Massachusetts case studies

- Activity Category I – Petroleum-Related Site Remediation
- Activity Category II – Non-Petroleum-Related Site Remediation
- Activity Category III-G – Contaminated Site Dewatering; sites with known contamination
- Other Activity Categories

The following case studies do not represent your *only* obligations with respect to the NPDES Remediation General Permit.

Case Study Overview

GENERAL RGP CONSIDERATIONS

ACTIVITY CATEGORY I – PETROLEUM-RELATED SITE REMEDIATION

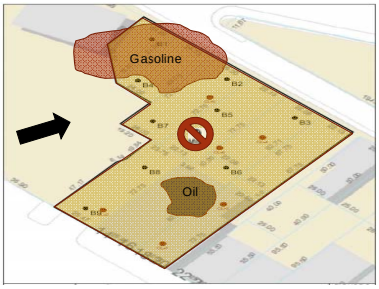
ACTIVITY CATEGORY II – NON-PETROLEUM-RELATED SITE REMEDIATION

ACTIVITY CATEGORY III – CONTAMINATED SITE DEWATERING

> "Sampling of the influent, effluent and/or receiving water must yield data representative of the discharge under authority of Section 308(a) in accordance with 40 CFR §122.41(j), §122.44(i), and §122.48."

NPDES Permit No. MAG910000 and NHG910000; Section 4.1 Monitoring Requirements

The RGP requires a *minimum* of 1 untreated influent sample. This means that you'll need to use professional judgement when determining how many samples must be collect to accurately represent site conditions.



Example

- 14,000 ft^2 Lot
- Excavating entire footprint to 25 ft b.s.g.
- Dewatering entire Site

TIP: The sample type for all monitoring locations is grab. Each grab sample must be analyzed and cannot be composited.

NOI Sampling Considerations

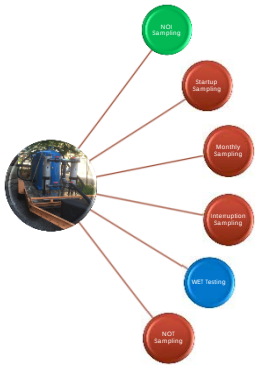
- RECEIVING WATER
- INFLUENT

TIP: Don't forget to test both the influent and receiving water for hardness when sampling for discharges to freshwater.

General RGP Requirements

Sampling & Monitoring Locations

Reminder: Sample influent & Receiving Water for NOI, sample influent & effluent for treatment system monitoring and sample effluent only for WET Testing.



General RGP Requirements

Authorization to Discharge

- EPA will review the NOI and post to their website if complete
- After a *minimum* of 7 days, EPA will provide written Authorization to Discharge under the RGP
- Authorization letters will include a summary of site-specific parameters, in addition to those that all discharges require:
  - Effluent Flow
  - pH
  - Temperature
- Any conditions EPA imposes on the discharge
  - Ex. WET Testing
  - Parameters present at a site but not included in the RGP

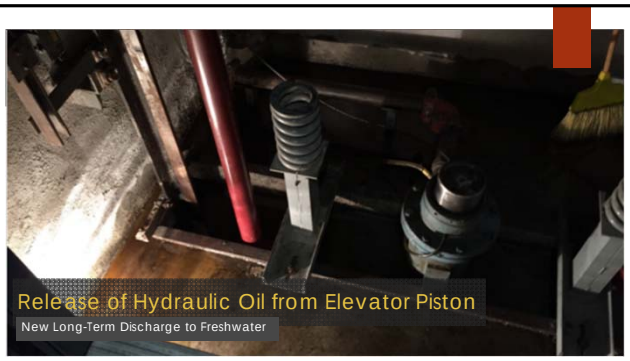
RGP Milestones

- Make sure your discharge is eligible for coverage under the RGP
- Conduct Requisite Sampling & Prepare Notice of Intent
- Prepare Best Management Practices Plan
- Receive Authorization letter – provides conditions for discharge
- Monitor the discharge per RGP schedule
- Maintain records
- Report as required, including administrative requirements
- Submit Notice of Termination

Case Studies

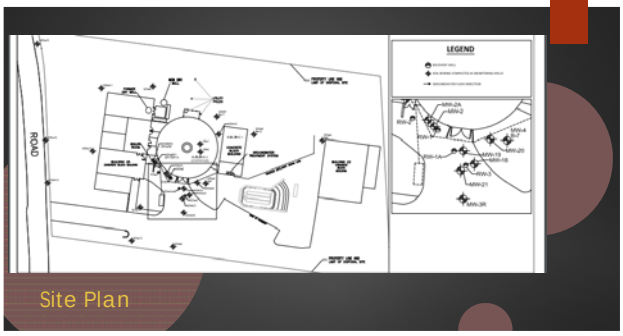
ACTIVITY CATEGORY I

PETROLEUM-RELATED SITE REMEDIATION



Release of Hydraulic Oil from Elevator Piston

New Long-Term Discharge to Freshwater



Site Plan

Treatment System

- Oil Water Separator
- Recovery and Discharge Pumps

Treatment System

- Flow Meter
- Bag Filter
- Dual Liquid-Phase GAC Vessels

Activity Category I

NOI Sampling Requirements

- All parameters in contamination type A. Inorganics;
- Any present in contamination type B. non-halogenated VOCs;
- If present in contamination type C. halogenated VOCs;
- Any present in contamination type D. non-halogenated SVOCs;
- If present in contamination type E. halogenated SVOCs; and
- Any present in contamination type F. fuels parameters.

MAG910000
NHG910000

Appendix V
Page 1 of 4

Dilution Factor and Effluent Limitation Calculations for Massachusetts

Prior to completing the NOI requirements for the Remediation General Permit (RGP), the State must be contacted to confirm the critical low flow (7Q10) of the receiving water, dilution factor (DF), other appropriate hydrologic conditions, or to confirm site-specific limiting factors, including additional water quality-based effluent limitations (WQBELs). See Part 4.6 of the RGP for contact information.

RGP Appendix V

Notice of Intent
Part B.4

B. Receiving water information:

1. Name of receiving water(s)	Waterbody identification of receiving water(s)	Classification of receiving water(s)

Receiving water is (check any that apply): ☐ Outstanding Resource Water ☐ Ocean Sanctuary ☐ territorial sea ☐ Wild and Scenic River

2. Has the operator attached a location map in accordance with the instructions in B, above? (check one): ☐ Yes ☐ No
Are sensitive receptors present near the site? (check one): ☐ Yes ☐ No
If yes, specify:

3. Indicate if the receiving water(s) is listed in the State's Integrated List of Waters (i.e., CWA Section 303(d)). Include which designated uses are impaired, and any pollutants indicated. Also, indicate if a final TMDL is available for any of the indicated pollutants. For more information, contact the appropriate State as noted in Part 4.6 of the RGP

4. Indicate the seven day-two-year low flow (7Q10) of the receiving water determined in accordance with the instructions in Appendix V for sites located in Massachusetts and Appendix VI for sites located in New Hampshire.	0.133
5. Indicate the requested dilution factor for the calculation of water quality-based effluent limitations (WQBELs) determined in accordance with the instructions in Appendix V for sites in Massachusetts and Appendix VI for sites in New Hampshire.	2.85

6. Has the operator received confirmation from the appropriate State for the 7Q10/and dilution factor indicated? (check one): ☐ Yes ☐ No
If yes, indicate date confirmation received:
7. Has the operator attached a summary of receiving water sampling results as required in Part 4.2 of the RGP in accordance with the instructions in Appendix VIII? (check one): ☐ Yes ☐ No

Notice of Intent
Part B.1

Monitoring of Treatment System Schedule

Discharges with treatment systems lasting greater than 7 days, and discharges lasting more than a year

Startup Sampling

- *Influent & Effluent twice during first week:*
  - First day of startup
  - One other non-consecutive day during that week
  - 5-day TAT with results review within 48 hours of receipt
- *If the effluent meets limitations and the treatment system is operating as designed:*
  - One Influent/effluent per week for next three weeks (no earlier than 24-hours after the last sample from the first week)
  - 10-day TAT with results review within 72 hours of receipt

Monthly Sampling

- One Influent and one effluent sample per calendar month thereafter until permit expiration or NOT, whichever occurs first

TIP: Discharges lasting longer than 12 months require the submission of DMRs

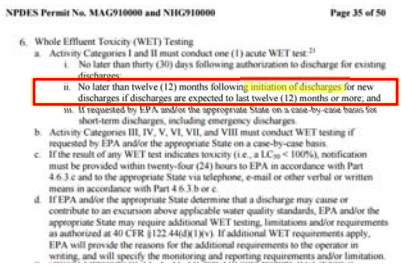
Record Keeping

Operators must retain records for a minimum of 3-years from the date of the sample, measurement, report or notice, whichever applies.

4.5 Record-Keeping Requirements

2. On-Site Records: Hardcopy or electronic; must be maintained onsite and/or with the operator to be made available upon inspection and/or request by EPA or the State:

- A complete copy of this general permit
- A copy of EPA's authorization to discharge and any subsequent modifications
- Copies of any information submitted to EPA, the State, and the municipality
- Copies of any correspondence received from EPA, the State, and the municipality
- A copy of the BMPP.



NPDES Permit No. MAG910000 and NHG910000 Page 35 of 50

6. Whole Effluent Toxicity (WET) Testing
   a. Activity Categories I and II must conduct one (1) acute WET test:[23]
      i. No later than thirty (30) days following authorization to discharge for existing discharges;
      ii. No later than twelve (12) months following initiation of discharges for new discharges if discharges are expected to last twelve (12) months or more, and
      iii. If requested by EPA and/or the appropriate State on a case-by-case basis for short-term discharges, including emergency discharges.
   b. Activity Categories III, IV, V, VI, VII, and VIII must conduct WET testing if requested by EPA and/or the appropriate State on a case-by-case basis.
   c. If the result of any WET test indicates toxicity (i.e., a LC_{50} < 100%), notification must be provided within twenty-four (24) hours to EPA in accordance with Part 4.6.3.c and to the appropriate State via telephone, e-mail or other verbal or written means in accordance with Part 4.6.3.b or c.
   d. If EPA and/or the appropriate State determine that a discharge may cause or contribute to an excursion above applicable water quality standards, EPA and/or the appropriate State may require additional WET testing, limitations and/or requirements as authorized at 40 CFR §122.44(d)(1)(v). If additional WET requirements apply, EPA will provide the reasons for the additional requirements to the operator in writing, and will specify the monitoring and reporting requirements and/or limitation.

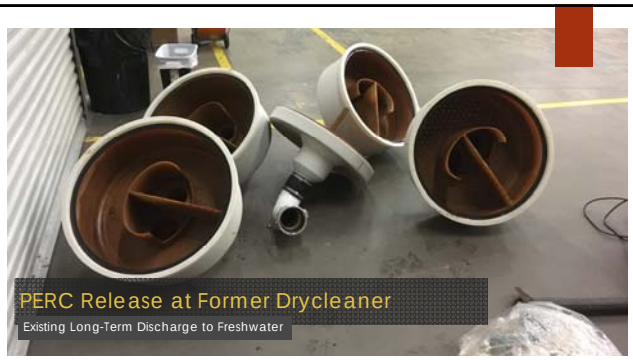
RGP Section 4.1

WET Testing

Case Studies

ACTIVITY CATEGORY II

NON-PETROLEUM-RELATED SITE REMEDIATION



PERC Release at Former Drycleaner

Existing Long-Term Discharge to Freshwater

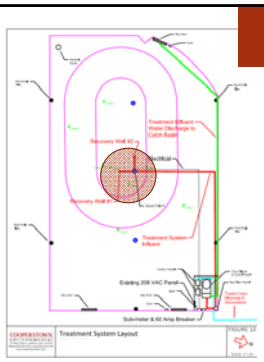
Site Plan

Treatment System

- Tray Stripper
- Flow Totalizer
- Air-Phase GAC Vessels
- Recovery & Discharge Pumps
- Bag Filter Vessel

Treatment System

- System Schematic

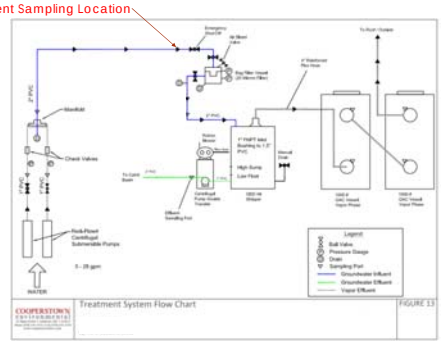


Activity Category II

NOI Sampling Requirements

- All parameters in contamination type A. Inorganics;
- Any present in contamination type B. non-halogenated VOCs;
- Any present in contamination type C. halogenated VOCs;
- Any present in contamination type D. non-halogenated SVOCs;
- If present in contamination type E. halogenated SVOCs; and
- If present in contamination type F. fuels parameters.

Influent Sampling Location



Treatment System Schematic

Appendix IV Part I.E.4.c

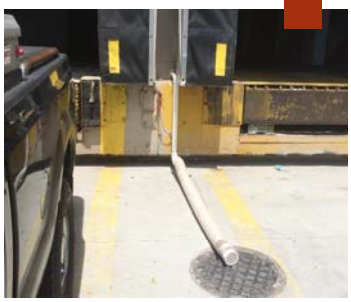
E. Treatment system information

1. Indicate the type(s) of treatment that will be applied to effluent prior to discharge.
2. Provide a written description of any treatment system(s) or processes that will be applied to the effluent prior to discharge. Identify each major treatment component (e.g. fractionation tanks, filter units/media, chemical feed tank, air stripping unit).
3. Provide the design flow capacity of the most limiting component in gallons per minute (gpm). Clearly identify the component of the treatment system or process with the most limited flow, i.e., the component that establishes the design flow or otherwise controls the rate and/or volume of discharge. Indicate the proposed maximum and average effluent flow. Indicate if use of a flow meter is infeasible and provide justification. If Activity Category IV applies, indicate the estimated total volume of water that will be discharged.
4. Attach a line drawing or schematic of effluent flow with the following labels, at a minimum:
   a. The direction of water flow from the point of generation to the receiving water;
   b. The source water(s) with estimated volume; process waters with estimated volume;
   c. Any treatment systems or processes with design flow(s);
   d. Discharge points with estimated volume;
   e. Sampling points, if different than discharge points; and
   f. Receiving water(s).

Appendix IV Part I.E

Effluent Sampling Location

- Following all treatment, immediately prior to discharge to private or municipal separate storm sewer system and prior to comingling with any other discharges.



Best Management Practices Plan

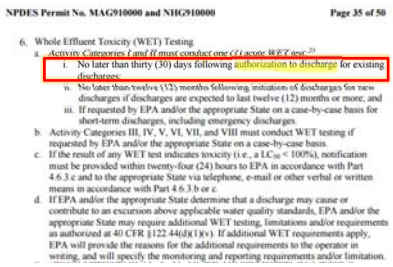
See Section 2.5 of RGP for complete instructions

Best Management Practices Plan

See Section 2.5 of RGP for complete instructions

TIP: Don't forget to include the BMPP Certification Statement in the NOI to certify that the BMPP has been or will be developed and implemented upon initiation of discharge.

TIP: BMPP Requires Annual Certification of Compliance Statement for those discharges lasting greater than 12 months on or before Jan 15 each calendar year or upon NOT of discharges less than one year.



NPDES Permit No. MAG910000 and NHG910000 Page 35 of 50

6. Whole Effluent Toxicity (WET) Testing
   a. Activity Categories I and II must conduct one (1) acute WET test.[23]
      i. No later than thirty (30) days following authorization to discharge for existing discharges;
      ii. No later than twelve (12) months following initiation of discharges for new discharges if discharges are expected to last twelve (12) months or more; and
      iii. If requested by EPA and/or the appropriate State on a case-by-case basis for short-term discharges, including emergency discharges.
   b. Activity Categories III, IV, V, VI, VII, and VIII must conduct WET testing if requested by EPA and/or the appropriate State on a case-by-case basis.
   c. If the result of any WET test indicates toxicity (i.e., a LC_{50} < 100%), notification must be provided within twenty-four (24) hours to EPA in accordance with Part 4.6.3.c and to the appropriate State via telephone, e-mail or other verbal or written means in accordance with Part 4.6.3.b or c.
   d. If EPA and/or the appropriate State determine that a discharge may cause or contribute to an excursion above applicable water quality standards, EPA and/or the appropriate State may require additional WET testing, limitations and/or requirements as authorized at 40 CFR §122.44(d)(1)(v). If additional WET requirements apply, EPA will provide the reasons for the additional requirements to the operator in writing, and will specify the monitoring and reporting requirements and/or limitation.

RGP Section 4.1

WET Testing

Case Studies

ACTIVITY CATEGORY III

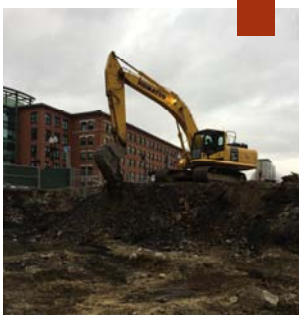
CONTAMINATED SITE DEWATERING

REDEVELOPMENT OF FORMER GASOLINE STATION

Existing Long-Term Discharge to Saltwater

MCP Site Contaminants of Concern

- Petroleum Hydrocarbons
- Urban Fill



Treatment System

- Submersible Pumps
- Weir Tanks

Treatment System

- Dual Bag Filter Vessels
- Liquid-Phase GAC Vessels
- Flow Meter

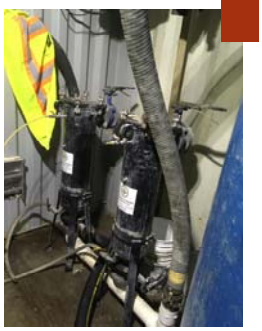


Table 1: Activities Covered by the Remediation General Permit

Activity Category	Contamination Type
I. Petroleum-Related Site Remediation II. Non-Petroleum-Related Site Remediation	A. Inorganics B. Non-Halogenated Volatile Organic Compounds C. Halogenated Volatile Organic Compounds D. Non-Halogenated Semi-Volatile Organic Compounds E. Halogenated Semi-Volatile Organic Compounds F. Fuels Parameters
Activity Category	**Contamination Type**
III. Contaminated Site Dewatering IV. Pipeline and Tank Dewatering V. Aquifer Pump Testing VI. Well Development/Rehabilitation VII. Collection Structure Dewatering/Remediation VIII. Dredge-Related Dewatering	G. Sites with Known Contamination H. Sites with Unknown Contamination A. Inorganics B. Non-Halogenated Volatile Organic Compounds C. Halogenated Volatile Organic Compounds D. Non-Halogenated Semi-Volatile Organic Compounds E. Halogenated Semi-Volatile Organic Compounds F. Fuels Parameters

Remediation General Permit
Part 1

Known Contamination

Remediation General Permit PART 1.1

public safety, or the environment, or to reestablish essential public services. The term "new discharge" refers to any discharge that is not an existing or emergency discharge. The term "known" used in Contamination Type G, above, refers to sites with fully characterized and/or specific contamination type categories, where pollutants have been quantified in environmental samples, and such data meet minimum data validation requirements.[3] Activity Categories III-G through VIII-G must select all Contamination Type Categories A through F, that are present. The term "unknown" used in Contamination Type H, above, refers to sites broadly associated with

[3] For sites located in Massachusetts, operators may refer to Massachusetts Policy #WSC-07-350, *MCP Representativeness Evaluations and Data Usability Assessments* for guidance on data usability assessments. For sites located in New Hampshire, operators may refer to EPA Region 1 guidance for data validation.

Unknown Contamination

Remediation General Permit PART 1.1

samples, and such data meet minimum data validation requirements.[3] Activity Categories III-G through VIII-G must select all Contamination Type Categories A through F, that are present. The term "unknown" used in Contamination Type H, above, refers to sites broadly associated with contamination that may or may not be fully characterized, including, but not limited to sites where pollutants may be present, but all potential pollutants have not been quantified, or pollutants have been quantified, but such data do not meet minimum data validation requirements. For Activity Categories III-H through VIII-H, Contamination Type Categories A through F apply. For the purposes of this general permit, a pollutant is "known present" if

samples, and such data meet minimum data validation requirements.[3] Activity Categories III-G through VIII-G must select all Contamination Type Categories A through F, that are present. The term "unknown" used in Contamination Type H, above, refers to sites broadly associated with contamination that may or may not be fully characterized, including, but not limited to sites where pollutants may be present, but all potential pollutants have not been quantified, or pollutants have been quantified, but such data do not meet minimum data validation requirements. For Activity Categories III-H through VIII-H, Contamination Type Categories A through F apply. For the purposes of this general permit, a pollutant is "known present" if

Remediation General Permit
Part 1

I. Dilution Factor

A DF for sites that discharge to freshwater receiving waters in Massachusetts is calculated using the equation below. Alternate calculation methods for DFs may be acceptable if approved by the State. A DF for sites that discharge to saltwater receiving waters in Massachusetts is assumed to be 1:1, unless otherwise approved on a case-by-case basis by the State.

Notice of Intent
Part B.4

RGP Appendix V

MAG910000
NHG910000

Appendix IV – Part 1 – NOI
Page 15 of 24

B. Receiving water information:

1. Name of receiving water(s)	Waterbody identification of receiving water(s)	Classification of receiving water(s)
Boston Harbor	MA-70-01	SB

Receiving water is (check any that apply): ☐ Outstanding Resource Water ☐ Ocean Sanctuary ☐ territorial sea ☐ Wild and Scenic River

2. Has the operator attached a location map in accordance with the instructions in B, above? (check one) ■ Yes ☐ No

Are sensitive receptors present near the site? (check one) ☐ Yes ■ No
If yes, specify:

3. Indicate if the receiving water(s) is listed on the State's Integrated List of Waters (i.e., CWA Section 303(d)). Include which designated uses are impaired, and any pollutants indicated. Also, indicate if a final TMDL is available for any of the indicated pollutants. For more information, contact the appropriate State as noted in Part 4.A of the IGP. *Fish Consumption, PCBs; Fish, Other Aquatic Life & Wildlife; DO; Contact Recreation (Jan/Dec); Enterococcus; Shellfish Harvesting; Fecal Coliform*

4. Indicate the seven day-ten-year low flow (7Q10) of the receiving water determined in accordance with the instructions in Appendix V for sites located in Massachusetts and Appendix VI for sites located in New Hampshire.	0
5. Indicate the requested dilution factor for the calculation of water quality-based effluent limitations (WQBELs) determined in accordance with the instructions in Appendix V for sites in Massachusetts and Appendix VI for sites in New Hampshire.	0

Notice of Intent
Part B.1

Appendix IV
NOI Instructions

Part I.D.1.g
Site Plan

D. Discharge information

1. Provide the following information:
   a. Indicate if the discharge(s) is an existing discharge, an emergency discharge, a new discharge, or a new source, as defined by 40 CFR §122.2. New sources are not eligible for coverage under the RGP.
   b. Indicate the pathway by which the discharge(s) enters the receiving water. Provide a narrative description, if necessary.
   c. Indicate the outfall(s) location(s), including geographic coordinates (i.e., latitude and longitude). For multiple outfalls, assign the outfall numbers sequentially, beginning with Outfall 001.
   d. Provide the expected start and end dates of discharge(s) (month/year).
   e. Indicate if the discharge is expected to occur over a duration of less than 12 months, 12 months or more, or is an emergency discharge (14 days or less).
   f. Indicate the month and year requested for permit coverage to be effective. Note that timeframes specified in the RGP begin upon the effective date of coverage. Be as precise as possible. The effective date of permit coverage will generally be the first of the month, when practicable. If the start and/or end dates of discharge change, an operator may submit a Notice of Change to EPA to provide notification of such an administrative change. Refer to Appendix IV, Part 2 for additional information regarding notification of a change to the start or end date.
   g. Provide a site plan with the following labels, at a minimum: the site boundary, the receiving water(s), the discharge point(s) to the receiving water(s), the location of the monitoring point(s), when different from the discharge point(s), the location of any surface or subsurface infrastructure that will be used to convey discharges, the location of structures, if present or under construction, the location of any treatment system(s) present. Indicate a boundary line showing the extent of contamination, if known. EPA makes the attachments to the NOI publicly available. Do not disclose security-sensitive information on the site plan.

Appendix IV
Part I.D.1

Corrective Actions & Interruption Sampling

See Part 2.5.2.e.iii & 4.3.2 of the RGP

Corrective Actions

- 1) The discharge must stop
- 2) The operator must immediately take all reasonable steps to minimize or prevent the discharge
- 3) Notification must be provided to EPA and to the State
- 4) The cause of the permit violation must be identified and corrective action must be initiated within seventy-two (72) hours, if necessary, prior to resuming discharge, unless otherwise instructed by EPA and/or the appropriate State.

Interruption Sampling

- Corrective actions following upset or bypass:
  - Collect 1 sample with 5-day TAT; review data w/in 48 hours of receipt
  - If corrected, resume startup sampling or routine monitoring, whichever applies
  - If problem persists, halt discharge, notify EPA and State within 24 hours; resume discharge following completion of corrective actions
- If interruption lasts longer than 90 days, startup sampling applies

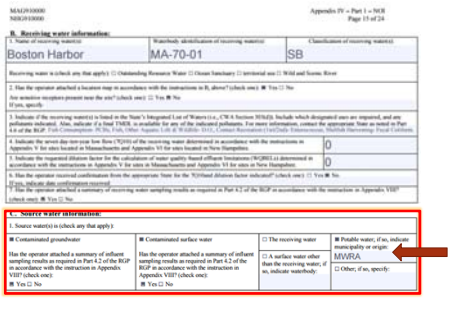
Notice of Change

See Part 5.1 of RGP & Appendix IV for instructions

- Carbon Vessel Backwash - Before

- Carbon Vessel Backwash - After

TIP: For a change in receiving water and/or operator, a **new NOI is required**



B. Receiving water information:

1. Name of receiving water(s)	Waterbody identification of receiving water(s)	Classification of receiving water(s)
Boston Harbor	MA-70-01	SB

Notice of Intent Part C.1

C. Source water information:

1. Source water(s) is (check any that apply):

■ Contaminated groundwater	■ Contaminated surface water	☐ The receiving water	■ Potable water; if so, indicate municipality or origin:
Has the operator attached a summary of influent sampling results as required in Part 4.2 of the RGP in accordance with the instruction in Appendix VIII? (check one): ■ Yes ☐ No	Has the operator attached a summary of influent sampling results as required in Part 4.2 of the RGP in accordance with the instruction in Appendix VIII? (check one): ■ Yes ☐ No	☐ A surface water other than the receiving water; if so, indicate waterbody:	MWRA
			☐ Other; if so, specify:

If backwashing filter vessels, will hydrant water be used?

Notice of Termination Sampling

NOT Sampling

Sample for all parameters required by the Activity Category (not just those that EPA specified in the Authorization to Discharge) as follows:

- Influent/effluent twice during last week of discharge
  - Final day of discharge
  - Some other non-consecutive day prior to termination
- 10-day TAT and review results within 72-hours of receipt

Exceptions

- If you have data from within the last 3 months prior to termination of discharge that meets the sampling requirements of the RGP, it can be substituted
  - Ex) Monthly sampling results that achieve MLs

TIP: Attach a summary of all monitoring results from the initiation of discharge through termination.

Other Activity Categories

- Activity category iv: Pipeline & Tank Dewatering

Photo by C. Vakalopoulos

Other Activity Categories

- Activity category v: Aquifer Pump Testing

Photo by S. Little

Other Activity Categories

- Activity category vI: Well Development/ Rehabilitation

Photo by C. Vakalopoulos

Other Activity Categories

- Activity category vII: Collection Structure Dewatering/ Remediation

Photo by C. Vakalopoulos

Other Activity Categories

- Activity category vIII: Dredge-Related Dewatering

Photo by FWS, Public Domain