

**Missouri
Department of
Natural Resources**

- History
- Recent Investigations and Waterline Replacement
- Planned Future Actions
- Questions

Presented by the Missouri Department
of Natural Resources

- 1998 - Initial complaint to DNR regarding water lines in contaminated soil
- DNR failed to follow up
- Additional complaints received by DNR in 2004
 - DNR follows up

- 2004, DNR's SE Regional Office and Environmental Services Program conduct sampling
- Petroleum contamination found at former Brewer Brothers South Bulk Plant and Martin Oil Service Station sites on Pool Street
- DNR directs Brewer Brothers to conduct additional investigations

- February and May 2006 DNR investigations
 - Follow up regarding allegations of various types of contamination at:
 - Brewer Bros. South Plant
 - Brewer Bros. North Plant
 - Martin Oil
 - Watkins Station
 - Agrichemical Warehouse

- February and May 2006 DNR investigations
 - Contaminants looked for based on past uses of sites
 - Determine whether water lines in or near contamination
 - Soil, soil gas, groundwater, and tap water samples collected
 - Analyzed for metals, petroleum, herbicides, and pesticides

- February and May 2006 Results:
 - Petroleum constituents at levels of concern at Brewer Bros. N and S plants, Martin Oil, & Watkins Station
 - Possible water line threat
 - Metals, herbicides & pesticides not detected at levels of concern
 - Petroleum constituents not found above detection limits in tap water

- Residential Tap Water Sampling
 - DNR conducted seven events
 - 1 in 2004, 4 in 2006, and 2 in 2007
 - Multiple samples from multiple homes collected each event
 - Petroleum constituents were not detected in any of the samples at levels above laboratory detection limits

- February 2006 DNR conducts sanitary survey of water system
 - To evaluate water system and capacity to produce & distribute safe water
- Findings
 - No contamination at water source
 - Improvements to system needed

- Sanitary Survey Recommendations
 - Maintain proper chlorine residual
 - Eliminate connections between old and new distribution systems
 - Correct water pressure problems
 - Maintain system components
 - Move/replace lines in contact with petroleum-contamination

- Sanitary Survey
 - City working with DNR's SERO to make improvements and correct deficiencies identified by survey
 - Direct questions regarding the status of these actions to SERO staff

- 2006 DHSS conducts Health Consultation and is asked to conduct a Cancer Inquiry
 - Inquiry to determine if excess cancer in Cardwell
 - Consultation to determine whether identified contamination a threat to human health

- Health Consultation concluded:
 - No indication residents exposed in past
 - Contamination at sites not directly effecting residents at this time
- Health Consultation recommended:
 - Residents avoid contaminated sites
 - Water lines threatened by contamination should be moved or replaced
 - Do not use shallow groundwater
 - Define extent of contamination
 - Flush residential water lines when idle

- Cancer inquiry program unable to identify any excess cancer rate in Cardwell
- Inquiry ended in December 2007

- Replaced approximately 51-feet of 4-inch PVC water main in contact with contaminated soil at the former Martin Oil Service Station on East Pool Street
- 40-feet of new PVC water main encased in steel pipe









- Discovered two 4-inch cast iron drain pipes running from Martin Oil site under East Pool to 504 East Pool
- The drain pipes contained petroleum
- Further investigation is planned





- At three points, cut and sealed transite water mains that serviced East Pool Street and locations south of the former South Bulk Plant
- Some of the transite mains passed through grossly contaminated soil at the South Bulk Plant







- To determine if petroleum might have permeated old distribution system
- Sections of the old PVC and transite water mains were collected, sealed, and filled with distilled water





- Desorption field test results confirm research from scientific literature, mainly that:
 - PVC is highly resistant to petroleum permeation
 - Transite, polyethylene waterlines, and rubber gaskets are vulnerable to permeation

- The PVC waterline at Martin Oil site was not permeated by petroleum
- Rubber gasket material was permeated
- Transite and polyethylene waterlines may have been permeated
- No current threats to the water service near 504 E. Pool St. from either PVC or Transite piping

- DNR will request Brewer Bros. conduct further site characterization at:
 - 504 East Pool (S of Martin Oil)
 - 323 Pool (N of South Bulk Plant)
 - North Bulk Plant (near 511 Pool)
 - South of South Bulk Plant

- South Bulk Plant
 - Additional investigation to define full extent of contamination
 - Development of a risk assessment to determine if contamination poses excessive risk and, if so, identify cleanup actions to reduce risk to acceptable levels

- DNR plans to conduct investigations in 2008 or 2009 at:
 - Watkins Service, Main and Pool Sts. (former tank site)
 - 601 Pool St.

- Department of Natural Resources
 - Tim Chibnall (573) 522-1833
 - email: tim.chibnall@dnr.mo.gov
 - Ron Sheeley (573) 751-7326
 - email: ron.sheeley@dnr.mo.gov

or

1-800-361-4827

Southeast Regional Office

- Gary Gaines (573) 840-9750
- gary.gaines@dnr.mo.gov

Department of Health & Senior Services

- Jonathon Garoutte (573) 751-6102
- jonathon.garoutte@dhss.mo.gov

Questions?