

COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
OFFICE OF ADMINISTRATIVE APPEALS

In the Matter of
Town of Wilmington

Docket No. 2003-032
File No. 9P-3-17-342.01
Wilmington

INTEVENORS' POST-HEARING MEMORANDUM

I. Procedural Background

The Intervenors' adjudicatory claims were heard on June 23, 2004. The crux of their claims are that Department failed to impose sufficiently stringent conditions on the permit holders and that the Department's modifications to Wilmington's Water Management Act permit were arbitrary and capricious, an abuse of discretion, illegal or otherwise not in accordance with law. The primary remedy that the Intervenors are seeking is a provision in the permit that Wilmington develop and implement a water banking program now to offset new or increased water use resulting from development, redevelopment or expansion projects.

Magistrate Silverstein invited the parties to submit post-hearing memoranda on the issue of safe yield.¹ Although this issue, which was listed as an issue in all of the Ipswich appeal cases, was originally framed in the North Reading October 16, 2003

¹ Intervenors asserted other claims alleging violations of the Water Management Act and its regulations in its Motion to Intervene and Appeal, namely, that the Town's modified permit alone and in combination with the other modified permits in the Ipswich River basin: fails to achieve a balance among competing water withdrawals and uses; fails to preserve the water resource itself; fails to minimize the impact of water withdrawals on, or to protect, water quality, navigation, water-based recreation, wetland habitat and fish and wildlife; and violates anti-degradation provisions of the Massachusetts Surface Water Quality Standards. See also, Intervenors' Prehearing Conference Memorandum. (Footnote continued on next page)

Prehearing Conference Report as “What is the safe yield of the Ipswich River?” in a Conference Report applicable to all the appeals, dated January 13, 2004, Magistrate

Rooney rephrased the issue as:

Should additional conditions (or a reduction in allocation) be imposed in the modified permits, beyond those conditions imposed by the Department, to meet the requirements of the Water Management Act and its implementing regulations? See M.G.L. c 21G and 310 CMR 36.00.

- a. Was information available to the Department at the time of the permit modifications that should have led it to recalculate the safe yield? See 310 CMR 36.33(4).
- b. If so, what did the available information show about how it should be recalculated?
- c. If the available information shows that the safe yield would have been less than the safe yield originally calculated by the Department, what consequences should follow to the modified permits?
 - 1) Are the conditions imposed by the Department adequate to meet its obligations under 310 CMR 36.28(j) or must additional conditions (including some or all of those proposed by Intervenor in its appeal or its prehearing conference memorandum) be imposed or the allocation s reduced?

As Magistrate Rooney recognized in his “Ruling on Issues to be Adjudicated: Safe Yield,” dated April 2, 2004:

[Intervenor’s] purpose in raising safe yield is to bolster its contention that DEP failed to include conditions adequate to limit overall water usage by the permit holders and to demonstrate a basis for imposing more stringent conditions or changing the amount allocated.

(Footnote continued from previous page)

Magistrate Rooney summarized these claims in the Prehearing Conference Report, “8. Should any additional conditions be imposed in the permit, beyond those imposed by the Department, to meet the requirements of the Water Management Act and its implementing regulations?” All of these grounds in addition to the claim that the safe yield has been exceeded form the basis for the Intervenor’s argument that a water banking program that takes effect now is necessary because of the highly stressed nature of Ipswich River basin and the impact of water withdrawals on Ipswich River streamflows and habitat.

In fact, Intervenor's contend that the safe yield of the water source has been exceeded and will continue to be exceeded in violation of the Water Management Act (WMA) and its regulations unless the allocations are either reduced, and/or a water bank is required in the modified permits. While the Intervenor's are not seeking a remand to the Department to recalculate the safe yield in this proceeding this does not change the issue of whether absent a water bank provision, Wilmington's permit alone and in combination with the other WMA permits in the Ipswich basin violates the WMA regulatory scheme, and fails to ensure that the purposes of the WMA are being met, and whether the Department's failure to impose a water bank provision that will take effect during the life of the permit was arbitrary and capricious.

Intervenor's contend that more stringent conditions must be imposed where the evidence clearly shows that basin is over-allocated, that the Department no longer believes its prior safe yield determination is accurate, the allocations in the modified permits will continue to result in the safe yield of the basin being exceeded, and that significant damage to the environment will continue.²

B. Statement of Facts

Kerry Mackin's testimony and supporting exhibits, as well as the Department's direct and rebuttal testimony and exhibits, and the cross-examination testimony of Thomas Lamonte established that the USGS studies conclusively show that water withdrawals are a major cause of the reduced Ipswich River flows; that the Ipswich River's biological, physical and chemical integrity have been impaired by the loss of flow; that Ipswich River fisheries have been devastated by the extreme low and no-flow

² While the discussion herein concerns the safe yield issue, the facts and argument apply equally to the Intervenor's grounds set forth in footnote 1 *infra*.

conditions; that the Aquatic Habitat Study (Intervenors' Exhibit 6) by USGS-MA Division of Fish and Wildlife concluded that summer flows between 0.42 to 0.49 cubic feet per second per square mile (cfs), or double the minimum streamflow value adopted by the WRC in the early 1990's, are necessary; and that the Fisheries Restoration Task Group, comprised of fisheries experts and in which the Department participated, recommended seasonal streamflows of 0.49 cfs. (Mackin direct testimony and exhibits; Lamonte direct and rebuttal testimony and exhibits and cross-examination).

Again summarizing the testimony and exhibits, Wilmington is in the most sensitive geographic area of the river, the headwaters, where the low and no-flows are the most extreme. USGS found that water withdrawals in the headwaters' reaches commonly exceed streamflows by 50% or more for periods of several+ days in the late summer. (Intervenors Exhibit 10 at p. 39). Wilmington is one of two communities classified by the Department in its Ipswich River Basin Permit Guidance as having the greatest impact on diminished streamflow and basin water loss. (Lamonte direct and rebuttal testimony, Exhibit A). The river has actually flowed backwards in the past due to the pumping of the streamside wells in the Wilmington area. (Mackin direct testimony and exhibits; Lamonte cross-examination).

The sole prefiled testimony presented by the Department on the safe yield issue was from Duane LeVangie, who stated that the Department did not re-evaluate safe yield during the five-year review because no new reference streamflow was developed and approved by the Water Resources Commission (WRC) and "implementation of the required conditions [will] likely result in actual water use reductions." (LeVangie direct

and rebuttal testimony, p. 11).³ Neither he nor any other Department witness refuted the Department's admissions that while it originally determined in the early 1990's that there was an additional 3.5 mgd of water to allocate in the Ipswich basin above the registered volumes, the Department now knows that this number was incorrect and that the Department has no confidence in its previous safe yield determination. (Mackin direct testimony at p. 10; Intervenor Exhibit 15). The Department also admits that the Ipswich River's capacity to supply water resources has been exceeded and that it has experienced "unsustainable patterns with significant low-flow problems," and variously characterizes it as "very oversubscribed," "over-allocated," "one of the most hydrologically stressed basins in Massachusetts," and "heavily impacted by groundwater withdrawals." (Mackin direct testimony at p. 16; Intervenor Exhibit 23; Lamonte direct and rebuttal testimony, Exhibit A p. 1 and cross-examination). Wilmington did not present any testimony on this issue.

Mr. Lamonte agreed on cross that many communities, including Wilmington, are using less than their authorized volumes. Even so, under current conditions, portions of the upper Ipswich River dry up completely and the whole river regularly experiences severe low flows. Low flows are also getting worse in his opinion; record low flows were recorded at the South Middleton dam below Wilmington in the 2002 summer.

The safe yield evidence established that the Department originally used the methodology for calculating safe yield specified in the regulations at 310 CMR 36.31(2)

³ However, five months prior to issuing the modified permits during the five-year review, the Department committed to re-determining the safe yield of the basin using the new studies and information that had been developed. The Commissioner stated: "We will use the information and studies that have recently been developed in re-determining the safe yield of the Ipswich River Basin and to ensure that the purposes of the Water Management Act, including protection of the water resource itself, are being met." (Intervenor Exhibit 23).

to calculate that 3.29 mgd was available for allocation, using a reference streamflow value of 0.22 cfs in that calculation. Evidence was presented that while this reference streamflow was intended to provide reasonable protection of fisheries and other interests, staff of the Department and the Department of Conservation and Recreation (DCR) who developed the original reference streamflow now agree that streamflows of 0.42 cfs or higher in summer, and higher flows the rest of the year, are needed to provide reasonable protection of these interests.⁴ Evidence was also presented showing that using streamflow values higher than 0.25 cfs in the regulatory safe yield formula results in a finding that there is 0 mgd, or no water, to allocate (Mackin direct testimony and Intervenor Exhibit 17).

Mr. Lamonte testified on cross that the Department adopted 0.42 cubic per second per square mile (cfs) as a reasonable level for aquatic habitat protection in the summer months for the Ipswich River. He agreed that the USGS studies are the best available science on Ipswich River flow and habitat and that the USGS hydrologic model (Intervenor Exhibit 10) examined the cumulative impacts of the withdrawals. In 2003, the Department was coordinating with the WRC and the Department of Environmental Management (DEM), now the Department of Conservation and Recreation (DCR), to establish new streamflow values for the Ipswich basin.

Ms. Mackin on direct and Mr. Lamonte on cross testified that existing uses in the

⁴ DCR was a cooperator with DEP on its WMA permitting strategy for the Ipswich basin and Lamonte discussed the new information and strategy with Vicki Gartland, DCR's hydrologist and staff to the WRC, frequently. Ms. Gartland, who had developed the original 0.22 cfs minimum streamflow value and authored the Ipswich River Basin Plan (Ipswich Plan), which contained this minimum streamflow, agreed with the Department's 0.42 cfs seasonal streamflow value. (Lamonte cross). There was little biological basis for the .22 cfs minimum streamflow threshold in the Ipswich Plan, and basin plans were abandoned shortly after the Ipswich Plan was issued because of widespread criticism of the approach. The concept of a single minimum streamflow has been rejected as not scientifically supportable. (Mackin direct and Exhibit 12, 13, 14, Lamonte cross).

Ipswich River have been eliminated or seriously impaired due to flow alteration, that the anti-degradation provision of the MA Surface Water Quality Standards (314 CMR 314 CMR 4.04(1)) protect existing uses, the Water Management Act requires reasonable protection of water quality, and that compliance with the MA water quality standards is reasonable water quality protection.⁵

Mr. Lamonte testified that the Department did not have a numerical water reduction or savings goal when it formulated the modified permit conditions. Exhibit D to Mr. Lamonte's direct and rebuttal testimony is a memo on water savings estimates that he wrote a month after the permits were issued. Because some measures interact and have a shared effect, for instance, the seasonal cap and the 65-gallon per capita day performance standard, and mandatory outside watering restrictions are difficult to quantify, actual water savings are hard to project.⁶ The 2003 *Ipswich River Watershed Management Plan* (Intervenors' exhibit 27) funded by EOEA estimates the water deficit for the entire Ipswich River watershed as 14.4 mgd for the summer months (July-September) with the upper basin deficit estimated at 5-6 mgd. The Management Plan establishes a goal of 5.4 mgd in summer water conservation savings for the entire watershed. Mr. Lamonte agreed that the basin-wide savings from the seasonal cap provision will be 3.4 mgd in a dry year and much less in a normal year (0.53 mgd), far below the 14.4 mgd in necessary savings identified in the Management Plan.

Ms. Mackin testified about the effectiveness of Weymouth's water banking

⁵ The Department stated in the cover letter to Wilmington's modified permit: "These low flows significantly impair the ability of the river to function as a habitat for aquatic life and wildlife that are adapted to riverine conditions, an area of primary and secondary contact recreation, and a reliable source of safe drinking water."

⁶ Mr. Lamonte stated on June 21, 2004 during discussions with the Magistrate that the Department is under no illusion that water conservation alone will solve the problems or achieve the 0.42 cfs streamflow consistently.

program in keeping the Town below its registered water withdrawal volume. The details of the program are contained in the affidavit of Bradley Hayes, Weymouth's Water and Sewer Superintendent. (Intervenors Exhibit 24). Weymouth has moved toward a fee-based program, which applies broadly to new development, including chapter 40B developments, expansions that result in a change of use of building space or add bedrooms, and new industrial/commercial processes.

Mr. Lamonte testified on cross that water banking in Wilmington would benefit the river. In fact, in an April 14, 2003 memorandum to Department Senior Staff from Duane Levangie on the Ipswich permits, the Water Management Program "recommend[ed] that communities immediately consider the implementation of a water bank." Lamonte direct, exhibit B. A water-banking program can offset, or mitigate, new or increased demand and accommodates growth while ensuring sustainability of the water resource, according to Mr. Lamonte. He testified that the provision in the modified requiring implementation of a water bank only if Wilmington exceeds its authorized volume is largely meaningless since it is not likely that Wilmington will exceed its permitted volume before the permit expires in 2009.

C. Argument

1. Additional Conditions Must be Imposed in the Modified Permits Beyond Those Imposed by the Department to Meet the Requirements of the Water Management Act and its Regulations.

The WMA and its regulations prohibit the Department from permitting water withdrawals that exceed the safe yield of the “water source,” defined in the regulations at 310 CMR 36.03 to include river basins.⁷ As Judge Rooney recognized in his April 2, 2004 ruling, “Safe yield plays an important role in the process by which DEP permits water withdrawals under the Water Management Act Regulations. The Regulations are replete with references to DEP’s obligation to ensure that withdrawals from the water source do not exceed the safe yield of the water source.”

A wealth of information was available to the Department at the time it conducted the five-year review of the Ipswich basin WMA permits, among them the recent USGS studies establishing the correlation between unnaturally low flows and water withdrawals and necessary streamflows for aquatic habitat, actual experience with the results of the water withdrawals, streamflow gage data, fish community data and a Target Fish Assessment that showed a paucity of flow-dependent species in the current Ipswich River fish community. All of this information pointed to the fact that the basin was overallocated for water withdrawals and that the safe yield of the basin was exceeded. In fact, the Department admitted that it had lost confidence in its original safe yield determination and that its determination of 3.29-3.5 mgd of water to allocate in the

⁷ Section 2 of the WMA defines “safe yield” as “the maximum dependable withdrawals that can be made continuously from a water source, including ground or surface water, during a period of years in which the probable driest period or periods of greatest water deficiency is likely to occur, provided, however, that such dependability is relative and is a function of storage and drought probability.” The regulations at 310 CMR 36.03 define safe yield as “the maximum annually averaged daily water use consumptive loss rate that can be sustained from a water source with an acceptable degree of risk.”

Ipswich basin over and above the registered volumes was incorrect. The information that the Department had in hand should have led it to recalculate the safe yield of the basin. The Department's Commissioner confirmed this when she wrote, "We will use the information and studies that have recently been developed in re-determining the safe yield of the Ipswich River Basin"

While many provisions of the WMA and regulations describe what DEP may consider, the requirement that water withdrawals shall not exceed the safe yield of the water source is not discretionary.⁸ Safe yield is especially important to implementation of the WMA because it sets a finite limit on the amount of water that can be withdrawn from a water source, while protecting the interests of the WMA.

The Department is not free to ignore this "available" safe yield information. The regulations at 310 CMR 36.26(1)(j) specify that "All permits shall be conditioned on at least the following: . . . that the withdrawal in combination with other registered and permitted withdrawals shall not exceed the safe yield of the water source." 310 CMR 36.28(1)(j) (emphasis added). Under the plain language of the regulations, the Department has an affirmative duty to condition permits so that the safe yield is not exceeded. In fact, Mr. Levangie in his direct testimony relies on criteria in 310 CMR 36.28(1) as a basis for other conditions imposed by the Department in the modified

⁸ The William T. Matt case, Dkt. No. 97-011, 0112, October 7, 1998 Final Decision, is not on point. There, the Department in assessing a penalty was merely required to consider the specified factors and there was no requirement that the penalty factors be given any particular weight. Thus, the Department in computing the penalty only had to give some thought to the penalty factors. In contrast, here, the WMA regulations make it clear that the safe yield of the water source should not be exceeded and the language in 310 CMR 36.28(1)(j) is mandatory.

permits.⁹ See Levangie direct and rebuttal testimony at p. 4 and 6. While 310 CMR 36.33(4) specifies that the Department “will review . . . any available safe yield information,” it is not free to ignore highly relevant information regarding this pivotal issue or to issue modified permits that exceed the safe yield. Significantly, Mr. Levangie testified that the reason the Department did not re-evaluate safe yield was because no new reference streamflow was developed and approved by the WRC and the required conditions will “likely result in actual water use reductions.”¹⁰ Levangie direct at p. 11.

The regulations at 310 CMR 36.31 specify how, in “water sources deemed appropriate by the Department,” it is to determine the safe yield of a water source. The Department used the methodology prescribed in 310 CMR 36.31(2) in its original safe yield determination. The only variable in this calculation is the streamflow value. In its original calculation the Department used the 0.22 cfs value adopted by the WRC over ten years ago, which was the minimum streamflow below which any further reduction would have “an adverse environmental impact on the water resources of the basin.” Intervenor Exhibit 12 at p. 33.

It is clear from the evidence presented that the 0.22 cfs WRC reference streamflow value for the Ipswich River is not scientifically valid. The Fisheries Task Group, relying on the extensive Ipswich River habitat assessment work that was recently

⁹ The regulations at 310 CMR 36.28(1) also require the Department to condition permits to minimize the impacts of the withdrawal on water quality, navigation, water-based recreation, wetland habitat, and fish and wildlife and conditions necessary to further the purposes of the Act and assure compliance with the implementing regulations.

¹⁰ No Department witness testified that the water conservation provisions in the modified permits were premised on safe yield. In adopting the water conservation measures Mr. Lamonte testified that the Department did not have a specific water use reduction goal in mind and that actual water savings are hard to project.

Levangie’s assertion that the overall volumes were reduced in the modified permits is without relevance since the evidence showed that the safe yield is exceeded at combined withdrawal volumes below these allocations -- allocations that are not currently being withdrawn.

completed by USGS and MA DFW, recommends a flow of 0.49 cfs from June-October, or more than twice the old DEM minimum summertime streamflow. None of the four methodologies utilized by USGS and MA DFW in their habitat assessment work supports a seasonal minimum streamflow of 0.22 cfs. Mr. Lamonte testified that the Department adopted the 0.42 cfs seasonal streamflow value, which is the best available science on adequate streamflow for aquatic habitat in the Ipswich River, and that DCR's representative, who had originally devised the 0.22 cfs minimum streamflow value, agreed with this streamflow.

Nothing in 310 CMR 36.31 prevents the Department from using a streamflow value in its safe yield determination that new science establishes is more accurate. In fact, 310 CMR 36.31(1)(e) specifies that in any determination of safe yield the Department may consider "any additional applicable information." The Department has the authority, and Intervenor contends, the obligation, to use a different streamflow value in its safe yield determination when it has clear evidence that the WRC water management reference streamflow value is insufficient and not scientifically supportable.

When the seasonal streamflow necessary to support riverine ecological integrity of 0.42 cfs is used in the safe yield methodology in 36.31(2), it results in a negative number. In fact, a streamflow of 0.30 cfs or above results in a finding that there is no water to allocate over and above the registered volumes.¹¹

The empirical data on actual streamflow conditions and environmental impacts, fish surveys, and scientific studies establishing the impacts of water withdrawals on

¹¹ Significantly, if the safe yield methodology prescribed in the regulations had been applied to the streamflow data at the South Middleton gage in the first place, instead of the USGS Ipswich gage, even using the 0.22 cfs WRC reference streamflow, the result would have been zero water to allocate in the watershed above the South Middleton gage. (Mackin direct testimony at p. 13).

streamflow, assessing aquatic habitat conditions, and recommending seasonal streamflow values are all “additional applicable information” under 310 CMR 36.31(1)(e) and “available safe yield information” under 310 CMR 36.33(4).

One does not have to calculate the precise safe yield to conclude that the combined permitted volumes now allocated in the modified permits (3.61 mgd) (Intervenors Exhibit 9) exceed the safe yield of the basin. The totality of the evidence presented shows that even if all other provisions of the modified permits are complied with in full, community growth and new development will erode the savings gained by the water conservation measures. Water banking is one way of countering this and actually improving conditions.

2. A Water Bank Program that Takes Effect Now Should be a Condition in the Modified Permit.

Contrary to David Peeling’s rebuttal testimony Weymouth’s experience with water banking was not a valid comparison for Wilmington because Weymouth’s utility infrastructure is aging and in poor condition and it is essentially built-out, water bank resources are not limited to addressing aging and poor infrastructure, but can also provide resources to improve residential water conservation, incorporate new technologies, and improve stormwater recharge -- all compatible with the Town’s goals, as well as contributing to sustainable water resource management. Moreover, a mitigation banking program can be most effective in a community that is not built out since it is precisely those communities where development is occurring that need to mitigate increased water demand. Mr. Lamonte agreed that water banking in Wilmington would benefit the river and be a good thing. In fact the Water Management Program recommended that

communities immediately consider the implementation of a water bank. Lamonte direct, Exhibit B.

Requiring Wilmington to conserve or keep within the Ipswich River basin at least two gallons for every gallon of new water demand would, Intervenors believe, be an effective remedy to the claims brought by them. A water bank program will offset, or mitigate, new or increased demand and accommodate growth while ensuring sustainability of the water resource.

CONCLUSION

For the reasons discussed above, a water bank provision that takes effect now should be required in the Town's modified permit.

Respectfully submitted,
**Ipswich River Watershed Association,
Inc., Essex County Greenbelt Association,
Inc., and Twelve Citizens,**

By their attorney:

Margaret Van Deusen
Charles River Watershed Association
48 Woerd Avenue
Waltham, MA 02453
(781) 788-0007 ext. 234