the Nahant resident, Michael Manning, expresses concern about the chlorine limits provided in the permit and requests lower limits and there is no scientific reason to do so. EPA has no legal justification for reducing these limits, and there is no scientific reason to do so. Mr. Manning correctly recognizes that the limits take into account the allowable dilution in the discharge. Because the residual chlorine will be measured at the treatment plant and the chlorine demand will continue for most, if not all, of the transit from the plant to the discharge point (two to seven hours depending on flow), further decay of chlorine will occur. Other plants with similar long-pipe discharges have found the chlorine decay to be 0.005 mg/L per minute. See, for example, **?**Report on Chlorine Product Chlorine Produced Oxidant (COP) Decay and Disinfection Studies For The Passaic Valley Sewerage Commissioners' Final Effluent." Assuming this decay rate applies to MWRA, detectable levels of chlorine will not be observed at the discharge point prior to dilution.

Public's Response:

MWRA commented that the March 13, 1998 letter to the Cape Cod Commission from Carpenter Environmental Associates, submitted as an attachment to the Bays Legal Fund's comments, appears to have misinterpreted the fecal coliform limit of 14,000/100 ml to be applicable at the edge of the mixing zone. The limit, as understood by MWRA, is applicable 850 feet into the outfall tunnel. An MWRA simulation study using pilot plant effluent and the expected level of chlorine dosing (see Pictorial Representation in Attachment 3) showed that after about 30 minutes, fecal coliform and chlorine residual levels were well below water quality standards. The minimum contact time in the tunnel is about two hours, and so the fecal coliform level at the end of the outfall, even before dilution in the mixing zone, will be well below the water quality standard of 200/100 ml.

AGENCY'S RESPONSE:
Ensuring that a chlorination failure is detected and corrected as soon as possible is an important issue for EPA and the MADEP. The fecal coliform bacteria limitations for the final permit have not been changed. The final permit maintains that fecal coliform bacteria reporting requirements will be based on the geometric mean, since this is a requirement of the current Massachusetts water quality standards. Even though the fecal coliform bacteria limitations are based on the geometric mean, the concerns expressed by Winthrop regarding the early detection of a chlorination failure have been addressed through the final permit. For example, since fecal coliform bacteria sample results take a minimum of 24 hours and do not provide agencies with an effective "early warning" mechanism for a chlorination failure, the agencies will be relying on the MWRA's automatic chlorination sampler results whereby the MWRA is required to telephone the DMF and the FDA at the first sign of a chlorination failure with a follow-up telephone call to the DMF, FDA, and EPA after the initial detection is either confirmed or denied. (See Also Final Permit: Part II.B.4. (Federal Bypass Regulations and Notification to EPA), Part I.15. (Notification to DMF), Part I.20.d. (Notification to FDA).) and Part I.8.e.iii. (Outfall Contingency Simulation).

EPA does not have the legal authority to reduce the chlorine residual limits to a level that is less stringent than the Massachusetts Water Quality Standards. Therefore, the final permit includes the water quality standard for chlorine residual. An important benefit of the outfall tunnel, though, is that since the chlorine/discharge contact time will be at a minimum of 2 hours (most treatment plants' chlorine/discharge contact time is 15 minutes), the discharge will require less chlorine in order to disinfect and kill enough fecal coliform bacteria colonies to meet both the chlorine residual and fecal coliform bacteria permit limitations. Since the discharge will require less chlorine, the discharge will also require less dechlorinating chemicals.

UV radiation was investigated during the time of the Facilities Plan, but was found to be infeasible for the MWRA's treatment facility.

Based on the predicted dilution of the new outfall and the limitations imposed within the final permit, it is reasonable to expect that the dechlorination chemicals that will be added to the effluent will not exhibit toxicity beyond the small zone of initial dilution (ZID) of the new outfall. Also, the whole-effluent toxicity limitations that are required within the final permit, provides protection against the potential additive and/or synergistic effects of constituents that are in, or are added to, the wastewater.

MADMF/USFDA Determination:

Comment:
STOP asked what would happen if the MADMF and/or the USFDA should determine that the fecal coliform bacteria limit is inadequate and EPA or the MADEP does not concur with this determination? It would seem that, in this instance, the MADMF's or the USFDA's expertise and stake in the outcome should take precedence over those of EPA and the MADEP.

AGENCY'S RESPONSE:
EPA and MADEP have the ultimate responsibility to establish permit requirements. However, if the MADMF and /or the USFDA should determine that the fecal coliform bacteria limit is inadequate, it would be likely that both EPA and the MADEP would concur with this determination.

MWRA's Service Area and Flow Limitation:

Comment:

The permit should limit new hook-ups to the MWRA treatment systems, in addition to limiting flow.

Comment:
The Cetacean Research Unit would like to commend the EPA for limiting future hook-ups to the MWRA system. We need to ensure minimal effect from the outfall by minimizing the input to the system.

Comment:
Boston Water and Sewer stated that the MWRA has carefully addressed issues relating to growth management and the transport and treatment capacity of its wastewater system to handle future wastewater flows. EPA and DEP should support the MWRA's System Expansion Policy and allow MWRA to address these issues in accordance with their existing policies, the Commonwealth's Executive Order on Planning for Growth, and in consultation with the MWRA Advisory Board, Wastewater Advisory Committee and Water Supply Citizens Advisory Committee. MWRA should not be required to analyze and project future growth within its service area. The Metropolitan Area Planning Council conducts this analysis in the Boston metropolitan area.

Comment:
Regis College and Earth Tech, Inc. stated that it is inappropriate to include a service area limitation and flow limitation for the MWRA permit. We feel that the limit of 1.4 MGD for any new sources outside of the MWRA service area set by the permit is too small, given the extent of the area encompassed by the MWRA service area and the number of connections which are possible. Secondly, Earth Tech and the College feel that any new sources which have already received the support of MWRA for a future connection should be grand-fathered and automatically included in a listing of proposed future connections.

Regis College has already expended a large level of effort towards its future connection to the MWRA system and has obtained Special Legislation in June 1996 providing for the connection of the College to the MWRA wastewater collection system. On March 6, 1997, the College received a letter from Douglas MacDonald, Executive Director MWRA, stating that the MWRA has the capacity to transport and treat Regis' flow, and that there is no reason to believe that the MWRA Board of Directors would not approve the connection once the College has obtained all necessary regulatory and community approvals. The College has actively and aggressively been pursuing these approvals and wants to be assured that the conditions of the proposed discharge permit do not impact the MWRA' s current support and approval of its connection.

Comment:
The City of Melrose stated that the dry weather flow service area restrictions are unnecessary and should be removed from the permit, since the member communities have a mandated “Five (5) Year System Expansion Policy” that prohibits all possible expansion until the next review in 2002.

Comment:
MWRA strongly objects to the proposed limitation on service area. This permit limitation is, we believe, unprecedented, and an unwarranted and unnecessary intrusion into state and local authority to plan environmentally protective infrastructure. The permit authorizes discharges from the communities listed on Attachment D of the draft permit. Footnote 3 elaborates that the only communities allowed to discharge wastewater into the MWRA treatment facility are the communities listed in Attachment D of the draft permit, except for sources already connected on the effective date of the permit, or a limited number of wastewater (including septage) connections totaling no more than 1.4 MGD. Attachment D lists the 60 communities to which MWRA is authorized in its Enabling Act to provide either water or sewer services or both. A total of 43 communities receive sewer services or both sewer and water services from MWRA

A permit limitation on the number of communities served deprives the Commonwealth, MWRA, and local communities of the flexibility to resolve environmental and economic development problems in the most cost-effective manner consistent with both natural resource stewardship and responsible growth management. Decisions as to local infrastructure development have always been a matter of local prerogative. MWRA believes that there is no authority in the Clean Water Act for EPA in an NPDES permit to limit the number of communities which can be served by a wastewater treatment plant. Moreover, the MWRA Enabling Act, recently adopted MWRA Policies and Procedures, and other provisions of state law already subject proposals for growth of the MWRA sewer system to extensive local, state and legislative review. Further, accepting any

additional flow to the treatment plant, wherever its source, would not relieve MWRA of the obligation to comply with the permit requirements to meet effluent limitations and water quality standards. If these are met, there is no basis under the Clean Water Act in the context of an NPDES permit to specify which communities may or may not discharge to a wastewater treatment plant.

Comment:
MWRA stated that although they object to EPA's imposition of flow limits, including the limit on dry day flow, the definition of a dry day is a workable one. The specific limit of 1.4 MGD on new connections from outside MWRA's service area is inappropriate because the limit itself is unnecessarily low, and without any basis shown in the Fact Sheet. MWRA expects to be able to accommodate all parties now believed to be interested in connecting to its system within the constraints of this limit. To do so, MWRA has sufficient authority to require the storage of flows during wet weather and may take other measures to accommodate additional flow without significant system impacts. Judgments about the appropriate volume of additional flows MWRA can accept should be entrusted to the process of review already in place, which can take into account MWRA's future experience with operating its collection system and the new Deer Island Treatment Plant. Additionally, this requirement would appear to give EPA an inappropriate and unnecessary veto power, not based on Clean Water Act requirements, over carefully considered state and local decisions regarding growth management, infrastructure development, and impacts on environmental resources.

Comment:
The MWRA Advisory Board stated that the permit should not be the locus for setting service area limits. The requirement for limiting wastewater connections to no more than 1.4 million gallons per day should be removed, as should limitations on service area communities. To set arbitrary limits for a plant whose capacity was already sized by EPA is not supportable.

Provisions already in place are more than adequate to ensure achievement of the intent of the proposed language, notably the provisions in the MWRA Enabling Act and the Authority's own policies and procedures, including the Policies and Procedures for Requests for Sewer Service to Locations Outside MWRA Sewer Service Area (filed with the Legislature in December 1996). That policy already states that no new community or significant portion of a community shall be permitted to join the MWRA during the next five years. The policy also states that any expansion of the sewer system shall strive for no negative impact on existing MWRA sewer system communities; and that all system connections must be approved by the community of origin, the transporting communities, other applicable regulatory bodies, the MWRA Advisory Board, the MWRA Board of Directors, and the Governor and General Court.

Comment:
STOP has requested a wording change on pages 4 and 5 of the draft permit, footnote #3, from ". . . MWRA may not accept wastewater or septage, from new sources outside of the MWRA service area . . ." to "exclude the 17 MWRA communities who receive water services only."

Comment:
STOP commented that EPA should be commended for attempting to limit new flows to the Deer Island Treatment Plant. However, the current wording limits new flows solely on gallonage (436 MGD total, 1.4 MGD from outside the 43 communities). This limit should not be based solely on volume - the number of new hookups into the system should be limited as well. With continued decrease in I/I flows to the plant and the excellent water conservation measures being required under this permit, limiting the flow based strictly on volume will inadvertently permit proportionately larger quantities of pollution than intended.

Public's Response:
The Charles River Watershed Association commented that Wastewater Advisory Committee (WAC) pointed out that MWRA's System Expansion Policy prohibits addition of new communities or additional flow from significant portions of new communities for 5 years. We agree with WAC that this should be stated and confirmed in the permit. We also agree that MWRA should investigate (or work with communities to evaluate) alternatives to expansion of the MWRA service area. Alternative treatment systems that keep water local not only conserve capacity at the Deer Island treatment facility, but maximize local recharge of groundwater resources. We do not agree with MWRA that the Authority should not be asked to work on local solutions. It is not a matter of whether capacity exists at Deer Island, as MWRA frames the question, but

whether the capacity is needed. The question can be answered after local conditions and the potential for alternative treatment methods have been evaluated. MWRA's own figures regarding I/I prove that sewer systems carry much more water from a watershed than is actually used. Again, we agree with WAC that MWRA should participate in determining whether this dewatering of our aquifers can be avoided.

Public's Response:
STOP commented that the MWRA further contends that the permit restriction of 1.4 mgd is unnecessarily restrictive. STOP strongly endorses retention of this language within the permit for all of the reasons cited above. MWRA contends they can limit additional flows on wet weather days by requiring storage of effluent for dry day treatment. Using a wet weather storage system would negate much of the efforts of the opponents of the project to reduce the amount of pollution, not water, that enters the effluent stream. In essence, MWRA is proposing to increase its future dry and wet weather flows by averaging the flows through the plant. This would violate the good faith negotiations that have taken place regarding growth limits to the system.

Public's Response:
The Bays Legal Fund (BLF) does not support expanding the MWRA sewer system beyond the existing communities that it presently serves.

AGENCY'S RESPONSE:
EPA's and the MADEP's goal has been to ensure appropriate restrictions on the volume of the MWRA discharge due to its potential impacts to the receiving water, while avoiding unnecessary restrictions on economic development in the Boston area. The scientific data suggests that a moderate increase in the volume of the discharge would not cause adverse environmental impacts. The restrictions proposed in the draft permit will prevent a substantial increase in the discharge volume. These restrictions are reasonable and strike an appropriate balance.

The permit has been revised in accordance with STOP's proposed clarification that the MWRA may not accept wastewater or septage from new sources outside of the MWRA sewer service area beyond those allowed by the final permit.

Arsenic:

Comment:
MWRA supports the draft permit provision for arsenic, which requires MWRA to monitor and report arsenic concentrations monthly for the reasons stated by EPA and DEP in the Fact Sheet. While arsenic occurs naturally in Massachusetts Bay in concentrations substantially higher than the human health criterion, the Fact Sheet states correctly that this arsenic, as well as that found in MWRA effluent, is overwhelmingly in the non-toxic arsenate form. A recent review article in *Environmental Toxicology and Chemistry* collects the available information and provides further scientific support for the EPA-DEP position. Reassessments of national and state water quality standards for arsenic are currently in progress. MWRA hopes that Massachusetts will join other states in modifying its arsenic standard based on current scientific understanding.

Comment:
The Outfall Monitoring Task Force commented that Arsenic is naturally high in seawater and the permit should reflect this. Risk assessments should also take into account background levels.

Public's Response:
MWRA continues to support the draft permit provision requiring monthly monitoring and reporting for arsenic. EPA recently declined to propose a human health criterion for arsenic for California (62 Fed. Reg., pp. 42159-42208, August 5, 1997) stating that the **?**issues and uncertainties are sufficiently significant to necessitate a careful evaluation of the risks of arsenic exposure before the Agency promulgates water quality criteria for arsenic in additional states" (p. 42179). Since then, EPA has withdrawn the arsenic human health criteria for Idaho (62 Fed. Reg., pp. 52925-52927, October 9, 1998) and for Alaska (63 Fed. Reg., pp. 10140-10144, March 2, 1998) for similar reasons.

EPA and DEP acknowledged in the draft Fact Sheet that the arsenic present in the Deer Island Treatment Plant effluent **?**would likely have no adverse effects" (p. 11) and any violations of a permit limit at the human health criterion would be due

to factors that are beyond MWRA's control and not due to inadequate treatment. It would be unfortunate for all parties if permit violations were caused by out-of-date science and a slow regulatory process. MWRA reiterates its position that a permit limit for arsenic would be inappropriate and unjustified.

AGENCY'S RESPONSE:
Arsenic occurs naturally in ocean water, including Massachusetts Bay, at concentrations 10-20 times the water quality criterion developed by the MADEP based on human health considerations through bioaccumulation of arsenic in fish and their consumption by humans. The concentration of arsenic in MWRA effluent is consistently lower than concentrations measured in Massachusetts Bay. 314 CMR 4.03(5) states that "Excursions from criteria due to solely natural conditions shall not be interpreted as violations of standards and shall not affect the water use classifications adopted by the department." Based on its interpretation of its Surface Water Quality Standards, the MADEP has determined that a numeric limit for Arsenic is not needed in the MWRA permit to meet water quality standards given that: 1) the natural background arsenic concentrations exceed the arsenic human health criterion, and 2) the arsenic concentration in the effluent, prior to dilution, is less than the receiving water arsenic concentration.

Moreover, as discussed in EPA's 1993 biological assessment of the potential impact of the MWRA outfall on protected species, most of the arsenic in the MWRA effluent is in a stable form known as arsenate, which generally has low toxicity and bioavailibility to marine organisms. A more toxic and mutagenic form--arsenite–is generally found in very low concentrations in seawater, and tends to be rapidly converted to arsenate by bacteria in the water and sediments.

Oil and Grease Water Quality Standard:

Comment:
Mr. Graber of Winthrop asked where in the Draft Permit are the proposed oil and grease narrative standards which are mentioned on Fact Sheet page 9?

AGENCY'S RESPONSE:
The oil and grease limitations are on page 8 of the draft permit, and under Part I.1.e. of the draft and final permits.

Comment:
STOP commented that the wording under Part I.1.e. on page 8 of the draft permit, is vague. We ask EPA to make this standard more enforceable by defining it in more concrete terms and including this standard in the Contingency Plan.

AGENCY'S RESPONSE:
The intent of this requirement is to ensure compliance with the oil and grease MA Water Quality Standard, which requires that the receiving water be free from oil and grease and petrochemicals. The permit prohibits the discharge of effluent which alters this condition.

Polymer Limitation:

Comment:
(1) The OMTF supports the Clean Water Act regulations and the intent to minimize harm to the environment. Occasionally, choices need to be made to select alternative solutions and balance risk without lowering water quality. In that context, the OMTF recommends that the EPA increase its limits for total suspended solids (TSS) and biochemical oxygen demand (BOD) *when high flows discharged from the MWRA secondary treatment plant exceed the frequency of high flows in a typical year*. Our reason for recommending this action is to minimize the use of polymers.

Because of the potential toxicity associated with polymers and the uncertain environmental effects, it becomes important to weigh options and evaluate the risk to the environment with each alternative. If polymers are not used, TSS and BOD concentrations may exceed secondary water quality criteria for short periods of time. However, it is anticipated that they will be naturally assimilated by the ecosystem without any long-term effects.

A unique opportunity exists to evaluate the effects of any elevated levels of TSS and BOD during the time between initial

activation of the new outfall and the initial activation of the third battery of secondary treatment facilities. The Outfall Monitoring Program should be able to detect adverse effects, if any.

(2) The OMTF commented that the use of polymers has been raised as a potential source of toxicity. The permit states that polymer use should be minimized. The definition of this requirement should be expanded in the Contingency Plan based on advice from the new Outfall Monitoring Science Advisory Panel.

(3) The OMTF commented that it should be clarified that the polymer discussed in this footnote will be added to the secondary effluent stream, even though this footnote is in the section which deals with the outfall.

(4) The OMTF commented that EPA should add the "common name and any synonyms," after "brand name" and add "molecular formula" after "charge density". It is a violation of public trust to keep such information proprietary. (Dr. Andy Solow of the OMTF disagrees.)

Comment:
Dr. Sal Testaverde of the National Marine Fisheries Service (NMFS) stated that the NMFS strongly opposes any change to increase (lower) its solids (TSS) and biochemical oxygen demand (BOD) limits. Any change without adequate research and public input into this proposal will initiate an in-depth reexamination of the entire polymer issue. We request that the record show that we are opposed to a change in TSS and BOD limitations, especially as it relates to polymers. Keep in mind that EPA stated at the April 29, 1998 OMTF meeting that these water parameters cannot be changed.

Comment:
Mrs. Polly Bradley of SWIM stated that if the Water Quality Standards can't be met, the MWRA should build the fourth battery of secondary that they assured us was not necessary. She does not recommend using polymers of unknown composition with unknown effects on the environment. The tradeoff invented by the MWRA of polymers vs. Water Quality Standards is an artificial conflict. If the effluent needs more treatment, return to the original plan with full secondary treatment instead of 3/4 secondary treatment. And if the water quality standards still can't be met with the fourth battery of secondary treatment, as originally planned in the MWRA Facilities Plan, then a tertiary plant should be considered.

Further, Mrs. Bradley does not recommend lowering the water quality standards for TSS and BOD. These standards were put in place originally to protect living organisms; they are not just arbitrary numbers. The easiest way to clean up the water is to lower the water quality standards and declare the water "clean".

Comment:
STOP commented that any new polymers being used in the system should have to undergo intense scrutiny by EPA, MADEP, NMFS, OMSAP, and the public. This scrutiny should apply regardless of whether the amount is less than 2 mg/l or not.

Comment:
The Advisory Board is concerned that the permit sets too stringent a level for the use of polymer, particularly for the period prior to the completion of the Braintree-Weymouth tunnel segment that will allow piping of sludge to the pellet plant. The inclusion of polymer addition facilities was itself a requirement of the EPA during the deliberations of secondary treatment capacity. To limit polymer use seems contradictory.

Public's Response:
MWRA estimates that average dosing for secondary treatment at the Deer Island Treatment Plant will be between 0.5 and 2.0 mg/L, and has consulted with several wastewater treatment plants elsewhere with regard to their experience with the use of polymers in enhanced secondary treatment. One plant reports that its normal dosing rate is 1 to 2 mg/L, with occasional higher dosages of approximately 3.5 mg/L. Another plant reports higher doses of 2 to 5 mg/L. During periods of polymer usage, these plants have never experienced toxicity in their effluent, even with the higher dosing rates.

AGENCY'S RESPONSE:
The permit must reflect legal national standards for total suspended solids (TSS) and biochemical oxygen demand (BOD). Moreover, extensive environmental reviews of the Deer Island treatment facility assumed that the effluent would meet these standards. Indeed, the guiding principle behind the investment of three and one-half billion dollars in public funds in the Deer Island treatment plant is that secondary treatment standards must be met at all times. Therefore, the final permit has remained unchanged with respect to the TSS and BOD limitations.

The words "and NMFS" have been added to Part I.1.a.10.(b) of the final permit in order to allow NMFS the opportunity to review and approve particular types of polymers, prior to their use, or polymers at quantities which may be proposed to be used at greater than 2 mg/l.

The final permit language under Part I.1.a.10.(b) regarding polymer use, has been changed from ". . . The permittee shall minimize the use of polymers." to "The permittee shall minimize the use of polymers, which may be used during the secondary treatment process during high flow conditions." and ". . . the amount of polymer added to the wastewater shall not exceed 2 mg/l at any time unless the permittee has demonstrated to the satisfaction of EPA and the MADEP that a higher level will not cause toxicity." to ". . . the amount of Percol-789 polymer added to the wastewater shall not exceed 2 mg/l at any time, and the amount of polymer other than Percol-789 added to the wastewater shall not exceed 2 mg/l at any time unless the permittee has demonstrated to the satisfaction of EPA, MADEP, and NMFS that a higher level will not cause toxicity. EPA and the MADEP believe that the final permit effectively protects against polymer toxicity.

The two changes mentioned above address two concerns raised by the NMFS:
(1) NMFS stated that the MWRA stated in a letter addressed to Mr. Sal Testaverde of the NMFS dated August 4, 1995 that, "We [MWRA] anticipate that the polymer of choice to be used in the Deer Island secondary treatment plant will be a cationic sub-species like Percol-789. When used at Deer Island, the polymer would be added at approximately 2 mg/l." Based on the information provided by the MWRA within this letter, the NMFS requested that the Percol-789 polymer only be administered up to 2 mg/l without the option of increasing to a higher level. This request has been granted by EPA and the MADEP.

(2) NMFS would also like the responsibility (along with EPA and the MADEP) to review and approve/disapprove the level of polymer that is added to the wastewater. This request has been granted by EPA and the MADEP.

The permit has also been revised, as suggested by the OMTF, to clarify that polymer is added to the secondary effluent stream rather than the outfall.

PCB Limitation:

Comment:
MWRA disagrees with the effluent limitations for PCB Aroclors in the permit, which are established at the level of the human health water quality criteria. EPA would be justified in setting the permit limits at these levels if the ambient concentrations of Aroclors in Massachusetts Bay were above water quality criteria. However, no data set that has passed QA/QC criteria has ever detected any Aroclor compound in Massachusetts Bay waters. Thus, the permit limit should allow for the 364-fold dilution EPA has established for human health parameters (see Attachment S of the draft permit).

Based upon a reassessment of the cancer potency of PCBs, EPA has recently suggested a change in the human health water quality criteria for Aroclor PCBs. The suggested change combines the individual Aroclor limits to develop a total Aroclor concentration in ambient waters of 0.17 ng/L. This revision would further support the use of dilution in setting permit limits, if warranted. At the very least, this proposed change should be clearly noted in the permit with the additional clarification that the MWRA permit will be modified to reflect the change, if implemented.

Comment:
The draft permit requires MWRA to use EPA approved methods. Section I.1.a, Footnote 12, requires use of EPA's

"proposed modified method 680" for measuring total PCBs (pending the availability of a better approved method). This method has not been approved for NPDES compliance. As an alternative method for purposes of PCB reporting, MWRA proposes use of its own dual column GC/ECD method. The MWRA Standard Operating Procedure in EPA's SOP format is included as Attachment A-1. This method as presented is based on the standard NOAA 20 congener list that is used to monitor PCBs in sediment and fish/shellfish tissue. It is a modified version of the NPDES-approved method 608, and it achieves adequate sensitivity to detect PCB congeners at the level that they are currently observed in Deer Island Treatment Plant (DITP) secondary effluent (ng/L). Use of the method will facilitate comparisons between the DITP effluent and the Massachusetts Bay monitoring data for sediments and biological samples. MWRA has demonstrated its ability to successfully use this method on the NOAA National Status and Trends Intercomparison Exercise.

The most recent EPA draft of method 680 is dated November 1985. Even though this method includes selected ion monitoring mass spectrometry, it is not significantly more sensitive than MWRA's GC/ECD method. MWRA understands EPA is working on a new PCB congener method, 1668, that may achieve detection limits of individual congeners down to about 40 picograms per liter (pg/L) by using both isotope dilution and high resolution MS, but this method is only for the 13 coplanar congeners. MWRA believes, therefore, that the GC/ECD method, which includes all 20 relevant congeners, is most useful.

Comment:
(1) The Outfall Monitoring Task Force has had numerous technical discussions on PCBs. The permit indicates that PCBs in the effluent will be analyzed as Aroclor mixtures, although some individual congeners will be analyzed as part of the monitoring program. This approach seems a bit dated. As analytical techniques have improved, it is becoming standard practice to determine the concentrations of individual congeners within a mixture of PCBs. This is practical from an environmental standpoint in that aging of PCBs in the environment often yields a mixture of congeners that does not specifically correlate with a specific Aroclor mixture.

In addition, toxicologists are now demonstrating that different congeners have different toxicities. Thus, knowing the total concentration of PCBs (as either an Aroclor mixture or the sum of individual congeners) does not necessarily provide information on the potential for adverse effects. What are needed are both the concentration of individual congeners and their individual toxicities. For many congeners, toxic equivalency factors (TEFs) have been determined to indicate the toxicity of a congener with respect to Dioxin. The toxicity of PCBs in a mixture can be therefore adjusted to show dioxin equivalents and can be used to more accurately estimate the potential for adverse effects.

Currently, the MWRA measures 20 individual congeners in fish tissue as part of the outfall monitoring program. The choice of congeners was presumably based on the congeners analyzed in the NOAA National Status and Trends Program. However, this subset of PCBs does not necessarily account for all the PCB congeners likely to be present, nor does it reflect toxicity data with respect to highly toxic congeners. It should be possible to construct a list of 30 - 40 congeners of ecological concern. Selection would be based on a combination of abundance and toxicity. That is, it would include congeners with low relative toxicity but high abundance as well as highly toxic congeners of low abundance. A recent EPA report on dose response relationships in PCB mixtures provides such a list (USEPA, 1996). It gives a list of 36 congeners that should provide adequate coverage of the total amount of PCBs present as well as the total amount of toxic potential (dioxin equivalents) present. Dropping analysis of the PCBs as Aroclor mixtures and analyzing for these specific congeners may more accurately assess the potential for adverse ecological effects.

(2) The OMTF states that similarly, as noted in the fact sheet, offshore Mass. Bay and clean Atlantic coastal shelf water exceed the human health criteria, indicating that any revised criteria take into account other sources of PCB's (e.g. atmospheric).

Dr. Sal Testaverde added there should be the immediate establishment of a PCB Work Group, End of the Pipe Subcommittee, to work with industrial facilities owners in the development of an action plan to resolve any sewer PCB discharge compliance concerns. Sal stated that he would participate if asked.

Public's Response:

STOP commented that the MWRA disagrees with the effluent limitations set for PCBs in this section based upon conflicting information regarding human health water quality criteria. STOP strongly endorses the existing language within the permit. It is important to note that the NMFS Conservation Recommendations mandate that human health is not the only standard by which the effluent's impact should be measured. Evidence continues to mount world-wide that the presence of PCBs and other synthetic compounds in marine waters are responsible for the impairment of immune systems in marine mammals and other organisms who feed at higher trophic levels due to bioaccumulation. Because humans are not wholly dependent upon marine food resources, they are not subject to the amount of long term exposure that marine mammals undergo.

Public's Response:
The Bays Legal Fund reiterates its support for effluent limitations for PCB Aroclors.

AGENCY'S RESPONSE:
The final permit includes a monitoring requirement for total PCBs, and limitations for individual PCB aroclors which are required by state water quality standards and requirements under Section 401(a)(1) of the Clean Water Act, as described in 40 C.F.R. Part 124.53. Since the offshore Massachusetts Bay and clean Atlantic coastal shelf water exceed the PCB human health criteria, the limitations for the individual PCB aroclors do not include an allowance for dilution. Under 40 C.F.R. Part 122.44(d)(1)(i), permit limitations must control all pollutants which EPA determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any water quality standard, including State narrative criteria for water quality. Based on the available data, the discharge has the potential to cause or contribute to an excursion above the PCB human health criteria.

Also, if the water quality standard for PCB aroclor is changed in the future, the permit may be modified to reflect this change through the reopener clause in the final permit.

Analytical Procedures Used in Monitoring (Section I.1.g)

Comment:
The MWRA commented that the draft permit requires MWRA to use EPA approved methods. Good laboratory data are vital for demonstrating compliance with the NPDES permit and for detecting any adverse environmental impacts from future discharges. MWRA's goal is to produce high quality, cost-effective laboratory data that can be used by the regulatory agencies, the public, and industry as reliable indicators of plant performance and appropriate enforcement activity. MWRA has petitioned EPA to approve alternative analytical procedures in three areas that will help meet this goal:

1. Environmental Benefit. MWRA has requested approval of procedures which would result in significant environmental benefits from either avoiding or reducing the use of hazardous chemicals in the laboratory testing process. These benefits include waste reduction and the elimination of freon usage.

2. Regulatory Need. MWRA has requested approval of procedures to test parameters regulated in MWRA's industrial pretreatment program that do not have approved EPA methods for NPDES monitoring. EPA-approved test methods would strengthen MWRA's ability to take enforcement action against violations involving these parameters.

3. Laboratory Efficiency. MWRA has submitted a number of practical requests that make good sense and would allow more productive laboratory operation. By improving its efficiency, MWRA would be more effective in finding and reducing pollution while reducing costs.

MWRA has been extremely frustrated by EPA's lack of cooperation and non-action in response to its requests. EPA's process of approving updated methods is exceedingly slow. For example, EPA proposed a revision to the list of approved methods in October 1995, but has yet to finalize this proposal. Despite the regulatory process for approving individually proposed method modifications (Alternative Test Procedures or ATPs), these requests take years to be reviewed even though federal regulations require EPA to approve or reject an ATP request within 90 days (40 CFR 136.5). To improve

this situation, in 1997 EPA proposed a streamlined method approval and modification process that would allow laboratories to improve their methods, but, again, EPA has taken no final action on the proposal. To cite one specific example of MWRA's experience, a request was submitted to EPA Region I on July 29, 1996, to allow purge compositing of samples for volatile organic analysis. This request was based on a published EPA study and included standard operating procedure and performance data. EPA responded in a letter dated October 22, 1997, that the compositing technique was not described in sufficient detail. Since then, EPA has refused to meet to discuss laboratory issues.

EPA Region I has indicated that it is unwilling to work with MWRA on these issues despite express authorization in the regulations because it states it lacks the resources to provide a similar level of support to other NPDES permit holders. MWRA has tried to work more closely with EPA Headquarters (Office of Science and Technology in the Office of Water) and met with limited success. The Office of Science and Technology has given a ruling on two policy issues, but has not yet responded to five requests for method modifications.

AGENCY'S RESPONSE:
Contrary to the implication that EPA has been unwilling to work with the MWRA on test procedures, EPA has made considerable efforts to address the issues raised by the MWRA.

As background, EPA published proposed Guidelines Establishing Test Procedures for Analysis of Pollutants and National Primary Drinking Water Regulations; Flexibility in Existing Test Procedures and Streamlined Proposal of New Test Procedures in the Federal Register. Under the Streamlined methods approval system, EPA would increase the analyst's flexibility to modify existing test procedures and expedite the approval of new and modified test procedures. However, the Streamlining rule has not been promulgated. Therefore, EPA must follow the ATP process identified in 40 CFR 136.5 for any NPDES test method modifications.

On October 22, 1997, the EPA-New England Region responded to the MWRA's October 11, 1996 requests for approval of 17 analytical procedures/lab practices. In addition to providing comments on the requests, the letter addressed the appropriateness of the Authority's proposals and the increased information to be obtained from them. The letter also described how EPA's proposed streamlining of alternate and new test method approvals would affect the proposals. EPA-New England has not received a response to date from the MWRA.

On September 10, 1998, EPA-New England provided specific comments and requests for information for each of the laboratory method requests submitted for the MWRA's Industrial Pretreatment Program.

In accordance with the Alternate Test Procedure (ATP) process, EPA-New England forwarded copies of MWRA's ATP requests to the Office of Science and Technology in EPA Headquarters Office of Water. The following is the status of EPA's review of MWRA's requests:

- September 8, 1997 Request for Approval of the Use of EPA Methods for Certain Organic Compounds, September 16, 1997, additional compounds for Methods 608 (Case N97-0019), 624 (Case N97-0016) and 625 (Case N97-0020).

A letter was sent from William Telliard, EPA Headquarters, Office of Water, on July 16, 1998 to the MWRA requesting additional information. There has been no response to date from the MWRA.

- September 8, 1997 Request for Approval of the Use of Purge Compositing for the Analysis of VOAs (Case N97-0013).

A letter was sent from William Telliard, EPA Headquarters, Office of Water, on September 17, 1998 to the MWRA recommending acceptance of the compositing method. Once MWRA provides the additional detail regarding the aliquot transfer technique, as per the comments made in EPA's October 22, 1997 letter to the MWRA, the Regional Administrator can make the final decision to approve/reject MWRA's request.

- November 20, 1997 Request to allow MWRA to use sodium thiosulfate instead of ascorbic acid to dechlorinate NPDES and Industrial Pretreatment samples collected for cyanide amenable to chlorination (Case N97-0018).

A letter was sent from William Telliard, EPA Headquarters, Office of Water, in March of 1998 requesting additional information. There has been no response to date from the MWRA.

Default Limitations:

Comment:
The Bays Legal Fund stated that the permit does not establish effluent limitations for all pollutants. Instead, the permit provides that twelve pollutants, including: aldrin, arsenic, chlordane, copper, cyanide, 4,4-DDT, dieldrin, heptachlor, heptachlorepoxide, hexachlorobenzene, mercury and volatile organic compounds, will be "monitored within the draft permit", (Fact Sheet at Page 10). With the exception of arsenic and volatile organic compounds, the EPA and DEP found that "there is not reasonable potential that this discharge will cause or contribute to an exceedance of the water quality standard for " these parameters. In order to ensure water quality protection, the permit should include conservative "default" discharge limitations for these compounds, in addition to the requirements already set forth in the permit.

Comment:
Effluent characteristics change and species selected for whole-effluent toxicity testing may not be the most sensitive important local species. Furthermore, contrary to the Fact Sheet on page 14 (under VI.C), water quality criteria protective of public consumers of seafood ("human life") can be more stringent than for aquatic life and not adequately measured by whole effluent toxicity testing.

For these reasons, Winthrop reiterates the view that it has expressed previously that there should be specific numerical limits for all Priority Pollutants. A copy of Winthrop's October 1, 1985 letter with related comments is attached.

The toxics listed on Permit page 6, and discussed in the Fact Sheet on pages 10 to 12 should not merely be monitored and reported. Numerical limits should be prescribed. Such limits will open the process by which the regulatory agencies may gauge monitoring results allowing a meaningful public role in that process.

Specific numerical limits based on national water quality criteria (modified for local species as appropriate) and projected dilutions but not higher than present discharge concentrations, should be incorporated. Default limits should be established for chemicals not known to occur in MWRA wastewater.

Public Responding Comment:
The MWRA commented that they are not in support of "default" limitations, since extensive monitoring data does not show any "potential to exceed water quality standards" for the following pollutants: aldrin, arsenic, chlordane, copper, cyanide, 4,4-DDT, dieldrin, heptachlor, heptachlor epoxide, hexachlorobenzene, mercury, and volatile organic compounds. MWRA supports EPA's and DEP's finding that these twelve pollutants should be subject to "continued monitoring only".

AGENCY'S RESPONSE:
EPA and the MADEP have authority to impose numeric water quality limitations where there is reasonable potential that the pollutant will be discharged in concentrations which would cause or contribute to an exceedance of water quality standards. EPA and the MADEP analyzed an extensive body of data and applied this test liberally: limits have been established wherever it is reasonable to do so.
It is important to note that the permit does limit the discharge of pollutants even where there is no specific numeric limitation, through the narrative requirement that prohibits any contribution by the MWRA to exceedances of water quality standards. Moreover, if for some reason the concentration of any of these pollutants increases significantly or new information is obtained indicating a greater level of toxicity than expected, the permit can be amended to add a numeric limitation.

MWRA's and MADMF's Memorandum of Understanding:

Comment:
The permit should require the collection of baseline data as a component of the MOU. This would allow the

Massachusetts Division of Marine Fisheries (MA DMF) to have a role in the collection and analysis of baseline data and to be involved in the early stages of the development of a monitoring plan. It would also enhance the integrity of the post discharge monitoring program. The permit should require the MWRA to execute a Memorandum of Understanding (MOU) with the MA DMF before discharge instead of 12 months after commencement of discharge. MOU should be a public one that incorporates an opportunity for public comment.

Comment:
STOP commented that the MOU should be entered into prior to commencement of the discharge. Also, stakeholders (i.e., shellfishing industry, etc.) should be included in the establishment of the notification procedure.

AGENCY'S RESPONSE:
Collection of baseline data has been an on-going effort by the MWRA and the MADMF, and this effort will continue for the life of the permit. Part I.1.a.15 of the final permit has been modified to reflect the fact that an MOU between the MWRA and the MADMF is already in place, and to require periodic updates to that MOU. For example, Part I.1a.*15. of the permit has been changed from ". . .The MWRA shall enter into a Memorandum of Understanding (MOU) with the Massachusetts Department of Marine Fisheries (MADMF) . . ." to ". . . The MWRA shall continue to implement the existing Memorandum of Understanding (MOU) between the MWRA and the Massachusetts Division of Marine Fisheries (MADMF), and shall negotiate annual updates to this MOU unless MADMF determines that such an update is unnecessary in a particular year."

Eighty-Five Percent Removal:

Comment:
The permit should include a target monthly percent removal requirement of eighty-five percent, or an alternative number as close to eighty-five percent as practicable. This will provide a mechanism to in turn require the MWRA to address the types of occurrences for which the percent removal requirement is designed.

Comment:
The MA Audubon stated that they are surprised that *85%* removal is not part of the permit. It is not clear what the environmental consequences will be if the 85% removal is in noncompliance, and what the options are that could be considered to address this issue. If the removal rate turns out to be a problem, will additional treatment be considered (i.e., a fourth battery for secondary treatment.)?

Comment:
STOP commented that the MWRA should not be excused from compliance with the 85 percent removal requirement pursuant to 40 CFR Part 133.103.

AGENCY'S RESPONSE:
EPA's regulations provide that a permit need not include an 85% removal requirement where sewers and storm drainage systems are combined in one system or levels of I/I are such that influent concentrations of BOD/TSS are very dilute (as is the case in portions of the MWRA system). In such cases, percentage removal is not a good measure of the effectiveness of the treatment process–concentration limits are a better indicator of performance. This section of the permit has not been modified.
Cyanide Discussion Within the Fact Sheet:

Comment:
Mr. David Graber commented that in reference to the discussion of cyanide within the Fact Sheet on page 11, MWRA will be using sodium bisulphite to dechlorinate in the outfall, and thiosulfate presumably to dechlorinate samples before testing for CBOD and toxicity.

Toxic Constituents:

Comment:

STOP is concerned that once a month sampling for the toxic constituents, listed under Part I.1.TO1 within the draft permit, is not frequent enough sampling given the enormity of the flow. We ask that more frequent samples be required by EPA.

Public's Response:
MWRA commented that STOP believes that monthly analyses of priority pollutants are not sufficient to characterize effluent quality. Consistent with commitments made to the OMTF and with the requirements of the Contingency Plan, MWRA intends to make more frequent priority pollutant measurements, although they are not required in the Permit. The monthly Discharge Monitoring Reports submitted to EPA and DEP by MWRA will report the number of samples taken each month and the average results.

AGENCY'S RESPONSE:
The final permit includes a "once a month" analysis of priority pollutants, and this requirement is sufficient to protect water quality standards. (The once a month analysis of priority pollutants, which do not appear to have the potential to contribute to exceedances of water quality standards, is quite conservative and is more stringent than is typical for NPDES permits.)

Toxicity Testing:

Comment:
The Riverways Program commented that given the quantity of effluent, we are concerned about the chronic effects of the discharge in the receiving waters if the absolute minimum NOEC of 1.5% is the concentration needed to obtain no observable chronic effect. Such a dilute concentration of effluent appears to make the test requirement just short of superfluous. A concentration of 20% seems more appropriate. We believe that toxicity tests are a concern, since they may reflect the true environmental impact of the effluent to the biota in the receiving water; something the individual parameter limits may not fully capture. Requiring testing for the extensive list of metals, synthetic chemicals, organic compounds, etc. is commendable but falls short of assessing the combined effect of the potential chemicals existing in the influent/effluent on a given day. Limits which reflect acute and chronic marine toxicity needs to be in place to protect one of the most important resources of the commonwealth, our marine resources.

AGENCY'S RESPONSE:
Discharges with an initial dilution of 70:1 or greater (as is the case for the MWRA) typically would not have a chronic toxicity limitation included in their NPDES permit, since there is little likelihood that such a dilute mixture would cause chronic toxicity. Nevertheless, to be conservative, the MWRA permit establishes such a limit. The 1.5% concentration is based on the actual expected dilution.

Footnotes:

Comment:
STOP has requested more specific parameters delineating what constitutes dry versus wet day flows, under footnote #3 on pages 4 and 5 of the draft permit.

AGENCY'S RESPONSE:
Dry and wet weather flows are typically based on a combination of rainfall and snowmelt, and the permit adequately reflects and defines those parameters.

EFFECTIVE DATE:

Comment:
MWRA explained that Section I.1.f of the draft permit establishes the effective date of the permit to be either the date of signature, or 30 days after the date of signature. MWRA expects to be in compliance with many aspects of the permit at the time it becomes effective. However, various facilities required to meet other aspects of the permit are likely to remain

under construction at the time the permit becomes effective.

AGENCY'S RESPONSE:
As noted in the MWRA's comment, some treatment facilities may still be under construction at the time that the permit becomes effective. These facilities are subject to the remedial order of the Federal District Court in U.S.A. v M.D.C., et al. (C.A. 85-0489-MA).

Part I.1.f. of the permit has been changed from "f. The effective date of the permit means: (1) the date of signature if there are no comments during the public comments period, or (2) 30 days after the date of signature if there are substantive comments received during the public comment period." to "g. The effective date of the permit means 30 days after the date of signature." since there were substantive comments received during the public comment period.

PRIOR NOTICE:

Comment:
STOP commented that all POTW's should be required to provide adequate notice to the public using the Environmental Monitor and the Outfall Monitoring Scientific Advisory Panel (OMSAP) in the circumstances mentioned in this section [Part I.2]. There should be a specific procedure by which an interested member of the public could be added to a list maintained by the MWRA. This list would be employed throughout the permit, wherever notification of the public is required.

AGENCY'S RESPONSE:
The final permit language has been changed from "The permittee shall provide at least a 30 day written prior notice to the Director of the following:" to "The permittee shall provide at least a 30 day written prior notice to EPA, MADEP, NMFS, OMSAP (and its two Advisory Committees), and the public (on a free-access Internet website page and placement of hard copies in two permanent repositories - see also: Part I.20.e. of this permit) of the following:"

REOPENER CLAUSE (Part I.5):

Comment:
The BLF supports the reopener clause contained in the draft permit.

Comment:
The draft permit currently states under Part 1.7, paragraph 2 that "On or after December 31, 1998, EPA will review all available information, including the results of all on-going monitoring and special studies, and models, and develop any appropriate requirements for additional monitoring and modeling in Massachusetts and Cape Cod Bays. The monitoring plan described in Attachment N shall be modified to reflect these additional requirements."

It is not clear from this language whether the EPA may modify the Monitoring Plan and modeling requirements at any time. The permit should be modified to clarify that EPA may, at any time during the life of the permit, review and modify modeling and monitoring program requirements, and may change those requirements based upon the receipt of new data.

Comment:
Language regarding the Ambient Monitoring Plan should be revised to allow the EPA to remove as well as add monitoring requirements based upon their ongoing evaluation of monitoring data and other scientific models and studies (page 9, section 7, paragraph 2).

AGENCY'S RESPONSE:
The following statement has been added to the Reopener Clause under Part I.5. of the final permit: "EPA or the MADEP may, at any time during the life of the permit, review and modify modeling and monitoring program requirements, and may change those requirements based upon the receipt of new data."

AMBIENT MONITORING PLAN (Section I.7):

General Comments on Ambient Monitoring Plan

Comment:
The Barnstable County Science Advisory Panel (SAP) strongly supports the inclusion of both the monitoring and contingency plans as requirements of the permit. These plans provide the foundation upon which the permit conditions, including the effluent limitations and monitoring requirements, are based and compliance will be determined. It is essential that the DEP and EPA have clear authority to enforce, review, and modify these documents in a timely manner to address changing circumstances or new information.

Comment:
MWRA commented that the MWRA's outfall monitoring program is widely recognized as one of the best of its kind in the world. As described in the Fact Sheet, it was developed under the oversight of the Outfall Monitoring Task Force (OMTF), which has continued to guide its implementation since 1992. It was designed to provide a baseline of scientific information about a variety of parameters, chosen by the Task Force as appropriate indicators of the health of the Massachusetts Bay environment before operation of the new outfall. These parameters will continue to be monitored after the new outfall is on line to determine any effects of the outfall. MWRA's monitoring efforts, both in the nearfield and farfield, are among the most extensive in the world, representing an investment of more than $2.5 million annually. The monitoring conducted to date has resulted in over 100 million data points. MWRA believes the overview of monitoring design and data interpretation by the Outfall Monitoring Task Force has been second to none.

Comment:
The protection of marine resources in Massachusetts and Cape Cod Bays requires a rigorous scientific monitoring and "early warning" response system capable of detecting changes in key water quality parameters and ecological processes due to the discharge. While the current versions of the monitoring and contingency plans represent substantial progress toward this goal, they fall short in a number of critical areas including the characterization of the ecological response of phytoplankton to nutrient inputs, zooplankton community structure, farfield monitoring of Cape Cod Bay, and potential effects to endangered species, particularly regarding adverse modification of right whale critical habitat and/or feeding behavior.

Comment:
A coordinated and interactive research program is needed to supplement the monitoring program in order to address a number of questions related to the effects of the discharge at an ecosystem-wide scale. Uncertainties regarding the assimilative capacity of the Massachusetts and Cape Cod Bays ecosystem, particularly for nutrient loading and subsequent ecological responses, are poorly understood at this time and only partially informed by the current and proposed monitoring programs. The limited nature of the farfield monitoring effort provides only a scatter shot characterization of conditions as distance from the outfall increases and, in and of itself, is inadequate to capture subtle variations in biological components which may be precursors to system-wide change.

Comment:
The MWRA Advisory Board questions the extensive additional reporting requirements imposed by the permit language. It is unclear how these requirements would enhance the already extensive reporting and information dissemination the Authority has in place. The scope of the Authority's monitoring program should be limited to issues directly related to any likely impact of the discharge on Massachusetts Bay, and be confirmed by the Outfall Monitoring Task Force (or its successor group). Requirements for acoustic plume monitoring, zooplankton monitoring in Cape Cod Bay, and development of a food web model should be the responsibility of the state or federal agencies. Toxicity testing on lobster larvae would be duplicative of other efforts (including those at the state level), and be beyond the appropriate scope of the Authority's research program. Related to this concern is the issue of laboratory protocols, which affect sampling, testing requirements, and laboratory supplies and equipment needs. There are a number of modifications that EPA could make in its testing requirements that

would make the Authority's monitoring and reporting requirements more efficient, without compromising the development or dissemination of data.

Public's Response:
STOP is strongly opposed to any attempt by MWRA to utilize this outfall until all of the treatment facilities are completed. There is sufficient discharge capacity at the existing Deer Island facility to accommodate these flows. The MWRA's assertion that the standards and contingency plan will not be in effect until Battery C is on line is completely unacceptable.

AGENCY'S RESPONSE:
The permit's monitoring and reporting requirements are appropriate for this discharge. The permit becomes effective thirty days after issuance. As noted above, some of the facilities needed to come into full compliance with the permit's requirements are still under construction, and are subject to a remedial order of the federal court.

Chlorine Residual Monitoring:

Comment:
Mr. Sal Testaverde of the NMFS recommends that total chlorine residual be monitored, once the offshore outfall discharge begins, during every MWRA survey at all near field stations.

AGENCY'S RESPONSE:
The MWRA is required to have 456 micrograms per liter, or less, on an average monthly basis and 631 micrograms per liter, or less, on a maximum daily basis for total residual chlorine within the initial mixing area that surrounds the discharge location. Since the discharge must meet MA State Water Quality Standards for chlorine residual at a distance much closer than the closest nearfield monitoring station, and since detectable concentrations of chlorine residual at any of the nearfield monitoring stations would be extremely unlikely, the final permit does not include a requirement to sample chlorine residual at the nearfield monitoring locations. Instead, EPA and the MADEP will require spot check sampling over several months at each of the closest nearfield stations, after the discharge commences. If the spot check sampling demonstrates detectable concentrations of chlorine residual at any of the nearfield monitoring stations, the permit may be reopened and modified to include appropriate sampling at the nearfield stations.

Data Access and Data Review:

Comment:
The data generated by these aspects of the Monitoring Plan provides a good example of the need to make all data efficiently available. Currently, Part I.7.c. states that the raw data shall be made available at the MWRA facility upon request. The permit should require the MWRA to post the data on a searchable, downloadable web site, with e-mail notification each time data is updated or reported to the EPA, DEP and/or NMFS.

Public's Response:
MWRA notes that several commenters propose adding a requirement for electronic notification and posting in various circumstances. MWRA is committed to electronic posting of its Quarterly Wastewater Performance Reports in connection with implementation of the Contingency Plan. More extensive electronic posting and electronic notification would be desirable if they could replace the currently required notifications and distribution of hard copy documents, but MWRA does not believe that elimination of hard copy is possible at this time. There are many interested parties who would not have access to the information because they do not have Internet access or electronic mail. While MWRA will continue to explore ways to use electronic communication effectively, the creation and maintenance of the web pages needed to accomplish the requested electronic distribution of documents would require the MWRA to expend considerable additional resources without increasing the availability of the documents to all members of the public. MWRA would prefer to expend its resources on

projects that enhance plant performance or address problems, if any develop.

Comment:
Mr. Graber of Winthrop stated that pursuant to the draft permit on page 9 (items "7.a" and "7.b"), the Town Of Winthrop hereby expresses interest in being notified of any proposed modifications to the Ambient Monitoring Plan.

Comment:
The permit should require notification in the Environmental Monitor and by electronic mail to those on the distribution list of interested persons, of all proposed interim modifications to the Monitoring Plan and providing a 30 day comment period on the proposed modification. We believe that the public benefit from this process will far outweigh the slight delay to the MWRA in reducing the monitoring effort.

Comment:
Part I.7.c. of the permit should require reporting of data as soon as possible following the availability of such data. In order to ensure the timely reporting of monitoring data, the permit should specify that quarterly reports shall report on monitoring data obtained in the previous quarter, and that the MWRA shall provide OMSAP members with raw and analyzed data on a monthly basis.

AGENCY'S RESPONSE:
EPA and MADEP agree that timely and efficient dissemination of data is critical to the public's ability to monitor the MWRA's discharge. The final permit requires the permittee to notify the general public by maintaining a free-access Internet web page and by placing hard copies of monitoring reports in at least two repositories. (See the specific permit language below.) EPA will disseminate data that is likely to be of the greatest value to the public, including email notification to interested parties whenever a "caution" or "warning" level is exceeded. In addition, all data will continue to be available on paper and/or in electronic form, as appropriate, upon request.

The following language has been added to Part I.20.e. of the final permit:

> "Notification to the General Public:
>
> The permittee shall inform the general public by 1) maintaining a free-access Internet web page and at least two repositories where hard copies of all documents are placed, one of which shall be the MWRA's Charlestown Navy Yard Offices, and the other shall be on Cape Cod (i.e., the specific location will be determined after consultation with interested Cape Groups.), and 2) reporting the following:
>
> (1) any proposed changes to the ambient monitoring plan, including any proposed interim changes,
> (2) any proposed changes to the contingency plan, including any proposed interim changes,
> (3) all "caution" and/or "warning" level exceedances, as defined within the Contingency Plan,
> (4) the MWRA's outfall contingency simulation plan and any proposed changes to this plan.
> (5) all reports sent by the MWRA to the OMSAP for review,
> (6) all notices sent to EPA/MADEP regarding facility changes that may result in receiving water impacts,
> (7) the MWRA's pollution prevention plan and any proposed changes to this plan,
> (8) any proposed changes to the current groundwater remediation prohibition,
> (9) all analyses of industrial pretreatment local limits and any proposed changes to the local limits, and
> (10) all sampling results reported within Discharge Monitoring Reports."

A requirement that raw data be sent to the OMSAP each month is unnecessary: the members of the OMSAP will determine how frequently that data is needed (the permit already requires that raw data will be made available on request).

Comment:
Part I.7.a. of the permit should include the Outfall Monitoring Science Advisory Panel (OMSAP) on the list of those to automatically review MWRA's proposed modifications to the Monitoring Plan. We further recommend that the permit contain language permitting the OMSAP and other interested parties to submit proposed modifications to the Monitoring Plan and modeling programs to the EPA and DEP for approval.

AGENCY'S RESPONSE:
The OMSAP, as well as members of the public, may submit proposed modifications to the Monitoring Plan and modeling programs to the EPA and MADEP for approval at any time, and a statement to this effect has been added to the permit. (See Final Permit, Part I.7.e., Ambient Monitoring Plan.) The permit has also been modified to add the OMSAP to the list of those reviewing proposed modifications to the Monitoring Plan.

Comment:
The former Outfall Monitoring Task Force would like the new OMSAP added to the list of recipients on page 9, Part I.7.b. of the draft permit that states, "The permittee may propose interim modifications at any time . . . written notice to EPA, MADEP, NMFS, and any members of the public." And the permit should explicitly state that OMSAP shall receive monitoring reports at the same time as EPA and MADEP so that OMSAP is able to deal with any exceedence in the most timely manner.

AGENCY'S RESPONSE:
Part I.7. b. and c. of the draft permit (i.e., Part I.7.c.iii. and iv. of the final permit) has been changed to require the permittee to report monitoring information, required under Part I.7., to the new Outfall Monitoring Science Advisory (OMSAP) and the general public (by maintaining a free-access Internet web page and by placing hard copies in at least two repositories). The permittee is required to send monitoring reports to the OMSAP, EPA and the MADEP, simultaneously.

Comment:
Part I.7.c. of the final permit should include the OMSAP on the list of entities who may issue a written objection to the automatic adoption of interim modifications to the Monitoring Plan.

AGENCY'S RESPONSE:
Part I.7.c. of the final permit allows written objection by EPA and the MADEP to the automatic adoption of interim modifications to the Monitoring Plan, since EPA and the MADEP are the two permitting agencies with the legal authority to make final permit decisions. Although the OMSAP has been added to the list of those who receive notice of proposed changes, and the OMSAP's advice on such proposals will carry great weight, the regulatory authority to decide permit issues cannot be conferred on the OMSAP.

Comment:
The OMTF commented that proposals for additional monitoring and modeling should be evaluated by the OMSAP; the EPA should take into account the advice of the OMSAP in developing any additional requirements. Mr. Sal Testaverde added that he would recommend changing the Ambient Monitoring Plan draft permit language under Part I.7.(4). from "marine mammals" to "marine mammals including endangered whale species" since marine species are protected under the Endangered Species Act and the Marine Mammal Protection Act.

AGENCY'S RESPONSE:
In order to ensure the highest protection for endangered whale species, the following language has been added to Part I.7.(4) of the final permit: ". . . marine mammals including endangered whale species".

Red Tide:

Comment:
Part I.7.d. of the permit should require reporting of data as soon as possible following the availability of such data. In order to ensure the timely reporting of monitoring data, the permit should specify that quarterly reports shall report on monitoring data obtained in the previous quarter, and that the MWRA shall provide OMSAP members with raw and analyzed data on a monthly basis.

Comment:
Since the beginning of the outfall monitoring program, the OMTF and MWRA have shared the goal of properly coordinating MWRA's monitoring efforts with those of other agencies in order to avoid overlap or duplicate monitoring with that performed by other agencies. For example, the Massachusetts Division of Marine Fisheries (DMF) has in place a highly effective monitoring program to detect red tide and Paralytic Shellfish Poisoning (PSP). Since the inception of this program, there have been no preventable cases of death from PSP. MWRA's Contingency Plan provides for MWRA to use these monitoring results to detect any impact of the outfall with respect to red tide.

Comment:
The Association for the Preservation of Cape Cod (APCC) commented that the solution to nutrient problems is nitrogen control. Section 5.11 of the Contingency Plan within the draft permit downplays the role of nitrogen control in the prevention of hypoxia and proliferation of undesired algal species. Also, the source of organic matter in the effluent is identified under Section 5.31 of the Contingency Plan within the draft permit as dead algae. Failing to mention that human generated sewage is the primary source of organic matter is disingeneous.

Comment:
STOP commented that Section 3.3.2 of the Ambient Monitoring Plan, Paralytic Shellfish Poisoning, implies that the current program maintained by the MA Department of Public Health is adequate for detection of these species. There is a great potential for changes in the populations of these species - an unanticipated response prompted by the change in location of the MWRA discharge with its load of nitrogen, carbonic substances, and freshwater. All of these substances act as limiting factors in the growth of undesirable dinoflagellate species. The movement of the discharge brings these substances into areas of higher concentration of the spores of these species. Therefore, the current monitoring plan is inadequate for the detection of these species and a timely response to unforseen episodes. More specific monitoring in the near and farfield for these species should be required within this monitoring plan.

STOP also commented that given the amount of concerns expressed concerning potential red tide impacts, there should be more farfield monitoring stations than are currently reflected in the Monitoring Plan. Some of the areas that appear to be particularly vulnerable to red tide include areas of Cape Cod Bay and Stellwagen Basin. (Ambient Monitoring Plan, Figure 5-1, Sampling Stations (pages 5-3).) Trigger and warning parameters for PSP should be established within this contingency plan. (Contingency Plan, Section 5.0 - Fish and Shellfish Monitoring (page 5-1).)
Public's Response:
The Bays Legal Fund does not agree that the current Massachusetts Division of Marine Fisheries (DMF) monitoring plan for Paralytic Shellfish Poisoning (PSP) and red tides is sufficient to detect red tide after the outfall goes on line (please see comments of Rick H. York of the Bays Legal Fund Board of Trustees, dated April 30, 1998). At a minimum, additional monitoring stations should be brought on-line in Cape Cod Bay to minimize the potential for severe adverse human health effects.

Public's Response:
MWRA expresses its faith in the existing DMF's PSP monitoring program. This program is intended to protect humans, not other marine life, from potentially devastating red tide events. When a red tide event has registered on the human health radar

screen, it will be far beyond the point at which it might be impacting marine animals. This represents an enormous gap in MWRA's monitoring program particularly given the number of scientists and science that have raised questions about relocating the discharge to this offshore area. We urge EPA to demand greater monitoring, response, and accountability on the red tide issues that have yet to be addressed by the MWRA's monitoring and contingency plans.

AGENCY'S RESPONSE:
In order to address the numerous concerns raised by the public during the public comment period regarding the need for an increased number of red tide sampling stations, the following language has been added to the final permit under Part I.7.g.: "EPA and MADEP will request that OMSAP investigate the need for additional red tide monitoring stations in Massachusetts Bay and Cape Cod Bay, to determine whether the MWRA discharge has an effect on the frequency or extent of red tides. If the OMSAP recommends to EPA and MADEP that additional monitoring is necessary, the permittee shall, within ninety (90) days, develop and submit a scope of work for such monitoring. This scope of work shall be submitted to EPA and the MADEP for approval. If necessary, this permit will be modified to incorporate additional red tide monitoring requirements. This section does not preclude the imposition of such requirements through any other mechanism, including enforcement action by EPA or MADEP. If required, MWRA may make arrangements with another entity to perform these activities."

Fresh Water Impacts:

Comment:
STOP commented that, unfortunately, the potential harm posed by the introduction of freshwater is being underestimated. The New York Times recently reported on inadvertent impacts of depressed salinity in Chesapeake Bay. State biologists believe a major fish kill in the Bay was due to depression in salinity. The change in salinity caused an otherwise benign microorganism to become toxic to the fish in question, in the article entitled "Trying to Weigh Safety and Tourism," March 14, 1998, page A-6. The article also describes similar circumstances that may have led to lesions and disfiguring ailments in the St. Lucie estuary in southern Florida.

AGENCY'S RESPONSE:
Dilution at the new outfall location is so great that a significant depression in salinity is not expected. However, EPA and the MADEP will request the OMSAP to investigate this issue further. If there are additional requirements that are deemed necessary, the permit may be reopened and modified to include the additional requirements. In order to address freshwater impacts, the permit includes a dry day flow limitation and restrictions on the number of new connections into the sewer system.

Lobsters:

Comment:
The Association for the Preservation of Cape Cod (APCC) commented that Section 5.22 of the draft permit mentions sampling lobster and flounder in Cape Cod, however, this type of sampling and the locations for sampling are not included in Table 1-1 or 5-2.

AGENCY'S RESPONSE:
Lobster and flounder sampling locations, sampling measurements, and frequency of sampling measurements can be found in the Ambient Monitoring Plan on page 5-6.

Comment:
A member of the Lobstermen's Association commented that he incorrectly thought that the billions of dollars the MWRA spent to build sewage digesters on Deer Island was so that natural methods using micro-organisms to clean the sewage would obviate the need for chemical treatments such as chlorine bleach. We all want clean water - but how do we define "clean"? I don't think we intend for it to mean sterile. We may not even mean clear - for that too implies "no life". We mean for clean

water to be defined as being as close to its natural and healthful state as possible for that particular type of water. The process of getting the water clean may in fact be exactly what kills lobsters - and flounder - and maybe codfish and a host of other marine animals and plants that depend upon each other for survival, and for which Boston Harbor used to be famous. I propose that the EPA set up a framework for licensing the MWRA's use of the 9½ mile outfall tunnel in stages which are tied to the results of research and experience, and the implementation of permanent, continuous, recorded monitoring that is always open to public scrutiny.

Comment:
Lobsters are extremely important to the economy and history of this area. The economic value of the lobster fishery coupled with the thriving lobster fishing and recruitment area in the vicinity of the new outfall has given rise to concerns about the potential impact of the new outfall's discharge Save the Harbor/Save the Bay (SHSB) supports those measures suggested by the Outfall Monitoring Task Force as an initial way to approach this issue. The OMTF's recommendations include sampling to determine whether early benthic phase lobsters occur around the future outfall site, and having MWRA assist the Massachusetts Division of Marine Fisheries (MADMF) in analyzing lobster statistics. SHSB recognizes the need for basic research on lobster biology and sampling methodology and urges a collaborative interagency effort be initiated, involving the academic community, to help resolve some of the recent concerns.

Comment:
Given the economic value of the lobster fishery in Boston Harbor and Massachusetts Bay, The Boston Harbor Association supports the Outfall Monitoring Task Force' recent recommendation that the MWRA conduct a sampling program during the summer of 1998 to determine if early benthic phase lobsters occur around the future outfall site. This additional sampling effort should be conducted in collaboration with the Massachusetts Division of Marine Fisheries efforts to analyze lobster statistics.

Comment:
Senator John Kerry and Senator Edward Kennedy commented that while they appreciate the substantial effort and comprehensive nature of the MWRA's monitoring program, including the contingency plan as part of the permit, the extensive testing requirements, the high standards being set for the nutrients and toxics, and the flexible, adaptive management approach that accommodates new information as it arrives, we are concerned about the lack of information about the potential effect that the outfall discharge will have on lobster populations in MA Bay. Our concern is the lack of evidence regarding the sewage effluent might have a toxic effect on lobster larvae and on the productivity of egg-bearing females. It is our recommendation that additional studies be conducted to determine the potential effects on lobster recruitment in the vicinity of the outfall by surveying the lobster larvae before and after discharge begins. If significant numbers of larvae are found, we recommend support for the role of the Outfall Monitoring Science Advisory Panel review in soliciting proposals for chronic toxicity testing to determine the direct effect the effluent will have on the lobster population. While we recognize that the MWRA is not responsible for the problems with lobsters in urban harbors across the region, the potential impact on Massachusetts Bay from a point source of this size warrants the additional information.

Comment:
MWRA stated that another area in which MWRA efforts have been alleged to be inadequate without taking into account the efforts of others is toxicity testing on lobster larvae. Several studies of the sensitivity of lobster larvae to various pollutants have been performed, and based on these studies it is highly unlikely that MWRA effluent can be expected to have a detrimental effect on the lobster population of the area. It has also been determined for several parameters that the indicator species used by MWRA are more sensitive than lobster larvae and thus are appropriate for detecting potential effects on lobster. For monitoring of the outfall's effect on adult lobsters, DMF's extensive lobster population monitoring program will augment the information gathered through MWRA's soft and hard bottom habitat monitoring program. Concerns about lobster are also being investigated by the Outfall Monitoring Task Force. A study of lobster issues has been conducted for

the OMTF by Dr. Kari Lavalli of the Lobster Conservancy. The study concluded that the outfall is likely to have little impact because juvenile lobsters cannot be expected to be found in the immediate vicinity of the outfall and because concentrations of contaminants, including chlorine, in MWRA's effluent are well below levels of concern. It also was concluded that the current monitoring practices of the MWRA and DMF are sufficient to detect any impact on lobsters.

Comment:
The economic value of the lobster fishery coupled with the thriving lobster fishing and recruitment area in the vicinity of the new outfall has given rise to concerns about the potential impact of the discharge. This is particularly important given recent observations that lobster landings have declined in a number of urban harbors in Massachusetts in the 1990s. CAN supports those measures suggested by the Outfall Monitoring Task Force as an initial way to approach this issue. These include sampling to determine whether early benthic-phase lobsters occur around the future outfall site, and having MWRA assist the Massachusetts Division of Marine Fisheries (MADMF) in analyzing lobster statistics CAN recognizes the need for basic research on lobster biology and sampling methodology and urges a collaborative interagency effort be initiated, involving the academic community, to help resolve some of the recent concerns.

Comment:
Mrs. Polly Bradley commented that SWIM is deeply concerned about the potential effect of the sewage outfall on the lobsters that are so important to the Massachusetts economy and ecology. SWIM has been working on this issue since June 8, 1995, when we wrote to John DeVillars, Regional Administrator of the EPA, expressing our concern about the "Impact of the proposed change (decreasing the number of secondary batteries from 4 to 3) upon the lobster industry, one of the few economically viable fisheries left in New England."

Since it takes seven years for lobsters to grow to legal size, we need baseline studies on young lobsters this summer before the Boston outfall opens, followed by studies after the outfall goes on line to find out whether it is harming lobsters. At the present time, the draft MWRA permit does not include any monitoring of young lobsters.

According to Nahant lobstermen, the lobster fishery in Lynn Harbor (which borders Revere, Lynn, and Nahant) has been decimated since the Lynn Secondary Treatment Plant went on line about seven years ago. We do not want the same thing to happen at the site of the Greater Boston sewage outfall, a pipe the size of the Callahan Tunnel that will pour an average of 383 million gallons per day (mgd) average treated effluent into Massachusetts Bay. At the present time, our lobstermen tell us, the Boston outfall site is an extremely rich lobster fishing area and the place where they find more egg-bearing females than anyplace else.

We have heard two major objections to studying young lobsters near the outfall site. One is that our evidence on the lack of lobsters near the Lynn outfall and the richness of lobsters near the potential Boston outfall is anecdotal. But who would know what's out there better than lobstermen, who are out there nearly every day? Moreover, if the evidence is anecdotal, isn't it time to gather scientific data? The other objection is that lack of lobsters near the Lynn outfall (and near Deer Island where Boston now discharges its partially treated sewage) is because of lack of nutrients (i.e., that effluent is good for lobsters.). If this is true, why are lobsters so common on the north side of Nahant where the water is clean and the Swampscott outfall has been removed (to the Lynn regional treatment plant that also treats the Nahant and Saugus sewage), but scarce on the south side of Nahant near the Lynn outfall? Moreover, why are lobsters abundant at the still-clean site of the Boston outfall that will not open until this fall, if lobsters need sewage to survive?

SWIM has the following specific comments:

(1) SWIM asks for: a) chronic toxicity testing of juvenile lobster benthic recruits in the area of the outfall, b) suction sampling of benthic recruits before and after the outfall goes on line, and c) tracking movement of ovigerous females. The tests should include controls.

(2) Mrs. Bradley commented that she was told by an operator at Deer Island that if there is a slug of toxics (from an inadvertent and/or illegal industrial discharge, for example), their sensors would detect that and they would bypass the plant so that the secondary treatment organisms would not be killed. When I asked about the effect on the organisms in the outfall area, he said, Oh, don't worry about that - it gets diluted in the outfall pipe. My immediate thought was to wonder what the effect would be on vulnerable larval lobsters at the end of the outfall. What is the MWRA policy regarding bypassing of the treatment plant in the case of a slug of toxics?

(3) There should be provisions for monitoring of pathogens in the vicinity of the outfall, especially after severe rain events, with a notification requirement to North and South Shore coastal towns if there are unexpectedly high pathogen levels. We are concerned about the children and adults who swim on the beaches as well as the lobstermen, fishermen and recreational boaters who are out on the water.

(4) In extreme wet years instead of average rainfall years, blending will occur - secondary and primary effluent will be mixed and chlorinated. This is probably one of the most dangerous times for vulnerable lobster larvae as well as for swimmers and sailors. It is our understanding that blending will occur after about 780 million gallons per day (mgd), but that the efficiency of secondary diminishes after about 700 mgd. SWIM asks for additional monitoring near the location of the outfall diffusers during blending of primary and secondary effluent.

(5) SWIM asks for monitoring in the future outfall area of chlorine, dechlorination agents, and polymers (if used) during every at-sea test performed by the MWRA.

(6) SWIM asks that polymers not be used in the secondary treatment process.

(7) If additional treatment is necessary, construction of the fourth battery of secondary should be considered.

(8) If still more treatment is needed, tertiary treatment should be considered. SWIM requests that a tertiary treatment committee be established to plan for the future, and that members of all the new advisory panels be included.

(9) If Massachusetts Bay is polluted by the outfall and the above means are not sufficient to solve the problem, diversion of the effluent back into Boston Harbor should be considered. Boston Harbor should not be cleaned up by polluting Massachusetts Bay.

(10) SWIM asks for at-sea, outcome-based monitoring of the present outfall and Boston Harbor until the offshore outfall comes on line. This is particularly important after the Nut Island effluent is diverted to Deer Island, which we understand is taking place this spring.

(11) Lobstering is a major Massachusetts industry, with a multiplying effect on the restaurant business, bed and breakfasts, the tourist industry, and property values in coastal communities, as well as the quality of life of citizens of New England. By protecting juvenile lobsters and assuring recruitment into the lobster population, we will be helping the economy as well as the ecology of Massachusetts.

Comment:
The OMTF commented that they have been addressing SWIM's concerns regarding lobsters and the new outfall since it convened the lobster larvae focus group for the first time in August 1997. On April 29, 1998, the OMTF reached a general consensus on the following recommendations (note: these are not recommendations for additions to the permit.).

(a) The Task Force shall recommend that MWRA conduct a suction sampling survey in the vicinity of the future outfall site during the summer of 1998 to sample shelter restricted early benthic phase juvenile (EBP) lobsters. Numbers of young-of-year could yield important information about recruitment in this area before the new outfall goes on-line. If a properly designed survey finds no significant numbers (i.e. lower abundances than in contiguous coastal areas)

of EBP juveniles in the vicinity of the future outfall site (FOS), issues and concerns about outfall impacts on those life stages will be re-evaluated. If significant numbers of EBP juveniles are found, then the question of effluent toxicity to EBP juveniles will need to be examined.

(b) If there are significant numbers of EBP juveniles found in the vicinity of the FOS, then the Task Force shall recommend the development of a RFP for toxicity testing. The OMTF shall review the RFP and proposals in order to identify the appropriate monitoring.

(c) The Task Force shall recommend that MWRA continue to assist MADMF with the input and analysis of the 1997 lobster monitoring data and complete the literature search on the effects of chlorine on egg-bearing females, as recommended at the March 20, 1998 OMTF meeting.

(d) The Task Force, or the succeeding science panel, shall evaluate the importance of any new proposals submitted to them which examine the potential effects of treated effluent on egg-bearing female lobsters and planktonic lobster larvae.

(e) The Task Force shall recommend to MIT Sea Grant that they consider including in a future RFP the development of automated suction sampling technologies for collecting EBP juvenile lobsters.

(f) The Task Force shall recommend that MADMF adjust their cooperative reporting program with lobstermen to include the area around the FOS.

(g) The collapse of the lobster fishery from Boston Harbor to Lynn and perhaps other areas, as witnessed by local lobstermen, warrants careful examination of existing data and information. This should perhaps be conducted by the academic community as a M.S. or Ph.D. dissertation topic.

Mrs. Polly Bradley added that the lobster monitoring plan, as voted on at the April 29, 1998 OMTF meeting (see above) should be a monitoring requirement under the permit, not a special study.

Public's Response:
STOP commented that the Lavalli study calls into question the assertions by a number of lobstermen that the areas surrounding the outfall are likely to support breeding and juvenile lobster populations. This only serves to highlight a continuing lack of hard data concerning this issue. We hope that EPA will continue to require MWRA's cooperation on better understanding of the lobster population in the vicinity of the new outfall. In addition, the impacts of effluent on breeding lobsters continue to be an issue that has yet to be addressed.

Public's Response:
The MWRA commented that SWIM has expressed the concern that MWRA's discharge would negatively impact the population of benthic stage post-larval lobsters which might reside in the vicinity of the new outfall. The concern is based on the contention that the outfall area is exceedingly prime habitat for these animals. However, lobster researchers question whether an area at the depth of MWRA discharge (30 meters) can be suitable habitat. Research off Maine found that the density of post-larval lobsters drops significantly in areas where the water depth is greater than 20 meters. (K.L. Lavelli and D.F. Cowan; Lobster Conservancy, 1998 - Attachment A-3 in original comments.) Post-larval lobsters appear to select shallow water environments as habitats in order to maximize their growth during the late Summer-Fall period. This increased growth helps them escape predation pressure. Deeper colder waters minimize growth and presumably make the animals more vulnerable to predation.

In order to confirm the view that the discharge area is not good habitat for post-larval lobsters, MWRA will conduct suction sampling for these animals during the late Summer of 1998, as recommended by the OMTF. OMTF has recommended that further studies of effluent toxicity on lobster larvae be performed only if it is established that the area

is highly valuable habitat for these animals. The draft scope of work for lobster suction sampling is included in Attachment 7, with review and revision by the OMTF and other technical experts pending.

SWIM is also concerned that secondary treatment has had negative impacts on the flora and fauna in the vicinity of the Lynn Wastewater Treatment Plant discharge, including lobsters, and expresses concern that MWRA's discharge will have the same effect. Our discussions with the Lynn Treatment Plant found a different picture of the health of Lynn harbor. In 1993 and 1997 caged mussels were deployed between 50 and 150 feet from the Lynn discharge with the intent of measuring the bioaccumulation of contaminants in the mussels. Not only did the mussels survive quite well in the plume for 60 days, but, upon retrieval, the cages were found to be encrusted with a variety of marine life. Divers retrieving the caged mussels also reported abundant and diverse marine life in the vicinity of the cages. This refutes SWIM's concerns about the impact of secondary treatment in Lynn Harbor.

In fact, Boston Harbor is not the **?**sterile moonscape" claimed by lobstermen. On May 1, 1998, the Massachusetts Division of Marine Fisheries (MADMF) accompanied commercial lobstermen who caught a greater number of marketable lobsters per trap in Boston Harbor than at the future outfall site. See **?**Summary of MADMF - Sea Sampled Lobster Data Collected at the Future Outfall Set and Inside Boston Harbor on May 1, 1998," Attachment 8. There was also a higher percentage of egg-bearing lobsters in Boston Harbor than at the future outfall site. MWRA has recently assisted MADMF with data entry of the 1997 lobster sampling logs from commercial lobster traps. MADMF will use this data to determine trends in the lobster fishery.

Michael Manning of Nahant is concerned about the potential for toxicity of a dechlorinating agent. He states that the decision by MWRA not to use a dechlorinating agent was based upon toxicity testing showing its toxicity. This is incorrect. Indeed, use of a dechlorinating agent is standard industry practice for wastewater treatment. MWRA's decision not to use dechlorinating agent was based on a determination that natural dechlorination in the long outfall would be sufficient and a chemical agent would not be required. Other plants with long discharge pipes (such as Passaic Valley) have used the same strategy.

Mr. Manning's comments regarding tests that show the toxicity of dechlorinating agents are based on incorrect information. In anticipation of using dechlorination agents for MWRA's CSO program, acute toxicity tests were performed by dosing five species with concentrations up to 14 mg/l (several times greater than any concentrations that would be used at Deer Island). Absolutely no acute toxicity was observed, even at the highest dose.

The testing done by MWRA on Pilot Plant effluent that Mr. Manning refers to involved samples to which the dechlorinating agent was added manually without knowing how much was needed to neutralize the chlorine. It is possible that the observed increase in toxicity in the *Arbacia* fertilization test was due to excess dechlorinating agent. MWRA has no record of the dose of the dechlorination agent actually used, but does know that it was much greater than required. If dechlorination were to be used as part of the treatment process, dosages would be the minimum determined to be necessary to neutralize the levels of chlorine in the effluent.

Mr. Manning also asserts incorrectly that the only monitoring parameter MWRA measures in the nearfield of the discharge is the redox potential discontinuity. A substantial soft-bottom benthic monitoring program is in place, monitoring the fauna and chemistry of nearly every sizable patch of soft-bottom in the near field. In addition, several hard-bottom transects are monitored annually in the nearfield.

Public's Response:
Dr. Robert A. Bullis, D.V.M., M.S., a research Assistant Professor of Microbiology at the University of Pennsylvania School of Veterinary Medicine, Department of Patholobiology in the Laboratory of Aquatic Animal Medicine and Pathology commented that he would like to comment on the recent recommendations made by Mr. Adler to EPA. In Mr.

Adler's letter to Mr. DeVillars dated 4 May 1998, he outlined seven areas of concern that the Massachusetts Lobstermen's Association (MLA) felt should be addressed prior to the final MWRA permit issuance. These concerns point out the lack of complete understanding of the effects of outfall discharge on the health of larval, juvenile and adult lobsters and lobster fecundity in the immediate vicinity of the outfall.

AGENCY'S RESPONSE:
The list of lobster monitoring recommendations formulated by the former Outfall Monitoring Task Force (OMTF) have been incorporated into the final permit under Part I.7.d. The following language has been added to the final permit:

"The MWRA shall perform the following lobster studies:
(1) MWRA conducted a suction sampling survey in the vicinity of the future outfall site during the summer of 1998 to sample shelter-restricted early benthic phase juvenile (EBP) lobsters. MWRA's proposed survey strategy was reviewed by the OMTF. Numbers of young-of-year could yield important information about recruitment in this area before the new outfall goes on-line. If a properly designed survey finds no significant numbers of EBP juveniles in the vicinity of the future outfall site, issues and concerns about outfall impacts on those life stages will not be re-evaluated. If significant numbers of EBP juveniles are found, then the question of effluent toxicity to EBP juveniles shall be examined. The results of this survey were reviewed by the OMSAP, and final decisions shall be made by EPA and the MADEP. (2) If there are significant numbers of EBP juveniles found in the vicinity of the future outfall site, then the MWRA shall develop a RFP for toxicity testing. The OMSAP shall review the RFP, have any proposals peer-reviewed, and shall be involved in evaluating the responses and in identifying an appropriate sampling strategy. (3) MWRA shall continue to assist MADMF with the input and analysis of the 1997 lobster monitoring data and complete the literature search on the effects of chlorine on egg-bearing females. (4) After the new OMSAP evaluates any new unsolicited proposals in terms of their importance in assessing the potential effects of treated effluent on egg-bearing female lobsters and planktonic lobster larvae, and if any proposals are deemed important by the OMSAP, an RFP will be issued by the MWRA."

EPA will also consider incorporating additional lobster studies after seeking advice from the new OMSAP.

Endangered Species Act:

Comment:
STOP commented that because the biological assessment and bio-opinion were performed while the outfall was being built, the process was flawed. STOP does not accept the "no jeopardy" opinion issued by NMFS under these circumstances. Consequently, EPA should plan to vigorously protect the nine species that currently fit the designations of "threatened" or "endangered."

Comment:
The BLF supports the inclusion of permit language protective of endangered and threatened species and their habitat. It is important to modify the permit to more closely track the Endangered Species Act, which states in part:

> "Each Federal agency shall, in consultation with and with the assistance of the Secretary, insure that any action authorized, funded or carried out by such agency ... is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined by the Secretary, after consultation as appropriate with affected States, to be critical...." (From the Endangered Species Act, Section 1536 (a)(2).) (Emphasis Added.)

The permit should clarify that the discharge shall not jeopardize the likelihood of both the survival and recovery of threatened, as well as endangered species. The permit should also prohibit the destruction or adverse modification of the habitat of threatened and endangered species, consistent with the Endangered Species Act. The following language is recommended:

"In addition to the effluent and monitoring requirements listed in Part I.1.a. of this Permit, the discharge shall not: (a) cause or contribute to an exceedance of the current state water quality standards or of any more stringent state water quality standards hereafter duly promulgated, (b) jeopardize the continued existence, likelihood of survival or recovery of any endangered species or threatened species, and/or (c) cause or contribute to the destruction of or adverse modification of habitat of such threatened or endangered species. The permittee shall ensure that the discharge meets water quality standards and complies with all federal and state regulations without limitation, (15 CFR §922.142) of the Stellwagen Bank National Marine (including, protection) Sanctuary."

The permit should attach and incorporate by reference the 1995 MOU between the MWRA, EPA and the National Marine Fisheries Service (NMFS) regarding the Conservation Recommendation of the NMFS Biological Opinion. In addition, the Fact Sheet at Section G.4. does not reference the 1995 MOU regarding Conservation Recommendations.

Comment:
The Cetacean Research Unit would like to express that although the permit is virtually comprehensive, we find one area lacking in its coverage. There is ample attention given to one critically endangered species, the northern right whale. We understand the reason for this attention, and echo the concern on which it is based. However, we would also point out that right whales are generally present in Massachusetts Bay for a relatively small period of time. Other endangered whales, such as humpback and fin whales, are present for a much longer period of time and may therefore be even more susceptible to unforseen effects. While it is true that they are higher in the food chain than right whales, and are less likely to be affected by changes in plankton composition, they are none-the-less vulnerable to toxin build-up through the food chain. They, and other marine mammals, have been shown to be highly sensitive to toxins, and to accumulate them at levels seen in no other animals than sea birds. Given the current technology for assessing toxin burdens in living whales using small blubber samples obtained from biopsy darts, such monitoring is both do-able and affordable. We feel that such monitoring is critical to understanding what effects the MA Bay discharge might have.

AGENCY'S RESPONSE:
The permit language has been changed in order to further protect threatened and endangered species, and for clarification purposes. The final permit language, under Part I.1.b., has been changed from ". . . the discharge shall not cause or contribute to an exceedance of the current state water quality standards, and/or jeopardize the likelihood of both the survival and recovery of an endangered species by reducing the reproduction, numbers, or distribution of that species, . . ." to ". . . the discharge shall not cause or contribute to an exceedance of the current state water quality standards, and/or jeopardize the likelihood of both the survival and recovery of any endangered or threatened species by reducing the reproduction, numbers, or distribution of that species and/or adversely affect its critical habitat, . . ." In addition to this permit language change, the 1995 Memorandum of Understanding between the MWRA, EPA and the NMFS has been attached to the permit as a reference document (Attachment V). It would be possible to assess toxin burdens in living whales using small blubber samples obtained from biopsy darts, and the OMSAP will be investigating this issue in the near future. If the OMSAP makes such a recommendation to EPA and the MADEP, and if EPA and the MADEP approve this recommendation, the permit will be modified to include this special study.

New Scientific Advisory Panel:

Comment:
STOP commented that Part I.7.d. on page 10 of the draft permit implies that the selection of the OMSAP will be an open and public process. Consequently, we are disturbed that the process of choosing the OMSAP is being undertaken prior to the finalization of the process by which members will be chosen. EPA should seek broader public input into this process as soon as possible.

AGENCY'S RESPONSE:
EPA and the MADEP solicited broad public input for the establishment of the new science advisory panel through discussions

with representatives of interested groups, discussions at public meetings of the OMTF, and through the public notice process of the MWRA permit.

Comment:
The BLF supports the establishment of an independent OMSAP. The permit should be modified to ensure that the OMSAP receives information in a timely manner and meets periodically. Permit language should ensure that the OMSAP plays an integral role in proposing modifications to, and evaluating proposed modifications to, the monitoring and contingency plans and modeling programs.

Comment:
The Boston Harbor Association supports the EPA and DEP's plans to develop an Outfall Monitoring Science Advisory Panel to provide objective advice regarding monitoring data and possible contingency measures (page 10, section 7-d). However, based upon language in the permit, the role of OMSAP needs to be more fully defined. The permit does not adequately define how the public and how advocacy organizations such as The Boston Harbor Association will influence the important decisions to be considered by OMSAP.

Comment:
The permit should state that the OMSAP shall play a direct role in the Contingency Plan Implementation, and that the EPA and DEP will obtain the opinion of the OMSAP concerning exceedances prior to ordering further action whenever feasible. Specifically, the permit should state clearly that the OMSAP shall receive notification of exceedances of warning and caution levels contemporaneous with the EPA and DEP. Furthermore, in the case of an exceedance of a warning level, the permit should: (a) state that the OMSAP shall make an independent determination of whether there are any adverse environmental impacts from the exceedance; and (b) the OMSAP shall evaluate the extent to which the MWRA discharges contribute to such impact; and (c) require the OMSAP to report the results of its determinations to the EPA and DEP. In the case of an exceedance of a caution level, the permit should require the OMSAP to provide a report to the EPA and DEP which evaluates the cause and effect of the exceedance and which recommends specific actions, including but not limited to additional monitoring.

Comment:
It is absolutely essential that OMSAP be free from political influence and have final say over technical matters, such as sampling design and the appropriateness of including certain parameters in the monitoring program. The newly drafted charter for the OMSAP is a good start in insuring that there is not even the appearance of conflict of interest in this panel, since so much depends on it.

Comment:
The Association for the Preservation of Cape Cod commented that it is critical that the OMSAP be the primary focus in review of data and in making all decisions. The responsibility for selection of members for the OMSAP and related advisory committees (standing and inter-agency for example) needs to be broadened beyond DEP and EPA.

Comment:
Although MWRA believes the OMTF has well fulfilled its function, MWRA is willing to cooperate with the new panel of scientists EPA and DEP intend to create to take over the function of the Task Force. A number of issues regarding the transfer of administrative and support functions are crucial to providing an orderly transition between the two groups, and these remain to be clarified and addressed.

Comment:
The MWRA Advisory Board is concerned that the structure of the newly constituted panel does not appear to have provided an adequate role for public interest groups and the ratepayer interests. Some provision needs to be added to ensure that other considerations are factored into monitoring plan decisions. That the proposed permit adds extensive new monitoring

requirements that have not been called for by the current Outfall Monitoring Task Force and that go beyond the scope of the effect of the Authority's discharge undermines the role of the existing Task Force and the new Panel.

Comment:
As various groups continue to press both old and new questions about the outfall's impact on the Massachusetts Bay environment, the draft NPDES permit has appropriately adopted and codified the monitoring plan and the process of scientific review that supports it. Given those circumstances, MWRA is extremely troubled by the provisions in the permit that bypass the plan and its process of review. Most of the specific monitoring requirements added in the first paragraph of Section I.7, including the requirements for acoustic plume monitoring, zooplankton monitoring in Cape Cod Bay, and development of a food web model, although proposed, have not been sanctioned by the OMTF. Indeed, they have been criticized by many scientists as extending well beyond the scope of any likely effect of MWRA's discharge on Massachusetts Bay. The inclusion of these requirements, along with EPA's assumption of responsibility for reviewing the monitoring plan on its own to propose additional modifications, significantly undermines the integrity of the scientific review process relied upon to date and appears to be motivated by the desire to make concessions outside the framework of sound science to particular interests and constituencies. MWRA supports continued reliance on the new scientific panel to make all of the judgments required to continue an effective MWRA monitoring program, and takes strong exception to any EPA usurpation of the panel's role.

Comment:
The Coastal Advocacy Network stated that it should be clear in the permit that questions concerning modifications of the Monitoring Plan, including sample parameters and spatial and temporal scales, changes in the caution and warning levels of the Contingency Plans, and changes in the permit limits, should be brought before this panel with the expectation that their recommendations be adhered to.

Comment:
The Massachusetts Audubon Society urges that stronger language be placed in the contingency plan that reflects the reliance by MWRA, EPA and MADEP on the advice of OMSAP. For example, OMSAP should be consulted to determine if there is an environmental impact resulting from an exceedance of a warning level (see page 13, Contingency Plan). Right now the stated role of OMTF in the Contingency Plan is merely to confirm that an exceedance has occurred but not to determine if there was an environrnental impact related to it. The OMSAP is the body that should ultimately determine whether the addition of new parameters, such as lobsters, is scientifically justified, or whether the spatial and temporal scale of sample stations are appropriate. It is also the appropriate body to determine whether unanticipated environmental impacts that warrant additional treatment, such as nitrogen removal, have occurred.

Comment:
The OMTF commented that as the MWRA treatment facility moves towards Phase II and discharge of secondary treatment through an outfall 9.5 miles into Massachusetts Bay, it remains important to continue to monitor, characterize and assess the environment in the near- and farfield areas after outfall discharge begins. The role of a scientific and technical advisory committee in advising the state and federal agencies on scientific validity of the monitoring activities and interpretation of results is a high priority for Phase II. The proposed committee is restricted to scientists and engineers, but includes a citizen advisory committee and agency staff in the role of technical advisors, both of which have been valuable assets to the current scientific panel, the OMTF. It is strongly urged that the MADEP and the EPA use the advice of the proposed panel and associated committees in reviewing the monitoring program and results. EPA and MADEP should incorporate flexibility in response to timely issues raised through the monitoring program. The agencies should remain adaptable to change in the monitoring program without going through a full permit review. The Outfall Monitoring Task Force has provided a forum to present divergent scientific and technical views without getting entangled in the legalities that constrict agencies. MADEP and EPA should foster an open forum concept in the creation of the panel and its operating procedures. (Dr. Andy Solow abstained.)

Public's Response:

STOP commented that the MWRA continues to be offended by EPA usurping of the monitoring role played by the OMTF. There have been many legitimate concerns raised by researchers outside the OMTF which have not been addressed under the existing structure. We continue to be concerned about the ability of the OMTF or any other task force to undertake the time consuming and objective role of monitoring the monitors. EPA's role in selecting the members of any such task force as well as questioning the direction taken by its members is essential to this permit.

AGENCY'S RESPONSE:
In order to clarify the new Outfall Monitoring Science Advisory Panel's (OMSAP) role better, the following sentence has been added to Part I. 7.c.ii. of the final permit: "The OMSAP will play a key role in evaluating any exceedances of caution or warning levels, and advising EPA and the MADEP as to whether the MWRA's discharge plays a role in such exceedances." The OMSAP will also advise EPA and MADEP concerning proposed changes in the monitoring and/or contingency plan. To ensure that the public's concerns are adequately represented to the OMSAP, a citizens advisory committee is being established.

OMSAP Charter:

Comment:
The Charter for the Outfall Monitoring Science Advisory Panel should be attached to the permit and incorporated by reference.

Comment:
STOP commented that the charter describing the members of the OMSAP should be attached to the MWRA's permit.

Comment:
With respect to conflicts of interest, the Charter currently states "Members of the OMSAP may not be current or imminent contractors to the MWRA, nor may they be employees of any governmental agency in the chain of command. If a member accepts a contract with the MWRA, he/she must resign from the OMSAP."

The Charter should be amended consistent with the recommendation of Outfall Monitoring Task Force member Phil Clapham, to state that those who "intend to solicit or accept" a contract from the MWRA shall not be eligible to serve on the OMSAP. The charter should be further amended by prohibiting membership by those in a conflict position in the past year, as well as current or imminent contractors and subcontractors. The Charter should state that the EPA and DEP will make every effort to appoint independent members.

AGENCY'S RESPONSE:
The Charter may be amended over time based on experience. These are good suggestions and EPA, MADEP, and the OMSAP will consider them in due course.

Comment:
Finally, the permit should include the following initial tasks for the new Science Advisory Panel: identification of scenarios for the contingency simulation required by Section 8.e.iii of the permit; and, identification of scenarios which may lead to the diversion of the outfall to the harbor.

AGENCY'S RESPONSE:
EPA and MADEP are asking the OMSAP to evaluate these important issues–but work assignments for the OMSAP are a level of detail not necessary to include in this permit.

Food Web Model Scope of Work:

Comment:
With respect to endangered species, the current monitoring plan provides almost no ability to detect changes at spatial or temporal scales deemed significant from the best available information. Here again, the nearfield sampling strategy ignores what is known about the behavior and distribution of endangered whales in the Bays, particularly the northern right whale which feeds exclusively upon zooplankton resources which are susceptible to change in response to nutrient inputs. Accordingly, the 12/20/96 report of the OMTF's Right Whale - Zooplankton Focus Group recognized that the right whales which regularly feed in CCB represent an apex predator whose food supply could be altered by the relocation of the MWRA outfall. The National Marine Fisheries Service's Biological Opinion on the outfall also acknowledges the potential effects to endangered species and supports additional research and monitoring as part of its Conservation Recommendations.

Comment:
The Boston Harbor Association recommends that this requirement be removed from the NPDES Permit. While a food web model would help answer many complex questions associated with marine life in Massachusetts Bay, we believe that this effort is beyond the scope of the MWRA's mandate and is more appropriately managed by the Executive Office of Environmental Affairs. For example, the state's Coastwide Monitoring Program, currently managed by the Massachusetts Office of Coastal Zone Management, should be expanded to address complex bay-wide issues such as the food web. More proactive monitoring by EOEA is also needed to provide an objective and thorough evaluation of conditions in Massachusetts Bay which are not related to the Outfall but could impact the Outfall's receiving waters.

Comment:
The National Marine Fisheries Services (NMFS) acknowledges that while the MWRA is, "only one of a considerable number of multiple stressors" within the area, MWRA is the largest point source of potential pollutants within this semi-enclosed ecosystem. A MWRA study [Technical Report Series No *95-8]* indicates that MWRA's is the highest pollutant source loader, representing the major nutrients - Total Organic (TO) phosphorus, TO nitrogen, and TO carbon - and surpasses all pollutant sources, including Non-MWRA treatment plants, non-point sources, riverine sources and atmospheric sources. A number of other commenters supported MWRA's recommendation to relax the food web modeling study. One agency stated that the food web requirement should be deleted from the permit because any diversion away from the business of discharging wastewater and/or the diversion of monies away from treatment of wastewater would, in time, caused disrepair of the entire treatment plant and lead to future pollution problems within the harbor. However, we [NMFS] disagree, it is our belief that conducting a food web analysis will give MWRA and others a better understanding of the possible adverse impacts before they have a chance to occur. While we support the continual updating and modernization of pollutant/wastewater methodology to maintain and improve wastewater quality into the receiving waters, we strongly oppose the removal of the food web modeling and zooplankton monitoring from the permit. As the major anthropological pollution contributor to this ecosystem, the MWRA must take the lead to protect this system against potential degradation, and more importantly, MWRA must avoid the potential appearance that they are shunning their support for a healthy marine ecosystem, including the protection of endangered species.

Comment:
One notable example of EPA’s inappropriate extension of the plan’s scope is the requirement that MWRA produce a scope of work for a food web model to determine potential impacts of the outfall on right whale habitat. MWRA has already developed a qualitative food web model and presented it for review by the Outfall Monitoring Task Force. There are many factors affecting the food web in Massachusetts and Cape Cod Bays, including a number of parameters that are not now well understood. It would be extremely difficult to produce a predictive model of this system, and particularly to produce one that could model any impact of MWRA’s new outfall location. Scientific comments to EPA at the recent Task Force meeting (April 28, 1998) indicated that expense of developing and maintaining such a model would be unlikely to result in any significant environmental benefit.

Comment:

The permit should require the following additions to the food web model: (a) require the MWRA to develop a scope for a food web model prior to, or contemporaneous with, issuance of the permit; (b) establish a strict deadline for completion of the model; (c) require calibration of the model with monitoring data to take into account seasonal variations of key parameters; (d) require periodic evaluation of and running of the model, including regular reporting to the EPA/DEP and the Outfall Monitoring Science Advisory Panel (OMSAP); (e) explicitly identify nutrients, toxics and toxins, and fresh water as components of the food web model; and (f) specify that potential impacts to Cape Cod Bay shall be considered in all monitoring, modeling and tracking programs.

Comment:
The Outfall Monitoring Task Force (OMTF) commented that to the extent that the NPDES permit calls for development of a food web model scope of work , this supersedes advice of the current scientific panel and presumes to predetermine advice of the proposed scientific panel. There are a variety of food web models, but none that will predict with certainty how marine mammals will be affected based on moving an outfall. Moreover, there are many other organisms in Massachusetts Bay beside marine mammals and lower trophic level prey. The permit should allow the new OMSAP to determine how best to address concerns about the impact of the outfall. Mrs. Polly Bradley of Safe Waters in MA (SWIM), who is also a member of the OMTF, added that she recommends changing this comment to what was agreed to at the April 29, 1998 OMTF meeting which was that MWRA take the conceptual framework which they have drafted and add concept calculations and a document which will identify the questions and pathways that are relevant to the outfall.

Comment:
The OMTF commented that the scope of work for a food web model should rest with the state and federal agencies involved in managing the coastal resources. Collaboration on such an important model is vital to the state for understanding the relationships between numerous significant sources of nutrients and pollutants to the bays. Implementation of such a model belongs in state hands, not with a major discharger. Cooperation in monitoring should be expected from the MWRA, but only as part of a multi-party exercise. The deadline for the scope of work is arbitrary, and not realistic in terms of the discussion that would need to take place among many scientists and environmental agencies. Dr. Andy Solow, a member of the OMTF and a statistician added that he agrees with this comment, except for the sentence beginning "Implementation of a such a model belongs in state hands," which he finds needlessly derogatory to the MWRA. Mr. Sal Testaverde added that NMFS believes that MWRA is responsible for the food web study, since they are the major contributor (up to five times greater than all other existing treatment plants combined) of nitrogen, phosphorus and carbon as well as other pollutant agents to the semi-enclosed bay ecosystem. NMFS is opposed to supporting the above OMTF comment, which recommends that the state and federal agencies be responsible for the food web model scope of work task.

Public's Response:
STOP commented that the MWRA continues to insist that such things as the food web model should not be considered their responsibility, implying that this is simply an attempt by opponents and the curious to collect interesting data. It is time that the MWRA recognize that their insistence on this new discharge site has upped the ante on getting the information in a timely fashion. We need to know what is there before this discharge's potential to change this ecosystem is unleashed. The fact that others benefit by this increased research does not negate MWRA's role in having to finance studies of this nature. If the MWRA's discharge was not factored into the picture, the data and models could be performed in a less time-pressured atmosphere. The MWRA admits within these comments that there are many factors affecting the food web in Massachusetts and Cape Cod Bays, including a number of parameters that are not now well understood. STOP continues to contend that this discharge should not be permitted to move forward until it is well understood!

Public's Response:
The Bays Legal Fund (BLF) commented that the draft permit must contain specific language regarding acoustic plume tracking, food web modeling, and zooplankton monitoring for two reasons: (1) the required modeling and monitoring has scientific merit and will provide necessary information to protect Cape Cod Bay and its threatened and endangered species, and (2) the MWRA's refusal to acknowledge the importance of this work leads the BLF to conclude that these studies will

not occur if they are not specified in the permit. The MWRA cites a lack of scientific support for such studies. However, the MWRA fails to cite OMTF support for such monitoring activities as a pilot study of zooplankton in Cape Cod Bay by scientist Cabel Davis. The agreement to conduct the pilot study, as well as the National Marine Fisheries Services' strong support for the food web modeling and zooplankton monitoring (May 1, 1998 comment letter to EPA), supports the proposition that a food web model is a valid scientific exercise.

AGENCY'S RESPONSE:
The final permit includes the requirement for a food web model scope of work, since there is uncertainty in: a) what controls the distribution and movement and feeding behavior of humpback and right whales in Mass and Cape Cod bays, acknowledging that zooplankton abundance is a key factor for right whales; b) right whales are among the most endangered mammals on earth; and, c) the outfall will probably effect phytoplankton to some degree, and therefore may have an effect on zooplankton populations. EPA is taking a precautionary approach and believes that a food web model scope of work is a step in answering some of these outstanding questions. This requirement will also complement the Humpback and Right Whale Implementation Recovery Team in their efforts, in developing a conceptual model for habitat in the Northwest Atlantic. (Mona Haebler of the EPA Narragansett Rhode Island Laboratory may be contacted for further information at 401-782-3000.)

The specific permit language is as follows: "The MWRA has developed a scope of work for a food web model to characterize the seasonal abundance for important prey species of endangered species in the Massachusetts and Cape Cod Bays. EPA and the MADEP, in consultation with the OMSAP discussed below, shall provide the MWRA with comments on this scope of work. Within ninety (90) days after receipt of these comments, MWRA shall submit a revised scope of work for review by OMSAP, and for approval by EPA and the MADEP. After receipt of the revised scope of work, EPA and the MADEP will determine whether implementation of the food web model is warranted. The food web model shall: (a) include phytoplankton, zooplankton, planktivorous fish and marine mammals including endangered whale species, (b) allow an evaluation of the strength and likelihood of potential stressors that may alter the food web, (c) be based on results of ongoing monitoring, special studies of plankton (phytoplankton and zooplankton) dynamics and any other current or historical research in Cape Cod Bay. The MWRA may choose to fulfill the obligations described in this paragraph by ensuring that these items are performed by another entity."

Additional requirements concerning implementation of the food web model will be considered when the scope of work is complete, and when it has been evaluated by the OMSAP.

Funding Request to Pursue Monitoring Efforts not Recommended by the Science Advisory Panel:

Comment:
The proposed monitoring plan fails to account for biological changes which may occur at greater distance from the outfall, or during time periods, or at spatial scales which are not covered by the sampling design. As noted above, the SAP has commented extensively on the need for more thorough monitoring of biological indicators, particularly with respect to the plankton resources in both Massachusetts and Cape Cod Bays (CCB). The SAP maintains that the proposed monitoring plan seriously under-samples for certain species parameters and largely ignores key ecological responses known to be indicative of marine systems stressed by nutrient and other sewage related inputs.

AGENCY'S RESPONSE:
The OMSAP will be consulted on this issue, with changes to the monitoring plan made as deemed necessary by EPA and the MADEP.

Comment:
The SAP supports the requirements for the special studies identified in the draft permit and urges the DEP and EPA to retain these important provisions in the final permit to supplement the contingency planning process and fine tune future monitoring

requirements.

Comment:
Because the level of risk to the right whale is not easily quantified, the food web model proposed for inclusion in the permit offers an opportunity to better predict the effects of the outfall on the southern Massachusetts and Cape Cod Bay environments critical to the success of right whales in the western North Atlantic. Food Web Model: at a minimum, a pelagic food web model of CCB should include phytoplankton, zooplankton, fish and right whales as key taxa; trophic interactions between these groups, and basic abiotic inputs that drive biological production and trophic interactions (e.g., vertically-resolved temperature, salinity' and light fields, and mixed layer depth). Ideally, this would be a model that could eventually be embedded in the 3-D circulation model.

Comment:
The statements made on page 3-16 of the Post-discharge Monitoring Plan acknowledge that the predictive capabilities of the existing Bays Eutrophication Model may be inadequate for evaluating conditions in a complex marine environment. The SAP acknowledges the limitations of such involved in the determining if alterations to this resource have occurred - one relates to the formation of the zooplankton patches which right whales feed upon, and the second relates to the quality of the patches as food for the whales.

Comment:
MWRA recognizes that there may be many areas of scientific inquiry regarding the Massachusetts Bay and Cape Cod Bay ecosystems that deserve pursuit. While MWRA is committed to continuing to make a significant contribution to further study through its ongoing monitoring program, it vigorously objects to the incorporation of specific suggestions for additional monitoring efforts which have not been sanctioned by the OMTF or the new panel. The permit should not be the vehicle to accommodate the wish lists of curious scientists and concerned lay persons. This imposes an unfair and costly regulatory burden on MWRA, which clearly exceeds both MWRA's legitimate responsibilities and any commensurate obligations placed on other NPDES permittees discharging to Massachusetts or United States waters. Rather, EPA and DEP should encourage other parties in Massachusetts and in New England to step forward with initiatives and funding to help expand the base of information and understanding already established by the baseline monitoring MWRA has conducted to date. MWRA is willing to cooperate, particularly during the period of this permit term, to reassure the interested public during the transition to using the new outfall. MWRA reserves its right to question the appropriateness and scope of the monitoring program in renewals of this permit.

AGENCY'S RESPONSE:
The final permit has remained unchanged with respect to this issue.

Plume Tracking:

Comment:
The permit should state that the plume tracking program shall be implemented contemporaneous with the operation of the outfall.

AGENCY'S RESPONSE:
Since tracking the plume accurately will need to occur after the treatment plant achieves steady-state, (i.e., when the operations of the treatment system have been balanced properly and maintained at a balanced level) and since it usually takes up to 6 months before most wastewater treatment systems are at steady-state, the final permit language has not been changed.

Special Studies:

Comment:
Brad Barr, Manager of Stellwagen Bank National Marine Sanctuary (SBNMS), has requested that MWRA be required to report yearly to document the effects of the Deer Island discharge on Sanctuary resources and qualities.

Public's Response:
The MWRA commented that Brad Barr, Manager of Stellwagen Bank National Marine Sanctuary (SBNMS), has requested that MWRA be required to report yearly to document the effects of the Deer Island discharge on Sanctuary resources and qualities. Although the MWRA finds no evidence that the discharge will have a deleterious effect on the SBNMS, the MWRA is willing to submit to Mr. Barr an annual report of the relevant data from the Ambient Monitoring program.

AGENCY'S RESPONSE:
The final permit has been changed to include the following language under Part I.20.f., "On or before January 1st of each year, for the life of this permit, the MWRA shall submit a report to the Stellwagen Bank National Marine Sanctuary (SBNMS) that: (1) includes all monitoring and related data from the Ambient Monitoring Plan that relates to the SBNMS, and (2) documents the effects of the Deer Island discharge on Sanctuary resources and qualities regarding the previous year."

Comment:
STOP commented that the following wording implies a foregone conclusion, "The results of these studies will help confirm assumptions of . . . " These words should be replaced with the wording "The results of these studies will help to test the assumptions of . . . "

AGENCY'S RESPONSE:
Since the fact sheet for the draft permit cannot be altered directly, and since this Response to Comments document serves as the final permit's formal fact sheet, let the administrative record show that the special studies language is now changed from "The results of these studies will help confirm assumptions of . . . " to ". . . The results of these studies will help to test the assumptions of . . ."

Comment:
The OMTF commented that Draft Permit on Page 9, Part I.7.b. and the Fact Sheet on page 15.G.3 regarding the commitment of the agencies to open advice from the proposed scientific panel is questioned in the section on Special Studies. Without a doubt, special studies add value to monitoring programs. MWRA should continue to support special studies within the context of the mission of the monitoring program and based on the advice of the scientific and technical review panel. Special studies should not be politicized. To this end the permit language should read, "Special studies to be reviewed by the newly created scientific panel include water circulation, plume tracking, and particle transport. Other potential areas of study include lobster recruitment, Cape Cod Bay zooplankton dynamics and benthic nutrient flux." As currently worded in the NPDES permit, the special studies listed appear to be required. This is unacceptable if the newly created scientific panel's advice is of value.

Comment:
STOP commented that EPA should seek the input of the OMSAP and the public with regards to the review that they undertake on or after December 31, 1998.

Public's Response regarding Ambient Plan/Contingency Plan Comments:
The MWRA commented that the MWRA has carried out extensive studies of the Massachusetts Bays environment since 1987. The Ambient Monitoring Program in place since 1992 is by far the most comprehensive environmental monitoring carried out by any secondary treatment plant in the country and is comparable in cost to those required of major West Coast dischargers providing only primary treatment, under a Section 301(h) waiver from secondary treatment standards.

Similarly, to our knowledge, MWRA is the first wastewater discharger in the United States to agree to link environmental

monitoring results directly to conservation actions through the vehicle of a Contingency Plan. After the concept was included in NMFS' conservation recommendations in 1993, MWRA voluntarily agreed to develop such a plan and has undertaken the development of the Contingency Plan since then, disseminating several successive drafts for extensive public review.

The Ambient Monitoring and Contingency Plans were developed by MWRA under the guidance of the OMTF, which EPA intends to replace with the new Outfall Monitoring Science Advisory Panel (OMSAP). Several comments were submitted asking for a clarification of the role of the OMSAP. MWRA agrees and offers its perspective here. MWRA expects that all scientific issues relating to the Deer Island discharge into Massachusetts Bay will be managed under the guidance of OMSAP, including any proposed changes to the Ambient Monitoring Plan or the Contingency Plan. MWRA is committed to working closely with OMSAP, as it has with the OMTF, to assure the public, advocacy groups and regulatory entities that an unpaid independent oversight group of scientific experts is responsible for guiding the monitoring and contingency plan process.

Because current public concerns about the outfall discharge exceed the actual likelihood of impacts, it is particularly important that EPA and DEP receive the best attainable independent, peer-reviewed technical advice, in order to evaluate the discharge monitoring data. Many of the comments about the OMSAP focused upon the need for its independence, to allow for public and regulatory confidence in its advice. Implicit in many of these comments is a perception that such independence has been lacking to date, which is by no means the case. Perhaps the best way to underscore the independence of the OMTF, both from MWRA and from other groups seeking changes to the outfall monitoring program, is to provide a brief synopsis of some OMTF decisions, based on that group's technical assessment of the issues brought before it, which were contrary to MWRA's recommendations at the time.

- Primary productivity: Against the advice of MWRA and its consultant, the OMTF required that measurements of phytoplankton production be incorporated into the original Ambient Monitoring Plan design. Following the inception of monitoring in 1992, the OMTF required, again contrary to MWRA recommendations, that MWRA change these measurements from an oxygen-based technique to a technique using radioisotopes, argued to be more sensitive. This requirement was reaffirmed on two later occasions when MWRA requested that primary productivity studies cease.

- Soft-sediment monitoring: After reviewing the results of the initial 1992 monitoring in the near-field, OMTF required that MWRA completely redesign the soft-bottom benthic monitoring studies, against the advice of MWRA's consultant.

- Far-field monitoring: When delays in outfall completion led to a recognition that more years of baseline monitoring would be available than originally anticipated (in 1996), MWRA initiated discussions with regulators and OMTF, seeking temporary reductions in monitoring intensity during remaining baseline years. OMTF concurred with some recommendations, but refused any consideration of an MWRA recommendation that farfield monitoring be substantially curtailed in 1997 for one year. Consequently, full baseline farfield monitoring has continued.

- Zooplankton: OMTF has had extensive discussions on issues raised by the various reports prepared by the Cape Cod Commission Science Advisory Panel (SAP) and convened two sub-panels of zooplankton and marine mammal experts to provide advice on the issues and specifically to review relevant SAP recommendations. At no time did OMTF or the expert focus groups conclude that discharge from outfall TO1 was likely to have any impact upon zooplankton composition or abundance in Cape Cod Bay. However, recognizing the importance of issues related to zooplankton community changes and downstream impacts on zooplankton predators, including marine mammals, the OMTF required that MWRA propose a Contingency Plan caution threshold based upon zooplankton community changes (see Table 5-1 of Contingency Plan, p.20) OMTF has also required that MWRA participate in multi-agency pilot studies using new technology (video plankton recorders) to investigate aggregations of zooplankton in Cape Cod Bay. An additional mandate required that MWRA compile and analyze more than 20 years of available zooplankton data from the region.

Public's Response:
The MWRA commented that various public comments included a number of suggested changes to the Ambient Monitoring and Contingency Plans. Any such suggested changes should be reviewed by the OMSAP and subject to the modification

processes described in the draft permit. Thus the final permit is not the appropriate forum for modifying these plans. Nevertheless, MWRA would like to respond to a few selected comments here for the purpose of clarification. There are many misconceptions apparent in the public comments as to the scope and contents of the Ambient Monitoring Plan, the Contingency Plan thresholds, or both. Examples include the following:

- Dr. Theodore Smayda of the Cape Cod Commission notes in his May 4, 1998 letter that MWRA did not discuss two species of nuisance algae in the Outfall Monitoring Plan. That information can be found in the Outfall Monitoring Overview and will appear in the next revision of the Outfall Monitoring Plan. See Outfall Monitoring Overview: 1996 (November, 1997), Attachment 4.

  Dr. Smayda also says that zooplankton will be measured only at the surface and that surface nutrients will only be measured at one station. These statements are incorrect. MWRA will make the next revision of the Outfall Monitoring Plan easier to read to avoid such misunderstandings. (MWRA)

- Richard York of the Bays Legal Fund states that the Ambient Monitoring Plan lists no farfield monitoring stations for phytoplankton. While there are not any farfield stations listed on page 3-13, where the nearfield stations are included, there are farfield stations listed on page 3-14 for this parameter.

  In Mr. York's discussion of the plume's dilution rate, his estimates, using geometry, that dilution of the discharge is 43-173 at a distance of 4.32-8.64 km from the diffusers. His calculation, however, does not account for the process of initial mixing. Modeling predicts that at that distance (4-9 km), the minimum dilution is about 250 in Winter and 400 in Summer. (MWRA)

  Mr. York also presents Geyer's surface-drifter tracks as evidence of where the plume would go, and describes the impingement of surface water from Maine on the surface plume. His use of Geyer's results to reach this conclusion is based on the assumption that the discharge is a surface plume. In fact, the discharge will be entrained below the pycnocline during the Summer, and so this is an improper assumption. (MWRA)

  Mr. York describes stimulation of dinoflagellate growth at levels of several milligrams of humics per liter, and compares this to the 10-20 fold higher levels found in effluent. His analysis would be improved by considering ambient levels. Elevation of humics would be confined to the zone of initial dilution, because dissolved organic carbon and particulate organic carbon levels in effluent are only about 30-60 times higher than levels in Massachusetts Bay, and initial dilution is expected to be at least 50. (MWRA)

- The comments by Ms. Alex Ritchie of the Cape Cod Commission, submitted at the April 23, 1998 hearing, include certain model results. Ms. Ritchie states that these are new information showing severe impacts on Cape Cod Bay and implies that MWRA suppresses critical results.

  MWRA in fact conducted the model runs at the request of the OMTF and presented the results as soon as they were available at the March 20, 1998 OMTF meeting. The Cape Cod Commission member was present at that meeting and asked for copies of the overheads. MWRA complied, but with a caution that they could easily be misinterpreted. (MWRA)

  The model runs discussed are not representative of a real or likely situation. They are a "sensitivity test" of the mathematical model where inputs are given extreme values to test the model behavior. The OMTF directed MWRA to increase nitrogen loads in the model to extreme values. They do not represent what could happen in 1999. The model runs in question are included here as Attachment 5. The main conclusion is that grossly increased nitrogen would degrade nutrients and chlorophyll but not dissolved oxygen (DO) in Boston Harbor, Western Massachusetts Bay, and Cape Cod Bay, and that the effects would be more severe with a Harbor discharge. (MWRA)

Ms. Ritchie also asked to see model results where treatment and outfall location were independently adjusted. Those can be found in Chapter 7 of MWRA EnQuaD Technical Report 95-8, ?A Water Quality Model for Massachusetts and Cape Cod Bays: Calibration of the Bays Eutrophication Model," included as Attachment 6. The main conclusion to be gained from those comparisons is that Harbor DO is most improved by secondary treatment, while Harbor chlorophyll is most improved by relocating the outfall. (MWRA)

Public's Response:
STOP commented that the statement that the MWRA made about "the permit should not be the vehicle to accommodate the wish lists of curious scientists and concerned lay persons" that appears in this section is the typically arrogant response the MWRA's agency has taken toward the numerous legitimate concerns raised by people, organizations, and agencies outside their purview. It is time that MWRA recognize that they are proposing an experiment of enormous magnitude to be performed in an irreplaceable ecosystem of great aesthetic and economic value, one that is not now well understood by their own admission. The wish list that they so easily dismiss represents a scrambling on the part of advocates to understand an ecosystem before it is placed in jeopardy by an effluent stream that is larger than any other single effluent stream on the planet.

AGENCY'S RESPONSE:
The requirements discussed above have remained in the final permit.

Proposed Revisions to the Ambient Monitoring Plan:

Comment:
The Association for the Preservation of Cape Cod offered the following proposed revisions to the Ambient Monitoring Plan:

1) The Ambient Monitoring Plan downplays the role of wastewater effluent's contribution of organic material. This role should be acknowledged up front.

2) APCC supports increased monitoring.

3) Nuisance algae is only sampled at one near field location. The number of sampling stations should be increased.

4) None of the benthic flux samples are presently sampled in the farfield. Farfield samples should be taken.

5) Since there are only two benthic monitoring sites set up in Cape Cod Bay, additional sites should be sampled toward Plymouth, Cohasset and Hull based on the flow currents.

6) Since only one sampling station in Cape Cod Bay, near Provincetown, is planned, more stations are needed, particularly in areas such as Sandwich where there are significant lobster landings.
7) Chemical constituents should be measured from the Cape samples in addition to the planned histologies.

8) Currently there are no plans to measure mussels at the single Cape site. APCC recommends sampling clams, since they are a major crop for Cape fishermen and aquaculturists.

AGENCY'S RESPONSE:
EPA and the MADEP will make a request to the new OMSAP for their review and recommendations on the above suggestions, and will seek broad public input through the OMSAP public meetings before a decision is made on adding this language to the Ambient Monitoring Plan.

CONTINGENCY PLAN (Section I.8):

General Comments:

Comment:
Mr. Graber of Winthrop stated that the MWRA's Contingency Plan, referred to within the Permit, is more than reasonable and the MWRA has gone above and beyond in addressing any reasonable concerns.

Comment:
The Association for the Preservation of Cape Cod (APCC) commented that the contingency plan does not compel action. Many "coulds" and "mights" should be "wills." Diversion to Boston Harbor should be listed as a real option should circumstances require. The contingency plan contains lots of "planning to plan." The document lacks specific actions resulting from specific triggering events. Caution and warning levels have not been developed for all parameters.

Comment:
The MWRA Advisory Board commented that the Contingency Plan should not be included in the permit. It is an important tool, but the ability to keep it up to date and its usefulness are better served by retaining the plan as a separate document.

Timelines for Reporting Monitoring Information:

Comment:
The MWRA commented that the Contingency Plan provides for a swift, comprehensive response to any potential problems detected related to the outfall. EPA will likely receive comments requesting that more stringent timelines be placed on MWRA response to such problems, but the requirements in the current plan are already quite strict. Given the complexity of the system, the existing requirement to make monthly progress reports to EPA on MWRA's response to warning level exceedances is both responsive and appropriate.

The timelines for reporting monitoring information are very demanding, but MWRA is committed to making the information of concern available as early as possible. The logistics of sample collection, analysis, and data synthesis require careful attention to ensure a high quality of data. MWRA is reluctant to agree to permit deadlines which may require compromises in data quality.

Comment:
Exceedances of the "caution level" and "warning level" criteria constitute critical information requiring immediate notification and response. Part I.8.a. only requires reporting of such exceedances to the EPA and DEP. The permit should require the MWRA to (1) post both the notification and the supporting data relating to these exceedances on the searchable, downloadable web site, and (2) e-mail notification of this posting to the distribution list of interested persons. The permit should specify that such postings and notifications shall occur within five business days after the results become available.

Comment:
The fact sheet suggests that sampling results will be made available to the EPA and DEP within ninety days, and that if the results will take longer than 150 days, approval must be obtained from the EPA and DEP. The permit should establish a deadline of 90 days with a contingency deadline of 150 days if approved by the EPA and the DEP.

Part 1.8.1. of the permit should require submission of all reports to the OMSAP contemporaneous with submission to the EPA and DEP. In the case of an exceedance of a warning or caution level, the permit should require reporting every 10 days until the exceedance is remedied. We further recommend that the permit contain the words "until the exceedance has been remedied" instead of the words "until the issue has been resolved".

Comment:

The MA Bays Program suggests that an increased specificity for the contingency plan should be developed. Although specific time frames for corrective actions may be difficult to mandate, a clear incentive for the MWRA to respond to problems should be required.

Comment:
The OMTF commented that the schedule (for submission of a monitoring program to produce data which would facilitate the selection of nitrogen removal technology and facilitate the design of nitrogen removal facilities on page 11, Part I.8.e.i.) is too hasty and not in sync with other plan schedules in the permit that might inform a monitoring program. (Dr. Andy Solow abstained.)

Comment:
The Contingency Plan cannot be responsive to environmental changes if reporting is required on a yearly basis. The permit must require at least quarterly reporting to ensure that adequate corrective action can be taken in a timely manner. In addition, the permit should clarify that quarterly reports shall report on data obtained in the previous quarter, in order to ensure the timely reporting of contingency data. The permit should require the MWRA to report the results of all sampling required by the Contingency Plan to the OMSAP, contemporaneous with filing of those results with the EPA and DEP. The permit should also require the reporting of the availability of such results in the Environmental Monitor and by e-mail to a distribution list of interested persons.

AGENCY'S RESPONSE:
As to the frequency of reporting, EPA and the MADEP agree with the comment that the requirements in the current plan are already quite strict. One change has been made to the permit, however. Part I.8.a. of the permit has been changed from "shall be reported within ten (10) days after the result becomes available." to "shall be reported within five (5) days after the result becomes available." Therefore, the most significant information relevant to the contingency plan–exceedances of caution or warning levels–must be reported within five days. Moreover, all of the information collected pursuant to the monitoring plan is reported at least quarterly.

Rather than including language in the permit, EPA will assume the responsibility of electronically notifying all interested members of the public of exceedances of caution and warning levels as soon as possible after the MWRA gives notice to EPA that there has been an exceedance of a caution or warning level. Language has been added to the permit requiring submission of reports to the OMSAP. Also, the permit has been revised to clarify that the MWRA must continue to report on its efforts to resolve contingency plan issues until the exceedance of any caution or warning level has been remedied.

The timeline for reporting sampling results is based on EPA and MADEP's judgment about the likely duration of the sampling and analysis period, and remains as proposed in the draft permit.

Burden of Proof:

Comment:
The OMTF commented that the requirement for MWRA to disprove its involvement with any detected adverse changes in Mass. Bay (or else address impacts) is probably unworkable. If adverse changes are detected, a more useful problem-solving approach would be for EPA and DEP to convene its inter-agency advisory panel to identify the relevant data from dischargers to Mass. Bay, ambient monitoring data on Mass. Bay, and other pertinent information. The OMSAP could review the information amassed from these various sources, including the MWRA, to evaluate the extent to which scientific evidence implicates MWRA as a significant contributor to the impact.

Comment:

The permit requires MWRA to develop a plan and schedule to address any impacts caused by MWRA's discharges, unless MWRA can demonstrate by convincing evidence that, in the event any "caution level" is exceeded, the MWRA discharge does not contribute to any adverse environmental impacts. Given the complexity of the Massachusetts Bay environment, this is quite onerous, the equivalent of "guilty unless proven innocent." MWRA believes that read literally, this is an inappropriate and unworkable standard. Because it is likely to be statistically impossible to prove that the outfall is not contributing to changes in the health of the bay, regardless of how insignificant or non-existent the contribution may be, MWRA urges that EPA apply a different standard that allows consideration of the weight of the scientific evidence. A more workable standard of proof for Section I.8.b would be:

"MWRA shall: (1) determine whether there are likely to be any adverse environmental impacts from such exceedance, (2) evaluate the extent to which the MWRA discharge is likely to be contributing significantly to any such impacts, and (3) unless MWRA demonstrates by the weight of the evidence, as determined by EPA and MADEP, that the MWRA discharge does not contribute significantly to such adverse impact..."

Even with this modification, MWRA will need to rely upon the expertise of the new scientific panel and the good judgment of EPA to guide common sense decisions about what kind of actions are appropriate to respond to any problems that might arise. Public's Response:
STOP commented that if MWRA feels that bearing the burden of having to prove that the discharge is not harmful is too onerous, they should retain the discharge at its current site.

Public's Response:
The Bays Legal Fund (BLF) supports permit language requiring the MWRA to show, by convincing evidence, that it has not contributed to any adverse environmental impacts in the event of an exceedence of a "caution level". This standard is particularly appropriate since the bays system is habitat for a number of endangered and threatened species. We strongly oppose the suggested changes set forth in MWRA's May 4th comment letter at page 14 of 31 which would significantly weaken the ability of the EPA and others to enforce the permit in a court of law.

AGENCY'S RESPONSE:
The OMTF's comment that the burden of proof placed on the MWRA in the draft permit is probably unworkable is of concern to EPA and MADEP. It is important that the process established by the permit to respond to environmental problems be scientifically valid.

We understand that in some circumstances a scientific panel may be able to conclude with confidence that there is no reasonable likelihood of a link between the MWRA discharge and a particular environmental problem, but where that same panel would be unwilling to conclude that such a link is absolutely impossible. Given the potentially large investments which may be needed to address real environmental problems, it is not advisable to require the MWRA to spend significant resources on issues where there is no reasonable chance that these expenditures will address the problem. EPA and MADEP have concluded that the draft permit language might have produced such a result.

At the same time, we believe that the revised standard proposed by the MWRA goes too far in the other direction. It is important that the MWRA be held to a very high standard of proof, and that where a reasonable doubt exists as to the MWRA's contribution to an environmental problem, the benefit of that doubt should go to the environment.

The final permit language under Part I.8.b. has therefore been changed from, ". . .unless the MWRA demonstrates by convincing evidence, to the satisfaction of EPA and the MADEP, that the MWRA discharge does not contribute to such adverse environmental impacts, . . ." to ". . . unless the MWRA demonstrates, to the satisfaction of EPA and the MADEP, that there is no reasonable likelihood that the MWRA discharge contributes to such adverse environmental impacts, . . ."

Corrective Action:

Comment:
The permit should specify that exceedances of the warning level for nitrogen shall trigger immediate implementation of the corrective actions set forth in section 5.3 of the Contingency Plan.

Comment:
Part I.8.a. of the permit should require inclusion of specific, short term, time frames for action under the Contingency Plan when a warning or caution level is exceeded.

Comment:
The Association for the Preservation of Cape Cod commented that there are no definitive actions that result when thresholds are exceeded. This section mentions that "MWRA will also likely expand its monitoring . . . to evaluate the cause and effect of the exceedance and review applicable trigger parameters and thresholds for necessary and appropriate revisions." There is no indication at what point something will be done to resolve the problem. The Plan process sets up a 180 day time line, but what will be in hand at the end of 180 days and what will happen meanwhile are unclear. There is no indication of when a problem will be fixed. The warning level actions are similarly deficient. They address none of the previous questions. This section sets up a plan to develop a plan, which, in APCC's opinion, is not much of a contingency. Specified actions need to be developed if thresholds are exceeded. Potential corrective activities relying on enhanced pollution prevention efforts would most likely involve a long process, significantly delaying correction of any problems. Short-term response activities should be developed and implemented.

Comment:
APCC commented that baseline studies have measured levels exceeding dissolved oxygen caution and warning levels during baseline studies. The monitoring plan recommends that the current threshold levels be reevaluated. APCC understands that the thresholds were developed based upon a healthy marine environment. The baseline studies may be showing that there are already environmental problems that need to be addressed.

Comment:
The SAP commented that the Evaluation of Nutrient-Phytoplankton Dynamics, June 4,1997, research program should do more than simply assess the ecological status of the ecosystem. It should also focus on processes such as trophic linkages between key taxa, as identified in point No. 2 above. Such a process oriented research program will be necessary to evaluate whether any ecosystem change, should it occur, is linked to the MWRA discharge activities.

The SAP recommends that the DEP and EPA initiate this effort with a rigorous review of the design of the proposed Special Studies required by the draft permit. This review, and subsequent research activities should be implemented as a collaborative effort between the MWRA, and the National Marine Fisheries Service under the auspices of the 1994 Memorandum of Agreement signed by these agencies. All subsequent research proposals should undergo peer review by the independent panel of scientific advisors to the outfall monitoring program.

Comment:
Due to the complex nature of monitoring in marine ecosystems, independent scientific review should be required as a regular part of the contingency planning process. At a minimum, the SAP recommends that the DEP and EPA mandate independent scientific review whenever a trigger threshold *(caution* or *warning* level) is exceeded. The current contingency plan calls for a review by the MWRA (and others) to determine the extent to which its discharge contributes to the exceedance. This is an unacceptable response to an exceedance as it introduces the potential bias (and appearance) of self-regulation with respect to permit conditions.

An appropriate response to *caution* and *warning* level exceedances should include independent scientific review of the event. Reviewers should have access to the raw data to conduct analysis, synthesis and interpretation of the conditions contributing to the exceedance, determine likely causes and recommend appropriate response procedures. Development of the procedures for independent scientific review should be one of the first priorities of the proposed Panel of Scientific Advisors to the

Outfall Monitoring Program.

Comment:
The Coastal Advocacy Network stated that in other parts of the permit, it is not clear who makes the determination that a corrective action is needed. As an example, in Section 4.2 (Contingency Plan actions on page 14) the current wording states, "or (2) a demonstration of evidence that no adverse impacts occurred from the exceedance " but does not specify who ultimately makes this determination. This should specifically refer to the OMSAP as the determining authority.

AGENCY'S RESPONSE:
As recommended by the OMSAP, EPA and MADEP will seek independent scientific review by the OMSAP concerning exceedances of caution and warning levels.

The determination as to whether corrective action is needed–and if so, what type of action is required--must be based on the particular circumstances which exist at the time. Although EPA and MADEP understand the desire to mandate specific actions which must be taken in response to particular problems, we believe that there is no realistic way to do so given the infinite variety of circumstances we may face in the future. The solution to any particular problem may take different forms depending on the precise nature of the problem (for example, there are many different ways to address nutrient problems; selection of the appropriate response will depend on a fact-specific analysis).

The approach of the contingency plan is to anticipate potential problems to the extent we are able; identify and evaluate potential solutions to each of these problems, to allow quick selection of a remedy in the event that becomes necessary; and establish a system of "caution" and "warning" indicators to provide as much lead time as possible if a problem begins to develop. This is a reasonable approach.

Trigger Levels:

Comment:
The Boston Harbor Association has actively participated in the development of the contingency plan to address potential environmental problems that may occur. The Plan includes "warning levels" and "cautionary levels" to indicate environmental change and potential problems. We support the current inclusion of the Contingency Plan as an attachment to the NPDES permit to ensure its implementation.

Comment:
The permit should include language directing the MWRA to establish more sensitive warning and caution levels based upon seasonal variations, when appropriate.

AGENCY'S RESPONSE:
The issue of seasonal variation will be reviewed by the new OMSAP and if changes are necessary, the contingency plan will be modified to include such changes.

Comment:
The Association for the Preservation of Cape Cod commented on Section 3.1 of the draft permit that states: "Caution level exceedances indicate the need for increased study or attention, along with the possible need for operational adjustments. Warning level exceedances indicate the need to respond to avoid potential environmental impact, triggering the development of a plan and schedule for doing so." The existence of these thresholds means nothing if there are no concrete actions taken to bring levels of contaminants below the thresholds. Simply increasing studies or attention (or possibly adjusting operations) will not resolve problems, neither will developing a plan, or schedule to respond, avoid potential environmental impacts. The contingency plan needs to compel concrete action, leaving room for flexibility, for specific problems. The accuracy of the following statement, "When a threshold measured in MA or Cape Cod Bay is exceeded . . . the effects may or may not be significant . . .", depends upon the definition of significant. Caution and warning levels need to be developed where they are missing (i.e., tables 5-3, 5-5, and 6-6 are missing caution levels, and table 5-5 is missing the warning levels.) "Appreciable change" under Section 5.52 of the draft permit needs to be

defined.

AGENCY'S RESPONSE:
The caution and warning levels listed within the Contingency Plan received extensive review by the public and the former Outfall Monitoring Task Force. These levels will also receive review by the OMSAP, the Citizen's Advisory Committee, and the Regulatory Advisory Committee. If any recommendations for changes are made to EPA and MADEP, the permit may be modified to reflect such changes.

Comment:
"Appreciable change" under Section 5.52 within the Contingency Plan of the draft permit needs to be defined.

AGENCY'S RESPONSE:
Since "appreciable change" will need to be evaluated on a case-by-case basis, the final permit does not include a definition for this phrase. For example, environmental changes will be observed by the OMSAP, and they will advise EPA and the MADEP on the "appreciable change" issue, given the details of each particular situation.

Comment:
Since the total nitrogen load discharged in 1996 was estimated to exceed caution thresholds already, what are the numbers for 1997 and 1998? How would the Contingency Plan address this?

AGENCY'S RESPONSE:
While it is true that the total nitrogen load discharged in 1996 during primary treatment (12,727 metric tons per year) exceeded the caution level listed under Table 2-1 on page 2-4 of the Contingency Plan (12,500 metric tons per year), the total nitrogen load discharged in 1997 and 1998 during partial secondary treatment has decreased to below the caution level. For example, the total nitrogen load discharged in 1997 (January through December) and 1998 (January through September) was 11,829 and 10,558 metric tons per year, respectively. When the wastewater treatment facility is upgraded to full secondary treatment, the total nitrogen load is expected to be 10,000 metric tons per year or less.

Comment:
Maintenance of equipment is often least expensive and most effective before it has deteriorated to a point where a violation is noted. We are concerned that the current contingency plan relies on permit violations as a trigger for maintenance. We suggest that appropriate warning levels for potential plant problems may be related to operation parameters or performance goals and that an independent technical review panel should be established to periodically evaluate the performance of the facility's systems and to review its detailed maintenance records. We also believe that an annual status sheet on plant performance, using key indicators for maintenance and including equipment replacement, would help keep the public informed on the review of maintenance functions. We do not believe that simply requiring the MWRA to implement a long-range operations and maintenance plan to "maximize the life of the treatment facility" is sufficient to ensure that the necessary money will be spent to maintain the facility even before problems are detected. Early detection of potential problems with the treatment system seems vital to the protection of Massachusetts Bay.

Comment:
The OMTF commented that the current Contingency Plan is a commendable effort. However, some of the caution and warning levels are based on current information, some of which is incomplete or limited. There are many approaches to setting limits, and adhering to the current caution and warning levels in the Contingency Plan. Although an admirable goal, setting caution and warning levels for nutrients will require new approaches given its variability seasonally and annually.

AGENCY'S RESPONSE:
The following language has been added to Part I.18.g. of the final permit, "The MWRA shall perform routine maintenance of the sewer system, the sewage treatment plant, and the sludge pelletizing plant. Such maintenance shall include prompt repair of any malfunctioning outfall diffuser ports. An annual maintenance update shall be published in the MWRA's Annual Report. The MWRA shall submit an annual status sheet to EPA and the MADEP on plant

performance, using key indicators for maintenance and providing detailed information on any necessary equipment replacement. The annual status sheet shall be placed on the MWRA web page for public information purposes."

Diversion of Flow into Boston Harbor:

Comment:
Mr. Graber of Winthrop asked that the NPDES Permit include details regarding physical facilities and operating procedures for preventing any diversion of effluent to the Deer Island Boston Harbor outfalls once the new outfall goes on line. That should include the means by which the outfall bypass(es) will be secured to minimize the risk of inadvertent bypassing, the regulatory and public role in any such diversions, and notification procedures. These requirements should be in addition to those found at the Permit Part I, Paragraph 20.c. (Notification of Public Health Agent).

Comment:
Mr. Graber of Winthrop also commented that the requirement to notify the Winthrop Public Health Agent (Part I, Paragraph 20.c.) has been modified from that found in Part I, Paragraph D.4 of the present permit, by adding that the notification should be within twenty-four (24) hours of any discharges through Outfalls 004 and 005. Notification should be in advance whenever possible, and should otherwise be as soon as possible but not greater than 4 hours after such discharge.

AGENCY'S RESPONSE:
Since a twenty-four hour notification seems more reasonable than a four hour notification, the permit does not reflect this change. However, in order to incorporate an advanced notification requirement, and in order to incorporate the additional Nut Island outfalls, the final permit language has been changed from "The permittee shall notify the public health agent in Winthrop, MA of any discharge through POTW outfall discharge serial numbers 004 and 005, and the public health agent in Quincy, MA of any discharge through POTW outfall discharge serial numbers 103 and 104, within twenty four (24) hours, by telephone, specifying the time and approximate volume and duration of the discharge. Discharges from outfalls: 001, 002, 004, 005, 103, and 104 shall be reported to EPA and the MADEP. . ." to "The permittee shall notify the public health agent in Winthrop, MA of any discharge through POTW outfall discharge serial numbers 004 and 005, and the public health agent in Quincy, MA of any discharge through POTW outfall discharge serial numbers 101, 102, 103, 104 and the Nut Island Spillway in advance whenever possible, and otherwise within twenty four (24) hours, by telephone, specifying the time and approximate volume and duration of the discharge. Discharges from outfalls: 001, 002, 004, 005, 101, 102, 103, 104, and the Nut Island Spillway shall be reported to EPA and the MADEP. . ."

Comment:
The Boston Harbor Association is in support of the EPA's previous decision regarding the new location of the outfall (MWRA Secondary Facilities Plan, and EPA Environmental Impact Statement, 1988). Continuing to discharge the effluent into Boston Harbor, even after secondary treatment, is environmentally unacceptable according to EPA's environmental criteria because of: 1) insufficient dilution, 2) proximity of the existing outfall to shoreline, and 3) potential impact on sensitive resources. While The Boston Harbor Association believes that all contingency measures, including diversion of the effluent back into Boston Harbor, must remain under active consideration as options for addressing potential environmental problems associated with the Outfall, we do not believe that scenarios under which diversion could be required can be identified at this time. Instead, we recommend that the process for evaluating and determining contingency measures be more fully developed in the final permit. Language should clearly indicate that diversion will only be implemented as a last resort, after all other potential solutions have been considered.

Comment:
The Cetacean Research Unit is concerned about the potential effects the discharge could have on the Massachusetts Bays ecosystem. While the models which have been created to date indicate that dispersion will mitigate any far-field affects, as scientists we realize that models are gross over-simplifications of natural systems. We feel that it is essential that, should unforseen dire circumstances develop, that there be a manner in which the outfall is diverted back to its current discharge in Boston harbor. The MWRA has yet to develop procedure through which this would take place in a timely

manner, and we suggest this should be required and attached to the permit as an additional requirement.

Comment:
The Bays Legal Fund would like the permit to expressly allow diversion of the discharge from the outfall back to the existing harbor outfall system, consistent with Section 1.4, page 4, of the Contingency Plan. The draft permit reads "The permittee is authorized to discharge only in accordance with the terms and conditions of this permit and only from those outfalls listed in Attachments A and B of this permit. Discharges of wastewater from any other point source are not authorized under this permit, see also Part II.B.4 (Bypass) of this permit." This language is of great concern to the Bays Legal Fund. Attachment A must be amended to include the existing harbor outfall as a potential discharge site in order to ensure that this option is available, if necessary, to protect the water quality of Massachusetts and Cape Cod Bays and/or endangered or threatened species and their habitat.

Comment:
The Association for the Preservation of Cape Cod commented that when "any changes are made to the treatment facility and any planned operation or maintenance which may lead to instances of an anticipated noncompliance with permit limits or requirements must be reported," that in these circumstances, effluent should be diverted to Boston Harbor and the permit should require this action. It is also the APCC's position that diversion to Boston Harbor should be included as a potential corrective action in the Response Plan.

Comment:
Massachusetts Audubon stated that diversion of the effluent back to Boston Harbor should be clearly listed in the Contingency Plan as an option if the extended outfall into Massachusetts Bay is causing unanticipated environmental problems. We do not anticipate that diversion will ever be needed, but still feel it wise to keep this option open.

Comment:
Save the Harbor is committed to continuing to ensure that the infrastructure necessary to divert the effluent is maintained in working condition. However, we do not believe that it would be beneficial to specifically outline in the permit or contingency plan, the circumstances under which diversion would be appropriate. We take this position for two reasons: First, as I have mentioned, it is impossible to predict all of the potential impacts this new discharge could have to the Massachusetts Bay, therefore it is impossible to weigh, which, if any of the impacts would warrant diversion. Second, we fear that detailing the conditions that would warrant diversion would preclude diversion if scientific review indicates that diversion should occur even though the outfall's impacts are less severe than those included as conditions. Thus, we stress that diversion should continue to be technically possible, but we do not believe specific conditions for diversion should be provided.

Comment:
STOP commented that the explanation of the designations of SB and SA waters amply illustrates why this permit should carry a strongly worded description of effluent diversion possibilities back to the Harbor. Not only should the permit address how diversion will be achieved, but the circumstances under which EPA would require diversion. EPA should insist that a complete plan for diversion be included in this permit prior to discharge through the new outfall. Diversion should be required for a minimum of the following conditions: (1) Any bypass of the treatment system, (2) any violation of the warning levels listed in the Contingency Plan, and (3) any negative impacts in the receiving waters of MA Bay and Cape Cod Bay.
Comment:
MWRA stated that they are not aware of any situations in which the environmental benefits of diversion would outweigh the environmental problems it would cause. While Boston Harbor waters are classified as SB and Massachusetts Bay waters are classified as SA, the Massachusetts Bay outfall provides 5-10 times more dilution than the best MWRA harbor outfalls and 25-50 times more dilution than the near shore MWRA harbor outfalls that would be used on average every three days if all plant flow were to be discharged through the harbor outfalls. On every outgoing tide a "diverted" discharge would introduce water with a higher concentration of treated effluent to Massachusetts Bay than would a discharge through the long outfall.

Comment:
A suggestion was made that the MWRA should be required to examine its back up system for diversion, and test it periodically on a very short term basis, conditioned on maintaining minimum flow or other factors that are necessary for proper operation of the outfall.

Comment:
The OMTF commented that it is not appropriate to list the specific scenarios in the permit in which diversion will be considered, since we do not know at this time if a deleterious event in Mass or Cape Cod Bays (e.g. a massive toxic bloom) can be attributed to the outfall.

Dr. Sal Testaverde added that the NMFS supports listing specific scenarios in the permit in which diversion will be considered. We would support diversion if it were scientifically determined that the discharge displaces endangered right whales from their critical habitat areas. However, we would also consider other alternatives that would achieve similar results. In addition, the NMFS supports a complete inshore monitoring program equal to or similar to the post offshore monitoring of the nearfield area. This complete inshore monitoring program should be initiated to study the impact of the secondary treated effluent being discharged through the current inshore outfall pipes.

Mrs. Polly Bradley added that she feels that this is a circular sentence. Maybe state it, "If a deleterious event of major consequences to Mass. or Cape Cod Bays can be attributed to the outfall, a diversion should be considered."

Public's Response:
STOP commented that the MWRA continues to ignore the many valid concerns opponents and outside scientists have raised concerning the impact of relocating the discharge. It is a gross oversimplification of the project to imply that dilution is the only factor that needs to be considered. There are many scenarios, including the specter of red tide and algae blooms, that would demand the common sense action of diverting the discharge back to its original site where it could be more easily monitored and withdrawn from the populations it was impacting. This would also allow the stringent protection that is required for class SA waters.

Public's Response:
The MWRA commented that many commenters asked that the option be kept open to divert Deer Island effluent back to the existing harbor outfalls if significant adverse effects attributed to the effluent were observed in Massachusetts Bay. Extensive scientific review by EPA and others has resulted in conclusions that the deep ocean outfall will have negligible adverse environmental consequences. As stated in MWRA's original permit comments, "On every out-going tide a 'diverted' discharge would introduce water with a higher concentration of treated effluent to Massachusetts Bay than would a discharge through the long outfall." Nevertheless, MWRA intends to maintain the harbor outfalls so that they will be available for emergency use under extraordinary circumstances. They will be available, should OMSAP, EPA and DEP ever determine, as the result of Contingency Plan procedures, that such diversion is warranted.

Public's Response:
The Bays Legal Fund (BLF) commented that the purpose of the Clean Water Act is to protect water quality. Consistent with the Clean Water Act, the BLF cannot support water quality degradation of any class SA waters. Cape Cod Bay is classified as SA. Therefore, we reiterate our comment that the permit should require discharge into Boston Harbor of all effluent not receiving full secondary treatment. Furthermore, if the discharge is found to exceed any permit limit, warning or caution level, the effluent should be discharged back into Boston Harbor. The effect is to direct bypass wastes to waters that are already degraded relative to the more pristine waters of the Bays.
AGENCY'S RESPONSE:
Although extensive environmental reviews have concluded that the discharge through the extended outfall will not result in significant adverse impacts, EPA and MADEP agree with the comments which suggest that diversion must remain a viable option, and conditions have been added to the permit to achieve that purpose. Specifically, the following language has been added to the final permit under Part I.8.g.: "Prior to the use of outfall TO1, the MWRA shall submit a plan to EPA, MADEP, and OMSAP for maintaining the physical integrity and capacity of the existing Deer Island outfall system, and explaining how alternative discharge scenarios (including discharge through existing Deer Island outfalls, if necessary) could be implemented. These alternative discharge scenarios must be considered as an option under the MWRA's contingency plan, within the section that outlines a process for developing responses to any future problems. The MWRA shall maintain all facilities in good working order to allow for reestablishment of a discharge through the existing outfalls if deemed necessary."

EPA and MADEP will also ask the OMSAP to consider whether it is possible to define in advance circumstances in which

relocation of the discharge, including diversion to Boston Harbor, should be required. If it is possible to define such circumstances in a scientifically valid way, the permit may be amended to incorporate such requirements.

In response to concerns about the timing of diversion or any other responses under the MWRA contingency plan, it is important to note that both EPA and MADEP retain enforcement authority to seek immediate relief for permit violations. Where necessary, action can be taken promptly to address critical environmental issues.

Reserve Funds and Financial Viability:

Comment:
The BLF supports the requirements under Part I.8.f. of the permit for two reserve funds including $31M in an Operating Reserve and $50M in a Renewal and Rehabilitation Reserve to be available for new treatment requirements. These reserve funds are essential to ensure that the MWRA may react to potential adverse impacts in a timely manner.

Comment:
MWRA considers the requirement in Section I.8.f. that it hold certain funds in reserve for unanticipated expenses to be an exceedingly inappropriate and unnecessary intrusion into its financial and operating affairs and well beyond the scope of EPA and DEP's authority to require through the draft permit. MWRA has the authority under its enabling act to obtain the funds necessary to meet its obligations and has established a record over the past 13 years of being able to do so. Moreover, MWRA's ability to implement its program, including having adequate funds to do so, is currently subject to extensive oversight by the Federal Court in the Boston Harbor Case and is likely to continue to be so subject for at least this permit term.

Comment:
The MWRA Advisory Board objects to the reserve requirement, stating that it has no place in the permit. The Authority's reserve funds have been established according to the advice of its financial advisor and the investment community. It is inappropriate and beyond the scope of the permit to link any such funds to any permit requirements. The very independence of the Authority and its ability to raise funds is assurance enough that funds can and will be made available to cover unanticipated expenses.

Comment:
The MWRA Advisory Board also commented that over the last decade, the Authority has conducted an extensive monitoring and reporting program. Yet, there are a number of other contributors to discharges to Massachusetts Bay and many other beneficiaries to the development of a better understanding of the environment of and impacts on Massachusetts Bay. The monitoring program should have the active participation of many more players to ensure that more of the influences and interests in the Bay are reflected, and every dollar the MWRA spends on monitoring should be matched by a federal dollar and a state dollar.

Comment:
The Boston Harbor Project is already costing over $3.7 billion, most of which is being paid for by ratepayers in the 43 communities. In order to ensure that this project continues to be financially viable, cost efficiency must be pursued. The Boston Harbor Association's recommendations to remove several requirements from the NPDES Permit and delegate them to other state agencies, would help ensure that MWRA ratepayers do not become responsible for financing programs that are more appropriately managed and funded by other state agencies.

Comment:
The OMTF commented that this requirement interferes with the bonding and budgeting program of the Authority by specifying exact amounts. The reserves established under the provisions of and for the purposes outlined in the permittee's General Revenue Bond Resolution change over time.

Public's Response:
STOP commented that the MWRA should recognize the history that brought the city of Boston to the existing court order. The fact that seventeen years will have elapsed between the time when Boston was sued to clean up the harbor and the actual

structures are in place to clean it up is ample evidence that a reserve fund should be maintained.

Public's Response:
The Bays Legal Fund reiterates its support for two Contingency Reserve Funds.

AGENCY'S RESPONSE:
The final permit has remained unchanged regarding this issue.

Proposed Modifications:

Comment:
Part I. 7.C. of the permit should include the OMSAP on the list of entities who shall receive a list of all proposed modifications to the contingency plan, and the permit should state that the EPA and DEP will withhold approval until they have received comments from the OMSAP.

Comment:
Part I.8.d. of the permit should include the OMSAP on the list of entities who may issue a written objection to the automatic adoption of interim modifications to the Contingency Plan. The permit should require notification in the Environmental Monitor, and by e-mail to a distribution list of interested persons, of all proposed interim modifications and should provide a 30 day public comment period. We believe that the public benefit from this process will far outweigh the slight delay to the MWRA in reducing the contingency planning effort.

Comment:
Pursuant to Permit page 11, under d., Dave Graber of Winthrop expressed interest in being notified of any proposed interim modifications to the Contingency Plan.

AGENCY'S RESPONSE:
It is EPA and MADEP's intent to ensure that the new OMSAP will play a key role in evaluating any exceedances of caution or warning levels, and will advise EPA and the MADEP as to whether the MWRA discharge plays a role in such exceedances. Also, Part I.8.b. of the final permit language has been changed from, ". . . every thirty (30) days, after the date the exceedance of the "warning level" is reported, until the issue has been resolved." to ". . . every thirty (30) days, after the date the exceedance of the "warning level" is reported, until the exceedance has been remedied."

EPA and MADEP believe that the conditions in the final permit provide a full opportunity for the OMSAP, as well as any interested members of the public, to review and comment on proposed changes to the Contingency Plan.

Emergency Simulation:

Comment:
The Boston Harbor Association supports the EPA's proposed addition of a technical survey of nitrogen removal technologies, development of data concerning wastewater quality, and an Outfall Contingency Simulation to the Contingency Plan (page 11, section 8-e). However, while the Outfall Contingency Simulation Plan will facilitate quick and effective response to potential problems, the NPDES Permit should include language allowing the Simulation Plan to be a flexible management tool which will change in response to unpredictable conditions associated with the outfall and conditions in Massachusetts Bay.

Comment:
Part 1.8.e.iii. of the permit should require the completion and testing of the Contingency Simulation as a precondition to using the outfall tunnel. It is important that the permit clarify what the simulation must include. The Contingency Simulation should include an examination of decision-making processes as well as an examination of environmental contingencies.

Comment:
STOP commented that EPA should require the MWRA to undertake a number of simulations that reflect a potential change

in the farfield that might not be recognized in the nearfield. Scenarios that should be included in this task are an increase in dinoflagellate reproduction, their far-reaching impacts on other species, and decreased dissolved oxygen (D.O.) in areas of Cape Cod Bay and Stellwagen Basin. At least one of the simulations should include an impact from fresh water (in the nearfield or farfield). Despite increasing evidence that depressed salinity can stimulate reproduction of certain species of dinoflagellates and/or cause toxicity in various micro-organisms, the potential impacts of the freshwater in the discharge has been virtually ignored. It is imperative that we determine whether any of the parameters being monitored by MWRA would raise a red flag in a situation triggered by depressed salinity.

Comment:
The permit should specify that the Contingency Simulation shall examine environmental contingencies, including but not limited to the potential effects of the discharge on the farfield and Massachusetts and Cape Cod Bay receiving waters with respect to red tides, endangered and threatened species and their habitat, and commercial and recreational fin and shell fishing and aquaculture industries.

Comment:
The OMTF commented that 120 days is not a realistic time frame to develop the Outfall Contingency Simulation. The OMTF has convened an emergency simulation focus group to have continuing discussions on acute emergencies at Deer Island and chronic exceedances in the nearfield receiving waters. The focus group agrees that it will be very difficult to determine MWRA accountability for chronic exceedances in the nearfield since there are other dischargers in the area as well as natural variability in the system. A clarification of what will be expected from MWRA for the Outfall Contingency Simulation would be helpful.

Comment:
The OMTF would like the requirement for the Outfall Contingency Simulation to include a dry run component because it needs to be exercised. (Dr. Andy Solow abstained.)

AGENCY'S RESPONSE:
The following language has been added to Part I.8.e.iii. of the final permit, "The MWRA shall perform a dry run of two different types of scenarios, before the commencement of the discharge. (One dry run of a treatment plant chlorination system upset, and one dry run of a red tide event in MA Bay or Cape Cod Bay.)" The final permit requires the permittee to forward a copy of the plan to the OMSAP, provide a copy of the plan on a free-access Internet webpage, and place a copy in at least two repositories. (See also: Part I.20.e. of the permit.)

Videotaping Within the Zone of Initial Dilution:

Comment:
Dr. Michael P. Manning, P.E. stated that the contingency plan appears to be inadequate with respect to the characterization of the impact on the nearfield seabed floor where the only parameter measured is the redox potential discontinuity. Given the radically disparate views expressed by optimistic MWRA representatives and the pessimistic warning of individuals such as myself based on experience in the vicinity of other local outfalls, I believe that one simple added observation should be required in the contingency plan. The optimistic proponents express firm belief that the effects of the diffuser effluent will be very spatially limited and will not be apparent at the Zone of Initial Dilution (ZID) boundary (70m away, I believe). That area at present has a very active and diverse flora and fauna as has already videotaped by Dr. Joseph Ayers of the Northeastern University Marine Science Center. Similarly the vicinity of the current Lynn outfall has been shown to have little plant or animal marine life beyond a green algal slime growing in the area. I believe that the contingency plan should require a simple visual confirmation - supported by photographic or video images - that at the ZID or other appropriately designated boundary that the marine life has not been similarly impacted.

This observation is significantly different from the redox potential discontinuity already proposed. It is conceivable that the transient oxygenation level may be within limits where it is measured; but, this observation alone may not properly represent the transformations that have occurred. For example, if much of the seabed marine life had been killed over some period, the oxygen uptake need not be significantly different from baseline. If the marine life supported on the seabed has disappeared and the redox potential discontinuity is reasonably close to baseline, some factor other than oxygen starvation is responsible

for the impact, including possibly effluent chronic toxicity. If this impact reaches the boundary of the ZID or other appropriate boundary where such an impact is not expected, an assessment of the area of impact and contingency action should be required.

The addition of a simple requirement to visually document the flora and fauna in the vicinity of the RPD measurements should not be overly burdensome and may add a very valuable trigger to appropriate response actions.

AGENCY'S RESPONSE:
A video recording is already being undertaken by the United States Geological Survey (USGS) at a point near the new discharge location. For additional information, you may view the USGS's web site at "www.usgs.gov", select the option "Search USGS", and type "Massachusetts Bay". Also, for assistance, you may call the USGS at 508/548-8700.

BEST MANAGEMENT PRACTICES:

Comment:
Parts I.9.c.ii (1 and 2), Part I.9.c.iii, Part l.9.h, and Part I.9.i, focus on the release of "significant amounts of toxic or hazardous pollutants". Since small amounts of certain toxic or hazardous pollutants could cause significant harm, the phrase "significant amounts" should be changed to "significant amounts or material quantities."

AGENCY'S RESPONSE:
The permit has been changed to include clarification that the permittee's BMP should include any release that creates an impact on waters of the United States.

Comment:
Parts I.9.c.ii (1 and 2), Part I.9.c.iii, Part I.9.h, and Part I.9.i, contain different language concerning the area affected by the release. The permit should use the term "waters of the United States" versus "surface waters".

AGENCY'S RESPONSE:
The permit has been revised to reflect this change.

Comment:
Part I.9.c.ii.(2) of the permit should require the MWRA to address seasonal variations when it reviews the direction and rate of flow of the receiving waters.

AGENCY'S RESPONSE:
The permit requires the permittee to review the potential direction and rate of flow of toxic or hazardous pollutants before it enters a receiving water, in order to prevent such an occurrence. Seasonal variations in the direction and rate of flow of receiving waters is not relevant for this purpose.

Comment:
Part I.9.h. of the permit should require electronic mail notification to a distribution list of interested persons when the procedure for BMP plan modification is invoked due to "a change in the facility ancillary activities to result in a discharge of significant amounts of hazardous or toxic pollutants".

AGENCY'S RESPONSE:
The following language has been added to Part I.9.h. of the final permit, ". . . (2) notify the public by placing this information in a free-access internet website page and by placing hard copies in two permanent repositories, . . . " In order to clarify the permit language, the following phrase has been removed from the final permit, "significant amounts or material quantities of ".

Comment:

Mr. David Graber of Winthrop commented that the Town of Winthrop appreciates the inclusion of the Best Management Practices Plan in the draft permit on pages 12 to 14. Under Item 9.c.iii, please add prohibitions on draining or flushing of lines to roadways, catch basins, and storm sewers. Under 9.g, the BMP Plan should also be made available to the public, consistent with 9.b.

AGENCY'S RESPONSE:
The permit has been revised to reflect these suggestions. Specifically, ". . . , and the public upon request." has been added to Part I.9.g., and ". . . draining or flushing of lines to roadways, catch basins, and storm sewers, . . . " has been added to Part I.9.c.iii. of the final permit.

Comment:
The City of Melrose would like the Best Management Practice requirements removed from the permit, and referenced as an attachment. The City believes that BMPs are already required under the MWRA's current Stormwater Management Plans.

AGENCY'S RESPONSE:
EPA has ensured that the MWRA will not be required to perform duplicate actions through the NPDES permit. If the MWRA performs an action or produces a test result or report under another mechanism, the permittee may forward documentation of the action or the test result or report to EPA in order to meet the same specific requirement of the permit. In this regard, the permit requirements will not cause an additional burden to the MWRA.

Comment:
STOP commented that this section of the permit is where the EPA should require an establishment of the specific process by which MWRA will achieve diversion. Shutting down the outfall, should it become necessary, will be a phenomenal task - one requiring capabilities, procedures, and professional services that have yet to be determined.

The BMP should include the following:

1) A plan for the physical process of shutting off the flow through the outfall which will minimize damage to the tunnel. According to the MWRA, diverting the flow at the plant would subject the tunnel to the influx of undesirable organic growth. Therefore, the physical process of stopping the flow through the 440 diffuser ports may well require the services of trained scuba divers as well as specialized equipment and transportation.

2) A plan for the maintenance of the existing discharge sites at Deer Island to ensure the capability for diversion remains viable.

3) A specific list of those contingencies which would require diversion should be established and made available for review by the EPA, MADEP, NMFS, OMSAP, Town of Winthrop, Environmental Monitor, and the general public.

4) The environmental impact review process for diversion should occur prior to use of the new outfall. All federal, state, and town agencies with a stake in the current outfall site should have been notified of those contingencies by which diversion would occur. Any fact-gathering, public input process, etc. should be undergone prior to the use of the new outfall.

AGENCY'S RESPONSE:
The diversion issue is addressed above.

WATER CONSERVATION:

General Comments:

Comment:
The Cetacean Research Unit would like to commend the EPA for both limiting future hook-ups to the MWRA system, and requiring implementation of a water conservation program. There is no better way to insure minimal effect from the outfall than minimizing the input to the system.

Comment:
The Neponset River Watershed Association agrees that public education regarding water conservation is crucial. However, we are not convinced that requiring the MWRA to develop and implement a water conservation plan for the entire sewerage service area is an appropriate directive in this NPDES permit. It is our position that water conservation through I/I reduction is more appropriate and has a greater potential to achieve the environmental benefits sought.

Comment:
The Bays Legal Fund supports the water conservation requirements contained in the draft permit.

Comment:
Save the Harbor/Save the Bay commented that while they commend the DEP and EPA for its comprehensive and environmentally protective permit, they are concerned that the level of detail provided in the permit relating to water conservation and pollution prevention may stifle innovation. The permit, as currently written, is so task specific in certain areas that it may actually inhibit the creation of a successful program. We also urge the DEP to take an active role in addressing pollution prevention and water conservation and not to pass the burden entirely to the MWRA. For example, the permit currently includes language requiring the MWRA to evaluate localized (satellite) treatment facilities, even if Deer Island has sufficient capacity to accept additional discharges. We strongly agree that one of the drawbacks of centralized treatment is the removal of water from a local aquifer/watershed and the discharge of this water to Massachusetts Bay. Thus, in the interest of water conservation, localized treatment facilities should clearly be considered as a means of serving growing communities. However, given that it is in the MWRA's best interest financially to accept additional flows if capacity allows, it may not make sense to require the MWRA to conduct this analysis. Instead, local communities and the DEP should take a leadership role in this area.

Comment:
STOP applauds the inclusion of the water conservation measures within the permit and we hope that EPA continues to utilize these standards in future NPDES permits.

Comment:
The MWRA stated that they are opposed to the inclusion of extensive and detailed water conservation provisions in the permit for its wastewater discharges. MWRA believes that there is no basis in the Clean Water Act for these requirements as applied to the MWRA's treatment plant and discharges through Outfall TO1, and believes that the provisions are in conflict with the goals and policy of the Clean Water Act as expressed in Section 101(g). The proposed provisions have no reasonable relationship to matters subject to EPA regulation under the Clean Water Act through NPDES permits and are therefore arbitrary and capricious. The provisions in the draft permit are duplicative, are not well designed to achieve the stated goals, reflect an inappropriate micro management approach, and are premature. In lieu of the proposed specific provisions contained in Section I.10, the permit should include general language to require MWRA to cooperate with communities to encourage and maintain demand management programs, including water conservation, appropriate to its demand/supply circumstances, and to those of individual communities, to make its expertise available to EPA, the Commonwealth and other communities, and to report on these efforts on an annual basis.

Comment:
The Boston Harbor Association recommends that the Conservation Plan (page 14, section 10) be removed and replaced with a more general recommendation for conservation. While it is important to ensure that the MWRA pursues water conservation strategies, the proposed language in the Draft NPDES Permit is too inflexible and many requirements are beyond the scope of MWRA's responsibility. For example, monitoring of stream flows and notification to non-MWRA users should be undertaken by the state's Watershed Basin Teams.

Comment:
Boston Water and Sewer Commission believes that EPA and the MADEP have clearly articulated the premise for requiring MWRA to implement additional water conservation measures as part of its NPDES permit. BWSC assumes the premise for water conservation, in this case, is to limit or reduce wastewater flow generation. However, there is little evidence, among large wastewater systems, that illustrates a clear relationship between water demand and wastewater generation. Infiltration

and inflow (I/I) exert a far greater influence on the amount of wastewater flow generated than any incremental changes in wastewater flow due to additional water conservation measures. If EPA and DEP are concerned about reducing the amount of wastewater flow treated by MWRA, they should incorporate stronger provisions in MWRA's NPDES Permit that address infiltration and inflow reduction.

MWRA has done an outstanding job in water conservation. Since 1988 system-wide average daily water use has been reduced by 66.9 million gallons per day (mgd) from 309.6 mgd in 1988 to 242.7 mgd in 1997. This significant achievement is due to the MWRA's comprehensive water conservation program and efforts by member communities to reduce unaccounted-for water. BWSC believes that imposing additional water conservation planning requirements are unnecessary and will not yield measurable reductions in wastewater flow generation. BWSC also questions EPA's and DEP's legal authority under the NPDES Permit Program to prescribe water conservation measures and to hold the MWRA accountable for measures that would have to be implemented by member communities, i.e. system-wide leak detection surveys and performance standards for unaccounted-for water.

Comment:
The City of Melrose stated that it is inappropriate to include Safe Drinking Water Act requirements (i.e., "water conservation", leak-detection and repair, home drinking water conservation kits, drinking water technical assistance to non-profit institutions and municipalities, a comprehensive drinking water conservation plan with public education, etc.) in wastewater NPDES permits. Only wastewater related requirements should be included in the permit. Since the two issues seem completely unrelated, water conservation should only be a sidebar expectation and not a mandate of the permit.

Comment:
The MWRA commented that the water conservation requirements go beyond the purview of a discharge permit and do not reflect the particular conditions of the MWRA service area. These requirements should *not* be a part of this permit. Efforts to control water use in communities that are in the sewer service area but not the water service area seem more the responsibility of the state's Water Resources Commission.

Since the start of the MWRA water use in the service area has been reduced by nearly 80 mgd. The Authority (and its ratepayer communities) has spent tens of millions of dollars on retrofitting homes and working jointly with communities instituting aggressive leak detection and repair programs. Through the efforts of the TRAC program, the MWRA has worked to control toxins. There are extensive school education programs for both water and wastewater.

The MWRA and the service area communities are clearly committed to water conservation and demand management. The Authority and the communities will continue these activities - water conservation is in the best interest of system operation and cost control.

Public's Response:
The Charles River Watershed Association, in general, agrees with EPA, DEP, and RMI regarding inclusion of conservation measures.

Public's Response:
The Charles River Watershed (CRWA) commented that the MWRA argues that the Clean Water Act does not allow the conservation measured outlined in the draft permit. MWRA cites the Clean Water Act, Section 101(g), which states in part, "Federal Agencies shall cooperate with State and local agencies to develop comprehensive solutions to prevent, reduce, and eliminate pollution in concert with programs for managing water resources." We see the conservation portion of the draft permit as one piece of a comprehensive plan that was prepared jointly by a state agency (DEP) and EPA to manage water resources. We do not agree with MWRA's feeling that, because conservation is a new component of the NPDES permit, it is therefore wrong. Water use and water discharge are integrated pieces of the manmade water cycle and should not be ignored by MWRA. An NPDES permit conditions discharges to the nation s waters; this permit seeks to limit the quantity discharged as well as the quality. CRWA ultimately agrees with this tack. CRWA does not agree with MWRA or WAC regarding the separation of wastewater and water supply demand. The connection between water demand and wastewater discharge is real, and must not be ignored by MWRA as they design and administer conservation

programs. We have spent many hours in the watershed communities educating municipal officials and the public about the connection between water use and wastewater discharges. It is only logical that MWRA address water use as they apply for a discharge permit. MWRA's capacity for treating wastewater is perceived by towns as being unlimited - a perception enforced by MWRA's own statements. Towns should be reminded of the limits to local water supplies.

MWRA further argues that “in only a handful of communities, those with local basin sources who discharge to the MWRA sewer system, does water use have an impact on local streamflow." If MWRA sees them as "only a handful," then it should not be difficult to expand existing conservation programs to them; in fact the water shipped away to Deer Island by this "handful of communities" represents a drain on the stressed basins of eastern Massachusetts.

In conclusion, CRWA hopes that MWRA will not oppose any conservation language in the final permit because some portions of the draft permit are distasteful. We all play a role in water conservation, and MWRA is in a unique position to reach its wastewater customers and provide some much-needed education.

AGENCY’S RESPONSE:
We commend the MWRA for it’s expertise, and the progress that has been made, in the area of water conservation. We want to build upon the good work accomplished to date, but not miss the opportunity to make improvements and make even more progress in this important area. In order to clarify that there will be an open dialogue between the permittee, the MADEP and EPA, prior to any final decisions made by EPA and the MADEP on the water conservation plan, the following language has been added to the final permit under Section 10.1., “EPA and the MADEP will make final decisions on this plan after a thorough consultation process with the permittee.”

Local Stream Flow:

Comment:
Boston Water and Sewer does not understand the efficacy of requiring MWRA to monitor streamflow and publicly report monitoring information. MWRA and its member communities should not be assigned these tasks and expenses. The rivers included in the proposed monitoring program are not MWRA water resources. The management of MWRA's wastewater system and the treatment of MWRA wastewater discharges have no meaningful relationship to streamflow maintenance in the Charles, Neponset and Ipswich Rivers. The Commonwealth's Water Resources Commission or the DEP's basin-wide planning process are more appropriate forums for determining the municipalities or other entities responsible for water withdrawals and streamflow monitoring in specific river basins.

Comment:
The MWRA stated that no connection has been demonstrated between the quantity of MWRA’s discharges and the water quality in the receiving water basin. Clearly the volume of MWRA water withdrawals has no documented relationship to the water quality of the receiving water for the MWRA wastewater discharges. Conserving water use in the MWRA system has negligible or no impact on streamflow in any basin. In only a handful of communities, those with local basin sources who discharge to the MWRA sewer system, does water use have an impact on local stream flow. Even if the MWRA had authority to take action with respect to such local water supplies, it is unlikely that such a piecemeal approach would have any environmental benefit of significance to justify the cost of the programs required. The problem of low streamflow is better tackled on a comprehensive, equitable basis by the entity which has authority to regulate it, namely the Commonwealth of Massachusetts.

Comment:
The MWRA stated that the requirement of considering the feasibility of implementing mass-based pretreatment limits for all industrial users, under Section 10.A.b., is redundant. The MWRA is required to review which of the available options (including mass-based limits) for setting discharge limits is most feasible and effective under local conditions as part of the local limits analysis.

Comment:
The MWRA stated that the requirement to develop and implement a program to determine leaks in household fixtures, under Section I.10.A.h., is unclear. The MWRA has already conducted an extensive household water conservation program. It is

highly unlikely that any potential reduction in domestic water use through such a program would have any noticeable impact on the water quality or volume of Deer Island effluent of CSO discharges for the reasons given above.

Comment:
The MWRA stated that the three performance standards proposed for the water conservation plan are problematic. As noted earlier, the costs of MWRA water and sewer activities are legally required to be separately allocated. These performance standards, and indeed the concept of water conservation, makes the line unclear. Further, these standards also require the MWRA to differentiate some sewer communities from others. MWRA has always sought to deal with its customer communities on a straightforward and equitable basis. The requirements imposed under the Draft Permit may substantially interfere with MWRA's contractual and other relationships with existing customer communities.

Public's Response:
The Charles River Watershed Association (CRWA) commends the MADEP and EPA on the inclusion of minimum streamflow considerations. Notices about low flow should be tied to general conservation messages, however, and we agree with MWRA that notification (especially outside their member communities) should not be an entirely new undertaking for MWRA. RMI's suggestion that streamflow conditions be highlighted similar to Forest Fire notices is a good one, but one that should be undertaken by the MADEP across the Commonwealth. If the streamflow notices remain in the final permit, note that the levels detailed in the draft permit for the Charles should be contingent upon future determinations of minimum flow. The Department of Fisheries and Wildlife has stated that 0.3 cfsm is more protective of resident fisheries than 0.21 cfsm. Further, discussion regarding minimum flow levels is continuing at the state level.

Infiltration/Inflow (I/I):

Comment:
The Neponset River Watershed Association has been overwhelmed by the rates of I/I in the MWRA sewer service area. A recent update by the MWRA Infiltration/Inflow Management Program states that of the average daily wastewater flow to Deer Island (CY94-CY96), about 60% is from I/I sources. The report goes on to state that I/I accounts for 75% of the maximum month wastewater flow. Within the Neponset Watershed, I/I counts for approximately 16 million gallons a day of groundwater leaving the basin. This is water which is no longer available to recharge local aquifers, lakes, ponds and streams. I/I as reported by the MWRA for 1996, accounted for a larger volume leaving the Neponset basin than sanitary flow. Comparatively, I/I from the Neponset Basin communities to Deer Island is equivalent to 66% of the water permitted to be withdrawn by public water suppliers in the Neponset Basin.

We are aware of the attempts that have been made by the MWRA to reduce I/I. We applaud the establishment of the I/I management program and the flow-based rate structure. However, the Authority must balance the equation by requiring sewer communitities to reduce I/I based on the Guide for the Design of Wastewater Treatment Works, prepared by the New England Interstate Water Pollution Control Commission. According to MWRA reports, the recommended design allowance for infiltration is 250-300 gpd/in. Diam/mile of sewer. MWRA rates range from 3000 to 10,000 gpd/in. Diam./mile of sewer.

The Association believes that MWRA could be more aggressive and innovative. In fact, many of' the elements included under the Water Conservation section of the permit (Sec. 10) could be modified to focus on conservation through I/I reduction. We agree that I/I removal is costly. But allowing excessive I/I to remain in the system is more costly.

Suggestions:

Section 10. A(a)
The Authority should develop a water fact sheet that enables individual homeowners to calculate the cost of sewer service as the result of I/I rates in their community, as well as based on a range of per capita water use. This fact sheet should be included with all water and sewer bills in the MWRA sewer service area.

Section l0.l.A (c)

MWRA should develop and implement an aggressive I/I educational outreach program. This program should include a curriculum that can be adapted to individual communities and administered by municipal officials and other interested parties such as NGOs.

Section l0.l.A(g)
MWRA must continue to provide technical assistance to municipalities regarding I/I. Their work in this vein has been key in identifying and often repairing problems in the Neponset Basin.

Section 10.2
MWRA must publish public service announcements in the body of local newspapers informing sewer service area communities about I/I at peak times. These announcements shall include recommendations for ways to reduce private I/I sources, such as illegal sump pump connections.

Section 10.3
MWRA should be required to issue I/I report cards for all MWRA sewer communities. This report card should include the average daily volume of I/I and the cost to the community.

Section 10.5
This requirement should be updated to include I/I.

If education efforts do not bring about the necessary changes, MWRA may need to revisit the flow-based rate structure. One alternative may be to continue with the flow-based rate methodology but add a surcharge to the bills of towns whose I/I is above the three year system average.

Massachusetts has begun to address I/I with regard to the expansion of municipal water supplies. In a recent keynote address by Secretary of Environmental Affairs, Trudy Coxe, she announced stricter standards. The turning point for state policy was the public opposition to an interbasin transfer for the town of Canton, an MWRA sewer and partial water community. The new standards included a directive to issue tougher standards for tightening up existing infrastructures to reduce water loss.

This NPDES permit should complement Massachusetts' efforts, since the MWRA treatment plant constitutes the largest interbasin transfer in the state. Secretary Coxe summed up the problem well. “Over the last 25 years, we have cleaned up our rivers to the point where we have fish returning to our rivers where once they couldn’t. We challenge EPA and DEP to focus water conservation requirements on I/I reduction strategies. We believe I/I is the overlooked component in the struggle to balance the needs of the local water resources and growth. We encourage you to bring I/I into the spotlight and believe this is consistent with the National Pollutant Discharge Elimination System and the goals of the Clean Water Act.

Comment:
Save the Harbor/Save the Bay stated that the DEP, the MWRA, and the local communities should work together to address infiltration and inflow (I/I) issues. I/I reduction is the area of the NPDES permit with the most potential for improving water conservation and efficiency and should be aggressively addressed. For those MWRA communities with three year average I/I rates greater than *25%* of their flow, the MWRA should require in their Municipal Permits a schedule for inspection of sewer lines and plan for reduction of peak flows, including development of private source inflow reduction plans. The MWRA should also consider publicizing to ratepayers the amount of their sewer bills attributable to I/I to encourage public pressure to make the necessary investments to address the problem.

Public’s Response:
The Charles River Watershed Association agrees with the Neponset River Watershed Association that infiltration and inflow is a serious problem that is most certainly within MWRA's control. This should be addressed *in* the Conservation section more specifically to limit dewatering of local aquifers. CRWA supports NepRWA’s suggested additions to the permit regarding I/I control and reporting.

Conservation Report Cards:

Comment:
The MWRA Advisory Board commented that the use of conservation report cards is not an appropriate management tool for the MWRA, and should be omitted from the permit. The Authority's programs already include the full participation of service area communities. With the effective water conservation achievements in place already, a report card is not an applicable tool for this area.

Gray-Water Recycling and Localized Treatment Facilities:

Comment:
Mr. Graber of Winthrop commented that Item 5 under the Water Conservation Section of the draft permit on page 16, it seems excessive to require MWRA to expend the funds and effort to evaluate such things as gray-water recycling and localized treatment facilities unless growth projections indicate that the capacity of the Deer Island treatment plant will be exceeded. The MEPA Certificate and ROD on the Deer Island siting (as well as the Winthrop/MWRA MOU), require that MWRA study various alternatives, of which localized treatment facilities is one, if exceedance of the plant capacity is projected.

Comment:
Mr. Graber of Winthrop asked that under l6.g.v (Draft Permit page 31), is it not feasible to preclude the discharge of septage and holding tank wastes from the combined-sewer portions of the system altogether and just allow such discharges to the separately-sewered portions of the system?

Public's Comments:
STOP commented that the requirement that MWRA should begin evaluating decentralization should remain in the permit, despite MWRA's assertions that the plant is more than adequate for meeting future needs. Continuing growth within and without the 43 communities should not be accommodated at the existing plant. In addition, these communities can benefit from their past experience. The weakness in the Deer and Nut Island facilities was the inadequacy of planning for future needs: this allowed them to fall into disrepair through a program of benign neglect. This requirement will ensure that future needs are planned for before the new plant has outlived its usefulness.

Public's Response:
The Bays Legal Fund stated that the requirement to submit a report to EPA and DEP which evaluates localized (satellite) treatment facilities is most appropriate.

Permit Language Comments:

Comment:
The Rocky Mountain Institute of Snowmass Colorado offered the following suggested text in their comments on the draft permit:

(1) Metering

RMI suggests MWRA must, within two years, send a report to communities describing benefits of various water metering systems and compliance with state Water Conservation Standards.

(2) Rates

RMI suggests MWRA must encourage communities to adopt conservation rate structures and report on alternative wholesale rate structures.

(3) Pressure Reduction

RMI suggests MWRA must, within two years, report to communities on pressure reduction options.
(4) Leak and Infiltration Detection and Repair

RMI suggests additional activities relating to leak detection and I/I removal.
(5) Public Education

RMI suggests MWRA evaluate further options for school programs and general public information efforts and, after three years, hire a consultant to evaluate program effectiveness.

(6) Planning and Evaluation

RMI presents the outline for a comprehensive water and wastewater management planning and evaluation report and suggests a three year period to develop such a report. Cost-effectiveness analysis would be required to be performed on at least 19 "additional water and wastewater management strategies."

(7) Emergency Management Plans

RMI suggests MWRA describe Emergency Management Plans for water and wastewater and how water efficiency plays a role.

Public's Response:
The MWRA commented that MWRA has long been an enthusiastic supporter of water conservation. Since 1986 MWRA has reduced system demand by 25%, an accomplishment comparable in significance to the dramatic improvements in Boston Harbor's water quality brought about by the multi-billion dollar new Deer Island Treatment Plant. The Rocky Mountain Institute, under contract to EPA to comment on water conservation, describes MWRA's program as **?**exemplary." However, as both MWRA and numerous other commenters noted during the first comment period for this permit, new and additional water conservation requirements have no place in this wastewater NPDES permit.

EPA headquarters prides itself on the agency's innovations and efforts to **?**reinvent government." An important element of this new approach is use of the **?**carrot" -- technical assistance and economic incentives -- to accomplish creatively and cost-effectively what the traditional **?**stick" approach cannot. But the requirements proposed in both the draft permit and in the Rocky Mountain Institute's comments on that permit are the opposite of reinventing government. They mean more process, more paper, more bureaucracy, and are a solution looking for a problem. Moreover, imposing specific measures and regulatory requirements which have no rational relation to any valid concern under the Clean Water Act will undermine MWRA's proven success at encouraging communities to conserve water and to maintain their local systems. Given the criteria that a NPDES permit is supposed to address, there simply isn't any need for a flock of new requirements to be evaluated, imposed on, and paid for by MWRA ratepayers as part of that permit. Yes, stressed river basins are an environmental problem that should be addressed, but there are many more effective and appropriate ways to address the problem than via this particular NPDES permit.

This is all the more true in light of the fact that EPA's Office of Wastewater Management released in April, 1998 new proposed guidance under the Safe Drinking Water Act for states to encourage water conservation plans. It makes no sense for EPA Headquarters to be developing guidance for the rest of the country while EPA-New England goes off on its own and imposes more specific, cumbersome and costly requirements on the same topic for MWRA.

MWRA's general response to the Water Conservation comments are as follows:

Commenters with the most knowledge about the MWRA water supply sources and water use all suggested that the water conservation section in the draft permit be removed or substantially reduced in scope (see comments of Water Supply Citizens Advisory Committee, Wastewater Citizens Advisory Committee, MWRA Advisory Board, Boston Water & Sewer Commission, Save the Harbor/Save the Bay, The Boston Harbor Association). Even the Neponset River Watershed Association stated that it "is not convinced that requiring the MWRA to develop and implement a water

conservation plan for the entire sewerage service area is an appropriate directive in this NPDES permit." The only local commenter to strongly support the water conservation section (Massachusetts Audubon Society) stated that "While MWRA has done commendable work on water conservation in the communities to which they supply water, conservation can also play an important role in communities where MWRA provides sewer service but water is produced locally." While the MWRA agrees that water conservation can play an important role in these "sewer-only" communities, the MWRA, as detailed in its initial permit comments, is not the appropriate agency to regulate these communities' local water withdrawals and conservation programming.

Moreover, both the provisions proposed by EPA and by Rocky Mountain Institute ignore the important initiatives in the area of water conservation and basin planning that are underway nationally and in Massachusetts. As noted above, EPA is about to finalize guidelines for preparing and implementing water conservation plans. Any water conservation planning effort in this permit should at least acknowledge this effort and compliance with the EPA Water Conservation Plan Guidelines should constitute full satisfaction of any such permit condition. In addition, Massachusetts has well underway a comprehensive watershed approach to environmental protection and has established river basin teams for each basin, charged with evaluating water quality and quantity issues through a public process involving communities and interested stakeholders, and developing and implementing a management plan to set priorities and design solutions for those issues which are important for each basin. For EPA or DEP to specify in this NPDES permit goals for water conservation, unaccounted for water, infiltration/inflow removal, augmentation of stream flow, and other actions to be taken unilaterally by MWRA undercuts the basin team approach. MWRA is committed to continued involvement in the planning efforts for the basins which its water supply and wastewater systems affect, but the actions which may be appropriate for MWRA to take should be developed in the context of those basin planning efforts and not dictated by EPA and DEP.

Public's Response to Rocky Mountain Institute Comments:
EPA-New England has apparently hired the Rocky Mountain Institute (RMI) of Snowmass, Colorado to recommend an ideal aggressive water conservation program for the MWRA system. While RMI staff attempted to learn about the MWRA system and programs during one meeting and by reviewing MWRA documents during a short time period, this limited review was not sufficient for RMI to gain a full understanding of how the MWRA system works, what its needs are, and how MWRA interacts with municipalities and state agencies. Consequently, its recommendations are not appropriate for this permit.

MWRA welcomes RMI's input and appreciates its acknowledgment of MWRA's leadership in the water efficiency field. MWRA also agrees with RMI's general recognition that more flexibility and discretion should be given any MWRA planning efforts required under the permit, that overly specific requirements should be avoided, and that some of the draft permit proposals are not useful. We also support RMI's suggestion that further dialogue and discussion to appreciate MWRA's unique situation and relationship to its customer communities is required.

RMI makes the initial statement that ". . . there are areas in which the MWRA could reasonably make a greater conservation effort, and we believe that the water conservation section of the permit could be strengthened." MWRA in theory *could* strengthen water conservation programs, but does not believe it *should* significantly strengthen these programs in the near future based on its current demand-supply situation. MWRA strongly believes that its current programming reasonably and responsibly responds to the current and projected water supply and demand situation in the service area and that further water conservation efforts cannot be demonstrated at the present time to have any appreciable impact on wastewater flows or basin streamflows. MWRA's infiltration and inflow (I/I) removal initiatives represent an effective and responsible approach to this issue, as discussed below.

RMI stated that it paid particular attention to three areas during the development of its recommendations: public participation; integrated water and wastewater planning; and MWRA's unique situation. On public participation, RMI called for more of it. The MWRA already has two long-standing oversight committees reviewing all programs for wastewater management (WAC) and water supply (WSCAC). In addition, there is a statutorily created Advisory Board made up of CEOs and water/sewer department officials from all user communities with policy review and budget review responsibility. As stated in WSCAC's comments: "The MWRA system is probably the most scrutinized water and wastewater wholesale or retail utility in the country." All three of the standing committees, along with other ad hoc

advisory committees, effectively provide for citizen input and public participation on a full range of water supply and wastewater issues. With respect to integration of water and wastewater planning, RMI's call for a holistic approach fails to acknowledge the significant existing coordination and the intricacies of the MWRA water and wastewater systems and service areas and their complex legal/institutional issues. RMI notes MWRA's unique situation of water demand holding at 80% of safe yield and states that their recommendations are different than they might be for a utility that has done little in terms of water efficiency. Despite acknowledging this unique situation, RMI fails, along with EPA, to clearly state why water conservation requirements are needed in this NPDES permit.

Below are specific comments on RMI's "Suggested Text":

(1) Metering

RMI suggests MWRA must, within two years, send a report to communities describing benefits of various water metering systems and compliance with state Water Conservation Standards

MWRA communities are already metered, with many moving towards modern Automatic Meter Reading technologies. Three of the five specific measures listed by RMI are problematic. Separate meters for outside water use actually encourage higher, not lower, water use given that sewer charges represent about two-thirds of water and sewer charges. Separate meters and billing for new and existing apartments within buildings may be in conflict with Massachusetts law.

(2) Rates

RMI suggests MWRA must encourage communities to adopt conservation rate structures and report on alternative wholesale rate structures.

MWRA already encourages communities to use conservation-based rates. MWRA has no specific legal control over rate making in municipalities. Moreover, no need to alter MWRA's wholesale water charge structures has been demonstrated. It would be extremely difficult to develop and implement a new type of wholesale charge system with penalties for increased water use on a municipal level, and it would most likely penalize growing communities. This was studied extensively in 1985/86 and rejected by the MWRA Board of Directors. The MWRA sewer rate methodology developed in a public process over a ten-year period already incorporates community flow figures for 60% of charges, providing a substantial incentive for I/I control and system repair.

(3) Pressure Reduction

RMI suggests MWRA must, within two years, report to communities on pressure reduction options.

The entire MWRA system is already monitored for pressure, and pressures are reduced where appropriate. The MWRA maintains 43 Pressure Reducing Valves (PRVs) and communities have additional PRVs. There does not appear to be any need to further reduce pressures, which could cause unacceptable service conditions and fire-fighting difficulties.

(4) Leak and Infiltration Detection and Repair

RMI suggests additional activities relating to leak detection and I/I removal.

Leak detection and repair is already required by regulation in MWRA water communities every two years. MWRA has no similar authority to regulate sewer-only towns, but we understand that generally these communities also conduct leak detection and repair every two years. Reducing unaccounted for water to less than 10% on a system-wide basis will take many decades of pipeline rehabilitation since 2% per year is a practical upper limit on annual pipeline repair, based on cost and street construction schedules. MWRA has an aggressive water supply pipeline rehabilitation program in place, and is providing supplementary financial assistance to communities where over 50% of the 6700 miles of community pipelines need rehabilitation.

There is no need for MWRA to conduct a new pilot program on customer leaks. MWRA's Operation Watersense already did leak detection in 380,000 homes and MWRA's public information materials continue to address the residential leakage issue.

MWRA is already pursuing, encouraging, and financing aggressive I/I measures in the communities. (See discussion below) MWRA sewer communities are taking full advantage of MWRA's grant-loan assistance. This is an effective incentive. MWRA's I/I assistance program already provides technical assistance on reduction strategies. The I/I Local Financial Assistance grant/loan pool was just increased by $37 million, increasing the grant portion from 25% to 45%, in the FY 99-01 CIP approved by the Board of Directors in June, 1998. This will cover additional community I/I removal efforts in this ongoing program over the years to come.
Annual figures on leak detection and I/I removal for each community are compiled and made public by MWRA.

(5) Public Education

RMI suggests MWRA evaluate further options for school programs and general public information efforts and, after three years, hire a consultant to evaluate program effectiveness.

MWRA plans to continue its highly regarded school and public information programming. MWRA utilized extensive market research and evaluation in developing various strategies, has sent out millions of pieces of conservation materials to customers, maintained a hotline telephone for 10 years, and prepared/distributed materials for specific non-residential sectors. It is unlikely that the benefit to be gained from an outside consultant evaluation would be worth the expense.

MWRA has an award winning school education program. Water savings are very difficult to measure from public education and information campaigns. School Education Program staff already interact on a regular basis through professional associations, workgroups, and conferences with other professionals in the field.

(6) Planning and Evaluation

RMI presents the outline for a comprehensive water and wastewater management planning and evaluation report and suggests a three year period to develop such a report. Cost-effectiveness analysis would be required to be performed on at least 19 "additional water and wastewater management strategies."

The report outline includes evaluation of many issues irrelevant to the NPDES permit, as well as some completely unnecessary and counter-productive projects. MWRA already conducts water and wastewater management planning, with substantial public review. Cost-effectiveness analysis is not necessarily the appropriate analytical method to be used in evaluating the "additional" strategies, since it presumes the need for the strategy.

(7) Emergency Management Plans

RMI suggests MWRA describe Emergency Management Plans for water and wastewater and how water efficiency plays a role.
MWRA already has Emergency Response Plans in place. MWRA has already made water efficiency a priority, and various efficiency and demand management strategies are key to its drought emergency planning. Sewerage system emergencies result largely from natural or catastrophic events, and small changes in base water demand would have little impact on relieving the problem.

Draft EPA Water Conservation Guidelines

While EPA - New England has been drafting water conservation requirements for MWRA, EPA has been developing Water Conservation Plan Guidelines for the entire country, expected to be finalized this summer. Since MWRA will need to complete a Water Conservation Plan to receive federal funding for its projects, the NPDES permit is an inappropriate vehicle for requiring MWRA to conduct water conservation planning and programming. The EPA's Guidelines are the result of years of careful research, and, when finalized in the near future, are expected to be used by

water suppliers in Massachusetts. If MWRA is to be required to develop a water conservation plan, compliance with EPA's guidelines should satisfy this requirement.

EPA released draft Water Conservation Plan Guidelines pursuant to Section 1455 of the Safe Drinking Water Act on April 20, 1998. The guidelines were designed to be used voluntarily by all public water supply systems and for use in State Drinking Water Revolving Fund planning at state discretion. One of the first of nine steps in the Guidelines' conservation plan development process is the completion of a System Profile. This profile is used to help systems assess their present circumstances and design strategies to meet emerging needs. Water systems facing one or more of the following conditions are strongly urged to consider the fullest range of conservation measures available to them in accordance with these guidelines:

•Systems in state designated critical water or stressed areas
•Systems experiencing frequent droughts, emergencies, or safe yield problems
•Systems with excessive unaccounted-for water or water losses
•Systems entering into major construction cycles
•Systems anticipating rapid growth in water demand

The MWRA system does not face the above conditions in any significant way that requires expansion of its ongoing water conservation program. The following is a summary of MWRA's status with respect to the five factors:

(1) The water supply reservoirs for the MWRA/MDC system are not located in a state-designated critical water or stressed area. These are storage reservoirs, with minimum downstream releases from the Quabbin and Wachusett Reservoirs mandated by legislation and an Army Corps permit. Increasing reservoir storage does not increase downstream releases. The only environmental impact (though not necessarily positive) resulting from increased water conservation in the MWRA would be a very slight increase in flood flows over the reservoir dams during high yield conditions.

(2) The system does not experience frequent droughts or emergencies and water withdrawals are significantly below the safe yield of the reservoir system. This condition is projected to continue well into the future.

(3) Unaccounted-for water levels in MWRA member communities have dropped significantly over the past decade to low-moderate levels. Leak detection and repair will continue in all systems and MWRA is providing financial assistance to increase the pace of community water pipeline rehabilitation, a long term program that will significantly reduce water losses.

(4) The MWRA is not entering into major construction cycles to expand the water system service area and increase system demand. To the contrary, several projects are in construction or planning stages that increase system efficiency and reduce water leakage.

(5) The MWRA system is not anticipating rapid growth in water demand. Recent MWRA analysis of seven major factors influencing future water demand projected a flat or declining water demand at least until the year 2020. Population is very stable in the metropolitan Boston area. Recent projections by the U.S. Census Bureau and the Metropolitan Area Planning Council (MAPC) show very limited growth, if any, over the next 20 years. Projections of employment levels by MAPC show limited growth, almost exclusively in non-water intensive labor classifications. Already near the highest in the country, water/sewer rates in the MWRA service area are projected to rise 76%-80% over the next ten years creating even greater financial and market pressures for water conservation and the development/sales of water efficient fixtures.

The Safe Drinking Water Act requires EPA to consider water availability and climate in the development of water conservation guidelines and plans. The MWRA is extremely fortunate to have a massive water supply in the Quabbin/Ware/Wachusett system fed by an average of 43 inches of rain per year. With a five year supply of water in the reservoirs and a safe yield of 300 mgd, the MWRA's current and projected demand levels do not suggest a need for significant strengthening of water conservation programming at the present time.

The EPA Guidelines describe a 12 water conservation measures that water utilities can use in designing water conservation programs. These measures are broken down into three categories of four measures indicating Levels 1 (Basic), 2 (Intermediate), and 3 (Advanced), as shown in Table 1.

Table 1

Level 1 Measures	Level 2 Measures	Level 3 Measures
Universal Metering	Water - Use Audits	Replacements and Promotions
Water Accounting and Loss Control	Retrofits	Reuse and Recycling
Costing and Pricing	Pressure Management	Water-use regulation
Information and Education	Landscape Efficiency	Integrated Resource Management

Each of the dozen measures is further broken down with basic, intermediate and advanced guidelines (see Table 2) reflecting different levels of program activities. The MWRA, along with other agencies, its communities and users, has conducted conservation programming in all 12 measures. For ten of the 12 measures, programs and activities considered ?Advanced Guidelines" have been undertaken by MWRA. The only measure without significant MWRA programming in the advanced category is landscape efficiency, due to the small proportion (5%-8% of total demand) of total water demand used for outdoor watering in the MWRA service area given the regional climate. Municipalities and landowners with outdoor watering needs have been expanding their efforts to eliminate excess usage (e.g. drilling local wells, mulching, landscape changes, irrigation system controls).

Based on the MWRA's system profile, as determined by the EPA Guidelines and a review of the Guidelines' categorization of available water conservation measures, the EPA Guidelines do not appear to support significant changes to MWRA's water conservation program. The EPA Guidelines also leave the evaluation of water conservation measures to the water supplier based on its own assessment of its planning goals and the cost-benefit of specific measures. It does not make sense to impose an array of arbitrary provisions on MWRA when the EPA Guidelines allow flexibility based on system size, climate, and water availability.

Relationship of MWRA Discharge and Water Use to Eastern Massachusetts River Basin Conditions.

Any permit requirement that mandates MWRA to interfere with the water use of communities to which it supplies no water flouts Section 101 (g) of the Clean Water Act, which expressly preserves state authority to allocate quantities of water within its jurisdiction.

MWRA is a wholesale supplier of water and sewer services to 61 independent cities and towns. Those municipalities have been granted authority to operate their own community water and sewer systems, and local control is a prerogative which communities will not easily or happily surrender to MWRA attempts at regulation. Requiring MWRA to attempt to regulate water use in towns to which it provides only sewer services would drastically alter the legislatively authorized relationship of MWRA to its customer communities and would likely have significant political repercussions on MWRA's ability to accomplish its overall missions.

As discussed above, the issues of what is an appropriate stream flow in a given river basin, and what measures should be taken to preserve or augment stream flow, are a focus of Massachusetts' Watershed Based Planning Initiative. The MWRA's role in either the problem or the solution for any particular basin is far from clear at this point in the process, and it is premature to base permit requirements on unsubstantiated assumptions on these issues.

Even if it were found to be appropriate to do so, MWRA has limited authority to regulate water use under its municipal permits with sewer communities. MWRA's sewer use regulations (360 CMR 10.000) authorize the issuance of municipal permits to cover all existing public and special discharges to the MWRA sewer system. The regulations require municipalities to assure that no discharge from a source in its jurisdiction shall cause obstruction, damage, surcharging or impairment of the sewerage system. There is no specific authority for regulating water use in such

communities. Although MWRA may include terms and conditions regarding limits on constituents and volumes of discharges, no such terms and conditions have been included in current municipal permits, as none have been deemed necessary. In order to impose such terms and conditions, MWRA would have to establish a rational basis for such limitations. MWRA is subject to the standards applicable to public bodies in the exercise of regulatory authority and cannot impose arbitrary or capricious requirements in its permits or regulations. Municipal permits do require communities to comply with MWRA regulations, to prohibit connections to persons or local bodies outside the sewer service area without appropriate review and approval, to have a user charge system which incorporates policies and incentives to promote reduction of wastewater flows, and to provide routine preventative maintenance and adequate capital replacement of the collection system in order to alleviate sanitary sewer system overflows and eliminate excessive inflow and infiltration (pursuant to DEP guidelines).

MWRA Priorities and Resource Limitations

The MWRA should not be required to make significant expenditures and redirect current staff to a new water conservation program that is clearly not needed from a waterworks system perspective and will not assist in addressing EPA's concerns about outfall water quality impacts or eastern Massachusetts river streamflow problems. These expenditures will create additional burdens on MWRA ratepayers already paying significant water/sewer bills to address high priority water and wastewater system needs. In its comments, RMI states "...the question of priorities is always a real one for water/wastewater utilities, and should be discussed between MWRA and EPA."

As stated by WSCAC, one of the original proponents of MWRA demand management and its staunchest supporters, in their comments: "Much remains to be done in the water system and it is appropriate for the MWRA to have turned its attention away from water conservation now to embark upon its major capital program for water system source protection, transmission system rehabilitation, assistance to user towns in distribution system rehabilitation and treatment needs assessment and construction of treatment determined to be necessary."

In order to complete many of the RMI recommended studies, projects, and programs, MWRA would need to redirect staff from high priority tasks. For example, the Waterworks Planning Department would need to take staff off critical watershed protection, distribution system rehabilitation, and water quality education projects. Many of these projects are directly related to fulfilling MWRA commitments made to EPA, DEP, and the Federal District Court on Safe Drinking Water Act compliance.

Table 2

EPA Guidelines for Preparing Water Conservation Plans
Water Conservation Measures

(/ indicates measures performed in MWRA service area)

Measure	Basic Guidelines	Intermediate Guidelines	Advanced Guidelines
Level 1			
Universal Metering	- Source-water metering and reading / - Service-connection metering and reading / - Meter public-use water /	- Fixed-interval meter reading / - Meter accuracy analysis /	- Test, calibrate, repair and replace meters /
Water Accounting and Loss Control	- Account for water / - Repair known and substantial leaks /	- Analyze nonaccount water / - Leak detection and repair strategy / - Automated sensors/ telemetry /	- Loss-prevention / Program (includes pipeline rehabilitation)
Costing and Pricing	- Cost-of-service accounting / - User charges / - Metered rates /	- Cost analysis _ - Nonpromotional rates /	- Advanced pricing methods / (majority)
Information and Education	- Understandable water bill / - Information available /	- Informative water bill - Water-bill inserts / - School program / - Public Education Program /	- Workshops / - Conservation Coordinator / - Advisory Committee /
Level 2			
Water-Use Audits		- Audits of large-volume users / - Large landscape audits	- Selective end-use audits
Retrofits		- Retrofit kits available /	- Distribution of retrofit kits / - Targeted programs /
Pressure Management		- Systemwide pressure management /	- Selective use of pressure reducing valves /

Measure	Basic Guidelines	Intermediate Guidelines	Advanced Guidelines
Landscape Efficiency		- Promotion of landscape effficiency **/** - Selective irrigation submetering **/**	- Landscape planning and renovation - Irrigation management
Level 3 Measures			
Replacements and Promotions			- Rebates and incentives (nonresidential) - Rebates and incentives (residential) **/** (direct installation) - Promotion of new technologies **/**
Reuse and Recycling			- Industrial applications **/** - Large-volume irrigation applications - Selective residential applications (#)
Water-Use Regulation			- Water-use standards and regulations **/** (cooling) - Requirements for new developments (*)
Integrated Resource Management			- Supply-side technologies **/** - Demand-side technologies **/**

Wastewater reuse and recycling in the residential sector is prohibited by Massachusetts state health and environmental codes. Some limited use of gray water is currently under state review.

* The examples provided in the Guidelines of such requirements for new developments are focused on situations with large volumes of outdoor watering and irrigation. Due to regional climate, water availability, and land use in the MWRA service area, such types of requirements are unnecessary.

Infiltration and Inflow

A number of comments addressed regional I/I management. These comments generally recommend (1) more coordination among MWRA, the Massachusetts Department of Environmental Management (DEM), and basin teams; and (2) expanded outreach and assistance for locally-owned collection system maintenance. MWRA concurs with the need for regional I/I reduction. However, MWRA believes that it currently has in place an aggressive and appropriate multifaceted program to achieve I/I reduction and sewer system rehabilitation within both the MWRA-owned interceptors and locally-owned collection systems. MWRA staff are currently working cooperatively with the Massachusetts Water Resources Commission, Massachusetts DEM, and the State Water Supply Work Group in development of draft performance standards and a Water Resources Management Plan that would be relevant to all statewide basins. Specific requirements under MWRA's NPDES permit would be inappropriate and difficult to administer. In addition, comments requesting additional status reporting seem to ignore the multitude of reporting (flow metering, I/I analysis, hydraulic , I/I status updates, etc.) currently performed by MWRA staff.

Some comments regarding regional I/I reduction demonstrate a lack of sensitivity to the complexities involved in upgrading and rehabilitating existing sewer infrastructure. For example, the Neponset River Watershed Association's letter inappropriately compares the New England Interstate Water Pollution Control Commission - Guide for the Design of Wastewater Treatment Works' (known as **?**TR16") recommendation for allowable rates of I/I entering new sewer construction (typically PVC pipe with rubber gasket joints) to I/I rates within existing older sewer systems (typically brick, clay or asbestos cement, with joints without gaskets).

The MWRA-owned interceptor system is comprised of about 240 miles of pipe as large as eleven feet in diameter, much of which has been in service for more than 100 years. Operation and maintenance of this system is obviously a significant challenge, which is successfully met through MWRA's aggressive program. MWRA is committed to cleaning and internal TV inspection of 100 percent of MWRA-owned interceptors on a revolving and prioritized schedule. Three full-time sewer line inspection crews are fully staffed. All interceptor defects and sources of I/I are evaluated for rehabilitation through coordination between operations and engineering staff, and subsequent scheduled emergency interceptor rehabilitation is funded through a dedicated annual budget. Details of these programs are provided to EPA and DEP through MWRA's semi-annual report, as required under the current NPDES permit.

The locally-owned collection systems are comprised of about 5,400 miles of sewers which were constructed throughout the twentieth century employing a wide range of pipeline materials and construction techniques. Historic collection system maintenance was problem-reactive, with little thought to proactive system rehabilitation. Advent of the Massachusetts 90 percent I/I grant program during the 1980's prompted many communities to begin I/I reduction planning. However, under this program, few projects actually were completed through construction. MWRA's I/I management activities have proven effective in moving community I/I reduction and sewer system rehabilitation projects through the construction phase. Relevant MWRA programs include: wastewater metering, flow data analysis and distribution to communities, flow-based wholesale charges, the I/I financial assistance (grant/loan) program, coordination and reporting activities, tidal inflow reports for basins subject to tidal impacts, CSO optimization projects, and technical assistance for metering and TV inspection. Through May 1998, approximately $43 million in local financial assistance has been distributed to fund 135 separate I/I reduction projects in 41 local communities. Additional funding for this purpose, with a higher grant percentage, was recently approved by the MWRA Board of Directors in the FY 99-01 Capital Improvement budget. In addition, one of MWRA's three TV inspection crews is dedicated to work in community systems through the technical assistance program. Details of local community programs are also provided to EPA and DEP through MWRA's semi-annual report as required under the current NPDES permit.

Public's Response:
The Charles River Watershed Association (CRWA) commented that the Rocky Mountain Institute (RMI) suggested an entire new conservation section for the draft permit on which MWRA will no doubt have extensive comments. In general, CRWA agrees with the focus of the section - developing pilot programs and studies that will inform member communities, and investigating leaks and I/I, for example. Some specific directions in Section 6, Planning and Evaluation, however, seem overly prescriptive and outside of MWRA's purview. Sections 10.6.C.c and l0.6.E are studies that should be undertaken on a state-wide basis, and not placed on MWRA's shoulders.

Public Education:

Public's Response:
The Charles River Watershed Association (CRWA) stated that while the Neponset River Watershed Association states that the conservation plan may not be an "appropriate directive," the CRWA thinks that the public education that is gained by conservation programs - and the potential to make the connection in the public's mind between sewer and water supply - is important. Further, the CRWA commented that the MWRA is not being asked to enforce water conservation, as they state in their comments, but rather to expand an existing education and awareness-raising program.

Community Reporting:

Public's Response:
The Charles River Watershed Association (CRWA) commented that the Wastewater Advisory Committee suggests that each MWRA-serviced community submit a status sheet detailing water use, wastewater discharge, and I/I. CRWA agrees that this type of reporting would be useful for water resource planning. It is especially important for "sewer only" communities to report how much local water is entering the MWRA system. RMI's suggestion that this information be related to watersheds is a good one.

AGENCY'S RESPONSE:
EPA and MADEP have carefully considered the many points of view expressed by commenters on the proposed water conservation requirements–both those who expressed strong support for water conservation, and those who believed the requirements were overly prescriptive. Several commenters urged that EPA and MADEP focus more on aggressive controls on infiltration and inflow, which we have done in a separate section of the permit.

The principal requirement of the draft permit–that the MWRA develop a water conservation plan, considering a menu of potential elements–remains in place in the final permit (with some changes to the list of elements). EPA and MADEP understand that the MWRA has a great deal of experience in the water conservation field, and the permit is not intended to be overly prescriptive. In fact, the permit allows the MWRA to use its own judgment as to the effectiveness of the various tools to achieve water conservation. It is important, however, to achieve continuing improvements in this area, and the requirement that the MWRA develop a comprehensive water conservation plan is a means to ensure that the MWRA will continue to devote significant attention to conservation.

There are some changes to the requirements proposed in the draft. The performance standards section has been revised based on a determination by MADEP that the standards proposed in the draft are not necessary–these are replaced by a requirement that the plan be designed to achieve continuous reductions in water use per capita. Also, commenters did not support the requirement that the MWRA be held responsible for publishing notifications of low flow in specified rivers. While there was some support for such notifications, the consensus was that this should not be the MWRA's responsibility. On reconsideration, EPA and MADEP agree, and will seek other means to implement this idea. In addition, minor changes to the list of elements to be considered in developing a comprehensive water conservation program have been made, reflecting various comments.

The following language has been removed from the final permit:

Part 10.A.

"h. Develop and implement a program to determine leaks in household fixtures."

Part 10.B.

"B. The plan shall be designed to achieve the following performance standards: a. System-wide "unaccounted-for-water" shall be kept below 20% with a long-term goal of reducing to 15%. b. For MWRA communities that are both "MWRA water and sewer communities", MWRA shall require that they comply with the following three (3) basic water system conditions: (1) perform system-wide leak detection assessment every two years; (2) ongoing water meter calibration program; and (3) goal of getting 100% metered flow. c. Individual communities will be exempted from the requirement for performing system-wide leak detection assessment if they can show that their system does not exceed the following threshold: Whenever the volume of unaccounted water becomes greater than

ten (10) percent or whenever the volume of unaccounted for water increases by 5% within a twelve (12) month period, and then every thirty-six months thereafter. 2. The MWRA shall publish public service announcements in the body of local daily newspapers informing municipal water supply customers that streamflow has fallen below critical threshold level (as defined below), and these announcements shall include recommendations to consumers ways to limit water consumption, especially outside water use.(1) Wilmington - when the streamflow in the Ipswich River falls to 8.6 cubic feet per second (cfs) at the USGS gauge in South Middleton for 7 consecutive days. (2) Natick, Westwood - when the streamflow in the Charles River, measured at the Dover gauge, falls below 0.53 cfs from September 15 to November 15, 0.21 cfs from November 16 to February 28, 0.96 cfs from March 1 to June 15, and 0.21 cfs from June 16 to September 14. (3) Canton, Westwood, Stoughton - when the streamflow in the Neponset River falls below the minimum streamflow (to be determined). Because of streamflow fluctuations, and to prevent unnecessary repeated notifications, after initial publication, MWRA will only be required to re-publish notification when streamflow exceeds the threshold for 7 consecutive days and then falls below the threshold for 7 consecutive days."

The final permit language has been modified in the following manner:

Part I.10.1.b.

The permit language has changed from " . . . reductions in water use per capita . . ." to "reductions in wastewater volume per capita . . ."

Part I.10 viii.

The permit includes the following language "Develop and implement a program that will require MWRA communities to achieve 100% metering of all service connections, and perform ongoing meter calibration."

POLLUTION PREVENTION (Section I.11):

General Comments:

Comment:
The MWRA Advisory Board commented that Pollution prevention has already been an integral part of the Authority's program since its inception. Programs addressing industries and business, schools, and households have been under way for years. Pollution prevention continues to be an important part of the Authority's inspection, permitting and enforcement process. It should be recognized that effective substitution for problem components of the waste stream should be linked to a state-wide, region-wide, and even nation-wide effort to create and promote the distribution of such substitutes. EPA and the Commonwealth (in cooperation with other states) should mount programs to do so.

Comment:
Mr. Graber of Winthrop commented that Attachment P, as referenced on Permit page 18, gives pollution-prevention suggestions for public implementation. Referring to Items 2.(1) and 2.(4), it is noteworthy that projects involving the stenciling of catch basins have been carried out by Winthrop students assisting the Winthrop Conservation Commission and as an Eagle Scout project by Harris A. "Rusty" Tracy in Stoughton. (There are two articles regarding both of these projects which are apart of the EPA Administrative Record - please call EPA for copies, if you are interested.) The Winthrop and Boston Conservation Commissions should also be commended for requiring plaques serving this purpose to be installed at new catch basins.

Availability:

Comment:
The BLF supports the pollution prevention requirements contained in the draft permit. Parts I.11.a and I.11.b, the Comprehensive Pollution Prevention Plan should be electronically posted and notice of its availability electronically distributed.

AGENCY'S RESPONSE:
The final permit requires the MWRA to inform the general public by including their pollution prevention plan on their Internet web page, and by placing a hard copy of their pollution prevention plan at two repositories. (See also: Part I.20.e. of the permit.)

Flexibility:

Comment:
Part I.9.b. of the permit should require that the OMSAP, as well as the EPA and the DEP, must agree that required elements may be excluded because "equivalent or greater benefit can be more effectively achieved through another mechanism."

Comment:
Save the Harbor/Save the Bay stated that, while we commend the DEP and EPA for its comprehensive and environmentally protective permit, we are concerned that the level of detail provided in the permit relating to water conservation and pollution prevention may stifle innovation. We recognize that these two elements are extremely important and should not be overlooked, however, the permit, as currently written, is so task specific in certain areas, that it may actually inhibit the creation of successful programs. The Toxics Reduction and Control Department (TRAC) of the MWRA should be given the discretion to set pollution prevention priorities based on the information gathered from the MWRA's inspections, analytical data, and federal and state guidance. The permit should contain language stringent enough to allow the DEP and/or EPA to require the MWRA to increase its pollution prevention activities if they are deemed to be inadequate to prevent permit violations and/or adverse impacts to human health and/or the environment; however, flexibility is required to ensure that resources are devoted to the most serious problems/pollution sources as they are identified.

Comment:
The Boston Harbor Association commented that the Pollution Prevention Plan outlined in the Draft NPDES Permit should be revised to provide greater flexibility for the MWRA to target their pollution prevention efforts on an as needed basis (page 16-19, section 11). Pollution prevention priorities should continue to be identified and addressed through the MWRA's Toxics Reduction and Control Program. We are concerned that the permit places too much focus on reducing PCBs versus addressing overall toxics reduction strategies based upon actual problems identified by the monitoring program. Specific requirements associated with brochure development and website information should be replaced by more general language. Requiring this level of detail could restrict the MWRA's ability to provide appropriate public information in a flexible and responsive manner.

Comment:
The Boston Water and Sewer Commission stated that EPA and the MADEP propose to require MWRA to develop and implement a pollution prevention plan that encompasses all users of the MWRA system - industrial, commercial and residential - with a special focus on efforts to reduce PCBs, including monitoring of industries that where PCBs are typically found. MWRA's Toxic Reduction and Control (TRAC) Department has done an excellent job with its industrial pre-treatment and other programs to reduce the level of many pollutants that were previously causing problems in MWRA's wastewater effluent. The MWRA's NPDES permit should acknowledge the MWRA's effectiveness in its pollution prevention activities by providing MWRA with the flexibility to identify and prioritize existing or emerging problems and target their limited resources accordingly. The special focus on PCBs is not one of the problem pollutants the MWRA has identified based on data derived from their pollution prevention programs and effluent and sludge monitoring programs.

Comment:
MWRA stated that they agree that pollution prevention is an important component of its commitment to reduce pollutant discharges and has years of experience in successfully integrating pollution prevention into its programs. MWRA promotes pollution prevention through a variety of methods, including outreach programs for households, schools, and industries. For example, MWRA has developed and distributed over 90,000 copies of a booklet entitled "A Healthy Environment Starts at Home," which describes the problems with and alternatives to many household hazardous products. This booklet has been borrowed and copied by many areas throughout the country, including Orange County, CA, and Northampton, MA. In addition, in partnership with 12 municipalities, MWRA established nine permanent used oil collection centers, which are still in use now, within its service area. In school settings, a curriculum used at over 125 locations and other presentations include explanations of MWRA's Toxic Reduction and Control Program and the role of individuals in both polluting and helping to clean up Boston Harbor. Through these programs, MWRA has directly supported pollution prevention despite MWRA's limited authority to reach households except through information and education.

MWRA routinely trains its own inspection, permitting, and enforcement staff on toxic use reduction strategies and opportunities, integrates source reduction into enforcement orders, makes referrals to the Massachusetts Office of Technical Assistance for source reduction assistance, and supports the development of innovative technologies that reduce the use of chemicals in industrial processes.

MWRA has developed its pollution prevention activities and set priorities for its permitting/enforcement plan on the basis of data indicating problem areas within the discharges to its sewer system, its effluent, and/or its sludge. MWRA believes that the success of its pollution prevention and permitting activities has depended on the ability of the agency to maintain discretion and flexibility with regard to their development. Therefore, MWRA believes including overly prescriptive pollution prevention requirements as proposed in the draft permit will severely limit MWRA's ability to develop effective and efficient methods of pollution prevention in the future.

Furthermore, while prescribing detailed measures to be included in MWRA's pollution prevention plan, the permit contains no provision allowing MWRA to contest EPA's or DEP's failure to approve the plan or any modification of the proposed plan made by EPA or DEP. Given its success in achieving effective pollution reduction and prevention to date, MWRA protests EPA and DEP's assumption of control of MWRA's pollution prevention activity via the permit without deference to MWRA's record and experience and without providing MWRA any meaningful rights of appeal.

While MWRA, EPA, and DEP share a strong common concern about pollution prevention outcomes, MWRA believes that the most effective approach to pollution prevention in the permit would be to allow MWRA to continue to create a program that works and can evolve as the needs of the program evolve. MWRA urges that EPA and DEP substitute a general statement about promoting pollution prevention that acknowledges common goals as well as MWRA's current source reduction activities. MWRA would be willing to report on its pollution prevention activities in its annual report on industrial pretreatment (see Section I.15.b. of the proposed permit).

With regard to specific permit provisions:

PCB requirements (Section I.11.b.i-iv)

The pollution prevention-related PCB requirements in the draft permit are unnecessary and would be counterproductive to MWRA's efforts to reduce pollution discharges to its sewer system. MWRA has a prohibition on the discharge of PCBs into the sewer system and rigorously enforces the prohibition. Through years of monitoring industrial discharges, MWRA has seen no data that show PCBs are being discharged by industrial activities into the sewer. Most of the PCB sources listed in the permit either are not actually industrial sources (e.g., non-hazardous landfills for which EPA has just issued a proposed national categorical standard with no pretreatment requirements, and 21E Superfund sites) or have never been shown to discharge PCBs (e.g., metal processing facilities and food processing facilities). EPA and DEP should not require MWRA to expend resources searching for PCB violations above and beyond its existing enforcement program unless there is evidence that the PCBs are being discharged by industrial activities into the sewer.

Chemical storage and spill containment certification requirement (Section I.11.b.vi.-vii)

The requirements that MWRA obtain industry certification regarding chemical storage and spill containment need to be clarified. MWRA has no authority to regulate chemical storage and mechanical processes without a threat of or an actual spill or discharge to the sewer. In those instances, MWRA requires a facility to submit and implement a spill control plan. In contrast to the provision of the draft permit, MWRA has found that it may be preferable to issue a permit to a facility before it has a spill control plan in place, with a requirement to develop and implement such a plan, rather than to allow a facility to operate without a permit while it develops a spill control plan. Thus, MWRA suggests that EPA amend this provision, if included in the final permit, to allow MWRA to issue a permit to a facility that should have a spill control plan, so long as MWRA requires the facility to submit and implement such a plan on an enforceable schedule.

Attachment P (referred to in Section I.11.b/viii.(2)): MWRA notes that the examples of pollution prevention ideas provided in Attachment P may not be appropriate for the plan created and administered by MWRA. While MWRA will certainly consider the suggestions, some may be counterproductive, beyond MWRA's ability to implement, or redundant with respect to MWRA's prior initiatives.

Public's Response:
The MWRA commented that virtually all of the comments regarding the Pollution Prevention Plan state that the plan needs to be much more flexible to be effective. For example, Save the Harbor/Save the Bay expresses the opinion that the current provisions would stifle innovation and that they are so task-specific that they would inhibit the creation of successful programs. They feel that it would be better to give MWRA's Toxic Reduction and Control Department (TRAC) the discretion to base programs on data generated from monitoring and inspection programs. The Boston Harbor Association (TBHA) also feels that greater flexibility is needed and that there is too much focus on PCBs in the draft permit. TBHA believes that the Pollution Prevention Program should focus on problems identified in the various monitoring activities. Several other organizations echoed the need for greater flexibility so that the Pollution Prevention Plan can be tailored to address problems when they are identified by the data.

These comments support MWRA's view that the Pollution Prevention Plan requirements as currently written in the Draft NPDES Permit are excessively restrictive. The proposed plan has so many required projects that it is unlikely that MWRA would have the resources to identify, much less pursue, additional pollution prevention opportunities. In addition, once accepted, the Plan would have to be implemented as directed by EPA. There is no mechanism for MWRA to appeal decisions made by EPA, and there is no mechanism short of a permit modification, to modify the Plan if problems develop. A static Plan is unlikely to satisfy the needs of MWRA's sewer system for the next five years. To be truly effective, the plan needs to be a living document, one that can adjust as circumstances change. The plan in the current draft of the NPDES Permit will not allow MWRA to develop a cost-effective program that focuses on its most critical problems.

MWRA objects strongly to the Bays Legal Fund suggestion that OMSAP be given a role in approving MWRA's proposed Pollution Prevention Plan. Oversight of the Pollution Prevention Plan is outside the scope of OMSAP's mandate and expertise and would hinder further a pollution prevention plan process already far too cumbersome.

AGENCY'S RESPONSE:
In response to concerns raised both by the MWRA and by environmental groups, the permit language has been changed to add an element of flexibility, without compromising the overall stringency of the pollution prevention plan. The following language under Part I.11.b. of the final permit has been changed from, ". . . include at least the following elements, unless the permittee demonstrates, and EPA and the MADEP agree, that equivalent or greater benefit can be more effectively achieved through another mechanism:" to "include at least the following elements, unless equivalent or greater benefits can be more effectively achieved through another mechanism."

In order to clarify the permit language and ensure that coordination efforts are sought, Part I.11.b.v. has been changed from "Evaluate the feasibility of developing an MOU with EPA and the MADEP to respond to sites containing PCBs. The MOU would establish a partnership among EPA, MADEP and the MWRA, so that EPA and the MADEP would inform the MWRA of known sites with the potential for releasing PCBs to the sewer system, and if the MWRA identifies potential sites within the MWRA service area, it would refer them to EPA and the MADEP." to "The MWRA shall evaluate the feasibility of using MADEP and EPA hazardous waste and MADEP 21E/MCP sites databases to identify the potential for releasing PCBs into the combined or separate portions of the sewer system. If the MWRA identifies potential sites within the MWRA service area, it shall initiate discussions with EPA and the MADEP to strategize solutions."

GROUNDWATER REMEDIATION (Section I.12):

Comment:
STOP commented that if a change to the current prohibition is considered, notification to EPA, MADEP, the OMSAP, and any interested members of the public should be required before approval is granted.

AGENCY'S RESPONSE:
A notification requirement has been added to the final permit. The MWRA is required to notify the general public of any proposed changes to the current groundwater remediation prohibition through the MWRA's web page and by placing hard copies at two repositories. (See also: Part I.20.e. of the permit.)

SLUDGE REQUIREMENTS (Section I.13):

Comment:
The City of Melrose would like the pelletized sludge testing requirements removed from the permit, and referenced as an attachment. Since the quality of the sludge has to meet current EPA requirements in order to be considered marketable, the City believes that sludge pelletized fertilizer is already being tested, and they are concerned that duplicate testing will result in higher costs for the ratepayers.

AGENCY'S RESPONSE:
EPA has ensured that the MWRA will not be required to perform duplicate testing through the NPDES permit. If the MWRA produces a test result or report under another mechanism, the permittee may forward the test result or report to EPA in order to meet the same specific requirement of the permit. In this regard, the permit requirements will not cause an additional burden to the MWRA.

Comment:
MWRA supports EPA's retention of the flexibility afforded by the Part 503 biosolids (sludge) use regulations. However, we believe the permit could be greatly simplified by incorporating those regulations by reference, rather than by paraphrasing large segments, as was done. Incorporation by reference would allow immediate updating of permit provisions when the regulations are amended, as is scheduled to happen at least once during the life of the permit. In addition, incorporation by reference would minimize the risk that permit language will be interpreted as meaning something different from the regulations, even though EPA and MWRA currently agree that their meanings are the same.

AGENCY'S RESPONSE:
The sludge language has remained unchanged for the final permit, since the Clean Water Act, Section 405(f) requires that the sludge conditions be implemented through NPDES permits. Although the sludge regulations are self implementing, EPA believes that it would be unreasonable to expect the average person to know how to gain access to the regulations if they were only referenced within the final permit, as well as have an understanding of the regulations sufficient to know when each part applies. The general conditions of the permit allow for changes to the regulations. The draft and final permits include language that require compliance with existing federal and state sludge regulations and with the Clean Water Act (CWA) Section 405(d) technical standards. The language also includes a reopener clause that allows the permit to be modified or revoked and reissued in order to conform to any new promulgated regulations (See also: Part I.13.a. and b. of the draft and final permits).

INDUSTRIAL PRETREATMENT (Section I.14.b)

Comment:
The BLF supports the inclusion of development limitations for industrial users and a pretreatment program requirement in the permit.

Comment:
The City of Melrose would like the Industrial Pretreatment requirements removed from the permit, and referenced as an attachment. The City believes that a pretreatment program is the expected resultant of all progressive industries. For example, as industries work toward achieving their International ISO 14000- Certification, they will need to vigorously show what they are doing to become environmentally friendly. The City is concerned that this requirement will be a duplicated effort, and cost ratepayers additional money.

Comment:
Mr. Graber commented that it is important that the MWRA have a more definitive means of translating permit effluent limits into influent limits and thence in Local Limits (as mentioned on Permit page 25 at 14.b) for its Sewer Use Ordinance and Pretreatment Program.

Comment:
Section I.14.b of the permit currently requires MWRA to complete and submit its technical report on local limits for industrial users to EPA by October 1, 1999. The proposed date was based on an understanding that MWRA would have at least six months of reliable data from stable secondary treatment operations at Deer Island prior to beginning the study. MWRA and EPA have always agreed that a reasonable schedule for completion of the current local limits study would be 18 months from the time such data is available. It now appears that MWRA will not be able to begin collecting the data until August 1998. Therefore, it requests that the due date for the local limits study be changed to January 31, 2000.

Comment:
STOP commented that when changes or additions to a specific Industrial User's effluent is sought, notification should be made to the OMSAP, the Environmental Monitor, and any interested members of the public.

AGENCY'S RESPONSE:
Section I.2 of the permit has been revised to require prior notice to EPA, MADEP, NMFS, OMSAP, and interested members of the public when there are significant changes in the volume or character of pollutants discharged into the MWRA system. Section I.14.b. has also been modified, to specify that the local limits analysis required by that section, and any resulting changes in local limits, will be made available to interested parties.

Public's Response:
The MWRA commented that, as stated in earlier written comments to EPA, MWRA requests that Section I.14.b of the permit be modified to reflect earlier agreements between EPA and MWRA on the local limits study completion date. Specifically, it was agreed that the study needs to be done within 18 months after transfer of South System flows to Deer Island and commencement of stable secondary treatment plant operations (to allow the collection of one year of new operational data). It appears that MWRA will not be able to begin this data collection effort until August, 1998, at the earliest, and perhaps later. Therefore, MWRA requests that the completion date be changed accordingly.

AGENCY'S RESPONSE:
EPA is given the authority, and is obligated, to include Industrial Pretreatment requirements under 40 CFR Part 122.44(j) and Part 403, and Section 307 of the Clean Water Act.

If the MWRA performs work which is required under a program other than the Pretreatment Program, and the same work is required under the Pretreatment Program, then the MWRA may submit one document in order to fulfill both requirements.

Part I.14.b of the permit has been changed from "By October 1, 1999, the permittee shall prepare and submit a written technical report to EPA analyzing local limits." to "By January 31, 2000, the permittee shall prepare and submit a written technical report to EPA analyzing local limits." in order to reflect one year of new operational data. The permit also requires the permittee to notify the general public of all analyses, and any resulting changes in local limits, through a free-access Internet website page and by placing hard copies in two repositories. (See also: Part I.20.e. of the permit.)

COMBINED SEWER OVERFLOWS (Section I.16):

Comment:
The BLF recommends adding the quantity of contaminants to CSO reporting requirements.

Comment:
In December 1997, DEP issued administrative determinations regarding appropriate quality designations under the state's Surface Water Quality Standards for several receiving water segments to be affected by occasional discharges from combined sewer overflows (CSOs) following implementation of MWRA's August 1997 Final CSO Facilities Plan. The determinations were approved by EPA in February 1998. The final permit should reflect the approved designation of SB(CSO) for the following water bodies: Upper and Lower Inner Boston Harbor, Mystic/Chelsea Confluence, Reserved Channel, and Fort Point Channel; and the approved designation of B(CSO) for the Muddy River (Back Bay Fens from BOS046 to the confluence with the Charles River). The receiving water designations listed in the permit (Section I.16.a) and in the Fact Sheet (Section VI.A.2) should be changed accordingly.

AGENCY'S RESPONSE:
The receiving water designations will be changed as necessary to reflect current water quality standards. At a later date, EPA and MADEP will propose modifications to this permit to translate these new water quality standards into more specific discharge limits. Part I.16.a of the final permit has been modified to reflect new receiving water designations for three combined sewer outfalls (CSOs): 203, 205, and 207. The receiving water designations for all three CSO outfalls listed above have been changed from "SB" to "SB (CSO)".

Comment:
The City of Melrose would like the Combined Sewer Overflow requirements removed from the permit. They are concerned that the MWRA will be duplicating efforts, and they believe that CSO limitations and testing requirements are already a part of permit requirements under the MWRA's current Stormwater- Management Plan.

AGENCY'S RESPONSE:
EPA has ensured that the MWRA will not be required to perform duplicate testing through the NPDES permit. If the MWRA produces a test result or report under another mechanism, the permittee may forward the test result or report to EPA in order to meet the same specific requirement of the permit. In this regard, the permit requirements will not cause an additional burden to the MWRA.

Comment:
Mr. Graber of Winthrop commented that in reference to the chlorine residual limits for CSOs under 16.a (Draft Permit page 27), it would be helpful to receive an explanation of the derivation of those limits similar to that provided for the treatment plant outfall (at Draft Permit Attachment H).

AGENCY'S RESPONSE:
An explanation of the derivation for the chlorine residual limits for CSOs under Part I.16.a. has been added as Attachment U.

Comment:
Mrs. Polly Bradley of SWIM commented that since the MWRA does not intend to monitor beaches, the Nahant Board of Selectmen plans to have Nahant beaches monitored this summer after storms, when the MWRA plant is most likely to have high flows that could require bypassing of some secondary treatment. Since only half of secondary treatment will be on line this fa11, we think this monitoring will be especially important for the next few years. This will be in addition to

our usual biweekly monitoring schedule. This will create a baseline to tell if there are changes on Nahant's beaches after the Boston outfall goes on line. We sincerely hope (even more than the MWRA hopes) that we will find no problems. Considering our trouble getting a simple thing like monitoring baby lobsters through the slow normal channels, we have decided to do this ourselves, and we are recommending that Revere do the same on Revere Beach, as well as considering calling for the MWRA and/or MDC to do additional monitoring.

Comment:
STOP commented that wet weather flows should be more clearly defined within the permit.

AGENCY'S RESPONSE:
Dry weather flows are defined in Part I.1.a.3 of the permit, based on precipitation and snowmelt. Wet weather flows are those which do not fit within this definition.

UNAUTHORIZED DISCHARGES (Section I.17):

Comment:
STOP commented that the wording in this paragraph eliminates the possibility of diversion of the effluent back to the Harbor should it become necessary. The wording should be changed to reflect the possibility of utilizing the current discharge site under special circumstances. The fact that the harbor discharge site occurs in SB waters while the bay site occurs in SA waters indicates that any bypasses of the system should result in diversion, as previously discussed in our comments.

Comment:
Cape Cod Bay is classified SA; Boston Harbor, Dorchester Bay and the Inner Harbor are classified SB. In order to protect the more pristine waters of Cape Cod Bay, its threatened and endangered species, and commercial and recreational resources, the permit should require discharge from the existing harbor outfall of all wastewater not fully treated at the plant, or in violation of permit limits, except in an unavoidable emergency. The effect of this proposed change is to direct bypass wastes to waters that are already degraded relative to the more pristine waters of the Bays.

Comment:
STOP commented that the wording within this section eliminates the possibility of diversion of the effluent back to the Harbor should it become necessary. The wording should be changed to reflect the possibility of utilizing the harbor discharge site.

AGENCY'S RESPONSE:
The following permit language has been added to the final permit under Part I.17., for clarification purposes: ", except that this section of the permit shall not apply to the discharge of wastewater flow through the existing Deer Island outfall system into Boston Harbor if such a discharge is required by EPA and the MADEP."

OPERATION AND MAINTENANCE (Section I.18):

Infiltration/Inflow (Section I.18.b)

Comment:
MWRA commented that Section I.18.b. of the draft permit directs MWRA to eliminate excessive infiltration/inflow (I/I) to the MWRA sewer system. MWRA notes that for a number of years it has invested substantial resources in various programs established for this purpose. MWRA's Sewer Use Rules and Regulations (360 CMR 10.000) prohibit various non-sewage discharges and require that sewer systems connected to the MWRA be designed and operated so as to minimize I/I. In addition, MWRA's wholesale sewer rate methodology, with a flow-based component, provides an ongoing and strong incentive to member communities to reduce flows. MWRA has worked extensively with the communities to provide education, funding and technical expertise to assist them in achieving I/I reductions.

Comment:
There were numerous comments from the public who expressed concern that the MWRA's I/I program is not effective enough (See also: Response to Comments listed under "Water Conservation, I/I".)

AGENCY'S RESPONSE:
EPA has added permit language to the final permit under Part I.18.b., in order to address the public's comments and concerns regarding the MWRA's operation and maintenance program, and the issue of excessive infiltration/inflow. The intent of the new requirement to "identify and establish priority for I/I remediation needs" is to ensure that a prioritized list of community-specific remediation projects are developed for each community. A high level of detail for this engineering analysis is expected, similar to the analyses performed by the MWRA and its member communities, in order to investigate and remediate the causes of specific sanitary sewer surcharges in Milton, Braintree, and Weymouth. EPA has added the following language to the final permit under Part I.18.b. :

"i. A summary report of all actions taken to reduce infiltration/inflow during the previous twelve (12) months shall be submitted to EPA and the MADEP (pursuant to part I.20.a.i) by the first (1st) day of September of each year. The permittee may consolidate this report with the Water Conservation Plan described under section 10.p. of this permit.

ii. The permittee shall, within one year of the effective date of this permit, develop a comprehensive program to identify and remediate I/I and SSO problems within the MWRA service area, and submit a report describing its recommended program to MADEP and EPA. The MWRA shall consult with its member communities while developing this program. The MWRA shall recommend allocation of fiscal and legal responsibilities for implementation of the elements of the comprehensive plan.

The plan shall include:

(1) An operation and maintenance plan for MWRA and community sewer systems, developed in cooperation between MWRA and its member communities, which is to be implemented by the owner of each collection system and which includes the following:

a. Identification of all potential and actual SSO locations.

b. A program for periodic inspection and monitoring of overflow points during wet weather.

c. A program for routine reporting of SSO discharges to MADEP and EPA.

d. Identification of SSOs which occur as a result of maintenance deficiencies (illegal sewer blockages, pump failures) and a plan for improved maintenance to prevent recurrence.

e. Identification of reasonable performance standards for future system maintenance and a reporting system to assess performance. The plan shall include a mechanism for ensuring that MWRA member communities implement routine operation and maintenance programs, either by including such requirements in the MWRA's municipal permits or through another equally effective mechanism.

(2) A plan for managing I/I into MWRA and member communities' collection systems which includes the following:

a. A system-wide analysis to identify and establish priority for I/I remediation needs within the entire service area (MWRA and communities). Priority shall be established with consideration of public health impacts (basement flooding), water quality impacts (e.g. SSOs), streamflow impacts (e.g. low receiving water flows due to out of basin transfer), and cost and value effectiveness.

b. A program for addressing the identified I/I remediation needs. The following activities shall be evaluated for their effectiveness in addressing the identified needs:

(1) MWRA's current financial programs for I/I removal. Include recommendations for future funding programs for eligible community I/I reduction projects;

(2) MWRA's current rate methodology. Include recommendations of modifications to provide further incentives for reducing flow;

(3) Programs to offset impacts associated with sewer connections (e.g. water/wastewater "banks");

(4) Establishing minimum I/I requirements in each communities Municipal permit and requiring community reports on the effectiveness of specific programs adopted (e.g. private source removals); and

(5) MWRA technical assistance and public education programs to support community I/I reduction efforts, and the need for any improvements.

EPA and the MADEP will solicit public comment on the program described above and shall submit their comments, along with those from the public, and any recommended revisions to the MWRA within six months of the MWRA submittal. Six months thereafter, the MWRA shall submit to EPA and the MADEP its final program, reflecting those comments and recommendations, for I/I and SSO control within the MWRA service area. Within four months after receiving comments from EPA and the MADEP on the program, the MWRA and its member communities shall begin to implement those parts of the program that have been approved by EPA and the MADEP. Within four months of the EPA's and MADEP's approval of a final program, MWRA and its member communities shall begin to implement that program. EPA and the MADEP will monitor the effectiveness of the program and if necessary may modify the program and/or the MWRA's NPDES permit to add, modify, or delete I/I or SSO activities. Requirements related to SSO control may be incorporated or revised as part of the permit modification for Phase II CSO controls.

Within eighteen months of the effective date of this permit, the permittee shall enter into an updated Memorandum of Agreement (MOA) with the MADEP regarding I/I issues.

The MOA shall allocate roles and responsibilities, including enforcement, among MWRA, its member communities and the MADEP to ensure implementation of the comprehensive program.

Outfall and Diffusers (Section I.18.e)

Comment:
Section I.18.e., among other provisions, requires an assessment of the dilution provided by the new outfall once it is in operation, in comparison to the minimum dilution predicted in a 1993 study. This assessment is due within 180 days of the effective date of the permit, although the provision includes a process for MWRA to request an extension of the 180 days, if the outfall is not fully operational within that period. Given the unavoidable uncertainty inherent in completing construction and beginning operation of all phases of the Boston Harbor project to date, the process for extending the effective date of this requirement seems unnecessarily cumbersome and bureaucratic. In the alternative, MWRA strongly urges that the permit simply require field testing and certification of the outfall dilution within 180 days after the outfall becomes operational.

AGENCY'S RESPONSE:
The permit has been modified to reflect this approach.

Comment:
STOP commented that the dilution field test described in this portion of the permit should be made available to the OMSAP and interested members of the public. Given the ongoing problems with organic blockage experienced in outfalls elsewhere in the country, this field test should be performed every year that the outfall is operational. MWRA should be required to remedy any port immediately upon determination that it is blocked.

AGENCY'S RESPONSE:
The dilution field test described under Part I.18.e. of the permit will be available to the OMSAP and any interested members of the public. Part I.18.g. of the final permit has been modified to include the following language: "Such maintenance shall include prompt repair of any malfunctioning diffuser ports."

The final permit has not been modified to include a requirement to perform a dilution field test yearly, since other required tests within the permit will be better indicators of organic blockages in the risers and ports of the outfall. For example, the permittee is required to submit a monthly report that includes: (1) continuous monitoring information regarding the flow versus hydraulic head ratio, (2) the number of risers and ports opened and closed, and (3) information available from any video inspections conducted that month. A key goal is to ensure that problems that take time to develop are not missed; this monthly report will be a more effective way to achieve this goal than an annual dilution field test. The requirements within the final permit will prompt fast remediation, should the need arise.

Sewer System, Treatment Plant and Sludge Pelletizing Plant:

Comment:
The permit currently does not specifically mention operations and maintenance of the treatment and sludge pelletizing plant. The success of the $3.7 billion Boston Harbor Project is highly dependent upon ongoing maintenance of the Deer Island Facility. We urge EPA to expand Section 18 (p32) to include language requiring the MWRA to perform routine maintenance of the sewer system, the sewage treatment plant, and the sludge pelletizing plant. An annual maintenance update should be published in the MWRA's Annual Report.

AGENCY'S RESPONSE:
The following language has been added to Section 18.g. of the final permit: "The MWRA shall perform routine maintenance of the sewer system, the sewage treatment plant, and the sludge pelletizing plant. An annual maintenance update shall be published in the MWRA's Annual Report."

Comment:
STOP commented that this section of the permit refers to the MWRA's efforts toward "maximizing" the life of the treatment plant. This section should also refer to planning for the future - what will be implemented when the treatment facilities are no longer working at maximum capacity?

AGENCY'S RESPONSE:
Part I.10.4. of the permit requires an assessment of the ability of the Deer Island plant to adequately treat flows over the life of the facility. In future permits, as the potential end of the Deer Island facility's useful life draws closer, further planning requirements will be incorporated.

LONG-TERM CSO PLAN (SECTION I.19):

Comment:
The MWRA commented that Section I.19 of the draft permit does not reflect the current status of MWRA's long-term CSO control planning and should be revised to take into account the following information. The December 1994 **?**Final CSO Conceptual Plan" was superseded in October 1996 by a Draft CSO Facilities Plan and in August 1997 by a Final CSO Facilities Plan. With the exception of the Charles River, Mystic River and Alewife Brook, the changes in water quality standard designations anticipated in the Final CSO Facilities Plan were issued by DEP on December 31, 1997, and approved by EPA on February 27, 1998. DEP has made a decision to issue variances for remaining overflows to the Mystic River and Alewife Brook and a tentative determination to issue variances for remaining overflows to the Charles River. DEP is scheduled to make a final determination for the Charles River soon (unless delayed by further action of the Federal Court in the Boston Harbor case). The December 1997 milestone in the Federal Court Order did not result in a determination that further facilities or studies were needed for the Charles River.

AGENCY'S RESPONSE:
The following language has been added to Part I.19. of the permit: "The MWRA issued a Final CSO Facilities Plan in August 1997. Water quality standards revisions were proposed by the MADEP in December, 1997 and approved by EPA in February, 1998. In addition, 24 months and 36 months variances to the water quality standards were issued by the MADEP for the Lower Charles River Basin on September 2, 1998 and for the Alewife/Upper Mystic River Basin on March 5, 1999, respectively." The permit has also been modified to require the MWRA to submit an update of the 1997 final facilities plan rather than the 1994 final conceptual plan.

REPORTING REQUIREMENTS:

Comment:
The permit should require the MWRA to post on a searchable, downloadable internet site all permit related data required to be submitted to the EPA or DEP and to email to any interested person (who requests inclusion on an e-mail distribution list) notification whenever the site is updated with additional information. In addition, the MWRA should be required to e-mail to such persons notice of any permit exceedances or other material problems associated with the permit. This electronic information will supplement hard copies of information required to be maintained and distributed in connection with the permit.

At a minimum, the following information should be electronically posted and notification of its availability e-mailed to the e-mail distribution list:

Permit Section:
Discharge monitoring reports (I.1.a),
Prior notice of polymer change, Prior notice of draft MOU, monitoring plan, and public comment period.
Notification of potential impact to shellfish (I. 1.a.*10.b L1.a.* 15)
Notification of exceedance of water quality standards (I.1.b)
Prior notice of significant change in volume or character of pollutants (1.2)

Ambient Monitoring Plan (1.7):
Monitoring results (1.8)
Model results
Plume tracking results
Scope of work for. food web model
All proposed modifications All proposed interim modifications

Contingency Plan:
All monitoring results
All "caution level" exceedances
All "warning level" exceedances and related reports
All proposed modifications
All proposed interim modifications
Nitrogen removal technical information reports
Wastewater quality monitoring reports
Proposed outfall contingency simulation plan

Best Management Plan (1.9):
Proposed Best Management Plan Proposed BMP modifications
Pollution Prevention Plan (1.11)
Notification of unauthorized discharges. Notification of bypass events (1.17)
All reports required by Part 1.20 to be submitted to any governmental agency (1.20)
Industrial Pretreatment Program Annual Report (Attachment G)

Comment:

The Coastal Advocacy Network stated that it is very important that the public be notified of any proposed changes in the permit, especially the effluent limits, the monitoring plan, the contingency plan, and maintenance schedules. Throughout the permit there are references to point where MWRA should notify interested members of the public in reference to aspects of the operation, maintenance, and oversight of the treatment facilities and discharge. Many areas of the permit also refer to notification of EPA and MADEP should changes in influent/effluent or requests for modification to the permit occur (Section 2 [Prior Notice] on page 8), or if caution or warning levels within the contingency plan are exceeded (Section 8a & 8b [Contingency Plan] on page 10). Under Section 9b, page 12, there is reference to the BMP plan being developed and made available to various parties. There should be opportunity for input from, and meeting with, the public as well. These are all times when notification to the public and the OMSAP should be required as well. There should be a specific procedure by which interested members of the public could be placed on the list to be notified. Notification should also include an announcement in an appropriate publication, such as the Environmental Monitor. The permit should include a section (iv) requiring the MWRA to provide one signed copy of all Discharge Monitoring Reports. Toxicity Test Reports and all other reports to the OMSAP.

Comment:
The Association for the Preservation of Cape Cod commented that all of the reporting should be readily and easily available to all interested parties. The Cape Cod Commission's suggestion of posting data on the Internet is an excellent idea.

Comment:
STOP commented that the data monitoring reports (DMRs) that are mailed to EPA and the MADEP, should also be made available to the OMSAP within the time specified in the Monitoring and Reporting section of the permit. The raw data and monitoring reports must be made available to the public, as well. This section should address how and where the monitoring results will be made available to interested members of the public.

Public's Response:
The Bays Legal Fund reiterates its support for more frequent reporting of monitoring data.

AGENCY'S RESPONSE:
As discussed earlier, EPA and MADEP have attempted to strike an appropriate balance which allows rapid dissemination of useful data without imposing unnecessary burdens. In addition, EPA will maintain an automated electronic mail notification system for key MWRA data, including any exceedances of contingency plan caution or warning levels.

The following language has been added to the final permit under Part I.20.e.:

"Notification to the General Public:

The permittee shall inform the general public by maintaining a free-access Internet web page and by maintaining at least two repositories where hard copies of all documents are placed, one of which shall be the MWRA's Charlestown Navy Yard Offices, and the other shall be on Cape Cod (i.e., the specific location will be determined after consultation with interested Cape Groups.). The following information shall be included on the Internet web page and in each repository:

(1) any proposed changes to the ambient monitoring plan, including any proposed interim changes,
(2) any proposed changes to the contingency plan, including any proposed interim changes,
(3) all "caution" and/or "warning" level exceedances, as defined within the Contingency Plan,
(4) the MWRA's outfall contingency simulation plan and any proposed changes to this plan.
(5) all reports sent by the MWRA to the OMSAP for review,
(6) all notices sent to EPA/MADEP regarding facility changes that may result in receiving water impacts,
(7) the MWRA's pollution prevention plan and any proposed changes to this plan,

(8) any proposed changes to the current groundwater remediation prohibition,
(9) all analyses of industrial pretreatment local limits and any proposed changes to the local limits, and
(10) all sampling results reported within Discharge Monitoring Reports."

(For more information, see also: The "AGENCY's RESPONSE" within this document, under the section entitled "Contingency Plan - *Timelines for Reporting Monitoring Information*.")

Notification of United States Food and Drug Administration (FDA):

Comment:
STOP commented that the permit should include a requirement for the MWRA to notify relevant members of the fishing and shellfishing industries who utilize waters in the proximity of the outfall.

AGENCY'S RESPONSE:
When a problem occurs, the Massachusetts Division of Marine Fisheries notifies the relevant Board of Health, and the Board of Health notifies the relevant members of the fishing and shellfishing industries who utilize waters within shellfish impact areas.

Notification to the Stellwagen Bank National Marine Sanctuary:

Comment:
Brad Barr of the Stellwagen Bank National Marine Sanctuary (SBNMS) commented that the SBNMS would prefer an annual report on the possible effects on the Sanctuary resources.

AGENCY'S RESPONSE:
As mentioned previously, Part I.20.f. of the permit has been changed to include the following language:

"f. Notification to the Stellwagen Bank National Marine Sanctuary (SBNMS)

On or before January 1st of each year, for the life of this permit, the MWRA shall submit a report to the Stellwagen Bank National Marine Sanctuary (SBNMS) that: (1) includes all monitoring and related data from the Ambient Monitoring Plan that relates to the SBNMS, and (2) documents the effects of the Deer Island discharge on Sanctuary resources and qualities regarding the previous year."

PERMIT MILESTONES:

Comment:
The permit should include a requirement that MWRA develop a timeline of permit milestones covering the duration of the permit. This timeline should include all deadlines, reporting requirements, and other permit milestones established by the permit and its attachments, and any plans and other documents evolving from the permit, so that MWRA's compliance can be kept on track and measured objectively.

AGENCY'S RESPONSE:
EPA maintains a compliance monitoring system, whereby all required sampling, reports, plans, and other documents required by the permit are tracked closely in order to track and measure compliance objectively.

RECEIVING WATER:

Comment:
MWRA is aware that in the process of public comment it has been suggested that EPA list Cape Cod Bay as one of the receiving waters of the outfall. Cape Cod Bay is clearly not a receiving water for this outfall. The dilution model for the new outfall site shows that the concentration of effluent reaching Cape Cod Bay would be undetectable. In fact, the concentrations of MWRA effluent contaminants in Cape Cod Bay are believed to have been higher with the old Boston Harbor outfall location than they will be with the new location. If Cape Cod Bay is to be listed as a receiving water because of its proximity to the outfall location, then the Atlantic Ocean should also be listed as a receiving water for this and any other discharges on the East Coast.

Public's Response:
STOP commented that the dilution model that this entire experiment is predicated upon continues to be questioned by numerous scientists and others who have spent time in these waters. In addition, every current model ever produced for this ecosystem, both prior to and after the MWRA's existence, clearly demonstrates that the vast majority of currents in the vicinity of the new outfall travel southward before wending counterclockwise within Cape Cod Bay. In addition, it is impossible to look at some of the colorful models produced by MWRA and not comprehend that the outfall will contribute an enormous quantity of organics and toxics to the Cape Cod Bay ecosystem, whether in the short or long term. Consequently, we find it ridiculous that MWRA asserts that Cape Cod Bay is not a receiving water. Downstream is downstream.

Public's Response:
The Bays Legal Fund commented that they remain unconvinced that the impacts of the relocation of the outfall on Cape Cod Bay would be "insignificant or non-existent". The limitations of models in mimicking real life environments must be recognized, particularly when dealing with the fate of endangered species, such as the Northern Right Whale. It has been recognized that the new outfall site is more likely to be in the path of currents moving southward from the Gulf of Maine as it travels into and circles around Cape Cod Bay before its final exit into the Atlantic Ocean. Therefore, under certain circumstances, the potential for adverse impacts to both the water quality and the ecosystem of Massachusetts and Cape Cod Bays are very real.

AGENCY'S RESPONSE:
Even though the actual discharge point of the new outfall is in Massachusetts Bay, and even though the Massachusetts Water Quality Standards designate Massachusetts Bay as the receiving water for the discharge, the final permit acknowledges the discharge's proximity to Cape Cod Bay. (This clarification has been made, since Cape Cod Bay is adjacent to Massachusetts Bay and diluted effluent is expected to reach Cape Cod Bay.**)**

ANTIDEGRADATION (Fact Sheet):

Comment:
The Fact Sheet makes a finding that the discharge will be insignificant in terms of water quality. The Fact Sheet also makes a finding that MWRA has met the four criteria for an authorization at 314 CMR 4.04(4)(a)(1) - (4). This finding is the equivalent of a variance for MWRA to deviate from the strict water quality protection standards of the antidegradation provisions. In light of DEP's finding of "insignificance" under 314 CMR 4.04(2), this authorization is superfluous, premature, unwarranted and dangerous. The authorization under 314 CMR 4.04(4) should be withdrawn by DEP and stricken from the permit.

Comment:
STOP commented that the entire anti-degradation section of the draft permit requires substantive revision. The MWRA discharge does not meet the first standard for limited degradation. The circumstance defines as "insignificant" a discharge which ". . . does not have the potential to impair . . ." In the section that further describes why the MWRA discharge meets this standard (Section a. Insignificance of the discharge), the standard goes from potential to the concept of best prediction. It is absurd for the MADEP to presume that a discharge of this magnitude does not have the potential to cause water quality

degradation. This entire section should be struck from the document.

On page 24 of the first application made to EPA for this permit (October 1991) the MWRA insists that it can meet most, if not all, standards in the Harbor without the outfall. Therefore, the words ". . . the discharge is necessary to accommodate . . ." in this section are not true.

STOP maintains that the entire siting process was predicated on a predetermined outcome and, as a consequence, was flawed in its conclusions.

AGENCY'S RESPONSE:
The Antidegradation provisions at 314 CMR 4.04(2) allow limited degradation by a new or increased discharge, as long as it is authorized by the MADEP. Limited degradation of a high quality water is allowed under either of two circumstances: (1) the discharge is insignificant because it does not have the potential to impair uses and cause any significant lowering of water quality, or (2) the discharge qualifies for an authorization (called a variance prior to regulatory revisions promulgated in 1996) based on necessity, evaluation of alternatives, minimization of adverse impacts, and maintenance of uses and the water quality classification. The MADEP finds that the MWRA meets both of these circumstances.

SPECIFIC COMMENTS ON THE DRAFT PERMIT ATTACHMENTS:

Comment:
STOP commented that:
A -(Off-shore Discharge) this attachment should list the current harbor discharge site for diversion purposes.

AGENCY'S RESPONSE:
The permit has been modified to authorize a discharge to Boston Harbor if approved by EPA and MADEP. Attachment A describes the geographic location of the offshore outfall, and does not need to be modified.

Comment:
D -(Communities) should specify that the communities listed as water-only communities should remain water-only.

AGENCY'S RESPONSE:
Part I.1.a.3. of the permit prohibits the extension of MWRA sewer service to communities which do not currently receive this service.

Comment:
M -(Nine Minimum Controls) should clarify what criteria will be used to differentiate a wet day from a dry day.

AGENCY'S RESPONSE:
The goal is to avoid CSO discharges not caused by rainfall or snowmelt. Because the configuration of CSO systems is quite variable, a more specific definition is not practicable.

Comment:
N - (Ambient Monitoring Plan)
Table 2-1 - Trigger Parameters for Effluent (pages 2-4) - "Red tide" and "paralytic shellfish poisoning" should be added to the boxes for "total nitrogen" and "carbonaceous BOD (CBOD)".

AGENCY'S RESPONSE:
This proposed change will be submitted to the OMSAP for review and comment. After OMSAP provides comment on this

issue, the Ambient Monitoring Plan may be changed to incorporate these two items.

Comment:
Section 2.3 - Phase II Monitoring Plan (pages 2-5) - should include extensive monitoring for phytoplankton populations.

AGENCY'S RESPONSE:
This proposed change will be submitted to the OMSAP for review and comment. After OMSAP provides comment on this issue, the Ambient Monitoring Plan may be changed to incorporate this change.

Comment:
Section 5.0 - Fish and Shellfish Monitoring (page 5-1) - There should be a more specific effort made to include the lobster and concerns about the lobster in the Monitoring Plan. This effort should be started immediately in order to ensure that adequate baseline data has been established.

AGENCY'S RESPONSE:
Please refer to the Agency's Response to the lobster issue.

Comment:
Section 5.0 - Fish and Shellfish Monitoring (page 5-1) - The surf clam should be added as an indicator species for PSP. According to research conducted at the Stony Brook Marine Sciences Research Center, these collect toxins at three times the rate of other blue mussels, which are currently the only shellfish being utilized in the monitoring program.

AGENCY'S RESPONSE:
This proposed change will be submitted to the OMSAP for review and comment. After OMSAP provides comment on this issue, the Ambient Monitoring Plan may be changed to incorporate this change.

Comment:
O - (Contingency Plan) Section 1.4, on page 4 within paragraph 3, should be struck from this document. The Contingency Plan must address the issue of diversion. EPA should insist that a complete plan for diversion be included in this permit prior to discharge through the new outfall and include both the minimum circumstances that would require diversion as well as a plan for how diversion would be achieved.

Minimum Circumstances requiring diversion:
- Any bypass of the treatment system.
- Any violation of the warning levels listed in the Contingency Plan.
- Any negative impacts in the receiving waters.

Achieving Diversion:
- A plan for the physical process of shutting off the flow through the outfall which will minimize damage to the tunnel.
- A plan for the maintenance of the Harbor discharge sites.
- The environmental impact review process for diversion.

AGENCY'S RESPONSE:
Please refer to the Agency's Response within this Response to Comments document under Diversion.

COMMENT:
Section 4.2 of the Contingency Plan (page 13), states, "If the threshold exceeded is a caution level, MWRA will also likely

expand its . . .” The word likely should be removed from this sentence.

AGENCY’S RESPONSE:
The final permit has not been changed in this regard, since expanding MWRA’s monitoring efforts may or may not be necessary. This question will be forwarded to the OMSAP for their review and comment, on a case-by-case basis.

COMMENT:
Section 4.2 (page 13), states, “If the threshold exceeded is a warning level, MWRA will: determine whether there are any adverse environmental impacts from the exceedance; “without stipulating how long this determination will take.” Language should be included specifying a short turnaround time before action will be taken.

AGENCY’S RESPONSE:
The final permit language under Part I.8.b. has been changed from “The MWRA shall take any actions indicated as necessary by EPA to implement 8.b.(1),(2), and (3) above.” to “The MWRA shall take any actions indicated as necessary by EPA to implement 8.b.(1),(2), and (3) above within thirty days, unless the need for further data collection and analysis makes this impracticable, in which case these actions shall be completed as quickly as feasible. If additional data collection will exceed sixty (60) days, MWRA shall provide notice of such delay to EPA and the MADEP.”

Also, it is important to note that the permit specifically reserves EPA and MADEP’s right to seek remedies outside the contingency plan process, for example through enforcement actions. In the event of an environmental emergency, EPA and MADEP have the capability to act swiftly, without waiting for the contingency plan process to be completed.

Comment:
Section 4.2 (page 14), states, “. . . or (2) a demonstration of evidence that no adverse impacts occurred from the exceedance . . .. “does not specify who ultimately makes this determination. This should specifically refer to the OMSAP as the determining authority.

AGENCY’S RESPONSE:
EPA and the MADEP expect to consult with the OMSAP, but all compliance and permit decisions are the ultimate responsibility of EPA and the MADEP.

Comments:
Section 5.13 - Potential Corrective Activities (page 21) states, “In the unlikely event that a long-term problem makes a permanent reduction in nitrogen loading necessary, the MWRA could implement advanced treatment nitrogen removal.” This section should be altered to reflect that the MWRA will implement advanced treatment nitrogen removal.

Section 5.23 - Potential Corrective Activities (page 29) states, “If the responsible sources were . . . , MWRA could reinforce existing activities . . .“ And “. . . MWRA could target . . .” In both of these statements, the word “could” should be replaced with the word will.

Section 5.23 - Potential Corrective Activities (page 36) states, “In the unlikely event . . . , MWRA could implement advanced treatment . . . “ The word “could” should be replaced with the word “will.”

Section 5.33 - Potential Corrective Activities (page 29) states, “In the unlikely event . . ., MWRA could implement advanced treatment . . .” The word “could” should be replaced with the word “will.”

Section 5.62 - Improved Floatables Removal (page 38) states, “Should observations show . . . , there are a number of remediation options that could be considered . . .” The word “could” should be replaced with the word “will.”

Section 5.63 - Enhanced Educational Programs (page 38) states, “MWRA could also . . .” The word “could” should be replaced with the word “will.”

AGENCY’S RESPONSE (i.e., regarding comments on section 5.13, 23, 33, 62, 63 above.):
See response to contingency plan comments above (concerning ability to specify future responses to potential problems).

PUBLIC COMMENT PERIOD:

Comment:
The BLF requests that the twenty (20) day period for responding to comments submitted on the draft permit be extended to at least sixty (60) days. This extension is necessary to provide us with adequate time to respond to MWRA's and other comments submitted on the draft permit.

AGENCY’S RESPONSE:
EPA extended the public comment period until June 25, 1998.

MINOR COMMENTS ON THE PERMIT:

Effluent Limitations and Monitoring Requirements:

Comment:
Please clarify Part I.1.a. of the permit where it states, “Background information . . .”

AGENCY’S RESPONSE:
Part I.1.a. of the final permit has been changed to, “Background information on permit limits can be found at: (1) Fact Sheet, Section VI.A.5, MWRA’s Initial Dilution: Outfall TO1, and (2) Permit Attachment S, Sample Calculation.”

Comment:
Should there be a reporting requirement in the average monthly column for VOCs, in order to be consistent with the measurement frequency?

AGENCY’S RESPONSE:
An average monthly reporting requirement has been added to the permit.

Comment:
Consider including units of measure for chlorides under Part I.1.a.

AGENCY’S RESPONSE:
The permit has been modified to reflect this change.

Comment:
MWRA commented that Part I.1.a.3. states, “The once a month calculation shall include all dry day flow that occurred during the reporting month.” MWRA understands that the calculation also includes the eleven preceding months. Thus, a running monthly average is to be calculated (and not a monthly average). Is our interpretation correct?

AGENCY’S RESPONSE:
Your interpretation is correct. The permittee’s dry day flow calculation should include the eleven preceding months.

Comment:
MWRA commented that Part I.1.a.14. states, "Not more than 10 percent of individual sample results collected in a given month shall exceed the maximum daily limit of 14000/100 ml, and not more than three (3) consecutive samples shall exceed 14000/100 ml." MWRA understands that this means that the 90th percentile of individual samples in a month shall not exceed 14000 and that there shall not be more than 3 consecutive individual samples in a month greater than 14000. We understand that the maximum daily is the geometric mean of the 3 individual samples for the day.

AGENCY'S RESPONSE:
Your interpretation is correct.

Comment:
MWRA commented that Part I.1.a.16. means that the monthly average shall not exceed 200, the weekly average shall not exceed 200, and the monthly 90th percentile shall not exceed 400. We understand that the maximum daily is the geometric mean of the three individual samples for the day.

AGENCY'S RESPONSE:
Yes, your statements are correct.

Comment:
For clarity, consider changing Part I.7.a. from, ". . . proposed modifications, including any. . ." to "proposed modifications to the monitoring plan, including any . . ."

AGENCY'S RESPONSE:
The permit has been modified to reflect this change.

Comment:
For clarity, consider deleting, ". . .for the purpose of soliciting public comment" under Part I.7.c. of the permit.

AGENCY'S RESPONSE:
The permit has not been modified to reflect this change.

Comment:
MWRA commented that Part I.8.a. states that, "The results of any monitoring, required by the contingency plan shall be reported to EPA and to the MADEP on a yearly basis by November 15." We interpret this to mean that a year's results should be reported by November 15 of the following year.

AGENCY'S RESPONSE:
The data included in the annual November 15 report should be as current as practicable, and not limited to the previous calendar year.

Comment:
For clarity, consider changing the first line of Part I.8.b from, "listed" to "mentioned".

AGENCY'S RESPONSE:
The permit has been modified to reflect this change.

Comment:
Consider changing Part I.9.i (Effectiveness of the BMP), "Paragraphs 11.c.(2), (3) and (4)".

AGENCY'S RESPONSE:
Part I.9.i., paragraphs 11.c.(2), (3) and (4) of the permit has been changed from, "Paragraphs 11.c(2), (3), and (4)" to "Paragraphs 9.c.ii. and iii.".

Comment:
You may want to add a comma after "pollutant loads", under Part I.10.1.a.ii. of the permit.

AGENCY'S RESPONSE:
A comma has been added to the permit under Part I.10.1.a.ii.

Comment:
Is "Part I.13.e.i." a correct reference?

AGENCY'S RESPONSE:
Yes, this is a correct reference.

Comment:
Consider adding a reference to "Attachment G" under Part I.15.b of the permit.

AGENCY'S RESPONSE:
The permit has been modified to reflect this change.

Comment:
For clarity, consider changing Part I.18.b.2. of the permit from, "Part I.20.b.i." to "20.a".

AGENCY'S RESPONSE:
The permit has been modified to reflect this change.

Comment:
For clarity, consider changing Part I.18.c. of the permit from, "Part I.20.b." to "20.a".

AGENCY'S RESPONSE:
The permit has been modified to reflect this change.

Comment:
Consider changing Part I.18.e. from, "flow versus hydraulic head ratio" to "flow versus hydraulic head relationship".

AGENCY'S RESPONSE:
The permit has been modified to reflect this change.

Comment:
Consider replacing ". . . facility, report . . ." in line 4 of Part I.18.f. with ". . . facility. The permittee shall report. . . "
And consider removing, "the results".

AGENCY'S RESPONSE:
The permit has been modified to reflect this change. The fourth line of Part I.18.f. has been changed from, "facility, report . . ." to ". . . facility. The permittee shall report on the plan's implementation and results to EPA and the MADEP on a yearly

basis."

Comment:
What are Attachments C, H, and M?

AGENCY'S RESPONSE:
Attachment C is the flow schematic diagram of the MWRA's secondary treatment process; Attachment H is a sample calculation for a water quality limitation; and Attachment M is the CSO nine minimum controls documentation and implementation guidance.

Comment:
Consider changing the reference to the footnotes in Part I.16.a.

AGENCY'S RESPONSE:
The permit has been modified to reflect this change.

Comment:
Consider changing the reference in Part I.16.b.

AGENCY's RESPONSE:
The permit has been modified to reflect this change.

Comment:
Please clarify why there are separate paragraphs with different limitations for pH under Part I.16.c. and 16.d.

AGENCY'S RESPONSE:
The pH limitations for designated Class B receiving waters are different from the pH limitations for Class SB receiving waters. The pH limitations listed under Part I.16.c. correspond to outfalls that discharge into Class B designated waters, and the pH limitations listed under Part I.16.d. correspond to outfalls that discharge into Class SB and SB(CSO) designated waters. For example, the pH limitations for outfalls 201 and 205A are listed under Part I.16.c. and reflect Class B designated waters. (See also, MA State Water Quality Standards, 314 CMR 4.05, 1996.)

Comment:
Under Part I.20.c., line 4, the applicable outfalls at the Nut Island headworks facility are 103 and 105 (new spillway). The correct outfalls on the last line should include outfalls 001, 002, 004, 005, 101, 103, and 105.

AGENCY'S RESPONSE:
The permit has been modified to reflect this change.

Comment:
The discharge name for MWR003 should be changed from, "Cambridge St. Overflow" to "Cambridge Park Drive Overflow".

AGENCY'S RESPONSE:
The permit has been modified to reflect this change.

Comment:
In Attachment D, Hingham is incorrectly listed as a sewer community. The correct reference should be to the North District of Hingham.

AGENCY'S RESPONSE:
The permit has been modified to reflect this change.

Comment:
Since EPA updates toxicity protocols (Attachments E and F) from time to time, any language in the permit requiring specific protocols to be used should state that these permitted protocols will be superceded by protocol updates. This language is necessary to avoid conflicts between the protocols explicitly outlined in the permit and updated protocols promulgated by EPA. Several permittees in Region I currently are facing such conflicts.

AGENCY'S RESPONSE:
Part I.1.a.9. of the permit has been modified to reflect this change.

Comment:
Consider changing the reference in paragraphs 2 and 4b of the Attachment I from, "13.g.viii" to "13.g.vii.".

AGENCY'S RESPONSE:
The permit has been modified to reflect this change.

MINOR CHANGES TO THE FINAL PERMIT, FOR CLARIFICATION PURPOSES:

Part I.1.a.*1. of the permit has been changed from ". . . (i.e., preferably . . ." to ". . . (i.e., if feasible . . ."

Part I.1.a.*3. has been changed from ". . . system when. . ." to ". . . system from other municipalities when . . ."

Part I.1.a. *9. has been changed to include "(Note: These EPA-approved protocols may be superseded by EPA-approved protocol updates.)"

Part I.1.b. has been changed from ". . . any time and . ." to ". . .any time to meet the criteria of 6.5 to 8.5 in the receiving water, and. . ."

Part I.1.f. has been changed to include "f. Nutrients in the effluent shall not cause accelerated or cultural Eutrophication."

Part I.1.f. has been changed from " f. The effective date of the permit means: (1) the date of signature if there are no comments during the public comment period, or (2) 30 days after the date of signature if there are substantive comments received during the public comment period." to "g. The effective date of the permit means 30 days after the date of signature."

Part I.5. has been changed from "EPA reserves . . ." to "EPA and MADEP reserve . . ."

Part I.6. has been changed to include "MADEP may modify, suspend, or revoke the permit according to the procedures in 314 CMR 3.12 and 314 CMR 210."

Part I.7.a. has been changed from ". . . any such limit for the discharge, (3) implement plume tracking, including the use of acoustical technology, to understand the dilution available for the discharge, and (4) by December 31, 1998, develop a scope of work for a food web model to characterize the seasonal abundance for important prey species of endangered species in Massachusetts and Cape Cod Bays. The food web model shall: (a) include phytoplankton, zooplankton, planktivorous fish

and marine mammals, (b) . . .” to “. . . any such limit for the discharge, **and** (3) implement plume tracking, including the use of acoustical technology, to understand the dilution available for the discharge. **The MWRA has developed a scope of work for a food web model to characterize the seasonal abundance for important prey species of endangered species in the Massachusetts and Cape Cod Bays. EPA and the MADEP, in consultation with the OMSAP discussed below, shall provide the MWRA with comments on this scope of work. Within ninety (90) days after receipt of these comments, MWRA shall submit a revised scope of work for review by OMSAP, and for approval by EPA and the MADEP. After receipt of the revised scope of work, EPA and the MADEP will determine whether implementation of the food web model is warranted.** The food web model shall: (a) include phytoplankton, zooplankton, planktivorous fish and marine mammals **including endangered whale species**, (b) . . .”

Part I.7.b. has been changed from “. . . after December 31, 1989, EPA will . . .” to “. . . after March 31, 2000, and annually thereafter for the life of the Permit, EPA . . .”

Part I.7.b. has been changed from “The monitoring plan described in Attachment N shall be modified. . .” to “The permit may be modified. . .”

Part I.7.c.i. has been changed from “. . . the permittee shall submit a list of all proposed. . .” to “. . . the permittee shall submit a list of any proposed. . .”

Part I.7.c.ii. has been changed to include “. . . called the Outfall Monitoring Science Advisory Panel (OMSAP) . . .” and “The OMSAP will play a key role in evaluating any exceedances of caution or warning levels, and in advising EPA and the MADEP as to whether the MWRA’s discharge plays a role in such exceedances.”

Part I.7.c.iii. and iv. has been changed to include “. . . OMSAP . . .”

Part I.7.c.v. has been changed to include “OMSAP or members of the public may propose changes to the ambient monitoring plan to EPA and the MADEP, who may modify this permit as deemed appropriate and necessary.”

Part I.7.d.(2). has been changed from “The OMTF shall review . . .” to “The OMSAP shall review . . .”

Part I.8.c., d., and e. has been changed to include “. . . OMSAP. . .”

The words “significant amounts”, under Part I.9.c. of the permit, have been deleted.

Part I.9.c.ii.(2) has been changed from “. . . significant amounts of . . .” to “. . . a release of . . .”; Part I.9.c.iii has been changed from “. . . significant amounts of pollutants . . .” to “. . . toxic or hazardous pollutants . . .”; Part I.9.c.iii. has been changed from “. . .toxic, hazardous or harmful substances shall be identified; . . .” to “. . .toxic or hazardous pollutants, draining or flushing of lines to roadways, catch basins, and storm sewers, shall be identified; . . .”; and Part I.9.c.iii. has been changed from “ . . . erosion, hazardous substances, spills, . . .” to “. . . erosion, spills, . . .”.

Part I.9.f. has been changed from “ . . . with regulations promulgated under the . . .” to “ . . . with the . . .” and from “. . . or amendments thereto. Management practices required under RCRA regulations shall be referenced within the BMP plan.” to “ . . . and in lieu of RCRA, M.G.L. c.21C and 310 CMR 30.000 as well as M.G.L. c.111 §§ 150A and B and 310 CMR 19.000.”

Part I.9.g. has been changed to include “, and the public upon request.”

Part I.9.h. has been changed from “ . . . a discharge of significant amounts of . . .” to “ . . .a release of . . .” and includes “and/or modification.” and from “ . . . that result in a discharge of significant amounts or material quantities of hazardous or

toxic pollutants .” to “ . . . that materially increase the potential for a release.”

Part I.9.i. has been changed to include “Plan” and changed from “. . . pollutants to waters of the United States and the specific objectives and requirements under Paragraphs 9.c.ii. And iii. above, the permit and/or the BMP Plan shall be subject to modification to incorporate revised BMP requirements.” to “pollutants that create an impact upon waters of the United States and the specific objectives and requirements under Paragraphs 9.c.ii. and iii. above, the permit and/or the BMP Plan may be modified to incorporate revised BMP requirements.

Part I.10.1. has been changed from “ . . . or DEP, . . .” to “ . . . or MADEP, . . .” and from “ . . . by either agency.” to “. . . by both agencies.”

The words “Continue an aggressive infiltration/inflow reduction technical transfer program for all sewer communities within the MWRA service area.”, under Part I.10.A.j., have been deleted.

Part 10.1.A.a. - 10.1.B. has been changed to “Part I.10.a.i. - 10.1.b.”

Part I.10.1.a.iii. has been changed to include “upon request.”

Part I.10.4. has been changed to include “the” and “and water/wastewater use”.

Part I.11.b. has been changed from “. . . the permittee shall:” to “ . . . the permittee shall include at least the following elements, unless equivalent or greater benefits can be more effectively achieved through another mechanism.

Part I.11.b.ii. has been changed from “Enforcement action shall be taken against. . .” to “In appropriate cases, enforcement action shall be taken by MWRA against . . .”

Part I.11.b.viii.(3) has been changed from “lists” to “listing”.

Part I.11.b.x. has been changed to include “The permittee shall . . .” in two places.

Part I.14.b. has been changed to include “The permittee shall make this analysis, and any resulting changes in local limits, available on its website page and in its repositories.”

Part I.15.a. has been changed to include “ (IPP) ”.

Part I.15.a.i. has been changed to include “ (SIU) ”.

Part I.16. has been changed to include “with” and “of the permit” and “date of the permit”.

Part I.16.a. has been changed to include the words “Samples shall be collected prior to discharge”.

Part I.16. a. has been changed from “. . . 203, 205, and 207 discharge into SB designated . . .” to “ . . . , and outfalls 203, 205, and 207 discharge into SB(CSO) designated waters.)”

Part I.16.a., the last sentence, has been changed from “. . . must meet State and Federal Water Quality Standards.” to “ . . . must meet State Water Quality Standards or comply with variances.”

Part I.16.a.*1. of the permit has been changed from “. . . annually . . .” to “. . . biannually . . .”.

Part I.16.a.*2. of the permit has been changed from “. . . annually” to “. . . biannually. . . ”.

Part I.16.c. has been changed to include “of the discharge”.

Part I.16.d. has been changed to include “of the discharge”.

Part I.16.e.i. has been changed to include “and the MADEP have”.

Part I.16.g.i. has been changed to include “and MADEP” in two places.

Part I.16.g.iii. has been changed from “January” to “February”.

Part I.16.g.iii., iv. and vi. has been changed from “State” to “MADEP”.

Part I.16.g.x. has been changed to include “from both the land and water.”

Part I.17. has been changed to include “ . . . , except that this section of the permit shall not apply to the discharge of wastewater flow through the existing Deer Island outfall system into Boston Harbor if such a discharge is required by EPA and the MADEP.”

Part I.19. has been changed to include “the MADEP” and “initially”.

Part I.19. has been changed from “The court order requires the MWRA to evaluate by July, 1998 whether the court-ordered facilities will result in compliance with then-existing water quality standards. The court order also includes a December, 1997 milestone by which the parties to the case are to review the need for additional CSO facilities and/or studies for the Charles River.” to “The MWRA issued a Final CSO Facilities Plan in August 1997. Water quality standards revisions were proposed by the MADEP in December, 1997 and approved by EPA in February, 1998. In addition, 24 months and 36 months variances to the water quality standards were issued by the MADEP for the Lower Charles River Basin on September 2, 1998 and for the Alewife/Upper Mystic River Basin on March 5, 1999, respectively.”

Part I.19. has been changed from “By December, 1998, the MWRA shall submit to EPA and the MADEP an updated version of the 1994 Final CSO Conceptual Plan.” to “The permittee is required, by December, 1998, to submit to EPA and the MADEP an updated version of the 1997 Final CSO Facilities Plan.”

The MADEP’s name and address, under Part I.20.a.ii., has been changed from “Massachusetts Department of Environmental Protection, Massachusetts Division of Water Pollution Control, Northeast Regional Office, 10 Commerce Way, Woburn, Massachusetts 01801" to “Massachusetts Department of Environmental Protection, Massachusetts Division of Watershed Management, Northeast Regional Office, 205A Lowell Street, Wilmington, Massachusetts 01887”.

Part I.20.d. has been changed to include the word “to”.

Part I.21. has been changed from “Office” to “Division”, from “Chap.” to “Chapter” and includes the words “During the 30 day period following the issuance of the permit, any person aggrieved by the issuance of the permit may file a request for an adjudicatory hearing at the MADEP. The standing of a person to request a hearing, and the procedure for filing such request are governed by the provisions of M.G.L. c.30A and 310 CMR 1.01. See also 314 CMR 2.08.”

Part I., page 1 of the final permit has been changed from “Director, Office of Watershed Management” to “Assistant Commissioner, Bureau of Resource Protection”.