Ashumet and Johns Ponds Update

August 2004

MASSACHUSETTS MILITARY RESERVATION

Air Force Center for Environmental Excellence

Installation Restoration Program

ASHUMET POND

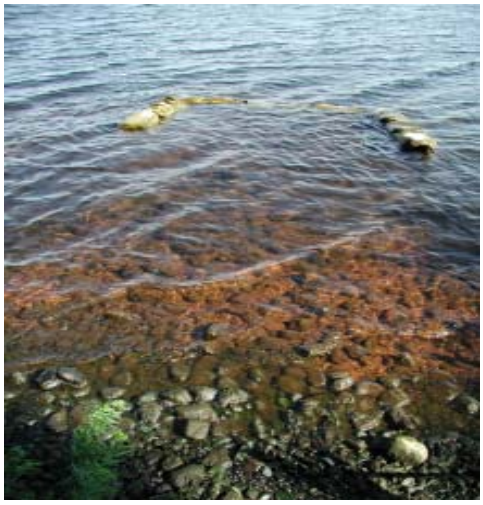
Iron Barrier Continues the Enhancement of Pond Health

The installation of an iron barrier in the top part of the northwest shoreline of Ashumet Pond is currently underway. Phosphorus flowing in groundwater through pond bottom sediments will stick to the iron, reducing the amount that enters the pond. When completed, the barrier will be approximately 300 feet long, 40 feet wide, and 2 feet deep in the pond bottom.

The installation of the iron barrier is a third step in the Air Force's ongoing effort to reduce the amount of phosphorus entering the pond from the operation of the former on-base wastewater treatment plant. Although the plant closed in 1995, phosphorus has been traveling from the base in groundwater and discharging into the pond through bottom sediments.

The first step in stopping the flow of phosphorus to the pond was closing the wastewater treatment plant. An alum treatment in 2001 reduced the amount of phosphorus released to the pond from its deep bottom sediments.

The iron barrier is an additional effort to reduce the flow of phosphorus that enters the pond. The combination of all three steps will reduce concentrations of phosphorus that can stimulate algae growth and deprive the pond of the oxygen needed for a healthy ecosystem.



Small-scale experimental iron barrier in Ashumet Pond, September 2001.

During the past few years, small areas of the northwest shoreline have been treated with iron. Information gained from iron treatment test areas, along with experiments conducted at UMass.-Dartmouth, helped scientists develop a design for a full-scale iron barier.

Additional testing performed by UMass.-Dartmouth over the past three years has confirmed that the amount of phosphorus in the pond has decreased since the fall 2001 alum treatment. The Air Force will continue to monitor the pond to further assess the performance of the iron barrier and alum treatment, which are both expected to be effective for many years.

Continued on page 3

Annual Health Assessment Issued for Recreational Ponds

The Massachusetts Department of Public Health (MDPH) has determined that **Ashumet and Johns Ponds are safe for swimming, wading, boating, and catch-and-release fishing.** A fact sheet summarizing this annual public health assessment was issued in May 2004 and is based upon all available surface water data.

A copy of the MDPH fact sheet, "Recreational Use of Water Bodies On Or Near The Massachusetts Military Reservation (MMR)," can be obtained at your local Board of Health, public library, or online at www.mmr.org.

The MDPH also has issued a **Freshwater Fish Consumption Advisory** for ponds **due to mercury levels in fish**. This advisory lists a number of ponds in the Commonwealth and is not related to any contamination from the MMR. The MDPH advisory is available by calling 617-624-5757 or online at www.state.ma.us/dph/beha/fishlist.htm.

CHEMICAL SPILL 10 PLUME

Recent Investigations Track Plume

TCE Found East of Johns Pond

During routine groundwater sampling in November 2003, the chemical trichloroethylene (TCE) was detected at a concentration of 5.1 parts per billion (ppb) in a well screened at 285 feet below the ground surface. This well is located near the intersection of Algonquin Avenue and Sakonnet Drive in Mashpee. Two additional samples were collected in January and March 2004 with TCE levels of 5.7 ppb and 5.8 ppb, respectively. TCE previously has been detected on the east side of Johns Pond, but not above its drinking water standard. TCE is a cleaning solvent with a state and federal drinking water standard of 5 ppb. The Air Force is continuing to investigate this part of the plume, which is referred to as the leading edge of Chemical Spill 10 (CS-10). New monitoring wells will be installed on the east side of Johns Pond as part of an on-going investigation related to the TCE detections that occurred over the winter.

Due to the depth of the detection and the shallow depth of nearby private drinking water wells, there is no risk to public health. However, as a precaution, the Air Force offers free private well testing for home owners in this area. To inquire about being added to the program, please call Doug Karson at (508) 968-478, extension 2.

Drive-Points Lead the Way

As the cleanup program matures, collecting additional information from new locations can be very helpful in ensuring that groundwater plumes are being cleaned up. The additional information is helping the Air Force track the location of the CS-10 plume more closely by filling in data gaps.

An accurate, cost-effective, and non-intrusive way of collecting this extra information is with a technology called direct-push drive-points. An all-terrain vehicle mounted with a small hydraulic device is used to push a small (1 inch in diameter) metal rod into the ground. Groundwater samples are collected at 10 foot intervals as the rod is pushed deeper into the ground. Most drive points were installed between Ashumet and Johns Ponds, while several others were installed between Sandwich Road and Ashumet Pond. Information gained during the drive-point work has helped the Air Force choose locations for several new monitoring wells.

A temporary drive-point is installed in Mashpee Town land, located off Tri-Town Circle.

New Monitoring Wells

Several new monitoring wells have been installed in the Briarwood neighborhood and in areas east of Johns Pond in Mashpee with several more wells planned for installation through fall 2004. The new wells will help develop a more comprehensive monitoring network, which will ensure the most effective cleanup of the CS-10 plume.

Next Steps in CS-10 Cleanup

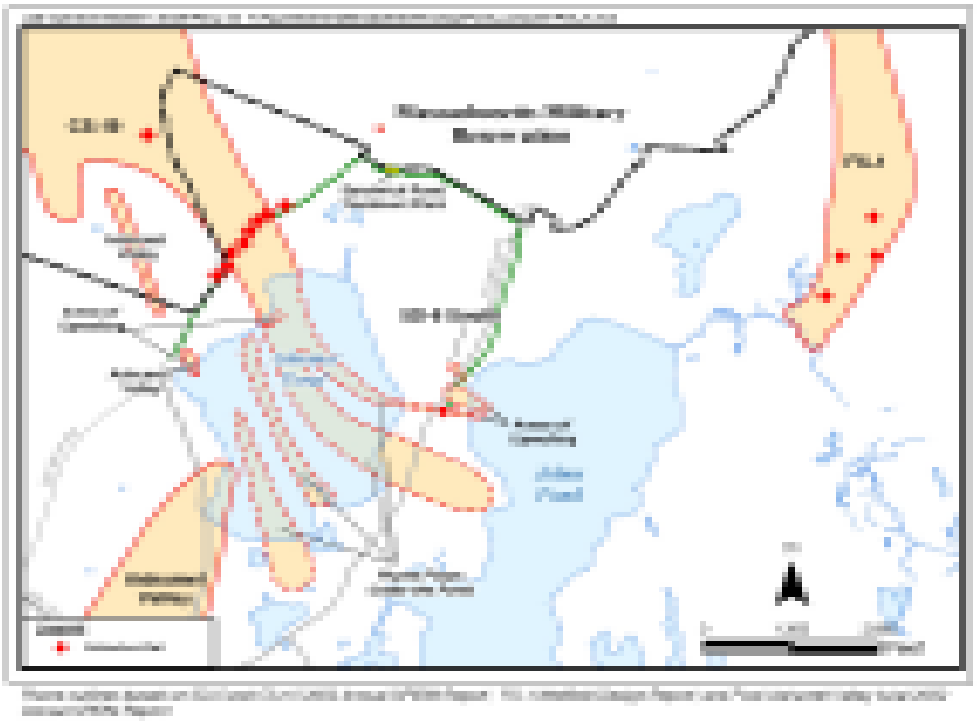
A Proposed Plan for all portions of the CS-10 groundwater plume was scheduled for public comment this fall. This plan has been put on hold because of the TCE detection above its drinking water standard east of Johns Pond and increasing levels of TCE in a portion of the plume called the southern lobe, which is located near the Ashumet Holly Reservation. When all the data from the drive-point and new monitoring wells are thoroughly evaluated later this year, a new Proposed Plan will be developed and presented for public comment.

In the interim, there are plans to install a new extraction well in a portion of the CS-10 plume called the North-Central Lobe, which is located in the southern part of the Brairwood neighborhood. Two of the new monitoring wells will provide data that will help the Air Force choose the location of this new extraction well, which is planned to be operational in 2005.

An update of the results from this investigative work and the development of the upcoming Proposed Plan for CS-10 will be presented at a Plume Cleanup Team (PCT) meeting this fall. A separate public meeting and hearing on the plan also will be scheduled. Check our web site for meeting dates and locations, agenda topics, and PCT meeting minutes at www.mmr.org.

Plume Outlines

Groundwater plumes located near the ponds are being cleaned up. Both the Storm Drain-5 and Ashumet Valley plumes are smaller in size due to effective operation of MMR treatment systems.
"Areas of Upwelling" indicate where small amounts of contaminated groundwater from MMR have discharged into bottom sediments of Ashumet and Johns Ponds. Results from all pond water samples collected at both ponds have been at levels below health concerns.



Kudos to Neighbors!!

THANK YOU!! Much of our field work has only been accomplished with the help of many residents who allowed us to install drive-points and/or new monitoring wells on their private property. We are very grateful for their assistance and the patience of local residents whose roads were partially blocked by equipment during drilling activties.

ASHUMET POND

Iron Barrier (continued from page 1)

Details of the installation plans and testing done to design the project were presented at a public meeting held on June 1, 2004 in Mashpee. The meeting was well attended by pond area residents who responded positively to the information presented.

A public hearing was held by the Falmouth Conservation Commission on June 11, 2004. In July, the Air Force received an Order of Conditions (wetlands permit) as well as permits from the Massachusetts Department of Environmental Protection and the U.S. Army Corps of Engineers to perform this work. Information related to these phosphorus-reducing efforts can be obtained at your local public library, or online at www.mmr.org.

FOR MORE INFORMATION www.mmr.org

Doug Karson
Community Involvement Specialist
HQ AFCEE/MMR
(508) 968-4678, x2 or
doug.karson@brooks.af.mil

Jim Murphy
Community Involvement Coordinator
US EPA New England Region
(617) 918-1028
murphy.jim@epamail.epa.gov

Leonard Pinaud
Remedial Program Manager
MA Dept. of Environmental Protection
(508) 946-2871
leonard.pinaud@state.ma.us

David Carignan
Health Agent
Falmouth Board of Health
(508) 495-7485

Glen Harrington
Health Agent
Mashpee Board of Health
(508) 539-1400, x553
boh@ci.mashpee.ma.us

Dave Williams
Senior Environmental Analyst
MA Dept. of Public Health
(781) 774-6612
dave.williams@state.ma.us

News in Brief

- **Success!!** In February 2004, the Storm Drain-5 South (SD-5S) **Hooppole Road extraction well was shut-down**. The extraction well, located in the Briarwood neighborhood, had been pumping contaminated groundwater to the Sandwich Road Treatment Plant since January 2000. The extraction well was no longer needed since the levels of contaminants in the groundwater within its capture zone (area that the pump effects) are now below state and federal cleanup standards. **All groundwater treatment systems for SD-5 are now shut down.**

- This **successful cleanup of SD-5S** also led to the **removal of two recirculating well treatment systems** in December 2003. Both treatment systems, which were located beneath roads in the Briarwood neighborhood, were no longer needed since the levels of contaminants in groundwater were below state and federal cleanup standards.

- The **Fuel Spill 1 (FS-1) treatment system in Mashpee's Quashnet Bogs became operational in October 2003,** replacing the facility that was destroyed by fire in the fall of 2002. Construction of the new plant and expanded treatment system was closely coordinated with the Mashpee Conservation Commission to make sure the adjacent wetlands were and continue to be protected. The system currently pumps and treats more than 1 million gallons of contaminated groundwater per day.

- The **new operations and maintenance building for the cleanup program is now complete.** It is located next to the Sandwich Road Treatment Facility on Back Road in Mashpee. Treatment system operators are able to control and/or monitor Air Force MMR treatment systems from this new building.

- Ashumet and Johns Ponds area homeowners who have private wells as their only source of drinking water may be eligible for **free water quality testing** by the Air Force. Contact Doug Karson at 508-968-4678, ext. 2, to see if your property qualifies.