SALEM AND BEVERLY WATER SUPPLY BOARD
50 Arlington Avenue
Beverly, MA 01915
(978) 922-2600
Peter S. Smyrnios, Superintendent

May 9, 2017

US EPA, Region 1
Office of Ecosystem Protection
PWTF Coordinator (OEP06-1)
5 Post Office Square, Suite 100
Boston MA. 02109-3912

Re: NPDES General Permit NOI
Salem and Beverly Water Supply Board
NPDES Permit No. MAG640059

Dear PWTF Coordinator:

The Salem and Beverly Water Supply Board is submitting its Notice of Intent (NOI), containing the information detailed in Appendix IV and related documents, in order to obtain authorization to discharge under the National Pollutant Discharge Elimination System (NPDES) General Permit (GP).

We trust that this submittal meets all of the requirements of the NOI. Please contact me with any comments or questions.

Sincerely,

Peter S. Smyrnios
Superintendent
Salem and Beverly Water Supply Board

III. Suggested Notice of Intent (NOI) Format

A. Facility Information

1. *Indicate applicable General Permit for discharge* MAG640000

   NHG640000

2. *Facility Data*

   Facility Name Arlington Avenue Water Treatment Plant

   Street/PO Box 50 Arlington Avenue City Beverly

   State MA Zip Code 01915

   Latitude 42.583517 Longitude -70.890806

   SIC Code(s) 4941

   Type of Business Water Supply

3. *Facility Mailing Address (if different from Location Address, above)*

   Facility Name _____

   Street/PO Box _____ City _____

   State _____ Zip Code _____

JUN 16 2017

4. *Facility Owner:*
Legal Name Salem and Beverly Water Supply Board

Email sbwsb@aol.com

Street/PO Box 50 Arlington Avenue City Beverly

State MA Zip Code 01915

Contact Person Peter Smyrnios Tel # 978-922-2600

Owner is (check one): Federal ____ State ____ Tribal ____ Private ____

Other (describe) Municipal

5. *Facility Operator (if different from above):*
Legal Name ____

Email ____

Street/PO Box ____ City ____

State ____ Zip Code ____

Contact Person ____ Tel # ____

6. *Currently (Administratively) Covered Under the Expired PWTF General Permit? (Please check yes or no):*

Yes X No

a) Has a prior NPDES permit (either individual or general permit coverage) been granted for the discharge that is listed on the NOI? Yes X No If Yes, Permit Number MAG 640059

b) Is the discharge a "new discharger" as defined by 40 CFR Section 122.22? Yes No X

c) Is the facility covered by an individual NPDES permit for *other* discharges? Yes No X

If yes, Permit Number: ____

d) Is there a pending NPDES application (either individual or general permit) on file with EPA for this discharge? Yes X No

If yes, date of submittal: 09/07/05 and Permit Number, if available MAG 640059

7. *Attach a topographic map indicating the location of the facility and the outfall(s) to the receiving water.* **Map attached?** See Figure 1

B. Discharge Information (Attach additional sheets as needed):

1. *Name of receiving water into which discharge will occur*: Wenham Lake Reservoir

Check Appropriate Box: Freshwater X Marine Water

State Water Quality Classification Class A

Type of Receiving Water Body (e.g., stream, river, lake, reservoir, estuary, etc.) reservoir

2. *Indicate the frequency of the discharge:*

Emergency Only Infrequent (Once/Twice a Year) Intermittent*** Continuous

Other***

***If Intermittent (i.e., occurs sometimes but not regularly as in batch discharge), provide # of days per year the discharge occurs _____

***If Other, explain _____

3. Describe the discharge activities for which the owner/applicant is seeking coverage, including process discharges not specifically authorized in the PWTF GP which need to be authorized for discharge (and which attain the effluent limits and other conditions of the general permit.)
(This description should include all treatment methods used on the wastewater prior to discharge including lagoons, baffles, filter presses, etc. If lagoons are used at the facility, please include the number and size of lagoons; the size and elevation of the entry pipe; the time of travel from the entry point of the discharge into the lagoon to the entry point to the receiving waters; and the length of backwash cycle for any combination of filters.)

See Attachment 1

4. Attach a line drawing or flow schematic showing water flow through the facility including sources of intake water, operations contributing to flow, treatment units, outfalls, and receiving water(s).

Line drawing or flow diagram attached? See Figures 2 and 3

5. Identify the source of the water being discharged:

Surface water Groundwater Other (describe)

6. Number of Outfalls 1 Latitude and Longitude to the nearest second for each Outfall. Attach additional pages if necessary.

Outfall # 1 Latitude 42.583517 Longitude -70.890806

Outfall # Latitude _____ Longitude _____

Outfall # Latitude _____ Longitude _____

7. For each outfall, indicate the proposed sampling location(s) for both effluent and ambient water (when applicable) and proposed consistent times of the month for collecting samples:

Outfall # 1

Four samples are taken from the backwash lagoon overflow discharge. Samples are collected once a week, beginning on the first Tuesday of the month.

Outfall #

Outfall #

C. Effluent Characteristics

1. List here and attach additional information (on separate sheet) on any water additives used at the facility. This includes chemicals (including aluminum, iron, or phosphorus-containing chemicals) for pH adjustment, dechlorination, control of biological growth, and control of corrosion and scale in water pipes.

See Attachment 2

2. Report any known remediation activities or water quality issues in the vicinity of the discharge

Within a 1/2 mile radius there is a 21E site located at a Speedway Gas Station on Route 1A. See Figure 4

3. Are aluminum compounds or polymers used as coagulants at this facility?*

Yes X No

*If answer is "Yes" and the facility was *not* covered under the PWTF GP that expired on

10/2/14, additional monitoring data and information is required. **Please complete Item III.C.12.**

4. Does the facility use any alum-based products for algae control?*

Yes_ No X

*If answer is "Yes" and the facility was *not* covered under the PWTF GP that expired on 10/2/14, additional monitoring data and information is required. **Please complete Item III.C.12.**

5. Are iron-containing coagulants used at this facility? Yes_ No X

6. Does the facility's discharge contain residual chlorine? Yes X No

[If Yes, EPA will calculate a Total Residual Chlorine effluent limit for your facility]

7. Does the facility provide treatment to remove arsenic from the raw water source? Yes No X

8. a. Are phosphorus-containing chemicals added to the treated water at this facility? Yes X No

b. If answer to 8.a. is Yes, does the facility discharge to Phosphorus-Impaired waters? Yes No X

c. If answer to 8.b. is Yes, provide name of P-Impaired waterbody: _____

9. Does the facility remove radium or other radioactive substances from raw water sources to comply with drinking water standards? Yes No X

10. Provide the reported or calculated seven day- ten year low flow (7Q10) of the receiving water
7Q10: _____ cfs Dilution Factor -- 10:1 cfs

NOTE: For facilities that discharge in New Hampshire, the state permitting authority **must** be contacted at the address listed in Appendix VI of the PWTF GP to determine and/or confirm the 7Q10 and/or dilution factor. For facilities that discharge in Massachusetts, it is highly recommended to contact the relevant state authority (MassDEP) to determine and/or confirm the 7Q10 and/or dilution factor.
Attach any calculation sheets used to support the stream flow and dilution factors. See Appendix VII for equations and additional information. See Attachment 3

11. For *each* outfall, provide the following discharge information:

Outfall # 1

a) *Design Flow of Facility (in million gallons per day, MGD):* 24
This value will determine the facility's daily maximum flow limit, up to a maximum of 1.0 MGD.

b) *Discharge Flow (in gallons per day, GPD):*
Maximum Daily Flow 1,000,000 GPD Average Monthly Flow 380,000 GPD

c) *TSS (mg/l)*: Number of samples: 118 (Minimum of 10 samples)

Maximum Daily 15 mg/l Average Monthly 4 mg/l

d) pH (s.u.) : Number of samples: 118 (Minimum of 10 samples)
Minimum 6.59 s.u. Maximum 8.20 s.u.

e) Total Residual Chlorine (ug/l): Number of samples: 118 (Minimum of 10 samples)
Maximum Daily 110 ug/l
NOTE: TRC is only required for discharges which have been previously chlorinated or contain residual chlorine

12. The following section must be completed for any facility that answered "Yes" to Question III.C.3 or III.C.4 (e.g. adds an aluminum-containing chemical to the water being treated and/or discharged) **AND** was not covered under the previous PWTF GP (which expired on 10/2/14).

a) Collect, analyze and submit **12 effluent samples and 10 ambient surface water samples** from a location upstream of and not affected by the discharge. For facilities in New Hampshire and Massachusetts, each sample should be analyzed for total recoverable Al in micrograms per liter. All laboratory results shall be submitted on a separate sheet.
   - **a.** The samples shall be composite samples consisting of four grab samples taken at approximately equal intervals on a flow weighted basis during the time at which the discharge is entering the receiving water after the start of the backwash cycle.
   - **b.** For each sampling event, the effluent and surface water samples shall be collected on the same day and during a representative discharge event. The samples shall be no more frequent than weekly and, if time allows in completing the NOI, at monthly intervals and at different flow conditions. If taking the ambient water quality sample from lakes/reservoirs, the 10 samples should be composited vertically.
   - **c.** Discharge flow at the time of effluent sampling should be recorded. Flow conditions at the time of ambient water sampling should be recorded (or estimated from nearest gaging station).
   - **d.** Do not include dilution when recording the results.
   - **e.** See Section 2.1.2.3 and Footnote 12 of Section 2.1.1 for MA facilities (or Section 3.1.2.3 and Footnote 10 of 3.1.1 for NH facilities) for key information on minimum level for analysis and sufficiently sensitive test procedures.
   - **f.** Sampling data that was collected within one year of the effective date of this general permit AND that adheres to all of the requirements above may be submitted in lieu of new samples. This must be denoted with the submitted data.

b) Provide a description of control measures, chemical substitutions, waste handling methods, and operational changes evaluated and/or used by the facility to minimize the discharge of aluminum to surface waters. (Include additional sheet(s), if necessary)

_____

_____

_____

_____

_____

D. Endangered Species Act Eligibility Information

Using the instructions in Appendix III of the PWTF GP, which of the following criteria apply to your facility?

U.S. Fish and Wildlife Service (USFWS) Criteria: AX B C

1. If you selected USFWS criteria B, has consultation with the U.S. Fish and Wildlife Service been completed?

   Yes No

2. If consultation with US Fish & Wildlife Service was completed, was a written concurrence finding that the discharge is "not likely to adversely affect" listed species or critical habitat received?

   Yes No

3. Attach documentation of ESA eligibility for USFWS as required at Part 1.4 and Appendix III of the General Permit. **Documentation attached?** See Attachment 4

4. For facilities seeking coverage under the Potable Water Treatment Facility General Permit for the *first* time, respond to the following questions to assist in ESA eligibility for NMFS:

   a) Indicate if the facility discharges into any of the stretches of the following rivers which can support or provide habitat to either Shortnose or Atlantic Sturgeon:

Merrimack River (from Essex Dam in Lawrence, Downstream (including Haverhill) to mouth of River)	Yes	No
Connecticut River (from Turner's Falls, downstream through Holyoke (including Holyoke Dam region)	Yes	No
Taunton River	Yes	No
Piscataqua River (in NH)	Yes	No

   b) Has the facility had any previous formal or informal consultation with NMFS?

   Yes No

   If yes, attach the results of the consultation(s). **Documentation attached?** _____

E. National Historic Properties Act Eligibility

1. Are any historic properties listed or eligible for listing on the National Register of Historic Places located on the facility site or in proximity to the discharge? Yes ____ No X

2. Have any State or Tribal Historic Preservation Officers been consulted in this determination?

Yes ____ No X

If yes, attach the results of the consultation(s). **Documentation attached?** ____

3. Which of the three National Historic Preservation Act scenarios listed in Appendix II, Section III have you met?

1 X 2 3

F. Supplemental Information

Please provide any supplemental information, including antidegradation review information applicable to new or increased discharges. Attach any analytical data used to support the application. Attach any certification(s) required by the General Permit.

G. Signature Requirements

The NOI must be signed by the operator in accordance with the signatory requirements of 40 CFR § 122.22 (see below) including the following certification:

I certify under penalty of law that (1) the discharge for which I am seeking coverage under the general permit consists solely of a surface water discharge from a potable water treatment facility; (2) any chemicals used to treat the discharge have been identified in this NOI; and (3) where applicable, the facility has complied with the requirements of this permit specific to the Endangered Species Act and National Historic Preservation Act.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature _____ Date _____

Printed Name and Title _____

Federal regulations require this application to be signed as follows:

1. For a corporation, by a responsible corporate party;
2. For a partnership or sole proprietorship, by a general partner or the proprietor, respectively, or,
3. For a municipality, State, Federal or other public facility, by either a principal executive officer or ranking elected official.

Note: Permits No. MAG640000 and NHG640000 may be found at http://www3.epa.gov/region1/npdes/pwtfgp.html

H. "Opt-Out Request" from NetDMR Requirement

1. Check the box if you **are** applying for an "opt-out request." ☐

2. Provide a detailed explanation of the technical or administrative factors that support your request to "opt-out" from the requirement to submit DMRs and reports electronically. (Add additional lines, if necessary.)

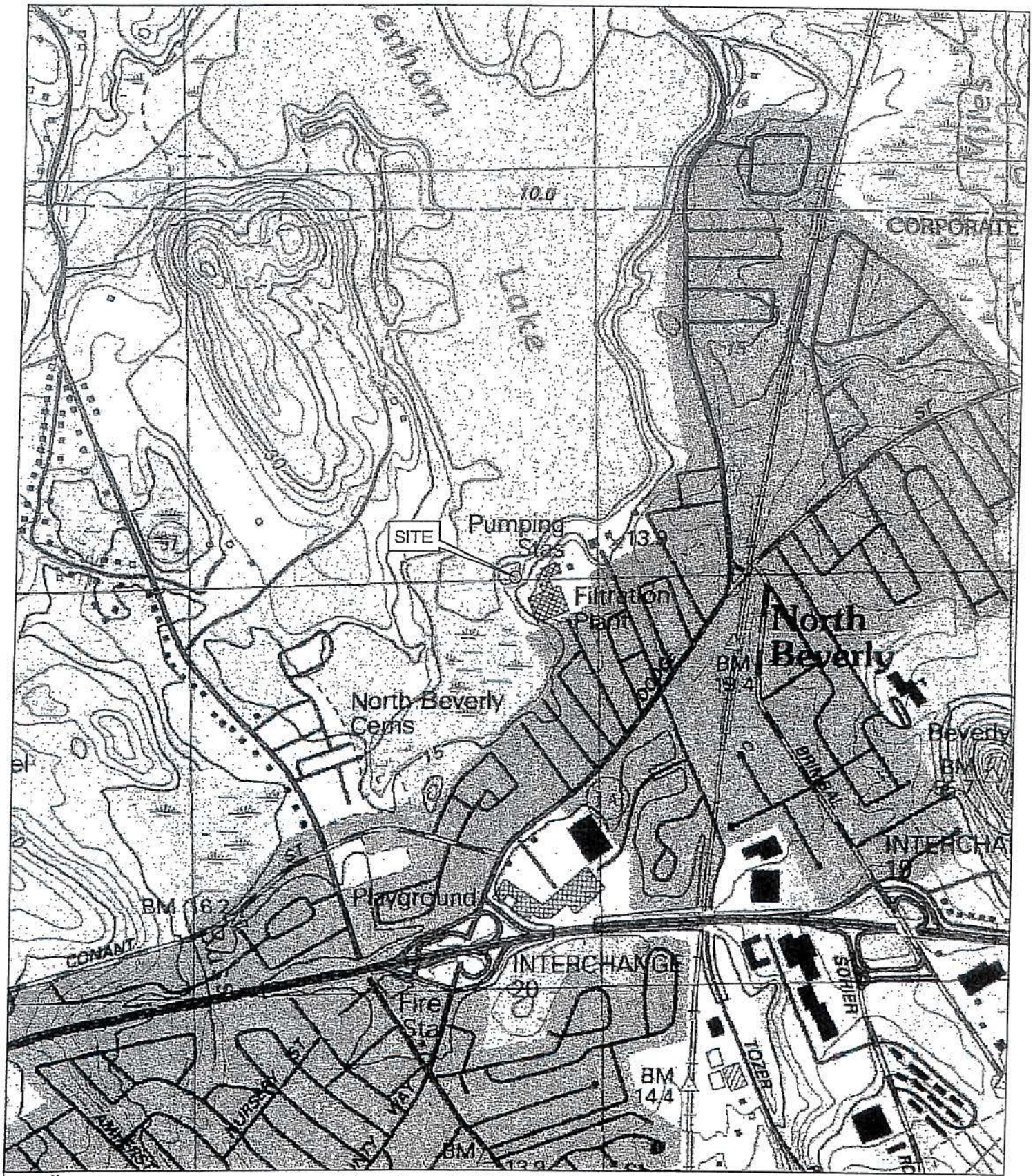
_____

_____

_____

_____

_____



Salem-Beverly Water Treatment Plant
50 Arlington Avenue
Beverly, Massachusetts

Figure 1
Site Location

N

0 500 1,000
Feet

Basemap: 7.5-Minute USGS Topographic Quadrangle
Source: Mass GIS
Coordinate System: NAD83 Mass. State Plane Mainland
Units: meters

CDM

\\CDMD38NG4D1\Project_bcp\Salem-Beverly_WTP\MXD\Locus_Map.mxd MB 12/2009

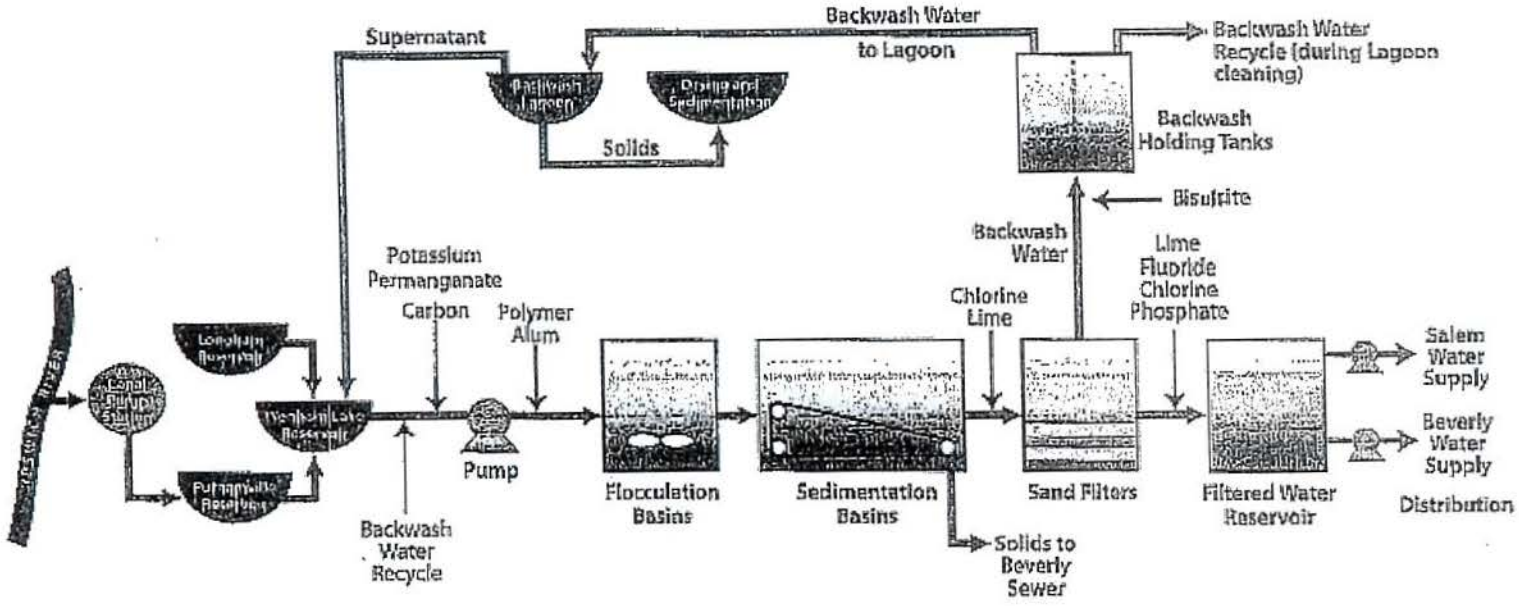


Figure 2
NPDES General Permit NOI
Source Water Supply and Treatment Schematic
Salem and Beverly Water Supply Board

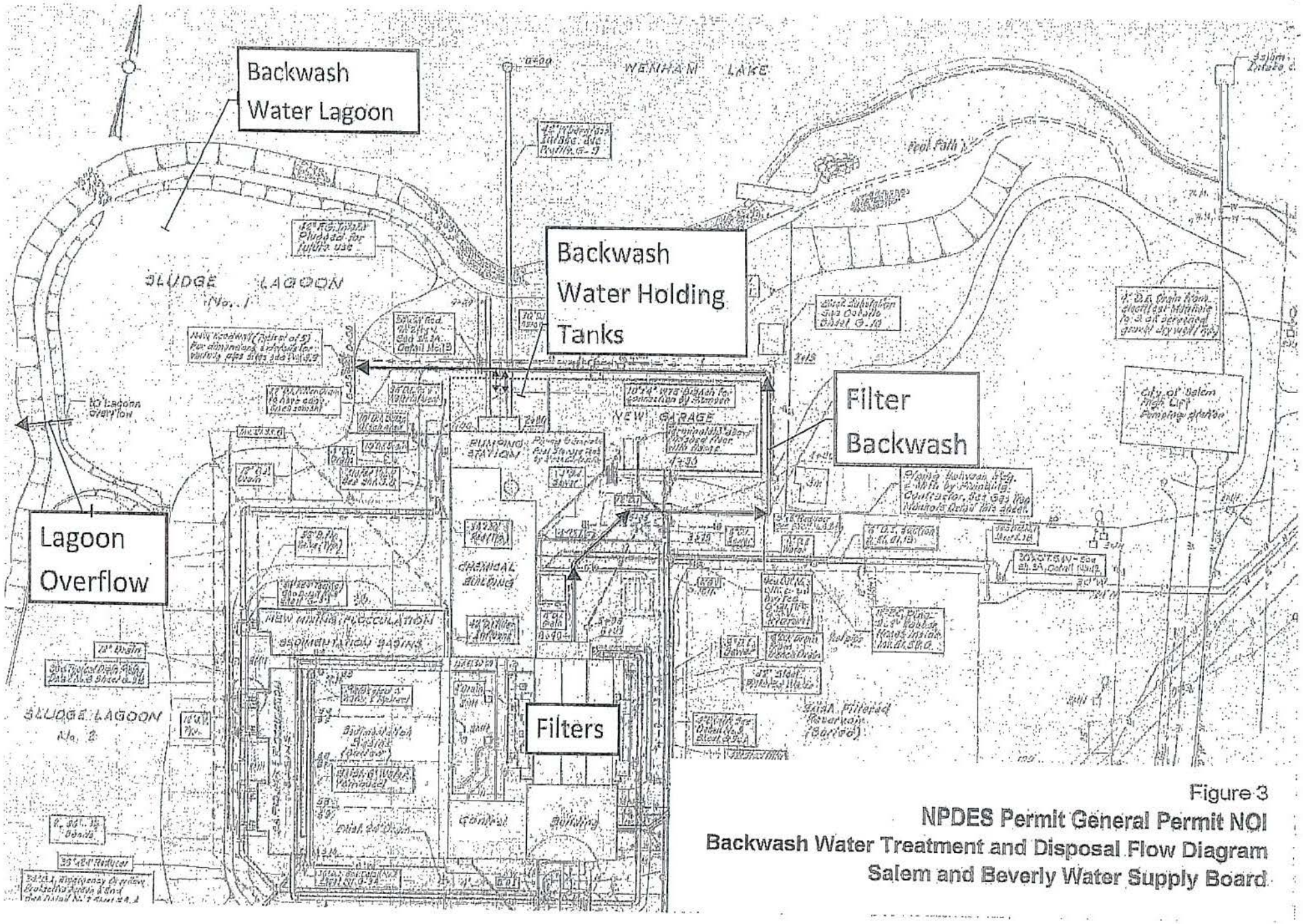
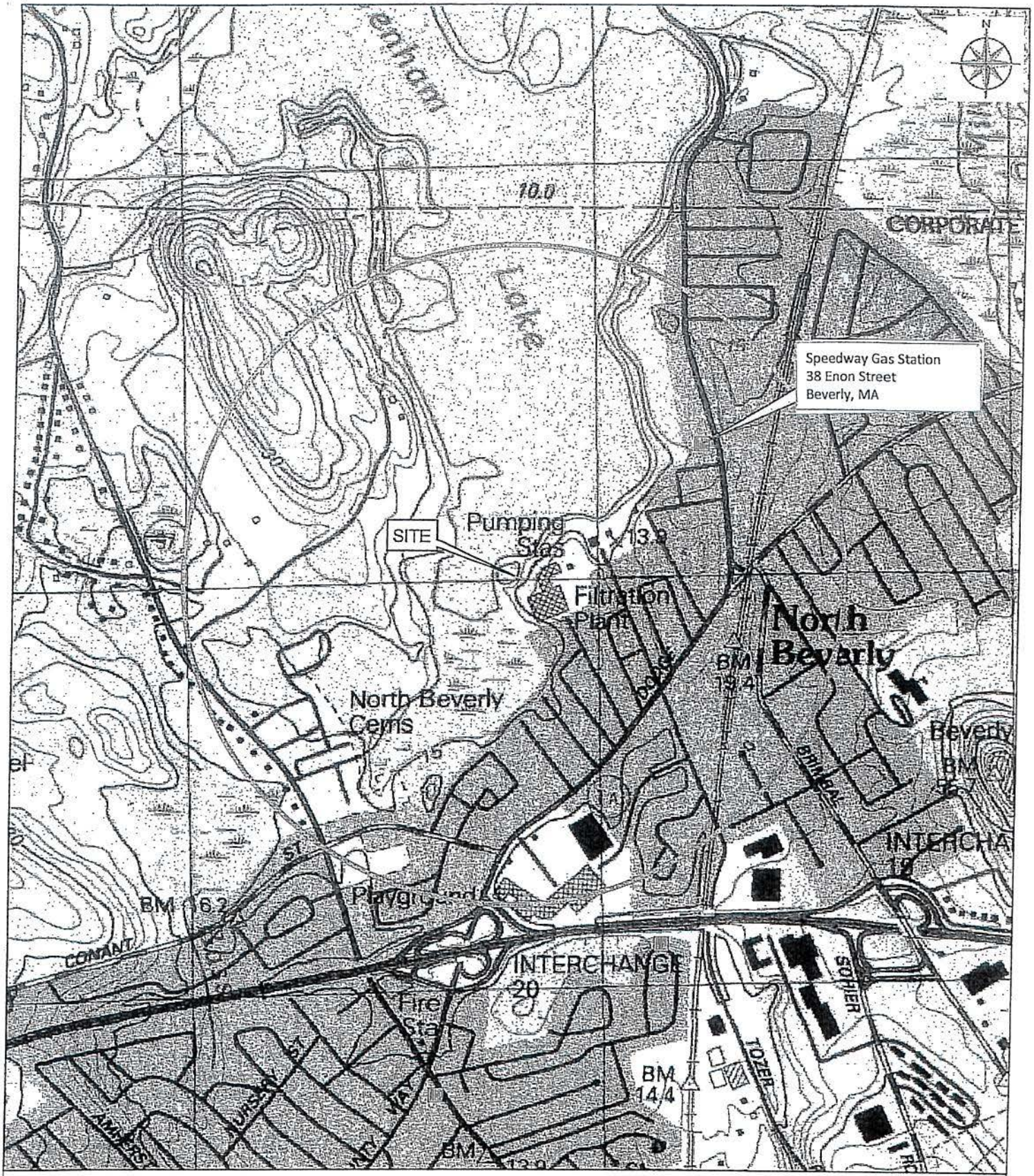


Figure 3

NPDES Permit General Permit NOI

Backwash Water Treatment and Disposal Flow Diagram

Salem and Beverly Water Supply Board



MassDEP Tier Classified Oil and/or Hazardous Material Sites (MGL c. 21E)

Salem-Beverly Water Treatment Plant
50 Arlington Avenue
Beverly, Massachusetts

Figure 4
MassDEP Chapter 21E Sites

Basemap: 7.5-Minute USGS Topographic Quadrangle
Source: Mass GIS
Coordinate System: NAD83 Mass. State Plane Mainland
Units: meters

0 500 1,000 Feet

CDM

\\CDMD38HG4D1\Project_bup\Salem-Beverly_WTP\MXD\Locus_Map.mxd MB 12/2008

Raw water in Wenham Lake Reservoir is treated with copper sulfate as required to control algae. As raw water enters the treatment plant, it is further treated as needed with potassium permanganate and powdered activated carbon to remove manganese and taste and odor. The water is then treated with aluminum sulfate as a coagulant. The water then goes through mixing, flocculation and sedimentation steps. An anionic polymer is occasionally used as a coagulant aid.

After sedimentation, the settled water is treated with lime and chlorine (hypochlorite) and occasionally an anionic polymer. The water is then filtered through 8 parallel dual media (silica sand and anthracite coal) filters. After filtration, the water is again treated with chlorine (hypochlorite), hydrofluosilicic acid, and a 50/50 blend of poly/ortho phosphate for corrosion control. The water then enters a clear well from where it is pumped to the city distribution systems without further treatment.

The filters are periodically backwashed on a rotating schedule (each filter is usually backwashed at least once a day) to remove accumulated debris. The backwash water is pumped from the clear well. Polyaluminum chloride is added to the backwash water prior to it entering a filter. Filters are normally backwashed for 12 to 16 minutes at a time, with filter runs of 16 to 24 hours between backwashing. Filters are backwashed 2 at a time, but can handle between 1 and 3 at a time. Spent backwash water is dechlorinated with sodium bisulfite and then goes to backwash water holding tanks, from where it can be directed either to the intake wet well or to the backwash water lagoon. Normal operation is to direct backwash water to the lagoon.

Backwash water enters one side of the lagoon from a 24-inch pipe at elevation 40 and exits on the opposite side. The lagoon has a volume of approximately 3 million gallons, and an approximate residence time of 1 week. The polyaluminum chloride enhances settling of suspended material during passage of the water through the lagoon. The Board holds a NPDES general permit for water quality at the pipe exiting the lagoon, at which point the water is returned to Wenham Lake Reservoir.

Once a year, the lagoon is taken out of service and drained. During this time, backwash water Is directed from the holding tanks to the intake wet well. The accumulated residuals on the bottom of the lagoon are pumped to a drying bed where they are freeze dried during the winter. The dried residuals are then used as road fill on the Board's properties under the conditions of a Best Use Determination (BUD) issued by the Mass DEP.

p

Salem-Beverly Water Supply Board
NPDES GP NOI
Attachment 2
Water Additives

The Salem and Beverly Water Supply Board operates a 24 million gallon per day full conventional surface water filtration plant. Water additives, listed below, are used at the facility to enhance the quality of the effluent water.

Copper Sulfate Pentahydrate: Raw water in Wenham Lake Reservoir is treated with copper sulfate as required to control biological growth.

Potassium Permanganate: Raw water is treated with potassium permanganate to remove manganese as well as address taste and odor.

Powdered Activated Carbon (PAC): Raw water is treated with PAC to address taste and odor.

Liquid Aluminum Sulfate: Aluminum sulfate is added as a coagulant to the raw water.

Anionic Polyacrylamine Polymer: An anionic polymer is occasionally used as a coagulant aid.

Slaked Quick Lime: The settled water is treated with lime for pH adjustment.

Chlorine (15 Percent Sodium Hypochlorite): Chlorine is added for oxidation of the settled water and disinfection of the filtered water.

Hydrofluosilicic Acid: Hydrofluosilicic acid is added to the filtered water for fluoride.

Poly/Ortho Phosphate: A 50/50 blend of poly/ortho phosphate is added to the filtered water for corrosion control.

Polyaluminum Chloride (PAC): PAC is added to the backwash water, prior to entering a filter, to enhance settling of suspended material during passage of the water through the lagoon.

Sodium Bifulfite: For dechlorination, a 40% solution of sodium bisulfite is added to the backwash water after filtration and before entering into the backwash holding tanks.