

# **Barnes Aquifer**

**Protection Advisory Committee**

**Report on Fiscal Year 2010 Activities  
(July 2009 to June 2010)**

**Prepared by the  
Pioneer Valley Planning Commission  
In cooperation with  
The Barnes Aquifer Protection Advisory Committee**

**August 2010**

**BARNES AQUIFER PROTECTION ADVISORY COMMITTEE  
(BAPAC)**

Fiscal Year 2010, July 2009 to June 2010 Annual Report  
Prepared by Pioneer Valley Planning Commission

Acknowledgements

The Pioneer Valley Planning Commission would like to acknowledge the contributions of the municipal members of the Barnes Aquifer Protection Advisory Committee:

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Karen Leigh, Westfield  
Michael Czerwicz, Easthampton, 2007-2008 Vice Chair  
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**TABLE OF CONTENTS**

EXECUTIVE SUMMARY ..... 1  
INTRODUCTION ..... 3  
BAPAC ACCOMPLISHMENTS, JULY 2009 TO JUNE 2010..... 10  
RECOMMENDATIONS FOR FISCAL YEAR 2011 ..... 19  
BAPAC LONG-TERM WORK PLAN..... 21  
APPENDICES ..... 23

APPENDIX A      MEETING MINUTES  
APPENDIX B      DRI COMMENT LETTERS

## EXECUTIVE SUMMARY

### **Summary of Accomplishments for Fiscal Year 2010**

BAPAC met monthly from September to June. During Fiscal Year 2010, BAPAC reviewed and commented on four DRIs, one of them of them more than once (Northampton Landfill proposed expansion): Westfield, 2; Southamptton, 1 (one of these spanned the Easthampton city line); and, Easthampton, 1 (Northampton Landfill expansion in Northampton, MA).

Road salt contamination of the aquifer along Routes 10 and 202 in Westfield and Southamptton continue to be of concern. BAPAC coordinated a sampling of 19 private wells in June of 2009 with Smith College. Results have yet to be published.

A factsheet series of best management practices appropriate for aquifer protection was completed. The factsheets are meant to provide guidance to project proponents as the types of systems proven effective for treatment of stormwater and aquifer recharge.

### **Recommendations for Fiscal Year 2011**

BAPAC should continue to promote regional action for protecting inter-municipal water resources. The key issues that should continue to be addressed through FY 2011 are:

- Support the implementation of best management practices for developments occurring within the recharge area through commenting on Developments of Regional Impact (DRI);
- Distribute Best Management Practices Factsheets for pollutant removal and recharge to Planning Boards and developers to encourage better systems for aquifer protection;
- Seek funding to perform outreach to residents within TCE affected areas of the Zone II to ensure all private well users are not consuming contaminated water;
- Continue to seek funding to host a training workshop and discussion forum about the Barnes Aquifer for municipal officials;
- Seek funding to identify important parcels for the protection of the Barnes Aquifer;
- Continue to develop strong arguments and scientific data to support BAPAC's DRI comments; and,

- Continue public outreach and education about issues concerning the Barnes Aquifer and actions residents can take to ensure its protection.

## INTRODUCTION

### **Importance of the Barnes Aquifer**

The Barnes Aquifer has been widely recognized as one of the Commonwealth's most important regional groundwater supplies. The aquifer extends over 12 miles, providing water for over 60,000 residents in the communities of Easthampton, Southamptton and Westfield. Although the aquifer extends into Holyoke, the City no longer draws water from the aquifer due to TCE contamination at its wells, closing the Pequot and Coronet Homes Wells in 1988. Nine active municipal wells and a large (108 unit) well field tap the regional aquifer, drawing a total safe yield of 21 million gallons per day. Portions of the aquifer in Easthampton have been designated a "sole source aquifer" by the U.S. Environmental Protection Agency.

### **Regional Approach to the Barnes Aquifer**

The size, importance, and inter-municipal geography of the Barnes Aquifer demands regional cooperation and regional solutions to fully protect this critical water supply. Recognizing this, the PVPC and municipal officials from Easthampton, Holyoke, Southamptton, and Westfield convened an initial meeting in March of 1988 to discuss cooperative strategies for protecting the Barnes Aquifer. Out of this meeting grew the idea for creating a regional aquifer protection advisory committee.

On September 26, 1988, the Barnes Regional Aquifer Protection Advisory Committee held its first meeting. This ad hoc committee began work on a regional water supply protection strategy, and on an inter-municipal compact to formalize municipal commitments to implement the strategy.

### **Creation of the Barnes Aquifer Protection Advisory Committee**

In December 1989, the chief elected officials in the Cities of Westfield and Holyoke, the Towns of Easthampton and Southamptton, and the Pioneer Valley Planning Commission signed the "Memorandum of Agreement for Barnes Aquifer Protection" at a public ceremony. This agreement to act cooperatively to protect a natural resource of regional significance was the culmination of a yearlong planning effort by PVPC and a voluntary advisory task force of local officials and residents. The intergovernmental compact created a standing Barnes Aquifer Protection Advisory Committee (BAPAC) with the authority to review and comment on "developments of regional impact" in the aquifer recharge area, and to develop a regional aquifer protection strategy.

### **Barnes Aquifer Protection Advisory Committee Membership**

The inter-municipal contract that created BAPAC specifies how many members are selected to the committee. The chief elected officials of each member community is to appoint three representatives and PVPC is to appoint one representative. BAPAC members for Fiscal Year 2010 were:

Easthampton	Stuart Beckley, Planning Department Thomas Newton, Water Department Michael Czerwiec, Water Department Robert Newton, resident and Smith College Chester Seklecki, Board of Health
Holyoke	Jeff Burkott, Planning Department Alicia Zoeller, Conservation Commission John Barrett, Water Commission
Southampton	Joseph Slattery, Water Department Mark Girard, Planning Department
Westfield	Charles Darling, Water Department Karen Leigh, Conservation Commission
Pioneer Valley Planning Commission	Anne Capra, Principal Planner, BAPAC Facilitator

### **Issues Affecting the Barnes Aquifer**

#### *Trichloroethylene (TCE) Contamination*

In the early 1990s, the aquifer extending from Easthampton to Westfield was rendered largely unsuitable as a drinking water supply when it was found to be contaminated with trichloroethylene (TCE). At the onset of the investigation, the Hendrick Street Well Field and the adjacent Pines Well supplied drinking water to the City of Easthampton. This public water supply provided more than fifty percent of the City's drinking water needs.

The Massachusetts Department of Environmental Protection (DEP) sampled and inventoried nearly 400 private wells in Easthampton, Southampton, Holyoke and Westfield. Numerous public and private wells in Easthampton, Holyoke and Southampton had to be treated or shut down. In addition, DEP installed

hundreds of microwells, enabling the sampling and analysis of groundwater, sampled surface water, and performed soil gas surveys and obtained soil samples to define the extent and pathway, as well as determine the source(s) of the TCE contamination that extended 4.5 miles within the aquifer. Hampton Ponds was also sampled and found not to be contaminated. The TCE contamination within groundwater is found at depth. DEP's investigation identified Southampton Sanitary Engineering (SSE) and General Electric (GE) as potential responsible parties. GE has denied responsibility for dumping TCE and contaminating the aquifer, but has performed voluntary cleanup activities at the release site on Dupuis Road. SSE claimed they did not have the financial resources to perform further investigation and remediation. Much site assessment and some cleanup activities have been performed at this site by MA DEP.

The City of Holyoke closed two municipal wells in West Holyoke due to the TCE contamination. The City of Easthampton had to construct a water treatment plant for the same reason, costing approximately \$800,000. MA DEP estimates it has expended in excess of \$2 million in private well sampling, assisting in costs for the Easthampton water treatment plant, and risk reduction measures such as supplying bottled water and treatment filters. Approximately 30 homes in Southampton and West Holyoke had TCE at levels of concern. DEP assisted Southampton with more than twenty of the thirty affected residences within their community by applying funding intended for filters to purchasing a pipeline for delivery of municipal water at a cost of approximately \$200,000. Because of the unavailability of public water in most areas of West Holyoke (Rock Valley Road, Labrie Lane, Keyes Road and Mueller Road), DEP arranged for bottled water for the short term and installed and maintained (for two years) whole house granular activated carbon filters in the eight remaining affected residences. Residents were provided with written sampling and maintenance recommendations and are sent annual reminders from DEP. DEP and the City of Holyoke estimate that it will cost approximately \$800,000 to \$1 million to install public water lines on Labrie Lane, Rock Valley Road, Keyes Road and Mueller Road. The City of Holyoke has stated it is unable to finance such a project at this time.

The activated carbon filters cost approximately \$2,000 per year to maintain and it is unclear how many homeowners are in fact maintaining their filters. It remains unclear whether homes built or purchased after filters were offered by DEP have measures in place to reduce their risk of exposure to harmful levels of TCE. Although public water is available in Southampton and Westfield, some



property owners have chosen not to hook up and are still using TCE contaminated wells. At a public meeting in 2006 held by the Clean Water Coalition at the Hampton Ponds Association's building on Apremont Way numerous residents of the Hampton Ponds area of Westfield, Southampton and Holyoke stated that they were unaware that there was a contamination issue and that they were utilizing private wells. It is unknown how many people are in this situation. It is likely that these people took ownership of their homes after DEP had performed their outreach and were never contacted directly.

#### Development and Abandoned Monitoring Wells

Development pressures within the Barnes Aquifer Zone II are significant. Although each of the four communities enacted aquifer protection district zoning and participate in a regional aquifer oversight committee called the Barnes Aquifer Protection Advisory Committee (BAPAC), commercial, industrial and residential development continues to consume important recharge land, bringing with it new threats and opportunities for aquifer contamination.

One of the greatest threats to the aquifer associated with past contamination and on-going development is the installation of hundreds of monitoring wells within the Zone II. Sites where monitoring wells have been installed include commercial and industrial facilities, 21E sites, and sites pertinent to the active TCE investigation of the Barnes Aquifer being conducted by DEP. In recent years, BAPAC has become increasingly aware of abandoned monitoring wells that are either not known to the current property owner or long since forgotten by them, yet not decommissioned. Abandoned wells that have not been decommissioned are a direct conduit to the aquifer and serve as a potential avenue for contamination.

In each of the four Barnes Aquifer communities, as well as many statewide, there are no local regulations requiring the decommissioning of monitoring wells once they are no longer of use. Likewise, M.G.L. c. 21E also does not require monitoring wells to be decommissioned once a site is beyond the five year audit period. According to the Office of Water Resources at MA Department of Conservation and Recreation, statewide 10,000 wells (both productive and monitoring) were installed in 2005 and only 750 wells decommissioned.

Examples of this threat to the aquifer are as follows. Beavers dammed Pond Brook near Westfield municipal Well #8. The dammed water came within feet of covering a monitoring well installed during construction of Well #8. It is unknown if monitoring wells exist on other properties inundated by beaver

activity. Also, at Westfield municipal Well #3 in 2008, bacteria counts at the well prompted an investigation of monitoring wells in the area which found one monitoring well where the lock had been broken off by vandals and the cap left off. Well #3 and the monitoring well were both disinfected and the monitoring well re-secured. Last, MEPA Environmental Impact Reports from the early 1990s for Summit Lock Industrial Park in Westfield, the site of C&S Wholesale, identify the installation of 17 monitoring wells on a 139 acre parcel and an additional 12 on an adjacent parcel. Under MEPA, these wells were to be monitored annually and data submitted to DEP and the Westfield Water Department. Records indicate that the last round of sampling occurred in 1999. After several recent attempts to communicate with C&S about the status of their wells, the operations manager acknowledged that their monitoring program had been discontinued and he wasn't even sure where the wells are located.

#### Road Salt Contamination of Domestic Wells

BAPAC and Smith College are involved in an on-going investigation of the impacts of road salt on domestic wells in an area of Southamptn and Westfield along Routes 10 and 202. Route 10 is maintained by MassHighway; Route 202 is maintained by the City of Westfield. Approximately 35 private wells were sampled in three sampling rounds between December 2004, September 2005, and March 2006. More than 25 of these wells were determined to be salt impacted with sodium concentrations above the 20 mg/l limit set by the Massachusetts Office of Research Standards and Guidelines (ORSG) and chloride levels above the 250 mg/l Secondary Maximum Contaminant Level (SMCL).

In April 2008, 90 wells in Southamptn, Westfield and Holyoke were sampled for sodium, chloride, nitrate nitrogen, calcium, magnesium, potassium, lithium, sulfate, nitrate, dissolved silica, arsenic, lead, barium, and hardness. Of those samples, 38 were salt impacted from road salt and 17 other wells had naturally high sodium levels. Ten (10) wells, all in the Round Hill area had arsenic levels above 5 ppb which is considered high but not above the MCL. Also noteworthy, road salt is causing the groundwater to become hard by exchanging sodium for calcium and moving calcium into solution.

As a result of this study, two residential well owners have filed road salt contamination complaints with MassHighway. As a result of these filings, MassHighway has instituted monthly sampling of these wells as part of an investigation to determine if road salting on their behalf is the cause of the contamination. This investigation is currently on-going.

A fifth round of private well sampling was performed on June 3, 2009 at 16 residences and 1 business on Jaeger Drive, North Road, Southampton Road, and Old Stage Road in Westfield. The sites were selected to gather further information about long term trending of sodium chloride levels in the aquifer.

*Expansion of the Northampton Landfill*

The City of Northampton currently operates a regional landfill on Glendale Road in Northampton. The landfill is located within the Zone II of Easthampton's Maloney Well. The City of Northampton was planning to expand the operation to increase the lifetime of the facility and allow for the disposal of more municipal waste. The project has received MEPA approval and a local Zoning change allowing the landfill expansion by Special Permit. The Special Permit granting authority will be the Northampton City Council.

Due to strong local opposition to the landfill expansion, The Board of Public Works voted in January 2010 not to seek a Special Permit for the landfill expansion without further guidance from the Mayor and City Council citing costs to prepare such a permit application without really knowing if the Council will approve it. In March 2010, the Northampton Planning Board held a Public Hearing regarding a citizen proposed amendment to the Water Supply Protection District banning landfills and the expansion of existing landfills. This ordinance amendment ran into a snag thereafter when the City's legal counsel declared the amendment illegal due to the fact that the landfill is grandfathered from local zoning due to its construction prior to the City's adoption of the Zoning Code. The Northampton City Council also voted in the Spring of 2010 not to support the expansion.

The proposed expansion will be lined and include a leachate collection and treatment system. While recognizing advances in technology and landfill engineering are safer than those used on the original cells, landfill liners eventually fail and leachate systems notoriously clog. While the landfill may have an extended lifetime of 30 or more years, the aquifer provides an important water source for current and future generations that must be protected. Therefore, BAPAC does not support the expansion of the Glendale Road landfill.

## Meetings

BAPAC met monthly from September 2009 to June 2010. Following is a brief summary of BAPAC meeting dates and key agenda items. Full minutes from BAPAC meetings are contained in Appendix A.

### Monthly Meeting Summary

DATE	KEY AGENDA ITEMS
September 1, 2009	2 DRIs; New MA DEP Groundwater Rule
October 6, 2009	2 DRIs; BMPs for groundwater protection
November 10, 2009	2 DRIs; Update DRI review procedure; BMPs for groundwater protection
December 8, 2009	2 DRIs; Annual Report and FY10 Work Plan
January 12, 2010	3 DRIs; Road Salt Study Presentation
February 2, 2010	1 DRI; BMPs for groundwater protection
March 2, 2010	3 DRIs; Road Salt Study; BMPs for groundwater protection
April 6, 2010	1 DRI; BMPs for aquifer protection
May 4, 2010	1 DRI
June 1, 2010	2 DRIs

**BAPAC ACCOMPLISHMENTS JULY 2009 TO JUNE 2010**

The following section summarizes the key issues BAPAC addressed and the accomplishments during Fiscal Year 2010.

**Road Salt Impact Study on Domestic Wells**

Five rounds of private well sampling have been conducted to measure the impacts of road salt on groundwater in the vicinity of Routes 10 and 202 in Westfield and Southampton. The sampling, performed under the supervision of Robert Newton at Smith College, occurred in December 2004, September 2005, March 2006, May 2008, and June 2009.

*Study Background*

The study’s purpose is to survey the impact of road salt on domestic wells along Route 10 and North Road (Route 202) in Westfield, Southampton and west Holyoke. The project was initiated by the Barnes Aquifer Protection Advisory Committee (BAPAC) in partnership with the Center for Aqueous Geochemistry at Smith College in December 2004. Project partners also include the Westfield Water Resources Department, Westfield Health Department, Southampton Highway and Water Departments and the Southampton Health Department.

*Study Results*

The number of wells sampled in each round has varied ranging from as few as 19 in June 2009 to 90 in the May 2008 sampling round. Table 1 provides concentrations for sodium and chloride in the salt impacted wells, i.e. wells that are contaminated from road salt during the first three rounds of the study.

**Table 1 Concentrations for Salt Impacted Wells in all Three Sampling Rounds**

	<b>Average (mg/L)*</b>	<b>Maximum (mg/L)*</b>
<b>Phase I – collected 12/15/04</b>	Westfield = 26 sites, Holyoke=1 site	
Sodium	75.12	212.45
Chloride	138.92	429.68
<i>41% of wells salt impacted</i>		
<b>Phase II – collected 9/21/05</b>	Westfield=16 sites, Southampton=7 sites, Holyoke=1 site	
Sodium	108.89	346.06
Chloride	234.38	772.67
<i>58% of wells salt impacted</i>		

<b>Phase III</b> – collected 3/30/06	Westfield=22 sites, Southamptton=8 sites, Holyoke=4 sites	
Sodium	66.18	244.52
Chloride	210.49	878.83
<i>47% of wells salt impacted</i>		

\* This data is for salt impacted wells only and does not include those wells that were not determined to be above the 20 mg/L sodium or 250 mg/L chloride levels used to determine if a well has been impacted by road salt.

The study sampled 90 private drinking water wells on May 7, 2008 in the area of Routes 10 and 202 in Westfield and Southamptton. Over 40 percent of the samples (38 of 90) were found to be impacted by road salt as they had sodium concentrations above the 20 mg/L guideline set by the Massachusetts Office of Research and Standards Guideline (ORSG). Sodium levels below this level are unlikely to result in adverse health effects. Dissolved sodium can potentially be a health hazard especially for people suffering from high blood pressure and heart disease.

Ten percent of the samples (9 out of 90) had chloride concentrations above the 250 mg/L secondary maximum contaminant level (SMCL) set by the Environmental Protection Agency. Chloride is a component of salt, also called sodium chloride. This standard was developed to protect the aesthetic quality of drinking water meaning above the 250 mg/L level of chloride, water tastes salty. This standard is not health based and not legally enforceable. However, high concentrations of sodium are associated with the high chloride concentrations.

Another 15 % or 17 of the 90 wells sampled were found to have naturally high sodium levels due to the background geology of the area. Most of these wells were located in the Scenic and Pheasant Drive neighborhoods of Westfield.

The results of the June 2009 sampling round have not been analyzed as of the publishing of this Annual Report.

*How do you know if the salt is from road salting practices or naturally occurring?*

Not all sodium found in groundwater comes from road salt. Minerals containing sodium are common in the rocks of the local area. Natural weathering of these rocks will also release sodium into groundwater.

Therefore, to determine if wells were impacted by sodium chloride (NaCl), salt impacted, the concentration of chloride in the sample also had to exceed a critical value of 30.8 mg/L. This critical value is based on the concentration of chloride that would result if enough sodium chloride were dissolved to increase the sodium concentration by 20 mg/L. The Massachusetts Office of Research and Standards Guidelines (ORSG) has set the guideline for dissolved sodium at 20 mg/L. (There is no federal standard for sodium.) It is best to use chloride for the critical value to assess salt because, unlike sodium, there are no natural sources of chloride from local rocks. This means that all sources of chloride in groundwater can be associated with road salt.

*What does this mean?*

People suffering from high blood pressure or heart disease should not consume water from the wells found to be salt impacted. These people should consult their physicians. All of the well owners that participated in the sampling rounds were notified of the results.

*Corrective Actions*

BAPAC notified the Westfield Health Department, Westfield Highway Department, Westfield City Council, Southamptton Board of Health and the Southamptton Highway and Water Departments with the results of each sampling round. Route 10 is maintained by MassHighway for snow and ice, North Road is maintained by the City of Westfield.

On December 21, 2006, Professor Robert Newton from the Geology Department at Smith College presented the results of the study to the Westfield City Council. Thereafter, the City Council instructed the Department of Public Works to look into the City's snow and ice practices and evaluate alternatives to reduce the threat of contamination to private wells along North Road. Representatives from the Westfield Board of Public Works and Department of Public Works attended BAPAC's November 13, 2007 meeting and informed the committee that they had researched the issue and would be switching to a product called Cryotech NACC, an anhydrous grade sodium acetate approved by the FAA for airport runways and used at the airport in Westfield. This product would be applied along North Road and costs \$900/ton (as opposed to \$56/ton for sodium chloride).

Copies of MassHighway's Road Salt Complaint Policy were distributed to those affected well owners along Route 10. Mass Highway has a policy by which they potentially remediate wells that they have contaminated with road salt. The

process takes up to one year of monthly sampling for MassHighway to determine if they are responsible. To date, 2 of the 6 severely impacted wells along Route 10 have filed Road Salt Complaints with MassHighway. Both of these property owners are on salt restricted diets as prescribed by their physicians.

On February 15, 2008, representatives from MassHighway's Environmental Division met with representatives from BAPAC, the City of Westfield, Town of Southamptton and some of the affected well owners to discuss BAPAC's study, MassHighway's Road Salt Policy and potential remediation options for the affected wells upon completion of MassHighway's investigation into the complaints.

### **Developments of Regional Impact (DRI)**

DRIs are defined as any development project which requires: a) state approval under the MEPA process, or b) local approval for a Special Permit, Site Plan Approval, Subdivision Approval, zoning amendment, or withdrawal of property from M.G.L. Chapters 61, 61A, or 61B. In its reviews, BAPAC assesses the potential for water pollution or other adverse impacts to the aquifer from the proposed project and recommends mitigating measures to prevent such impacts.

Municipal representatives in member communities are obligated to submit DRIs to BAPAC for review. This obligation is defined in the Memorandum of Agreement for Barnes Aquifer Protection signed by the chief elected official in each member community. During Fiscal Year 2010, BAPAC reviewed and commented on four DRIs, one of them more than once (Northampton Landfill proposed expansion): Westfield, 2; Southamptton, 1 (one of these spanned the Easthampton city line); and, Easthampton, 1 (Northampton Landfill expansion in Northampton, MA). Appendix B contains copies of submitted DRI comment letters.

### **Best Management Practices for Aquifer Protection**

Based on a literature review performed by Antioch graduate student Julie Thomason on current research pertaining to pollutant load removal efficiency rates, as well as aquifer recharge rates, for structural devices, including Low Impact Development (LID) systems, BAPAC developed a series of draft factsheets. The purpose of the factsheets is to inform local Planning Boards and other permit review authorities about the best options for safe, clean aquifer recharge.



The BMPs were grouped into conventional BMPs: dry wells, infiltration basins, infiltration trenches, leaching catch basins, and subsurface structures; and, LID techniques: porous pavement and bioretention areas/rain gardens. The following are some key highlights noted in the literature review and reflected in the factsheets.

#### TSS Removal

Conventional BMP – Stormceptor STC 900 has overall best performance of proprietary separators, wet basins and gravel wetlands will remove 80+% when combined with sediment forebay

LID – porous pavement 80-98%, bioretention/rain garden 90-94%

#### Nitrogen, Phosphorus, Heavy Metals, Bacteria

Conventional BMP – constructed stormwater and gravel wetlands, extended dry detention basins, wet basins, infiltration basins, and infiltration trenches give the best consistent performance for all four pollutants

LID – bioretention areas/rain gardens remove nitrogen, phosphorus, and heavy metals, but there is no data on bacteria removal for any LID methods

#### VOC, Petrochemical, Road Salt

Conventional BMP – deep sump catch basins and separators can be used to manage runoff with a higher potential for oil or grease contamination, but there is no removal data for VOCs, petrochemicals, or road salt for any BMPs

LID – bioretention areas/rain gardens can be used in lieu of separators to manage oil/grease in runoff, but there is no removal data for VOCs, petrochemicals, or road salt for any LID methods.

The LID concept of reducing impervious coverage to encourage natural infiltration and groundwater recharge continues to be an important consideration in site design. Shallow and deep infiltration of precipitation over natural areas is 25% infiltration for both. Impervious surface area of 10-20% reduces infiltration rates to 21% for both shallow and deep, but 35-50% impervious surface reduces it further to 20% shallow and 15% deep infiltration. Impervious surface area of 75-100% shrinks infiltration to almost insignificant amounts of 10% shallow infiltration and 5% deep infiltration.

#### **Northampton Landfill Expansion**

BAPAC continues to monitor the proposed expansion of the Northampton Landfill and advocate for the long-term protection of the Barnes Aquifer. The City of Northampton currently operates a regional landfill on Glendale Road in

Northampton. The landfill is located within the Zone II of Easthampton's Maloney Well. The City of Northampton was planning to expand the operation to increase the lifetime of the facility and allow for the disposal of more municipal waste. The project has received MEPA approval and a local Zoning change allowing the landfill expansion by Special Permit. The Special Permit granting authority will be the Northampton City Council.

Due to strong local opposition to the landfill expansion, The Board of Public Works voted in January 2010 not to seek a Special Permit for the landfill expansion without further guidance from the Mayor and City Council citing costs to prepare such a permit application without really knowing if the Council will approve it. In March 2010, the Northampton Planning Board held a Public Hearing regarding a citizen proposed amendment to the Water Supply Protection District banning landfills and the expansion of existing landfills. This ordinance amendment ran into a snag thereafter when the City's legal counsel declared the amendment illegal due to the fact that the landfill is grandfathered from local zoning due to its construction prior to the City's adoption of the Zoning Code. The Northampton City Council also voted in the Spring of 2010 not to support the expansion.

BAPAC remains concerned about the effect of the Northampton Landfill on groundwater quality in the Zone II to Easthampton's Maloney Well, as well as private wells in the area. Data in reports generated by the City's consultant Brown and Caldwell clearly indicate that leachate is escaping from the landfill based on the following observations documented in these reports:

1. Monitoring well MW-B is located within a groundwater discharge area immediately down gradient of the landfill.
2. Sample reports note a "strong organic" odor (leachate) from samples collected from MW-B. (Brown and Caldwell November 2009 Water Quality Monitoring, Northampton Sanitary Landfill, Northampton, MA 1/7/2010)
3. The area of thick iron flocculate in the wetland adjacent to well MW-B is expanding.

*"There has been some change in the extent of the staining since observations were initiated in 2001; an increase in the amount of stained substrate is apparent. No quantification of this increase has been made."*

(2009 Hannum Brook Evaluation Update Northampton Regional Sanitary Landfill, Northampton MA, Oct 2009)

4. Both iron and manganese concentrations are increasing at MW-B. The increase in iron concentrations over time at MW-B is troubling as it shows that leakage of leachate from the landfill is increasing.

Given the evidence stated above, it is clear that the landfill is impacting groundwater, and will continue to do so for many years to come. The long-term environmental and health impacts simply are not known nor can be forecasted at this time. However, we are able to recognize the changes that are occurring within the aquifer today. BAPAC believes the long-term risk to the Barnes Aquifer far outweighs the short-term benefits of expanding this regional landfill and do not support its expansion.

<b>Fiscal Year 2010 DRI Reviews</b>				
<b>DRI / Date</b>	<b>Location of Project</b>	<b>Owner/ Developer</b>	<b>Project Representative</b>	<b>Issues / Requested Info / Actions</b>
<b>WESTFIELD</b>				
January 19, 2010	56 Airport Road		Ronald R. Huot, Anderson Associates	Proposed location for 2 new airplane hangars. No proposed stormwater drainage infrastructure on plans; not possible to evaluate treatment options. Concern about pre-flight sump draining of gasoline disposal; needs to be included in design plans.
January 19, 2010	Ampad Road	Pioneer Valley Energy Center	Janet Bernardo, ESS Group	BAPAC commented during MEPA review process. Revised plans sufficiently address pre-treatment, infiltration and containment of spills. Continue to be concerned about emission particulate deposition over aquifer from this facility.
<b>EASTHAMPTON</b>				
January 4, 2010	Glendale Road, Northampton	City of Northampton	Brown and Caldwell	Commented on 2009 Hannum Brook Evaluation Update Report, 10/09
January 28, 2010	Glendale Road, Northampton	City of Northampton	Brown and Caldwell	Responded to 1/14/10 letter from Brown and Caldwell regarding BAPAC's 1/4/10 comments
June 28, 2010	Glendale Road, Northampton	City of Northampton	City of Northampton	Letter of support to proposed ordinance amendment banning landfills and their expansion of the aquifer.
<b>SOUTHAMPTON</b>				
November 12, 2009	College Highway	Southampton Country Club	Mark Reed, Heritage Surveys	Proposed BMPs satisfactory; recommended considering pervious pavement in parking areas. Note to Planning Board that we need to see plans prior to PB approval. For projects partially within Zone II, BAPAC requests comments applied to entire parcel due to inherent inaccuracy in Zone II exact delineation.



## RECOMMENDATIONS FOR FISCAL YEAR 2011

### 1. Public Outreach and Education

Task	Strategy
Inform public about the results of the MET Well Mapping Project	Perform outreach about study results to the public including well owners within the affected areas and municipal officials.
Host a workshop for municipal officials	Seek funding and coordinate workshop to inform officials about aquifer, existing tools, and discuss strategies for better oversight of BMPs.
Maintain an updated BAPAC Website	Post current meeting minutes, press releases, and BMP information
Issue press releases about issues concerning the Barnes Aquifer	Continue to use the local newspapers as a means to inform the public about issues concerning the Barnes Aquifer and actions they can take to ensure its protection.
Perform education and outreach to homeowners along Routes 10 and 202 about salt contamination in private wells.	In coordination with Westfield Health Department and Southampton Board of Health, perform direct mailing with information about the health effects of high sodium levels in drinking water and precautions to be taken for high risk populations.
Continue BAPAC Green Award during national Drinking Water Week in May	Community representatives will nominate individuals or businesses that have made a significant contribution to the protection of or improvements to the aquifer. This award is an opportunity for publicity and a means to educate the public on ways in which they can protect the aquifer. Awards are contingent upon receipt of qualified nominees.

## 2. Identification and Reduction of Threats to the Aquifer

Task	Strategy
Continue to conduct reviews of Developments of Regional Impact (DRIs)	Seek timely DRI submittals from local communities for BAPAC review and comment.
Identify appropriate BMPs for aquifer recharge	Continue literature review on current stormwater treatment technologies and identify those that offer the greatest protection of the aquifer for each type of contaminant and site conditions.
Identify and address existing sources of contamination in the aquifer	Work with DEP and EPA Brownfields to address existing sources of aquifer contamination. Closely monitor activities at the Barnes ANG Base and the Northampton Landfill.
Develop a plan for decommissioning the abandoned monitoring wells.	Identify and prioritize monitoring wells for proper decommissioning.
Reduce threat of road salt contamination to domestic wells along Route 10 and North Road	Work with Local Boards of Health and Highway Departments and MassHighway to develop strategies for reducing road salt contamination of domestic wells along Routes 10 and 202.
Identify all private wells within the TCE contaminated area and work with municipal officials to provide public water to these areas.	Work with local officials and MA DEP to ensure all private well users in TCE contaminated areas have safe potable water sources.

## 3. Establish Additional Funding Sources

Task	Strategy
Seek corporate sponsorship for BAPAC initiatives	Identify and contact businesses in the Barnes Aquifer region about sponsoring projects.
Seek grant funding for projects identified in goals	Utilize known state and federal grant programs. Use PVPC 501(c)(3) status to apply to foundations for funding. Seek EPA support based on the aquifer's Sole Source designation.

## APPENDICES



**MINUTES OF  
BARNES AQUIFER PROTECTION ADVISORY COMMITTEE**

**DATE:** 9/1/09

**LOCATION:** Easthampton Municipal Offices, Easthampton

**MEMBERS AND DESIGNEES PRESENT:**

J. Barrett, Holyoke	A. Zoeller, Holyoke	J. Burkott, Holyoke
K. Taylor, Westfield	<input checked="" type="checkbox"/> W. Darling, Westfield	C. Seklecki, Easthampton
T. Newton, Easthampton	<input checked="" type="checkbox"/> R. Newton, Easthampton	<input checked="" type="checkbox"/> S. Beckley, Easthampton
<input checked="" type="checkbox"/> M. Czerwiec, Easthampton	J. Slattery, Southampton	<input checked="" type="checkbox"/> A. Capra, PVPC
<input checked="" type="checkbox"/> Mark Girard, Southampton		

Others Present: Buttrick, Easthampton Aquifer Committee; Mark Reed, Heritage Survey

**TIME OF CALL TO ORDER:** 3:30

**TIME OF ADJOURNMENT:** 5:00

**1. Adoption of June 2, 2009 Minutes**

Minutes adopted unanimously.

**2. Review of Developments of Regional Impact**

Proposed Car Wash, 23 College Highway, Southampton

Mark Reed of Heritage Surveys presented plans for a proposed commercial car wash facility on a 1.2 acre parcel at 23 College Highway, Southampton. The facility consists of four bays, two automatic and two self-serve, and an office with bathroom. All wash water from the car washing bays will be collected and recycled through three concrete tanks. The remaining effluent from the recycled graywater and sanitary wastewater from the bathroom will be collected and pumped to the Easthampton Wastewater Treatment Plant by way of a sewer station at Coleman Road and College Highway. The stormwater management system consists of three new catchbasins with oil-water separators draining through a gate valve to a detention basin with forebay. The project has already been permitted through the Conservation Commission and Planning Board and an Operation and Maintenance Plan for the stormwater system has been recorded with the deed.

The project meets BAPAC's requirements for commercial facilities by offering treatment of runoff from impervious surfaces prior to infiltration. Anne Capra commented that it would have been preferable for BAPAC to review the plans prior to issuance of the Special Permit by the Planning Board as well as recording the O&M Plan with the deed. Because this work had already been done, if BAPAC had any comments that conflicted with the Special Permit, it would have created a potential hardship and extreme inconvenience for the applicant to address BAPAC's comments. BAPAC seeks to perform expeditious review of plans to facilitate, not hinder, the permitting process.

Northampton Landfill Expansion

The proposed expansion of the Northampton Landfill has generated great public debate. BAPAC has remained somewhat on the fringe of this debate with the noted exception of Bob Newton's presentation of his GIS-based model of the Barnes Aquifer to the City of Northampton, MA

DEP, and other stakeholders. Since BAPAC's last meeting, the City Council has been acting as the judicial board identified to determine the outcome of the Special Permit. As such, the City Council is unable to discuss the landfill expansion with its constituents outside of council meetings. This situation has inspired opponents of the landfill to seek a ballot question at the upcoming election about whether or not people support expansion of the landfill over the Barnes Aquifer. The status of the ballot question is unclear at this point. Anne Capra was contacted by one of the organizers of this initiative who asked for assistance in phrasing the question but was only able to recommend that no matter how the question is phrased, education regarding the question needs to be performed beforehand.

Therefore, Anne Capra recommended that BAPAC issue a formal position regarding the landfill expansion. BAPAC has already commented in opposition to the landfill expansion under the MEPA EIR. BAPAC will develop a position paper stating the following:

If a landfill did not currently exist over the Barnes Aquifer, under no circumstances would we consider locating one there. The current landfill has already caused contamination to Hannum Brook and surrounding private wells. BAPAC believes that the oldest, unlined cell of the landfill is the likely source of the contamination. Although the liner technology proposed for the expansion is considered "state of the art", it will inevitably fail someday, causing contamination of a public drinking water supply. When the liner fails, it will likely be long after those in a position today to make this decision are living; but, it will fail. Therefore, BAPAC does not support the expansion of the Northampton Landfill over the Zone II recharge area of the Barnes Aquifer. BAPAC also recommends that the City begin to remediate the existing contamination by removing the waste from the unlined cell. Global warming forecasts for the Northeast indicate that precipitation will increase in the region, potentially increasing groundwater levels, creating greater opportunity for migration of contaminants from the unlined cell to the surrounding environment.

Stuart Beckley will begin drafting the position paper and circulate to the rest of the committee for comment. BAPAC would like to issue the paper as soon as possible. Anne will investigate any upcoming opportunity for BAPAC to comment on the Special Permit, MEPA filings, or any others.

### **3. DRI Review and Comments**

Anne passed out BAPAC's existing DRI review procedures and standard comments relative to land uses. This has been BAPAC's policy since 1999. Committee members are to review the information and bring any comments to the next meeting.

### **4. New MA DEP Groundwater Rule**

MA DEP is proposing to amend the Drinking Water Regulations 310 CMR 22.00 with the new so-called Groundwater Rule. Woody Darling provided a summary of the new rule. The major focus of the proposed revisions to 310 CMR 22.00 is to incorporate Federal Safe Drinking Water Act amendments into the Massachusetts Drinking Water Regulations. These amendments include one new rule, the Ground Water Rule (GWR), and minor revisions and corrections to the Lead and Copper Rule (LCR). The GWR is intended to increase protection against potential viral contamination in public water systems (PWS). The majority of PWSs will be required to test their source water and if necessary install or increase treatment. LCR revisions include

changes to content and delivery of public education materials, compliance calculations, and monitoring and reporting requirements. The GWR will apply to all public water systems using ground water sources (1,400 PWSs) and the LCR will apply to all community and non-transient non-community systems (800 PWSs).

DEP estimates that approximately 50 out of 1,400 PWSs will be required to install treatment facilities, however, suppliers are concerned that many more will be required to do so at great cost to their communities. If GWR treatment is required, costs could range from \$10,000 and greater depending on the system size and type. DEP estimates costs for LCR compliance to be minimal. One of the many concerns is the availability of a lab to perform the analysis within the timeframe specified in the rule.

Westfield's Shaker Road Well #3 has had bacteria levels in excess of allowed levels in August even though the well is chlorinated. The city is investigating the source of contamination. Monitoring wells had tested negative but surface water in Great Brook and catchbasins in the area tested positive for Enterococcus. Samples have been sent to the lab in Lawrence for Enterococcus speciation.

## **5. Other Business**

Darleen Buttrick asked Bob Newton if he would consider presenting his research on the impacts of road salt and the Barnes Aquifer to the Western Mass Water Works Association. She will get dates and info to Bob for consideration.

### **Next Meeting:**

Tuesday, October 6, 2009 @ 3:30 PM  
Easthampton Municipal Office Building  
50 Payson Avenue, Easthampton

**MINUTES OF  
BARNES AQUIFER PROTECTION ADVISORY COMMITTEE**

**DATE:** 10/6/09

**LOCATION:** Easthampton Municipal Offices, Easthampton

**MEMBERS AND DESIGNEES PRESENT:**

J. Barrett, Holyoke	A. Zoeller, Holyoke	<input checked="" type="checkbox"/>	J. Burkott, Holyoke
<input checked="" type="checkbox"/> W. Darling, Westfield	T. Newton, Easthampton		C. Seklecki, Easthampton
<input checked="" type="checkbox"/> M. Czerwicz, Easthampton	<input checked="" type="checkbox"/> R. Newton, Easthampton	<input checked="" type="checkbox"/>	S. Beckley, Easthampton
<input checked="" type="checkbox"/> Mark Girard, Southampton	J. Slattery, Southampton	<input checked="" type="checkbox"/>	A. Capra, PVPC

Others Present: None

**TIME OF CALL TO ORDER:** 3:30

**TIME OF ADJOURNMENT:** 4:50

**1. Adoption of September 1, 2009 Minutes**

Jeff Burkott noted that he was not present at the meeting and for the minutes to reflect that. With change, minutes adopted unanimously.

**2. Review of Developments of Regional Impact**

Baltazar Blasting Company, Root Road, Westfield – the project proponent had contacted the City about a project to store materials including dynamite at a new facility on Root Road. The City informed the proponent to contact BAPAC. Woody Darling placed the DRI on the agenda and informed the proponent to forward plans for review. No plans or representative for the proposed project attended.

Northampton Landfill Expansion

Stuart Beckley presented a draft position paper for review by the committee. Bob Newton would like to make a few edits and will do so by Friday and circulate to the rest of the committee for review and comment. Final comments will be due by 10/16/09 to Anne Capra.

**3. DRI Review and Comments**

This item will be tabled until the next meeting. Committee members have not reviewed material for discussion.

**4. Stormwater BMPs – Next Steps**

In May 2009, BPAC intern Julie Thomason presented the findings of her literature review on stormwater best management practices for aquifer protection and recharge. BAPAC would like to formulate recommendations for which BMPs are preferred under certain circumstances. To this end, committee members were assigned BMPs from Appendix V, Table 1 from Julie’s report. For each assigned BMP, BAPAC rep is to perform a lit review, preferably consulting non-proprietary or manufacturer sources, and make recommendation as to whether or not the BMP should be recommended. This process should allow BAPAC members to become more knowledgeable about specific BMPs which may provide better technical review of DRI plans. This process will ultimately result in “published” recommendations that we will share with developers, engineers and planning boards as better guidance relative to aquifer protection.

**5. Other Business**

BAPAC would like to recognize Ken Taylor's long-term participation as a BAPAC representative for the City of Westfield and his remarkable dedication to the protection of this important resource. Anne will contact the Mayor's office about a replacement appointment to the committee.

2009 marks BAPAC's 20<sup>th</sup> anniversary. We would like recognize this passage in some way and will be collecting recommendations.

Easthampton BAPAC representative Chet Seklecki's term expires December 31<sup>st</sup>. Anne will contact the Mayor about having another appointment made.

**Next Meeting:**

Tuesday, November 10, 2009 @ 3:30 PM  
Easthampton Municipal Office Building  
50 Payson Avenue, Easthampton

**MINUTES OF  
BARNES AQUIFER PROTECTION ADVISORY COMMITTEE**

**DATE:** 11/10/09

**LOCATION:** Easthampton Municipal Offices, Easthampton

**MEMBERS AND DESIGNEES PRESENT:**

J. Barrett, Holyoke	A. Zoeller, Holyoke	J. Burkott, Holyoke
<input checked="" type="checkbox"/> W. Darling, Westfield	T. Newton, Easthampton	C. Seklecki, Easthampton
<input checked="" type="checkbox"/> M. Czerwicz, Easthampton	<input checked="" type="checkbox"/> R. Newton, Easthampton	S. Beckley, Easthampton
Mark Girard, Southampton	J. Slattery, Southampton	<input checked="" type="checkbox"/> A. Capra, PVPC

Others Present: Mark Reed, Heritage Surveys

**TIME OF CALL TO ORDER:** 3:30  
**TIME OF ADJOURNMENT:** 4:45

**1. Adoption of October 6, 2009 Minutes**

Adopted unanimously

**2. Review of Developments of Regional Impact**

Southampton Country Club, College Highway, Southampton

Mark Reed of Heritage Surveys presented plans for an proposed addition to the existing club house and associated new parking lot and stormwater system. The project has already received a Stormwater Permit and Special Permit from the Southampton Planning Board. The Committee noted that according to BAPAC's MOU, proposed projects are to be submitted to BAPAC for review and comment during the permit review period, not after issuance of permits. If BAPAC were to have comments on the project that would alter the plans, addressing these comments would pose a hardship and additional expense to the applicant in addition to delaying the process. BAPAC strives to prevent such inefficiencies and delays in project review and permitting and will submit comments to the Southampton Planning Board seeking their cooperation in this matter. This is the second project in recent months that BAPAC has received plans for review after permits had been issued by the Southampton Planning Board.

Fortunately, Mr. Reed is familiar with BAPAC's concerns and included sufficient pretreatment prior to infiltration. BAPAC has reviewed current research trials underway for permeable pavement at UNH's Stormwater Center. Research trials show this technology to be capable of removal of petroleum, possibly metals, sand, and have high recharge ability. Due to its ability to infiltrate runoff quickly, ice does not form on the surface thus reducing the need for de-icing agents such as road salt. Fact sheets about this technology were provided to Mr. Reed for consideration at this and other projects with large parking areas.

Northampton Landfill Expansion – BAPAC Position Paper

BAPAC posted a position paper opposing the landfill expansion on their website. The Hampshire Gazette reported on the position paper in the Saturday, October 31, 2009 edition, page B1. The committee would like to submit a letter to the Mayor, City Council, Northampton DPW, DEP Division of Solid Waste, and the Mayor of Easthampton stating their opposition to the expansion as well as concerns regarding existing groundwater conditions. Based on data from monitoring well MW-B included in one of the landfill study reports commissioned by the City, Bob Newton plotted iron (Fe) levels in groundwater from January 1994 through October 2009. The data shows that iron levels in groundwater decreased significantly after

the landfill was capped in 1995, but have steadily increased since then to levels higher than those recorded in 1995. It is also noteworthy that the well smells like leachate.

There are two plausible explanations for the upward trending of the level of iron in groundwater: 1) the newer lined portion of the landfill is leaking; or, 2) the capped landfill portion is the source. Under this scenario, it is possible that groundwater elevation is rising, interacting with the unlined, buried waste, and transporting iron-rich leachate. The data shows both high and low levels of iron on various sampling dates, however the overall trend is upward. Low points in data could be associated with rain events or fluctuations in groundwater elevations. It is likely that this is a redox issue – movement of organics caused by reduction of oxygen levels. Whatever the cause, the data indicates that the system is changing and requires further monitoring and investigation to understand the full nature, extent and implication of these changes.

Therefore, BAPAC will draft a comment letter with the following: 1) Recommend monthly monitoring for more consistent data collection. Other data has been collected sporadically. Also like to see monthly monitoring in wetland area with red flocculent. The City commissioned report also noted that the areas of red flocculent are increasing. 2) Is groundwater elevation being monitored? If not, it should be. 3) Other data collected needs to be evaluated and plotted to see if there are similar upward trends over time of organics, etc.

### **3. DRI Review and Comments**

The committee had no comments on updates to the DRI Review Procedures. Anne will develop a simplified, 2-page format and present to committee for review at next meeting. This information is intended to be shared with planning boards and area engineers and developers to provide guidance on design considerations for aquifer protection.

### **4. Stormwater BMPs – Next Steps**

Several committee members met on November 10<sup>th</sup> to present their review of literature on different BMPs. Woody Darling presented on: extended dry basins, sediment forebays, dry wells, infiltration basin, infiltration trenches, leaching catchbasins, subsurface structures, and dry detention basins. Bob Newton presented on permeable pavement. Anne Capra presented on drainage swales, vegetated swale/grassed channel/biofilter swale, and water quality swales. At today's meeting, Mike Czerwiec presented his review of tree box filters, proprietary media filters, vegetated filter strips, and sand and organic filters.

Each reviewer is to provide information about their BMP in the following format and submit to Anne by the next meeting for compiling into a guidance document to be made available to project proponents: BMP name, description, purpose, design consideration, advantages, disadvantages/limitations, maintenance, Information and design specification sources, and photo.

### **5. Other Business**

The committee is interested in having a presentation by an engineer on Low Impact Development (LID) techniques for stormwater management. PVPC recently received an inquiry from such a professional looking to provide information on their work. Anne will contact him. BAPAC would like to invite local officials as well.

#### **Next Meeting:**

Tuesday, December 8, 2009 @ 3:30 PM  
Easthampton Municipal Office Building  
50 Payson Avenue, Easthampton

**MINUTES OF  
BARNES AQUIFER PROTECTION ADVISORY COMMITTEE**

**DATE:** 12/8/09

**LOCATION:** Easthampton Municipal Offices, Easthampton

**MEMBERS AND DESIGNEES PRESENT:**

J. Barrett, Holyoke	A. Zoeller, Holyoke	J. Burkott, Holyoke
<input checked="" type="checkbox"/> W. Darling, Westfield	T. Newton, Easthampton	C. Seklecki, Easthampton
<input checked="" type="checkbox"/> M. Czerwec, Easthampton	<input checked="" type="checkbox"/> R. Newton, Easthampton	S. Beckley, Easthampton
<input checked="" type="checkbox"/> Mark Girard, Southampton	J. Slattery, Southampton	<input checked="" type="checkbox"/> A. Capra, PVPC

Others Present: Mark Reed, Heritage Surveys

**TIME OF CALL TO ORDER:** 3:30  
**TIME OF ADJOURNMENT:** 4:45

**1. Adoption of November 10, 2009 Minutes**

Adopted unanimously

**2. Review of Developments of Regional Impact**

Northampton Landfill Expansion

The Committee reviewed a draft letter to Mayor Higgins regarding our comments on the 2009 Hannum Brook Evaluation Update Report dated October 2009 by Stantec. Edits will be made and the letter submitted and copied to the DPW, DEP, and City Councils in Northampton and Easthampton.

Pioneer Valley Energy Center – Anne received a phone call from Westfield resident Jean Carpenter inquiring about the status of the project and seeking BAPAC’s assistance in opposing the project. BAPAC commented on the FEIR on 2/10/09 including recommendations for improving stormwater management specific to aquifer protection. Woody believes the project will come before the City Council for a Special Permit later in December or January. Because the site is not directly within the Zone II, it is up to BAPAC to comment since the City is not required to submit plans to BAPAC for this reason.

**3. DRI Standardized Review**

Tabled until next meeting.

**4. Stormwater BMPs – Factsheets**

Tabled until next meeting.

**5. Annual Report and Workplan**

The Committee reviewed the draft annual report and workplan. Minor edits were suggested. Overall, additional funding is needed to implement many of the workplan items. The committee suggested seeking corporate sponsorship for these projects. Potential businesses include: Westfield Bank, Westfield G&E, Target, Berkshire Bank, and the Westfield River Watershed Association. WRWA has received fine money from DEP to support some of their work. It was suggested that we pursue this funding from DEP as well.

Regarding long term monitoring of the aquifer, Woody will work with Bob Newton to identify a site for a datalogger.



**6. Other Business**

Bob Newton will present the results of the June 2009 well monitoring and road salt study at the January 12, 2010 meeting.

**Next Meeting:**

Tuesday, January 12, 2010 @ 3:30 PM  
Easthampton Municipal Office Building  
50 Payson Avenue, Easthampton

**MINUTES OF  
BARNES AQUIFER PROTECTION ADVISORY COMMITTEE**

**DATE:** 1/12/10

**LOCATION:** Easthampton Municipal Offices, Easthampton

**MEMBERS AND DESIGNEES PRESENT:**

J. Barrett, Holyoke	A. Zoeller, Holyoke	J. Burkott, Holyoke
W. Darling, Westfield	T. Newton, Easthampton	<input checked="" type="checkbox"/> C. Seklecki, Easthampton
<input checked="" type="checkbox"/> M. Czerwiec, Easthampton	<input checked="" type="checkbox"/> R. Newton, Easthampton	S. Beckley, Easthampton
<input checked="" type="checkbox"/> Mark Girard, Southampton	J. Slattery, Southampton	<input checked="" type="checkbox"/> A. Capra, PVPC

Others Present: Darleen Buttrick, Easthampton Aquifer Committee; Matt Palmer, Janet Bernardo, Sean Mulligan – PVEC; Ronald Huot, Anderson Associates.

**TIME OF CALL TO ORDER:** 3:30 (no quorum until 3:50)

**TIME OF ADJOURNMENT:** 5:00

**1. Adoption of December 8, 2009 Minutes**

Adopted unanimously

**2. Review of Developments of Regional Impact**

Pioneer Valley Energy Center, Ampad Road, Westfield – Matt Palmer, Janet Bernardo and Sean Mulligan presented revised design plans for the Special Permit and Site Plan Approval for the project. BAPAC commented on the project during the MEPA review process. Since then, the site has basically been divided in half for drainage treatment purposes. The revised plans sufficiently address pre-treatment, infiltration and containment of spills. Mark Girard stated continued concerns about the long-term cumulative effects of emission particulate deposition over the aquifer.

Proposed Development, 56 Airport Road, Westfield -

Ronald Huot of Anderson Associates presented a basic plot plan that included the proposed location for two new hangars. Other than an existing swale along Airport Road, no other stormwater drainage infrastructure was identified. Therefore, BAPAC was not able to comment on the plans as presented. At this point, a stormwater treatment and infiltration system has not been designed. BAPAC asks projects to provide for pretreatment of stormwater runoff for the greatest amount of pollutants prior to infiltration. Additionally, as an airport, BAPAC is concerned with pre-flight sump draining of gasoline. Prior to flight takeoff, gas in the airplane tank is tested for levels of moisture. This small test vial is generally disposed off on the tarmac or wherever the plane is parked. This is unacceptable to BAPAC and poses a significant threat to the aquifer over a continued period of time. Safe disposal of pre-flight sump draining needs to be considered in this project.

Northampton Landfill Expansion

BAPAC has not received a response to the letter 1/4/10 letter regarding the Hannum Brook assessment. Anne will follow up with the City for comment.

**3. June 2009 Well Monitoring and Road Salt Study**

Bob Newton presented the results of the June 2009 private well sampling as part of continued monitoring of the effect of road salt on water quality. The primary question under investigation was – have concentrations of salt reduced in wells where an alternative deicer is being used? The City of Westfield has been treating Route 202 since last winter (2008-09) with Cryotech NAAC, a sodium acetate that is

used on airport runways. Overall, there hasn't been a clear change after 1 year. There are many factors influencing groundwater including the nature of the fractures, intergravel porosity, rate of groundwater movement, etc. These factors remain unknown.

The DOT (formerly MHD, should have completed their investigation of the road salt complaint at the Wing property on Route 10 in Southampton. Mark Girard believes a second well is also under investigation. BAPAC would like to submit a letter to the DOT inquiring about the status of their investigation and any plans for remediation that they may have. BAPAC is interested in seeing public water lines extended to this area affected by road salt.

#### **4. DRI Standardized Review**

The Committee reviewed a draft factsheet for providing guidance to developers on DRI submittals to BAPAC. The Factsheet will be posted to the BAPAC website and mailed to the municipalities, local developers and engineering firms in the area and/or who have submitted plans to BAPAC in recent years.

#### **5. Stormwater BMPs – Factsheets**

Factsheets are under development.

#### **Next Meeting:**

Tuesday, February 2, 2010 @ 3:30 PM  
Easthampton Municipal Office Building  
50 Payson Avenue, Easthampton

**MINUTES OF  
BARNES AQUIFER PROTECTION ADVISORY COMMITTEE**

**DATE:** 2/2/10

**LOCATION:** Easthampton Municipal Offices, Easthampton

**MEMBERS AND DESIGNEES PRESENT:**

J. Barrett, Holyoke	A. Zoeller, Holyoke	<input checked="" type="checkbox"/> J. Burkott, Holyoke
W. Darling, Westfield	T. Newton, Easthampton	C. Seklecki, Easthampton
<input checked="" type="checkbox"/> M. Czerwicz, Easthampton	<input checked="" type="checkbox"/> R. Newton, Easthampton	S. Beckley, Easthampton
<input checked="" type="checkbox"/> Mark Girard, Southampton	J. Slattery, Southampton	<input checked="" type="checkbox"/> A. Capra, PVPC

Others Present: Henry Matthew, 255 Park Street, Easthampton

**TIME OF CALL TO ORDER:** 3:30

**TIME OF ADJOURNMENT:** 4:30

**1. Adoption of January 12, 2010 Minutes**

Adopted unanimously

**1. Review of Developments of Regional Impact**

Northampton Landfill Expansion

BAPAC received a response from the City's consultant Brown and Caldwell to their letter dated 1/4/10 regarding the Hannum Brook assessment. The letter was addressed to Ned Huntley, DPW Superintendent and forwarded to BAPAC. In response to our request for monthly groundwater sampling to provide a better understanding of existing conditions, they stated that DEP only requires semi-annual sampling and due to the number of years of sampling, there is a large amount of data already collected. They cited the city website where this data is available at. In response to our question about the source of the groundwater contamination – the old unlined cell interfacing with groundwater, or a tear in the newer lined portion – they simply stated that groundwater elevation data is also being monitored and the data is available in their reports.

BAPAC issued a follow up letter on 1/28/10 explicitly asking what part of the landfill is causing the contamination of well MW-B, and what does the city plan to do about this. No response from the City has been issued.

**2. Stormwater BMP Factsheets**

Anne shared a draft of the factsheets. Those who worked on the factsheets need to submit the sources and photos to Anne for including in the factsheets.

**3. Other Business**

Easthampton resident Henry Matthew from 255 Park Street addressed the committee with his concerns regarding the long term protection of the Barnes Aquifer noting the expansion of the Northampton Landfill.

Mark Girard reported on the road salt contamination of the Wing property on Route 10 in Southampton. The Wing's are no longer able to drink water from their well due to the contamination of their well. However, due to no longer consuming well water, Mrs. Wing's hypertension has improved dramatically and her medications cut in half

**Next Meeting:**

Tuesday, March 2, 2010 @ 3:30 PM  
Easthampton Municipal Office Building  
50 Payson Avenue, Easthampton

**MINUTES OF  
BARNES AQUIFER PROTECTION ADVISORY COMMITTEE**

**DATE:** 3/2/10

**LOCATION:** Easthampton Municipal Offices, Easthampton

**MEMBERS AND DESIGNEES PRESENT:**

J. Barrett, Holyoke	A. Zoeller, Holyoke	<input checked="" type="checkbox"/> J. Burkott, Holyoke
<input checked="" type="checkbox"/> W. Darling, Westfield	T. Newton, Easthampton	C. Seklecki, Easthampton
<input checked="" type="checkbox"/> M. Czerwiec, Easthampton	<input checked="" type="checkbox"/> R. Newton, Easthampton	S. Beckley, Easthampton
Mark Girard, Southampton	J. Slattery, Southampton	<input checked="" type="checkbox"/> A. Capra, PVPC

Others Present: Joanne Bessette and Mimi Odgers, Water Not Waste

**TIME OF CALL TO ORDER:** 3:30

**TIME OF ADJOURNMENT:** 4:45

**1. Adoption of February 2, 2010 Minutes**

Adopted unanimously

**1. Review of Developments of Regional Impact**

Northampton Landfill Expansion

Joanne Bessette and Mimi Odgers from the local organization opposed to expansion of the Northampton Landfill Water Not Waste presented a summary of their opposition argument to BAPAC. They requested BAPAC's attendance and input at a March 25<sup>th</sup> Northampton Planning Board meeting. Water Not Waste had submitted a proposed amendment to the Northampton Water Supply Protection District to remove the exception for a sanitary landfill within the District. Their opinion was that removing all allowances for a landfill, it would in effect prohibit the expansion. They asked that BAPAC come and speak in support of prohibiting this use in the Water Supply Protection District. Water Not Waste believes that through the passage of this amendment, the landfill will have no legal means for expansion and it will finally kill the city's plans for doing so. The anticipated outcome of the Planning Board meeting is the Board will issue a recommendation either in favor or against the amendment that will be forwarded to the City Council for their consideration.

Bob will be out of town on the 25<sup>th</sup> but will meet with Anne prior to the meeting to work through a presentation that Anne will give on the 25<sup>th</sup>.

In preparation for the landfill to close, towns have been looking at other options for trash disposal. There is supposedly a trash transfer station in development along Route 10 in Northampton under Duseau Trucking.

Proposed Zoning Amendment, Southampton

Mark Girard reported there is a proposal before the Planning Board to convert some land on Valley and Brickyard Roads (Labrie Property) from Industrial Zoning to Residential-Neighborhood Zoning. The conversion would not permit road construction, as in a subdivision, but would allow for three houses along existing road frontage.

Industrial Development Park, Westfield

The newly elected Mayor Knapik has revived plans to promote industrial development within land zoned for this use. Unfortunately, this use is zoned over the aquifer and is where development in the City has been focused in recent years.

**2. Stormwater BMP Factsheets**

Those who worked on the factsheets need to submit the sources and photos to Anne for including in the factsheets. Anne has not received materials to complete factsheets.

**Next Meeting:**

Tuesday, April 6, 2010 @ 3:30 PM  
Easthampton Municipal Office Building  
50 Payson Avenue, Easthampton

*NOTE: BAPAC is considering moving its monthly meetings to the third Tuesday of every month to accommodate member schedules.*

**MINUTES OF  
BARNES AQUIFER PROTECTION ADVISORY COMMITTEE**

**DATE:** 4/6/10

**LOCATION:** Easthampton Municipal Offices, Easthampton

**MEMBERS AND DESIGNEES PRESENT:**

J. Barrett, Holyoke	A. Zoeller, Holyoke	<input checked="" type="checkbox"/> J. Burkott, Holyoke
<input checked="" type="checkbox"/> W. Darling, Westfield	T. Newton, Easthampton	C. Seklecki, Easthampton
<input checked="" type="checkbox"/> M. Czerwec, Easthampton	<input checked="" type="checkbox"/> R. Newton, Easthampton	S. Beckley, Easthampton
<input checked="" type="checkbox"/> Mark Girard, Southampton	J. Slattery, Southampton	<input checked="" type="checkbox"/> A. Capra, PVPC

Others Present: none

**TIME OF CALL TO ORDER:** 3:30

**TIME OF ADJOURNMENT:** 4:45

**1. Adoption of March 2, 2010 Minutes**

Adopted unanimously

**1. Review of Developments of Regional Impact**

Northampton Landfill Expansion

The Northampton Planning Board held a joint hearing with a subcommittee of the City Council on 3/25/10 to hear public comment on a zoning amendment proposed by the citizen group opposed to the landfill expansion, Water Not Waste. The amendment would remove the exemption that allows for sanitary landfills with waivers granted by MA DEP. It was Water not Waste's intent for this change in the zoning ordinance to prohibit the landfill from expanding.

The Planning Department staff issued a report, based on advice by legal council Mark Bobrowski, that the amendment was irrelevant because it would only apply to new landfills, not grandfathered landfills, which are allowed to exist under state statute. Comment from the public was heard for close to two hours, mostly supporting the amendment and asking the city staff and officials to oppose expansion.

Water not Waste asked BAPAC to give a presentation regarding our opposition to the expansion and why the landfill was harmful to the aquifer. However, at the outset of the meeting, the Planning Board Chair prohibited any general comments regarding the landfill, and asked that all comments specifically address the proposed zoning amendment. Therefore, Anne Capra made a brief statement that BAPAC opposed the expansion and supported measures that would prevent the City from proceeding with its plans for expansion.

After two hours of comment, the Planning Board and City Council debated the issue, with members in disagreement as to what effect the amendment would have. Wayne Feiden interjected repeatedly saying that the zoning amendment would not prohibit the expansion due to state statute which allows for grandfathered uses to continue. The Planning Board ultimately voted to forward the matter to the City Council without a recommendation. The City Council Subcommittee voted to close their hearing.



BAPAC is concerned about this debate, particularly the City's believe that they could expand the landfill even without a zoning bylaw that expressly allows for the use. It is our understanding that a specific condition of the Commonwealth in order for the landfill to expand was that they must pass local zoning that allows for it. Given this, if zoning the zoning allowance was repelled, would the Commonwealth rescind their permission for the expansion? BAPAC intends to submit comment to the MADEP inquiring about these issues. BAPAC will also request monthly monitoring. This data would be relevant to inform whether recent high rainfall are causing a pulsing of pollutants out of the landfill due to a rise in groundwater elevation into the landfill.

## **2. Stormwater BMP Factsheets**

The draft fact sheets were circulated for review. Need to add BAPAC logo to each. An initial "guiding principles" fact sheet should be developed. Potential guiding principles include: Protect and preserve recharge area; if development is unavoidable, minimize effect of development on aquifer and recharge area.

## **3. Other Business**

### Dirats Lab, Westfield

City of Westfield Cross-Connection Control Inspection was performed at Dirats Lab in March 2010. While there, noticed new chiller unit installed at site with discharge pipe plumbed into on-site drywell. It is unclear if it was an existing or new drywell. City contacted MA DEP UIC program and learned that no existing drywells or any of the proposed new drywells on the plans presented to BAPAC in May and June 2009 were registered with UIC as Class V Injection Wells. The City will send notice to Dirats of these violations. Water Department will forward information to Building Inspector and seek enforcement. BAPAC would like to send a letter to Dirats and cc Eric Forish who handled the design on the project.

Mark Girard was in attendance at the March 2, 2010 meeting.

Southampton recently noticed a gap in their Homeowner Association (HA) agreements regarding stormwater systems under local Stormwater Permit. The Town had their attorney add language to the effect that if HA doesnot perform maintenance as stipulated in their Stormwater Permit, this negligence grants the town authority to do the maintenance and bill the HA for it.

Mark Girard would like BAPAC's assistance to solicit additional Southampton representation on the committee. He feels there is strong opposition to environmental regulations that add additional requirements to new development.

### **Next Meeting:**

Tuesday, May 4<sup>th</sup> @ 3:30 PM

June 1st

Easthampton Municipal Office Building, 50 Payson Avenue, Easthampton

**MINUTES OF  
BARNES AQUIFER PROTECTION ADVISORY COMMITTEE**

**DATE:** 5/4/10

**LOCATION:** Easthampton Municipal Offices, Easthampton

**MEMBERS AND DESIGNEES PRESENT:**

J. Barrett, Holyoke	A. Zoeller, Holyoke	<input checked="" type="checkbox"/> J. Burkott, Holyoke
<input checked="" type="checkbox"/> W. Darling, Westfield	T. Newton, Easthampton	C. Seklecki, Easthampton
M. Czerwec, Easthampton	<input checked="" type="checkbox"/> R. Newton, Easthampton	S. Beckley, Easthampton
<input checked="" type="checkbox"/> Mark Girard, Southampton	J. Slattery, Southampton	<input checked="" type="checkbox"/> A. Capra, PVPC

Others Present: Henry Matthew, 255 Park Street, Easthampton

**TIME OF CALL TO ORDER:** 3:30

**TIME OF ADJOURNMENT:** 4:30

**1. Adoption of April 6, 2010 Minutes**

Adopted unanimously

**1. Review of Developments of Regional Impact**

Northampton Landfill Expansion

Received a response to BAPAC's 1/28/10 letter from the City of Northampton and their consultant Brown and Caldwell. The letter, and adjoining report with supporting documentation, stated that they did not concur with BAPAC's assertion that the amount of leachate from the landfill is increasing, and because of this, they were not changing any practices to address our concern. Brown and Caldwell made a distinction between "organic" odors and the smell of "leachate". They stated that the odors observed at MW-B are "organic" caused by mixing of wetland surface waters with well water. The well isn't sealed properly which is why surface waters are able to get into the well.

Second, they provided Piper Diagrams plotting cations versus anions to identify the chemical property of the well sample to support their assertion that the water in the well is in fact surface water. They stated that the Piper Diagrams identified that the water in the well was not groundwater mixing with leachate.

Third, they stated that the iron and manganese in MW-B and iron floc in wetlands are not from leachate but instead indicative of reducing conditions. Elevated levels of organic carbon in groundwater from nearby composting operations and potentially from the unlined landfill. These sources can cause a reduction of oxygen in groundwater which causes a dissolution of iron and manganese at the surface. Last, due to these assertions, the City didn't plan to make any changes to the monitoring program to collect monthly data as requested by BAPAC.

On 4/29/10, Anne Capra spoke with Dan Hall and MADEP to determine their position on the zoning amendment proposed by Water not Waste to prohibit the landfill expansion. The Zone II delineation for the Maloney Well launched the effort to get a Water Supply Protection Zoning Bylaw adopted. DEP asked the City of Easthampton to seek adoption of zoning in Northampton that was protective of the Zone II. The bylaw has to allow for the existing landfill and not grant allowance for other new landfills. Dan said that if the landfill were to proceed with expansion, DEP would look at local regulations at that time as part of their consideration in the permit.

Regarding BAPAC's concerns about the data from MW-B, MR. Hall stated that only MW-B showed elevated Fe and Mn. He said that prior to the landfill, they have data that shows the area is naturally high in Fe. No other wells are showing any trend. He stated that it was the result of concentrated the groundwater caused by construction of the lined portion of the landfill. This changed the groundwater flow and concentrated the naturally occurring Fe.

Both the letter from Brown and Caldwell and Mr. Hall's comments were extremely disappointing to BAPAC. BAPAC will take these comments under advisement. Bob Newton is reviewing the report from Brown and Caldwell.

## **2. Other Business**

Karen Leigh, Conservation Commission Coordinator, will replace Ken Taylor as the alternative representative for the City of Westfield. Woody will attend the Ken Taylor Memorial Tree Dedication Ceremony on behalf of BAPAC.

The Aquifer Protection Best Management Factsheets will be completed in July under the FY11 budget.

The hydrogeologist for the City of Westfield said the City's well logs can be scanned and entered into a database. Bob Newton would like to incorporate this info into the database he has been building to develop a model for the Barnes Aquifer.

Today is Mark Girard's last meeting as the representative for Southamptton. Mark was not re-elected to the Planning Board in the recent Town Election. A new representative has not been appointed to BAPAC yet.

Easthampton resident Henry Matthew, 255 Park Street, voiced his concerns about the potential harmful effects of lawn chemical usage on the aquifer. Mr. Matthews noted his observation of widespread use of these chemicals by homeowners and commercial landscape and tree contractors. Anne noted that the PVPC delivers an organic lawn and garden program called Greenscapes that encourages the reduction in chemical fertilizers and pesticides and use of organic protocols. More about the program can be learned at [www.Greenscapes.org](http://www.Greenscapes.org). Mark Girard noted that in Southamptton, they seek restrictions on lawn chemical use and lawn size in new subdivision approvals.

### **Next Meeting:**

Tuesday, June 1, 2010 @ 3:30 PM

Easthampton Municipal Office Building, 50 Payson Avenue, Easthampton

**MINUTES OF  
BARNES AQUIFER PROTECTION ADVISORY COMMITTEE**

**DATE:** 6/1/10

**LOCATION:** Easthampton Municipal Offices, Easthampton

**MEMBERS AND DESIGNEES PRESENT:**

J. Barrett, Holyoke	A. Zoeller, Holyoke	<input checked="" type="checkbox"/> J. Burkott, Holyoke
<input checked="" type="checkbox"/> W. Darling, Westfield	T. Newton, Easthampton	C. Seklecki, Easthampton
M. Czerwec, Easthampton	<input checked="" type="checkbox"/> R. Newton, Easthampton	S. Beckley, Easthampton
Mark Girard, Southampton	J. Slattery, Southampton	<input checked="" type="checkbox"/> A. Capra, PVPC

Others Present: none

**TIME OF CALL TO ORDER:** 3:30  
**TIME OF ADJOURNMENT:** 4:30

**1. Adoption of May 4, 2010 Minutes**

Adopted unanimously

**2. Review of Developments of Regional Impact**

Barnes Air National Guard Phase II Factsheet

Small Arms Range #2 is north of Westfield wells #7 and 8, up-gradient. High lead levels in soil at Small Arms Range #2. City of Westfield only tests water for lead every 3 years. Given this information, would be prudent for City to test for lead annually. Bob Newton offered to do analysis. Woody will send samples to him. There is also high pH in the area, but shouldn't be very mobile if high organics present.

Russian Evangelical Church

Construction on the church expansion and associated stormwater infiltration basin is set to begin. Despite our comments, the basin is still located at the edge of a steep slope, as designed by D. L. Bean. BAPAC remains concerned about the stability of the slope relative to a significant storm event and peak capacity in the basin.

**3. Other Business**

Mark Girard was not re-elected to the Planning Board and therefore will no longer be the BAPAC representative. BAPAC will send a letter to the Selectboard seeking a new appointment.

Karen Leigh, Conservation Commission Coordinator, will replace Ken Taylor as the alternative representative for the City of Westfield.

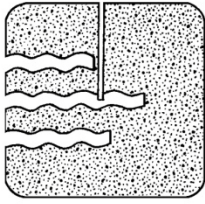
Westfield adopted a new Stormwater Utility Ordinance. The Ordinance establishes a fee schedule for residential and commercial properties based on the amount of impervious surface on the property. Despite initial efforts to establish a fee structure that would generate at least \$1 million annually, the City Council settled on a rate to adopt \$600,000. Monies will be dedicated to operation and maintenance of the city's stormwater infrastructure.

The BMP Factsheet series will be completed this summer and published to the BAPAC website in September.

**Next Meeting:**

Tuesday, September 7, 2010 @ 3:30 PM

Easthampton Municipal Office Building, 50 Payson Avenue, Easthampton



# **BARNES AQUIFER PROTECTION ADVISORY COMMITTEE**

c/o Pioneer Valley Planning Commission, 60 Congress Street, Springfield, MA 01104-3419

January 19, 2010

Anthony Petrucelli, Chair  
Westfield Planning Board  
City Hall - 59 Court Street  
Westfield, MA 01085

Reference: Proposed Development 56 Airport Road, Westfield

Dear Mr. Petrucelli:

I am writing you on behalf of the Barnes Aquifer Protection Advisory Committee (BAPAC) to provide our comments regarding a potential development at 56 Airport Road as presented at our January 12, 2010 meeting by Ronald Huot or Anderson Associates. BAPAC is composed of representatives from the four jurisdictions in which the Barnes Aquifer is located. The committee was created in 1989 to address developments of regional impact proposed within the aquifer to ensure drinking water resources remain safe for the more than 60,000 people served by the aquifer.

Mr. Huot presented a basic plot plan that included the proposed location for two new hangars. Other than an existing swale along Airport Road, no other stormwater drainage infrastructure was identified. Therefore, BAPAC is not able to comment on the plans as presented. At this point, a stormwater treatment and infiltration system has not been designed. BAPAC asks projects to provide for pretreatment of stormwater runoff for the greatest amount of pollutants prior to infiltration. Attached is newly developed guidance for developers regarding BAPAC's concerns and evaluation of projects.

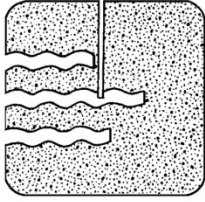
Additionally, as an airport, BAPAC is concerned with pre-flight sump draining of gasoline. Prior to flight takeoff, gas in the airplane tank is tested for levels of moisture. This small test vial is generally disposed off on the tarmac or wherever the plane is parked. This is unacceptable to BAPAC and poses a significant threat to the aquifer over a continued period of time. Safe disposal of pre-flight sump draining needs to be considered in this project.

Thank you for your consideration and the opportunity to comment.

Sincerely,

Mike Czerwiec, Vice Chair

cc: Ronald R. Huot, Anderson Associates, P.O. Box 382, Agawam, MA 01001



# **BARNES AQUIFER PROTECTION ADVISORY COMMITTEE**

c/o Pioneer Valley Planning Commission, 60 Congress Street, Springfield, MA 01104-3419

January 19, 2010

Anthony Petrucelli, Chair  
Westfield Planning Board  
City Hall - 59 Court Street  
Westfield, MA 01085

Reference: Pioneer Valley Energy Center, Ampad Road, Westfield

Dear Mr. Petrucelli:

I am writing you on behalf of the Barnes Aquifer Protection Advisory Committee (BAPAC) to provide our comments regarding plans for the Special Permit and Site Plan Approval for Pioneer Valley Energy Center, Ampad Road as presented at our January 12, 2010 meeting. BAPAC is composed of representatives from the four jurisdictions in which the Barnes Aquifer is located. The committee was created in 1989 to address developments of regional impact proposed within the aquifer to ensure drinking water resources remain safe for the more than 60,000 people served by the aquifer.

BAPAC has commented on this project during the MEPA review. The revised plans submitted for this review, sufficiently address pre-treatment, infiltration and containment of spills. BAPAC continues to be concerned with the long-term cumulative effects of emission particulate deposition over the aquifer. This area includes deposition on land as well as surface water resources, both of which can contribute pollutants to the aquifer. We ask that the Planning Board review information carefully relative to this issue, considering cumulative impacts for the anticipated lifespan of the facility.

Thank you for your consideration and the opportunity to comment.

Sincerely,

Mike Czerwec, Vice Chair

cc: Pioneer Valley Energy Center, LLC, 103 Servistar Industrial Way, Westfield, MA 01085  
Janet Bernardo, P.E., ESS Group, Inc., 888 Worcester Street, Suite 240, Wellesley, MA 02482

November 12, 2009

Southampton Planning Board  
Town of Southampton  
P.O. Box 343  
Southampton, MA 01073

Reference: Southampton Country Club, College Highway, Southampton

Dear Chairman:

Plans for the Southampton Country Club's proposed addition to the clubhouse and associated parking lot and stormwater management system were presented to the Barnes Aquifer Protection Advisory Committee (BAPAC) at our November 10, 2009 meeting by Mark Reed of Heritage Surveys. It is our understanding that the project has already been granted approval for a Stormwater Permit under Southampton's local bylaw. BAPAC would like to remind the Planning Board that under the Barnes Aquifer Protection Advisory Committee Memorandum of Understanding, the Planning Board is to submit plans to BAPAC for review and comment prior to issuing project approvals and associated permits so that our comments may be considered by the Board and project proponent during the review process, not afterward. If BAPAC were to have comments on this project, it would potentially create undue inefficiencies and delays in advancement of the project for our comments to be addressed. Therefore, we are asking your cooperation in timely submittal of project plans that will occur fully or partially within the Zone II recharge area of the Barnes Aquifer. This is the second project in recent months for which we were submitted plans after approvals had been granted by the Planning Board.

For projects located partially within the delineated Zone II, BAPAC has always applied standards for aquifer protection to the entire parcel. The reason for this is that the Zone II delineation is essentially a best guess at the outer boundary of the recharge area. It is very likely that the high recharging sand and gravel deposits extend beyond the delineated line drawn on a map, therefore, making it a best practice to ensure that structural systems for aquifer protection are in place throughout the site.

Upon review of the project, the proposed stormwater management system is satisfactory to BAPAC. BAPAC discussed the feasibility of using permeable pavement for the parking lot as a design consideration for future projects. Research trials underway at the University of New Hampshire's Stormwater Center are demonstrating great potential for high recharge, some pollutant capture and removal, and reduced winter salting needs. Factsheets about this technology are enclosed for your information. Thank you for the opportunity to comment.

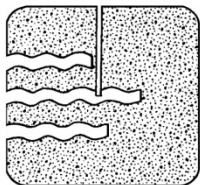
Sincerely,

Charles Darling, Chair

CC: Mark Reed, Heritage Surveys, P.O. Box 1, Southampton, MA 01073-0001







# **BARNES AQUIFER PROTECTION ADVISORY COMMITTEE**

c/o Pioneer Valley Planning Commission, 60 Congress Street, Springfield, MA 01104-3419

January 28, 2010

The Honorable Clare Higgins  
Northampton City Hall  
210 Main Street  
Northampton, MA 01060

Reference: Groundwater Issues Associated with the Northampton Regional Landfill

Dear Mayor Higgins:

I am writing you on behalf of the Barnes Aquifer Protection Advisory Committee (BAPAC) in response to the 1/14/10 letter from Brown and Caldwell forwarded to us by your office. BAPAC is composed of representatives from the four jurisdictions in which the Barnes Aquifer is located. The committee was created in 1989 to address developments of regional impact that are proposed within the aquifer to ensure that drinking water resources remain safe for the more than 60,000 people that it serves.

BAPAC has reviewed the Water Quality Monitoring Reports noted by Brown and Caldwell in their response to us, and have a better understanding of the type of data that has been collected. The data in these reports clearly indicate that leachate is escaping from the landfill based on the following observations documented in these reports:

1. Monitoring well MW-B is located within a groundwater discharge area immediately down gradient of the landfill.
2. Sample reports note a "strong organic" odor (leachate) from samples collected from MW-B. (Brown and Caldwell November 2009 Water Quality Monitoring, Northampton Sanitary Landfill, Northampton, MA 1/7/2010)
3. The area of thick iron flocculate in the wetland adjacent to well MW-B is expanding.

*"There has been some change in the extent of the staining since observations were initiated in 2001; an increase in the amount of stained substrate is apparent. No quantification of this increase has been made."*

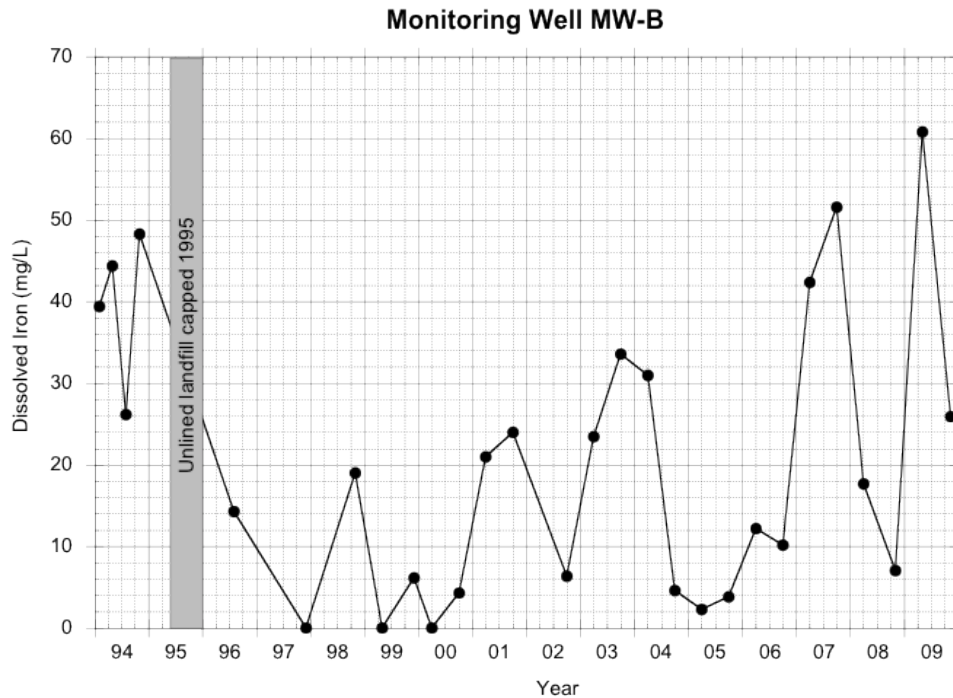
(2009 Hannum Brook Evaluation Update Northampton Regional Sanitary Landfill, Northampton MA , Oct 2009)

4. Both iron and manganese concentrations are increasing at MW-B

The increase in iron concentrations over time at MW-B is troubling as it shows that leakage of leachate from the landfill is increasing. There are 3 hypotheses that can explain these observations:

1. The water table in the unlined portion of the landfill rises into the landfill materials during high recharge events causing the generation of leachate that is released and moves as a pulse of contaminated water downgradient.

2. The liner in the lined portion of the landfill is leaking.
3. The leachate is being generated somewhere outside the area of the landfill.



The first hypothesis is most likely but the second hypothesis cannot be discounted. The third hypothesis is extremely unlikely and does not warrant further consideration.

Given this we would like the following questions answered:

1. What specifically, is the DEP and City of Northampton doing to determine why the amount of leachate leaking from the landfill is increasing?
2. What is going to be done to correct this situation before it gets worse?

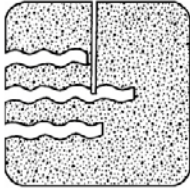
These questions have been phrased directly so as not to be overlooked as they were in Brown and Caldwell's response to BAPAC's 1/4/10 letter. The Board of Public Works' unanimous vote on January 27<sup>th</sup> in support of expanding the landfill makes it absolutely critical that the City address these questions. Thank you for the opportunity to comment.

Sincerely,

Charles Darling, Chair

cc: Dan Hall, DEP-BSW  
Northampton City Council  
Easthampton Department of Public Work

Northampton Department of Public Works  
Mayor Tautznik, Easthampton  
Easthampton City Council



# **BARNES AQUIFER PROTECTION ADVISORY COMMITTEE**

c/o Pioneer Valley Planning Commission, 60 Congress Street, Springfield, MA 01104-3419

June 28, 2010

David J. Narkewicz  
Councilor At-Large  
City Council President  
31 South Park Terrace  
Northampton, MA 01060

Reference: Proposed Ordinance Amendment Banning Landfills over Aquifer

Dear Councilor Narkewicz:

On behalf of the Barnes Aquifer Protection Advisory Committee (BAPAC), please accept our comments in support of the proposed ordinance amendment banning landfills, the expansion of existing landfill facilities, and/or new landfill cells in all Water Supply Protection Districts in Northampton. BAPAC is composed of representatives from the four jurisdictions with permitted withdrawals from the Barnes Aquifer. The committee was created in 1989 to address developments of regional impact that are proposed within the aquifer to ensure their drinking water resources remain safe and abundant for the more than 60,000 people served by it.

While recognizing advances in landfill engineering and technology are safer than those used on the original landfill, BAPAC notes that across the country, landfill liners have failed, polluting surface and groundwater sources. While the landfill may have an extended lifetime of 30 years with the new cell, the aquifer represents a critical water source for *all* future generations that must be protected.

BAPAC has reviewed the Water Quality Monitoring Reports by Brown and Caldwell. The data in these reports clearly indicates that leachate is escaping from the landfill based on the following observations documented in these reports:

1. Monitoring well MW-B is located within a groundwater discharge area immediately down gradient of the landfill.
2. Sample reports note a "strong organic" odor (leachate) from samples collected from MW-B. (Brown and Caldwell November 2009 Water Quality Monitoring, Northampton Sanitary Landfill, Northampton, MA 1/7/2010)
3. The area of thick iron flocculate in the wetland adjacent to well MW-B is expanding.

*“There has been some change in the extent of the staining since observations were initiated in 2001; an increase in the amount of stained substrate is apparent. No quantification of this increase has been made.”*

(2009 Hannum Brook Evaluation Update Northampton Regional Sanitary Landfill, Northampton MA, Oct 2009)

4. Both iron and manganese concentrations are increasing at MW-B. The increase in iron concentrations over time at MW-B is troubling as it shows that leakage of leachate from the landfill is increasing.

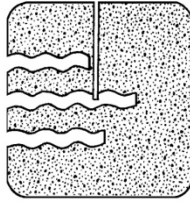
Given the evidence stated above, it is clear that the landfill is impacting groundwater, and will continue to do so for many years to come. The long-term environmental and health impacts simply are not known nor can be forecasted at this time. However, we are able to recognize the changes that are occurring within the aquifer today. BAPAC believes the long-term risk to the Barnes Aquifer far outweighs the short-term benefits of expanding this regional landfill. For these reasons, we support the proposed amendment banning landfills, the expansion of existing landfill facilities, and/or new landfill cells in all Water Supply Protection Districts in Northampton.

Thank you for the opportunity to comment.

Sincerely,

Charles Darling, Chair

cc: Dan Hall, DEP-BSW Northampton Department of Public Works  
Jo-Anne Bessett, Water Not Waste Mayor Tautznik, City of Easthampton  
Easthampton Department of Public Works Easthampton City Council



# **BARNES AQUIFER PROTECTION ADVISORY COMMITTEE**

c/o Pioneer Valley Planning Commission, 60 Congress Street, Springfield, MA 01104-3419

January 4, 2010

The Honorable Claire Higgins  
Northampton City Hall  
210 Main Street  
Northampton, MA 01060

Reference: 2009 Hannum Brook Evaluation Update Report, October 2009

Dear Mayor Higgins:

I am writing you on behalf of the Barnes Aquifer Protection Advisory Committee (BAPAC) regarding our review of the 2009 Hannum Brook Evaluation Update Report dated October, 2009. BAPAC is composed of representatives from the four jurisdictions in which the Barnes Aquifer is located. The committee was created in 1989 to address developments of regional impact that are proposed within the aquifer to ensure that drinking water resources remain safe for the more than 60,000 people that it serves.

Overall, the study suggests that the Glendale Road Landfill is a dynamic system that has changed over time. These changes are noted in the surface and ground water quality data collected between 1994, prior to the landfill capping, and the most recent round collected in October 2009. Based on the data provided in the report from monitoring well MW-B, iron levels are trending upward. The data provided in the report has been plotted in the attached figure clearly illustrating the upward trend. For a short period after the capping of the landfill, iron levels in groundwater from MW-B decreased significantly. However, after that initial response, iron levels have continued to trend upward overall.

It is unclear why this is happening. Two possible explanations for this are: 1) the newer lined portion of the landfill may now be leaking; or, 2) groundwater elevation under the capped portion may be rising into the landfill and picking up leachate. In either scenario, the data suggests that the landfill is not a steady state, infinitely controlled system, but rather a dynamic and complex man-made system that is, and will continue to do so in the future, respond to conditions and cycles in the surrounding natural environment.

Based on the information provided in the report, it is clear that the impacts of the current landfill on the surrounding environment are not fully understood. BAPAC believes that a better understanding of the condition of the current landfill and its

impacts are imperative for informing decisions about expansion of the facility. To this end, BAPAC recommends that the City begin monthly groundwater monitoring from well MW-B and all other monitoring wells at the site, for more consistent data collection at regular intervals. As you know, MW-B is located in the vicinity of a wetland noted to have red flocculent present. This flocculent is believed to be iron and as the Stantec report notes, the amount of which has increased steadily over time. As you are also probably aware, it has also been reported that groundwater collected from MW-B smells like "leachate".

Second, BAPAC would like to know if depth to groundwater is being monitored at MW-B or any other monitoring wells at the site? We are also interested in the groundwater elevations at each monitoring well for the development of a piezometric map. More wells with elevations relative to the gradient of the landfill could help identify the cause of some of the water quality changes noted.

In summary, BAPAC believes that the increasing iron levels are an indication of changing conditions in the landfill itself and the surrounding environment. We believe these conditions to be supportive of the groundwater modeling presented to city officials at the Massachusetts Department of Environmental Protection's office in Boston in March of 2008. Contaminant transport results from plumes containing high biological demand depleting dissolved oxygen levels within the area. Low dissolved oxygen levels mobilize organic matter, increasing levels of iron, and possibly other metals such as manganese and arsenic, in groundwater.

Representatives from BAPAC are interested to meet with you to discuss our concerns. Please contact BAPAC facilitator Anne Capra at the Pioneer Valley Planning Commission at (413) 781-6045 to schedule a meeting. Thank you for your consideration.

Sincerely,

Charles Darling, Chair

Cc: Dan Hall, DEP-BSW  
Northampton City Council  
Northampton Department of Public Works  
Mayor Tautznik, Easthampton  
Easthampton City Council  
Easthampton Department of Public Works