



State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES

6 Hazen Drive, P.O. Box 95, Concord, NH 03302-0095
(603) 271-3503 FAX (603) 271-2982



April 3, 2002

Mr. Jeffrey Towne
Town Manager, Town of Salem
33 Geremonty Drive
Salem, New Hampshire 03079

SUBJECT: Request for Proposed Water Transfer from Arlington Pond to Canobie Lake

Dear Mr. Towne:

By letter dated March 14, 2002, the Town of Salem requested approval of the New Hampshire Department of Environmental Services (DES) to transfer a total of 100 million gallons of water during the month of April 2002, from Arlington Pond to Canobie Lake. Additional information and a formal request for emergency water transfer under Env-Ws 1710, DES's new emergency rules for emergency water transfer, were provided in a letter dated April 3, 2002 to Mr. Paul Currier of DES from Mr. Raymond Korber, P.E. of S E A Consultants, Inc. (SEA).

DES has also recently met with local officials on two occasions and attended a meeting of the Board of Selectmen on March 25, 2002 concerning this request. At the March 25 meeting, a presentation was made by SEA for the Town of Salem on the proposed transfer followed by questions and comments by the public.

Our decision and rationale are presented below. We have also proposed an alternative for your further consideration.

Decision

The temporary transfer of water from Arlington Pond to Canobie Lake is hereby approved, subject to the following conditions:

1. The transfer from Arlington Pond to Canobie Lake is limited to a cumulative total of 100 million gallons.
2. No transfers will occur after September 30, 2002.
3. The Water Quality Sampling Program described in Table 1 of the Town's March 14, 2002 letter must be implemented when transfers are occurring. Should sampling indicate seeds or plant fragment from the exotic species *Cabomba Caroliniana* (fanwort) have penetrated the screen or should other water quality degradation of Canobie Lake become evident during any phase of the transfer that is attributable to the transfer, the Town shall notify DES immediately and DES may require termination of the transfer operations.

4. This approval is terminated and no further transfers shall occur if the Town of Salem's drought emergency is terminated or the ban on outdoor water use and other water conservation measures are lifted.
5. The Town must comply with all conditions in the NPDES Permit Exclusion #02-065 dated April 3, 2002, as granted by the United States Environmental Protection Agency.
6. Salem must move forward expeditiously to resolve its long term water supply needs. A framework for this evaluation that includes consideration of surface water, groundwater and regional water supply alternatives must be submitted to DES within 30 days of this approval.

Discussion

In making this decision, we have considered the need for short term water supply as demonstrated by the Town and the actual or potential impacts of the proposed transfer on lake water quality and recreational interests on both Canobie Lake and Arlington Pond in the context of state and federal regulatory requirements. The following factors were considered by DES:

- The need for the emergency water transfer has been established.* The Town Board of Selectmen declared a drought emergency on March 4, 2002. On March 13, 2002, the State of New Hampshire Drought Management Team also declared a Drought Emergency for the entire state, except Coos County, under the state's drought management plan. This drought event has closely tracked, for a twelve month period, the 1960's drought of record which lasted about three years. While there have been several rainfall events since early March, New Hampshire will remain in a drought emergency condition unless significant precipitation occurs to make up for the deficit incurred over the last twelve months. The impacts on Salem's water supply are projected to be very significant, with less than 40 days supply projected to remain in Canobie Lake in September 2002, even with water conservation measures in place, should the drought continue. Furthermore, if the drought continues into 2003, conditions worsen with time and the system is projected to fail to have even minimum supply available in future years. The Town appropriately seeks to avoid this very severe condition.
2. *The Town has implemented water conservation and demand management measures to reduce water use during the critical warm weather period.* Salem has initiated an aggressive water conservation program to reduce water demand including a ban on outdoor water use to reduce peak demand, a leak detection program to reduce unaccounted for water and other measures including outreach to the community. If the drought emergency is lifted and water conservation requirements are relieved, no transfers will be allowed by DES under this approval.
 3. *The proposed emergency transfer is the only short term alternative that is predictably available to avoid a critical condition in Canobie Lake, should the drought event continue through the summer months, considering constraints in local agreements on*

other alternative sources. Other water supply sources in Salem's control are not available to avoid a critical condition in Canobie Lake during summer drought conditions, or in preparation for an extended drought. The Town of Salem's interconnection to the Methuen water supply system can physically supply about one million gallons per day (mgd); however, the intermunicipal agreement between Salem and Methuen contains a "Methuen first" clause which means that availability cannot reasonably be expected during a drought condition. Also, the availability of Salem's other primary water supply source, Arlington Pond, is limited by a written agreement between the Town and the Arlington Pond Protective Association (APPA) under which the Town cannot use Arlington Pond between April 30 and October 10, unless the water level exceeds 161.712 MSL, which is highly unlikely during a drought event. Consequently, transferring water to augment storage in Canobie Lake is the only alternative that enables Salem to predictably minimize the potential for a critical water supply shortage later in 2002 and into 2003. Note that DES has approved this transfer over a six month period up to the requested total volume of 100 million gallons per day rather than the requested 30 day period. This is intended to enable Salem to spread the withdrawal over time to hedge for the potential that rainfall events will occur and the drought condition will diminish, reducing the need for transfers, with no greater impact on Arlington Pond, if the APPA is willing to amend its agreement with the Town.

4. ***DES has reviewed the available information and concluded that the source water meets applicable water quality standards, and the receiving water will continue to meet applicable water quality standards during and after the transfer is completed.***

Three water quality parameters of primary concern have been identified and considered in this decision:

- a. Phosphorous is present at similar concentrations in Arlington Pond and Canobie Lake. Consequently, phosphorus concentrations in Canobie Lake will not change significantly should a short term transfer of up to 100 million gallons occur. DES also estimates that less than 20 pounds of phosphorus would be contributed to Canobie Lake by a transfer of up to 100 million gallons. This is not a significant contribution to the overall phosphorus loading on Canobie Lake.
- b. The exotic plant species, *Cabomba Caroliniana* (fanwort), is present in Arlington Pond but not in Canobie Lake. The Town has reasonably mitigated the potential for the transfer of fanwort from Arlington Pond to Canobie Lake by installation of drum screens at the intake in Arlington Pond. These screens have been specifically designed to screen out fanwort seeds or plant fragments at Arlington Pond.
- c. Arlington Pond water consistently has higher color, which is an aesthetic concern, than Canobie Lake water. The proposed discharge of 100 million gallons, with dilution in Canobie Lake, should not have a discernable impact on

the lake's water quality.

Additionally, Arlington Pond meets a primary test for discharge to Class A waters under Env-Ws 1710, Emergency Water Transfers, and a criteria for Class A under RSA 485-A:8: "There shall be no discharge of sewage or wastes into waters of this classification." Under RSA 485-A:8, Class A waters are in part those waters that are "potentially acceptable for water supply users after adequate treatment." Arlington Pond is a public water supply source and its water receives the identical treatment as Canobie Lake water. Considering these factors, Canobie Lake's classification as a Class A water body will not be affected by a water transfer from Arlington Pond.

Possible Alternative to the Proposed Transfer

DES has approved the Town's request to transfer water from Arlington Pond to Canobie Lake considering the existing drought emergency, and in recognition of the existing constraints imposed on the Town by existing agreements with the Town of Methuen and the APPA. However, considering the public comment at the Selectmen's meeting on March 25, irrespective of DES's conclusions relative to the potential impacts of a transfer, we also recognize that the direct transfer of water from Arlington Pond to Canobie Lake will raise significant concerns with some members of the public due to the perception of potential impacts. In this context, we propose an alternative for your consideration that would enable Town to achieve its stated goal, if some existing constraints can be clarified or loosened.

In essence, the Town's objective for 2002 is to increase water supply capacity by 100 million gallons from April 30 to October 10, when the only available, predictable supply is Canobie Lake. An alternative that would attain equivalent results to the proposed transfer follows:

Obtain as much water as possible from Methuen, beginning in April, because this source may be available now but is not likely to be available during the summer months if the drought persists. When available, using Methuen to the maximum allowable extent will preserve water in reservoir storage, considering Canobie Lake and Arlington Pond collectively, that is under the direct control of Salem for future use. At maximum transfer rates, this could preserve up to one million gallons per day of water in storage in Salem's reservoirs for future use.

2. Extend the use of Arlington Pond as the primary water supply source beyond April 30. Whether the authorized transfer of an additional 100 million gallons occurs in about a 25 day window through April 30, as currently proposed by the Town, or spread over 60 to 90 days at 1 or 2 million gallons per day makes no difference in Arlington Pond since the ultimate impact on lake volume and water elevation is the same. Furthermore, spreading the withdrawal time hedges for the potential that rainfall events will occur at rates that equal or exceed normal, thus diminishing drought conditions and reducing or alleviating the need for transfers. We fully recognize the recreational demands on Arlington Pond and suggest that the Town and APPA consider alternative solutions not considered by the existing agreement during this emergency drought condition.

Mr. Jeffrey Towne, Town Manager

April 5, 2002

Decision on Town of Salem Request for Proposed Water Transfer from Arlington Pond to Canobie Lake

While our decision to approve the proposed transfer recognizes the existing constraints on the Town of Salem, we urge you to give serious consideration to this possible alternative approach, or similar approaches, which minimize the need for the transfer.

Please be advised that this decision may be appealed to the New Hampshire Water Council ("Water Council") by filing an appeal to the Water Council that meets the requirements specified in the Procedural Rules of the Water Council, Env-WC 200, within 30 days of the date of this Decision. Copies of Env-Wc 200 are available from the DES Public Information Center at (603) 271-2975 or at <http://www.state.nh.us/desadmin.htm>.

We are available at your request to meet to further discuss this decision or Salem's plans to resolve its long term water supply requirements.

Sincerely,



Harry T. Stewart, P.E.

Director, Water Division

cc: Anthony P. Giunta, P.G., NHDES
Paul Currier, P.E., NHDES
Rodney Bartlett, Superintendent, Salem Department of Public Works
Raymond Korber, S E A Consultants, Inc.