

## Groundwater & Potable Well Investigation Project Time Line

On April 29, 1944, the property known as the Newton Gravel Pit was purchased by the City of Manitowoc. The property has been under City ownership ever since.

The Gravel Pit was used for waste disposal, including discharge of liquid industrial wastes, in the 1960s and early 1970s. Past waste disposal activities are known to have occurred at an area along the westernmost boundary of the property. Environmental investigation activities began in 1991 and the City has been working cooperatively with the WDNR since that time.

A phased site investigation was initiated in December 1992 and completed in September 1994. Soil, groundwater, and surface water sampling, as well as backhoe excavation and a geophysical survey were used to characterize site stratigraphy, and evaluate soil and groundwater impacts. Remedial action alternatives have also been evaluated.

### Environmental site investigation activities between 1996 and November 6, 2013 included:

- Non – aqueous phase liquid (NAPL) removal activities in 1997.
- Groundwater and surface water sampling activities annually since 1999.
- AECOM, the City's consultant, submitted a *Site Investigation Update and Remedial Action Plan Report* to the WDNR in June 2009.
- In April 2013, the WDNR requested the City install one additional monitoring well and conduct sampling of potable (residential) wells in the area. Potable wells were previously sampled in 1993 and 2008, with all results indicating no contamination detected.
- The additional monitoring well was installed in August 2013, and the potable wells were sampled in October 2013 along with the scheduled annual sampling of groundwater monitoring wells associated with this site.

### Activities from November 6, 2013 to November 2016 include the following:

#### November 2013

- On November 6, AECOM received sample results indicating that six of the 13 potable wells sampled had been impacted by Volatile Organic Compounds (VOCs), with three of the wells having VOC levels above WDNR enforcement standards. AECOM notified the City and City staff met with the impacted property owners and provided them with bottled water.
- Confirmation sampling took place on November 7<sup>th</sup>, 8<sup>th</sup> and 12<sup>th</sup> on the 13 original wells along with two additional wells for a total of 15 samples.
- A bulk water tank was provided to a property where drinking water exceeded the WDNR's no contact threshold.
- WDNR requested that two residences be tested for Resource Conservation and Recovery Act (RCRA) metals and Polychlorinated Biphenyls (PCBs). These samples were conducted on November 22, 2013 and came back without any contaminants of concern.
- WDNR requested additional sampling of adjacent properties.

#### December 2013

- 16 additional potable wells were sampled, 14 by AECOM and two by the WDNR.
- An informational Open House was held on December 5 for residents in the area.
- The WDNR requested nine additional potable well samples be taken at adjacent properties, along with a confirmation sample.
- The City worked with WDNR to establish specifications for replacement potable wells.
- The City sent out a Request for Proposal to WDNR licensed well drillers for the first well replacement, selected a driller, and entered an agreement with the selected driller for the potable well replacement.

#### January 2014

- January 3 – 6: AECOM conducted DNR-requested sampling of nine additional wells and a confirmation sample.
- The DNR also requested an additional 13 adjacent properties for testing and three confirmation samples for a total of 16 additional samples.
- Additional impacted properties were discovered on CTH CR. The City met with affected property owners and provided them with bottled water.

#### February 2014

- 15 of the 16 additional wells were sampled. One well was seasonal and shut off.
- The City's project team, along with the WDNR, conducted a daylong meeting to review project information and develop a long term potable well sampling plan, which included quarterly potable well sampling events.
- The City received additional long term monitoring requirements from the WDNR.

#### March 2014

- On March 11, construction of the first replacement potable well was completed.
- The first replacement potable well was sampled twice and no contamination was detected.

April 2014

- The City and AECOM submitted a long-term potable well sampling plan to the WDNR, which received approval.
- A third test conducted on the first replacement potable well showed no contamination.

May/June 2014

- The First Quarterly sampling of the potable wells took place May 28 – June 4.
- A total of 62 potable wells were sampled including 21 target zone wells, 17 sentinel zone wells, 15 data gap wells, and 9 historically sampled wells.
- A fourth test conducted on the first replacement potable well showed no contamination.
- A bulk water tank was provided to a property where drinking water exceeded the WDNR's no contact threshold.

July 2014

- Two additional potable well samples were taken.
- Drilling specifications for six replacement potable wells were approved by the WDNR.

August 2014

- Invitations to quote were sent to WDNR licensed well drillers for the installation of six replacement potable wells. A driller was selected and entered into an agreement with the City.
- Team members, along with the WDNR warden, met on the site with three people who had witnessed dumping at the site in the 1960s to gather additional data for the site investigation.
- Second quarter potable well sampling took place between August 25<sup>th</sup> and 28<sup>th</sup>. A total of 25 target wells and six data gap wells were sampled.
- A fifth test conducted on the first replacement potable well showed no contamination.
- Landscape restoration at first well site was completed.

September 2014

- Drilling of the additional six replacement potable wells began on September 16.
- Silver Creek was sampled on September 30.

October 2014

- On October 27, installation began for 15 additional monitoring wells in four locations.
- Five additional potable wells were sampled on Viebahn St.

November 2014

- By November 1, five of the six replacement potable wells were completed. Each replacement potable well has been sampled twice showing no contamination detected.
- Third Quarter sampling was conducted of 37 potable wells between September 29, 2014 and November 25, 2014. Eight additional potable wells had detects of VOCs over the WDNR threshold.
- Fifteen new groundwater monitoring wells were installed.
- Annual groundwater sampling of 44 monitoring wells associated with the site was conducted.

December 2014

- An informational open house was held on December 6, 2014 for residents in the area.
- WDNR prepared a preliminary assessment report of the Newton Gravel Pit Site.

January 2015

- WDNR conducted an in-house peer review of the Newton Gravel Pit Site.

February 2015

- Fourth Quarterly Potable well sampling took place between February 23, 2015 and March 11, 2015.

March 2015

- Potable well sampling was completed on March 11, 2015. 29 potable wells were sampled. No new detects were reported.
- AECOM began work on a potable well sampling plan for 2015.
- City had a Committee of the Whole meeting to discuss plans for long-term water supply on Viebahn Street.
- WDNR proposed a special well casing area mandate for new and replacement wells in the target area.

April 2015

- A technical meeting was held with the DNR, City and the City's consultant AECOM to review the site data.
- 2015 On-site scope of work plans were discussed along with related budgeting.
- City began gathering information regarding costs for water main versus drilling new wells for eight impacted properties.

June 2015

- Landscaping restoration was completed for the five replacement well properties.
- City held a Committee of the Whole meeting to discuss plans for long-term water supply on Viebahn Street and budget for the balance of 2015.
- City Common Council voted to proceed with running a water main to impacted properties on Viebahn St. and the north end of CTH CR.
- City Common Council approved the budget for activities related to the Gravel Pit for the balance of 2015.

July 2015

- Bid document prepared for water main installation.
- Phases of site remediation discussed with the DNR.
- Engineering survey work performed at the Gravel Pit.
- Preliminary work plan established for potable well sampling for the balance of 2015 – 2017.

August 2015

- Research on remedial action options.
- The City communicated with impacted property owners regarding the water main project.
- Potable well treatment assessment criteria established for selecting residential potable water treatment equipment based on water analytical results.
- Temporary groundwater monitoring wells were drilled to assist in the investigation of the width and depth of the impacted groundwater plume.
- Driller installed a 4-inch Soil Vapor Extraction (SVE) well and eight vapor monitoring probes for the SVE pilot study.

September 2015

- Research on remedial action options.
- Water main bids opened on September 22, 2015.
- Two warden interviews were done regarding dumping activities at the Newton Gravel Pit and an area to the north and east of the Gravel Pit.
- Soil Vapor Extraction (SVE) pilot study was completed.

October 2015

- Research on remedial action options.
- Semi-annual testing of 42 potable wells was completed. Three confirmation samples were taken. Three additional wells had detects of VOCs above DNR enforcement standards. One property will be served by the water main being installed. The two remaining properties are being addressed.
- Additional water samples were taken from the six newly drilled wells for water treatment equipment analysis.
- Construction began on the water main on Viebahn and just south of Viebahn on CTH CR.
- Annual groundwater monitoring well testing was completed.
- Intent to apply for a WDNR grant for water main installation submitted.

November 2015

- Research on remedial action options.
- Construction on water main continues.
- DNR/City of Manitowoc team meeting.

December 2015

- Research on remedial action options.
- Water main construction completed and seven of the nine properties were connected.
- DNR established a Special Well Casing Pipe Depth Area, effective December 15, 2015, in the Town of Newton and City of Manitowoc and notified property owners in affected area and Wisconsin Licensed Well Drillers via mail.
- Research began on remedial action options.

January 2016

- Research and work continues on Remedial Action Options Report.
- Well abandonment completed for water main connected properties.
- DNR/City of Manitowoc team meeting.

February 2016

- Research and work continues on Remedial Action Options Report.

March 2016

- Research and work continues on Remedial Action Options Report.
- Eighth property hooked up to water main.

- DNR put US Forestry Service in contact with the City regarding The Former Newton Gravel Pit site to discuss the possibility of phytoremediation at the site.
- Additional temporary groundwater monitoring well was drilled to assist in the investigation of the width and depth of the impacted groundwater plume.
- Semi-annual testing of 29 potable wells was completed. No new detects were reported.

#### April 2016

- Research and work continues on Remedial Action Options Report.
- DNR/City of Manitowoc team meeting.
- Pressure reducing valves installed to adjust water main pressure and newly connected
- US Forestry Service site visit related to phytoremediation.
- Drilling began for a new potable well on April 25.

#### May 2016

- Research and work continues on Remedial Action Options Report.
- Ninth property hooked up to water main.
- New potable well installation that began April 25 completed.
- Preparation of application for DNR Grant for water main installation.
- Planning for landscape restoration for water main installation began.

#### June 2016

- Application for DNR Grant for water main installation completed and submitted to DNR.
- Research and work continues on Remedial Action Options Report.
- DNR/City of Manitowoc team meeting.

#### July 2016

- Work continues on Remedial Action Options Report.
- City held a Committee of the Whole meeting to update elected officials on status of Gravel Pit related activities.
- Drilling additional new potable well began July 19.

#### August 2016

- SVE Technical Memo submitted to the DNR.
- Remedial Action Options Report submitted to the DNR.
- Landscape restoration completed for water main installation.

#### September 2016

- City received DNR comments on Remedial Action Options Report.
- Began investigating process for permitting for proposed remedial actions.

#### October 2016

- Continued investigation into permitting for proposed remedial actions.
- Drilling additional new potable well began October 10.
- Semi-annual testing of 34 potable wells was completed. Three confirmation samples were taken. Two additional wells had detects of VOCs above DNR enforcement standards. The two properties are being addressed.
- Annual groundwater monitoring well testing was completed.
- Cities consultant, AECOM, met with WDNR staff in Green Bay regarding permitting for proposed remedial actions.
- City received notification from the DNR that we will receive the DNR Grant with 30% principal loan forgiveness.

#### November 2016

- Continued investigation into permitting for proposed remedial actions.
- City Technical Team Meeting on DNR comments on Remedial Actions Options Report.
- DNR/City of Manitowoc team meeting.

#### **For More Information**

Hard copies of site-related documents and data are being held in a repository at the Manitowoc City Attorney's Office, located at Manitowoc City Hall, 900 Quay Street, Manitowoc, Wisconsin.

If you have any information to provide about historic disposal activities or dumping of solvents in this area, please call the confidential DNR Tipline at 1-800-TIP-WDNR (1-800-847-9367) or cell #367.

If you have any additional questions or concerns regarding this contamination, please contact:

City of Manitowoc	Kathleen McDaniel	(920) 686-6990
DNR Remediation & Redevelopment Program	Tauren Beggs	(920) 662-5178
DNR Drinking & Groundwater	Liz Heinen	(920) 993-7056
Wisconsin Department of Health Services	Adam Streiffer	(608) 266-9337
Manitowoc County Health Department	Amy Wergin	(920) 683-4155



**Informational Flyer on Groundwater Contamination in the area of  
Hecker Road between Viebahn St. & Silver Creek Rd, CTH CR between  
Viebahn St. & Silver Creek Rd., Viebahn St. between CTH CR and S. 35<sup>th</sup> Street  
December 3, 2016**

**Brief History**

The City of Manitowoc owns the Newton Gravel Pit, located at 3130 Hecker Rd in the Town of Newton. In the 1960s and 70s, the Gravel Pit was used for waste disposal including discharge of liquid industrial wastes, such as petroleum products and chlorinated solvents.

In the early 1990s, the WDNR became aware of the historic waste disposal practices at the Newton Gravel Pit, and began regulating this site for the protection of the environment and human health. The City of Manitowoc hired a consultant, AECOM, to investigate the contamination and define its extent. Soil borings and groundwater monitoring wells were installed to analyze soil and groundwater. The investigation regarding contamination will continue until all sources of the contamination are located.

The City and its consultant, along with the WDNR Remediation & Redevelopment, Drinking & Groundwater, Water Resources, Fisheries Programs, and County & State Health Departments are working together to protect residents' human health and the environment in the affected area.

The City and AECOM have sampled approximately 80 private wells since October 2013. Private well water testing conducted in November 2013 and January 2014 found that seven private wells were contaminated. Fall 2014 well water testing confirmed eight new impacted wells. October 2015 testing confirmed three affected wells. October 2016 testing confirmed two additional affected wells, for a total of 20 impacted wells. Residents in homes with impacted wells are being provided with a safe water supply at the City's expense.

The City of Manitowoc considered a number of options to provide a safe, long-term drinking water solution for the 20 impacted properties. Nine new wells have been installed at impacted properties that were not located near an existing water main and have had no detectable levels of contamination. Nine homes, including several in the City limits, are being served with municipal water from a nearby main. The two most recently impacted wells will be having new, deeper wells installed.

The City and its consultant, in cooperation with the WDNR, will continue sampling potable wells and conducting investigation activities. Appropriate actions will be taken based on the results of these activities and will be presented in the future.

Project information can be found at [www.manitowoc.org/gravelpit](http://www.manitowoc.org/gravelpit).

**Q&A**

**1) How do chemical contaminants move in soil and groundwater?**

When liquid chemicals are spilled accidentally or dumped into the environment, they can infiltrate and spread through soils or groundwater. The speed the chemical contaminants can move or spread at depends on the type of material it is moving through (quicker through sand & gravel, slower through silt and clay) and the characteristics of the chemical

contaminants. When interacting with groundwater, chemical contaminants are dissolved in groundwater and follow the direction of groundwater flow.

**2) Is my property or private well vulnerable to contaminants moving from the Newton Gravel Pit?**

The impacted properties are to the east, northeast, and southeast of the Newton Gravel Pit because chemical contaminants are moving horizontally in groundwater, which generally flows to the east and southeast. The chlorinated contaminants that are moving with groundwater are heavier than water, so they also tend to move vertically. This means that both shallow and deep wells are affected.

**3) What is being done about the contaminated wells?**

The WDNR Drinking and Groundwater Program is working with the City to protect the health of local residents whose homes are impacted. The homes that were identified with drinking water impacts above the WDNR Enforcement Standard have received a temporary clean alternative water source until a permanent solution is installed. A larger well survey has been conducted and the potable wells will continue to be monitored.

**4) Is surface water in Silver Creek impacted by chemical contaminants from the Newton Gravel Pit?**

The portion of Silver Creek near the Site is fed by groundwater, so it is exposed to the contaminants moving in groundwater. Based on surface water data collected to date, the chemical contaminant concentrations in Silver Creek are unlikely to cause long term exposure risks based on contact with the water or consumption of fish. Contaminant concentrations degrade naturally and are readily diluted as contaminants interact with more clean surface water flowing in the creek. Surface water will continue to be monitored to ensure there are no changes in the exposure risks.

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2010 Air Photo

