



AQUARION
Water Company

 **DAY PITNEY** LLP

Dealing with Contaminated Wells: A Perchlorate Case Study

NEWWA 2009 Spring Joint Regional
Conference and Exhibition

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Discussion Points

- ◆ System Overview
- ◆ MA DEP Guidelines/ Perchlorate Detection
- ◆ Communications/Recovery Actions
- ◆ Treatment Construction & Current Operations
- ◆ Legal – Recovering the Expenses

Water System Overview

- ◆ Millbury, MA – Aquarion Owned & Operated
- ◆ 3400 service connections (~ 9700 customers)
- ◆ Demand: ADD = 1.6 MGD & MDD = 2.4 MGD
- ◆ Supply: 4 wells in Millbury (SY approx. XXMGD)
- ◆ Storage: 1 tank @ 1.5 MG
- ◆ Interconnections: 2 w/ Worcester & 1 w/ Grafton

MA DEP Perchlorate Guidelines & Detection



- ◆ MA DEP Perchlorate guidelines & sampling requirements issued Feb. 2004
- ◆ April 27, 2004 samples collected
- ◆ Results received May 14, 2004
 - Jacques Well #1 @ 45.3 ug/L
 - Jacques Well #2 @ 21.6 ug/L
- ◆ May 14, 2004 re-sampled wells (split samples to 2 MA DEP certified labs)

Perchlorate Detection & Communications

- ◆ Split samples confirmed both detects
- ◆ Removed Jacques #1 & #2 wells from service
 - Approx. 1.2 MGD
 - Approx. 50% of peak demand
- ◆ Met w/ MA DEP & MA DPH
 - Developed operating plan (system flushing & sampling)
 - Finalized customer notice “Do Not Drink” order, distribution methods & discussed ongoing comm. plan

Perchlorate Detection & Communications



May 20, 2004

PUBLIC

HEALTH

NOTICE

Este documento es importante y se debe traducir inmediatamente.

Este original è importante e deve ser traduzido imediatamente.

Questo documento è importante e dovrebbe essere tradotto immediatamente.

Αυτό το έγγραφο είναι σημαντικό και πρέπει να μεταφραστεί αμέσως.

Ce document est important et devrait être traduit immédiatement.

這個文件重要和應該立刻被翻譯。

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Important information about your drinking water Please read or have someone translate it for you

The Millbury water supply was tested on May 14, 2004 and upon laboratory analysis completed on May 19, 2004, samples were found to contain 42.6 parts per billion (ppb) of perchlorate in Jacques Well #1 and 18.45 ppb perchlorate in Jacques Well #2. **Both wells were taken off-line at 2:00 p.m. on May 19, 2004, and will remain out of service until the safety of the water is confirmed or until treatment is provided to ensure safety.** Water for the Town of Millbury is being provided by two other wells. As persons who consume the water you have a right to know of this situation. There is no federal or state drinking water standard for perchlorate, however the Massachusetts Department of Environmental Protection (DEP) has set an interim guidance of 1.0 ppb of perchlorate for sensitive subpopulations as described below to protect public health.

What should you do?

- Ice cubes, juices, baby formula, and other beverages prepared before today should be discarded.
- The general population is advised not to drink the water if levels exceed 18 ppb. For this reason, both affected wells have been taken out of service, and are not providing water to the distribution system.

Information about perchlorate:

- Perchlorate may cause adverse effects on the thyroid gland. Persons that may be most sensitive to this contaminant include pregnant women, infants, children up to the age of 12, and individuals with hypothyroidism.
- Pregnant women, infants, children up to the age of 12, and individuals with hypothyroidism should not consume drinking water containing concentrations of perchlorate that exceed 1.0 ppb.
- If you are concerned about effects of previous exposure to perchlorate on your thyroid functions, you should contact your primary health care provider.

For more information on what happened and what is being done contact between 8AM and 4PM:

Aquarion Water Company, Water Quality Department, at 800-832-2373, or email address, jan.glace@aquarionwater.com

Please share this information with all other people who drink this water, especially those who may not have seen this notice directly (for example tourists, people in apartment buildings, nursing homes, schools, and businesses.)

Notice Posted by Aquarion Water Company PWS ID# 2186000 Posted on May 20, 2004
Massachusetts Department of Environmental Protection Central Regional Office contact is Kelly Mowbriger at 508-849-4023.



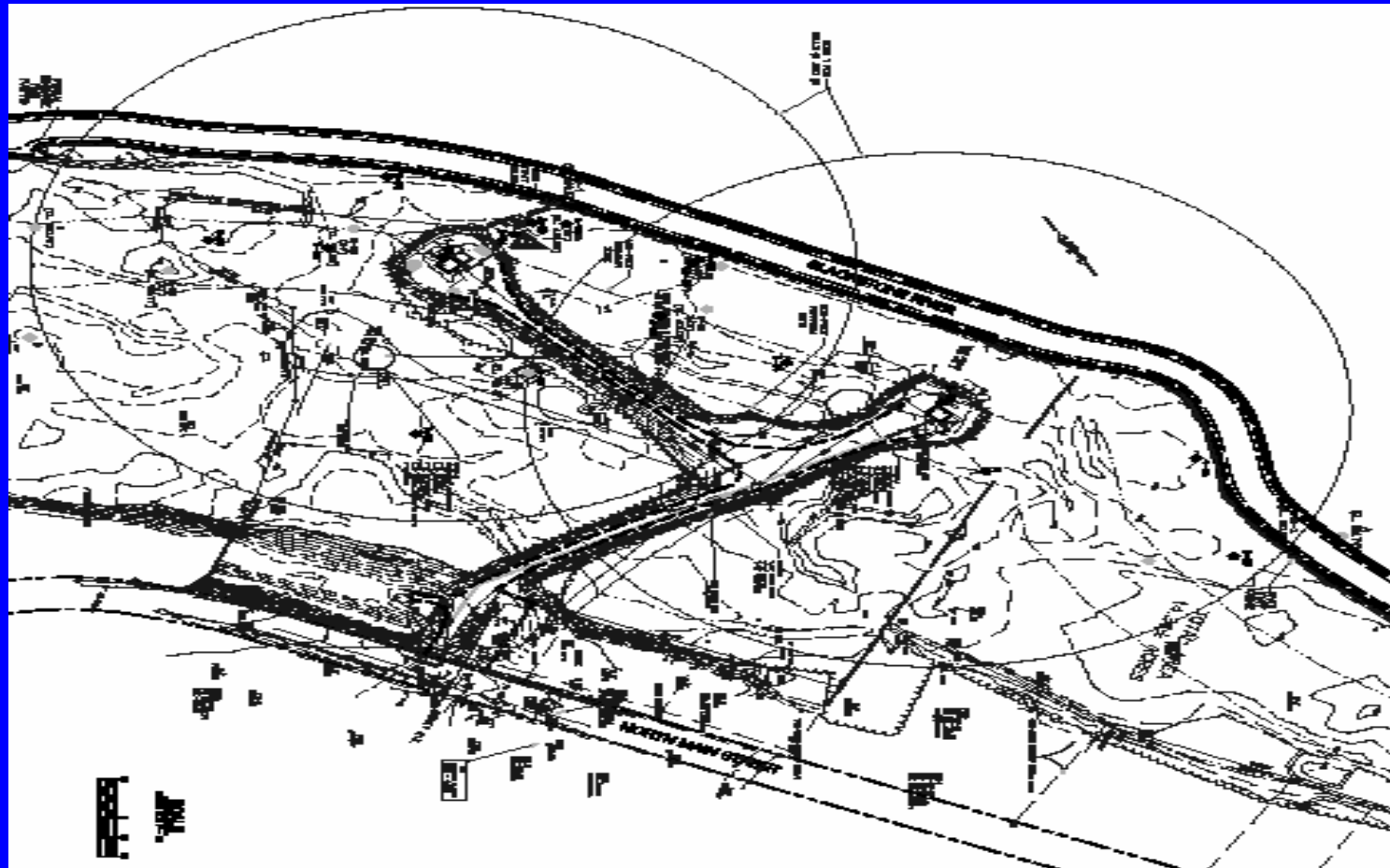
Communications & Recovery Actions

- ◆ Internal & External (customers and State & local officials)
- ◆ Aggressive system flushing & tank overflows
- ◆ Opened interconnection w/ Worcester
- ◆ Implemented water restrictions
- ◆ Ongoing sampling
- ◆ “Do not Drink” order lifted by MA DEP, Aquarion notified customers
- ◆ Legal review

Source Investigation

- ◆ Aquarion management, Aquarion Engineering Services & contracted hydrogeologist
- ◆ MA DEP (21E)
- ◆ MA DEP issued ACO
- ◆ Ongoing review with legal counsel

Jacques Well Site Layout



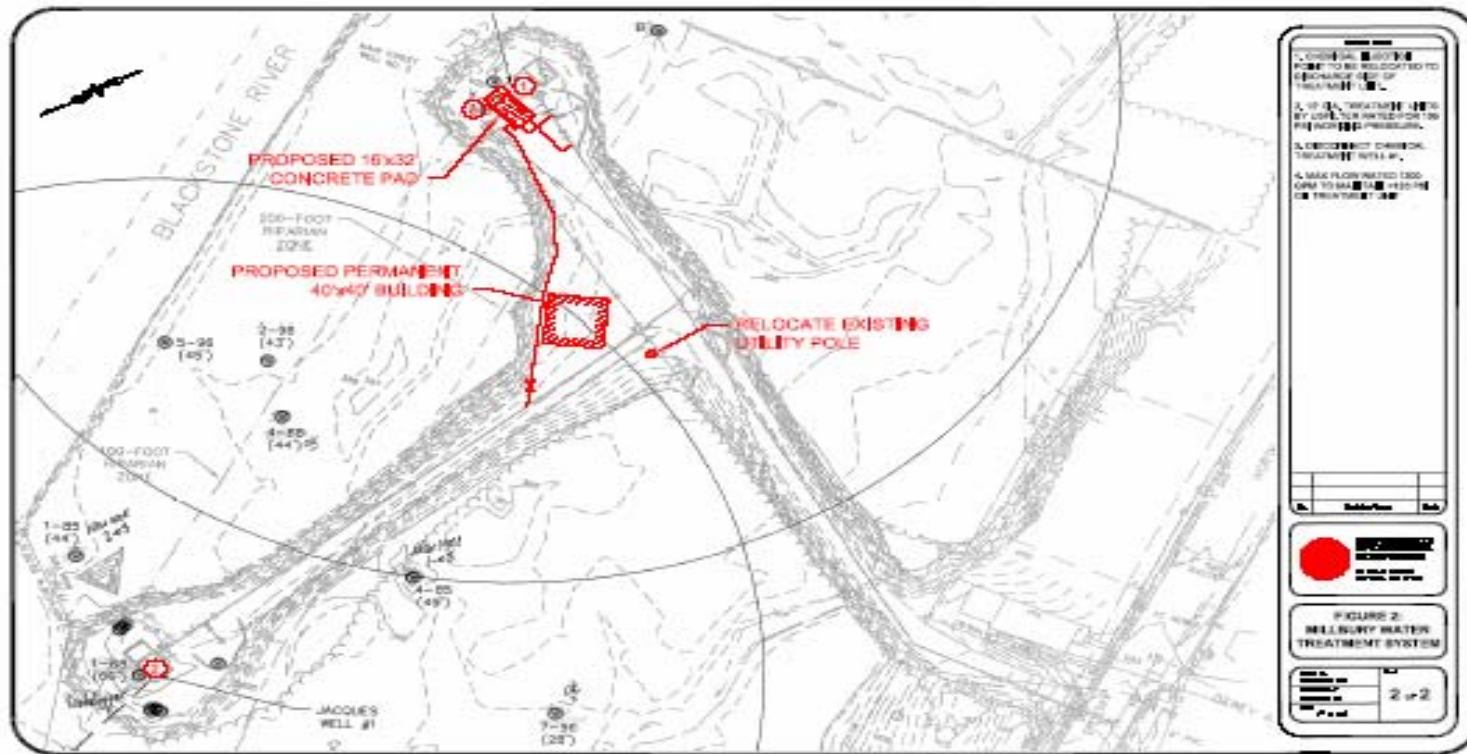
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Construction

- ◆ Utilized RHW & Aquarion Engineering Services
- ◆ Reviewed available technologies w/ MA DEP
- ◆ Selected an Ion Exchange technology using US Filter I/E vessels w/ DEP approval
- ◆ Constructed facility to house vessels & chemical feeds on the Jacques site
- ◆ Construction to start-up < 6 months once approved by DEP
- ◆ Utilized Purolite perchlorate selective resin

Site map



Construction



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Start-up & Operation

- ◆ Facility start-up in June 2005
- ◆ On-going successful operations (perchlorate @ ND)
- ◆ Annual resin change-out
- ◆ Sampling per MA DEP schedule
- ◆ Quarterly site sampling of monitoring wells
- ◆ Favorable settlement negotiated

Contamination Impacts

- ◆ Consumer confidence
- ◆ Required water restrictions
- ◆ Financial
- ◆ Perchlorate treatment
 - Capital = \$1.5M
 - O/M = \$200K/year

Potential Claims

Statutory

◆ Federal

- Comprehensive Environmental Response Compensation and Liability Act (CERCLA), 42 U.S.C. §§9601 et seq.

◆ State

- Massachusetts Oil and Hazardous Materials Release Prevention and Response Act, M.G.L. c. 21E

Common Law

◆ State Claims

- Negligence, nuisance, trespass, etc.

- 21E offers:
- strict liability
 - property damage and cost recovery



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Potential Defenses

- ◆ Causation

- Proving The Source Of The Contamination

- ◆ Breach Of A Standard Triggering Liability (e.g. That Perchlorate Is A “Hazardous Material” Under 21E)

- ◆ Damages

- Was The Treatment System Necessary And Appropriate

Source of the Contamination

- ◆ Well Field Not The Source
 - Monitoring Wells
 - Prior Testing
- ◆ Background Levels
- ◆ Migration
 - Samples From River
- ◆ Blasting
 - Highway
 - Mall
- ◆ Mall Results
- ◆ Mass Balance Analysis



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Allowable Level of Perchlorate

- ◆ No definitive state or federal standards as of April 2004
 - 2003 EPA guideline 4-18 ppb
 - 2004 state guideline 1 ppb
- ◆ Jan. 2005 – NAS report 24.5 ppb
- ◆ Jan. 2006 – EPA further Assessment Guidance
- ◆ July 2006 – state – 2 ppb drinking water standard
- ◆ January 2009 – EPA Issues Interim Drinking Water Health Advisory (15 μ /l)

Appropriate Technology

- ◆ Choice among bio treatment or newer ion exchange disposable resin
- ◆ Disposable resin had been used in CA, MD
- ◆ Track record sufficient to meet state standards

Issues Affecting Future Claims

- ◆ Most claims will involve defense industry
- ◆ CERCLA allows claims against federal agencies and instrumentalities
- ◆ DOD announced in 2006 that 24 ppb was “level of concern” but that it would comply with state or federal standard “whichever is more stringent”
- ◆ Potential Congressional action
- ◆ State Action
- ◆ January 2009 – EPA Issues Interim Drinking Water Health Advisory (15 μ /l)

Q & A

Thank you!



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