

# Pine River Progress

EPA's Update on the Velsicol Site  
St. Louis, Michigan



VOLUME 1, ISSUE 1

SPRING 2016

## Learn More About the Cleanup



[www.epa.gov/superfund/velsicol-chemical-michigan](http://www.epa.gov/superfund/velsicol-chemical-michigan)

See cleanup-related documents at the information repository:



T.A. Cutler Memorial Library  
312 Michigan Avenue  
St. Louis

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## Cleanup Moves Forward



**T**he U.S. Environmental Protection Agency continues to clean up the former Velsicol Chemical plant site in St. Louis. EPA and Michigan Department of Environmental Quality plan to use a technology called “in-situ thermal treatment,” or in-place treatment of contaminated soil and groundwater using a soil heating technology (see Technology in Focus, Page 6). In addition to collecting and treating groundwater, EPA is also designing a cap to place over areas of the site to make sure contaminants no longer pose a risk to animals or people.

This year also marked the next phase in soil cleanup in the residential

neighborhood next to the former plant. This cleanup removed soil contaminated with the insecticide DDT or the flame retardant PBB that posed a risk to robins and other birds in the neighborhood (see Residential Cleanup, Page 2).

Combined with additional work on the City of St. Louis Water Supply replacement (Page 4) and the St. Louis Community Schools Athletic field soil replacement (Page 3), it has been a busy few years for environmental cleanup in St. Louis.

# Residential Cleanup Nearing Completion



**E**PA finished the most recent phase of the residential cleanup in late November. This leaves only a few homes and city owned rights-of-way to finish up this year. The residential soil cleanup began in 2012, prompted by the discovery of contaminated soil. Testing showed that a flame retardant, PBB, was at levels that could cause harm in humans. DDT was also found at levels that could cause harm to wildlife, especially birds. Just before cleanup began, dead robins were discovered in some of the yards. Testing revealed

the birds died from exposure to DDT. As the birds ate DDT-contaminated worms or insects, toxic levels of the insecticide built up in their bodies, eventually causing death. Each worm or insect added to the toxic load in the bird's body – a process called “bioaccumulation.” By the end of this summer, EPA will have completed the residential cleanup phase of the project which includes cleaning up 103 residential properties and the half of the dirt path section of W. Center Street.

## Cleanup Progress - By the Numbers

*Work that has been completed to cleanup the residential neighborhood near the former plant site.*



**>44,700 tons**  
of soil removed from residential yards



**276 trees**  
replanted



**>4,000**  
perennials & shrubs replanted



*enough to cover 4.3 football fields*

**>657,500 square feet**  
of new sod placed



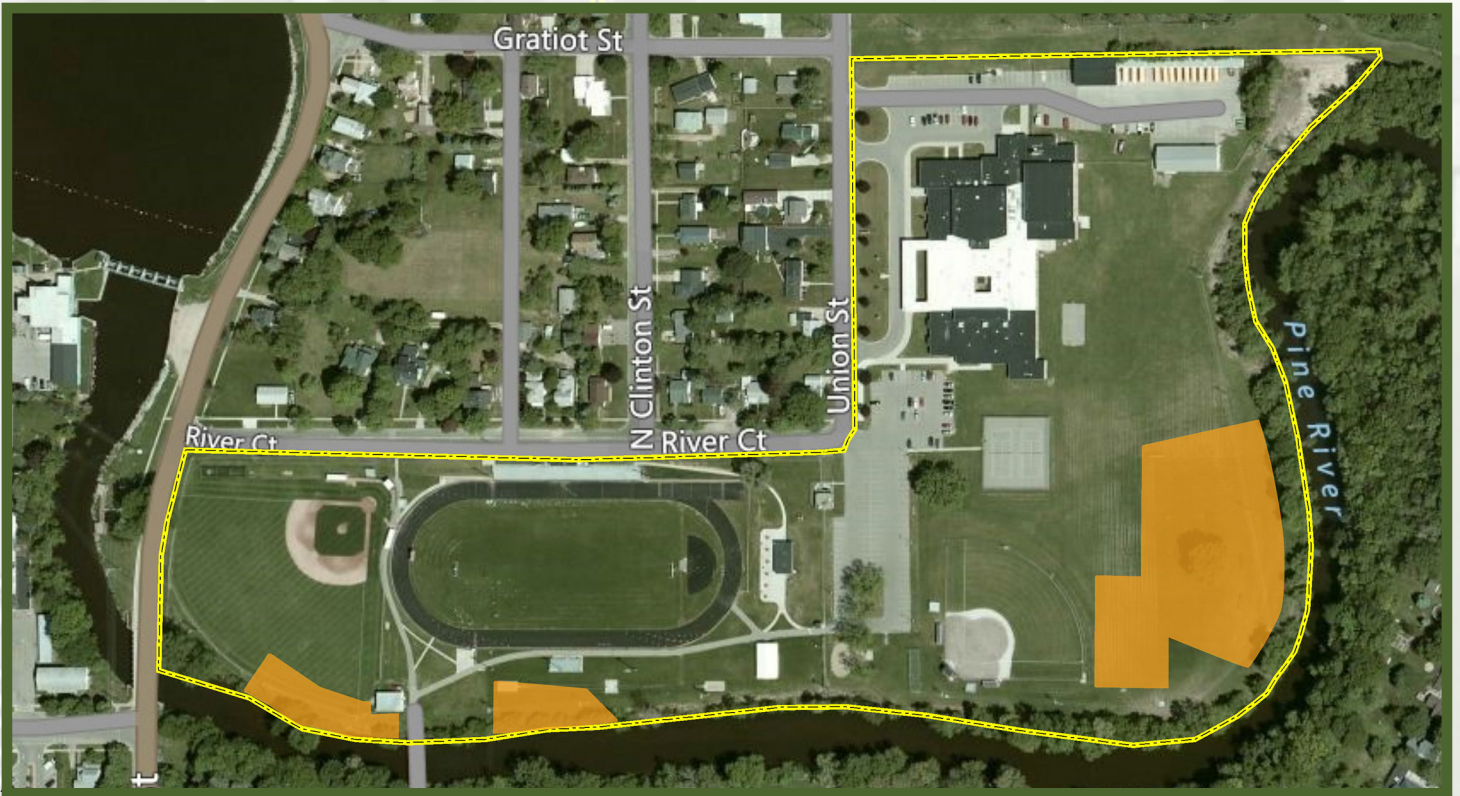
**103** residential properties cleaned up and restored

“Our yard is 10-100 times better than what we would've had and now we just want to keep it up and take care of it.”

HOMEOWNER ON PINE STREET



# Athletic Field Complete for School Sport Season



It was a busy summer last year on the grounds of St. Louis Public Schools. In addition to various school improvement projects, there was also work to remove DDT-contaminated soil from the practice football field and portions of the baseball field. EPA's on-scene coordinator, Jon Gulch, managed the project to remove over 400 truckloads of soil that posed a risk to birds and other animals.

"Weather played a role in some delays, but given the challenges, it really was a success," said Gulch after project completion. It was important for EPA to coordinate with the St. Louis Public Schools so everyone knew what to expect when work started. School Superintendent Kristi Teall was "very alarmed" when she learned that initial testing showed DDT levels high enough to trigger work

on school property. She said it was "very reassuring" to learn that further testing showed the cleanup was due to an environmental issue rather than a human health hazard.

Teall stressed the importance of communication among EPA, MDEQ and the school given everything that needed to

take place while students were out for the summer break. "Communication was really great," said Teall. "Coordination between EPA and St. Louis Public Schools was seamless." She said she was "very pleased" with how the project turned out.



Work to remove DDT-contaminated soil in areas of St. Louis Public Schools' Athletic fields.



*"Recently there has been a tremendous amount of investment in the area. This water supply replacement project is an outstanding example of good things happening in and around the City of St. Louis."*

—KURT GILES, ST. LOUIS CITY MANAGER



*Construction activities for new water supply system*



# Project Spotlight

## St. Louis New Water Supply Now Open

Residents of Alma and St. Louis are now getting their water from one source, the Gratiot Area Water Authority. While merging of municipal services happens every day, the reason for the merger makes this a bit different. During investigations at the former Velsicol Chemical plant site, a previously unknown contaminant – para-Chlorobenzene Sulfonic Acid, or pCBSA – was found in the groundwater of a few site wells and at trace amounts in some of St. Louis’s drinking water wells. This is a previously unknown byproduct of DDT. The science on pCBSA was emerging in the mid-2000s, and experts did not know much about the contaminant, other than it helps them understand the movement of other toxic chemicals in groundwater.

“Obviously, City officials were very concerned about the presence of pCBSA in groundwater sampling,” said Kurt Giles, St. Louis City Manager.

When pCBSA was found, the affected drinking water wells

were shut down or pumping reduced and EPA did additional monitoring, but there was concern about other wells becoming contaminated in the future. Scientists studying pCBSA began to understand more about how the problems it presented for human health and the environment. In 2006, MDEQ set a level of 7.3 parts per million, or 7.3 parts pCBSA per one millions parts of water to be protective of human health. Even though the highest levels found in any of the city wells was below 0.5 ppm, MDEQ and the city were motivated to find a new source of water.

In 2012, EPA decided on a cleanup plan for the former Velsicol site that included replacement of the city’s water supply. While the data offered no health-related reason for this, calculations showed that shutting down the system would save EPA more than \$5 million a year. That’s because continued operation would work against the groundwater extraction system EPA planned to

install to clean up groundwater from the plant site.

“The investment of \$33 million for the new water supply was well worth it since we expect operation of the groundwater treatment plant for many years,” said EPA Project Manager Tom Alcamo.

Today, the water coming out of St. Louis taps reflects a step forward in water quality but also innovative problem solving. Thanks to the City of St. Louis, City of Alma, MDEQ and EPA, residents can enjoy fresh, clean water for years to come.

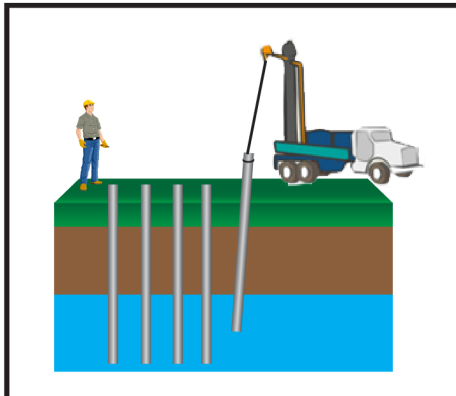


GAWA ribbon cutting ceremony  
Photo courtesy of Matt Baltusis/MDEQ

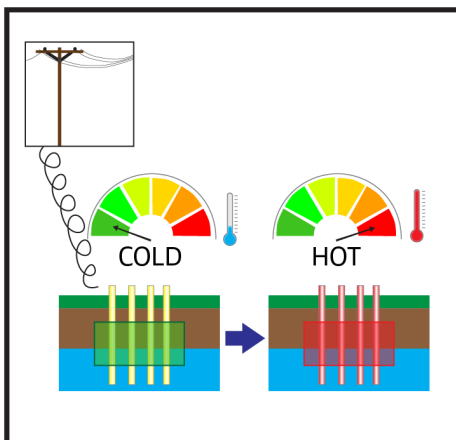


# Technology in Focus

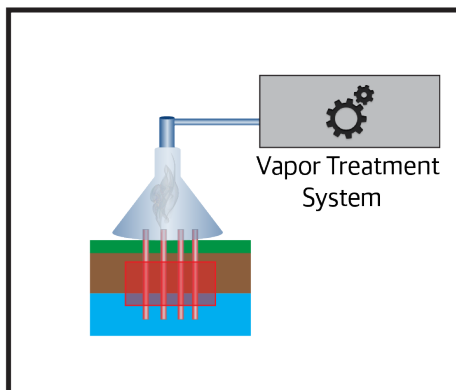
## In-situ Thermal Treatment



1. Heating equipment is placed in the ground.



2. Soil and groundwater are heated.



3. Contaminants are captured and treated or destroyed on-site.

EPA has been working for more than 45 years to protect people and the environment. Over the years, technological advances have helped us achieve our mission in innovative ways. One of those advances, which EPA has been using across the country for over 10 years, is called “in-situ thermal treatment.” This means in-place treatment of toxic chemicals with heat so they can be collected and disposed of. The traditional ways of cleaning up underground contamination are digging it up, containing in place, or covering it over. In-situ thermal eliminates the need for large-scale digging and allows for removal of contamination rather than covering it with a cap. This technology is being used at the former Velsicol plant site and burn pit to extract chemicals called “non-aqueous phase liquids” or “NAPLS.” These chemicals do not dissolve in groundwater and can be an ongoing source of contamination if not treated.

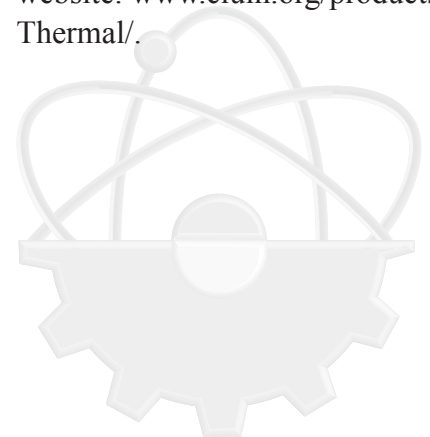
### How does it work?

Soil and groundwater are heated to very high temperatures, using electrical energy. The chemicals are then vaporized into gases that move more easily through the soil. The system then collects those gases or vapors for disposal.

Cleanup time depends on site conditions and chemical characteristics. EPA monitors the treatment system performance to record the amount of contamination removed over time. Once the system is removing only minimal amounts of contamination, it is said to reach a point of “diminishing returns.” At that time, EPA looks at other information to make sure the system has performed as designed before it is shut down and removed. Depending on the conditions of the site, cleanup might take a few months or a few years. The systems are still being designed for areas around the plant site and the burn pit. EPA experts are optimistic that this technology will help remove contamination from these areas in a safe and effective way.

### For More Information

For more information on in-situ treatment, visit EPA’s Technology Innovation and Fields Services Division Cleanup Information website: [www.cluin.org/products/Thermal/](http://www.cluin.org/products/Thermal/).





# Community Corner

Making A Visible Difference

## Teacher Brings Learning Alive with Pine River



Diane Russell, EPA Community Involvement Coordinator with Todd Starry, teacher at St. Louis public schools. Photo courtesy of Gratiot County Herald

Michigan requires middle school students to learn a series of core science concepts such as cells, ecosystems and mankind's impact on the earth. Todd Starry, a seventh-grade science teacher

at St. Louis public schools saw an opportunity to help his students learn these concepts in a way that would help them also understand the real-world issues going on in their backyard. Starry wanted to "bring the curriculum alive and make it relevant to the students – they deal with this river every day."

This past summer, Starry was selected for a program called the Alma College Summer Cooperative Research Experience. This opportunity allowed Starry to work with Alma College professor Murray Borrello to build a science curriculum using the Pine River

as a core learning topic. Students will meet their state objectives by learning the history of Velsicol and the effect it has had on the community. EPA has offered to provide educational materials, guest speakers and scientists to enrich Starry's lesson plans. As students learn more about the river and its history, Starry hopes students learn that these human-created problems can be solved by applying science, and prevented with a more sustainable approach to the world.

### EPA Building Opportunities to Learn More

EPA is looking for new and innovative ways to keep you informed about the Velsicol cleanup. We have created a

listserv to provide updates. You may sign up at [www.epa.gov/superfund/velsicol-chemical-michigan](http://www.epa.gov/superfund/velsicol-chemical-michigan). Look for the "Stay Updated" box on the right side of the page, and click on the Sign up for listserv link.

If you would like an EPA representative to come and talk about the Velsicol cleanup in your classroom or to a group meeting,

please contact Diane Russell, EPA Community Involvement Coordinator, at [russell.diane@epa.gov](mailto:russell.diane@epa.gov) or 989-401-5507, to schedule a date and time.



Area residents ask questions at EPA's booth at the Joe Scholtz Memorial Fishing Derby.

Working in St. Louis for a CLEANER, HEALTHIER Environment

Update of EPA's cleanup of Velsicol site



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## About this Publication

*Pine River Progress is a biannual newsletter that covers topics related to EPA's cleanup of the Velsicol Superfund site. We welcome feedback and ideas for future articles. If you would like to receive a copy of this newsletter, please contact EPA Community Involvement Coordinator*

*Diane Russell at  
russell.diane@epa.  
gov or call 989-401-  
5507 9:30 a.m. to  
5:30 p.m., weekdays.*



EPA finished recent phase of the residential cleanup. See page 2 for details.

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