

VOLUME III

PUBLIC PARTICIPATION and RESPONSE to COMMENTS

Final Environmental Impact Statement

SITING of WASTEWATER TREATMENT FACILITIES for BOSTON HARBOR

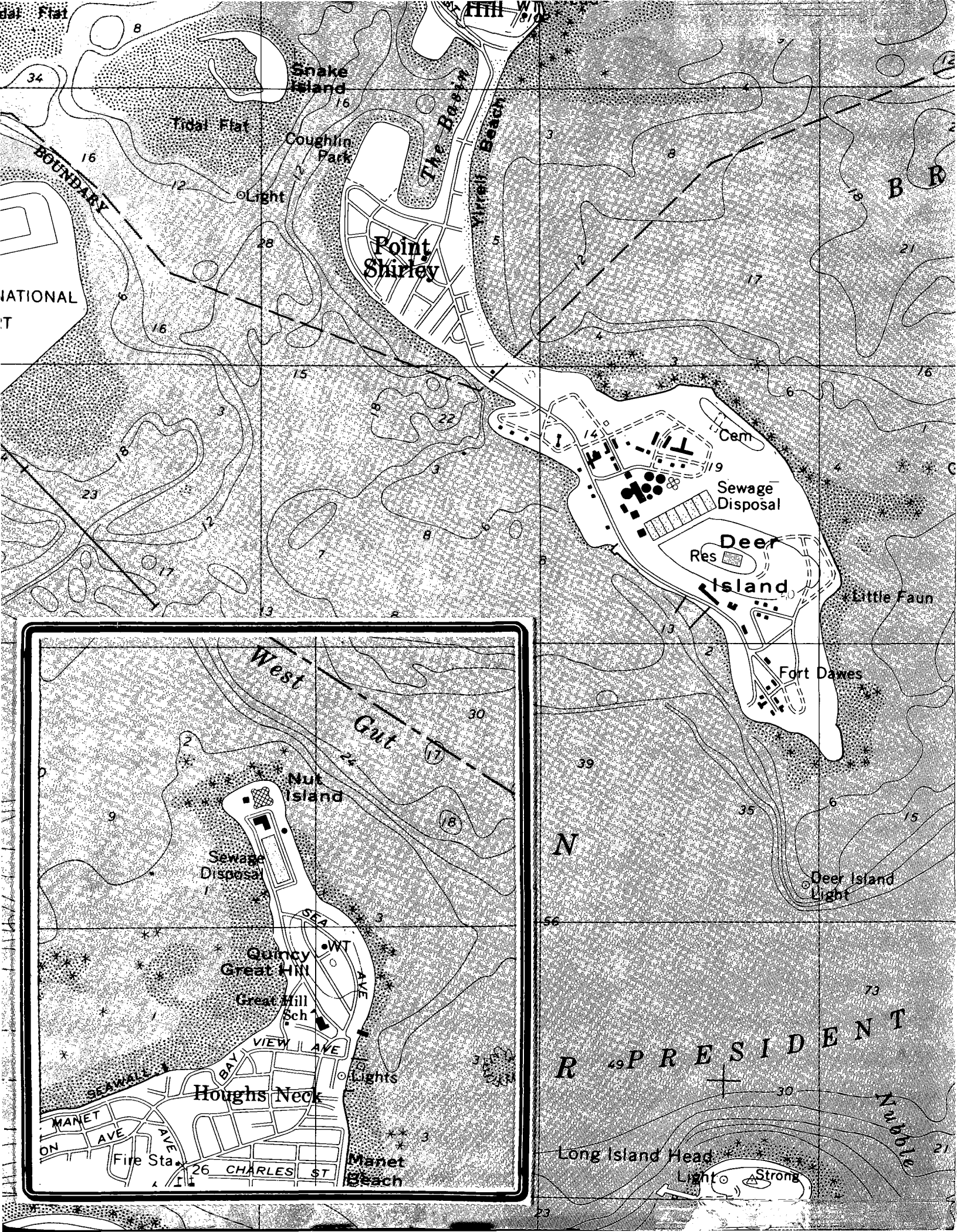
UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY

REGION I

J.F.K. FEDERAL BUILDING
BOSTON, MASSACHUSETTS 02203

1985





VOLUME III

**PUBLIC PARTICIPATION and
RESPONSE to COMMENTS**

Final Environmental Impact Statement

**SITING
of
WASTEWATER
TREATMENT FACILITIES
for
BOSTON HARBOR**

Prepared by:

**UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION I**

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 12/2/85

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Regional Administrator, U.S. EPA, Region I



This Final Environmental Impact Statement has been prepared by the U.S. Environmental Protection Agency (EPA) with assistance from the General Services Administration as a Cooperating Agency under the requirements of the National Environmental Policy Act. The FEIS identifies and evaluates the environmental impacts of various site options for wastewater treatment facilities for treating Greater Boston's wastewater in compliance with federal and state water pollution control laws.

FINAL ENVIRONMENTAL IMPACT STATEMENT

PROPOSED ACTION: SITING OF WASTEWATER TREATMENT FACILITIES IN
BOSTON HARBOR

LOCATION: BOSTON, MASSACHUSETTS

DATE: DECEMBER 1985

SUMMARY OF ACTION: This FEIS considers the environmental acceptability of alternative locations for the construction of new wastewater treatment facilities for Boston Harbor. The FEIS recommends the construction of a secondary wastewater treatment facility at Deer Island.

VOLUMES: I. COMPREHENSIVE SUMMARY
II. TECHNICAL EVALUATIONS
III. PUBLIC PARTICIPATION AND RESPONSE TO COMMENTS
IV. PUBLIC AND INTERAGENCY COMMENTS

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FINAL DATE BY WHICH
COMMENTS MUST BE RECEIVED: _____

FINAL ENVIRONMENTAL IMPACT STATEMENT
SITING OF WASTEWATER TREATMENT FACILITIES IN BOSTON HARBOR
PUBLIC PARTICIPATION AND RESPONSE TO COMMENTS
VOLUME III

INTRODUCTION

This document, Volume III of the Final Environmental Impact Statement (FEIS) on the Siting of Wastewater Treatment Facilities in Boston Harbor, is one of four volumes prepared to:

- o respond to comments raised on the Supplemental Draft Environmental Impact Statement published on December 31, 1985,
- o meet EPA's obligations under the National Environmental Policy Act (NEPA).

The other volumes of the FEIS are:

Volume I - Comprehensive Summary
Volume II - Technical Evaluations
Volume IV - Public and Interagency Comment

Volume III describes the public's involvement in the EIS process, summarizes the questions and comments made concerning the SDEIS, and gives EPA responses to these concerns. It consists of the following sections:

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* Note: See Volume IV - Public and Interagency Comment for a copy of all letters/comments received.

GLOSSARY OF AGENCY AND DOCUMENT NAMES

Agencies:

EPA - Environmental Protection Agency

EOEA - Executive Office of Environmental Affairs

MWRA - Massachusetts Water Resources Authority

MDC - Metropolitan District Commission

DWPC - Division of Water Pollution Control

Documents:

SDEIS - Supplemental Draft Environmental Impact Statement

FEIS - Final Environmental Impact Statement

DEIR - Draft Environmental Impact Report

FEIR - Final Environmental Impact Report

GLOSSARY

advanced primary/intermediate wastewater treatment:

The additional treatment, often using chemicals, of sewage beyond primary levels but less than secondary treatment.

bacteria: Single-celled microorganisms that lack chlorophyll. Some cause diseases, others aid in pollution control by breaking down organic matter.

biochemical oxygen demand (BOD): The dissolved oxygen required to decompose organic matter in water. It is a measure of pollution since heavy waste loads have a high demand for oxygen.

chlorination: The application of chlorine to drinking water, sewage, or industrial waste to disinfect or to oxidize undesirable compounds.

dissolved oxygen (DO): A measure of the amount of oxygen available for biochemical activity in a given amount of water. Adequate levels of DO are needed to support aquatic life. Low dissolved oxygen concentrations can result from inadequate waste treatment.

dredging: To remove earth from the bottom of water bodies using a scooping machine. This disturbs the ecosystem and causes silting that can kill aquatic life.

environment: The sum of all external conditions affecting the life, development and survival of an organism.

environmental impact statement (EIS): A document required of Federal agencies by the National Environmental Policy Act for major projects or legislative proposals. They are used in making decisions about the positive and negative effects of the undertaking

fecal coliform bacteria: A group of organisms found in the intestinal tracts of people and animals. Their presence in water indicates pollution and possible dangerous bacterial contamination.

headworks: A screening and dewatering operation.

incineration: Disposal of solid, liquid or gaseous wastes by burning.

infiltration: Groundwater that seeps into a sewer through cracks and joints.

inflow: Water, other than sewage, which enters a sewer through openings such as manholes and tidegates.

interceptor sewers: The collection system that connects main and trunk sewers with the wastewater treatment plant. In a combined sewer system interceptor, sewers allow some untreated wastes to flow directly into the receiving streams so the plant won't be overloaded.

lateral sewers: Pipes running underneath city streets that collect sewage.

leaching: The process by which nutrient chemicals or contaminants are dissolved and carried away by water, or are moved into a lower layer of soil.

methane: A colorless, nonpoisonous, flammable gas emitted by marshes and dumps undergoing anaerobic decomposition, or produced as a byproduct of waste treatment process.

mgd: Millions of gallons per day. Mgd is a measurement of water flow.

mitigation: Mitigation includes: (a) Avoiding the impact altogether by not taking a certain action or parts of an action. (b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation. (c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment. (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action. (e) Compensating for the impact by replacing or providing substitute resources or environments. (U.S. Council on Environmental Quality, 1978)

outfall: The place where an effluent is discharged into receiving waters.

plume: Visible emission from a flue or chimney, or the effluent from a treatment plant outfall pipe.

pollutant: Any introduced substance that adversely affects the usefulness of a resource.

ppm: Parts per million; a way of expressing tiny concentrations. In air, ppm is usually a volume/volume ratio; in water, a weight/volume ratio.

pretreatment: Processes used to reduce the amount of pollution in water before it enters the sewers or the treatment plant.

primary treatment: The first stage of wastewater treatment; removal of floating debris and solids by screening and sedimentation.

pumping station: A machine installed on sewers to pull the sewage uphill. In most sewer systems, wastewater flows by gravity to the treatment plant.

raw sewage: Untreated wastewater.

scope: Scope consists of the range of action, alternatives, and impacts to be considered in an environmental impact statement.

secondary treatment: Biochemical treatment of wastewater after the primary stage, using bacteria to consume the organic wastes. Use of trickling filters or the activated sludge process, removes floating and settleable solids and about 90 percent of oxygen demanding substances and suspended solids. Disinfection with chlorine is the final stage of secondary treatment.

sewage: The organic waste and wastewater produced by residential and commercial establishments.

sewer: A channel that carries wastewater and storm water runoff from the source to a treatment plant or receiving stream. Sanitary sewers carry household and commercial waste. Storm sewers carry runoff from rain or snow. Combined sewers are used for both purposes.

suspended solids (SS): Tiny pieces of pollutants floating in sewage that cloud the water and require special treatment to remove.

tertiary treatment: Advanced cleaning of wastewater that goes beyond the secondary or biological stage. It removes nutrients such as phosphorus and nitrogen and most suspended solids.

wastewater: Water carrying dissolved or suspended solids from homes, farms, businesses, and industries.

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public participation program summary

SECTION 1

PUBLIC PARTICIPATION PROGRAM SUMMARY

I. INTRODUCTION

Public participation is an important consideration in any investigation of environmental impact. Public involvement throughout the Environmental Impact Statement (EIS) process can ensure that the resulting plans, recommendations and policies are not only technically appropriate, but also politically and socially acceptable, and likely to be implemented. The complexity of issues and concerns, and the large number of communities, interest groups, and government agencies involved in this EIS increase the need for organized and integrated public participation.

The public participation program designed for this EIS performs two basic functions:

- o provides the public with information on the EIS process and the technical investigations performed for the EIS
- o creates opportunities for the public to provide input and consultation to the EIS study team and responsible agencies.

Several major public participation activities fulfilled these functions. Each public participation event provided the participants with the facts and background information needed to make informed comments and ask pertinent questions. Public participation activities were designed and planned in close collaboration with the technical study team. Meetings, workshops, exercises and questionnaires were structured to provide the study team with specific information it needed, while offering opportunities for general, less structured comments from the participating public. The major public participation activities were timed to provide public input at points in the EIS process when important decisions were about to be made by the study team. The activities and services provided to support the public participation program are explained later in this section.

II. MAJOR PUBLIC PARTICIPATION ACTIVITIES

1) Public Participation Coordination

Management and coordination are required for the success of a public participation program. Barry Lawson Associates, Inc. provided overall management, coordination, and production of materials for this public participation program with Barry R. Lawson as project manager and Ann Jacobson and Edward Ionata as public participation coordinators.

2) Planning

A public participation workplan was developed by representatives of the U.S. Environmental Protection Agency Region I (EPA), the technical consultants, and the staff of Barry Lawson Associates. The workplan includes all of the activities and services summarized in this appendix and permits ongoing evaluation and modification of the plan to meet changing conditions.

3) Formation and Support of Citizens' Advisory Committee

A twenty-six member Citizens' Advisory Committee (CAC) was appointed in October 1983, by Michael Deland, Regional Administrator, EPA, to assist and advise the study team. Nominations for CAC members were solicited from concerned groups representing affected communities, and environmental, recreational, business, and governmental interests. The members have held regular monthly meetings and occasional task force meetings since their appointment. Attendance at CAC meetings has averaged 18 members, representatives, and staff persons.

(A detailed explanation of the role of the CAC is found in the first set of CAC recommendations, page 2-3 of this volume)

When EPA reopened nominations for new CAC members in June 1985, one member resigned and two new members joined the committee. A list of current CAC members is included in Section 2 of this volume.

The CAC has worked diligently with EPA and the consultants to become familiar with the issues examined in the EIS and has offered insightful comments at every stage of the EIS process. Members participated in structured exercises to assess the importance of various siting impacts and to develop potential mitigation methods.

In June 1984, the CAC offered testimony before the state legislature supporting the establishment of a Massachusetts Water Resources Authority.

The members of the CAC produced a two reports summarizing their concerns and recommendations regarding wastewater treatment plant siting in Boston Harbor, which are included as section 2 of this volume.

Results of CAC exercises performed before the printing of the SDEIS are reported in Volume 2, section 10.2.3. In June 1985 the CAC took part in a demonstration of the method EPA was considering to assist the technical staff in making the siting decision. While individual CAC members completed the exercise, no clear consensus on a siting choice was reached by the group. The group did agree that the method used by EPA was thoughtful and functional, and was a satisfactory effort toward a final decision making tool.

Barry Lawson Associates is responsible for coordinating the activities of the CAC, producing meeting agendas and minutes, assisting the CAC in document and testimony preparation and keeping CAC members supplied with current EIS information.

4) Formation and Support of Technical Advisory Group

A thirty-five member Technical Advisory Group (TAG) was formed in October 1983, to provide technical assistance to the study team and create a forum where study results could be presented to concerned public agencies for discussion. The members of the TAG were appointed by local, state, and federal agencies interested in the project. The TAG met periodically during the initial stages of the study and less frequently in the middle stages (using discussions between individual TAG members and the consultant as forums for review). After the release of the SDEIS, the TAG once again began meeting monthly advise and monitor the additional technical studies conducted for the final EIS.

A list of current TAG members appears as table 1-1.

5) Production and Distribution of Newsletters

A series of newsletters entitled Boston Harbor Update has been produced and distributed to all individuals and agencies on the project mailing list. The Update is circulated to approximately 1500 readers. Six Updates have been published to date, informing the public on study progress and upcoming public participation events. A seventh Update is will announce the schedule for public hearings on this EIS. A final Update will announce EPA's final decision (Record of Decision of the Regional Administrator)

Table 1-1

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6) Production of Public Meetings and Workshops

Several public meetings and workshops have been organized during this project to seek input from the general public at key decision-making junctures. In September 1983, two public scoping meetings and one agency scoping meeting were held. One hundred members of the general public and twenty-one representatives of concerned agencies attended and offered opinions on the scope of work for this SDEIS.

A public workshop was held in November 1983 to identify and discuss factors which should be considered in the technical process to screen project options. Sixty people attended and identified important factors they wished analyzed. Results of this workshop were reported in section 10.2.2 of the SDEIS.

Two public meetings were held during January 1984 to obtain public reaction to EPA's recommendation of six sites for further study. One meeting was held in each of the two communities where major impacts were likely to occur: Winthrop and Quincy. Approximately one hundred people attended each meeting and enthusiastically voiced a wide variety of concerns. A summary of the comments made at these meetings was published as Appendix A of the Report of Final Screening Results (May 16, 1984).

A public workshop was held in August 1984 to update the public on the progress of the SDEIS, introduce and gather opinion on the factors being considered in siting decisions, and elicit public comment on potential mitigation and compensation measures. Thirty-five members of the public attended and discussed these issues with project staff. Results of this workshop (including an opinion survey) were also reported in section 10.2.2 of the SDEIS.

Three public information meetings were held in February 1985 to explain the findings of the EIS and allow for direct dialogue between the the EIS team and the public. The meetings were held in Quincy, Winthrop, and Cambridge and were attended by nearly 300 people.

Three public hearings on the SDEIS were held in late February and early March 1985 in Cambridge, Winthrop, and Quincy. Approximately 4000 people attended these hearings, which resulted in 646 pages of testimony by witnesses ranging from Congressmen to middle school students. A summary of the public comment and agency response to SDEIS issues appears as Section 3 of this volume.

III. SUPPORT SERVICES

1) Mailing List Maintenance

A mailing list of approximately 1200 concerned citizens, organizations, agencies, and media outlets was developed and is continually updated. The list is used for distribution of the "Boston Harbor Update" and announcements of public participation events. The list has been loaned to many organizations concerned with Boston Harbor, including the Massachusetts Water Resources Authority. Separate CAC and TAG lists are maintained for mailings to those groups.

2) Media Relations

Barry Lawson Associates acts as a source of EIS information for media personnel and encourages coverage of EIS public events.

3) Information Depositories

Information concerning the SDEIS has been distributed to libraries in Boston, Quincy, Wellesley, and Winthrop. The libraries were provided with binders to file the information and updated EIS information is sent periodically.

4) Field Trips

Field trips were organized to allow the TAG and CAC members to view the Nut Island and Deer Island wastewater treatment facilities and to view Boston Harbor by boat. A tour of the Greater Lawrence Sanitary District treatment plant was held in September 1985 to allow CAC members to examine a modern secondary treatment plant.

5) Summaries

Summaries and analyses of all public workshops and meetings were prepared by Barry Lawson associates for use by the study team.

6) Management

A collection of miscellaneous tasks are carried out to support the public participation program. A project telephone number and a post office box are maintained and advertised to provide public access to the public participation coordinator. Requests for information or documents from concerned citizens, agencies, and media personnel are processed continually. Barry Lawson Associates staff provides advice to the study team regarding public communications and analysis of opinion data.

7) Evaluation

The public participation program was evaluated by members of the study team in April 1984 and June 1985 and is continuously evaluated and modified as the EIS progresses. A final evaluation by the study team, the CAC, and the TAG is planned during the review period for the final EIS.

IV. CONCLUSION

The public participation program for this EIS is producing a diversity of information. The study team has been provided with detailed comments and opinions on study design, impacts, and mitigation and compensation for the various options. Public input has been extensively incorporated into the work of the study team and plans are in place to ensure the same or greater levels of public involvement for the remainder of this project.

III-2

**citizen advisory committee
recommendations**

SECTION 2

CITIZEN ADVISORY COMMITTEE RECOMMENDATIONS

The Citizens Advisory Committee formed by EPA for this project has produced two sets of recommendations on siting wastewater treatment plants and more generally, cleaning up Boston Harbor. The first set of recommendations were drafted during the SDEIS phase of this project. This set was distributed by the CAC to approximately 150 decisionmakers and interested parties involved in the issues surrounding the harbor.

The CAC also has drafted a second set of recommendations which take into consideration additional work and studies done since the release of the SDEIS. The CAC continues to strongly support its first set of recommendations, and considers the second set an amendment which adds detail and emphasis to some points raised in the first set while also bringing some new concerns to light.

The CAC sincerely hopes that all decisionmakers involved will seriously consider both sets of recommendations when determining the future of harbor cleanup efforts.

Both sets of recommendations follow.

RECOMMENDATIONS ON WASTEWATER TREATMENT FACILITIES
FOR
BOSTON HARBOR

Citizen Advisory Committee
Supplementary Draft Environmental Impact Statement
Boston Harbor Wastewater Facilities Siting

August 1984

Prepared with the assistance of:

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I. Introduction: The Role of the Citizen Advisory Committee

The Boston Harbor Wastewater Treatment Facilities Siting Citizen Advisory Committee (CAC) was established in the Fall of 1983 to assist the United States Environmental Protection Agency and the consultants under contract in the preparation of the Supplementary Draft Environmental Impact Statement (SDEIS) for the siting of wastewater treatment facilities in Boston Harbor. The CAC is a major element of the comprehensive public participation program designed for the EIS. The following advisory functions were considered for the CAC when it was established:

- o providing a direct link to the wider community interested in and affected by waste treatment in Boston Harbor;
- o assisting in the development, implementation and monitoring of the public participation program;
- o commenting on the progress and conclusions of the SDEIS [and EIS];
- o providing information to others about the project and its likely impacts;
- o assisting the project team in gathering and understanding the concerns and opinions of the publics affected by the project;
- o advising the project staff on the scope of the study and offering members' representative perspectives on the viability of options being considered.

The CAC members were nominated from a cross-section of environmental, community, government, and business interest groups. The underlying factor uniting the members of this group was a desire to ensure that Boston Harbor returns to being a healthy, useful, and beautiful resource for the benefit of all, and that undesirable impacts of wastewater facilities construction and operation be minimized and borne as equitably as possible. The CAC has worked diligently to perform all of the functions considered for the group when it was established.

There is general agreement within the CAC that the present wastewater treatment situation in Boston Harbor is deplorable. The factors outlined in Chapter 1, Volume 1 (Purpose and Need for Action) of the SDEIS are of great concern to the CAC. Boston Harbor and the communities surrounding it are being continually polluted because of poor planning, inadequate maintenance, and improper operation of an out-dated and over-burdened wastewater system. The members of the CAC view the harbor as a valuable economic, recreational, residential, and esthetic resource that is well worth cleaning up and preserving, and are equally concerned about the impacts of construction of wastewater treatment facilities on the communities where they will be built and operated.

The CAC has met once per month and a task force subcommittee has met at two week intervals between committee meetings. Members have been continually briefed by the engineering consultant on the progress of the study while it was underway. The CAC offered advice on factual details and data accuracy directly to the consultants and this advice is incorporated into the analysis and conclusions of the SDEIS [and EIS].

This section describes the major concerns and recommendations of the CAC regarding the larger issues of wastewater treatment in Boston Harbor.

The opinions and recommendations of the CAC must be viewed with the realization that they arise from a group that has worked long and hard with EPA, the consultants, and members of the communities and groups represented in order to gain a full and balanced understanding of the problems facing those who must determine siting for wastewater treatment facilities in Boston Harbor. It is the hope of the CAC that these ideas will have impact on the decisionmakers for this necessary and important project.

II. Recommendations

1) Planning and Growth

The construction of wastewater treatment facilities for the MDC sewer system is of obvious importance, but is only one component of a broader planning and improvement program which must be undertaken if the current situation in Boston Harbor is to be remedied. The following planning issues must be addressed if the construction of new treatment facilities or the rehabilitation of old facilities is to have any lasting positive effect:

- a long term, integrated plan for improving Boston Harbor must be developed and the issues of combined sewer overflows, dry weather overflows, extraneous sources of flow, and all sources of pollution must be considered in this plan;

- expansion of the present system to communities not currently included in the system should not be allowed;

-- expansion within communities in the system beyond the system's ability to provide adequate service should not be allowed;

-- a prioritized schedule of projects should be developed to ensure implementation of short term and long term projects is coordinated and integrated so that improvements to the harbor begin soon and continue into the future;

-- the possibility of building satellite treatment plants to reduce flow to the current treatment system and to allow expansion of communities must not be abandoned. Siting possibilities for satellite plants should not be limited to those included in the EMMA study, and new technologies should be examined as possible solutions to upstream problems;

-- disposal of sludge produced by the proposed facilities must be studied and planned for. Public input must be sought before the facilities are constructed. Alternative modern sludge treatment methods should be examined and pre-treatment of industrial wastes should be more extensive to remove toxic products from sludge and make it more useful as a fertilizer. Current pre-treatment efforts are not acceptably implemented and enforced. Planning for land disposal of sludge must be coordinated with water supply managers to protect the watershed where disposal will take place.

-- some members of the group feel that, because of project timing, additional State funds should continue to be made available for upgrading existing MDC [MWRA] treatment plants without further delay. Sewage rates should be increased as soon as possible to build up funding for the proposed facilities. These two items will show good faith for implementation on the part of the Commonwealth and the MDC [MWRA] or whatever agency assumes control and will enhance public awareness of the situation.

2) Facility Operation

The following recommendations are made regarding the operation of the proposed facilities in an attempt to avoid the types of management and operation problems currently taking place in the MDC [MWRA] treatment facilities:

- establish a fiscally independent, self supporting metropolitan water resources authority similar to the body proposed in Massachusetts House of Representatives Bill HR 5915 with modifications to ensure more representation of communities where facilities will be sited [legislation has been passed creating the Massachusetts Water Resources Authority (MWRA)];

- facilities must be designed for optimum continual performance at normal and peak flows;

- facilities must be designed with a planned lifetime and replacement or refurbishment at the end of this lifetime must be provided for;

- operation, maintenance, and repair of facilities must be carried out by trained professionals and must be budgeted as part of the project (some members of the CAC have suggested that the facilities should be operated by private firms under contract). If secondary treatment is the chosen option, a higher degree of training and sophistication will be required of the operating personnel;

- operations issues such as noise, odor, visual esthetics and traffic created by facility employees, chemical deliveries, and sludge removal must be planned for and mitigated with the communities where the facilities will be built before construction takes place.

3) Facility Siting Options

The field of options recommended by the consultant and EPA at the time this document was produced was still quite large. The CAC has chosen to provide decision makers with a list of factors influencing siting decisions rather than examining each potential option individually. These factors will come into play at any site chosen and it is the intent of the CAC that describing the factors of major concern will provide decision makers with a gauge of public opinion to measure their decisions. Not all of the factors listed below are the views of all members; those that are not are so noted.

Neighborhood Concerns - CAC members representing the communities of Winthrop and Quincy are generally opposed to any new facility development within their communities. Members of both communities feel that their neighborhoods are currently overburdened by the operation of the present facilities and Winthrop members point out that they also are impacted by Logan Airport and the Suffolk County House of Correction. From a neighborhood viewpoint, favorable siting would occur with plant locations at a greater distance from residential sections than now existing at Deer or Nut Islands.

Mitigation and Compensation - there is a general consensus that the communities where facilities will be built must be compensated in some way for unavoidable adverse impacts generated by the construction and operation of facilities. Efforts must be made to mitigate as many impacts as possible and to provide substantial, guaranteed, long-term compensation for remaining impacts. Citizens of the communities involved must be allowed to take an active part in determining mitigation/compensation plans, plans must be in place before construction begins, and mechanisms must exist to modify plans if projected conditions change. A representative body should be formed to ensure that the interests of impacted residents are continually taken care of and a mechanism of appeal should be established to provide unsatisfied residents with a means of resolution.

The CAC wishes to emphasize that sewage treatment is the responsibility of all communities in the MDC region and that just compensation be made to those communities which bear the burden of treatment facility impacts.

Long Island - division within the group exists concerning Long Island as a potential site. Some members feel that the recreational potential, the historic and archaeological value, and the relatively untouched condition of portions of Long island warrant protection and preservation, while the sites on Deer and Nut Islands are already greatly impacted and (with adequate mitigation measures) would not be greatly changed by further construction.

Other members of the group, particularly those representing Quincy and Winthrop, feel strongly that neighborhood concerns greatly outweigh the recreational, archaeological, and conservation potentials of Long Island and would rather see a project impact "bones, trees, and arrowheads" than the health and safety of living people.

There is consensus that if Long Island is not considered as a viable option because of its recreational/historic value, assurances must be made that the island will indeed be preserved indefinitely. The CAC does not want to see the island spared from development as a wastewater treatment facility only to be developed as residential or industrial land by the City of Boston.

Satellites - the prospect of satellite treatment plants should not be abandoned. There is concern among some CAC members that the list of sites considered for satellite plants, which arose from the 1978 EMMA study, was too restricted and that more sites could be evaluated. [A proposal by Quincy Shores Associates regarding satellite plants was examined as part of the evaluation]. Satellites could play a valuable role in reducing flows to Boston Harbor facilities and allowing future expansion of community systems.

Other Sites - it is the opinion of a few members of the group that the list of options considered for this project was not extensive enough and that other places, in particular Moon Island, should have been seriously studied as possible sites, because they could offer sites where immediate action could take place with a minimum of community and neighborhood impact.

Fast-Track Improvements - under no circumstances should a "no action" option be considered after the current fast-track improvements are complete. The upgrading to 1968 standards of wastewater treatment plants now in place should never be accepted as a long term solution to the problems of Boston Harbor.

4) Levels of Treatment

The members of the CAC share an enthusiastic concern for the water quality of Boston Harbor, but temper their enthusiasm with knowledge of the limitations of time, money, and technology and a realization of the trade-offs involved. It is a general conclusion within the group that the dumping of sludge and untreated sewage into Boston Harbor must stop as soon as possible.

-- some group members feel that pending decision on MDC's 301(h) waiver application should be granted allowing upgraded primary treatment with long outfalls because any untreated sewage produced by wastewater treatment facility malfunction would be

carried out of the harbor. [decision has been made to deny the waiver, requiring secondary treatment]

-- other members see the project resulting from this SDEIS [and EIS] as an opportunity to upgrade to secondary treatment, an opportunity which they feel will be precluded if primary plants are built.

-- concerns exist among some members about the effects of long outfalls on Massachusetts Bay.

-- primary treatment is unacceptable without long outfalls and adequate pumping capability.

-- some members feel that the expense of constructing secondary treatment plants along with long outfalls is justified and should be considered.

-- concerns exist about sludge disposal and there are further concerns regarding the additional sludge produced by secondary treatment. Additional planning and investigation into using sludge as a resource (fertilizer) is called for.

-- alternatives to chlorination as a disinfection method should be investigated.

-- sludge incineration should not be considered because of its negative impacts on air quality.

5) Construction Impacts

The construction or rehabilitation of a wastewater treatment facility will undoubtedly affect neighboring residential areas at any of the proposed sites. Members of the CAC share the view that mitigation of construction impacts is of extreme importance. They are very concerned about the safety and comfort of people living in the affected area. They also realize that any undesirable conditions created by construction must be tolerated for the relatively long construction period of five to ten years. The following are the group's suggestions :

-- every effort should be made to reduce construction related highway traffic through residential communities. Roads in the potentially impacted communities (Quincy and Winthrop), although busy at times, do not currently carry much heavy trucking. Roads leading to the proposed site carry very little truck traffic. There is great concern about the safety of other drivers and pedestrians if narrow, residential roads are pressed into service as truck routes.

- barging should be used to transport personnel and materials to the construction site whenever possible.
- mass transit should be utilized by construction and operation personnel as an effort to reduce traffic.
- periods of traffic activity to the construction site should be timed so as to not interfere with normally busy traffic times in neighborhoods.
- an organized method of compensation for possible damages to property (private and public) caused by trucking or construction must be established before construction begins. A mechanism of compensation must be developed to account for the decrease in property value and the increase in difficulty of selling real estate before and during the relatively long construction period.
- effective measures must be established to minimize noise, dust, odors, and mitigate other construction-related nuisances.
- a mechanism must exist for public input in the mitigation/compensation plans and an opportunity to change those plans in response to changes in construction operations must exist.

III. Summary

The Citizen's Advisory Committee is greatly concerned with the environmental quality of Boston Harbor, the islands in the harbor, and the surrounding communities. The CAC has a strong desire to see an integrated, prioritized plan developed for improving the sewage system and the harbor. There is also a desire to see this plan, and the building of a wastewater treatment facilities as part of this plan, carried out in a manner that minimizes adverse effects on communities most impacted and the region as a whole. There is a need for building quality facilities and ensuring mitigation and compensation, even if the economic cost to the region is greater than for building marginal facilities in a less responsible manner. The CAC sincerely hopes that the concerns and recommendations put forth in this document are considered by the decision makers, and will offer additional advice when a final siting option is chosen.

The members of the CAC wish to thank the Gillette Company for their kind hospitality and the use of their conference rooms as meeting places for the Citizen's Advisory Committee.

The Citizen Advisory Committee
Supplementary Draft Environmental Impact Statement
Boston Harbor Wastewater Facilities Siting

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Boston Conservation Commission
Boston Harbor Associates
Boston Harbor Citizens'
Advisory Committee

Mr. George Marsh
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Boston Harbor CAC

Boston Harbor Wastewater Treatment Facility Siting
Environmental Impact Statement

Citizens Advisory Committee

AMENDED RECOMMENDATIONS

November, 1985

The following is a set of recommendations for the consideration of the Environmental Protection Agency, Region I (EPA), and the Massachusetts Water Resources Authority (MWRA). These recommendations were developed by a Task Force of the Citizens Advisory Committee (CAC) and have been reviewed and approved by the entire committee. The CAC was formed from a cross section of concerned interests to advise EPA and MWRA in the preparation of environmental assessments for the siting of wastewater treatment facilities in Boston Harbor and has worked closely with the agencies and consultants involved in this project for the last two years, meeting regularly throughout that period.

The CAC produced a set of recommendations which were included in the SDEIS/EIR and still supports those recommendations. These additional recommendations were developed to address new information and issues which have become known since the SDEIS/EIR was published, and to restate in a brief form the CAC's major concerns.

It is the hope and intent of the CAC that these recommendations will be used to assist decision makers in determining the siting and mitigation measures for wastewater facilities in Boston Harbor and in other projects relating to cleaning up the harbor.

Members of the CAC representing the community of Winthrop wish to emphasize that these recommendations are not site-specific, and that the community of Winthrop is opposed to any expansion of the current facilities at Deer Island.

PROPOSED NON-SITE-SPECIFIC RECOMMENDATIONS FOR IMPACTED
COMMUNITIES HOSTING PLANNED WASTEWATER TREATMENT FACILITIES:

1. That the wastewater treatment facility be the only operating facility on the island chosen. No sludge disposal facility should be built on the chosen island, and the prison should be removed from Deer Island and the hospital from Long Island if either of those sites is selected.
2. That the transportation of chlorine or other hazardous materials through the communities surrounding the selected site be prohibited. The CAC encourages a full evaluation of alternative disinfection methods to avoid the safety and environmental problems associated with chlorine. No excessive stockpiling of hazardous materials should occur at the treatment plant site.
3. That all materials and personnel associated with the construction and operation of treatment facilities be barged or ferried to the site, with the only exception being emergency response vehicles.
4. That any community impacted by the treatment facilities be consulted regarding mitigation efforts. Citizens of the impacted communities must be allowed to take an active part in determining mitigation and compensation plans and plans must be in place before construction begins. Mechanisms must exist to modify plans if projected conditions change. A representative body should be formed to ensure that the interests of impacted residents are continually addressed and a method of appeal should be established to provide unsatisfied residents with a means for appeal. The CAC wishes to emphasize that sewage treatment is the responsibility of all communities in the MWRA district and that just compensation be made to those communities bearing the burden of treatment facilities.
5. That all efforts toward the reduction of visual, noise and odor impacts be provided during initial construction and that any landscape-type mitigation measures (berms, mounds, plantings, etc.) be aesthetically pleasing.
6. That all residuals be disposed of at sites remote from the Harbor Islands.
7. That a full operation and maintenance and preventive maintenance program be developed and funded to eliminate the historic problems of failing facilities.
8. That financial assistance be provided to the governments of impacted communities to support monitoring and consulting services required by the communities to monitor the construction and operation of treatment facilities.

9. That financial reimbursement be made for expenditures by community fire and police departments incurred in responding to treatment facility emergencies. It is strongly recommended that the facility have its own capabilities for dealing with medical, fire, hazardous material, and security emergencies.
10. That a park be developed at the chosen site to utilize any recreational potential remaining after the construction of a well-designed plant, although the design of the plant and its effectiveness should not be constrained by recreational plans.
11. That financial compensation be provided to the communities bearing the burden of the treatment facility impacts in the forms of eliminating sewer charges or in payments to the community.
12. That the "no action" alternative mentioned in the SDEIS/EIR is totally unacceptable.
13. That satellite treatment plants be encouraged to handle growth of the MWRA system and that no expansion beyond the initial design capacity be allowed for the harbor treatment facility. The current NPDES discharge limit should be used as a maximum limit for effluent flow to the harbor from the proposed treatment plant.
14. That an advisory committee be formed in the impacted communities to advise EPA and MWRA on the facility planning, construction, and operation of the plant and that this group be provided with all documents produced regarding the project.
15. That the site(s) not chosen be left in public domain. Sites should be utilized as originally intended when preserved from development as treatment plant sites.
16. That long term, integrated pollution abatement planning take place to reduce reliance on a single treatment plant and that all of the agencies responsible for controlling harbor pollution establish a schedule for such measures as CSO facility construction, industrial effluent pretreatment, elimination of polluted storm sewers and combined storm drains and sewers.
17. That the industrial pretreatment program be strengthened and vigorous enforcement of the program begin immediately.
18. That the MWRA address and control the addition of septage to the system and provide means for receiving and treating septage and licensing and charging septage haulers. Septage should not be hauled through impacted communities.

CAC TASK FORCE MEMBERS:

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**summary of public comment on sdeis
and agency responses**

SECTION 3

SUMMARY OF PUBLIC COMMENT ON SDEIS AND AGENCY RESPONSES

INTRODUCTION

The Environmental Protection Agency released the Supplemental Draft Environmental Impact Statement (SDEIS) on the "Siting of Wastewater Treatment Facilities for Boston Harbor" in January 1985. In early February, a series of three public information meetings was held to highlight the data contained in the SDEIS and to answer questions posed by the public. A summary of issues raised at these public information meetings is available from EPA upon request.

In late February and early March, three public hearings were held to obtain formal written and verbal comment on the SDEIS document. A legal notice concerning the hearings was placed in the Boston Globe. A Boston Harbor Update newsletter containing details of the hearings was sent to the mailing list of 1600 interested agencies, organizations and residents. A list of media outlets received a press release with hearing details. Ads encouraging attendance were taken out in the Winthrop Sun-Transcript and the Quincy Patriot Ledger by local groups.

The hearings were well attended. EPA and Commonwealth officials heard more than 15 hours of testimony, received numerous petitions, surveys and written letters as well as physical evidence of pollution problems caused by faulty wastewater treatment facilities.

Written comments were accepted until March 18, 1985. During this period, EPA and the Commonwealth received hundreds of written comments from officials (federal, state, local); environmental, neighborhood and business groups; area residents; approximately 2800 postcards opposing siting of a wastewater treatment facility at Deer Island; and approximately 1200 form letters opposing use of Nut Island as a site for wastewater facilities. [For a list of all comments received, see Volume IV, Section 1: Log of Written and Oral Comments]

The remainder of this document addresses the written and verbal comments received. These comments have been summarized and organized by broad "issue categories" for clarity and greater ease of reading. [Originals of all comments can be found in Volume IV, Section 2]. Agency responses follow each category. EPA believes that sufficient evaluation has been completed for purposes of selecting the preferred alternative. The Agency recognizes that further environmental evaluation is needed on certain topics. This detailed evaluation will be undertaken

during the completion of "phase two" facilities planning.

The issue categories are as follows:

A - Suitability of Deer Island as a Treatment Site	Page 3-2
B - Suitability of Long Island as a Treatment Site	Page 3-4
C - Suitability of Nut Island as a Treatment Site	Page 3-6
D - Neighborhood Impacts	Page 3-7
E - Health and Safety	Page 3-8
F - Mitigation and Compensation	Page 3-9
G - Omissions and/or Inadequacies of SDEIS Document	Page 3-11
H - Level of Treatment	Page 3-36
I - Water Quality Issues	Page 3-37
J - Equitable Distribution of Regional Facilities	Page 3-39
K - Decision Criteria	Page 3-40
L - Segmentation Issue (Related Pollution Issues)	Page 3-41
M - Growth of the System	Page 3-44
N - Satellite (Subregional) Treatment	Page 3-45
O - Massachusetts Water Resources Authority (MWRA)	Page 3-46
P - Public Participation	Page 3-47

For additional information on the comments received, please contact:

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COMMENTS AND RESPONSES BY ISSUE CATEGORY

A - Suitability of Deer Island as a Treatment Site

Many comments received from Winthrop residents argued that Deer Island is an inappropriate site for a wastewater treatment facility. Traffic congestion, noise and air pollution, and environmental health were of great concern to Winthrop residents who stated that construction of a new facility would destroy the fabric of life in Winthrop. In addition, many comments focused on the likely property value decline following treatment plant construction. It was argued that such decline is associated only with Deer Island siting options.

Several commentators suggested the Town block use of Deer Island by such methods as banning certain sized vehicles, filing of an injunction to prohibit a decision on the draft and final EIS, opening up Shirley Gut or undertaking acts of civil disobedience. One commentator noted that the East Boston neighborhood is severely impacted by anything that happens in Winthrop.

Some commentators suggested that a more objective comparison

could be made of the suitability of the Deer and Long Island sites if the FEIS included an analysis of the recreational potential of a restored Deer Island, independent of proposed recreation plans. It was suggested that such an analysis include benefits and impacts of recreational use, such as traffic impacts compared to those of sewage plant construction and operation. In addition, several commentors stated that Deer Island's architectural and historical significance had been undervalued and urged EPA to undertake a more thorough survey of the drumlin and pump house.

Others felt that Deer Island is the most suitable site, calling it the most technically feasible and cost effective of the options under review. With its large land area, Deer Island was called the best equipped to handle a new treatment facility. Deer Island was called one of the two "least bad" sites by one commentor who said that if the Deer Island House of Correction were moved, the Deer Island option could be implemented in a way which would produce net environmental improvements for Winthrop residents.

Agency Response: Following an extensive environmental analysis of the suitability of Deer, Nut and Long Island as sites for an expanded wastewater treatment facility to service the Metropolitan Sewerage District, EPA has designated Deer Island as its preferred alternative.

The SDEIS evaluated the full range of environmental impacts, including social, technical, economic, environmental, political, legal and institutional impacts of the siting decision. In addition, EPA performed substantial additional work to clarify many issues which were raised during the review of the SDEIS. Areas of reexamination include: traffic, noise, odor, air quality, health, property values, recreational, archaeological/historic, and legal and institutional impacts. As a result of the information developed, the Deer Island site was found to be environmentally acceptable (when specific mitigation measures are applied) and is the Agency's preferred alternative. See Volume I (Decision Process section) for a detailed discussion of the reasons for the selection of Deer Island.

Mitigation measures required of the MWRA as a condition of receipt of federal funds are:

- o Barging of all bulk materials.
- o Busing/ferrying of construction workers to and from the wastewater treatment facilities site.
- o Installation of appropriate odor control facilities.

- o Use of all practical noise reduction methods. Construction of a sound barrier adjacent to the Deer Island House of Correction and excavation of the drumlin from the south side are specifically required.
- o Erosion, dust and sedimentation control.
- o Control of volatile organic compound (VOC) emissions.
- o Prohibition of trucking of liquid chlorine through Winthrop (after completion of required barging pier facilities).
- o Prohibition of the long term use of chlorine unless a clear and convincing need is shown and acceptable safety measures are demonstrated.
- o Use of Roll-on/Roll-off transport for heavy trucking.
- o Exploration of the following in the Facilities Plan: alternative techniques for disinfection of effluent (other than the use of liquid chlorine), alternative treatment processes, and joint recreational use of the wastewater treatment facilities site.

The MWRA has committed to establishing a noise control program, the purpose of which is to ensure that adverse impacts are not experienced in the community. Specific aspects of the program will be developed in the Facilities Plan but will include an acoustical review board, use of feasible control technology, staff training and community involvement. The MWRA has made a number of other commitments with respect to mitigation measures which can be found in Volume I of the FEIR. The MWRA is also in the process of exploring non-environmental mitigation measures and is currently preparing information on such measures for review by its Board of Directors.

B - SUITABILITY OF LONG ISLAND AS A TREATMENT PLANT SITE

The suitability of Long Island as a treatment plant site has long been a hotly debated subject, and SDEIS commentors focused a great deal of comment on this topic.

Those in favor of Long Island felt that it was most suitable as a treatment plant site because it is farthest from any shoreline community, uninhabited, except for the chronic care patients of the Long Island Hospital, and accessible from the mainland. These commentors stressed that the welfare and quality of life of 20,000 Winthrop residents is more important than a possible park, prehistoric remains, Civil War graves, wildlife or wetlands located on Long Island.

With regard to the proposed Long Island park, many pointed out that there has been no firm designation of Long Island for recreation, and the recreation plan should not preclude the use of Long Island for wastewater facilities. One person stated that the topography of Long Island (bluffs twenty to seventy feet above beaches with precipitous drops) precludes its use as a recreation site. Several commented that the park system is simply being used as "short hand" for the elimination of Long Island as a treatment plant site. Winthrop residents stressed that Deer Island has equal potential as a recreational resource.

Many questioned the viability of the Long Island Hospital, which they said is outdated, underutilized, and scheduled for closure. Concerning the City of Boston's objections to the site, one commentor said that the Commonwealth could force the City to turn over Long Island for use as a site for wastewater treatment facilities.

Some commentors said that Long Island's architectural and historical significance has been overstated and suggested that secondary wastewater treatment facilities could be constructed to avoid the most sensitive resources.

Long Island was considered one of two "least bad" sites by one commentor who wrote that, as long as the hospital is moved, Long Island's topography and the use of stringent design criteria could lead to a facility which would be consistent with the use of the island as a keystone of a harbor park system.

Those opposed to the use of Long Island as a site for treatment facilities included those concerned with neighborhood impacts (primarily in Squantum), preservation of the island's archaeological and historical sites, and its potential as a regional recreation resource and hospital/shelter site.

Those commenting on neighborhood concerns stated that access to Long Island requires vehicular passage over three miles of narrow, inadequate roads which are presently unable to accommodate local traffic. Because of its topography, it was alleged that a treatment facility on Long Island would result in a severe visual impact on the Squantum neighborhood.

Use of the island would have an impact on its significant archaeological and historic resources. One person stated that the island's resources are unique as they contain the site of the only Early Archaic prehistoric evidence within the City of Boston. Others noted the important barrier beach and wetlands.

A large number of commentors focused specifically on the proposed park and its compatibility with a treatment plant. The Commonwealth's Department of Environmental Management stated that Long Island could help meet the huge unfulfilled demand for public access to the coast for swimming and recreation and that locating a sewage treatment facility on Long Island would prevent

its development into a major park. The BRA commented that the area offers an unparalleled recreation opportunity to the City and the region. In their view, Long Island's location and accessibility make it a particularly appropriate site for linkage to other islands. Finally, Mayor Flynn commented that Boston is committed to integrating Long Island with other recreational uses of Boston Harbor.

Several people said that a treatment plant is an inappropriate neighbor for the chronic care hospital or the shelter for the homeless, which serve vital functions to the City's residents. Boston's Mayor Flynn emphasized that the City intends to maintain the medical and emergency shelter uses of Long Island.

Agency Response: The SDEIS did a complete analysis of the feasibility of Long Island as a site for both primary and secondary treatment. In addition, EPA performed additional work to clarify issues raised during the review of the SDEIS. As a result of the analysis contained in the SDEIS and further studies, Long Island was judged to be suitable and environmentally acceptable as a wastewater treatment plant site provided the Long Island Chronic Disease Hospital is relocated. Archaeological investigations and mitigation strategies to comply with the National Historic Preservation Act would also be required, as would the mitigation measures described in the previous section. However, in part because of legal constraints on the use of the Island, it is not the preferred agency alternative.

C - Suitability of Nut Island as a Treatment Site

A large number of people commented that Nut Island was totally inappropriate as a treatment plant site. They said that the original decision to site a treatment plant on Nut Island had been a mistake, and called the area far too small to be considered as a site for improved facilities. Residents of Hough's Neck and Quincy Great Hill emphasized the danger of using the narrow, hilly streets for heavy construction traffic, and complained about noise and odor problems associated with construction and operation of a treatment facility in such close proximity to a residential neighborhood.

A central issue of concern to residents of the area was the possibility that homes might have to be taken to accommodate a buffer zone adjacent to the new facility. Many people said that the removal of homes was unacceptable. Equally as unacceptable to many was the notion of filling three acres of Quincy Bay to achieve a buffer zone.

By contrast, one person called for further evaluation of the issue of fill, saying that permits for filling could be obtained

if it could be shown that there would be no impact on natural resources.

Agency Response: As detailed in Volume I, the SDEIS determined that the Nut Island site is closely limited by both adjoining houses and the sea. Its use as a wastewater treatment facility site would generate severe environmental effects, particularly noise, odor, and water quality impacts due to filling of the Harbor to create even a minimal buffer. It was further determined that it would be useless to incur such impacts, given the marginal (zero to ten acre) increase in land required to consolidate facilities at Deer Island.

Subsequent noise and odor reviews undertaken since the publication of the SDEIS indicate that the impacts would be even more severe than those described in the SDEIS. Therefore, EPA judged that the limited area available and close proximity of residences to the site make expansion of wastewater treatment facilities at the Nut Island site environmentally unacceptable.

D - Neighborhood Impacts (Note: Comments specific to Deer Island are listed under category A, Long Island - category B, Nut Island - category C)

The severe impacts of wastewater treatment facilities on neighborhood residents were of utmost concern to the hundreds of citizens who took the time to attend public information meetings and hearings, write letters, organize petitions and prepare surveys and comments. In their view, the possibility of devastating impacts on the day-to-day lives of neighborhood residents must outweigh all other factors in selecting a site for treatment facilities.

Many commented that the SDEIS sets communities and neighborhoods against each other. They found all three sites to be inappropriate because of their close proximity to residential areas, each with site access limited to narrow residential streets. It was suggested that the creation of a new harbor island would have been preferable in this regard. A number proposed that the current SDEIS be scrapped and a new site selection process be developed to identify non-residential sites.

Construction-related neighborhood impacts were most frequently mentioned by residents near all three sites. Commentors considered traffic congestion and safety to be the worst impact. Residents complained that each site has only one-road access and none was built to accommodate the heavy truck traffic which would result from construction nor cars or buses which would transport workers. Such traffic would increase noise levels and seriously impede traffic flow. Construction noise was also of great concern to residents. With regard to potential impacts during plant operations, odor and truck traffic were frequently cited.

Agency Response: EPA recognizes that construction of required wastewater treatment facilities will entail neighborhood impacts during the expected construction period. However, the Agency believes that the EIS process produced a comprehensive and fair analysis of the available options and that the alternative selected is environmentally acceptable, when specific mitigation measures are applied.

Additional work done as a result of comments made following the publication of the SDEIS focused on three of the impacts perceived as most annoying by neighborhood residents, traffic/transportation, noise and odor.

With regard to construction traffic, EPA found that none of the options are acceptable without barging of all bulk materials and busing/ferrying of construction workers. Regarding noise, EPA determined that construction noise will be within the limits allowed by the Boston Noise Control Regulations. To ensure compliance with these regulations the Agency has required the construction of a noise barrier adjacent to the prison and excavation of the drumlin from the south side. Regarding odor, additional work suggests that the MWRA must design and construct appropriate facilities and/or equipment to reduce odors. (See Volume I, Decision Process section for a complete description of required mitigation measures.)

E - Health and Safety

The majority of comments on this topic focused on what was called the SDEIS's inadequate portrayal of the dangers of transporting chlorine through Winthrop's narrow residential streets. Several people felt that the document did not carefully consider the possible effects of a chlorine gas spill and the impossibility of safe evacuation in such an event. Others stated that EPA should insist upon such alternatives as on-site manufacture of sodium hypochlorite from sea water or use of ultra-violet lights for disinfection. This would eliminate the harmful effects of discharging chlorinated water into the harbor and eliminate the need to truck chlorine.

Senior citizens of Winthrop noted that they are dependent upon moving around the Town safely by foot. They expressed concern that large increases in traffic might increase safety hazards and seriously impair their mobility.

Several people were concerned about health dangers posed by proximity to the treatment plant, swimming in polluted water, and possible consumption of tainted fish. A doctor commented that his patients have suffered from increased incidence of gastrointestinal disease from swimming in the polluted Quincy Bay. He

was concerned that increased contamination of the Bay with bacteria and viruses might place his patients at higher risk of contracting disease.

Agency Response: EPA recognizes the potential safety problems posed by trucking of liquid chlorine through narrow residential streets and has prohibited the trucking of liquid chlorine after barge pier facilities have been completed. In addition, EPA has placed a conditional prohibition on the long term use of liquid chlorine and required that the MWRA consider in its Facilities Plan alternative techniques for disinfection of effluent. This investigation will also include an evaluation of chlorine toxicity to marine life. EOEA has also directed MWRA to explore feasible alternatives to trucking of liquid chlorine. MWRA is now assembling information on alternative methods of disinfection which might be initiated as an interim practice.

Regarding traffic safety, the mitigation measures described earlier (see Section A) are expected to reduce the likelihood of traffic dangers to residents.

EPA believes that the quality of the secondary effluent from the improved wastewater treatment facility will result in water quality improvements. The effluent will meet applicable state water quality standards for bacterial levels designed to protect the public from bacterial contamination. EPA believes that a properly operated secondary treatment plant (with disinfection) will provide a meaningful step to improved toxics and bacterial loadings to the Harbor. Additional measures such as elimination of sludge disposal to the Harbor and CSO control are also necessary to restore the Harbor to its fullest potential.

F - Mitigation and Compensation

Several comments focused on the desirability of extensive mitigation measures. One commentator noted that the burden must be mitigated "virtually without regard to cost". However, many were concerned about the lack of guarantees that these measures would be implemented. One commentator questioned EPA's authority to require implementation of mitigation measures, especially those not made specific grant conditions or those not directly related to water quality and thus not federally fundable. This lack of authority made assurances concerning mitigation "hollow", and the SDEIS was called seriously flawed because of its reliance on such uncertain mitigation measures. It was suggested that the FEIS clarify EPA's authority to require implementation of mitigation measures.

Many individual measures were proposed by commentators, including noise/odor control, barging, busing, safety

precautions, traffic patterns which minimize use of residential streets, alternatives to chlorine trucking, opening of Shirley Gut, relocation of the Deer Island House of Correction, and relocation of the Long Island Hospital. Specific visual quality measures were suggested, including prompt removal/reuse of all disposal materials and equipment, construction of a detailed architectural scale model including proposed landscaping and visual screening. Several suggested that an entity be created to oversee facilities design. One person suggested that surcharges on large new system hookups be used to fund rate reduction for affected communities.

Several commentors urged that the feasibility, implementability and cost of all suggested measures be examined in further detail on a site-by-site basis and included in the capital cost estimate for each option. Another commented that the compensation issue should be developed further before a site option is selected, since it might have a significant bearing on the siting decision. Particular attention was paid to the need for further analysis of the shoreside impacts of barging of construction supplies and busing of workers, two of the measures proposed by EPA as integral to any siting solution. Barging comments focused on the need to evaluate potential barge terminal sites.

By contrast, many residents of Winthrop asserted that no measures could sufficiently mitigate the destructive impacts of wastewater facilities construction. For example, the Town would not benefit from traffic control or truck route mitigation because it is already experiencing capacity problems.

Agency Response: EPA believes that its preferred alternative is environmentally acceptable when certain specific mitigation measures are undertaken. The Agency has made receipt of federal funds conditional upon adherence to this mitigation program. The program is outlined in detail in Volume I, Decision Process section, and includes:

- o Barging of all bulk materials.
- o Busing/ferrying of construction workers to and from the wastewater treatment facilities site.
- o Installation of appropriate odor control facilities.
- o Use of all practical noise reduction methods. Construction of a sound barrier adjacent to the Deer Island House of Correction and excavation of the drumlin from the south side are specifically required.
- o Erosion, dust and sedimentation control.
- o Control of volatile organic compound (VOC) emissions.

- o Prohibition of trucking of liquid chlorine through Winthrop (after completion of required barge pier facilities).
- o Prohibition of the long term use of chlorine unless a clear and convincing need is shown and acceptable safety measures are demonstrated.
- o Use of Roll-on/Roll-off transport for heavy trucking.
- o Exploration of the following in the Facilities Plan: alternative techniques for disinfection of effluent (other than the use of liquid chlorine), alternative treatment processes, and joint recreational use of the wastewater treatment facilities site.

The MWRA has committed to establishing a noise control program, the purpose of which is to ensure that adverse impacts are not experienced in the community. Specific aspects of the program will be developed in the Facilities Plan but will include an acoustical review board, use of feasible control technology, staff training and community involvement. The MWRA has made a number of other commitments with respect to mitigation measures, which can be found in Volume I of the FEIR. The MWRA is also in the process of exploring non-environmental mitigation measures and is currently preparing information on such measures for review by its Board of Directors.

G - Omissions and/or Inadequacies of SDEIS document

A large number of people focused on the data contained in the SDEIS document. Information was described as missing, insufficient or biased. Many requested that additional or revised data be developed as part of the FEIS process. Omissions/inadequacies have been divided into major impact categories. EPA responses follow each bulleted point.

Traffic and Transportation:

- Traffic impacts

- o The SDEIS description of baseline traffic conditions both in Winthrop and Quincy was called inaccurate and incomplete. In particular, information was requested on bridge capacity or condition constraints that may affect truck routes; number of homes along Deer Island truck route in Winthrop and East Boston; and traffic impacts of Long Island bridge construction.

Because of concern expressed during review of the SDEIS, EPA reexamined existing traffic data and conditions of the roadways to the alternative sites. It was found that:

- existing conditions on access roads to Deer Island have more traffic problems than previously reported.

- Long Island and Deer Island were determined to have similar access limitations with regard to connections to the major highway network. However, if permission could be obtained to use Morrissey Boulevard for trucks, Long Island's access would be considered better.

In general, reexamination confirmed the SDEIS contention that the majority of truck/automobile traffic should be diverted to other transportation modes, primarily barging/busing/ferrying. The review indicated that a greater percentage of total traffic could obtain access to the construction site by water than had previously been estimated.

Complete information on the traffic reexamination undertaken as part of the FEIS, including data on population affected, road and bridge capacity constraints and possible mitigation measures, can be found in Volume I, and in Volume II, Section II-1.

- o There is a need to identify major intersections and points of constriction along each proposed truck route and determine volume-to-capacity relationships at these and the level of service provided.

These items were covered in the reexamination referred to above. See Volume II, Section II-1 for more information.

- o Traffic patterns from the proposed plant sites to a major highway should be developed.

See Volume II, Section II-1.

- o Many comments focused on the omissions and lack of reliability of the projected truck and bus estimates found in the SDEIS.

Reexamination of traffic projections indicated that the overall numbers of workers and truckloads of materials and equipment estimated in the SDEIS is reasonable.

- o Information was requested on traffic impact of trucking tunnel spoils; transportation implications of sludge management; impact of trucking fuel to the plant during operations; and impact of diesel fumes from buses.

EPA believes that there is sufficient information on these issues to make a siting decision. Further detailed study on spoils disposal resulting from construction of inter-island sewage pipes (either tunnels or pipeline) will be undertaken as part of MWRA's Facilities Plan, and will undergo subsequent environmental review. Sludge management transportation issues will be reviewed as part of the MWRA's Residual Solids Management Study and will also undergo further environmental review. Fuel trucking impacts were considered in the SDEIS and are considered slight. Impact of diesel fume from buses is also considered slight.

- o More information is available on Deer Island roads than those of Long or Nut Islands.

EPA considers information now available on Deer, Long and Nut Island roads to be sufficient to complete the EIS analysis.

- o The FEIS should carefully document and analyze maximum daily materials and worker traffic to determine a "worst case" for truck or auto use.

The SDEIS contains a "worst case" analysis of truck/auto use in Section 12.2.2-3. Without barging and busing/ferrying, peak traffic could easily exceed 1000 autos and 500 heavy trucks per day.

- o The SDEIS failed to consider the extreme danger involved in transporting and transferring chlorine by truck using narrow roads through the center of a small community like Winthrop. A similar problem was cited with respect to transportation of sulphur dioxide if dechlorination is deemed necessary.

Both EPA and EOEa recognize the potential safety problems posed by trucking of liquid chlorine through narrow residential streets. As shown in the FEIS, Volume II, Section II-11, EPA has considered the dangers associated with overland chlorine transportation and has prohibited trucking of liquid chlorine after the barge pier facilities have been constructed. MWRA has explored some feasible alternatives to the trucking of liquid chlorine in the FEIR, Volume I, in response to EOEa's Certificate of Adequacy on the DEIR.

- Barging/ferrying

- o Feasibility and costs associated with barging/ferrying should be resolved as part of the FEIS. Information would be developed on potential barge and pier sites; criteria to be used regarding materials to be barged versus trucked; impact of weather conditions on barging; need for dredging to construct piers.

EPA instructed its consultants to develop a more detailed barging/ferrying feasibility study. This study, summarized in Volume I, and reported in detail in Volume II, Section II-1, reveals that barging construction equipment and materials is practicable and ferrying appears to be reasonable for a significant fraction of the construction work force.

Construction impacts:

- o The FEIS should state which method will be used to construct the outfall, conveyance pipeline, and piers. It should then assess environmental impacts (especially on wetlands, fish/wildlife) and include information on amounts/composition of dredged materials; approximate shaft location and spoil removal routes (if tunneling is to be used); and potential disposal strategies and sites.

EPA believes these issues are not site determinative. The MWRA will make this decision as part of its Facilities Plan and will conduct an environmental review of proposed facilities.

- o Impacts on navigation of construction of wastewater treatment components must be evaluated.

Since the publication of the SDEIS, EPA and the Corps of Engineers have determined that further evaluation on the impacts to navigation will be necessary during the development of the detailed Facilities Plan. Preliminary findings show that impacts to navigation are not likely to pose significant problems.

Noise:

- Existing/baseline conditions

- o Comments suggested that baseline noise conditions were not adequately analyzed. Several said that additional ambient noise studies (both daytime and nighttime) should be performed in Winthrop so that a reliable ambient data base can be developed. Such noise monitoring should utilize standard statistical sampling techniques. EPA should

consider expanding noise monitoring to present information for each site on current, consistent ambient noise level determinations at the property line and at the nearest receptor point.

Data on ambient noise levels near the three candidate sites were reexamined. SDEIS data was determined to be an adequate measure of real world conditions. However, it was determined that further morning readings at Point Shirley were necessary and a series of such measurements were made in the Point Shirley area. Complete information on results of additional ambient noise studies can be found in Volume II, Section II-3.

- o Commentors noted that noise data collected from Massport and not incorporated into the SDEIS indicates the severe impact of overflights on the Point Shirley and Cottage Hill areas which is exacerbated by the noise from the diesel engines at the Deer Island treatment plant. This data should be used or an explanation of its omission provided.

The SDEIS (Figure 12.6-4) does include a summary of 1982 Massport data. The data indicates average noise levels of less than 65 to more than 80 dBA in parts of Winthrop and East Boston. Problems with Massport's remote noise sensing equipment precluded use of updated monitoring data in the SDEIS.

EPA believes the use of airport noise in establishing ambient conditions would artificially elevate background noise levels. Therefore background levels without overflight impacts were measured and used to project construction noise impacts.

- o Use of the Boston Noise Control regulations should be clarified with regard to the proper noise limit classification of the Point Shirley neighborhood.

Since the project is located in the City of Boston, Boston Noise Control Regulations will be used as the standard by which construction noise limits will be measured.

- Noise impact analysis

- o Commentors noted that operations noise measurements taken and pronounced acceptable are not necessarily indicative of noise levels which could be expected at a secondary plant.

The plant will be designed and operated to meet operational noise standards as defined in the Boston Noise Control Regulations.

- o Projections of construction noise levels should take into consideration that multiple units of equipment will be used.

A reevaluation was made of the number of pieces of heavy equipment likely to be used and of the noise that such equipment would generate. The new estimate, based upon a ratio of construction equipment to construction workers of 1:7-8, yields about 80 pieces of equipment. The reevaluation estimates that the resultant construction noise level will be higher than described in the SDEIS. However, noise impacts at all locations are considered acceptable. A full discussion of these findings appears in Volume II, Section II-3.

- o The SDEIS should review geotechnical data to determine whether alternatives to noisy pile driving could be considered.

This will be done as part of the MWRA's Facilities Plan.

- o Impact of diesel engines, either as primary or back-up source of power should be included.

Impacts of diesel engines have been evaluated and are included in the FEIR, Volume I (Noise Analysis).

- o EPA should consider measuring construction noise impacts present at other similar projects.

EPA has reviewed the noise impact data with acoustical consultants, who have performed noise analyses on such major projects as the MBTA's Red Line construction. Based on these discussions, EPA believes that the assumed sound energy levels projected for the construction phase of this project are reasonable.

- Noise mitigation measures

- o Commentors suggested that a noise performance standard, monitoring and enforcement program should be developed as part of the FEIS. Specific noise control measures, during construction and operation, should be identified and costs associated with such measures should be developed. Information was requested on whether the mitigation measures proposed in the SDEIS ensure that noise levels will not exceed the maximum allowable increase above ambient levels.

EPA recognizes the significant construction noise problems posed by construction of a wastewater treatment facility. The noise analysis contained in Volume II, Section II-3 concluded that noise levels will not exceed the Boston Noise Control Regulations at Point Shirley. To ensure compliance at the prison, EPA will require the following noise mitigation measures: construction of a sound barrier adjacent to the prison and excavation of the drumlin from the south.

MWRA has committed to establishing a noise control program, the purpose of which is to ensure that adverse impacts are not experienced in the community. Specific aspects of the program will be developed in the Facilities Plan, but will include an acoustical review board, use of feasible control technology, staff training and community involvement. For more information on potential noise mitigation measures, see the FEIR, Volumes I and II.

- o Information was requested on features and costs of special mitigation measures associated with Long Island Hospital.

The SDEIS evaluated the possibility of siting the wastewater treatment facility adjacent to the Hospital. This was judged unacceptable due to site limitations and environmental constraints. Therefore it was determined that any secondary option involving Long Island would require moving the Long Island Hospital.

Odor:

- Existing/baseline conditions

- o Commentors said that current severe odor problems at Deer and Nut Island are not seriously acknowledged in the SDEIS. Several said that EPA should include the Winthrop Concerned Citizens' Committee odor survey as part of the baseline environment.
- o Special causes of odors at Deer Island should be acknowledged and investigated, according to several commentors.

As a result of concerns expressed following publication of the SDEIS, EPA has conducted additional analyses of potential odor impacts. The results of this modeling effort suggest that odor can be minimized with appropriate treatment plant design and conveyance system controls. Full documentation of odor modeling methodology and results appears in Volume II, Section II-2.

- o Commentors said that odor problems associated with septage disposal to the South System should be addressed as well as what additional problems this might cause in transporting wastewater to Deer Island.

As part of the additional odor analysis done following the SDEIS, EPA's consultants found that additional study is required to determine the exact impact of septage on the South System. However, it should be noted that the recommended odor control program will include pre-chlorination of South System waste prior to transport to Deer Island.

- Projected odor conditions

- o EPA should provide more specific odor information, particularly details on odor-generating components of wastewater treatment plants, measurement and evaluation of odor impacts (including effect of odors on health), odor dispersion characteristics and methods of analyses, and impact of odors in a coastal environment.

This was done as part of the odor analysis described above. Hydrogen sulphide was determined to be the most perceptable odor and was used as the basis of further modeling work. Information was collected on the annual average odor concentrations at various receptor points, the number of hours per year that odor emissions are above the threshold of perception, and the amount the odor is above the threshold of perception. The model predicted that, without an odor control program, there is a potential for substantial odor problems. A full description of the odor modeling work appears in Volume II, Section II-2.

- o Information should be provided on odor problems associated with other large wastewater treatment facilities around the country.

As part of the further work done for the FEIS, EPA's consultants contacted operators of other wastewater treatment facilities with similar system characteristics to discuss the effectiveness of their odor control programs. In addition, the consultants reviewed EPA's recent publication entitled, "Odor and Corrosion Control in Sanitary Sewerage Systems and Treatment Plants". Volume II, Section II-2 includes some comparative information.

- Odor mitigation measures

- o Information should be provided on specific odor control

measures to be required for each alternative, on the costs and reliability of such control measures, and on whether such measures will be taken both at treatment plants and headworks.

As part of the additional odor work referred to above, EPA's consultants surveyed possible causes of odors in incoming sewage and compared available odor control technologies. Recommended odor control methods appear in Volume II, Section II-2. The MWRA outlined possible odor control measures in the FEIR, Volume I, and will develop an odor control program as part of its Facilities Plan.

- o The FEIS should state whether an odor performance standard will be established, who would be responsible for enforcing such a standard, and whether other large sewerage agencies have adopted an ambient air odor standard.

EPA will not be imposing an odor standard. It will, however, make receipt of grant funds contingent upon installation of appropriate odor control facilities.

- o EPA should comment on the reasonableness of Winthrop's suggested use of an "odor panel" to measure odors.

EPA considers such a panel not an unreasonable method of obtaining community input. The MWRA, in its FEIR, recommends such a panel.

- Other odor issues

- o Information was requested on odor issues associated with sludge processing facilities at each site.

Odors associated with sludge thickeners were evaluated in Volume II, Section II-2. Odor issues associated with other sludge management processes will be handled as part of the MWRA's Residual Solids Management Plan.

Recreation and visual quality:

- Recreation impacts

- o The FEIS should provide an analysis of the recreation potential of a restored Deer Island. Such an analysis should assess both benefits and impacts of recreational use of the area.

EPA developed a comparative recreational analysis of Deer and Long Islands as part of the

FEIS. The analysis, shown in Volume II, Section II-4, concludes that each island has significant potential value as a recreational resource, although each would play different roles for local residents, the surrounding regional populations, and out-of-state visitors.

- Visual quality

- o The FEIS should provide a more detailed visual quality analysis of Deer Island, including information on extent of rip-rapping; stockpiling of grit and scum; possibilities of maintaining or moving the drumlin; impact of tank-stacking.

A general visual quality analysis of Deer Island was done in conjunction with the recreational analysis described in the previous response. Information on rip-rapping and tank-stacking will be developed as part of MWRA's Facilities Plan. The drumlin will be removed during construction. It is possible that a visual buffer might be constructed between the treatment plant and the Point Shirley neighborhood. Stockpiling of grit and scum will be evaluated as part of MWRA's Residual Solids Management Plan.

Air Quality:

- Baseline/existing conditions

- o Commentors noted that the SDEIS inadequately considers air pollution due to plant-induced traffic.

Given EPA's reliance on barging/busing/ferrying, the increment of additional traffic is expected to be small.

- o The FEIS should contain a separate description of air quality baseline conditions at each site, including an analysis of any available Massport air quality data.

A general description is sufficient for the EIS since the air quality baseline is well documented in such other studies as the SDEIS/EIR on Third Harbor Tunnel, Interstate 90/Central Artery, Interstate 93, prepared by the Federal Highway Administration and the Massachusetts Department of Public Works in June 1983 and the F-EIS/EIR on the Proposed Development of Bird Island Flats, prepared by Massachusetts Port Authority and the U.S. Department of Transportation, Federal Aviation Authority in 1984. These reports are available for review at EPA or from the responsible agency.

Traffic related air quality concerns were not considered an important feature of the wastewater treatment facility because all options rely on barging of the majority of materials and supplies. The Residual Solids Management Plan will include a detailed description and analysis of air quality as it relates to sludge management options.

- o Air quality monitoring programs should be undertaken at each site, including collection of data measuring compounds entering the Deer or Nut Island plants and volatile organic compounds (VOC's) at Deer Island.

Following publication of the SDEIS, EPA conducted additional studies of VOC's and air toxics and modeled the results to predict annual concentrations at residential reception points. Results of the modeling work indicate that virtual safe doses are not exceeded at any of the receptors for any pollutant. However, the initial evaluation showed that the secondary wastewater treatment plant may be a major source of VOC's to the air and may have to be controlled to ensure progress towards the attainment of the ozone standard. In addition, it is postulated that a significant amount of VOC's are being emitted in the collection system and at the headworks. EPA outlined a further sampling and monitoring effort to be done as part of MWRA's facility planning process to clarify this situation and validate the modeling results. More detailed information on air quality studies is found in Volume II, Section II-6.

- o Information should be provided on any other studies done on VOC's at publicly owned treatment plants.

EPA has conducted at least two case studies to determine if POTW's are sources of VOC's creating air quality impacts. Studies of the Philadelphia and Indianapolis POTW's documented that these specific plants had specific air toxics problems in need of control. The MWRA needs to undertake further sampling and analysis to determine if such a problem exists.

- o Air quality impacts of the on-site scum incinerator should be considered.

This will be evaluated during the MWRA's Residual Solids Management Study or as additional facilities planning work.

- Air quality impact evaluation

- o Further work is needed on the air quality impacts of the proposed treatment plant. In particular, air dispersion modeling should be performed to evaluate potential impacts of VOC's, air toxics and ozone. This modeling should take into consideration the effect of distance from source on dispersion of air toxics and impact of aerosols containing pathogenic microorganisms.

See above explanation on EPA's further air quality monitoring work.

- o Further work is needed on potential air quality impacts of sludge facilities.

As previously noted, sludge disposal options will be reviewed as part of the MWRA's Facilities Plan and Residual Solids Management Study.

- Air quality mitigation measures

- o Information should be provided on available air toxics control technologies and costs.

Information on available air emissions control technologies can be found in Volume II, Section II-6. Subsequent detailed study on control technologies will be undertaken as part of the Facilities Plan.

- o The FEIS should contain information on whether an air quality monitoring and pollution control enforcement program will be developed and who would be responsible for enforcing such a program.

EPA has recommended that the MWRA develop a properly designed sampling and monitoring program as soon as possible so it can be used in designing the wastewater treatment plant. Details concerning such a program can be found in Volume II, Section II-6. Enforcement of air pollution control requirements will be handled in accordance with EPA and State regulations.

Water Quality:

- Baseline/existing conditions

- o The SDEIS lacks a detailed discussion of the actual significance of the various pollution sources to the Harbor. An objective comparative analysis of source contributions and a quantification of impacts and environmental costs is needed. For example, information is required on whether

effluent or sludge solids contribute more significantly to high metals concentrations in Boston Harbor.

The SDEIS/EIR on Siting of Wastewater Facilities for Boston Harbor did attempt to quantify pollution sources to the Harbor. The quantification revealed that the current plants are a major point source of pollution in Boston Harbor and are urgently in need of replacement. The assumption was made that all sources would be controlled in time and EPA in no way wishes to diminish the importance of other sources.

- o The dry weather overflow data contained in the SDEIS is outdated.

The SDEIS used 1981 data, developed by the MDC as part of the Inner Harbor CSO Project. This data is considered the most complete information available.

- o The scope of the biological work done for the SDEIS is too limited. No sampling was done near the proposed outfall and no baseline studies were conducted outside of the inner harbor.

EPA relied on biological work done for the 301(h) waiver application to describe overall water quality baseline conditions and acknowledges that the biological data base on Boston Harbor is limited. However it should be noted that biological studies done for the 301(h) waiver by the applicant (MDC/MWRA) analyzed several monitoring stations throughout the Harbor, including sites near the proposed outfall and in the outer Harbor.

The FEIS includes a water quality evaluation of four outfall sites (See Volume II, Section II-7). MWRA will conduct further analyses as part of the Facilities Plan to determine the optimal outfall location for secondary effluent.

- o Insufficient site-specific detailed comparative information was presented, particularly concerning terrestrial and marine ecosystems.

See previous comment.

- o Ambiguity of toxics measured in MDC effluent was of concern.

In order to project future effluent toxic levels, EPA examined both 301(h) data and MDC's report entitled "Trend Analysis of Historical

Metals Data for the Nut and Deer Island Wastewater Treatment Facilities". Where inconsistencies existed, EPA made its best estimate of reasonable levels in order to assess water quality impacts. The new NPDES permit, to be issued to the MWRA, will require monitoring of toxics. This is expected to provide an up-to-date effluent data base.

- o Further information is needed on dissolved oxygen depletion.

See Volume II, Section II-7.

- o According to one commentor, the coliform discussion should compare chronic dilution required versus average dilution.

The term "chronic" is not applied to the evaluation of coliform levels.

- Water quality impact analysis

- o Several commentors said that a comparison should be made of the financial and environmental costs and benefits of primary versus secondary treatment. This comparison should include an estimate of the effects of secondary effluent on harbor water quality, projections of "down time" for secondary treatment facilities, projected changes in water quality if facilities do not reach the median treatment efficiencies outlined in the SDEIS.

The tentative decision to require secondary treatment was made as part of the separate 301(h) waiver process, a summary of which is included in the FEIS, Volume II, Section II-16. It was made according to a Congressional mandate to base the decision solely on the biological and chemical impacts of the proposed discharge.

An estimate of the effects of secondary effluent discharged to the Presidents Roads location was provided in the SDEIS. Modifications and additions to this analysis were made subsequently and are summarized in Volume II, Section II-7. As previously mentioned, the MWRA will be required to do further analysis of possible secondary discharge locations during the facilities planning process. MWRA facilities will be required to meet the discharge limits set forth in the new NPDES permit, to be issued to the MWRA. These limits are based on water quality standards as well as secondary treatment standards.

EPA believes that its modeling effort presents a reasonable case regarding dilution of secondary effluent.

- o The implied removal rates of toxics by secondary treatment was questioned.

The implied removal rates were based upon the best information available as documented in the EPA publication "Fate of Priority Pollutants in POTW's".

- o One commentor stated that the SDEIS considers the protection and propagation of aquatic life, but fails to consider carcinogenic chemicals which are hazardous to humans through the consumption of finfish and shellfish.

This issue will be addressed by the new NPDES permit, to be issued to the MWRA. For EPA's tentative approach, see the Fact Sheet on the Draft NPDES Permit, Volume II, Section II-7.

- o According to several commentors, water quality impacts of chlorine used as a disinfectant are inadequately addressed. In particular, chlorine residuals in chlorinated secondary effluent have been underestimated and alternative disinfection techniques have not been assessed.

As a result of concern about residual chlorine toxicity, the new NPDES permit to be issued to the MWRA will require toxicity testing. Residual chlorine levels will be limited to non-toxic levels. In addition, The MWRA studied the issue in the FEIR, Volume I, and will study alternative disinfection techniques further as part of its Facilities Plan.

- o Information is needed on the impacts on marine life of dredge spoils disposal. A comparison should be made between pipeline and tunnel construction.

An analysis of this issue appears in the FEIR, Volume I. A comparison of methods will be done as part of MWRA's Facility Plan and will include an environmental review of the available options.

- o Many commentors requested further information on water quality impacts of priority pollutants and toxics. Specific information should be provided on pollutants which will exceed water quality criteria and remedies or control mechanism which exist. Reasonable background levels should be proposed and used for secondary outfall evaluations. Criteria for such direct poisons as cadmium and mercury should be addressed.

As a result of these concerns, EPA initiated a water quality modeling effort as part of the FEIS.

Results of this study are shown in Volume II, Section II-7. In addition, the monitoring that will be required by the new NPDES permit to be issued to the MWRA is expected to greatly improve the effluent data base. EPA recommends that the MWRA undertake a comprehensive data acquisition and modeling program. Since the permit is reissued every five years, data obtained can be used to impose more stringent requirements if needed.

- o The FEIS should clarify whether the new wastewater treatment plant will require an emergency bypass outfall.

Bypassing is prohibited by federal regulations except under specified, very limited conditions. See 40 C.F.R. Section 122.41(M).

- o EPA should discuss the limitations of the desktop version of "MERGE", the computer model used to predict water quality impacts.

The limitations of this model are described in Volume II, Section II-7.

- o A commentor asked that EPA clarify whether the 301(h) water quality data shown in the SDEIS Water Quality Impacts Section was lower than normal due to wet weather sampling.

The 301(h) data on priority pollutant concentrations in the existing effluent appeared lower than normal because, for many of the samples, only filtrate of the effluent was analyzed.

Cost/financial impacts:

- Capital cost comments

- o MDC called into question the cost estimates developed in the SDEIS. They developed their own estimates, which differed by 21 percent to 68 percent from those contained in the SDEIS.

It must be stressed that cost estimates made at this stage are approximations and the estimate of total cost is likely to be more accurate than that of individual line items. It should also be mentioned that cost estimation will be greatly refined during the Facilities Planning process.

Since the release of the SDEIS, EPA and its consultants have met frequently with MDC (later MWRA) and its consultants, to resolve the differences between the agencies' cost estimates. At these meetings, the agencies reviewed, revised and agreed upon basic assumptions and developed a

set of "consensus" cost estimates. Subsequently, MWRA's consultants have further refined the cost estimates of the all Deer Island and all Long Island options, based upon more specific assumptions regarding site design. The most recent cost estimates show no significant cost differences between the the Deer and Long Island options.

Cost estimates of the preferred option can be found in Volume I of the FEIS. Specific detailed information on the cost estimation adjustments made following release of the SDEIS can be found in the FEIS Volume II, Section II-8. Information is also available in the MWRA's FEIR, Volume I.

- o The City of Boston found the presentation of costs to be misleading and the analytical justification for raising capital cost estimates for primary treatment compared to previous studies to be unconvincing.

The consensus figures referred to in the previous response include a reverification of cost estimates of primary options.

- o Costs of lost revenue from the fishing and recreation industries should be considered in the estimates of secondary treatment costs.

EPA believes that the provision of secondary treatment will ultimately benefit both fishing and recreation industries by improving Harbor water quality and by substantial removal of toxic compounds. Further clean up by sludge elimination and CSO control will create further benefits. Estimates of such benefits appear in the report entitled "A Methodological Approach to an Economic Analysis of the Benefits from Outcomes of Water Quality Improvements from Sewage Treatment Plant Upgrading and Combined Sewer Overflow Controls", prepared for EPA as part of the 301(h) process.

- o Costs of secondary settling tanks should be verified through comparison with actual construction costs.

Costs of secondary settling tanks have been verified as part of the consensus figures referred to above. Further work will be done as part of the MWRA's Facility Plan.

- o A cost comparison of various available secondary treatment technologies should be provided.

This will be done as part of the MWRA's Facilities Plan.

- o The FEIS should include a cost estimate of an extended outfall which might be required by subsequent water quality evaluation.

EPA has evaluated the costs and impacts of four secondary outfall sites. Further evaluation of the cost and location of an optimal outfall site will be done as part of the MWRA's Facilities Plan.

- o Information was requested on whether site preparation (e.g. demolition of prison or hospital facilities) and land acquisition costs were adequately factored into capital cost estimates for each site option.

Revised cost estimates now include the cost of demolishing Long Island Hospital. The cost of demolishing the Deer Island House of Correction is not included because it was not considered essential for treatment plant construction. The most recent cost estimates include detailed consideration of land acquisition costs at Long Island, now estimated to be about \$25 million. This information can be found in Volume II, Section II-8.

- o More detailed cost estimates were requested for the Long Island option. For example, information was requested on pumping and other hydraulic considerations, archaeological mitigation and pier construction. In addition, it was suggested that EPA investigate phasing-in construction of primary tanks at Long Island during the useful service life of the Deer Island primary tanks as this might reduce the life-cycle costs of Long Island facilities.

More detailed information on Long Island costs can be found in the FEIS Volume II, Section II-8.

- o Information was requested on whether the Deer Island "fast track" expenditures have been factored into the costs of the Deer Island options.

No credit was given to the Deer Island Fast Track improvements because they have a short (10 year) life span.

- o Information was requested on whether the Nut Island headworks option includes cost estimates of pier construction, chlorination, and odor control measures.

Pier construction costs have not been determined because no final evaluation has been made concerning its necessity. It was assumed that the chlorination building presently under

construction will handle Nut Island headworks chlorination. Odor control measures have been refined in Volume II, Section II-2 and in the FEIR, Volume I. Further cost details of the Nut Island headworks option will be developed as part of the Facilities Plan.

- Household costs

- o MDC questioned the use of a 50 percent federal share of construction cost in estimating likely cost to homeowners. Instead, they recommended development of estimates using several different percentages to reflect the uncertainty surrounding the future federal share.

The SDEIS evaluated household costs based upon a federal share of 10%, 50% and 70% of the total cost of a hypothetical \$800 million facility. In reality, the percent received will be constrained by the share of the total federal appropriation received by Massachusetts, the place of the project on the priority list and the number of years it appears on the list.

- o The City of Boston stated that the calculation of annualized and per household costs was done with a bias toward narrowing differences between options. They estimate that the per household differences between the least and most costly options is at least 25 percent greater than stated in the SDEIS and 75 percent greater if capital costs are closer to original capital estimates.

The reevaluation of capital costs done since the publication of the SDEIS shows no significant difference between the options. Per capita costs are now estimated to be even closer than previous estimates.

- o Several commentators questioned the elimination of sludge facility costs from the total. It was stated that the evaluation of user impact is useless without considering cost of sludge disposal. If one assumes sludge disposal cost will be of similar magnitude as waste treatment costs, resulting user fees will far exceed that of any other cities studied.

The EIS presents only the costs of the proposed action, construction of wastewater treatment facilities. EPA is not in a position to evaluate the cost impacts of such other related projects as ultimate sludge disposal. These will be evaluated by MWRA as part of its Residual Solids Management Plan. User costs will indeed have to rise to handle these costs and other required facilities, but this has no bearing on site location. It should be noted that the cost of

initial sludge processing (de-watering, digestion and thickening) is estimated in the FEIR Chapter III.C.2.

- o Presentation of costs must include the entire cost implications of the total harbor clean-up program. The FEIS should include a more complete presentation of the costs in inflated dollars of the years when full rate impact will be felt (1995 and beyond).

See previous response.

- o The FEIS financial analysis should more fully describe particular financial consequences of revenue bond use to fund wastewater treatment projects.

EPA is aware of the fact that the reserve fund required by this type of bonding means that a portion of the funds raised is unavailable for use. MWRA will estimate the additional financial burden posed by this type of funding in the Facilities Plan.

- Operations/management (O&M) costs

- o FEIS should more clearly define replacement costs, estimated by the MDC at between two and five million dollars per year.

A conservative estimate of replacement costs is 1-2 percent of capital costs. This estimate should be made as part of the Facilities Plan.

- o O&M costs are skewed by erroneous equipment life-cycle data.

EPA's Facilities Plan cost policy was used to arrive at the costs presented in the SDEIS. O&M costs will be more rigorously defined in the Facilities Plan.

- o Further information was requested on development of staffing costs and costs of chlorine.

Staffing costs will be developed as part of the MWRA's Facilities Plan. With regard to chlorine, preliminary work on alternatives to the use of chlorine has been developed in the FEIR and will be finalized as part of MWRA's Facilities Plan.

- Mitigation costs

- o Costs of all suggested mitigation measures should be included in the FEIS to reflect EPA's commitment in this area. Mitigation cost analyses should differentiate between primary

and secondary alternatives. Such measures include, but are not limited to: barging/busing/ferrying; traffic control; odor/noise control; compensatory payments; fire/police escort services; infrastructure assessment and repair; and costs of services to protect the community's interest during planning and design phases.

Additional work has been done on the estimated cost of mitigation measures that will be grant conditions. Approximate cost of barging/busing/ferrying appears in the FEIS Volume II, Section II-1. Cost of odor control measures are found in Volume II, Section II-2. Costs of noise control measures to be required of MWRA as conditions of grant receipt can be found in Volume II, Section II-3. EPA will require MWRA to apply all practical noise control measures and MWRA has committed to establishing a noise mitigation program.

Engineering and reliability:

- Engineering

- o Commentors noted that the SDEIS contains inconsistent presentations and treatment of alternatives, especially with regard to sludge and scum disposal. There is a lack of detail and inadequate evaluation of treatment processes, facilities and configurations which makes it impossible to do a thorough analysis of potential sites, impacts, and potential mitigation measures. The FEIS should contain a chapter on plant engineering, including more complete information on gross plant size, operation, component sizing, layout, cost, energy needs and proposed energy generating/supply methods, and the interrelationship of these factors.

EPA has been working closely with MWRA in developing further information on potential configurations of the proposed wastewater treatment facilities. This information is shown in the FEIS Volume II, Section II-9. More complete information will be developed during the facilities planning and design phases.

- o More information is needed concerning the use of rectangular versus secondary clarifiers.

EPA did an analysis of the issue of rectangular versus circular clarifiers, which showed both to have equal reliability. Information on this analysis is available at EPA's Environmental Evaluation Section.

- o One commentor asked why construction durations are assumed to be longer at Long Island.

Long Island construction is estimated to take longer because of additional site preparation and construction requirements.

- o Additional design effort to support the FEIS should focus on sizing and layout of the plants to mitigate adverse effects.

Preliminary sizing and layout options were reviewed in developing studies on visual and noise mitigation measures. Additional work will be done during the facilities planning and design phases.

- o Information was requested on the effect of proposed CSO and I/I removal projects on influent levels and treatment plant capacity and on whether the new plants will be permitted to treat peak flow at less than secondary levels.

I/I removal is expected to increase the length of time the plant can operate at or below capacity. There appears to be no hydraulic effect of CSO projects on treatment plant capacity. The new NPDES permit, to be issued to the MWRA, stipulates that the entire flow will be required to meet the secondary treatment limits of the permit.

- o Information was requested on the need for rip-rapping at Deer Island and on statutory requirements which would be in effect in that event.

This information will be developed during the facilities planning and design phases.

- o Location of emergency bypass should be shown on plans, and designed to avoid near-shore bypasses.

As stated earlier, emergency bypass will be strictly regulated and allowed only in very unusual circumstances. Emergency bypass would be through one of the approved outfalls.

- o There is a lack of detailed analysis of secondary outfall locations.

EPA has performed a modeling effort to predict the effect of the discharge of secondary effluent at several locations. This information is summarized in Volume II, Section II-7.

- Plant reliability

- o An analysis of theoretical treatment removal efficiencies is

required. In addition, similar sized plants should be evaluated for removal levels of conventional and toxic pollutants.

Theoretical removal efficiencies, taken from EPA's "Fate of Priority Pollutants in POTW's" were given in the SDEIS. The plant will be required to meet state water quality standards which are regulated and enforced through the NPDES and state permitting processes. The MWRA's facility planning and design processes will develop further detail on removal levels and efficiencies.

- o The FEIS should identify conditions that lead to greater plant reliability and establish performance standards that would ensure such reliable operations at the plant.

The new NPDES permit, to be issued to the MWRA, is considered the standard by which the plant will be measured. Strict enforcement of the permit limitations is considered a top priority of EPA and DWPC. The MWRA has stated that its goal is to operate a well run and efficient treatment plant. The FEIR, Volume I, outlines the Authority's approach to the attainment of this goal, including its commitment to proper operation and maintenance of the facility.

Historic and Archaeological Resource Issues:

- o The FEIS should contain more detailed information on Deer Island's architectural and historical significance, especially the drumlin and old Pump House and potential for nomination to the National Register of Historic Places.

As part of the FEIR, the MWRA has conducted a more detailed archeological study of parts of Deer Island (particularly the pump house, the prison and sections of the drumlin). This evaluation appears in Vol. II, Section II-10.

- o The FEIS should contain a further explanation of plans to nominate Long Island to the National Register of Historic Places.

The Massachusetts Historical Commission has stated its intention to nominate Long Island to the National Register of Historical Places.

Property values:

- o The SDEIS contained insufficient data on the effect of treatment plant construction on property values. The FEIS should include a more thorough analysis, including a

description of methodology and an objective quantification of property value impact during the construction period and after operations begin.

EPA's consultants commissioned a study from Abt Associates, Inc. on the effect of treatment plant construction on property values. The study consisted of a literature review and is outlined in detail in Volume II, Section II-14. Little information is available on the effect of "noxious" public facilities on residential property values and none specifically on property value impacts of wastewater treatment facilities. The available information (mainly based upon airport noise) indicates that the more a particular environmental impact can be detected, the more will be the loss in value. This finding implies that effective noise and odor control measures (to be made grant conditions) will mitigate property value impacts.

In addition, EPA prepared a report on property value impacts of EPA-funded wastewater treatment facilities. The report, outlined in Volume II, Section II-14, discussed the difficulties of objectively determining property value impacts. It cautioned against basing decisions on the results of such statistical methods as multivariate regression analysis.

- o EPA should consider obtaining property value information by using a well developed opinion survey of a panel of real estate experts.

EPA is satisfied with the level of effort being made to study this issue at this time. See Volume II, Section II-14 for further details.

- o EPA should consider contacting other regions in which large treatment plants are sited near residential areas to determine whether property values have been effected.

EPA officials have visited and/or contacted operators of several large wastewater treatment facilities. Information they have received indicates that property values have not been affected by a well-designed, properly operating plant.

Other:

- o Several commentors said that the SDEIS is a document biased in favor of use of Deer Island. It is not "value neutral" though it purports to be a fair evaluation of options. It was charged that even the photographs contained in the

document are biased. For example, the photo of Nut Island is angled to show the proximity of the plant to homes, while that of Deer Island is angled away from Winthrop.

EPA considers the SDEIS to be a fair and unbiased evaluation of the effects of the options considered. However, the many written and oral comments made concerning the document convinced EPA that further work was required in several areas before a site decision could be made. This work, which appears in Volume II, clarified or re-evaluated many areas of contention. EPA feels that sufficient information now exists upon which to base its decision on the most environmentally preferable site for wastewater treatment facilities.

- o The SDEIS did not consider a sufficient number of options and is not a comprehensive analysis of all feasible alternatives.

EPA believes that the SDEIS is a comprehensive analysis of all feasible alternatives. EPA began the EIS process by initiation of a lengthy scoping process designed to generate all feasible alternatives for study. This process included participation by federal, state and local governments as well as environmental, business and neighborhood interest groups. The scoping process generated twenty-two alternatives, which were then studied and screened down to eight in the SDEIS. As mentioned in the previous response, EPA undertook substantial additional work before making its final siting decision.

- o The legal and institutional analysis is inadequate because it does not consider the existence and implication of local permits and regulations.

EPA believes these analyses are comprehensive. With specific regard to local permits and regulations, EPA judged that the project proponent could meet specifications of pertinent local requirements.

- o The SDEIS should be revised to take into consideration likely changes in the federal role. In addition, the effect on siting of the Massachusetts Water Resources Authority should be analyzed.

Changes in the federal role are very difficult to predict with any degree of certainty. Possible variations in federal funding have been considered and appear in the cost information shown in Volume II of the SDEIS.

- o Satellite treatment facilities should be studied in greater detail.

The SDEIS performed an analysis of the feasibility of satellite treatment facilities. EPA has recommended that MWRA continue study of the feasibility of satellite treatment facilities. Further discussion of that position can be found in Section N of this document.

- o The "No Action" alternative should be displayed and analyzed.

See Volume I, No Action Alternative section.

- o There is insufficient data to begin "404" and "103" regulatory review required by the Army Corps of Engineers.

This information will be developed by the MWRA as part of their Facilities Plan.

- o Federal Aviation Agency requires additional information to ensure that treatment facilities do not impede flights.

EPA has reviewed FAA requirements and determined that the wastewater treatment plant will not interfere with flight paths from Logan Airport.

H - Level of Treatment

Many people commented on the preferred level of treatment and on the 301(h) waiver process. Several people objected to making the siting decision before the waiver decision, saying that it was impossible to determine impacts realistically without knowing the level of treatment required. The majority of comments were in favor of the waiver and opposed to the use of secondary treatment for the following reasons: Primary treatment is the easiest to implement; secondary treatment is unnecessary from a water quality standpoint; it is much more costly to operate; it requires much more space (thus needlessly complicating the siting decision); its use would mean expending all available resources while more significant pollution problems remain unaddressed. It was also stated that secondary treatment with a local outfall will be less effective than primary with a deep ocean outfall because any breakdown would fill the Harbor with raw sewage. One person requested evidence that a secondary treatment plant of this size will work.

Several other people expressed disapproval of primary treatment with a deep ocean outfall, saying that such a system simply places the problem further out of sight and may have a negative impact on the rich fishing grounds in the area. Another said that such a costly, time-consuming program as construction of new wastewater treatment facilities should work towards adherence to the most stringent requirements.

Agency Response: The tentative decision to require secondary treatment was made as part of the separate 301(h) waiver process, a summary of which is included in the FEIS, Volume II, Section II-16. As required by Congress, the decision was based solely on the biological and chemical impacts of the proposed discharge.

The principal advantages of secondary treatment are: better effluent disinfection; significantly greater reduction of the wastewater's BOD and suspended solids; additional removal of toxics; and compliance with basic requirements of the Federal Clean Water Act. Since the treatment plant represents the largest volumetric point source of suspended solids to the Harbor, secondary treatment will provide significant benefits.

I - Water Quality Issues

Many people remain unconvinced that wastewater treatment expansion or improvements will significantly improve Harbor water quality, marine life and public health. One person decried the lack of a detailed discussion of the significance of various pollution sources. No quantification of impacts and their environmental costs has been prepared for comparison by sources and, therefore, the significance of each source can only be subjectively deduced. Another person pointed out that no overall improvement can be expected because, in the year 2010, the loading of solids into coastal waters would equal or exceed the present level from the existing treatment plant. One commentor urged that all beaches from Gloucester to Plymouth be closed until it is shown that it is safe to use the water.

A great deal of concern was expressed about the level of toxics in Boston Harbor. Several comments focused on the poor water quality in the Harbor and its effect on shellfish and flounder. The ambiguity of measurements of toxic concentration in MDC's wastewater and effluent was noted and the implied removal of toxics by secondary treatment was questioned. The lack of information on PCB's was also a subject of concern. More information was requested to resolve whether effluent solids or sludge solids contribute most to high metal concentrations in Boston Harbor.

A number of commentors focused on the adequacy of the outfall. Several commentors noted that the predicted water quality impacts for selected toxics could be exceeded on occasion at the Presidents Roads outfall site.

Finally, it was stated that the water quality impacts of pipeline construction versus tunnelling must be assessed as part of the SDEIS and the effects on water quality and marine related impacts of dredged materials need to be resolved.

Agency Response: The EIS on Siting of Wastewater Facilities for Boston Harbor is based upon the fact that the existing plants are a major point source of pollution in Boston Harbor that must be corrected to eliminate violations to the Federal Clean Water Act. The treatment plants are the single largest point source of BOD and suspended solids to the Harbor and the annual flow from the treatment plant exceeds the flow the Harbor receives from the region's three major rivers. In addition, it has been found that the treatment plant effluent is a significant source of toxics entering Boston Harbor.

EPA believes that secondary treatment will remove 85-90 percent of both suspended solids and BOD, and significantly improve harbor water quality, marine life and public health, particularly in the Middle and Outer Harbor areas surrounding the Boston Harbor Islands State Park. Secondary treatment will result in significant reductions of solids loading into the Harbor. Additional improvements will also result from elimination of the sludge discharge from the Harbor and from implementation of a CSO control program.

The EIS relied on 301(h) data supplied by the MDC to determine baseline conditions in the Harbor. As a result of questions and comments regarding the assumed secondary outfall made during the review of the SDEIS, EPA initiated additional water quality modeling work to evaluate the water quality impacts of three additional outfall locations. This analysis showed that there is potential for an acceptable secondary outfall location. Results of the analysis can be found in the FEIS, Volume II, Section II-7.

EPA projections on toxics levels are based upon an analysis of both 301(h) data and MDC's report entitled "Trend Analysis of Historical Metals Data for the Nut and Deer Island Wastewater Treatment Facilities", which EPA considers to be the best available data. The effluent data base is expected to be improved by monitoring programs to be required by the new NPDES permit. As shown in the SDEIS Table 11.3-3, a secondary treatment plant can be designed and operated to substantially reduce the level of toxics entering the Harbor. In addition, EPA believes that MWRA must stringently enforce its industrial pre-treatment program to further reduce influent toxics.

The water quality impacts of pipeline and/or tunnel construction will be evaluated by MWRA as part of their Facilities Plan.

J - Equitable Distribution of Regional Facilities ("Fairness" Issue)

A great deal of comment was focused on the concentration of regional facilities in a single community. This was of greatest concern to Winthrop residents and officials, who said that the town had borne the brunt of adverse conditions brought about by such regional facilities as the Deer Island treatment plant, House of Correction and Logan Airport. They cited traffic congestion, air and noise pollution, house-to-house searches for escaped prisoners and lower land values as several of the many impacts felt by Winthrop residents. In addition, Winthrop has had to pay increased municipal costs for traffic control, police escort service and fire service because of these facilities. Concern was also expressed at the tendency of regional facilities to grow, thus resulting in impacts dramatically increased beyond those of the original facility.

They stressed that the small community of Winthrop has borne the burden of the current treatment facility long enough, and others should now take responsibility, particularly the City of Boston which has encouraged a building boom with little regard for adequate facilities to handle the waste generated. In their view, basic "fairness" would dictate that Winthrop be spared any further obligation to shoulder regional burdens and that another site, preferably Long Island, be selected for wastewater treatment facilities.

Several commentators said that fairness should be specifically factored into the decision process, either as a separate decision criteria or in the effects on neighbors criteria.

This argument was refuted by others, who countered that it is not "fair" to require any one community to be the sole site of regional waste facilities and that it makes no sense to require Quincy residents to "share the misery" with Winthrop. Another commentator questioned the "fairness" of requiring the City of Quincy and users of the Harbor Islands State Park facilities to pay a price for the fact that other entities (e.g. Massport) have, through their activities, imposed burdens on the residents of Winthrop. One person noted that the residents of Winthrop knew of the presence of the wastewater treatment facility, prison, and Logan Airport when they moved to the area, whereas residents of North Quincy and Squantum had no such knowledge. In this view, changing that situation is unfair.

Agency Response: After due consideration of public comment on the issue of fairness, EPA decided to retain its six original decision criteria and factor fairness into the "Effects on Neighbors" criteria. The Agency systematically evaluated its entire data base using the six decision criteria. For more information on EPA's decision process, please refer to Volume I, Decision Process section. The MWRA, pursuing an independent

decision making process under its statutory mandate, voted to make fairness a separate decision criteria.

K - Decision Criteria

Comments on the decision criteria to be used to evaluate the remaining options were focused on three areas: the utility of such a mechanism for aiding in decision-making, the addition of other criteria, and the weight which should be assigned to the individual criteria.

Several people criticized the use of the decision criteria. One person said that [the STEEPLI methodology] limits public accessibility to and understanding of the siting decision. Another said that the failure to use a more specific, quantifiable approach resulted in such vague valuation of impacts as to make any attempt to aggregate impacts of given options impossible. The writer suggested using a system which rates impacts on a scale of 1-10 rather than Severe, Moderate and Minimal as was done in the SDEIS. In addition, the writer felt there should have been a ranking system for the sub-categories, each of which might have a different impact on a different site.

Several questioned the objectivity of the proposed weighting and ranking of alternatives and said that the FEIS should document the results of the weighting and ranking process. Another asked whether EPA will accept whichever sited is chosen by MWRA since there is no clearly environmentally acceptable alternative.

Additional decision criteria were suggested by some commentors. Equity or fairness (consideration of cumulative impacts of other regional facilities) was the most frequently cited addition. Many Winthrop residents felt that its inclusion would most adequately inject its concerns into the decision process. Others suggested that the inclusion of fairness could provide a framework for developing a more decentralized wastewater management program including sub-regional treatment facilities and off-site or inland sludge management facilities.

Others suggested such additional criteria as risk to human life; time required to build the facilities; and prioritization of projects, or weighing the advantages of those alternatives whose implementation provides the earliest payback in improved Harbor water quality. One person suggested that "recreation" should appear as an explicit criteria and not simply be subsumed in other criteria.

With regard to the weight assigned to criteria, many commentors argued that "effects on neighbors" should be weighted most heavily. One Winthrop commentor stated that the SDEIS too often called impacts on Long Island's wildlife, vegetation, and gravesites "severe", while dismissing as "nuisances" impacts on Winthrop residents. Another complained that the priority given

by the Citizens Advisory Committee to social impacts was inverted by EPA, thus ignoring early citizen's input. One commentor urged EPA to make a clear distinction between the construction and operation phases when evaluating the "effects on neighbors" criteria.

Cost was another criteria which was the subject of much comment. One person felt that not enough attention had been paid to the cost and resulting financial impacts of alternatives. Another urged the protection of rate payers (especially low and moderate income households) by selection of the least cost alternative.

Reliability was also frequently mentioned as a priority criteria, given the harsh, salty environment in which the facilities must operate. Reliability was called of utmost concern to users of area swimming beaches.

Preservation of natural and cultural resources and harbor enhancement were cited as high priority by some commentors.

Agency response: As noted in the previous section, EPA reviewed in detail the comments made concerning the proposed use of decision criteria to assist in the site selection process. The Agency decided to keep intact its six decision criteria and use the rating and weighting process as an analytical tool to organize and evaluate each piece of data. The process followed is described in detail in Volume I, Decision Process section.

L - Segmentation Issue/Related Pollution Issues (Sludge, I/I, CSO's, etc)

Many commentors sought to place the siting of treatment facilities within the larger context of overall Harbor pollution issues. In their view, the SDEIS is defective because it deals with only the treatment facility siting "segment" of the Harbor problem and does not consider such issues as sludge management, CSO's, industrial pre-treatment, reduction of infiltration and inflow (I/I), and management and staffing of facilities. Several said that a balanced plan must be developed which includes clearly established harbor clean-up priorities placed within a context of relative costs and importance. Commentors said that no one decision should be made in isolation, since a decision on the level of treatment required, the location of the treatment plant/s, or the methods of sludge handling affects the evaluation of options for the remaining two issues.

Issues receiving attention:

Sludge: The largest number of comments focused specifically on the sludge management issue, the exclusion of which was said to call into question the legality, adequacy and usefulness of the

SDEIS. Several people claimed that sludge and siting decisions are intertwined and must logically be made together. Many felt that it is not possible to judge the possible impacts on proposed treatment plant sites without knowing which method of sludge disposal will be used. Others mentioned that failure to include some indication of the implications of each site option for future choices of sludge management options and the likely environmental impacts and costs of sludge management at each site could be a "fatal flaw" in the EIS process.

One commentor said that the selection of sites for the facility should include potential for accommodating sludge treatment options in the decision criteria. If one alternative can incorporate both sludge and wastewater treatment, it should be considered a preferred site. By contrast, another commentor said that if the state and EPA really believe siting issues are separate from sludge management, they should guarantee a policy that places sludge facilities away from wastewater treatment facilities, forever eliminating Deer Island as a site for a sludge management facility.

Infiltration/Inflow: Several commentors urged that the state and EPA address the I/I problem and develop an enforceable I/I reduction program as soon as possible. One commentor suggested that the FEIS include a discussion of the relationship of I/I to the design flow under consideration. Another commentor suggested that EPA consider making installation of flow monitoring devices and reduction of extraneous flow to design capacity grant conditions. Failure to satisfy this condition would result in automatic limitations on new flows. Finally, one person urged the federal government to change its regulations to encourage correction of I/I.

CSO's: Many commentors stressed the importance of this issue in the overall Harbor clean-up effort. One commentor questioned the effect of proposed CSO projects on the influent and asked whether any possible changes would affect the scale of the treatment plant.

Pre-treatment: Several people urged that industrial pre-treatment receive more emphasis in the FEIS. They said that EPA should indicate how the pre-treatment program will be managed to protect the biological treatment program. This discussion should include EPA's recommendation of changes needed to water quality discharge criteria necessary to attain water quality standards. In addition, industrial discharge limits should be indicated. Finally, it was suggested that the FEIS indicate the link between more effective pre-treatment and sludge management options.

Spoils disposal: Concern was expressed over the disposal of construction debris and dredged materials. Objection was made to the use of the Marblehead Foul Area. One commentor asked whether there would be a separate EIS on disposal of dredged materials.

Agency Response: EPA agrees that the clean-up of Boston Harbor will require a coordinated harbor improvement program, including a series of related and inter-connected actions in the areas referred to by commentors. However, it has been determined by EPA that effluent discharges from the existing wastewater treatment facilities contribute over half of the suspended solids and oxygen consuming matter discharged to Boston Harbor and are thus a major source of harbor pollution. Siting of wastewater treatment facilities is therefore a necessary step towards the overall clean-up of Boston Harbor. In addition, it has been determined that none of the related causes of pollution problems will have a bearing on the selection of an environmentally acceptable site for wastewater treatment facilities.

It must be emphasized that the EIS on the Siting of Wastewater Treatment Facilities in Boston Harbor is not intended to serve as a comprehensive water quality management plan. MWRA has put forth such a plan, entitled "Program for the Boston Harbor Clean-up", which is currently under EPA review. The program includes a detailed schedule/timetable for additional planning and/or implementation of ongoing programs in several of the areas referred to by commentors including sludge management, CSO control and I/I removal.

With regard to the separation of siting from sludge management, EPA determined that none of the sludge disposal alternatives being considered would foreclose any facility location, and none of the wastewater treatment facility options would foreclose a sludge management solution. It was further determined that a great deal of analysis was needed before a sludge management decision could be made. Given these facts and because of the urgent need to site expanded wastewater treatment facilities, the decision was made to proceed separately with the siting EIS. The MWRA has outlined its approach to the sludge management issue in the FEIR, Volume I. Included are estimates of likely on-site initial sludge processing up to the point of interface with final disposal options. The Authority will be undertaking a Residual Solids Management Plan which is expected to be completed by 1987.

With regard to pre-treatment, an existing program had been in place since 1973, and an EPA-approved program since 1982. A 1984 audit, published by EPA in March 1985, found that the MDC inspection and monitoring procedures were adequate and its available staff competent. However, the program was found to be understaffed and underequipped. Since July, 1985, the MWRA has made significant progress in providing additional staff and other necessary program support.

Regarding spoils disposal, debris has to be analyzed for its level of pollutants. If the material meets the criteria for ocean disposal, it can be disposed of at the Marblehead Foul Area, subject to the Corps of Engineers 404 permit procedure. If the material does not meet the criteria, it must be disposed of in a secure landfill.

M - Growth of the System

Many people expressed frustration at the fact that communities within the MSD have encouraged growth, and hence increased wastewater flow, without regard to the impact on downstream communities. Many commentators asked what checks will be placed on the MSD to avoid future problems to the wastewater treatment facility. They asked EPA to comment on whether the facilities currently being planned will eventually need to be expanded to treat additional flow from expected growth in the South and North MSD. Several questioned the impact of such ongoing MDC projects and the Braintree-Weymouth Pump Station, Wellesley Extension Relief Sewer, new Neponset Valley Sewer and the Framingham Extension Sewer on the flow and treatment capacity of the system.

A number of commentators urged the MWRA to institute a sewer hook-up moratorium to place a "cap" on the amount of flow to the harbor. Such a cap was seen as a means of ensuring that the new facilities will operate properly and not violate the discharge permit. Some felt such a moratorium should be on all hookups, others said it should be for hotels, office buildings and condominiums only, and another commented that a moratorium should be imposed only if a documented and enforceable flow reduction program is not developed.

It was also suggested that water and sewer rates are regressive and that the MWRA should initiate stricter conservation measures.

By contrast, one commentator urged that the site and facility be large enough to treat any increased volume of wastewater which may be created in the near future.

Agency Response: EPA's statutory obligation is to enforce the provisions of the Clean Water Act through the NPDES permitting procedure. The management and accommodation of system growth is the responsibility of the MWRA which has addressed these issues in the FEIR, Volume I. Further I/I reduction activities, agreed to under the state court procedural order, are progressing. EPA supports any efforts made by the MWRA to initiate effective wastewater management programs.

With regard to flow, the FEIR concluded that the

conservative sizing assumptions used provide reasonable allowances for future population growth within the existing service area. Further facility expansion to accommodate additional wastewater flow is therefore considered unlikely during the existing service life of the new plant.

The separate problem of the flows in the South Metropolitan Sewer System is also being addressed. Rigorous I/I removal will be required in order to obtain the plant's projected service life.

The MWRA may choose to implement strategies designed to control and reduce the level of discharge into the sewer system if growth of the service area exceeds the projections which have been made earlier, or if desirable to lower ongoing maintenance costs, provide for greater control in wet weather flow or defer any need for long term service capacity increases. The FEIR has identified and briefly explored three broad categories of techniques for management of wastewater flows: repair of physical plant, pricing strategies and regulatory controls.

With regard to growth of the system, EPA has no position on the number of communities served, but strongly discourages any further expansion of the Harbor wastewater treatment facilities. EPA recommends that if additional communities need wastewater treatment services, MWRA should investigate such alternatives to treatment plant expansion as sub-regional treatment facilities. It was noted in the FEIR that any additions to the service area must receive certain special approvals.

N - Satellite (Subregional) Treatment

"Make each community responsible for its own wastewater", and "Treat the waste problem at its source", were frequently heard comments on the SDEIS. A great deal of attention was paid to the development of a decentralized wastewater treatment system, both in the interest of a more equitable distribution of facilities perceived as unwelcome and in consideration of the likely need for increased capacity in the future.

Many felt that the SDEIS's examination of the satellite issue is cursory and several asked for more detail on the post-siting decision plans to pursue the satellite concept. One commentator argued that the scale of harbor facilities could be reduced if aggressive development of subregional treatment facilities was combined with an equally aggressive I/I removal program. Further, it was stated that subregional facilities can provide localized growth capacity when further I/I reductions can no longer increase system capacity.

One commentor asked whether satellites might make it possible to partially or completely segregate household from industrial waste flows, and whether such a system might result in benefits in terms of easier, safer and cheaper sludge management.

By contrast, the EOE's "Certificate of the Secretary of Environmental Affairs on Draft Environmental Impact Report" indicated that the SDEIS adequately demonstrates that satellite treatment plants cannot replace a substantial treatment facility at the water edge and that utilization of satellite plants cannot materially reduce the size of the required facilities.

Agency Response: As noted in the SDEIS, Section 5.6.2, and explained in detail in "Evaluation of Satellite Advanced Wastewater Treatment Facilities", CE Maguire, Inc., EPA does not consider inland "satellite" advanced wastewater treatment facilities appropriate at this time. Several reasons were given for that conclusion:

1. Development of these facilities would not provide sufficient flow relief or otherwise reduce the volume of flows in the MSD southern system to reduce the size of a harbor facility.
2. All currently planned MDC interceptor relief projects are downstream of the proposed sites and would therefore have to be built, resulting in no offsetting capital outlay savings.
3. The potential water supply/public health dangers associated with the impacts of discharge to a wetlands/watershed area are significant.
4. The limited availability of suitable wetlands in close proximity to the proposed systems suggests that facilities of such magnitude as proposed would be difficult to site.
5. The major capital and O&M costs of developing three AWT facilities do not appear to be justified by the lack of potential benefits of such facilities relative to the need to site harbor treatment facilities.

Such facilities may be required sometime in the future if removal of I/I from the sewer system does not achieve currently predicted flow reductions.

0 - Massachusetts Water Resources Authority (MWRA)

A great deal of attention was paid to the new MWRA. Most comments focused on the need to give the Authority input on decisions it will be required to implement. Mention was made of the need to provide the MWRA with adequate enforcement powers,

regulatory backup and funds, so that the new treatment plants will work more efficiently than under the MDC administration.

Some commentators urged that no action be taken on waiver or siting decisions until the MRWA Board of Directors and staff have been given a chance to review issues and provide input on these decisions.

Agency Response: EPA feels that the legislation creating the MWRA provides the Authority with adequate enforcement powers, regulatory backup and funds.

EPA has been working closely with the MWRA Board of Directors and staff since the Authority's formation in the spring of 1985. EPA and MWRA consultants have been working closely since the publication of the SDEIS/EIR to develop refined cost estimates and other technical material necessary to reach a final siting decision. The MWRA voted to prepare a different decision document because it followed a different decision process.

P - Public Participation

Several complaints were made about the procedures used to call upon speakers at the public hearings. One person felt that the general public had to wait too long to be called upon, while another complained that the three minute time limit was not enforced adequately.

Agency Response: Due to the large attendance at the public hearings, the "ground rules" set for the public hearings specified that every third speaker would be a member of the general public. This rule was followed, but the large number of people wishing to speak meant that many people had a long wait before being recognized.

There were a few exceptions made to the three minute limit, based on special requests. EPA regrets the inconvenience this may have caused and intends to enforce time limitations more strictly at future public hearings.

EPA is extremely pleased with the high level of public interest shown and hopes that the public will continue to support its efforts to clean up Boston Harbor.

