WATER SUPPLY CITIZENS ADVISORY COMMITTEE
to the Mass. Water Resources Authority

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Re: EEA # 14197

Dear Ms. Canaday,

The Water Supply Citizens Advisory Committee (WSCAC) offers the following comments on the proposal by Framingham to reactivate the Birch Road wells groundwater supply.

The Sudbury River and its basin are already quite heavily impacted by water withdrawals, and the Sudbury River is sometimes dewatered in the summer. This is recognized by the Secretary's Certificate on the project ENF, which states "The proposed wells should not be allowed to have a significant impact on flows in the Sudbury River, which is already depleted by other upstream withdrawals." Thus, new withdrawals should be scrutinized closely and mitigated to the maximum extent possible, if they are allowed to proceed at all.

We note the following issues in the DEIR that may require additional clarification.

Impacts to Lake Cochituate, Cochituate Brook, and the Sudbury River
It seems that there are various places in the DEIR where impacts could be more clearly explained. For instance, the DEIR reports that reactivation of the Birch Road wells will increase the number of days when there is no flow over the Cochituate Brook spillway to 4 or 5 per year, relying on the median of the mean flow in August to make this assessment. However, while the DEIR states that impacts in September are even greater, the actual increase in the number of days with no spillway flow is not reported for that month. Including such information would be helpful.

Further, while it may be standard practice for comparison to USGS flow data, the DEIR's reliance on statistics like the median of mean monthly flows on the Sudbury River makes determining true impacts more difficult. Page 7-33 of the DEIR states "The measured flows at the Saxonville gage compare well with, and in some cases are higher than, the recommended instream flows. This indicates that this portion of the Sudbury River has flows sufficient to support native aquatic life. At a daily pumping rate of 4.3 mgd, the Birch Road withdrawals represent a between 2 and 12 percent of the flow in the Sudbury at the Oxbow. This is anticipated to have minimal impact on flow in the Sudbury River." This is followed by Table 7-11, which presents the median of the mean monthly flows at the Saxonville gage, just upstream of the Oxbow section of the river adjacent to the wells, where the lowest value presented is that for September, at 58 mgd. However, while use of the median of the mean monthly flows may be standard practice, it does not reflect the lowest flows which may occur on particular days. Daily data from USGS Saxonville gage shows that there were actually 463 days between 1980 and 2007 when daily flows were 8.6 mgd or lower, a figure arbitrarily picked at which the withdrawal of 4.3 mgd would represent 50% or more of the river's flow. The conditions in the river are rarely "average", and the median of the mean monthly flow is less representative of the conditions experienced on a daily basis, which surely determine the viability of aquatic life in the river.

Estimating the percent of the river's flow attenuated by water pumped at the wells assumes that pumping directly deprives the river of groundwater flow it would otherwise have received, and also assumes that there is no induced flow in the other direction, from the river to the wells (as is stated in the DEIR). However, because groundwater pumping is also projected to reduce the amount of outflow

from Lake Cochituate into Cochituate Brook, pumping at the wells would additionally cause a direct reduction of surfacewater flows into the Sudbury River above the Saxonville gage and above the point on the river where project impacts are evaluated. Accepting the DEIR's modeled estimate that flow in the brook would be reduced by up to 1.3 mgd by pumping at the Birch Road wells, flow at the Saxonville gage would have been reduced by up to 50 percent flow on many days in August, September, and October of past years, had the wells been operational.

The figure of 30% of the supply of the wells being derived from Lake Cochituate seems low, particularly if both Dudley Pond and the Sudbury River are considered to be negligible sources to the wells. If indeed the remaining 70% of 4.3 mgd (3.01 mgd) is derived from sources other than Dudley Pond and the Sudbury River, it must be at least in part derived from nearby wetlands (which the DEIR does state were drawn down by pumping tests) which themselves serve as water sources to the Sudbury River, downstream of the point where pumping impacts were evaluated. Given that the wells are surrounded on many sides by either the river or sources to the river, it is hard to see how withdrawals will not affect river flows directly.

Is mitigation possible?

The possibility of mitigating pumping impacts through the Water Management Act permitting process is repeatedly noted in the DEIR. An obvious mitigation would be to require that groundwater pumping be reduced or eliminated at least during the driest months of the summer and fall. Given that groundwater moves slowly, however, it would probably require reducing or ceasing pumping in the months well before when the greatest impacts are projected to occur to ensure that groundwater moving toward the river was not intercepted by the wells.

The Secretary's Certificate on the project clearly prioritizes maintaining flows in the river, stating that "the DEIR should examine alternatives that would have less drawdown impacts on water resources". However, the DEIR implies in the alternatives analysis that such questions are best dealt with during the permitting process, stating:

"Reduced Withdrawal Alternative – In light of the minor environmental impacts anticipated under the preferred alternative and the redressability of these impacts in the Water Management Act permitting process, it would not be productive to model a reduced withdrawal from the Birch Road Wellfield. It can be stated that, for example, a 50% reduction in the proposed withdrawal would have less impact on Lake Cochituate, Cochituate Brook and the Sudbury River than the preferred alternative. But as discussed in detail in this document, the minor environmental impacts at issue – the impact to Lake Cochituate and the Sudbury River on a small number of days in the summer months – is precisely the sort of impact that the Department of Environmental Protection is best suited to address in the Water Management Act permitting process. Through this process, the Town anticipates that the minimal environmental impacts presented in this document will be significantly reduced."

On p. 161, the DEIR states:

"However, it is not the position of the Town that these potential impacts are without meaning. Rather, what is clearly demonstrated from these analyses is that a thoughtful withdrawal management plan developed within the context of the Water Management Act permit process will enable the town to withdraw the desired 1,570 million gallons per year, while at the same time minimizing what impacts there may be."

Since 1,570 million gallons a year equals 4.3 mgd times 365 days, and since no modeling is presented to demonstrate the effects of pumping more than 4.3 mgd, it has to be assumed that 4.3 mgd is the maximum daily volume to be pumped, thus meaning that there is no way to compensate for pumping

less on certain days. It seems likely that if this project does get to the permitting stage, more modeling could be required to better understand how a limited withdrawal scheme could mitigate impacts. A more flexible modeling approach could also be extended to the analysis of economic benefits included in the DEIR, which appears to assume that the full yearly amount would be permitted, thus saving the town the maximum amount that would otherwise be spent on purchasing MWRA water. Is there a minimum amount of water (and thus minimum impact) that can be pumped and still make this project economically viable? Are there other combinations of ways that the town could save money? According to the DEIR, increased conservation and efficiency measures are not a feasible option for reducing demand, since according to the DEIR, Framingham's residential use in 2007 was 56.9 rgcd. There still might be other measures that could be taken to reduce municipal water use, however, including greater restrictions on outdoor water use.

One approach for mitigating some of the withdrawal impacts of the wells is through repairing infiltration and inflow, which the DEIR commits to do. The DEIR contains some information on water savings already achieved, and a list of proposed projects that will further reduce I/I, but there does not appear to be much information linking the cost savings from the proposed well re-activation to proposed I/I mitigation. More identification that linked how specific projects could be enabled, and the effect these projects would have on water resources impacted by the proposed well withdrawals, would be helpful. Are there specific plans and commitments for the funds to be generated by the project? Identifying how such funds would be handled and allocated (eg to the USGS gaging program, reduction of I/I, improved treatment of stormwater, etc) would be useful.

Long-term sustainability issues

The reactivation of local sources also raises important questions about climate change impacts, and long-term planning. This project was not subjected to MEPA's new requirements for conducting a greenhouse gas analysis, so this consideration is not part of the formal analysis of the project. Nonetheless, this consideration could play into the towns own feeling about the project over time, particularly if energy prices rise again. Currently, Framingham has to pump MWRA water, so there is some energy expenditure associated with current use, but it seems as though groundwater pumping and treatment of local water to remove a heavier contaminant load than found in MWRA water will require significant energy expenditure and chemical use. It would be helpful to see how much energy would be required to pump each gallon out of the ground compared to how much energy is currently required to pump each gallon from MWRA, and then translate that into a cost differential given today's electricity rate. Further, it is of concern that the DEIR relies so much on past water level and flow data and talks so little (if at all) about future water availability under climate change, though this problem is certainly not unique to this particular DEIR. Some of the problems with this approach might be mitigated if withdrawal impacts were compared to "worst-case scenarios", for instance the low-flow days on record for the Sudbury River.

Is the project exempt from consideration under the Interbasin Transfer Act?

An observation by WSCAC offered in earlier comments was repeated in the Secretary's Certificate on the project's ENF: that the criteria for projects escaping oversight under the ITA hinges on the "hydraulic capacity of an interbasin transfer system which was authorized, constructed and useable for water supply purposes without additional installation of facilities or changes in any authority or operating role prior to the effective date of the act".

With regard to this definition, a couple of questions regarding this project arise, which may still not be addressed completely in the DEIR.

First, the DEIR makes the case that it is the capacity that was transferrable in the basin, and not from a particular source, with which the ITA is concerned. The proponent thus relies on summing the previous capacity of the Winter Street pump station in addition to the Birch Road wells to generate a combined grandfathered capacity of 6.16 mgd to cover the new, higher amount of 4.3 mgd planned to be pumped from the wells. However, it is possible to see the pumping of additional water from the wells (4.3 mgd minus the previous 3.17 mgd of rated capacity) as a change in operating rule.

Further, some question remains whether this capacity might not otherwise be useable and transferable without construction of the new treatment facility planned to be built; does this constitute "additional installation of facilities"? Does replacement of wells with a higher pumping capacity than previously constitute new facilities?

Another question arises with regard to the capacity of 2.99 mgd claimed as grandfathered for the Winter Street pump station. To the extent that water pumped from the Sudbury system had been originally derived from Wachusett Reservoir in the Nashua watershed, this would not be considered water that originated in the Concord River watershed and would not be "grandfatherable" under the ITA. Historic records suggest that such transfers from the Wachusett to the Sudbury system could be substantial. For instance, records from 1910 and 1911 show that water drawn from Wachusett Reservoir into the Sudbury Reservoir was between 65 percent and 100 percent of the combined amount of water sent to users from the Sudbury Reservoir and Framingham Reservoirs No. 2 and No. 3.[1] Resolution of these finer points will ensure that no ambiguity inadvertently sets precedents concerning use and ownership of MWRA water. Since Sudbury Reservoir and Reservoir No. 3 are now classed as reserve supply for the MWRA, it is especially important that there be no question about which entity can claim capacity derived from that system.

Whatever the conclusion concerning the applicability of the Interbasin Transfer Act to the proposed withdrawal, the situation on the ground is that pumping 4.3 mgd from the Birch Road wells constitutes a larger withdrawal than was ever taken from those wells in the past. Additionally, it has been three decades since the wells were last used. The withdrawal does in fact constitute a large transfer of groundwater to wastewater, with no prospect of local recharge at this time.

In sum, it seems that significant questions still remain concerning Framingham's proposal to reactivate the Birch Road wells. While appreciating the town's eagerness to move forward with the project, and greatly supporting the town's initiative to use funds saved by the proposal to address key water infrastructure and water quality issues, the severity of flow impairments on the Sudbury River makes it vital that the project not add to existing problems. If there is a way to ensure that the withdrawals can occur only during those times of year when no further impacts to the river would occur, and if such a withdrawal scheme is economically supportable, WSCAC would support the project. In absence of a better articulated alternatives analysis that explores such scenarios, however, we feel it is impossible to evaluate whether or not the project should move forward. For this reason, we recommend that the project be required to complete a Final Environmental Impact report.

Thank you for the opportunity to comment.

Mary S. Booth, Executive Director, WSCAC

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[1] Page 97 of Public documents of Massachusetts: Being the Annual reports of various public officers and institutions for the year 1911. Published by the Secretary of the Commonwealth. Vol IV Boston: Wright and Potter Printing CO, State Printers.