WATER RESOURCES COMMISSION FINDINGS

Compliance with the Environmental Criteria Of the Interbasin Transfer Act Aquaria Regional Desalinization Project

August 14, 2003

DECISION

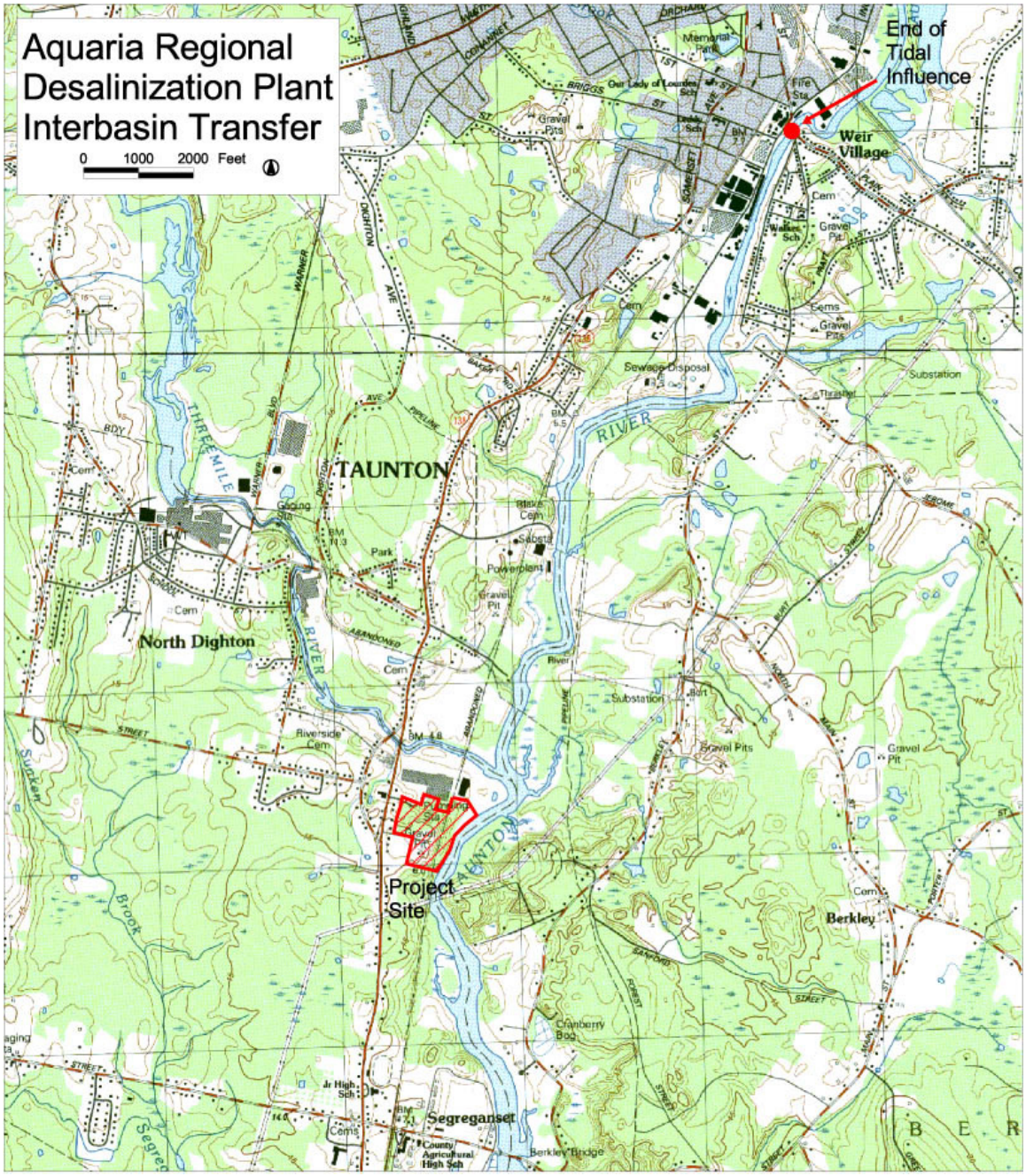
On August 14, 2003, the Massachusetts Water Resources Commission (WRC) voted to approve the Aquaria Regional Desalinization Project's compliance with the environmental criteria of Interbasin Transfer Act for a proposed desalinization facility to be located in Dighton, Massachusetts. This vote was taken after review of the facts provided by the applicant in their request for approval of an Interbasin Transfer for this facility, analysis of the associated data, and consideration of public and agency comments concerning this proposal. The vote pertained only to the Aquaria portion of the project. Compliance with the applicable criteria of the Interbasin Transfer Act by customers will be evaluated as these customers file a Notice of Project Change with MEPA, required for purchase of water from Aquaria.

BACKGROUND

On August 5, 1997, the WRC received a request for approval of an action to increase the present rate of interbasin transfer under the Interbasin Transfer Act (M.G.L. Chapter 21 §§ 8B-8D) from Bluestone Energy Services, Inc., now known as Aquaria, for a desalinization plant to be located in Dighton (Figure 1). The application was part of the Draft Environmental Impact Report (DEIR), EOEA #10185, for this project. Additional information was provided through the Final Environmental Impact Report (FEIR), submitted on June 15, 2000 and through correspondence dated September 14, 2000 and a report submitted in January 2003.

The WRC accepted Aquaria's application as complete on April 10, 2003 and held two public hearings, as required by the regulations, on May 15, 2003. A Staff Recommendation to approve the Aquaria proposal was presented to the WRC on June 12, 2003, with an additional public hearing on the Staff Recommendation held on June 19, 2003. Responses to comments are available in a separate report from the WRC. On July 10, 2003, the WRC discussed the Staff Recommendation and the public comments received. **On August 14, 2003, the WRC voted seven to one (7 to 1), with one**

Figure 1


Aquaria Regional
Desalinization Plant
Interbasin Transfer
0 1000 2000 Feet
End of
Tidal
Influence
Weir
Village
TAUNTON
North Dighton
Project
Site
Segreganset
Berkley
RIVER

abstention, to approve Aquaria's compliance with the environmental criteria of the Interbasin Transfer Act.

Facts pertaining to the application are:

1. The Interbasin Transfer Act (ITA) applies to this project because water will be withdrawn from the Massachusetts Coastal basin, which is defined as "those areas within the Commonwealth lying below the mean high tide elevation" (313 CMR 4.03(28)). When drafting the Interbasin Transfer Act's regulations, the WRC stated that coastal waters "should be a separate basin for both *water supply* and wastewater purposes" (March 14, 1984 WRC meeting minutes - emphasis added), as the marine environment presents unique environmental concerns, which need to be addressed and protected.

2. Although at times the salinity of the water to be treated at this plant will be low, the ITA and regulations do not take salinity into account when defining river basins. The definition of a river basin is based solely on geography. Regardless of the salinity of the process water, the intake of the plant is always below the mean high tide elevation; therefore the source of water is always from the Massachusetts Coastal basin.

3. The water will be treated using conventional water treatment processes and a reverse osmosis desalinization process. The water will then be sold to communities and institutions, mainly within the Taunton River basin.

4. The facility is being designed to provide 5 to 10 mgd of potable water to interested customers. The reverse osmosis units to be used by the plant will be designed to provide a 75% recovery rate (i.e. three quarters of the water withdrawn will be potable, one quarter will contain dissolved salts, to be discharged back to the basin of origin at a later time).

5. The project is being planned in two phases. The initial phase will produce 5 mgd of potable water. The second phase, to be instituted as demand increases, will produce an additional 5 mgd, for a total of 10 mgd of potable water. The proponent was instructed to provide analyses on the larger amount to enable the WRC to review the total "increase in the ability to transfer water" as defined in 313 CMR 4.02.

6. A DEIR was filed with MEPA on July 31, 1997. The Interbasin Transfer application was submitted as an appendix to that report. The FEIR, including a partial response to the WRC's Request for Additional Information, was filed on June 15, 2000. The Secretary's Certificate on the FEIR was issued on July 31, 2000. A Notice of Project Change (NPC) was filed with MEPA in December 2002. The Secretary's Certificate on this Notice was issued on January 23, 2003. The certificate found that the NPC does not require preparation of a Supplemental Environmental Impact Report.

EVALUATION OF THE PROPOSED INTERBASIN TRANSFER

The criteria for approval of an increase in Interbasin Transfer address both environmental and water supply system management issues. Because the proponent of this project (Aquaria) does not have control over the water supply system management of potential customers, in March 1996, the WRC ruled on how it would apply the criteria of the Act to this project:

a. Compliance with the **environmental review criteria** of the Act's regulations (313 CMR 4.05 (1),(5),(6),(8)) will be the responsibility of Aquaria.

b. Compliance with the **water supply system management criteria** (313 CMR 4.05 (2), (3), (4), (7)) will be the responsibility of any communities purchasing **1 mgd or greater** from the proposed desalinization plant **or any community, regardless of amount purchased, in the following cases:**

- if a community proposes to discontinue use or abandon one of its existing water supply sources, and replace it with water from the proposed plant; or
- if a community which does not currently have a public water supply, proposes to create a public water supply entity, with its major source of supply being water from the proposed desalinization plant; or
- if the WRC determines, as provided in the regulations (313 CMR 4.04(5)(b)), that a particular transfer could have significant impacts.

c. **All communities** purchasing water from the proposed desalinization plant, regardless of the amount, must file an updated water conservation plan which meets the water conservation standards adopted by the WRC in 1992 (and updated in 2002).

The Secretary's July 2000 Certificate on the FEIR further required that communities seeking to connect to the desalinization plant must file a Notice of Project Change (NPC) with MEPA. The NPC must address, among other things, the information required to evaluate the community's compliance with the criteria of the Interbasin Transfer Act applicable to water supply systems.

These findings address only the performance of the Aquaria project with respect to the applicable environmental review criteria. Individual customers will be evaluated against the applicable water supply system management criteria through review of the required NPC, when filed. Final approval for this project will be issued when the first customer demonstrates, through filing of an acceptable NPC, that it has met the applicable water supply management criteria of the ITA.

SYNOPSIS OF THE EVALUATION CRITERIA (313 CMR 4.05)

Criteria	**Application Meets?**
Criterion #1: MEPA Compliance	Yes, for environmental impacts
Criterion #2: Viable In-Basin Sources	Applicable to customers
Criterion #3: Water Conservation	Applicable to customers

Criterion #4: Watershed Management	Applicable to customers
Criterion #5: Reasonable Instream Flow	Yes
Criterion #6: Groundwater/Pumping Test	Not Applicable to this Project
Criterion #7: Local Water Resources Management Plan	Applicable to customers
Criterion #8: Cumulative Impacts	Yes, with monitoring

BASIS FOR THE FINDINGS

This interbasin transfer application was reviewed on its own merits. The findings are made on facts relevant to the Interbasin Transfer Act and its regulations, and according to the guidance produced by the WRC in March 1996, discussed above. The application was reviewed by DEM's Office of Water Resources, DEP's Division of Watershed Permitting and Southeast Regional Office, DFWELE's Division of Fisheries and Wildlife, Division of Marine Fisheries, Natural Heritage and Endangered Species Program and Riverways Program, and the Office of Coastal Zone Management. These Findings are being made after an extensive evaluation of the project and of Aquaria's compliance with the three applicable criteria of the Interbasin Transfer Act regulations. The following section describes in detail Aquaria's compliance with the criteria.

These findings do not address potential customers' compliance with the water supply management criteria of the Act. These will be addressed for each customer purchasing 1 mgd or greater from the Aquaria plant (or otherwise considered significant), as they file the required NPC. **It shall be an express condition of WRC approval that Aquaria shall not be permitted to sell water to any customer, unless that customer has completed the NPC process with MEPA, and has demonstrated to the WRC that, depending upon the amount purchased, it is in compliance with the applicable water supply management criteria.**

Criterion #1 MEPA Compliance

A DEIR was filed with MEPA on July 31, 1997. The Interbasin Transfer application was submitted as an appendix to that report. The FEIR, including a partial response to the WRC's Request for Additional Information, was filed on June 15, 2000. The Secretary's Certificate on the FEIR was issued on July 31, 2000. A Notice of Project Change (NPC) was filed with MEPA in December 2002. The Secretary's Certificate on this Notice was issued on January 23, 2003. This certificate stated that the NPC does not require preparation of a Supplemental Environmental Impact Report, therefore the MEPA process for the Aquaria portion of the project is complete.

As stated previously, a community seeking to connect to the desalinization plant is required to file a Notice of Project Change with MEPA before Aquaria may sell water to that community. The NPC must address, among other things, the information required to evaluate the community's compliance with the applicable criteria of the Interbasin Transfer Act. Compliance by individual customers with MEPA will be evaluated as they apply to purchase water.

Criterion #2 Viable In-Basin Sources
This criterion is applicable to customers of the Aquaria project purchasing 1 mgd or greater or otherwise considered significant and will be evaluated as customers file the required Notice of Project Change. In such cases, Aquaria will not be permitted to sell water to any customer until that customer has completed the MEPA and IBT requirements and has demonstrated to the WRC that it is in compliance with this criterion.

Criterion #3 Water Conservation
This criterion is applicable to customers of the Aquaria project purchasing 1 mgd or greater or otherwise considered significant and will be evaluated as customers file the required Notice of Project Change. In such cases, Aquaria will not be permitted to sell water to any customer until that customer has completed the MEPA and IBT requirements and has demonstrated to the WRC that it is in compliance with this criterion.

Customers purchasing less than 1 mgd and not considered potentially significant are required to submit a water conservation plan which meets the amended Water Conservation Standards for the Commonwealth of Massachusetts along with the required Notice of Project Change.

Criterion #4 Watershed Management
This criterion is applicable to customers of the Aquaria project purchasing 1 mgd or greater or otherwise considered significant and will be evaluated as customers file the required Notice of Project Change. In such cases, Aquaria will not be permitted to sell water to any customer until that customer has completed the MEPA and IBT requirements and has demonstrated to the WRC that it is in compliance with this criterion.

Criterion #5 Reasonable Instream Flow
The proposed withdrawal is from the estuary of the Taunton River. The flow in this area is tidal. The review and analyses conducted under this criterion focused on impacts to the Taunton River estuary, including impacts to tidal flow, salinity levels, potential migration of the salinity wedge and resources dependant on the ambient estuarine conditions.

The Interbasin Transfer regulations (313 CMR 4.05) direct the WRC to consider that "reasonable instream flow in the river from which the water is transferred is maintained." This project involves transfer of water from the Massachusetts Coastal Basin as located below the mean high tide elevation of the Taunton River estuary.

The site of the proposed withdrawal is along the tidally influenced portion of the Taunton River. Water backs up during high tide, raising the elevation of the river. The salinity of the water at the site varies with the Taunton River flow. During low flow periods, saltwater pushes far enough upstream to provide a mix of saline and freshwater at the

proposed project site. During high flow periods when larger volumes of freshwater are flowing down the Taunton River, the water at the site remains fresh, but the elevation of the river still rises and falls in response to the force of the tide backing up river water. During these periods, the plant will be removing mostly freshwater. Water levels at this location can fluctuate significantly during the tidal cycle. Elevations changed by 12 feet during one measurement period (9/10/00-9/12/00).

The Aquaria project proposes to withdraw up to 20 million gallons per day, approximately one-quarter to one-half of which would be treated and returned at the same location. The maximum net transfer from this location is 10 mgd based on plant capacity. Potential returns via community infrastructure within the Taunton River basin are beyond the jurisdiction of the Interbasin Transfer Act and so are not considered in this review. The proposed amount of water withdrawn and returned by the plant on any given day depends on the salinity at the time of withdrawal. When salinity is high, a withdrawal of up to 20 mg may be needed to produce 10 mg of potable water, with a return to the river of 10 mg. When salinity is low a withdrawal of 10 mg could yield 10 mg of potable water. Salinity at this point on the river ranges from 0 to approximately 20 parts per thousand (ppt). The proposed withdrawal involves removal of water during the incoming tide and outgoing tide, with the return of water (concentrated brine) at the peak of the high tide.

The review for criterion #5, maintaining a reasonable instream flow, includes consideration of the following:

(a) Length of stream below the point of withdrawal
(d) Significance of indigenous and anadromous fisheries and fauna and effects thereon
(e) Significance of wetlands and dependent flora and fauna and effects thereon
(f) Effect on water quality, recreational uses, aesthetic values, areas of critical environmental concern and areas protected under Article 97 of the Amendments to the Massachusetts Constitution
(h) Effect on hydropower production
(i) Effect on other water withdrawals and undeveloped rights within the donor basin
(j) Effect on other instream uses

Because the water level fluctuates with the incoming and outgoing tide at this location, and flow is multidirectional depending on the tide cycle, it was determined by the WRC that following environmental factors under criterion #5 should be considered with respect to changes in water elevation at the withdrawal location:

(b) Effects on flood flows, intermediate flows and low flows.
(c) Effect on groundwater and surface water elevations.
(g) Effect on established riparian uses and uses dependent on recharge from stream flow.

Background
The Aquaria project is located in Dighton at river mile 11 on the Taunton River. The drainage area upstream from the site is 458 square miles. This portion of the Taunton River is tidally influenced but has salinities ranging from 0 parts per thousand (fresh water) to about 20 parts per thousand (brackish water).

Anadromous Fisheries
This location has a significant anadromous fishery including river herring, white perch and American eels. In addition there is suitable habitat and reported sightings of Atlantic Sturgeon. Concerns for this fishery focused on entrainment and impingement of the species at any of the life stages: eggs, larvae, small juveniles and adults. In addition passive organisms such as ichthyoplankton can become entrained.

During the EIR process many of the concerns of the Division of Marine Fisheries (DMF) regarding impingement and entrainment were addressed. DMF concludes that the changes in the design system, such as reductions in intake velocity, made by the proponent should keep impingement impacts to an acceptable low level. In addition, proper maintenance of the Johnson screens during the discharge cycle should safely allow any dislodged fish eggs and larvae to be returned to the river. The DMF and the proponent are developing a protocol for this.

DMF has requested that Aquaria submit a plan for maintenance to ensure the protocol is done adequately and has the desired effects. According to a letter from Paul Diodati, DMF, January, 2003, "A fish sampling plan should be included to monitor the performance and effectiveness of fish, larvae, and egg exclusion systems. Sampling should include comparisons of the number of fish species and abundance, including eggs and larvae, in the river compared with the waters inside the exclusionary netting. Impingement of fish eggs and larvae on the netting should be monitored along with impingement on the Johnson screens using vacuum suction sampling techniques. Entrainment samples of fish eggs and larvae should be collected from the intake structure during the brine discharge cycle. Adult equivalent mortality of representative important species should be determined from estimates of fish impingement and egg and larval entrainment. Ichthyoplankton monitoring should take place for at least one twelve month cycle of operation at sampling frequencies of twice per week during non-peak spawning months (November - March) and three times per week at other times. Sampling should coincide with the tidal period during water withdrawal and discharge. Impingement monitoring of juvenile and adult fish on the intake screens should be an ongoing practice under the intake operation plan whenever the exclusionary netting is not operating. Further details of the monitoring plan should be incorporated into the intake operation plan, and should be provided during development of the operation plan."

Rare plant species
The Long's Bittercress, a perennial of the mustard family, has been found at the site. This plant is listed as "endangered" pursuant to the Massachusetts Endangered Species Act (MESA). The plant is an estuary species often found in mud flats. NHESP is concerned about the direct loss of rare plants and habitat from construction of the intake

structure and exclusionary netting, and about adverse impacts from possible changes in salinity and turbidity from plant operations. Salinity requirements for this species are not well documented, however NHESP has indicated that germination can probably occur in any salinity. Siltation due to wave action or construction, however, could impact the species by increasing the turbidity of the water. A Conservation Permit for an Insignificant Taking will be required.

Environmental Impacts: water level elevations

The proposed withdrawal involves removal of water during the incoming tide and outgoing tide, with discharge of concentrated brine at the peak of high tide. The withdrawal capacity is 34,000 gallons per minute (gpm) with withdrawal periods ranging from 1 – 4 hours. The discharge capacity is 54,000 gpm, which occurs for 1-2 hours. Table 1 illustrates the typical plant operation during one tidal cycle:

Table 1

Phase	Activity	Start Time (hours after low water)	Duration (hour)	Flow Rate Gpm*	Volume Withdrawn MG	Volume Discharged MG	Cumulative loss in MG to basin
A	Idle	-1.25	3.75	0	0	0	0
B	Withdrawal	2.50	4.0	-34,000	8.16	0	-8.16
C	Discharge	4.10	1.60	+54,000	0	5.18	-2.98
D	Idle	6.10	2.0	0	0	0	-2.98
E	Withdrawal	7.17	1.07	-34,000	2.19	0	-5.17

*34,000 gpm for one day would be 48.96 mgd; 54,000 gpm for one day would be 77.76 mgd

Based on the schedule above, the amount of water the plant can withdraw on an hourly basis is large relative to the amount of water that would flow downstream if there were no tidal influence. However, the head produced by the tide is far greater than the force of the withdrawal, therefore the tide provides a continuous pressure in the upstream direction, and back fills at the withdrawal point to maintain the normal elevations.

The proponent modeled water elevation from the site in Dighton to Fall River downstream. The figure below provides the results of the model calibration for water level elevation.

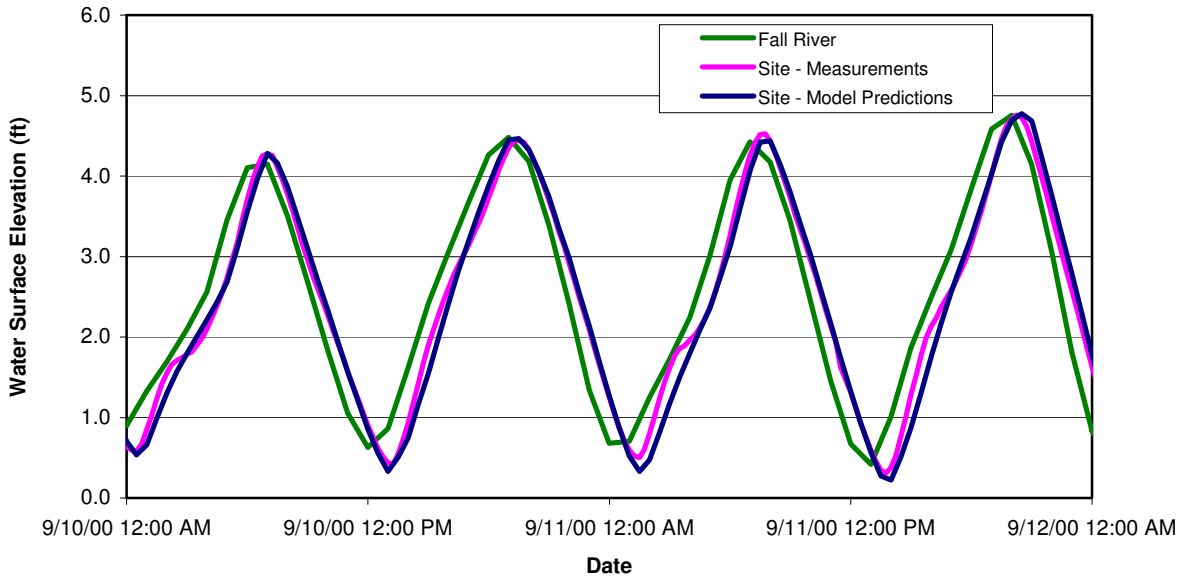


Figure 2. Hydrodynamic Model Calibration

The measured elevations at the site for 9/10/00 to 9/12/00 match the modeled elevations. Figure 3 shows the elevations with and without the net 10 mgd operation. The water elevations for the two simulations cannot be distinguished on the graph indicating no change in elevation.

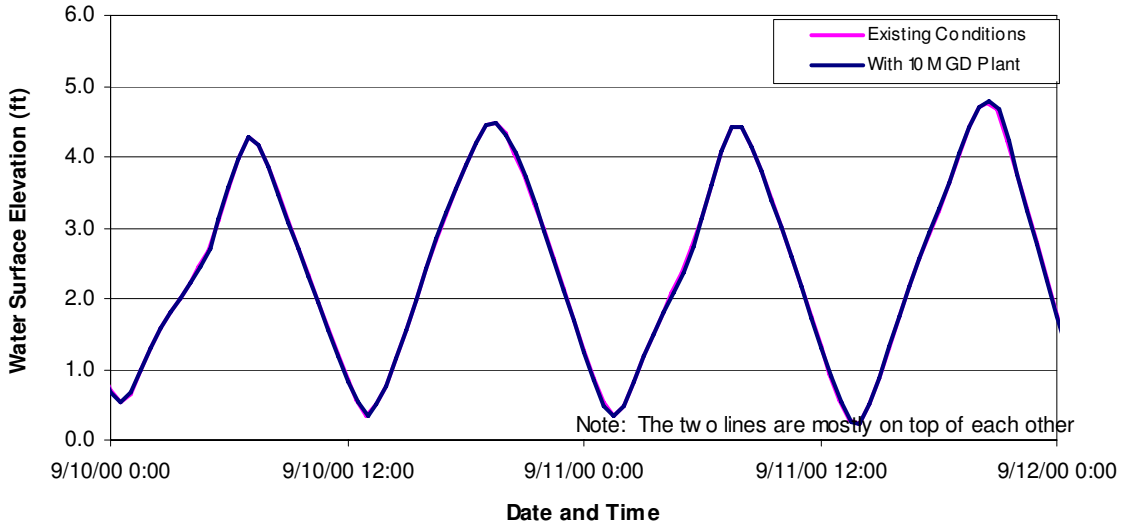


Figure 3. Tidal Water Levels at Proposed Plant Site

Due to the withdrawal of water during tidal rise and fall, no impact to water elevation will occur during flood, moderate or low flow periods from the proposed transfer.

Environmental Impacts: water quality (salinity)

Salinity was simulated at the Braga Bridge in Fall River (11 miles downstream at the mouth of the Taunton River) and at the plant site in Dighton. In addition salinities are simulated for several locations in between these sites and upstream from the plant. Simulations were done for a net 10 mgd transfer during 7Q10 flow conditions (seven consecutive days of low flow which occurs with a frequency of every ten years). The graph below illustrates the change in salinity due to the withdrawal at the plant site and at two locations downstream from the plant. In addition the simulated salinity data for all the locations is included in Table 1.

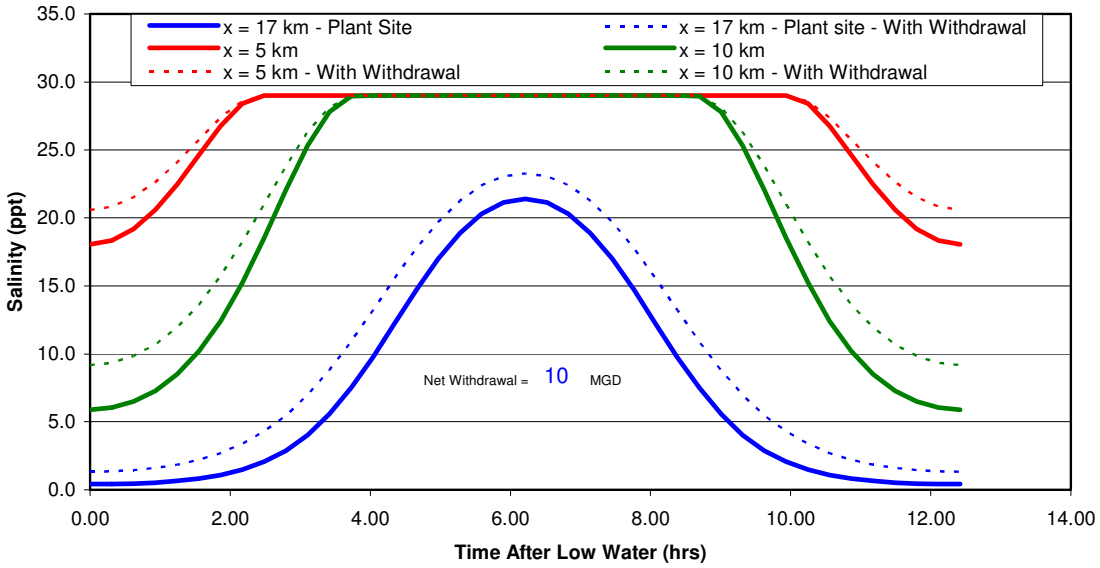


Figure 8. Salinity Time Variations for 7Q10 Flow with 10 MGD Withdrawal

Table 6. Salinity Model Results

Width of Estuary	b =	200	m						
Depth of Estuary	h =	3	m						
Fresh water flow	Q_f =	1.58	m^3/s	=	55.8	cfs	7Q10 Flow Conditions		
Tidal Amplitude	a =	0.765	m						
Maximum velocity	U_0 =	1.32	m/s						
Salinity at mouth	S_0 =	29	ppt				Fresh water velocity	$U_f = Q_f / bh$	0.0026 m/s
Period	T =	12.42	hrs				Angular Frequency	$\sigma = 2\pi / T$	0.0001405 s^{-1}
Seaward Excursion	B =	1,000	m					$N = h U_0/a \sigma$	36,836 m
Diffusion Coefficient	D'_0	100	m^2/s				Tidal Excursion	$\lambda = U_O T / \pi$	18.8 km

Time After LW (hr)		Distance from Braga Bridge (m) 0	2,500	5,000	7,500	10,000	15,000	17,000 Plant Site	20,000	22,500	25,000
0.00	Low Water	28.6	24.7	18.1	11.2	5.9	1.0	0.4	0.1	0.0	0.0
3.11		29.0	29.0	29.0	29.0	25.3	8.5	4.0	1.0	0.2	0.0
6.21	High Water	29.0	29.0	29.0	29.0	29.0	28.2	21.4	8.2	2.2	0.4
9.32		29.0	29.0	29.0	29.0	25.3	8.5	4.0	1.0	0.2	0.0
12.42	Low Water	28.6	24.7	18.1	11.2	5.9	1.0	0.4	0.1	0.0	0.0
Average		28.8	27.3	24.6	21.9	18.3	9.4	6.1	2.1	0.5	0.1

WITH PLANT WITHDRAWAL

Net Plant Withdrawal		10	MGD			Reduced U_f			0.0019 m/s
		0.44	m^3/s						

Time After LW (hr)		Distance (m) 0	2,500	5,000	7,500	10,000	15,000	17,000	20,000	22,500	25,000
0.00	Low Water	28.7	25.8	20.6	14.6	9.2	2.5	1.3	0.4	0.2	0.0
3.11		29.0	29.0	29.0	29.0	26.3	11.9	7.0	2.5	0.8	0.2
6.21	High Water	29.0	29.0	29.0	29.0	29.0	28.4	23.3	11.6	4.5	1.3
9.32		29.0	29.0	29.0	29.0	26.3	11.9	7.0	2.5	0.8	0.2
12.42	Low Water	28.7	25.8	20.6	14.6	9.2	2.5	1.3	0.4	0.2	0.0
Average		28.9	27.7	25.6	23.2	20.0	11.5	8.0	3.5	1.3	0.4

DIFFERENCE

Time After LW (hr)		Distance (m) 0	2,500	5,000	7,500	10,000	15,000	17,000	20,000	22,500	25,000
0.00	Low Water	0.1	1.1	2.5	3.4	3.3	1.5	0.9	0.3	0.1	0.0
3.11		0.0	0.0	0.0	0.0	1.0	3.4	2.9	1.5	0.6	0.2
6.21	High Water	0.0	0.0	0.0	0.0	0.0	0.2	1.9	3.4	2.3	0.9
9.32		0.0	0.0	0.0	0.0	1.0	3.4	2.9	1.5	0.6	0.2
12.42	Low Water	0.1	1.1	2.5	3.4	3.3	1.5	0.9	0.3	0.1	0.0
Average		0.0	0.5	1.0	1.4	1.7	2.0	1.9	1.4	0.8	0.3

Modeled salinity at the plant site varies from 0 to 23 ppt during the tidal cycle under 7Q10 flow conditions. The simulation shows an average increase in salinity of 2 ppt during these low river flow conditions. The variation is well within the natural variation at this site. Average changes in salinity upstream ranged from 0.3 to 1.4 ppt, which is also within the range of variation seen at these sites. Experts from Coastal Zone Management, Marine Fisheries and Natural Heritage felt these changes in salinity would not affect the existing flora and fauna.

Water Withdrawals and Recreation

Because water elevations will not be changed, neither water withdrawals downstream of the proposed project nor recreation will be affected by the transfer of water.

Based on the above analyses, this project will maintain a "reasonable instream flow," as defined as water elevation for the Massachusetts Coastal Basin.

Criterion #6 Groundwater/Pumping Test

This criterion is not applicable to this project.

Criterion #7 Local Water Resources Management Plan

This criterion is applicable to customers of the Aquaria project purchasing 1 mgd or greater or otherwise considered significant and will be evaluated as customers file the required Notice of Project Change. In such cases, Aquaria will not be permitted to sell water to any customer until that customer has completed the MEPA and IBT requirements and has demonstrated to the WRC that it is in compliance with this criterion.

Criterion #8 Cumulative Impacts

The proponent was required to conduct the environmental analyses to at full plant build-out (10 mgd potable water). This was to assure that the incremental impacts from adding new customers would be evaluated. If the plant expands beyond the capacity to produce 10 mgd of potable water, additional IBT review will be needed.

As discussed under Criterion #5, water level elevations will not be diminished, due to the tidal effects within the estuary. Concern remains about long-term changes in salinity and water quality, as well as potential long-term impacts to the fishery resource. After discussions with experts from CZM, DMF and NHESP, the WRC has concluded that long-term impacts should be carefully monitored. Operations should be modified if unforeseen long-term adverse cumulative impacts arise, to assure that this project meets this criterion.

EO 385

These findings are consistent with Executive Order 385, which has the dual objective of resource protection and sustainable development. These findings do not encourage

growth in areas without adequate infrastructure nor does it cause a loss of environmental quality or resources.

In addition, the FEIR certificate requires that the NPC to be filed by communities seeking to purchase water discuss the Regional Policy Plan developed by the regional planning agency and the current local comprehensive plan or EO 418 Community Development Plan, and describe measures, such as potential zoning changes, etc., which will be taken to mitigate secondary growth impacts.

CONDITIONS OF THE FINDINGS

Based on the analyses and concerns expressed about this project, the WRC requires that the approval of Aquaria's application under the Interbasin Transfer Act to develop a regional desalinization project be subject to the following conditions. In addition, Aquaria must obtain and abide by all other permits and approvals for this project and potential customers must complete the NPC process with MEPA, and demonstrate to the WRC that it is in compliance with the applicable water supply management criteria. Aquaria must agree in writing to abide by the conditions of this approval.

In order to fully comply with Criterion #2, that all reasonable efforts have been made to identify and develop all viable sources in the receiving area of the proposed interbasin transfer, Criterion #3, that all practical measures to conserve water have been taken in the receiving area, Criterion #4, a comprehensive forestry management program which balances water yields, wildlife habitat, and natural beauty on watershed lands presently serving the receiving area and under control of the proponent has been implemented, and Criterion #7, that the community has adopted or is actively engaged in developing a local water resources management plan:
Aquaria cannot sell water to any customer, until the customer has completed the NPC process with MEPA, and demonstrates to the WRC that, depending upon the amount purchased, it is in compliance with the applicable water supply management criteria.

For the purposes of evaluating the Aquaria project against Criterion #5, that reasonable instream flow in the river from which the water is transferred is maintained (environmental impacts), the WRC has interpreted this to address impacts to the Taunton River Estuary. In order to fully comply with this Criterion:

1. Aquaria must develop a long-term monitoring plan to verify that the design and operation of the proposed project will minimize impacts to fisheries through impingement or entrainment of any fishery at any lifestage. In addition, the monitoring program should verify that the modeling results with respect to salinity are accurate and that the simulated change in salinity will not impact fisheries or habitat as concluded by the environmental agencies. Potential changes in water quality, including turbidity, must be documented through monitoring in order to assess effects on sensitive resources, including Long's Bittercress. The monitoring plan must be approved by the DMF, NHESP, DEP, CZM and the WRC and other agencies, if appropriate, prior to

implementing any required monitoring. The proponent is encouraged to develop one monitoring plan, which can be used to address all environmental permits that regulate impacts to the estuary from this project.

2. A draft monitoring plan must be submitted to DMF, NHESP, DEP, CZM and WRC staff for their review and approval. Elements of the plan must include one year of baseline monitoring to be conducted prior to plant operation, as well as long-term monitoring to be conducted after the start-up of plant operations, for the appropriate parameters (Long's Bittercress, fisheries, salinity and salinity wedge migration, water quality, etc.) and a schedule for reporting monitoring results. Specific details, additional monitoring parameters, observation locations, monitoring schedule and standard operating procedures will be established in conjunction with discussions with the appropriate agencies and WRC staff. These could include trigger or action levels, which if exceeded at any time, require immediate agency notification to determine the actions which should be taken.
3. All monitoring, including the year of baseline monitoring, must be conducted according to the approved monitoring plan.
4. A report shall be prepared at the conclusion of the baseline monitoring period and prior to operation of the plant and submitted to DMF, NHESP, DEP, CZM and WRC staff for review and approval prior to starting operations. Following review of the baseline data:
   - WRC may require changes to the operational monitoring plan;
   - Aquaria may propose revisions to the operational monitoring plan, subject to agency review and approval.
5. All monitoring results must be reported to WRC staff, NHESP, DMF, CZM and DEP, in accordance with the approved monitoring plan, for their review and assessment. Annual reports of operational monitoring shall be furnished to the agencies cited above for review. Modifications to the monitoring or operational plans plan may be required by the WRC and the appropriate state agency(ies) based on the results of the monitoring. If the monitoring data indicates modeling data were incorrect and adverse impacts that can be related to the operation of the plant and/or the withdrawals or discharges have resulted, then the appropriate environmental permit may be conditioned to mitigate these impacts.
6. Aquaria shall perform operational monitoring for a period to be decided upon based on results of the monitoring program. Aquaria may submit a request for modification of the operational monitoring program when sufficient information exists to support changes. The basis for the proposed modification(s) shall be clearly described and justified. Any changes to the operational monitoring plan must be approved by the WRC and the appropriate state agency(ies).
7. Aquaria shall provide access and allow agency personnel (or delegated parties) to inspect the site to verify conditions of this approval.

In order to fully comply with Criterion #8, the Commission shall consider the impacts of all past, authorized or proposed transfers in the donor basin:
Aquaria must commit in writing to abiding by any restrictions that may be placed on the operation of the desalinization plant as a result of monitoring.

ATTACHMENT 1

INTERBASIN TRANSFER ACT
CRITERIA FOR EVALUATING AN APPLICATION
BY AQUARIA FOR INTERBASIN TRANSFER APPROVAL
FOR A REGIONAL DESALINIZATION FACILITY

CRITERION #1: An environmental review pursuant to MGL, c. 30, §§ 61 and 62H, inclusive has been complied with for the proposed IBT.

- *The Interbasin Transfer application was part of the EIR. The Secretary's Certificate on the FEIR was issued on July 31, 2000. A Notice of Project Change (NPC) was filed with MEPA in December 2002. The Secretary's Certificate on this Notice was issued on January 23, 2003. This certificate stated that the NPC does not require preparation of a Supplemental Environmental Impact Report. Therefore the MEPA process for the Aquaria portion of this project is complete.*

CRITERION #2: All reasonable efforts have been made to identify and develop all viable sources in the receiving area.

- *Applicable to customers purchasing 1 mgd or greater or otherwise considered significant – To be evaluated as customers file the required Notice of Project Change.*

CRITERION #3: All practical measures to conserve water have been taken in the receiving area...

- *Applicable to customers purchasing 1 mgd or greater or otherwise considered significant – To be evaluated as customers file the required Notice of Project Change.*

CRITERION #4: A comprehensive forestry management program which balances water yields, wildlife habitat, and natural beauty on watershed lands presently serving the receiving area and under control of the proponent has been implemented.

- *Applicable to customers purchasing 1 mgd or greater or otherwise considered significant – To be evaluated as customers file the required Notice of Project Change.*

CRITERION #5: Reasonable instream flow in the river from which the water is transferred is maintained.

- *The proposed withdrawal is from the estuary of the Taunton River. The flow in this area is tidal.*

- *Water levels at this location can fluctuate significantly during the tidal cycle. Due to the withdrawal of water during tidal rise and fall, no impact to water elevation will occur during flood, moderate or low flow periods from the proposed transfer.*
- *An average increase in salinity of 2 ppt is predicted as a result of this project. Experts from Coastal Zone Management, Marine Fisheries and Natural Heritage felt these changes in salinity would not affect the existing flora and fauna.*

CRITERION #6: The results of the pump test have been used to indicate the potential impacts of this project on other environmental resources and adjacent wells.

- *Aquaria's withdrawal will be a direct river withdrawal. Therefore this criterion is not applicable to this project.*

CRITERION #7: Communities have adopted or are actively engaged in developing a local water resources management plan.

- *Applicable to customers purchasing 1 mgd or greater or otherwise considered significant – To be evaluated as customers file the required Notice of Project Change.*

CRITERION #8: The Commission shall consider the impacts of all past, authorized or proposed transfers in the donor basin.

- *Long-term impacts monitoring and the requirement that operations are modified if long-term adverse impacts arise will assure that cumulative impacts are avoided.*

EO 385

- *These findings are consistent with Executive Order 385, which has the dual objective of resource protection and sustainable development. These findings do not encourage growth in areas without adequate infrastructure nor does it cause a loss of environmental quality or resources.*

- *In addition, the FEIR certificate requires that the NPC to be filed by communities discuss the Regional Policy Plan and the current local comprehensive plan or EO 418 Community Development Plan, and describe measures which will be taken to mitigate secondary growth impacts.*