BY CERTIFIED MAIL

Massachusetts Department of Environmental Protection Northeast Regional Office Division of Wetlands and Waterways 205B Lowell Street Wilmington, MA 01887

Re: Natick Conservation Commission

Order of Conditions #233-641

re: February 2009 Notice of Intent Application

Aquatic Management Program

Lake Cochituate

Middle Pond - DCR Beach & Boat Ramp

Natick, MA

Dear Sir or Madam:

The Petitioners named below hereby formally request from the Massachusetts Department of Environmental Protection ("Department"), pursuant to M.G.L.c. 131, § 40 (the "Wetlands Protection Act"), and 310 CMR 10.05(7), a Superseding Order of Conditions, overriding the Order of Conditions issued by the Natick Conservation Commission ("NCC") on April 27, 2009, ¹ with respect to an Aquatic Management Program, including treatment of five acres of Lake Cochituate with the herbicide diquat dibromide ("diquat").

Facts

1. The February, 2009 NOI

In February, 2009, the Massachusetts Department of Conservation and Recreation ("DCR") filed a Notice of Intent prepared by its representative, Aquatic Control Technology, Inc. ("ACT"), with respect to an aquatic management program for Lake Cochituate ("2009 Chemical NOI"). The 2009 Chemical NOI proposed application of the herbicide Reward (diquat

¹ The Order of Conditions was approved by the NCC by a four to three vote on April 23, 2009. However, the Natick Conservation Agent, Mr. Robert Bois, has advised undersigned counsel that it was not mailed until April 27, 2009. See, 310 CMR 10.04 ("Date of Issuance means the date an Order is mailed….").

dibromide) to control an infestation of milfoil weed in Middle Pond of Lake Cochituate. The chemical treatment area is five acres of the Lake adjacent to the shoreline in the northern quadrant of Middle Pond, extending from the boat ramp to the public beach, and including the kayak launch area in between.

2. Middle Pond, Lake Cochituate, Natick

Lake Cochituate is a lake of approximately 600 acres in size. It is comprised of four connected ponds, North Pond in Wayland and Framingham, Middle Pond, which is largely in Natick, Carling Pond in Natick, and South Pond in Natick. The Natick Evergreen well field, which consists of active wells providing public water supply to the residents of the Town of Natick, is located on a peninsula adjacent to, and in the northern quadrant of, Middle Pond. The Zone I radius for the Evergreen well field extends into Middle Pond. The Evergreen wells provide about 36% of Natick's drinking water. The Natick Springvale well field, also an active well field providing about 34% of the public water supply to the residents of the Town of Natick, is located on a peninsula bordered by South Pond, Middle Pond, and Carling Pond. See Attachment 2.4

No studies have been done regarding the relationship between Middle Pond and the Evergreen wells. However, the Department's Wetlands Program has opined that the relationship should be similar to the relationship between the Springvale wells and the Lake. Therefore, it is to be presumed that at least the northern half of Middle Pond, and certainly the chemical treatment area approved by the NCC, constitutes part of the recharge area for the Evergreen well field. Furthermore, the fact that the shoreline areas of the lake consist of predominantly coarsegrained sediments indicates that "the **exchange of ground water and pond water most likely occurs through these areas**." (emphasis added)

The hydraulic conductivity of these gravels is very high, which means that water can move very rapidly from the lake into the groundwater. Estimates of average travel time from the lake to the wells are on the order of 1 month to 8 months, but this can be

⁴ Attachment 2 is a Figure from a study by the U.S. Geological Survey ("USGS"), Friesz, Paul J., and Church, Peter E., <u>Pond-Aquifer Interaction at South Pond of Lake Cochituate, Natick, Massachusetts</u>, U.S. Dept. of the Interior, U.S. Geological Survey, Water-Resources Investigation Rept. 01-4040 (2001) (referred to herein as the "USGS South Pond Study").

² Richard Tomcyzk, Section Chief, Wetlands Program, NERO, Superseding Order of Conditions (Affirmation), DEP File #233-0601 ("2006 SOC"), p. 2 (Attachment 1).

³ 2006 SOC, p. 2.

⁵ See, Testimony of Richard F. Yuretich, Ph.D., April 28, 2005 ("Yuretich Testimony"), ¶ 6 (Attachment 3). Referring to the extensive analysis performed for the USGS South Pond Study, Dr. Yuretich noted that the recharge area for the similar Springvale well field included the southern half of Middle Pond.

⁶ USGS South Pond Study, p. 27.

much shorter depending upon specific hydrologic conditions.⁷

In other words, the exchange of groundwater and the water of Middle Pond occurs precisely at areas including the areas to be treated by diquat under the NCC's 2009 Order of Conditions; and the travel time from those areas to the Evergreen wells may be very short.

In addition to being a significant source of water used for drinking, cooking, and bathing by residents of the Town of Natick, Middle Pond is used by the public for swimming, fishing, and boating. It is accessed both by abutters and through the state park operated by DCR.

The Lake itself is within the Zone II Wellhead Protection Area, and appears on the 2008 Estimated Map of Priority Habitats of both Rare Species and rare Wildlife, published by the Natural Heritage and Endangered Species Program.

3. Existing Order of Conditions, #233-600

In January, 2006, the DCR filed an NOI, prepared by the ESS Group, Inc. ("ESS"), for Physical and Biological Control of Nuisance Aquatic Vegetation in Lake Cochituate ("2006 Non-Chemical NOI") (Attachments to the 2006 Non-Chemical NOI are attached hereto as Attachment 4). The DCR sought a five-year Order of Conditions from the NCC, in light of the need to implement a long-term management plan for the Lake. Among the areas of invasive milfoil in Middle Pond proposed to be addressed were the densely infested public boat ramp, and the other public access areas (such as the public beach and kayak launch) which were reported to be less densely infested at that time. DCR's plan for these areas during year 1 included hand-pulling, suction harvesting, and/or benthic barrier placement. Suction harvesting was identified as an appropriate method to control moderate to dense infestations of milfoil, and in areas up to five acres. Benthic barriers were identified as an appropriate method for small areas of dense infestation in areas of critical access or use. Indeed, the DCR reported success with this method at the public beach in Middle Pond. Hand-pulling was identified as an appropriate control method only for low density areas of infestation.

One additional control method was also proposed at the time, although not for Middle Pond. DCR proposed to perform a milfoil weevil pilot study in North Pond. ¹³

On May 2, 2006, the NCC approved the 2006 Non-Chemical NOI, with special

⁷ Yuretich Testimony, ¶ 7.

⁸ 2006 Non-Chemical NOI, p. 3.

⁹ 2006 Non-Chemical NOI, p. 9.

 $^{^{10}}$ 2006 Non-Chemical NOI, p. 11 & Figure 13.

¹¹ 2006 Non-Chemical NOI, p. 11.

¹² 2006 Non-Chemical NOI, p. 10.

¹³ 2006 Non-Chemical NOI, p. 12.

conditions including the requested five-year term. This Order therefore remains in effect.¹⁴

4. DCR's Activities Under Order of Conditions #233-600

DCR's account of its weed control activities in Middle Pond since 2006 shows the use of no control methods until November of that year, when it placed benthic mats on the lake bottom at the public beach. Mats, in conjunction with hand-pulling, were reportedly used at the public beach in the summers of 2007 and 2008, with apparent success in clearing that area of weeds during both swim seasons. ¹⁵

It is unclear when DCR took action to control weeds in the area of the boat ramp. However, such actions have been limited to the use of benthic mats and hand-pulling. According to DCR, substantial growth remained in this area throughout the 2008 boating season notwithstanding these efforts. ¹⁶

Despite its recommendation of the use of suction harvesting in the areas of the boat ramp and other public access points in Middle Pond, DCR has never implemented that weed control method in those, or any other, areas of the Lake. As a result of meetings with Natick officials and representatives of concerned citizens, the Town of Natick proposed to use \$17,000 of its own money to assist DCR in implementing Diver Assisted Suction Harvesting ("DASH") methods, including a specially equipped boat, during the 2009 season. Despite the Natick community's understanding that this was to become part of a comprehensive approach to weed control for the Lake, DCR ultimately rejected this proposal, and instead submitted the 2009 Chemical NOI.

5. Environmental Risks Posed by Diquat

Diquat dibromide is a nonselective contact herbicide (i.e., it not only affects milfoil, but other plants it contacts as well). It is not a permanent remedy for milfoil infestation, because it operates by destroying plant leaves, but does not permanently destroy the plant at the root. It is, at best, a cosmetic "quick fix" that would have to be implemented repeatedly for weed control.¹⁷ Notwithstanding the transitory beneficial effect diquat may have on the density of the milfoil, **it**

¹⁴ DCR has also twice previously sought to treat Middle Pond with herbicides, including the use of diquat in public access areas in Middle Pond. A 2003 NOI was initially approved by the NCC. However, DCR withdrew that NOI in 2005, shortly before the scheduled administrative hearing on an appeal brought by Natick residents. Certain prefiled testimony from experts prepared to testify at the 2005 hearing concerning the risks posed by the use of diquat (i.e., Drs. Yuretich, Strauss, Monosson, & Horowitz) is submitted herewith. A 2006 NOI for the use of herbicides (including diquat) was denied by the NCC. That denial was affirmed by the Department in its Superceding Order of Conditions, DEP File #233-0601.

¹⁵ See Attachment C to the 2009 Chemical NOI.

¹⁰ <u>Id.</u>

¹⁷ See, Testimony of Howard Horowitz, Ph.D., May 2, 2005 ("Horowitz Testimony"), ¶¶ 29, 41 (Attachment 5)

is an environmentally persistent chemical, likely to remain in the Lake water and/or Lake sediments for months to years. 18

The Material Safety Data Sheet for Reward states that it is moderately toxic by dermal or inhalation exposure, and slightly toxic by ingestion. Animal studies indicate that diquat dibromide can cause eye membrane irritation, alterations in fluid balances, diarrhea, kidney failure and toxic liver damage. A 1994 Department memorandum regarding the use of diquat in Zone II water supply areas states that Idjiquat is one of the more toxic of the herbicides used for aquatic weed control. Its toxicity to aquatic organisms and non-target species should...be considered when evaluating diquat for use.

In a recent survey of scientific studies since the publication of the EPA's oral reference dose to quantify the (noncancer) toxicity of diquat to humans ("RfD"), Dr. Harlee Strauss, a respected expert in risk assessment and toxicology, stated that the "RfD may not be adequately protective against adverse reproductive effects and perhaps other effects." Dr. Strauss further notes that the RfD was based on an average of doses that does not reflect the greater toxic effects of diquat on males as opposed to females, or on different strains of the animals subject to study. Nor did the studies on which the EPA's RfD was based take into account the possible additive effects of diquat in combination with other toxicants to which Natick residents and those using the swimming beach may have been exposed. Finally, the EPA's evaluation of the toxicity of diquat is based on the pure chemical, and does not include the approximately 60% of Reward which is comprised of so-called "inert" ingredients, about which there is little information available to the public. Dr. Strauss concluded that it would be imprudent to use diquat under circumstances such as these, where humans could be exposed both as a result of migration to the public drinking water supply and the recreational use of Middle Pond.

Significantly, the Natick Board of Health has reached the same conclusion, after retaining its own expert on water chemistry and the fate of diquat in the environment. That expert's report called for "site-specific hydrogeologic modeling, coupled with fate and transport modeling for Diquat (based on site-specific fate and transport data)...," before a reliable determination could be made that the diquat would not reach Natick's public water supply

¹⁸ Yuretich Testimony, ¶¶ 9, 10.

¹⁹ Syngenta MSDS, § 11. (Attachment 6)

Extoxnet Pesticide Information Profile, pp. 1-2. (Attachment 7)

Memorandum from Nicholas Anastas, ORS, to Tara Gallagher, DWS, re: Recommendations for the use of Diquat (CASRN 85007) within Zone II water supply areas, Sept. 7, 1994, p. 3.

²² Testimony of Harlee Strauss, Ph.D., April 30, 2005 ("Strauss Testimony"), ¶ 19. (Attachment 8)

²³ Strauss Testimony, ¶ 22.

²⁴ Strauss Testimony, ¶ 23.

²⁵ Strauss Testimony, ¶ 24.

Letter from James M. White, Jr. RS/REHS, Natick Board of Health, to Natick Conservation Commission, April 1, 2009, with Memo from Warren Lyman, Ph.D., March 27, 2009 ("Lyman Memo"). (Attachment 9)

wells.²⁷ Such site-specific fate and transport analysis has never been put forward by DCR.

Site specific analysis has, however, been performed to evaluate the potential adverse effects of diquat on fish and invertebrate life found in Lake Cochituate, again based on the available literature. That analysis concluded that the herbicide application at the level proposed by DCR "is likely to adversely affect the young fish that inhabit the Lake, and the important fishery and habitat functions served by the land under the Lake." The adverse effects of the chemical itself on the Lake's fish will be exacerbated by the expected loss of oxygen and effects on non-target vegetation.²⁹

Without conducting the comprehensive site specific groundwater and water supply analysis recommended by the Town's own Board of Health, or requiring an independent evaluation of whether the proposed project will have an impermissible adverse effect on wildlife and fish habitat, as required by 310 CMR 10.60, the Commission issued an Order of Conditions permitting the application of diquat dibromide.

Specific Objections to the Order of Conditions

The 2009 Chemical NOI was proposed and approved under the limited project provisions of 310 CMR 10.53(4). The Department has issued an extensive Guidance document regarding projects proposed under these provisions, "Guidance for Aquatic Plant Management In Lakes and Ponds" (April 2004) ("DEP Guidance"). For example, before the Conservation Commission could approve the proposed limited project, DCR was required to demonstrate that the project will improve the natural capacity of the resource area to protect some or all of the interests identified in the Wetlands Protection Act (e.g., public or private water supply; groundwater; fisheries; wildlife habitat; pollution prevention), while minimizing the adverse effects on the remaining interests. DEP Guidance, p. 1; 310 CMR 10.53(4). Furthermore, projects proposing weed control to improve the ability of the resource area to provide recreation or other similar interests do not qualify for Limited Project status. DEP Guidance, pp. 1-2.

To demonstrate that adverse effects will be minimized, the NOI must "[i]nclude a discussion of how the project will protect the interests of the Act, including public and private water supplies and groundwater....This discussion should...include an analysis of alternative strategies and whether they would avoid or minimize impacts to the resource areas." DEP

²⁷ Lyman Memo, p. 1. See, also, p. 2 ("I have some concern over the lack of <u>site-specific</u> data on chemical fate and transport relating to: (1) Diquat mobility in lake sediments and aquifer materials; and (2) Diquat degradation. I suspect most of the data referred to are from laboratory studies. The conditions of the laboratory studies are commonly quite different from actual environmental conditions.") (emphasis in original)

Testimony of Dr. Emily Monosson, Ph.D., May 2, 2005 ("Monosson Testimony"), ¶ 48. (Attachment 10) See, also, Horowitz Testimony, ¶¶ 20-21 (effects on fish), 23 (effects on frogs), 24 (effects on invertebrates), and 26 (effects on microbials).

²⁹ Yuretich Testimony, ¶ 15; Monosson Testimony, ¶ 50.

Guidance, p. 4. The work description and plan must be detailed and site-specific. A generic discussion of site conditions and impacts to resources is not acceptable. *Id*.

The Order of Conditions permits the discharge to the Lake of a substance hazardous to humans, wildlife, fish, and other aquatic organisms, and non-target plant life. Furthermore, the herbicide to be applied is acknowledged to be highly persistent in the environment and therefore likely to remain in the Lake water and/or bound in the soils and sediments in and around the Lake for years to come, with a potential to migrate or leach into ground water and contaminate the nearby public well field. The Order of Conditions, and the 2009 Chemical NOI that it approved, does not contribute to the protection of the interests identified in the Massachusetts Wetlands Protection Act, and is inconsistent with the wetlands regulations, in the following ways:

- 1) The 2009 Chemical NOI presents a vague and generic plan that does not contain sufficient detail of Lake Cochituate site conditions to satisfy the Wetlands Protection Act and regulations.
 - * There is no detailed, site specific analysis of the fate and transport of the diquat, including in particular a study of the hydrologic relationship between the proposed treatment area and the Evergreen and Springvale well fields, the mobility of the diquat in the water column and/or through Lake sediments, and the expected rate of degradation for the diquat under the specific circumstances of the proposed application. See, 310 CMR 10.56(4)(a)(2). The NCC implicitly recognized this deficiency by imposing Special Conditions #22 & #23, which require DCR to prepare a water and sediment diquat sampling plan to be reviewed and approved by the NCC prior to treatment, and post-treatment sampling of the Evergreen wells. However, these Special Conditions are themselves contrary to the requirements of the Wetlands Protection Act and regulations, where (1) DCR certainly did not make a "clear showing" that the treatment area does not play a role in the protection of groundwater and drinking water; and (2) the Act and regulations clearly prohibit any activity that could impair these interests. It is not enough to impose conditions intended to determine whether, after the fact, the use of herbicides has impaired these interests. The Lake and the Town's water supply are not to be used as a "test case." The NOI should have contained the requisite analysis to provide assurance that the proposed activity will not impair these interests. The NCC's only alternatives were either to deny the NOI, or to require the analysis prior to acting on the NOI.
 - * There is no detailed and site specific vegetation survey of the area proposed for treatment, which, again, must be performed <u>before a control plan is proposed</u>. See, e.g., Superseding Order of Conditions #331-87 (Card Pond, West Stockbridge), "Findings," (excerpt at Attachment 11). Again, the NCC implicitly recognized this deficiency by adopting Special Condition #19. And again, trying to cure this deficiency after the fact constitutes a failure to protect the interests identified in the Wetlands Protection Act, and is inconsistent with the wetlands regulations

- * There is no detailed and site specific wildlife habitat evaluation, prepared by an individual with the requisite qualifications described at 310 CMR 10.60(1)(b), and prepared by reference to 310 CMR 10.60(2)(b), and the Department's Massachusetts Wildlife Habitat Protection Guidance for Inland Wetlands (MassDEP 2006); and there is no wildlife habitat restoration/replication plan prepared by that same individual per the General Performance Standard at 310 CMR 10.60(3). See, e.g., Superseding Order of Conditions #331-87, id. The NCC failed to even attempt to address this deficiency.
- * There is no detailed and site specific evaluation of the effect of the herbicide on breeding habitat, escape cover and food for fisheries. See, 310 CMR 10.56(4)(a)(3). Again, the NCC failed to attempt to address this deficiency.
- * As a matter of law, the discharge of diquat into the Lake constitutes the discharge of a pollutant. See, National Cotton Council of America v. USEPA, 553 F.3d 927 (6th Cir. 2009). Hence, by its very terms, the activity permitted by the NCC is contrary to the interests protected under the Wetlands Protection Act (e.g., prevention of pollution). Furthermore, the herbicide application is unlawful without issuance of a National Pollutant Discharge Elimination System ("NPDES") permit. The Order of Conditions fails to require such a permit, which must be referenced in the Order pursuant to 310 CMR 10.03(4).
- 2) There is no analysis of alternative strategies adequate to permit a meaningful determination of whether non-chemical control methods would avoid or minimize impacts to the resource areas. Instead, the NOI provides an incomplete list of non-chemical alternatives, no measure of comparison with the use of diquat, and perfunctory dismissal of each of the alternatives in turn.
 - * The 2009 NOI provided no detailed and site specific criteria for measuring the success of either the diquat or the alternatives.
 - * After proposing mechanical harvesting techniques as appropriate for the public access areas in Middle Pond three years ago, the DCR summarily rejects that alternative for the very same areas in the 2009 Chemical NOI. This rejection comes after never having used the method despite the 2006 Order of Conditions calling for its use, and without any analysis of its efficacy in combination with other non-chemical methods in the public access areas that are the subject of the 2009 Chemical NOI.
 - * After three years of apparent success with benthic matting and hand-pulling in the public beach area, the DCR rejects that alternative this year, without explanation. No consideration is given to combining this method with other methods, such as mechanical harvesting in the areas of the boat and kayak launches.
 - * After proposing and then failing to pilot milfoil weevils to determine their efficacy in the conditions present in Lake Cochituate, the DCR rejected that

- method without explaining what information specific to site conditions at Middle Pond support such rejection.
- * The 2009 Chemical NOI does not discuss the possibility of a limited drawdown—a method of aquatic weed control that may be particularly effective due to the cold winters in Massachusetts. It is true that a Lake-wide drawdown would face obstacles posed by the fact that the Lake is a source of the Town's wells, and because of sediment contamination particularly in South Pond. However, no consideration is given to the technological feasibility and efficacy of a drawdown in the shoreline area of Middle Pond that is the subject of the 2009 Chemical NOI.
- * The 2009 Chemical NOI fails to discuss other common-sense management alternatives. In particular, it fails to consider any of the non-chemical alternatives in conjunction with limiting the public access areas to uses that will not continue to exacerbate the invasive weed problem in other areas of Middle Pond and the Lake as a whole—such as restricting boat access to areas where infestation can be controlled without resort to toxic chemicals, or temporarily halting boat access altogether until an effective control method is implemented. In its submittal and in statements made by its representatives during the course of public hearings on this matter, the DCR has admitted that not only has it failed to control milfoil in the boat launch areas, but DCR has actually facilitated the infestation of Middle Pond by continuing to permit use of the densely infested boat launch areas. Not only is milfoil transported on the boats, but the boats' propeller action (and perhaps the kayak use) in these and other areas of the Lake can cause weed fragments to break lose and reseed.
- * Again, the NCC's Order of Conditions fails to address these deficiencies. Instead, the NCC imposed Special Condition #25, calling (yet again) for the use of a mechanical harvester in Lake Cochituate prior to August 30, 2010. Once again, this Condition ignores the entire purpose of an alternatives analysis that is supposed to occur before implementation of an activity that will alter and put at risk important wetland interests. The purpose, clearly articulated by the Department, is to determine whether there is an alternative that will minimize the alteration and risks, before the riskier alternative is permitted.
- 3) Neither the Notice of Intent, nor the Order of Conditions, specify performance standards adequate to prevent or minimize the risk of harm posed by the proposed project, including but not limited to the manner in which herbicide migration and ecological and human exposure routes are to be controlled; determination of safe concentrations of the herbicide in the Lake environment, if any, and real-time monitoring to insure that such concentrations are not exceeded during application; and detailed spill prevention and control plans.
- 4) The NCC violated the public hearing requirement of 310 CMR 10.05(5). 310 CMR 10.05(4)(h) clearly gives the NCC the authority to direct the DCR to submit the plant survey map (Special Condition #19), and water and sediment Diquat sampling plan (Special Condition #22). However, these are both substantive submissions to the 2009 Chemical NOI required to cure certain deficiencies under the wetland protection

regulations. The NCC should have extended the public hearing for a period after receipt of these submissions, pursuant to 310 CMR 10.05(b)(3), to permit public comment on these important and substantive matters.

Based on the foregoing, and further evidence and information to be presented to the Department, the Petitioners contend that the Order of Conditions is inconsistent with 310 CMR 10.00 and does not contribute to the protection of following interests identified in the Wetlands Protection Act: protection of public water supply; protection of ground water supply; prevention of pollution; protection of fisheries; and protection of wildlife habitat.

Request for Action

The Petitioners respectfully request that the Department issue a Superseding Order of Conditions prohibiting the application of diquat dibromide.

Standing

Each and every Petitioner is a resident of the Town of Natick, and together they have standing to bring this Request for Action pursuant to 310 CMR 10.05(7)(a)(5). In addition, certain of the Petitioners are also abutters to the Project, and have standing pursuant to 310 CMR 10.05(7)(a)(4). The abutters also assert their standing as persons aggrieved, pursuant to 310 CMR 10.05(7)(a)(3), insofar as the unsafe application of the herbicide may cause contamination to the Lake, affecting their use and enjoyment of their respective properties.

<u>Fee</u>

Pursuant to 801 CMR 10.03(7)(a)2, enclosed herewith, please find a copy of a check payable to the "Commonwealth of Massachusetts" in the amount of \$200.00. Such amount constitutes payment of the required fee under the regulations pursuant to the Wetlands Protection Act. <u>Id</u>. In addition, pursuant to the above cited regulation, enclosed herewith please find a copy of the Request for Departmental Action Fee Transmittal Form.

Respectfully submitted,

CAROLE BERKOWITZ 9 Crescent Street Natick, MA 01760,

AND THE FOLLOWING RESIDENTS OF NATICK, MA:

[Residents Listed in Original]

By their attorney,

/S/

Martin E. Levin, Esq. [Stern, Shapiro, Weissberg & Garin, LLP 90 Canal Street, Suite 500 Boston, MA 02114 617-742-5800]

cc: Tom Flannery, Massachusetts Dept. of Conservation and Recreation (Certified Mail) Natick Conservation Commission (Certified Mail) Natick Board of Health