

Nut Island Headworks Emergency
Outfall System
Maintenance and Inspection Plan

Massachusetts Water Resources Authority

Environmental Quality Department
ENQUAD Report 2011-10



Bigornia-Vitale, G, Sullivan, M. 2011. **Nut Island Headworks Emergency Outfall System Maintenance and Inspection Plan**. Boston: Massachusetts Water Resources Authority. Report 2011-10. 13 p.

***Nut Island Headworks Emergency Outfall System
Maintenance and Inspection Plan***

***Grace Bigornia-Vitale
Mark Sullivan***

Massachusetts Water Resources Authority
Environmental Quality Department
100 First Avenue
Boston, MA 02129

March 2011
Technical Report 2011-10

**Nut Island Headworks Emergency Outfall
Inspection and Maintenance Plan**

No.	Description	Prepared By	Reviewed By	Initial	Date
R0	Nut Island Headworks Outfall Inspection and Maintenance Plan	Grace Bigornia Vitale Sr. Program Manager Mark Sullivan Project Manager	Brian Kubaska Sr. Program Manager George Bacon Project Engineer		

Table of Contents

Section 1 - Objectives	1
Section 2 – Background Information	2
2.1 Introduction.....	2
2.2 Emergency Outfall System.....	2
2.3 Known Condition	3
2.4 Historical Bypass Events	7
Section 3 – Emergency Flow Release Plan	8
3.1 Emergency Flow Storage	8
3.2 Plan of Operation	8
Section 4 – Outfall System Inspections and Maintenance.....	11
4.1 Onshore Components	11
4.2 Offshore Components.....	11
Section 5 – Recordkeeping	13
5.1 The Plan	13
5.2 Facility Log Book	13
5.3 Monthly Inspection Reports.....	13
5.4 Offshore Components Inspection Reports.....	13
Attachments	
A. Part II, NPDES Permit, Conditions for Bypass	
B. Sample: Onshore Components Inspection Work Order	
C. Typical: Offshore Components Inspection Scope of Services	

Tables

1-1 Offshore Outfall System	3
-----------------------------------	---

Figures

1	Nut Island Emergency Spillway	4
2	Existing Outfalls - Location Plan	5
3	Typical Duckbill Type Check Valve.....	6
4	Emergency Flow Storage Conduit	9
5	Junction Chamber and Overflow Weir.....	10

1.0 Objectives

This document is the Nut Island Headworks Emergency Outfall System Inspection and Maintenance Plan (Plan). This Plan was developed to comply with the Massachusetts Department of Environmental Protection (DEP) condition for allowing the use of the existing outfalls of the old primary treatment plant and the construction of the emergency spillway to divert untreated flow to the receiving water.

The objective of this Plan is to establish procedures for proper maintenance of all components of the emergency outfall bypass system. This includes periodic inspections, preventive and corrective maintenance, and recordkeeping of all inspection and maintenance activities.

2.0 Background Information

2.1 Introduction

The use of the emergency outfalls and spillway become necessary when flow cannot be sent through the Inter-Island Tunnel to Deer Island Treatment Plant for treatment due either to system failure or during extreme rain events when the hydraulic capacity of the conveyance system is exceeded. DEP recognized the need to use the existing outfalls and the emergency spillway as emergency bypass to ensure that raw wastewater does not backup into the local collections systems and overflow into residences or onto public and private property.

Outfall capacity is anticipated to decrease over time due to encrustation and silting because of non-use. It is uncertain as to what the degree of biofouling and sedimentation will occur in these outfalls. The inspections will determine the best course of action to ensure that the capacity of the outfall system is not greatly diminished. In addition, the inspections will determine its structural condition and will provide the information necessary to conduct structural repairs and establish the frequency of periodic cleaning of the outfalls.

2.2 Emergency Outfall System

The emergency outfall system consists of onshore components which include the flow storage conduits and spillway, and the offshore components which include the three existing outfalls.

2.2.1 Onshore Components

The flow storage conduits are a series of underground connected channels and pipes that were created from the old Nut Island Treatment Plant (NITP) influent channels, effluent channels, sand catcher and the new headworks by-pass channels. Their construction consist of new and old reinforced concrete walls and some brick arch structures that served as the original sand catchers for the old NITP. The storage conduits are arranged over the Inter-Island Tunnel drop shaft so that a backup of water in the tunnel will spill over into these sealed conduits and then will naturally drain back to the tunnel once the surge is over.

The emergency spillway is constructed on the eastern shore of Nut Island and it extends eastward off of the conduits at the inter-island tunnel shaft. The spillway consists of four 5'x7' sluice gates. The gates are operated by electric motors which are turned on manually and discharge onto the riprap spillway. The stone revetment spillwall is constructed into the harbor extending approximately 120 feet from the sluice gate discharge and flaring to a width of approximately 40 feet. The spillway extends far

enough seaward to prevent erosion of the harbor bottom associated with emergency discharge during low tide conditions. The stone spillway surface serve to dissipate energy and reduce velocity associated with the discharge, thus protecting the shoreline from erosion, and preventing displacement of the spillwall riprap stones and filter fabric (Figure 1).

2.2.2 Offshore components

The offshore components consist of the original outfall system from the old NITP. The old outfall system was designed to convey effluent to three main outfalls (101, 102 & 103). All three outfalls are five feet in diameter but vary in length and discharge on the northerly side of the island. Outfall No. 101 is made of cast iron and has a length of 5,830 feet and was constructed in 1904. Outfall No. 102 is made of cast iron and has a length of 5,545 feet and was constructed in 1904. Outfall No. 103 is made of cast iron and has a length of 1,400 feet and was constructed in 1914. Outfall No. 104 was abandoned. Table 1 list the description of the outfalls and Figure 2 shows the layout.

Table 1

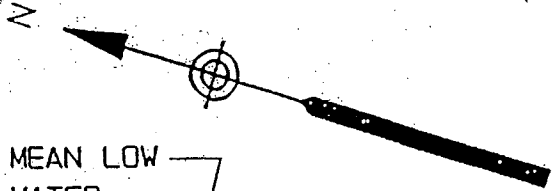
Nut Island Outfall System

Outfall Number	Description	Year Built	Total Length (ft)	Pipe Size (in)	Pipe Material
101	Easterly	1904	5,830	60	Cast Iron
102	Westerly	1904	5,545	60	Cast Iron
103	Short	1914	1,412	60	Cast Iron
Spillway	Shoreline	1997	0	(4) 60x84 gates	

The outfalls are fitted with duckbill check valves at the end to keep debris out of the pipes. The duckbill type valve has extensive use on sewage and stormwater outfalls and also with marine applications (diffusers on ocean outfalls). It was determined that the duckbill type check valves (Figure 3) on the outlet would offer the best alternative to controlling silt deposition in the outfall pipes.

2.3 Known Conditions

In 1999, inspections were conducted of the outfalls as part of the headworks facility outfall capacity study. The inspections were conducted to determine their present condition and hydraulic capacity and to locate any potential obstructions that could impede flow under emergency conditions. The result of the inspections is presented in the report, *Nut Island Headworks Outfall Inspection and Capacity Study, Montgomery Watson, September 24, 1999*. The 1999 inspection served as the baseline reference for future inspections. The 1999 inspection showed the outfalls to be in good condition with some scale and sludge buildup in the pipe wall however, the deposits were loose and



MEAN LOW WATER
EL. 101.2

MEAN HIGH WATER EL. 110.5
HIGH TIDE LINE EL. 112.7

NOTE:
MEAN SEA LEVEL
EL. 105.62

100 YEAR FLOOD
LINE EL. 115.8

EMERGENCY SPILLWAY
(CLASS IV ARMOR
STONE)

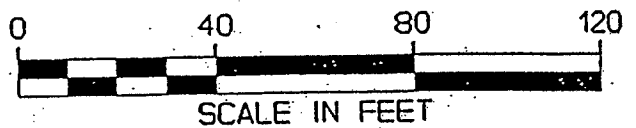
BOTTOM OF
RIPRAP
TOP OF
RIPRAP

EMERGENCY SPILLWAY
ISOLATION GATES

EXISTING
DUMPED RIP-RAP

EMERGENCY FLOW
STORAGE CONDUIT

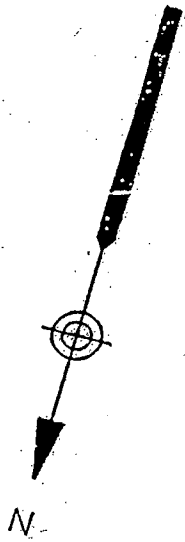
HEADWORKS FACILITY
(GRIT AND SCREENINGS AREA)



3/30/93

MASSACHUSETTS
WATER RESOURCES
AUTHORITY

FIGURE 1
NUT ISLAND EMERGENCY SPILLWAY



EXISTING
OUTFALL #001
LENGTH • 5830 FT.
60" DIA. C.I.
ELEV. • 70.1

EXISTING
OUTFALL #002
LENGTH • 5545 FT.
60" DIA. C.I.
ELEV. • 76.1

NOTES:

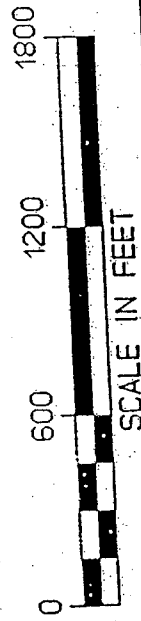
1. EXISTING OUTFALLS 001, 002 AND 003 TO BE USED AS FINAL EMERGENCY OUTFALLS.
2. EXISTING OUTFALL ELEVATIONS ARE BASED ON M.L.V. ELEVATION • 101.2

EXISTING OUTFALL #004
TO BE ABANDONED

EXISTING PIER

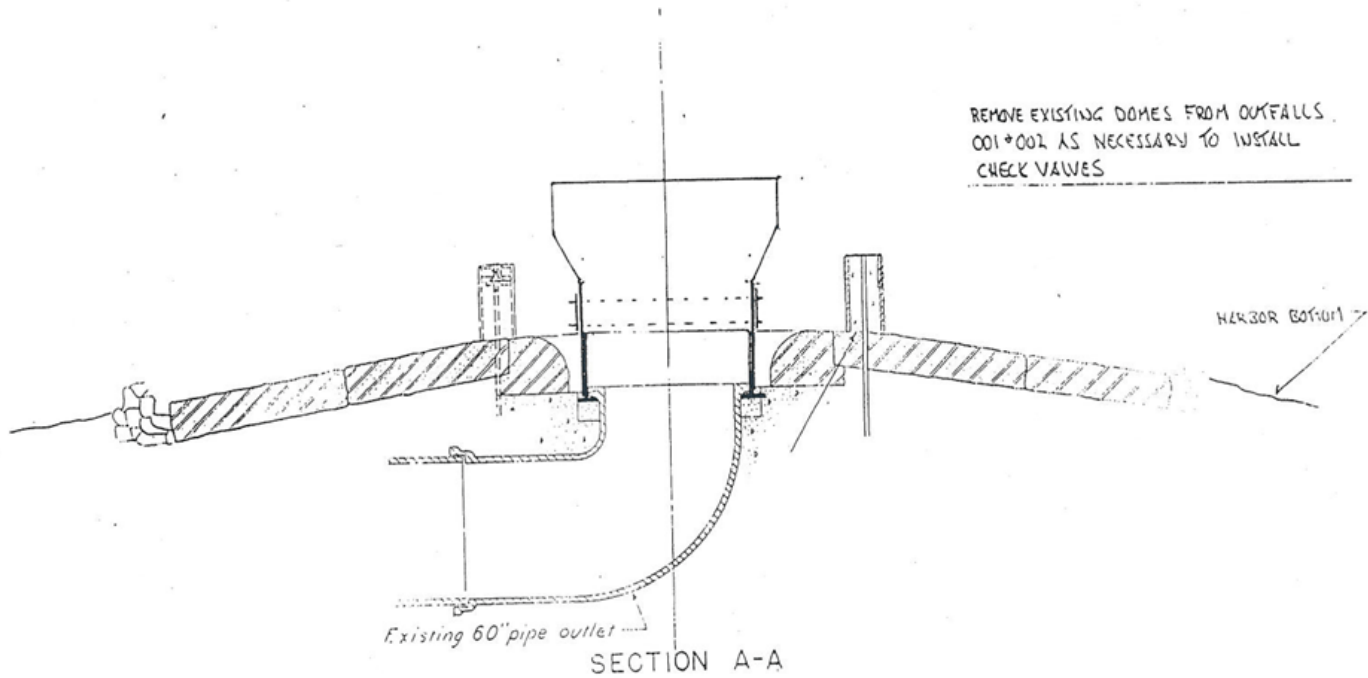
EXISTING
OUTFALL #003
LENGTH • 1400 FT.
60" DIA. C.I.
ELEV. • 79.6

NUT ISLAND



MASSACHUSETTS
WATER RESOURCES
AUTHORITY

FIGURE 2
EXISTING OUTFALLS - LOCATION PLAN



REMOVE EXISTING DOMES FROM OUTFALLS.
 001*002 AS NECESSARY TO INSTALL
 CHECK VALVES

HARBOR BOTTOM

Existing 60" pipe outlet

SECTION A-A



FIGURE 3 TYPICAL DUCKBILL TYPE CHECK VALVE

could easily be removed by hand. Additionally, the inspections found no apparent structural defects or other critical flaws that would compromise the integrity of the outfalls.

In 2005, the outfalls were again inspected and the results are documented in the report *Underwater Inspection Services; WRA Number-2440, Underwater Outfall Inspections, J.F White Contracting Company, September 6, 2005*. The inspection showed that the outfall pipes appeared to be generally in good condition, light marine growth, and free of significant sedimentation. Some light, rust-like material was observed throughout the interior surfaces but was easily dislodged by exposure to the direct wash of the Remotely Operated Vehicle (ROV).

Inspections conducted in 2010 showed similar result as that conducted in 2005. The rubber check valves were in good condition with a moderate marine growth on the rubber and metal flanges but were easily removed by a pressure washer. The metal flanges and bolts were in good condition with no visible pitting or section loss. There was no significant siltation. The 2005 inspection also inspected, in more detail, the internal portions of the outfalls where a recently constructed underwater gas pipeline crosses the pipes. No damage to the outfalls was noted.

Based on the results of the previous inspections, it appears that inspections conducted once every five years is more than adequate to determine the conditions of the outfalls. Frequency of inspections is subject to change based on most recent findings.

2.4 Historical Bypass Events

There were two bypass events experienced since the NIHF went on line.

In October 2005, the combination of heavy rain and loss of power at Deer Island necessitated opening the emergency outfall system. On October 14 and 15 in 2005, a major storm occurred in the greater Boston area causing widespread flooding, overflows, and sewer discharges. Rainfall in the south system was very heavy (6.5 inches recorded on the 14th and 4.5 inches on the 15th). Because of the extended period of heavy rain, flows from the south system exceeded the capacity of the headworks and it became necessary to open the emergency outfall system to prevent backups of sewage into the streets, homes, and businesses. This storm followed a week of wet weather, which had already saturated the ground. On October 15, power was lost to Deer Island as a result of an accident at the NStar substation during a routine maintenance. NIHF was immediately isolated and the emergency outfalls and spillway were again activated.

On March 13 through March 15, 2010, a major northeaster storm hit the greater Boston. Precipitation was very heavy (a three-day storm total ranged from 8 to over 11 inches) and capacity of the headworks was exceeded, making it necessary to open the gates to protect the facility from severe damage and to prevent backups in the neighborhood.

3.0 Emergency Flow Release Plan

Discharge of untreated wastewater is allowable under the Bypass provision of the NPDES permit Part II (Attachment A).

3.1 Emergency Flow Storage

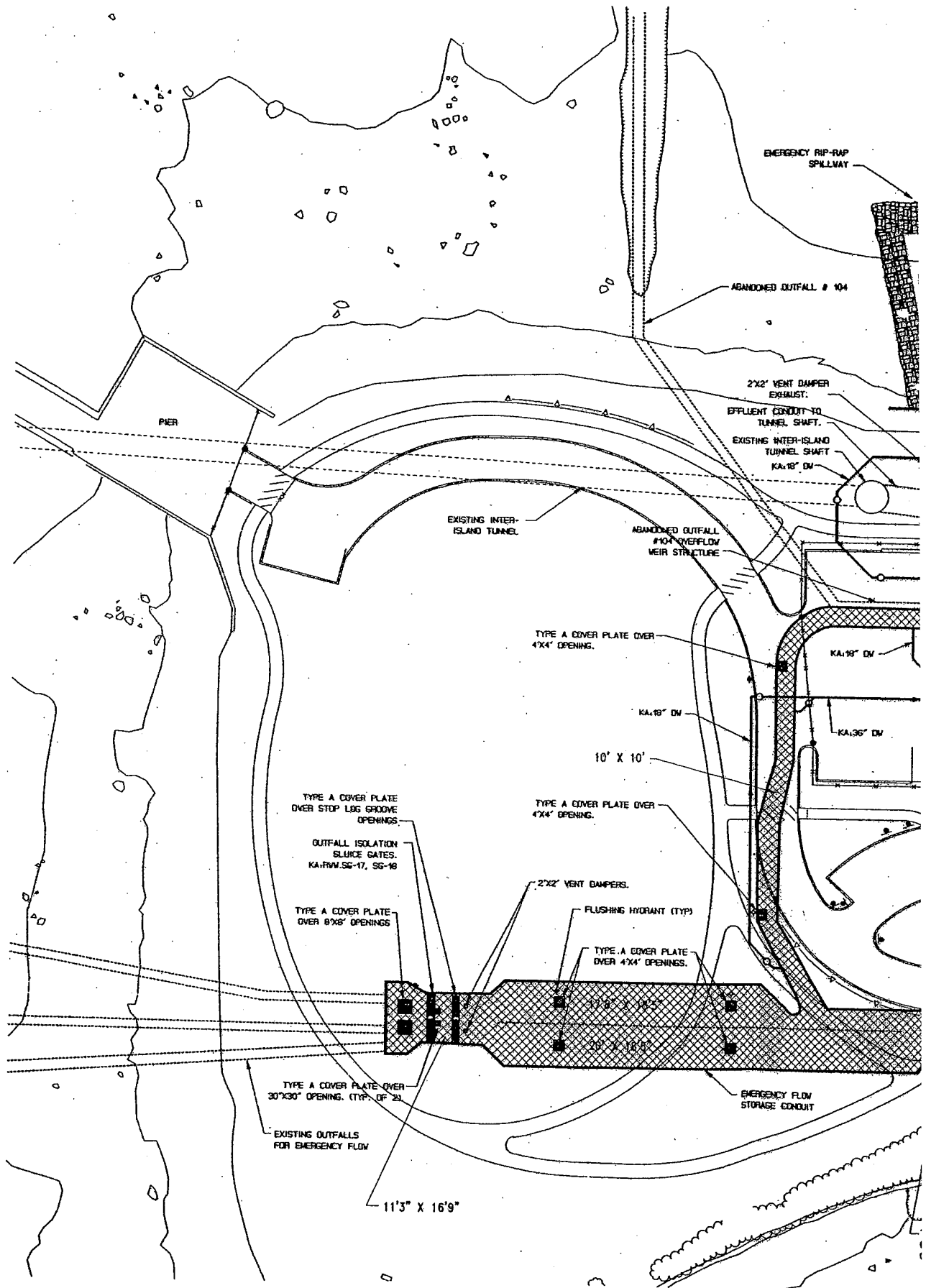
The emergency flow storage conduits is a series of underground-connected channels and pipes that were created from the old Nut Island Treatment Plant (NITP) influent channels, effluent channels, sand catcher and the new headworks by-pass channels (see Figure 4). Their construction consist of new and old reinforced concrete walls and some brick arch structures that served as the original sand catchers for the old NITP. The emergency flow storage area is estimated to hold between 1.2 to 2 million gallons. The storage conduits are arranged over the Inter-Island Tunnel drop shaft so that a backup of water in the tunnel will spill over into these sealed conduits and then will naturally drain back to the tunnel once the surge is over. Any remaining flow in the conduits will flow back by gravity into the storage wet well and pumped out back into the system for treatment at Deer Island.

3.2 Plan of Operation

Upon failure of the South System Pump Station or during extremely high flow conditions when system capacity is exceeded, the headworks is automatically isolated. The six influent gates are closed followed by the closure of the two effluent gates. Wastewater then goes over the emergency overflow weir at the influent junction chamber (Figure 5) and collects at the emergency flow storage. Flow is prevented from reaching the existing outfalls by having the gates closed at the existing sand catcher. Should storage capacity be exceeded prior to restart of the South System Pump Station or if influent continues to surge, flow is released to the harbor utilizing the following prioritized system:

- As the level in storage approaches maximum capacity, two sluice gates (17 and 18) at the sand catcher are opened and wastewater discharges to the harbor through outfalls 101, 102 & 103, up to their combined maximum available capacity.
- As the level in storage continue to rise which indicates that emergency flow exceeds the combined capacity of the outfalls, the four gates at the spillway are opened and wastewater goes out to the harbor through the three outfalls and the emergency spillway.

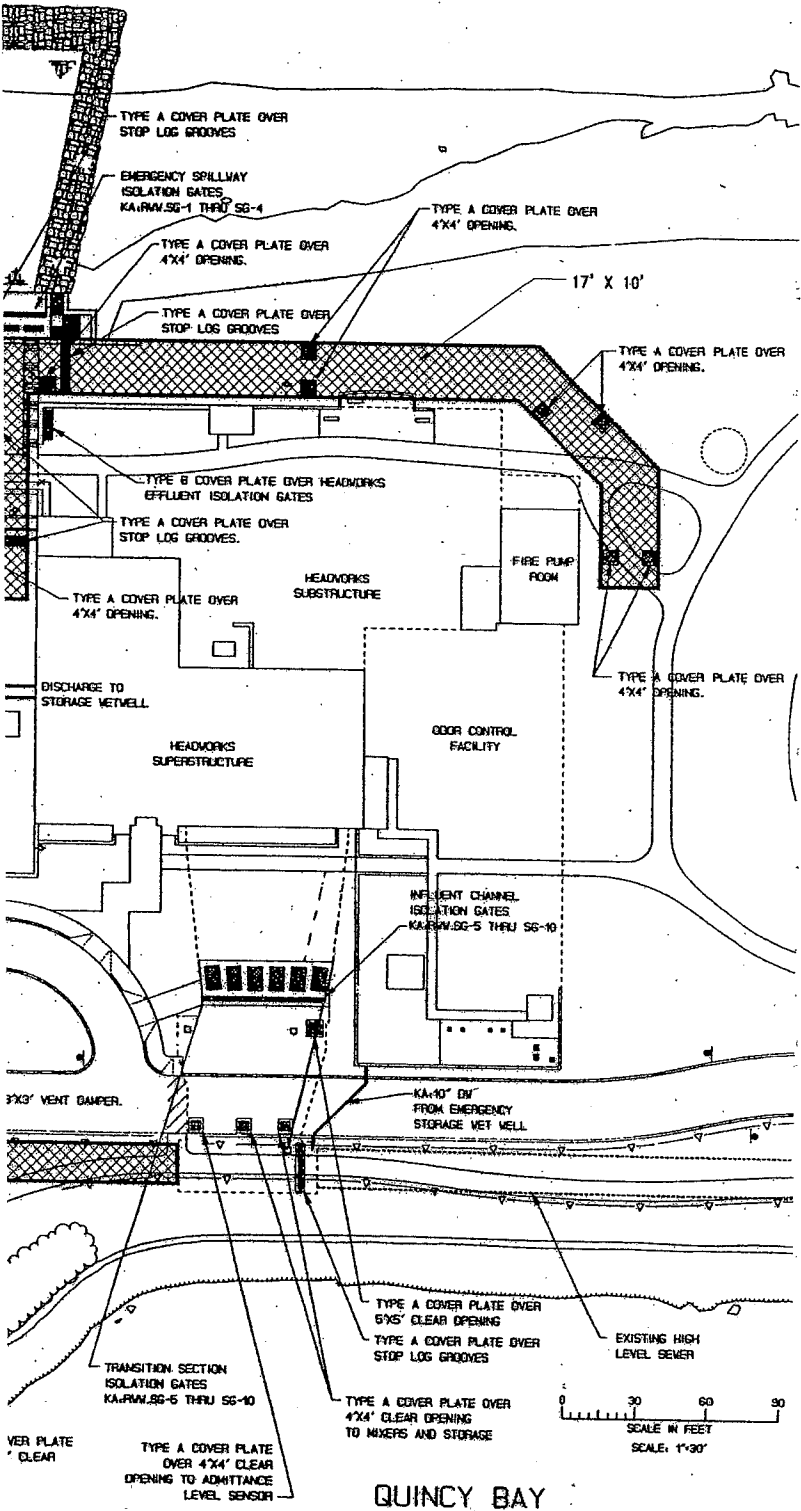
The existing outfalls will be utilized to their maximum capacity. If the flow exceeds the combined capacity of the outfalls, then and only then will the spillway be opened.



CONTRACT NO. : 2440	CAD FILE NO. : 226172
ACCESSION NO. :	SECTION NO. :
DATE: MARCH 2005	DESIGNED BY: G.B. DRAWN BY: D.L.B.

Quincy 1

HINGHAM BAY



QUINCY BAY



MASSACHUSETTS WATER RESOURCES AUTHORITY

PREPARED BY:

ENGINEERING & CONSTRUCTION DEPARTMENT

UNDERWATER INSPECTION SERVICES

Figure

Quincy 2

JUNCTION CHAMBER AND OVERFLOW WEIR

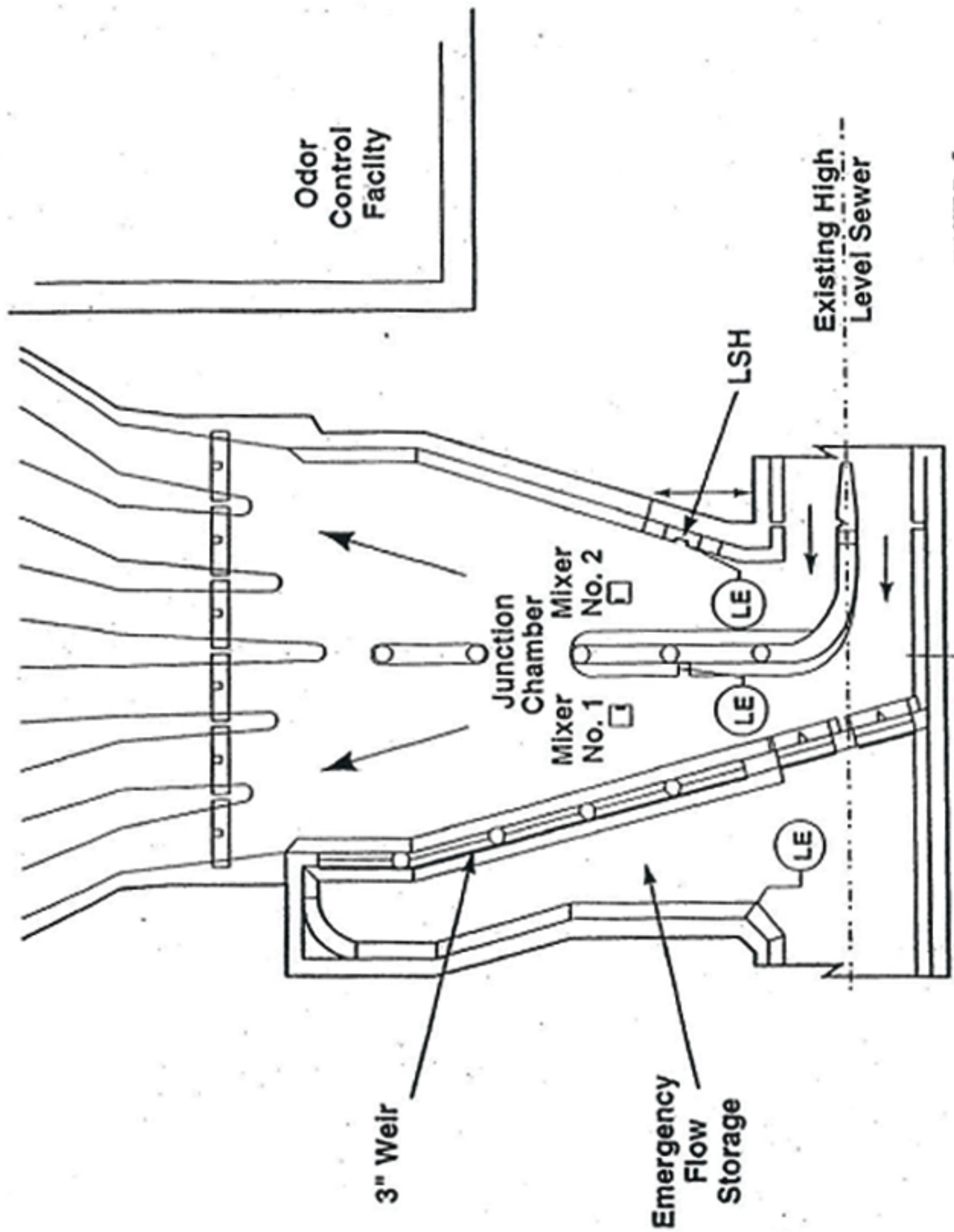


FIGURE 5

4.0 Outfall System Inspections and Maintenance

The operability of the emergency outfall system is dependent on proper maintenance of the system. Inspections must be conducted regularly to ensure that when needed, the components work as designed and the capacity of the outfall is not diminished over time. Additionally, the open connection between the conduits and the falling wastewater exposes the structure to low concentrations of hydrogen sulfide which can cause corrosion of concrete. The conduits are also subject to soil and hydraulic forces which could damage the structure. The plan includes protocols for periodic inspecting, equipment exercising, and outfall cleaning as is necessary.

4.1 Onshore Components

The following are the planned procedures for the onshore components:

- Perform visual inspections of the components of the emergency outfall system monthly
- Exercise sluice gates monthly
- Maintain the pumps in the dewatering wet well
- Remove debris accumulation at the spillway gates annually

4.2 Offshore Components

Inspections and maintenance of the offshore component needs specific equipment and skills that require procurement of professional services. A typical Scope of Services can be found in Attachment C.

The offshore components shall be inspected and evaluated once every five years unless there is significant change from previous inspections then the inspection duration will be evaluated and the schedule of inspection will be adjusted. The following are recommended procedures in evaluating the offshore components:

- Assess degree of biofouling
- Assess degree of sedimentation buildup in the outfall pipes.
- Remove of any marine growth from the surface of the duckbill valves
- Inspect and note any damage, obstructions, sedimentation or other damage to the valve.
- Remove excessive sediment around each Duckbill Valve if operation is impaired
- Look for structural failure in the outfall pipes
- Should biofouling or sediment buildup require removal an assessment will be conducted

5.0 Documentation and Recordkeeping

5.1 The Plan

The Plan will be kept with the Plan Administrator at the Chelsea Facility. A copy of the Plan will be kept at the ENQUAD office at the Navy Yard. ENQUAD is responsible for updating and keeping the Plan current.

The Plan Administrator:	Enquad Project Manager:
George Bacon	Mark Sullivan
Project Engineer	Project Manager
Field Operations Department	1 (617) 788-4957
1 (617) 305-5802	

5.2 Facility Log Book

All inspections and maintenance conducted on any or all of the components will be entered in the Facility Log Book.

5.3 Monthly Inspection Reports

MAXIMO, MWRA's Computerized Maintenance Management System (CMMS) is used to plan, schedule, and record maintenance activities of MWRA facilities. A Work Order is generated whenever an inspection or maintenance is performed. The completed form serves as the record of inspections (see Attachment B, Sample Work Order). Any maintenance required on the components will be entered into the MAXIMO system which will then generate a maintenance work order. The completed inspection form will be filed with the Plan and a copy provided to ENQUAD.

5.4 Offshore Components Inspection

Written reports of visual inspections of the offshore outfall system will be filed with the Plan Administrator with copies provided to ENQUAD. Video and other electronic inspection records will be held by the Plan Administrator.

Attachment A

Part II, NPDES Permit, Conditions For Bypass

NPDES PART II STANDARD CONDITIONS
(January, 2007)

TABLE OF CONTENTS

A. GENERAL CONDITIONS		Page
1.	<u>Duty to Comply</u>	2
2.	<u>Permit Actions</u>	2
3.	<u>Duty to Provide Information</u>	2
4.	<u>Reopener Clause</u>	3
5.	<u>Oil and Hazardous Substance Liability</u>	3
6.	<u>Property Rights</u>	3
7.	<u>Confidentiality of Information</u>	3
8.	<u>Duty to Reapply</u>	4
9.	<u>State Authorities</u>	4
10.	<u>Other laws</u>	4
B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS		
1.	<u>Proper Operation and Maintenance</u>	4
2.	<u>Need to Halt or Reduce Not a Defense</u>	4
3.	<u>Duty to Mitigate</u>	4
4.	<u>Bypass</u>	4
5.	<u>Upset</u>	5
C. MONITORING AND RECORDS		
1.	<u>Monitoring and Records</u>	6
2.	<u>Inspection and Entry</u>	7
D. REPORTING REQUIREMENTS		
1.	<u>Reporting Requirements</u>	7
	a. Planned changes	7
	b. Anticipated noncompliance	7
	c. Transfers	7
	d. Monitoring reports	8
	e. Twenty-four hour reporting	8
	f. Compliance schedules	9
	g. Other noncompliance	9
	h. Other information	9
2.	<u>Signatory Requirement</u>	9
3.	<u>Availability of Reports</u>	9
E. DEFINITIONS AND ABBREVIATIONS		
1.	<u>Definitions for Individual NPDES Permits including Storm Water Requirements</u>	9
2.	<u>Definitions for NPDES Permit Sludge Use and Disposal Requirements</u>	17
3.	<u>Commonly Used Abbreviations</u>	23

NPDES PART II STANDARD CONDITIONS
(January, 2007)

PART II. A. GENERAL REQUIREMENTS

1. Duty to Comply

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act (CWA) and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

- a. The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the sludge use or disposal established under Section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified to incorporate the requirements.
- b. The CWA provides that any person who violates Section 301, 302, 306, 307, 308, 318, or 405 of the CWA or any permit condition or limitation implementing any of such sections in a permit issued under Section 402, or any requirement imposed in a pretreatment program approved under Section 402 (a)(3) or 402 (b)(8) of the CWA is subject to a civil penalty not to exceed \$25,000 per day for each violation. Any person who negligently violates such requirements is subject to a fine of not less than \$2,500 nor more than \$25,000 per day of violation, or by imprisonment for not more than 1 year, or both. Any person who knowingly violates such requirements is subject to a fine of not less than \$5,000 nor more than \$50,000 per day of violation, or by imprisonment for not more than 3 years, or both.
- c. Any person may be assessed an administrative penalty by the Administrator for violating Section 301, 302, 306, 307, 308, 318, or 405 of the CWA, or any permit condition or limitation implementing any of such sections in a permit issued under Section 402 of the CWA. Administrative penalties for Class I violations are not to exceed \$10,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed \$25,000. Penalties for Class II violations are not to exceed \$10,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed \$125,000.

Note: See 40 CFR §122.41(a)(2) for complete “Duty to Comply” regulations.

2. Permit Actions

This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or notifications of planned changes or anticipated noncompliance does not stay any permit condition.

3. Duty to Provide Information

The permittee shall furnish to the Regional Administrator, within a reasonable time, any information which the Regional Administrator may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Regional Administrator, upon request, copies of records required to be kept by this permit.

NPDES PART II STANDARD CONDITIONS
(January, 2007)

4. Reopener Clause

The Regional Administrator reserves the right to make appropriate revisions to this permit in order to establish any appropriate effluent limitations, schedules of compliance, or other provisions which may be authorized under the CWA in order to bring all discharges into compliance with the CWA.

For any permit issued to a treatment works treating domestic sewage (including “sludge-only facilities”), the Regional Administrator or Director shall include a reopener clause to incorporate any applicable standard for sewage sludge use or disposal promulgated under Section 405 (d) of the CWA. The Regional Administrator or Director may promptly modify or revoke and reissue any permit containing the reopener clause required by this paragraph if the standard for sewage sludge use or disposal is more stringent than any requirements for sludge use or disposal in the permit, or contains a pollutant or practice not limited in the permit.

Federal regulations pertaining to permit modification, revocation and reissuance, and termination are found at 40 CFR §122.62, 122.63, 122.64, and 124.5.

5. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from responsibilities, liabilities or penalties to which the permittee is or may be subject under Section 311 of the CWA, or Section 106 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA).

6. Property Rights

The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges.

7. Confidentiality of Information

- a. In accordance with 40 CFR Part 2, any information submitted to EPA pursuant to these regulations may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission in the manner prescribed on the application form or instructions or, in the case of other submissions, by stamping the words “confidential business information” on each page containing such information. If no claim is made at the time of submission, EPA may make the information available to the public without further notice. If a claim is asserted, the information will be treated in accordance with the procedures in 40 CFR Part 2 (Public Information).
- b. Claims of confidentiality for the following information will be denied:
 - (1) The name and address of any permit applicant or permittee;
 - (2) Permit applications, permits, and effluent data as defined in 40 CFR §2.302(a)(2).
- c. Information required by NPDES application forms provided by the Regional Administrator under 40 CFR §122.21 may not be claimed confidential. This includes information submitted on the forms themselves and any attachments used to supply information required by the forms.

NPDES PART II STANDARD CONDITIONS
(January, 2007)

8. Duty to Reapply

If the permittee wishes to continue an activity regulated by this permit after its expiration date, the permittee must apply for and obtain a new permit. The permittee shall submit a new application at least 180 days before the expiration date of the existing permit, unless permission for a later date has been granted by the Regional Administrator. (The Regional Administrator shall not grant permission for applications to be submitted later than the expiration date of the existing permit.)

9. State Authorities

Nothing in Part 122, 123, or 124 precludes more stringent State regulation of any activity covered by these regulations, whether or not under an approved State program.

10. Other Laws

The issuance of a permit does not authorize any injury to persons or property or invasion of other private rights, nor does it relieve the permittee of its obligation to comply with any other applicable Federal, State, or local laws and regulations.

PART II. B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

1. Proper Operation and Maintenance

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit and with the requirements of storm water pollution prevention plans. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when the operation is necessary to achieve compliance with the conditions of the permit.

2. Need to Halt or Reduce Not a Defense

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

3. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

4. Bypass

a. Definitions

- (1) *Bypass* means the intentional diversion of waste streams from any portion of a treatment facility.

NPDES PART II STANDARD CONDITIONS
(January, 2007)

- (2) *Severe property damage* means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can be reasonably expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

b. Bypass not exceeding limitations

The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provision of Paragraphs B.4.c. and 4.d. of this section.

c. Notice

- (1) Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least ten days before the date of the bypass.
- (2) Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in paragraph D.1.e. of this part (Twenty-four hour reporting).

d. Prohibition of bypass

Bypass is prohibited, and the Regional Administrator may take enforcement action against a permittee for bypass, unless:

- (1) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
- (2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance; and
- (3) i) The permittee submitted notices as required under Paragraph 4.c. of this section.
ii) The Regional Administrator may approve an anticipated bypass, after considering its adverse effects, if the Regional Administrator determines that it will meet the three conditions listed above in paragraph 4.d. of this section.

5. Upset

- a. Definition. *Upset* means an exceptional incident in which there is an unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
- b. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of paragraph B.5.c. of this section are met. No determination made during

NPDES PART II STANDARD CONDITIONS
(January, 2007)

administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

- c. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
 - (1) An upset occurred and that the permittee can identify the cause(s) of the upset;
 - (2) The permitted facility was at the time being properly operated;
 - (3) The permittee submitted notice of the upset as required in paragraphs D.1.a. and 1.e. (Twenty-four hour notice); and
 - (4) The permittee complied with any remedial measures required under B.3. above.
- d. Burden of proof. In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.

PART II. C. MONITORING REQUIREMENTS

1. Monitoring and Records

- a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
- b. Except for records for monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 CFR Part 503), the permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report or application except for the information concerning storm water discharges which must be retained for a total of 6 years. This retention period may be extended by request of the Regional Administrator at any time.
- c. Records of monitoring information shall include:
 - (1) The date, exact place, and time of sampling or measurements;
 - (2) The individual(s) who performed the sampling or measurements;
 - (3) The date(s) analyses were performed;
 - (4) The individual(s) who performed the analyses;
 - (5) The analytical techniques or methods used; and
 - (6) The results of such analyses.
- d. Monitoring results must be conducted according to test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, unless other test procedures have been specified in the permit.
- e. The CWA provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than \$10,000, or by

NPDES PART II STANDARD CONDITIONS
(January, 2007)

imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than \$20,000 per day of violation, or by imprisonment of not more than 4 years, or both.

2. Inspection and Entry

The permittee shall allow the Regional Administrator or an authorized representative (including an authorized contractor acting as a representative of the Administrator), upon presentation of credentials and other documents as may be required by law, to:

- a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
- b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
- c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
- d. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the CWA, any substances or parameters at any location.

PART II. D. REPORTING REQUIREMENTS

1. Reporting Requirements

- a. Planned Changes. The permittee shall give notice to the Regional Administrator as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is only required when:
 - (1) The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR§122.29(b); or
 - (2) The alteration or addition could significantly change the nature or increase the quantities of the pollutants discharged. This notification applies to pollutants which are subject neither to the effluent limitations in the permit, nor to the notification requirements at 40 CFR§122.42(a)(1).
 - (3) The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition or change may justify the application of permit conditions different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan.
- b. Anticipated noncompliance. The permittee shall give advance notice to the Regional Administrator of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.
- c. Transfers. This permit is not transferable to any person except after notice to the Regional Administrator. The Regional Administrator may require modification or revocation and reissuance of the permit to change the name of the permittee and

NPDES PART II STANDARD CONDITIONS
(January, 2007)

incorporate such other requirements as may be necessary under the CWA. (See 40 CFR Part 122.61; in some cases, modification or revocation and reissuance is mandatory.)

- d. Monitoring reports. Monitoring results shall be reported at the intervals specified elsewhere in this permit.
- (1) Monitoring results must be reported on a Discharge Monitoring Report (DMR) or forms provided or specified by the Director for reporting results of monitoring of sludge use or disposal practices.
 - (2) If the permittee monitors any pollutant more frequently than required by the permit using test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, or as specified in the permit, the results of the monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Director.
 - (3) Calculations for all limitations which require averaging or measurements shall utilize an arithmetic mean unless otherwise specified by the Director in the permit.
- e. Twenty-four hour reporting.

- (1) The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances.

A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

noncom

- (2) The following shall be included as information which must be reported within 24 hours under this paragraph.
 - (a) Any unanticipated bypass which exceeds any effluent limitation in the permit. (See 40 CFR §122.41(g).)
 - (b) Any upset which exceeds any effluent limitation in the permit.
 - (c) Violation of a maximum daily discharge limitation for any of the pollutants listed by the Regional Administrator in the permit to be reported within 24 hours. (See 40 CFR §122.44(g).)
- (3) The Regional Administrator may waive the written report on a case-by-case basis for reports under Paragraph D.1.e. if the oral report has been received within 24 hours.

NPDES PART II STANDARD CONDITIONS
(January, 2007)

- f. Compliance Schedules. Reports of compliance or noncompliance with, any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date.
- g. Other noncompliance. The permittee shall report all instances of noncompliance not reported under Paragraphs D.1.d., D.1.e., and D.1.f. of this section, at the time monitoring reports are submitted. The reports shall contain the information listed in Paragraph D.1.e. of this section.
- h. Other information. Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Regional Administrator, it shall promptly submit such facts or information.

2. Signatory Requirement

- a. All applications, reports, or information submitted to the Regional Administrator shall be signed and certified. (See 40 CFR §122.22)
- b. The CWA provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than 2 years per violation, or by both.

3. Availability of Reports.

Except for data determined to be confidential under Paragraph A.8. above, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the State water pollution control agency and the Regional Administrator. As required by the CWA, effluent data shall not be considered confidential. Knowingly making any false statements on any such report may result in the imposition of criminal penalties as provided for in Section 309 of the CWA.

PART II. E. DEFINITIONS AND ABBREVIATIONS

1. Definitions for Individual NPDES Permits including Storm Water Requirements

Administrator means the Administrator of the United States Environmental Protection Agency, or an authorized representative.

Applicable standards and limitations means all, State, interstate, and Federal standards and limitations to which a “discharge”, a “sewage sludge use or disposal practice”, or a related activity is subject to, including “effluent limitations”, water quality standards, standards of performance, toxic effluent standards or prohibitions, “best management practices”, pretreatment standards, and “standards for sewage sludge use and disposal” under Sections 301, 302, 303, 304, 306, 307, 308, 403, and 405 of the CWA.

NPDES PART II STANDARD CONDITIONS
(January, 2007)

Application means the EPA standard national forms for applying for a permit, including any additions, revisions, or modifications to the forms; or forms approved by EPA for use in “approved States”, including any approved modifications or revisions.

Average means the arithmetic mean of values taken at the frequency required for each parameter over the specified period. For total and/or fecal coliforms and Escherichia coli, the average shall be the geometric mean.

Average monthly discharge limitation means the highest allowable average of “daily discharges” over a calendar month calculated as the sum of all “daily discharges” measured during a calendar month divided by the number of “daily discharges” measured during that month.

Average weekly discharge limitation means the highest allowable average of “daily discharges” measured during the calendar week divided by the number of “daily discharges” measured during the week.

Best Management Practices (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of “waters of the United States.” BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Best Professional Judgment (BPJ) means a case-by-case determination of Best Practicable Treatment (BPT), Best Available Treatment (BAT), or other appropriate technology-based standard based on an evaluation of the available technology to achieve a particular pollutant reduction and other factors set forth in 40 CFR §125.3 (d).

Coal Pile Runoff means the rainfall runoff from or through any coal storage pile.

Composite Sample means a sample consisting of a minimum of eight grab samples of equal volume collected at equal intervals during a 24-hour period (or lesser period as specified in the section on Monitoring and Reporting) and combined proportional to flow, or a sample consisting of the same number of grab samples, or greater, collected proportionally to flow over that same time period.

Construction Activities - The following definitions apply to construction activities:

- (a) Commencement of Construction is the initial disturbance of soils associated with clearing, grading, or excavating activities or other construction activities.
- (b) Dedicated portable asphalt plant is a portable asphalt plant located on or contiguous to a construction site and that provides asphalt only to the construction site that the plant is located on or adjacent to. The term dedicated portable asphalt plant does not include facilities that are subject to the asphalt emulsion effluent limitation guideline at 40 CFR Part 443.
- (c) Dedicated portable concrete plant is a portable concrete plant located on or contiguous to a construction site and that provides concrete only to the construction site that the plant is located on or adjacent to.

NPDES PART II STANDARD CONDITIONS
(January, 2007)

- (d) Final Stabilization means that all soil disturbing activities at the site have been complete, and that a uniform perennial vegetative cover with a density of 70% of the cover for unpaved areas and areas not covered by permanent structures has been established or equivalent permanent stabilization measures (such as the use of riprap, gabions, or geotextiles) have been employed.
- (e) Runoff coefficient means the fraction of total rainfall that will appear at the conveyance as runoff.

Contiguous zone means the entire zone established by the United States under Article 24 of the Convention on the Territorial Sea and the Contiguous Zone.

Continuous discharge means a “discharge” which occurs without interruption throughout the operating hours of the facility except for infrequent shutdowns for maintenance, process changes, or similar activities.

CWA means the Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Pub. L. 92-500, as amended by Pub. L. 95-217, Pub. L. 95-576, Pub. L. 96-483, and Pub. L. 97-117; 33 USC §§1251 et seq.

Daily Discharge means the discharge of a pollutant measured during the calendar day or any other 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the “daily discharge” is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurements, the “daily discharge” is calculated as the average measurement of the pollutant over the day.

Director normally means the person authorized to sign NPDES permits by EPA or the State or an authorized representative. Conversely, it also could mean the Regional Administrator or the State Director as the context requires.

Discharge Monitoring Report Form (DMR) means the EPA standard national form, including any subsequent additions, revisions, or modifications for the reporting of self-monitoring results by permittees. DMRs must be used by “approved States” as well as by EPA. EPA will supply DMRs to any approved State upon request. The EPA national forms may be modified to substitute the State Agency name, address, logo, and other similar information, as appropriate, in place of EPA’s.

Discharge of a pollutant means:

- (a) Any addition of any “pollutant” or combination of pollutants to “waters of the United States” from any “point source”, or
- (b) Any addition of any pollutant or combination of pollutants to the waters of the “contiguous zone” or the ocean from any point source other than a vessel or other floating craft which is being used as a means of transportation (See “Point Source” definition).

This definition includes additions of pollutants into waters of the United States from: surface runoff which is collected or channeled by man; discharges through pipes, sewers, or other conveyances owned by a State, municipality, or other person which do not lead

NPDES PART II STANDARD CONDITIONS
(January, 2007)

to a treatment works; and discharges through pipes, sewers, or other conveyances leading into privately owned treatment works.

This term does not include an addition of pollutants by any “indirect discharger.”

Effluent limitation means any restriction imposed by the Regional Administrator on quantities, discharge rates, and concentrations of “pollutants” which are “discharged” from “point sources” into “waters of the United States”, the waters of the “contiguous zone”, or the ocean.

Effluent limitation guidelines means a regulation published by the Administrator under Section 304(b) of CWA to adopt or revise “effluent limitations”.

EPA means the United States “Environmental Protection Agency”.

Flow-weighted composite sample means a composite sample consisting of a mixture of aliquots where the volume of each aliquot is proportional to the flow rate of the discharge.

Grab Sample – An individual sample collected in a period of less than 15 minutes.

Hazardous Substance means any substance designated under 40 CFR Part 116 pursuant to Section 311 of the CWA.

Indirect Discharger means a non-domestic discharger introducing pollutants to a publicly owned treatment works.

Interference means a discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

- (a) Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and
- (b) Therefore is a cause of a violation of any requirement of the POTW’s NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act (CWA), the Solid Waste Disposal Act (SWDA) (including Title II, more commonly referred to as the Resources Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to Subtitle D of the SDWA), the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection Research and Sanctuaries Act.

Landfill means an area of land or an excavation in which wastes are placed for permanent disposal, and which is not a land application unit, surface impoundment, injection well, or waste pile.

Land application unit means an area where wastes are applied onto or incorporated into the soil surface (excluding manure spreading operations) for treatment or disposal.

Large and Medium municipal separate storm sewer system means all municipal separate storm sewers that are either: (i) located in an incorporated place (city) with a population of 100,000 or more as determined by the latest Decennial Census by the Bureau of Census (these cities are listed in Appendices F and 40 CFR Part 122); or (ii) located in the counties with unincorporated urbanized

NPDES PART II STANDARD CONDITIONS
(January, 2007)

populations of 100,000 or more, except municipal separate storm sewers that are located in the incorporated places, townships, or towns within such counties (these counties are listed in Appendices H and I of 40 CFR 122); or (iii) owned or operated by a municipality other than those described in Paragraph (i) or (ii) and that are designated by the Regional Administrator as part of the large or medium municipal separate storm sewer system.

Maximum daily discharge limitation means the highest allowable “daily discharge” concentration that occurs only during a normal day (24-hour duration).

Maximum daily discharge limitation (as defined for the Steam Electric Power Plants only) when applied to Total Residual Chlorine (TRC) or Total Residual Oxidant (TRO) is defined as “maximum concentration” or “Instantaneous Maximum Concentration” during the two hours of a chlorination cycle (or fraction thereof) prescribed in the Steam Electric Guidelines, 40 CFR Part 423. These three synonymous terms all mean “a value that shall not be exceeded” during the two-hour chlorination cycle. This interpretation differs from the specified NPDES Permit requirement, 40 CFR § 122.2, where the two terms of “Maximum Daily Discharge” and “Average Daily Discharge” concentrations are specifically limited to the daily (24-hour duration) values.

Municipality means a city, town, borough, county, parish, district, association, or other public body created by or under State law and having jurisdiction over disposal of sewage, industrial wastes, or other wastes, or an Indian tribe or an authorized Indian tribe organization, or a designated and approved management agency under Section 208 of the CWA.

National Pollutant Discharge Elimination System means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 402, 318, and 405 of the CWA. The term includes an “approved program”.

New Discharger means any building, structure, facility, or installation:

- (a) From which there is or may be a “discharge of pollutants”;
- (b) That did not commence the “discharge of pollutants” at a particular “site” prior to August 13, 1979;
- (c) Which is not a “new source”; and
- (d) Which has never received a finally effective NPDES permit for discharges at that “site”.

This definition includes an “indirect discharger” which commences discharging into “waters of the United States” after August 13, 1979. It also includes any existing mobile point source (other than an offshore or coastal oil and gas exploratory drilling rig or a coastal oil and gas exploratory drilling rig or a coastal oil and gas developmental drilling rig) such as a seafood processing rig, seafood processing vessel, or aggregate plant, that begins discharging at a “site” for which it does not have a permit; and any offshore rig or coastal mobile oil and gas exploratory drilling rig or coastal mobile oil and gas developmental drilling rig that commences the discharge of pollutants after August 13, 1979, at a “site” under EPA’s permitting jurisdiction for which it is not covered by an individual or general permit and which is located in an area determined by the Regional Administrator in the issuance of a final permit to be in an area of biological concern. In determining whether an area is an area of biological concern, the Regional Administrator shall consider the factors specified in 40 CFR §§125.122 (a) (1) through (10).

NPDES PART II STANDARD CONDITIONS
(January, 2007)

An offshore or coastal mobile exploratory drilling rig or coastal mobile developmental drilling rig will be considered a “new discharger” only for the duration of its discharge in an area of biological concern.

New source means any building, structure, facility, or installation from which there is or may be a “discharge of pollutants”, the construction of which commenced:

- (a) After promulgation of standards of performance under Section 306 of CWA which are applicable to such source, or
- (b) After proposal of standards of performance in accordance with Section 306 of CWA which are applicable to such source, but only if the standards are promulgated in accordance with Section 306 within 120 days of their proposal.

NPDES means “National Pollutant Discharge Elimination System”.

Owner or operator means the owner or operator of any “facility or activity” subject to regulation under the NPDES programs.

Pass through means a Discharge which exits the POTW into waters of the United States in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW’s NPDES permit (including an increase in the magnitude or duration of a violation).

Permit means an authorization, license, or equivalent control document issued by EPA or an “approved” State.

Person means an individual, association, partnership, corporation, municipality, State or Federal agency, or an agent or employee thereof.

Point Source means any discernible, confined, and discrete conveyance, including but not limited to any pipe ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel, or other floating craft, from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff (see 40 CFR §122.2).

Pollutant means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. §§2011 et seq.)), heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water. It does not mean:

- (a) Sewage from vessels; or
- (b) Water, gas, or other material which is injected into a well to facilitate production of oil or gas, or water derived in association with oil and gas production and disposed of in a well, if the well is used either to facilitate production or for disposal purposes is approved by the authority of the State in which the well is located, and if the State determines that the injection or disposal will not result in the degradation of ground or surface water resources.

NPDES PART II STANDARD CONDITIONS
(January, 2007)

Primary industry category means any industry category listed in the NRDC settlement agreement (Natural Resources Defense Council et al. v. Train, 8 E.R.C. 2120 (D.D.C. 1976), modified 12 E.R.C. 1833 (D. D.C. 1979)); also listed in Appendix A of 40 CFR Part 122.

Privately owned treatment works means any device or system which is (a) used to treat wastes from any facility whose operation is not the operator of the treatment works or (b) not a “POTW”.

Process wastewater means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product.

Publicly Owned Treatment Works (POTW) means any facility or system used in the treatment (including recycling and reclamation) of municipal sewage or industrial wastes of a liquid nature which is owned by a “State” or “municipality”.

This definition includes sewers, pipes, or other conveyances only if they convey wastewater to a POTW providing treatment.

Regional Administrator means the Regional Administrator, EPA, Region I, Boston, Massachusetts.

Secondary Industry Category means any industry which is not a “primary industry category”.

Section 313 water priority chemical means a chemical or chemical category which:

- (1) is listed at 40 CFR §372.65 pursuant to Section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) (also known as Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986);
- (2) is present at or above threshold levels at a facility subject to EPCRA Section 313 reporting requirements; and
- (3) satisfies at least one of the following criteria:
 - (i) are listed in Appendix D of 40 CFR Part 122 on either Table II (organic priority pollutants), Table III (certain metals, cyanides, and phenols), or Table V (certain toxic pollutants and hazardous substances);
 - (ii) are listed as a hazardous substance pursuant to Section 311(b)(2)(A) of the CWA at 40 CFR §116.4; or
 - (iii) are pollutants for which EPA has published acute or chronic water quality criteria.

Septage means the liquid and solid material pumped from a septic tank, cesspool, or similar domestic sewage treatment system, or a holding tank when the system is cleaned or maintained.

Sewage Sludge means any solid, semisolid, or liquid residue removed during the treatment of municipal wastewater or domestic sewage. Sewage sludge includes, but is not limited to, solids removed during primary, secondary, or advanced wastewater treatment, scum, septage, portable toilet pumpings, Type III Marine Sanitation Device pumpings (33 CFR Part 159), and sewage sludge products. Sewage sludge does not include grit or screenings, or ash generated during the incineration of sewage sludge.

NPDES PART II STANDARD CONDITIONS
(January, 2007)

Sewage sludge use or disposal practice means the collection, storage, treatment, transportation, processing, monitoring, use, or disposal of sewage sludge.

Significant materials includes, but is not limited to: raw materials, fuels, materials such as solvents, detergents, and plastic pellets, raw materials used in food processing or production, hazardous substance designated under section 101(14) of CERCLA, any chemical the facility is required to report pursuant to EPCRA Section 313, fertilizers, pesticides, and waste products such as ashes, slag, and sludge that have the potential to be released with storm water discharges.

Significant spills includes, but is not limited to, releases of oil or hazardous substances in excess of reportable quantities under Section 311 of the CWA (see 40 CFR §110.10 and §117.21) or Section 102 of CERCLA (see 40 CFR § 302.4).

Sludge-only facility means any “treatment works treating domestic sewage” whose methods of sewage sludge use or disposal are subject to regulations promulgated pursuant to Section 405(d) of the CWA, and is required to obtain a permit under 40 CFR §122.1(b)(3).

State means any of the 50 States, the District of Columbia, Guam, the Commonwealth of Puerto Rico, the Virgin Islands, American Samoa, the Trust Territory of the Pacific Islands.

Storm Water means storm water runoff, snow melt runoff, and surface runoff and drainage.

Storm water discharge associated with industrial activity means the discharge from any conveyance which is used for collecting and conveying storm water and which is directly related to manufacturing, processing, or raw materials storage areas at an industrial plant. (See 40 CFR §122.26 (b)(14) for specifics of this definition.

Time-weighted composite means a composite sample consisting of a mixture of equal volume aliquots collected at a constant time interval.

Toxic pollutants means any pollutant listed as toxic under Section 307 (a)(1) or, in the case of “sludge use or disposal practices” any pollutant identified in regulations implementing Section 405(d) of the CWA.

Treatment works treating domestic sewage means a POTW or any other sewage sludge or wastewater treatment devices or systems, regardless of ownership (including federal facilities), used in the storage, treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated for the disposal of sewage sludge. This definition does not include septic tanks or similar devices.

For purposes of this definition, “domestic sewage” includes waste and wastewater from humans or household operations that are discharged to or otherwise enter a treatment works. In States where there is no approved State sludge management program under Section 405(f) of the CWA, the Regional Administrator may designate any person subject to the standards for sewage sludge use and disposal in 40 CFR Part 503 as a “treatment works treating domestic sewage”, where he or she finds that there is a potential for adverse effects on public health and the environment from poor sludge quality or poor sludge handling, use or disposal practices, or where he or she finds that such designation is necessary to ensure that such person is in compliance with 40 CFR Part 503.

NPDES PART II STANDARD CONDITIONS
(January, 2007)

Waste Pile means any non-containerized accumulation of solid, non-flowing waste that is used for treatment or storage.

Waters of the United States means:

- (a) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of tide;
- (b) All interstate waters, including interstate “wetlands”;
- (c) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, “wetlands”, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:
 - (1) Which are or could be used by interstate or foreign travelers for recreational or other purpose;
 - (2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
 - (3) Which are used or could be used for industrial purposes by industries in interstate commerce;
- (d) All impoundments of waters otherwise defined as waters of the United States under this definition;
- (e) Tributaries of waters identified in Paragraphs (a) through (d) of this definition;
- (f) The territorial sea; and
- (g) “Wetlands” adjacent to waters (other than waters that are themselves wetlands) identified in Paragraphs (a) through (f) of this definition.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the CWA (other than cooling ponds as defined in 40 CFR §423.11(m) which also meet the criteria of this definition) are not waters of the United States.

Wetlands means those areas that are inundated or saturated by surface or ground water at a frequency and duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

Whole Effluent Toxicity (WET) means the aggregate toxic effect of an effluent measured directly by a toxicity test. (See Abbreviations Section, following, for additional information.)

2. Definitions for NPDES Permit Sludge Use and Disposal Requirements.

Active sewage sludge unit is a sewage sludge unit that has not closed.

NPDES PART II STANDARD CONDITIONS
(January, 2007)

Aerobic Digestion is the biochemical decomposition of organic matter in sewage sludge into carbon dioxide and water by microorganisms in the presence of air.

Agricultural Land is land on which a food crop, a feed crop, or a fiber crop is grown. This includes range land and land used as pasture.

Agronomic rate is the whole sludge application rate (dry weight basis) designed:

- (1) To provide the amount of nitrogen needed by the food crop, feed crop, fiber crop, cover crop, or vegetation grown on the land; and
- (2) To minimize the amount of nitrogen in the sewage sludge that passes below the root zone of the crop or vegetation grown on the land to the ground water.

Air pollution control device is one or more processes used to treat the exit gas from a sewage sludge incinerator stack.

Anaerobic digestion is the biochemical decomposition of organic matter in sewage sludge into methane gas and carbon dioxide by microorganisms in the absence of air.

Annual pollutant loading rate is the maximum amount of a pollutant that can be applied to a unit area of land during a 365 day period.

Annual whole sludge application rate is the maximum amount of sewage sludge (dry weight basis) that can be applied to a unit area of land during a 365 day period.

Apply sewage sludge or sewage sludge applied to the land means land application of sewage sludge.

Aquifer is a geologic formation, group of geologic formations, or a portion of a geologic formation capable of yielding ground water to wells or springs.

Auxiliary fuel is fuel used to augment the fuel value of sewage sludge. This includes, but is not limited to, natural gas, fuel oil, coal, gas generated during anaerobic digestion of sewage sludge, and municipal solid waste (not to exceed 30 percent of the dry weight of the sewage sludge and auxiliary fuel together). Hazardous wastes are not auxiliary fuel.

Base flood is a flood that has a one percent chance of occurring in any given year (i.e. a flood with a magnitude equaled once in 100 years).

Bulk sewage sludge is sewage sludge that is not sold or given away in a bag or other container for application to the land.

Contaminate an aquifer means to introduce a substance that causes the maximum contaminant level for nitrate in 40 CFR §141.11 to be exceeded in ground water or that causes the existing concentration of nitrate in the ground water to increase when the existing concentration of nitrate in the ground water exceeds the maximum contaminant level for nitrate in 40 CFR §141.11.

Class I sludge management facility is any publicly owned treatment works (POTW), as defined in 40 CFR §501.2, required to have an approved pretreatment program under 40 CFR §403.8 (a) (including any POTW located in a state that has elected to assume local program responsibilities pursuant to 40 CFR §403.10 (e) and any treatment works treating domestic sewage, as defined in 40 CFR § 122.2,

NPDES PART II STANDARD CONDITIONS
(January, 2007)

classified as a Class I sludge management facility by the EPA Regional Administrator, or, in the case of approved state programs, the Regional Administrator in conjunction with the State Director, because of the potential for sewage sludge use or disposal practice to affect public health and the environment adversely.

Control efficiency is the mass of a pollutant in the sewage sludge fed to an incinerator minus the mass of that pollutant in the exit gas from the incinerator stack divided by the mass of the pollutant in the sewage sludge fed to the incinerator.

Cover is soil or other material used to cover sewage sludge placed on an active sewage sludge unit.

Cover crop is a small grain crop, such as oats, wheat, or barley, not grown for harvest.

Cumulative pollutant loading rate is the maximum amount of inorganic pollutant that can be applied to an area of land.

Density of microorganisms is the number of microorganisms per unit mass of total solids (dry weight) in the sewage sludge.

Dispersion factor is the ratio of the increase in the ground level ambient air concentration for a pollutant at or beyond the property line of the site where the sewage sludge incinerator is located to the mass emission rate for the pollutant from the incinerator stack.

Displacement is the relative movement of any two sides of a fault measured in any direction.

Domestic septage is either liquid or solid material removed from a septic tank, cesspool, portable toilet, Type III marine sanitation device, or similar treatment works that receives only domestic sewage. Domestic septage does not include liquid or solid material removed from a septic tank, cesspool, or similar treatment works that receives either commercial wastewater or industrial wastewater and does not include grease removed from a grease trap at a restaurant.

Domestic sewage is waste and wastewater from humans or household operations that is discharged to or otherwise enters a treatment works.

Dry weight basis means calculated on the basis of having been dried at 105 degrees Celsius (°C) until reaching a constant mass (i.e. essentially 100 percent solids content).

Fault is a fracture or zone of fractures in any materials along which strata on one side are displaced with respect to the strata on the other side.

Feed crops are crops produced primarily for consumption by animals.

Fiber crops are crops such as flax and cotton.

Final cover is the last layer of soil or other material placed on a sewage sludge unit at closure.

Fluidized bed incinerator is an enclosed device in which organic matter and inorganic matter in sewage sludge are combusted in a bed of particles suspended in the combustion chamber gas.

Food crops are crops consumed by humans. These include, but are not limited to, fruits, vegetables, and tobacco.

NPDES PART II STANDARD CONDITIONS
(January, 2007)

Forest is a tract of land thick with trees and underbrush.

Ground water is water below the land surface in the saturated zone.

Holocene time is the most recent epoch of the Quaternary period, extending from the end of the Pleistocene epoch to the present.

Hourly average is the arithmetic mean of all the measurements taken during an hour. At least two measurements must be taken during the hour.

Incineration is the combustion of organic matter and inorganic matter in sewage sludge by high temperatures in an enclosed device.

Industrial wastewater is wastewater generated in a commercial or industrial process.

Land application is the spraying or spreading of sewage sludge onto the land surface; the injection of sewage sludge below the land surface; or the incorporation of sewage sludge into the soil so that the sewage sludge can either condition the soil or fertilize crops or vegetation grown in the soil.

Land with a high potential for public exposure is land that the public uses frequently. This includes, but is not limited to, a public contact site and reclamation site located in a populated area (e.g., a construction site located in a city).

Land with low potential for public exposure is land that the public uses infrequently. This includes, but is not limited to, agricultural land, forest and a reclamation site located in an unpopulated area (e.g., a strip mine located in a rural area).

Leachate collection system is a system or device installed immediately above a liner that is designed, constructed, maintained, and operated to collect and remove leachate from a sewage sludge unit.

Liner is soil or synthetic material that has a hydraulic conductivity of 1×10^{-7} centimeters per second or less.

Lower explosive limit for methane gas is the lowest percentage of methane gas in air, by volume, that propagates a flame at 25 degrees Celsius and atmospheric pressure.

Monthly average (Incineration) is the arithmetic mean of the hourly averages for the hours a sewage sludge incinerator operates during the month.

Monthly average (Land Application) is the arithmetic mean of all measurements taken during the month.

Municipality means a city, town, borough, county, parish, district, association, or other public body (including an intermunicipal agency of two or more of the foregoing entities) created by or under State law; an Indian tribe or an authorized Indian tribal organization having jurisdiction over sewage sludge management; or a designated and approved management agency under section 208 of the CWA, as amended. The definition includes a special district created under state law, such as a water district, sewer district, sanitary district, utility district, drainage district, or similar entity, or an integrated waste management facility as defined in section 201 (e) of the CWA, as amended, that has as one of its principal responsibilities the treatment, transport, use or disposal of sewage sludge.

NPDES PART II STANDARD CONDITIONS
(January, 2007)

Other container is either an open or closed receptacle. This includes, but is not limited to, a bucket, a box, a carton, and a vehicle or trailer with a load capacity of one metric ton or less.

Pasture is land on which animals feed directly on feed crops such as legumes, grasses, grain stubble, or stover.

Pathogenic organisms are disease-causing organisms. These include, but are not limited to, certain bacteria, protozoa, viruses, and viable helminth ova.

Permitting authority is either EPA or a State with an EPA-approved sludge management program.

Person is an individual, association, partnership, corporation, municipality, State or Federal Agency, or an agent or employee thereof.

Person who prepares sewage sludge is either the person who generates sewage sludge during the treatment of domestic sewage in a treatment works or the person who derives a material from sewage sludge.

pH means the logarithm of the reciprocal of the hydrogen ion concentration; a measure of the acidity or alkalinity of a liquid or solid material.

Place sewage sludge or sewage sludge placed means disposal of sewage sludge on a surface disposal site.

Pollutant (as defined in sludge disposal requirements) is an organic substance, an inorganic substance, a combination of organic and inorganic substances, or pathogenic organism that, after discharge and upon exposure, ingestion, inhalation, or assimilation into an organism either directly from the environment or indirectly by ingestion through the food chain, could on the basis of information available to the Administrator of EPA, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunction in reproduction) or physical deformations in either organisms or offspring of the organisms.

Pollutant limit (for sludge disposal requirements) is a numerical value that describes the amount of a pollutant allowed per unit amount of sewage sludge (e.g., milligrams per kilogram of total solids); the amount of pollutant that can be applied to a unit of land (e.g., kilograms per hectare); or the volume of the material that can be applied to the land (e.g., gallons per acre).

Public contact site is a land with a high potential for contact by the public. This includes, but is not limited to, public parks, ball fields, cemeteries, plant nurseries, turf farms, and golf courses.

Qualified ground water scientist is an individual with a baccalaureate or post-graduate degree in the natural sciences or engineering who has sufficient training and experience in ground water hydrology and related fields, as may be demonstrated by State registration, professional certification, or completion of accredited university programs, to make sound professional judgments regarding ground water monitoring, pollutant fate and transport, and corrective action.

Range land is open land with indigenous vegetation.

Reclamation site is drastically disturbed land that is reclaimed using sewage sludge. This includes, but is not limited to, strip mines and construction sites.

NPDES PART II STANDARD CONDITIONS
(January, 2007)

Risk specific concentration is the allowable increase in the average daily ground level ambient air concentration for a pollutant from the incineration of sewage sludge at or beyond the property line of a site where the sewage sludge incinerator is located.

Runoff is rainwater, leachate, or other liquid that drains overland on any part of a land surface and runs off the land surface.

Seismic impact zone is an area that has 10 percent or greater probability that the horizontal ground level acceleration to the rock in the area exceeds 0.10 gravity once in 250 years.

Sewage sludge is a solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in a treatment works. Sewage sludge includes, but is not limited to: domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment processes; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screening generated during preliminary treatment of domestic sewage in treatment works.

Sewage sludge feed rate is either the average daily amount of sewage sludge fired in all sewage sludge incinerators within the property line of the site where the sewage sludge incinerators are located for the number of days in a 365 day period that each sewage sludge incinerator operates, or the average daily design capacity for all sewage sludge incinerators within the property line of the site where the sewage sludge incinerators are located.

Sewage sludge incinerator is an enclosed device in which only sewage sludge and auxiliary fuel are fired.

Sewage sludge unit is land on which only sewage sludge is placed for final disposal. This does not include land on which sewage sludge is either stored or treated. Land does not include waters of the United States, as defined in 40 CFR §122.2.

Sewage sludge unit boundary is the outermost perimeter of an active sewage sludge unit.

Specific oxygen uptake rate (SOUR) is the mass of oxygen consumed per unit time per unit mass of total solids (dry weight basis) in sewage sludge.

Stack height is the difference between the elevation of the top of a sewage sludge incinerator stack and the elevation of the ground at the base of the stack when the difference is equal to or less than 65 meters. When the difference is greater than 65 meters, stack height is the creditable stack height determined in accordance with 40 CFR §51.100 (ii).

State is one of the United States of America, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, the Trust Territory of the Pacific Islands, the Commonwealth of the Northern Mariana Islands, and an Indian tribe eligible for treatment as a State pursuant to regulations promulgated under the authority of section 518(e) of the CWA.

Store or storage of sewage sludge is the placement of sewage sludge on land on which the sewage sludge remains for two years or less. This does not include the placement of sewage sludge on land for treatment.

Surface disposal site is an area of land that contains one or more active sewage sludge units.

NPDES PART II STANDARD CONDITIONS
(January, 2007)

Total hydrocarbons means the organic compounds in the exit gas from a sewage sludge incinerator stack measured using a flame ionization detection instrument referenced to propane.

Total solids are the materials in sewage sludge that remain as residue when the sewage sludge is dried at 103 to 105 degrees Celsius.

Treat or treatment of sewage sludge is the preparation of sewage sludge for final use or disposal. This includes, but is not limited to, thickening, stabilization, and dewatering of sewage sludge. This does not include storage of sewage sludge.

Treatment works is either a federally owned, publicly owned, or privately owned device or system used to treat (including recycle and reclaim) either domestic sewage or a combination of domestic sewage and industrial waste of a liquid nature.

Unstable area is land subject to natural or human-induced forces that may damage the structural components of an active sewage sludge unit. This includes, but is not limited to, land on which the soils are subject to mass movement.

Unstabilized solids are organic materials in sewage sludge that have not been treated in either an aerobic or anaerobic treatment process.

Vector attraction is the characteristic of sewage sludge that attracts rodents, flies, mosquitoes, or other organisms capable of transporting infectious agents.

Volatile solids is the amount of the total solids in sewage sludge lost when the sewage sludge is combusted at 550 degrees Celsius in the presence of excess air.

Wet electrostatic precipitator is an air pollution control device that uses both electrical forces and water to remove pollutants in the exit gas from a sewage sludge incinerator stack.

Wet scrubber is an air pollution control device that uses water to remove pollutants in the exit gas from a sewage sludge incinerator stack.

3. Commonly Used Abbreviations

BOD		Five-day biochemical oxygen demand unless otherwise specified
CBOD	Carbonaceous	BOD
CFS	Cubic	feet per second
COD	Chem	ical oxygen demand
Chlorine		
Cl ₂	Total	residual chlorine
TRC		Total residual chlorine which is a combination of free available chlorine (FAC, see below) and combined chlorine (chloramines, etc.)

NPDES PART II STANDARD CONDITIONS
(January, 2007)

TRO	Total residual chlorine in marine waters where halogen compounds are present	
FAC	Free available chlorine (aqueous molecular chlorine, hypochlorous acid, and hypochlorite ion)	
Coliform		
Coliform, Fecal	Total fecal coliform bacteria	
Coliform, Total	Total coliform bacteria	
Cont. (Continuous)	Continuous recording of the parameter being monitored, i.e. flow, temperature, pH, etc.	
Cu. M/day or M ³ /day	Cubic meters per day	
DO	Dissolved	oxygen
kg/day	Kilogram	s per day
lbs/day	Pounds	per day
mg/l	Milligram	(s) per liter
ml/l	Milliliters	per liter
MGD	Million	gallons per day
Nitrogen		
Total N	Total	nitrogen
NH ₃ -N	Ammonia nitrogen as nitrogen	
NO ₃ -N	Nitrate	as nitrogen
NO ₂ -N	Nitrite	as nitrogen
NO ₃ -NO ₂	Combined nitrate and nitrite nitrogen as nitrogen	
TKN	Total	Kjeldahl nitrogen as nitrogen
Oil & Grease	Freon extractable material	
PCB	Pol	ychlorinated biphenyl
pH	A measure of the hydrogen ion concentration. A measure of the acidity or alkalinity of a liquid or material	
Surfactant	Surface-active agent	

NPDES PART II STANDARD CONDITIONS
(January, 2007)

Temp. °C	Temperature in degrees Centigrade
Temp. °F	Temperature in degrees Fahrenheit
TOC	Total organic carbon
Total P	Total phosphorus
TSS or NFR	Total suspended solids or total nonfilterable residue
Turb. or Turbidity	Turbidity measured by the Nephelometric Method (NTU)
ug/l	Microgram(s) per liter
WET	“Whole effluent toxicity” is the total effect of an effluent measured directly with a toxicity test.
C-NOEC	“Chronic (Long-term Exposure Test) – No Observed Effect Concentration”. The highest tested concentration of an effluent or a toxicant at which no adverse effects are observed on the aquatic test organisms at a specified time of observation.
A-NOEC	“Acute (Short-term Exposure Test) – No Observed Effect Concentration” (see C-NOEC definition).
LC ₅₀	LC ₅₀ is the concentration of a sample that causes mortality of 50% of the test population at a specific time of observation. The LC ₅₀ = 100% is defined as a sample of undiluted effluent.
ZID	Zone of Initial Dilution means the region of initial mixing surrounding or adjacent to the end of the outfall pipe or diffuser ports.

Attachment B

Sample Onshore components Inspection Work Order

Massachusetts Water Resources Authority WOPrint16

WO#: W2957685

MWRA ID: KA:RWW.SG-17

Description: PM EXERCISE SLUICE GATE Raw Wastewater Heavy Duty Sluice Gate 17

Equipment: 1290 - Raw Wastewater Heavy Duty Sluice Gate #17 Location: KA - Nut Island Headworks JP Number: JPPSG-MOP - MONTHLY GATE EXERCISING - WW OPS Supervisor: Planner: Requester: REPORT Lead Craft: WWOP Failure Desc:	Report Date: 1/1/2011 3:47:18 AM Target Start: 1/1/2011 Target Finish: 1/1/2011 Priority: 3	Status: COMP Work Type: PM Sub Type: PM Number: 3608 Route Number: Master WO: Contract:
--	--	--

Task ID	Description
10	NOTIFY OCC OF GATE PM
20	VERIFY POSITION OF GATE VISUALLY ON SITE
25	CALL OCC AND VERIFY POSITION OF GATE ON SCADA WITH OCC AREA SUPERVISOR
30	OPERATE GATE TO EITHER FULLY CLOSED OR FULLY OPEN
35	VERIFY POSITION OF GATE ON SCADA WITH OCC AREA SUPERVISOR
40	RETURN GATE TO ORIGINAL POSITION
45	REPORT ANY ISSUES WITH GATE TO OCC
50	NOTIFY OCC ONCE EXERCISING IS COMPLETE AND REPORT POSITION OF GATE
55	VERIFY POSITION OF GATE ON SCADA WITH OCC AREA SUPERVISOR

Planned Labor					
Labor Code	Description	Craft Qty	Est Hrs	Rate	Line Total
WWOP	WASTEWATER OPERATOR	1.00	0.50	\$28.63	\$14.32

Recorded Actuals							
Labor							
Name	Date	Reg Hrs	Mblz Hrs	Trav Hrs	SB Hrs	DeMobHrs	OT Hrs

Comments

Attachment C

Typical Offshore Components Inspection Scope Of Service

**SECTION 02955
INSPECTION SERVICES**

PART 1 - GENERAL

1.01 SUMMARY

- A. The Work of this Section includes:
 - 1. Inspection and cleaning of outfall outlets
 - 2. Internal inspection of outfall pipes

1.02 SUBMITTALS

- A. Sonar Equipment
 - 1. Submit written descriptions of the procedures and equipment used in the for this Contract, including:
 - a. The name of the manufacturer of hardware and software.
 - b. Model and serial number of sonar unit.
 - c. Performance data
 - d. Description of how data is stored and how it to be presented to the Authority.
- B. Remote Operated Vehicle
 - 1. Submit written descriptions of the equipment and procedures used for this Contract. Include manufacturer's equipment specifications.
- D. Credentials
 - 1. Submit licenses and certifications for personnel working under this Contract, including the following:
 - a. Diving team members
 - b. Special equipment operators

PART 2 - MATERIALS

2.01 VIDEO EQUIPMENT

- A. Color video recording equipment with lighting sufficient to illuminate entire cross section of the pipe or conduit.

2.02 SONAR EQUIPMENT

- A. Minimum resolution: 2 millimeter.

PART 3 - EXECUTION

3.01 EXTERNAL INSPECTION AND CLEANING OF OUTFALLS

- A. External inspection of the outfalls shall be performed by one or more divers and shall include:
1. Remove any marine growth from the surface of the valves.
 - a. Provide a maximum total of three man-hours labor for this task.
 2. Contractor shall inspect each outlet recording the inspection on video tape with audio narration. Note any damage, obstructions, sedimentation, or other damage to the duckbill valve.
 - a. Video shall show the entire exterior of each valve after cleaning.
 3. Note the depth of sediment around each outlet. Assess the difficulty of cleaning sediment and obstructions from each outlet.

3.02 INTERNAL INSPECTION OF OUTFALLS

Following completion of the external inspection, Contractor shall conduct an internal inspection of each outfall. Contractor shall measure and record the interior circumferential profile of each outfall at 100 foot intervals.

- A. Each outfall shall be inspected for buildup of sediment, debris or marine growth causing a reduction in flow capacity of the pipe. Internal inspection of the outfalls shall be performed either by a diver with video recording, or using a remote operated vehicle (ROV) equipped with sonar.
1. Inspections by a diver shall record the condition of the outfalls using video tape with audio narration. Note type and extent of any damage, or obstructions along the entire outfall length. Measure and record the interior circumferential profile at the specified intervals.
 2. Inspections by ROV shall record a bit map or other graphical image of the interior circumferential profile of each pipe at specified intervals.

3.03 INSPECTION REPORT

- A. The Contractor shall submit to the Authority, a written inspection report including copies of all video and audio recordings, still photographs, and/or data produced during the inspection. The report shall include an interpretation of the data and observations, and a summary of the findings and recommendations. The report shall be divided into separate sections describing the condition of each outfall. Include the following:
1. Video Outfall Inspection – Provide a transcript of the audio recording prepared with station references measured from the origin to termination. See Contract Drawings for stationing. Include relevant information from the video and still photographs into the report.

2. Sonar Outfall Inspection – Provide hard copies of data from sonar equipment with stations identified. Provide a narrative interpretation of the data collected at each station.
3. Provide recommendations for cleaning, removal of any accumulated debris, sediment, and biogrowth from the internal portion of the outfall identified during the inspection. Identify alternative methods of cleaning, and the advantages and disadvantages of each.

***** END OF SECTION *****

**SECTION 01005
MISCELLANEOUS REQUIREMENTS**

PART 1 – GENERAL

1.01 UTILITIES

- A. The Contractor may use the available water supply for use during the Work.
- B. The Contractor may connect to the existing electrical supply in the building for use during the Work. Power consumption shall not disrupt Authority's need for continuous service.
- C. The Contractor shall provide and install any temporary wiring, switches, and connections needed for the Work, and remove them upon completion of the Work.

1.02 SANITARY FACILITIES

The Contractor's workers may use the rest room facilities on site during the Work. Contractor shall provide his own facilities for washdown of equipment and personnel.

1.03 SITE CLEANUP

- A. The Contractor shall maintain the Work and surrounding areas free of debris, materials, tools, or other obstructions. The Contractor shall store materials and equipment only in areas designated by the Authority. All work areas shall be swept broom clean at the end of each day.
- B. Contractor is responsible for collection, hauling, and disposal of the Contractor's construction debris, garbage (food waste) and office trash at no additional cost to the Authority.
- C. Upon completion of the Work, the Contractor shall remove all debris, packing materials, tools, equipment from the site.

1.04 PERMITS

The Contractor is responsible for obtaining all permits required to perform the Work.

1.05 NOISE CONTROL

The Contractor shall conduct the Work in conformance with all Federal, State, and local noise control regulations.

1.06 SITE RESTRICTIONS

- A. Equipment shall be placed only after verification by the Authority that it will not damage underground structures or piping.
- B. Trucks departing the work area shall have mud removed from the exterior surfaces. Trucks shall be "broom clean" before leaving the work area.

***** END OF SECTION *****

**SECTION 01025
MEASUREMENT AND PAYMENT**

PART 1 - GENERAL

1.01 GENERAL

- A. This Section describes methods of measurement and payment for all Work completed under this Contract.
- B. Payment for all Work shall be in compliance with the Contract Documents, and shall be in accordance with the lump sum bid. Work for which there is not a separate item will be considered incidental to the Contract and no additional compensation will be allowed.
- C. The lump-sum stated in the Bid Schedule of Section 00300 shall constitute full compensation for the Work as herein specified.
- D. Proposed Contract Price shall cover all Work required by Contract Documents. Include the following in the Proposed Contract Price.
 - 1. Performing all labor and supervision to complete work.
 - 2. All cost in connection with completion of Work, including furnishing all:
 - a. Materials
 - b. Equipment
 - c. Supplies
 - d. Appurtenances
 - 3. All cost associated with all preliminary work including but not limited to: mobilization and demobilization; submittals; schedules; temporary facilities; materials and equipment.
- E. Payment for the work performed shall be in accordance with the detailed cost breakdown of the lump sum price shown in the approved Schedule of Values.

*****END OF SECTION*****

**SECTION 01300
SUBMITTALS**

PART 1 - GENERAL

1.01 SUMMARY

Section Includes procedures for submitting shop drawings and engineering data.

1.02 DEFINITIONS

- A. Shop drawings will be returned, stamped with following classifications:
1. REVIEWED, NO EXCEPTIONS: No correction or marks.
 2. REVIEWED, MAKE CORRECTIONS AS NOTED: Few minor corrections. All items may be fabricated as marked up without further resubmission. Resubmit corrected copy to Authority.
 3. REVISE AND RESUBMIT: Minor corrections. Items not noted to be revised and corrected may be fabricated at Contractor's option. Resubmit drawings as specified in this section with corrections noted. Twenty-one days will be allowed for checking and appropriate action by Authority.
 4. REJECTED – SEE REMARKS: Major corrections or not in accordance with Contract Documents. No items shall be fabricated. Correct and resubmit drawings as specified. Twenty-one days will be allowed for checking and appropriate action by Authority.
 5. REVIEWED FOR INFORMATIONAL PURPOSES ONLY: Items reviewed for information purposes only, items not reviewed or items for which submittals are not required.

1.03 SUBMITTALS

- A. Submit to Authority for review engineering data covering all equipment and fabricated materials which will become a permanent part of the work under this Contract.
1. Include drawings and descriptive information in sufficient detail to show kind, size, arrangement, and operation of component materials devices; external connections, anchorages, and supports required; performance characteristics; and dimensions needed for installation and correlation with other materials and equipment.
- B. Submit 6 copies (or one print and five reproducible copies) of each drawing and required data to Authority.
1. Authority will only accept submittals from Contractor.
 2. Two copies of all shop drawings will be returned.

1.04 QUALITY ASSURANCE

A. Contractor Review

1. Stamp of approval by Contractor indicates to Authority that all quantities, dimensions, field construction criteria, materials, catalog numbers and similar data has been determined and verified, and that each submittal has been reviewed or coordinated with requirements of work and Contract Documents.
2. Authority's review of submittals does not relieve the Contractor from responsibility for errors, omissions, or deviations, nor responsibility for compliance with Contract Documents.
3. No portion of Work requiring shop drawings shall be started or any materials be fabricated, delivered to site, or installed prior to approval of such items. Fabrication performed, materials purchased or on-site construction accomplished which does not conform to approved shop drawings shall be corrected to accomplish conformity at no additional cost to the Authority.
4. Project work, materials, fabrications and installation shall conform with approved shop drawings.

B. Authority Review

Authority's review of submitted drawings and data will cover only general conformity to Drawings and Specifications, external connections, and dimensions which affect layout.

1.05 SEQUENCING AND SCHEDULING

- A. Resubmittals shall be made within 30 days of date of letter returning material to be modified or corrected. For extension of time period, submit request within 14 days listing reasons resubmittal cannot be completed within stipulated time period.
- B. Schedule and coordinate all required submittals with Contractor's schedule.

PART 2 – PRODUCTS N/A

PART 3 - EXECUTION

3.01 PREPARATION

A. General

1. Each submittal shall be complete.
2. Consecutively number submittals in direct sequence of submittal without division by subcontracts or trades.

3. Stamp all submittals, regardless of origin, with Contractor's approval and identify with:
 - a. Name and number of this contract.
 - b. Contractor's name.
 - c. References to applicable specification paragraphs and drawings.
4. Clearly identify applicable items when catalog pages are submitted and indicate current revision, issue number, and date on all drawings and other descriptive data.
5. Identify all deviations from Contract Documents on each submittal and tabulate in letter of transmittal.
 - a. Indicate essential details of all proposed changes (including all modifications to other facilities) as pertinent to deviation.
6. Working drawings for changes, substitutions or Contractor Design Items.
 - a. Submit working drawings and calculations as sealed and signed by Professional Engineer registered in Commonwealth of Massachusetts accompanied by calculations or other information to completely explain method of construction.
 - b. Design calculations to be submitted with working drawings.
7. Provide vacant space approximately 2 ½ inches high by 4 inches wide adjacent to identification data to receive Authority's status stamp.

B. Resubmittals:

1. Make correction to drawings and data returned marked REJECTED-SEE REMARKS or REVISE AND RESUBMIT as noted thereon and as instructed by Authority.
 - a. When drawings and data are returned marked REVIEWED, NO EXCEPTIONS; REVIEWED, MAKE CORRECTIONS AS NOTED; or REVIEWED FOR INFORMATIONAL PURPOSES ONLY, no additional copies need be furnished.
2. Resubmit 6 corrected copies (or one corrected reproducible copy and five prints).
 - a. Indicate sequence of resubmittals by using number of first submittal followed by a letter (A, B, etc.).
3. When corrected copies are resubmitted, direct specific attention to all revisions and separately list any revisions made other than those called for by Authority on previous submissions.

4. Verify that all exceptions previously noted by Authority have been taken into account.
 - a. Authority shall be reimbursed by Contractor for charges of Authority for review of additional resubmissions if more than one resubmission is required because of failure to account for previously noted exceptions.

***** END OF SECTION *****

**SECTION 01390
HEALTH AND SAFETY PLAN (HASP)**

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

Preparation and implementation of a site specific health and safety plan.

1.02 REFERENCES

- A. Title 29, Code of Federal Regulations Parts 1910, 1919, and 1926.
- B. 454 CMR 10.00, Division of Industrial Safety.
- B. USEPA, Standard Operating Safety Guidelines, Office of Emergency and Remedial Response, Hazardous Response Support Division, Edison, New Jersey.
- C. NIOSH/OSHA/USCG/EPA Occupational Safety and Health Guidance Manual for Hazardous Site Activities, October 1985, DHHS (NIOSH) Publ. No. 85-115.
- D. NIOSH, Criteria for a Recommended Standard, Welding, Brazing and Thermal Cutting, DHHS (NIOSH) Publ. No. 88-110.
- E. NIOSH, Pocket Guide to Chemical Hazards, DHHS (NIOSH) Publ. No. 2005-149.
- F. USEPA Region 10 Diving Safety Manual, Revision 5, February 2009.
- G. Association of Diving Contractors International, Consensus Standards, 5th edition.
- H. U.S. Navy Diving Manual, Revision 6, 2008

1.03 DEFINITIONS

- A. HASP - Health and Safety Plan.

1.04 SUBMITTALS

A. Health and Safety Plan

- 1. The HASP shall address specific health and safety practices, procedures, and equipment to be used during the Work.
- 2. Submit HASP for review by the Authority at least 15 days prior to start of work on site.

3. The Contractor shall develop, implement, enforce and maintain the HASP.

1.05 CONTRACTOR RESPONSIBILITY

- A. The Contractor is completely and totally responsible for safety on this project. It is the Contractor's responsibility to comply with all Federal, State, and local safety rules and regulations.
- B. Supervision on site shall be provided by the Contractor whenever work is being done. The MWRA provides no on-site supervision, nor will it direct the work of the Contractor with regard to safety. The MWRA will notify the Contractor in writing of safety violations and direct that they be corrected.
- C. Any coordination of work between the MWRA and the Contractor needed to prevent hazards recognized by the Contractor shall be described in a written request to the MWRA. Written acknowledgement or signature from an authorized MWRA employee is required before the Contractor may proceed.
- D. Safety equipment and materials are to be provided by the Contractor to insure the safety of workers. The Contractor shall instruct the workers about the potential hazards of the job and shall monitor them in the performance of the Work to maintain safe conditions.

1.06 HEALTH AND SAFETY PLAN

- A. The Contractor shall prepare and implement a site specific Health and Safety Plan for the project. The Contractor shall submit the HASP for review and comment to the Authority within 15 working days of the Notice to Proceed.
- B. The HASP shall comply with all OSHA and US Coast Guard regulations. The HASP shall be prepared in accordance with the guidelines in Appendix A and shall include the following:
 1. A list of applicable definitions
 2. All pertinent regulations
 3. On-site organization and coordination. Include the Contractor's list of responsible persons, including the names of all persons who have responsibility for project safety and who may direct the work. Provide an organizational chart that lists the hierarchy of authority and individual responsibilities. Include telephone numbers, pager numbers, and fax numbers for responsible persons, and for the Contractor's corporate offices. The Contractor shall be available 24 hours per day seven days a week for the duration of the project.

4. The HASP shall describe the work to be performed and the hazards associated with that work (e.g. hazardous gases, confined space work, underwater work, working with wastewater and its byproducts)
5. The HASP shall include all hazard mitigation including engineering or administrative controls. Additionally, any applicable standard operating procedures (SOP's) such as those needed for working under water, with high pressure, cold and hot, oxygen, nitrogen, and other liquids and gases and confined space entry shall be included. The Contractor shall assert in the HASP that all training required to perform SOP's, or required by regulation or law has been completed and that only trained employees shall perform the tasks that require training. Additionally, the Contractor shall provide all safety equipment and power required to run such equipment.
6. Description of environmental monitoring equipment and procedures, personnel monitoring, personal protective equipment, ventilation requirements, fall protection/fall retrieval system, and communication procedures (including standard hand signals).
7. Other considerations (e.g. traffic, weather, uncontrolled releases).
8. Emergency procedures.
9. Plan updates.
10. Description of safety inspection procedures. It will include how often, and by whom the inspections will be made, and where on site the results of those inspections will be kept. All safety inspection reports shall be kept at the site for the duration of the Work and shall be presented to Federal, State, and local officials having jurisdiction, and the MWRA upon request. Failure to produce such documentation within 24 hours is reason for suspending work. Work will not resume until such documentation has been provided. No claim shall be made by the Contractor or its agents, against the MWRA or its agents, for delays or damages arising from the Contractor's inability to fulfill this obligation.
11. Other, as applicable:
 - a. Continuous atmospheric monitoring of all interior and confined work spaces for the duration of the Work.
 - b. Smoking is prohibited at Nut Island Headworks.
 - c. Use of power tools. Electric explosion-proof and gasoline powered tools or torches may be used with sufficient safety and equipment procedures to prevent explosion and fire hazard, including, but not limited to, use of gas detection and monitoring equipment on a continuous basis, use of protective shields to contain sparks, and maintenance of fire extinguishers located for immediate use.

- d. Maintenance of fire extinguishers at the work site.
- e. The use of non-sparking tools, where feasible. All equipment shall be explosion-proof suitable for Class I, Division I, Group D locations.
- f. Use of adequate lighting in all working areas.
- g. Precautions to prevent injury from poor footing on floors.
- h. Placement of safety signs at appropriate locations on the work site.

***** END OF SECTION *****

**SECTION 01000
GENERAL REQUIREMENTS**

PART 1 - GENERAL

1.01 SUMMARY OF WORK

- A. The Contractor shall perform an internal inspection of three submerged outfall conduits at the MWRA Nut Island Headworks, 147 Sea Avenue, Quincy, MA. The work shall be performed by divers or by remote sensing. Contractor shall prepare a written report documenting the findings of the inspection.
- B. The Contractor shall provide divers to inspect and clean duckbill-type pinch valves on the outlet of each conduit.
- C. The Contractor shall prepare and implement a site specific Health and Safety Plan for the project. The Contractor shall submit the Plan for review and comment to the Project Manager within 15 working days of the Notice to Proceed.
- D. The Contractor shall obtain all permits and coordinate with all Federal and State agencies necessary to perform the Work.

1.02 BACKGROUND

Until 1998, the outfalls were used to discharge effluent from the then Nut Island Treatment Facility into the harbor. With the commissioning of the Nut Island Headworks in 1998, wastewater is now sent to Deer Island Treatment Plant for treatment and discharge. The outfalls are inactive, but maintained for emergency use. In order to ensure their reliability when needed, periodic inspections are required. The previous inspection of outfalls, and cleaning of the duckbill valves was performed in 2005.

1.03 SITE CONDITIONS

- A. The outfalls are designated as follows:

Outfall 101 – Length approximately 5830 feet. Diameter 60 inches.
Outfall 102 – Length approximately 5545 feet. Diameter 60 inches.
Outfall 103 – Length approximately 1412 feet. Diameter 60 inches.

All outfall pipes are cast iron.

The Drawings show the locations of each outfall relative to Nut Island.

- B. In the emergency event that wastewater cannot be received by Deer Island, wastewater can overflow a weir or backflow through an orifice plate into an emergency storage area within the plant. The storage area can be relieved via an emergency spillway or emergency outfalls 101, 102 and 103. This requires the

opening of a sluice gate to allow wastewater to pass through to the spillway or outfalls.

Each outfall discharges through a single outlet which is capped by a duckbill valve. The upstream end of the outfalls are accessible through two eight foot square hatches located on the grounds of the Nut Island Headworks (refer to Drawing C-3.) The Authority will provide labor and equipment to open any hatches required to perform the Work.

- C. The Contractor shall verify site conditions before proceeding with the Work.

1.04 CONTRACTOR USE OF SITE

- A. The Contractor shall conduct the Work Monday through Friday, 7:00 A.M. to 3:30 P.M. No work shall be conducted on Authority holidays. Authority holidays are:

New Year's Day	Independence Day
Martin Luther King Day	Labor Day
President's Day	Columbus Day
Evacuation Day	Veteran's Day
Patriot's Day	Thanksgiving Day
Memorial Day	Christmas Day
Bunker Hill Day	

- B. The Contractor shall conduct the work so as not to interfere with the activities of the facility, or access to the grounds by the public.
- C. The Contractor shall restore the work areas to original condition upon completion of all activities.

*****END OF SECTION*****



Massachusetts Water Resources Authority
Charlestown Navy Yard
100 First Avenue
Boston, MA 02129
(617) 242-6000
<http://www.mwra.state.ma.us>