

Investigations Underway at Wolverine World Wide

Wolverine World Wide Sites

Rockford and Belmont, Michigan

November 2018

U.S. Environmental Protection Agency and the Michigan Department of Environmental Quality are coordinating their investigation of tannery pollution found in the Rockford and Belmont, Mich., areas. The contamination comes from Wolverine World Wide's former tannery in Rockford and a waste dump known as the House Street Disposal Area in Belmont. Contaminants include per- and polyfluoroalkyl substances, known as PFAS. The pollution also contains heavy metals, volatile organic compounds, or VOCs, and semi-volatile organic compounds, or SVOCs. Pollution has affected groundwater, so filters and bottled water has been provided to impacted residents. DEQ remains the lead agency investigating PFAS contamination in groundwater, surface water, and drinking water. EPA is directing the investigation of other contamination that may be associated with Wolverine's former tannery and the House Street Disposal Area. "Groundwater" is an environmental term for underground supplies of fresh water.

DEQ update

Under DEQ oversight, Wolverine has legal obligations to continue investigations and analyze contamination from the former tannery, House Street Disposal, and the Wolven/Jewell area (*see figure 1 below*). Due to the large geographic areas involved, the environmental investigation and ongoing groundwater monitoring are expected to continue for a number of years.

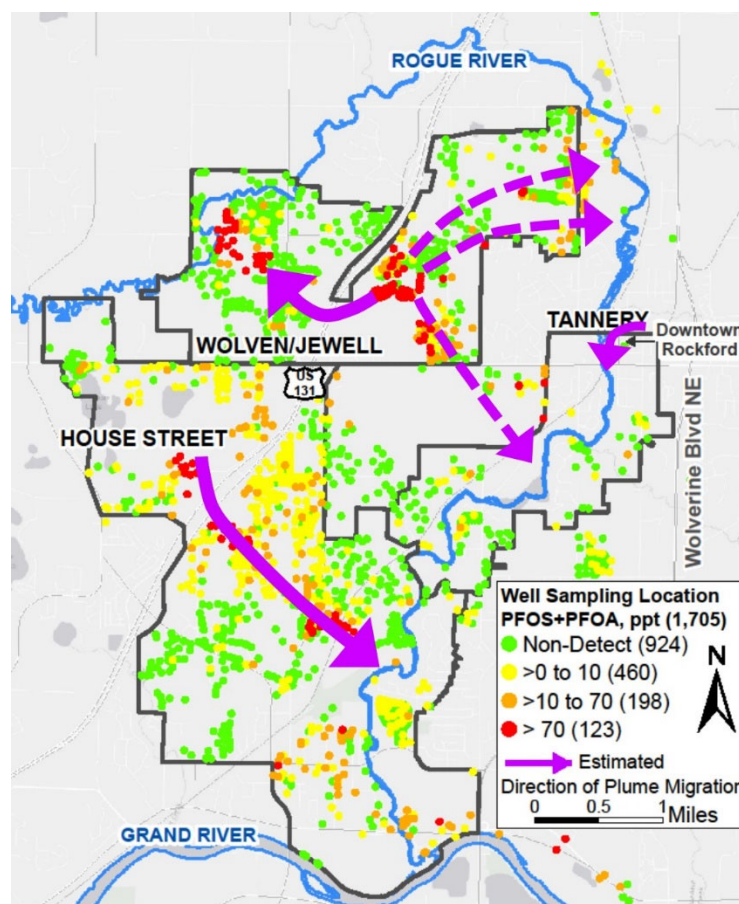


Figure 1 is a map of the investigation area and groundwater flow directions.

For more information

For questions, comments or more information about the Wolverine World Wide site cleanup, contact these EPA and DEQ team members:

For technical questions:

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Michigan Environmental Assistance Center

800-662-9278, 8 a.m. – 4:30 p.m., weekdays
Or email at deq-assist@michigan.gov

Websites

www.epa.gov/mi/wolverine-world-wide-tannery

DEQ's website:

www.michigan.gov/pfasresponse

DEQ's highest priority is ensuring that residents with private wells are not drinking groundwater with combined concentrations of perfluoroalkyl and polyfluoroalkyl substances, or PFOA and PFOS, exceeding or close to exceeding 70 parts per trillion, or ppt.

Wolverine has managed the immediate risks in the short term by installing whole-house filters in affected homes and by offering bottled water to all residents located in a sampling area regardless of the groundwater concentrations. This is a temporary measure to lessen the drinking water risks until a long-term reliable solution is implemented, such as connection to municipal water. Further work to identify and define impacted areas continues (see Figure 2 on Page 3).

EPA update

Under a January 2018 legal order, Wolverine was required to take samples of soil, sediment, soil gas, surface water and groundwater for hazardous substances from the former tannery in Rockford and the Belmont disposal property. The Woven/Jewell area was not included since it is currently being investigated by DEQ. (See Figure 3 on Page 3 for the number of locations and samples for each site.)

Sample locations were chosen both through a grid pattern over the investigation site and in areas where previous on-site production or waste storage took place. For soil and soil gas sampling, geologists logged and classified soil from the sample core, typically in 5-foot lengths taken from the surface down 15 to 20 feet (see Figure 4 on Page 4). Field screening instruments and visual clues were used to identify areas where potential waste may be present. Sediment samples were also collected and then screened in a similar manner to the soil.



Contractors use a Geoprobe to collect soil samples on the Wolverine site.

For the House Street site, soil borings and screening were used to determine the extent of the waste and the location of clean soil. The soil was then sampled to define the



Whole-house filters like the one above have been installed in affected homes.

clean boundaries of the waste locations. Once the clean boundaries were identified, samples were collected to help identify the different types of tannery waste on the property.

For the former tannery site, the investigation focused on undisturbed areas from the time the tannery was in operation. After the tannery buildings were demolished in 2011-2012, sand and topsoil were brought on-site to level out the property. After the demolition, the area was assessed for VOCs, SVOCs and metals and were found to be within EPA's acceptable levels.

In summer 2018, numerous surface water and sediment samples were taken near the former tannery site. Two rounds of surface water samples were collected from the Rogue River and Rum Creek. They were gathered from various locations throughout the waterway, including places accessible to the public. Sediment samples were also taken from different points in the Rogue River and Rum Creek, including both upstream and downstream of the tannery site, above and below the Rockford Dam and various public access points along the river. For both investigation locations, groundwater was sampled from all the well locations twice to get additional data to analyze conditions.

PFAS health exposure assessment

The Michigan Department of Health and Human Services, or MDHHS, and Kent County Health Department are conducting the North Kent County PFAS Exposure Assessment. The PFAS Exposure Assessment will help improve understanding of area residents' exposure to PFAS. Work will include collecting selected residents' blood for PFAS testing and information on their exposure. Information and updates will be provided on the Kent County Health Department's website, www.accesskent.com/health/pfas.

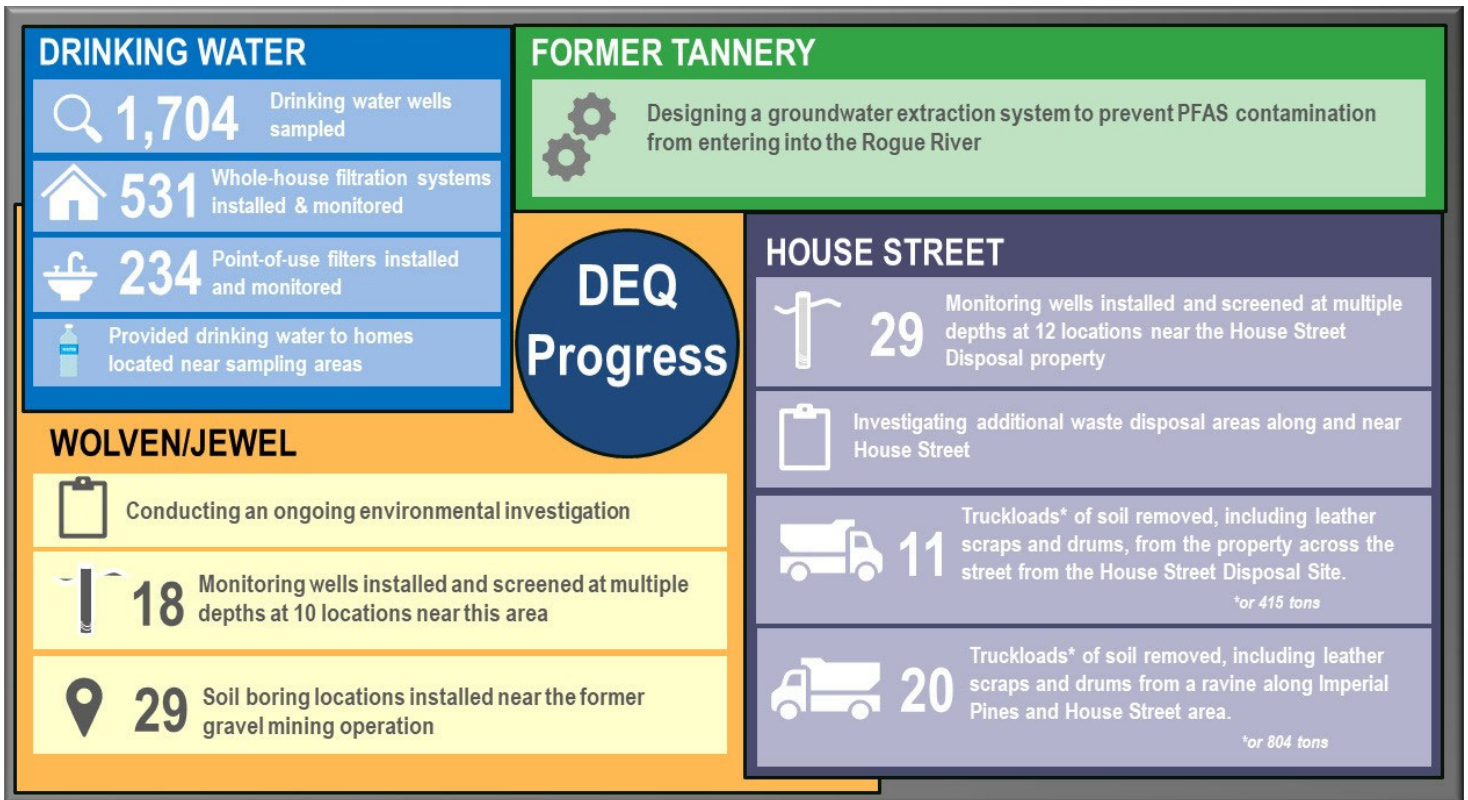


Figure 2 shows DEQ's progress so far and further work expected to identify and define impacted areas.

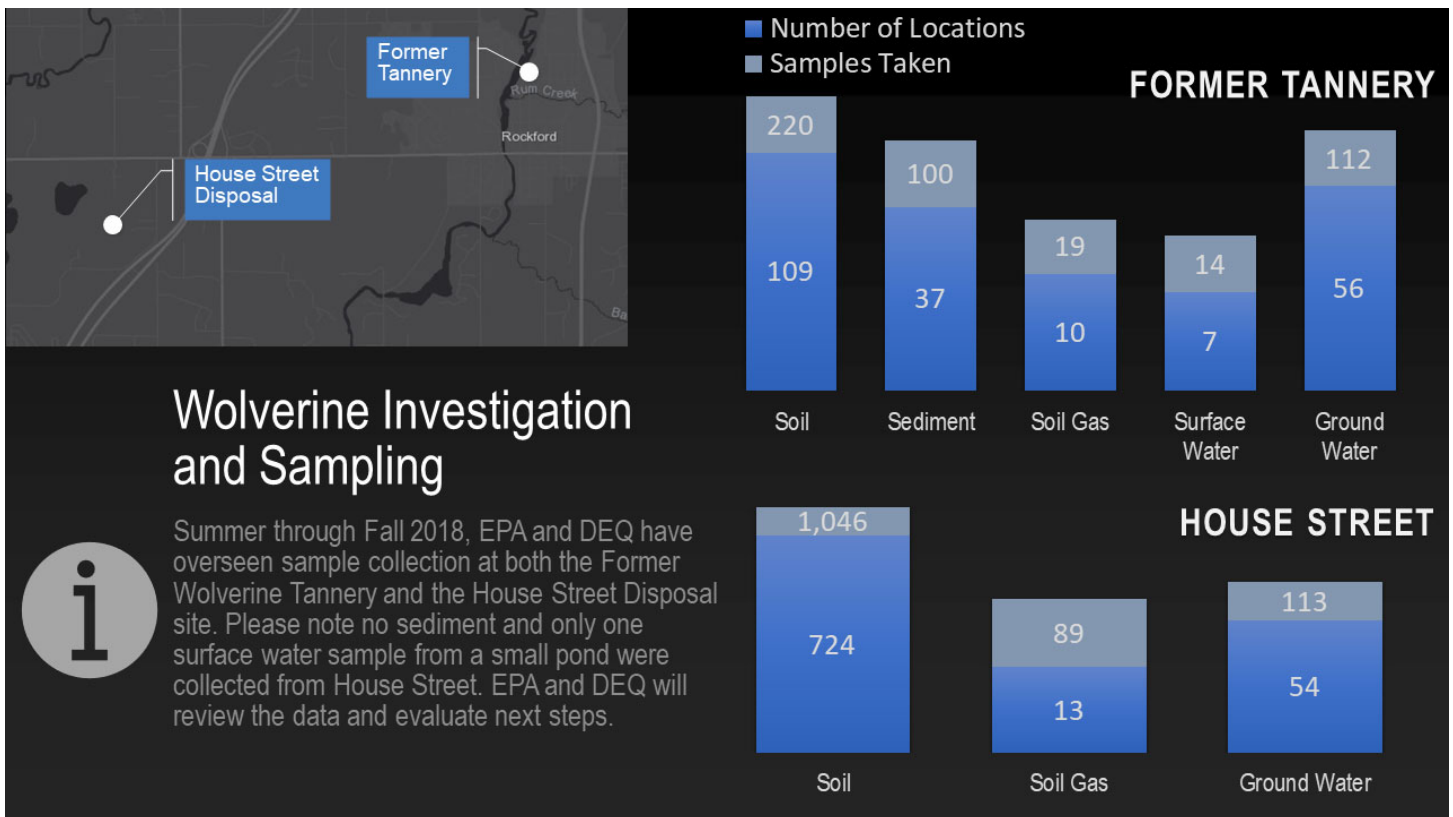


Figure 3 shows the sampling statistics for the former tannery and House Street locations.

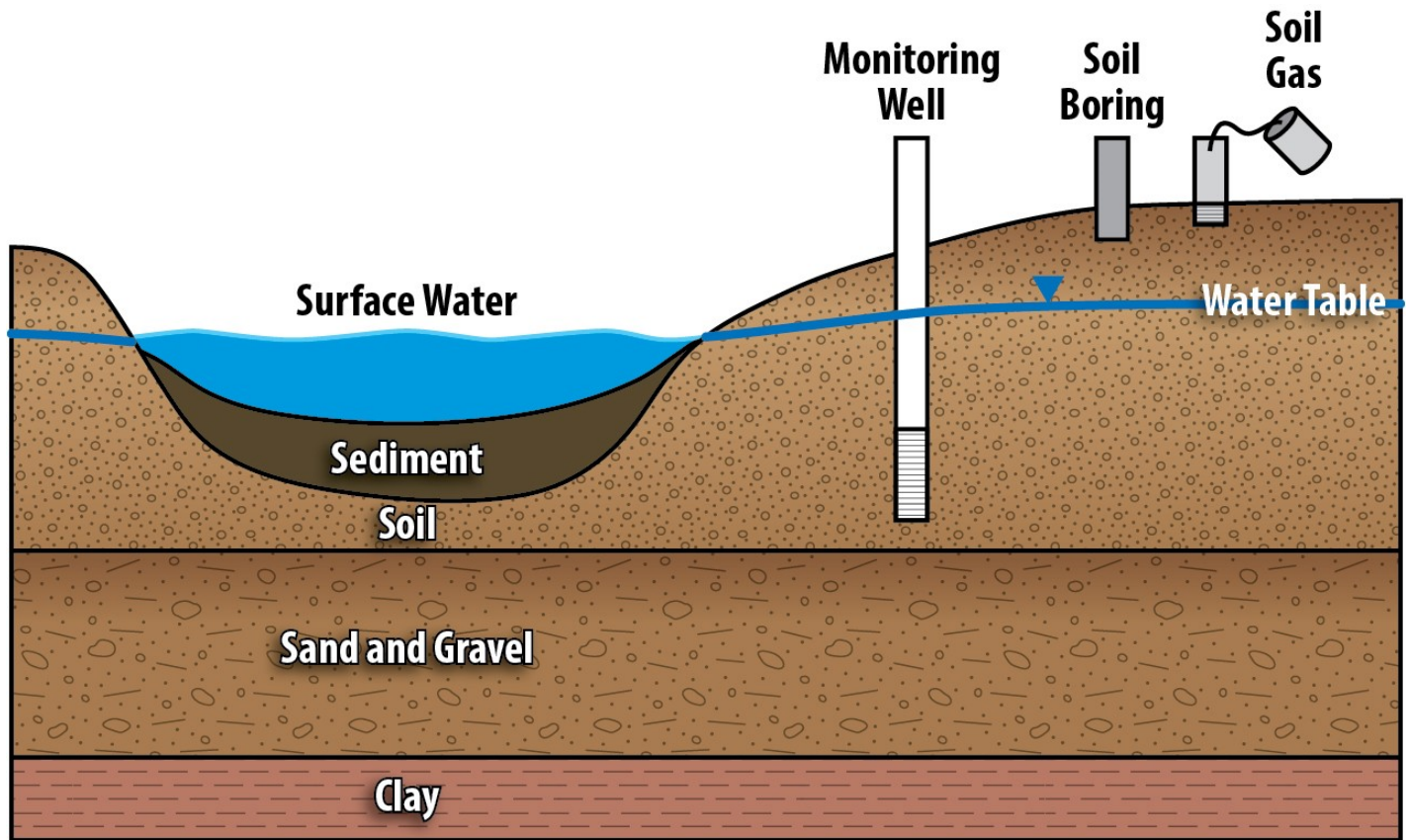


Figure 4 shows how groundwater and sediment samples are being taken.

Current PFAS findings

The House Street Disposal site and the Wolven/Jewell Source Area are located on high ground with groundwater flow in multiple directions toward the Rogue River, which encircles these sites. Subsurface soil across these sites varies depending on location and can change in a relatively short distance. Based on PFAS sampling and drilling activities completed by Wolverine and DEQ, the PFAS contamination appears to have a tendency to travel in historic stream channels. (See figure 1 on the front page).

The PFAS tannery waste from the House Street Disposal Area has formed a mass of groundwater contamination called a plume. The plume runs to the south/southeast, and parts of it can be found 200 feet deep before it discharges to the Rogue River. Groundwater concentrations range from 60 to 71,000 ppt at the core of the plume. The center of this 50/60-year-old groundwater PFAS plume is stable. Experts are defining its boundaries by installing long-term monitoring wells at various depths.

The primary PFAS groundwater plume coming from the Wolven area has moved to the west towards Jewell and discharges to the Rogue River at 11 Mile Road. Groundwater concentrations range from small detection levels to 71,000 ppt at the end of the plume. The impact to the groundwater aquifer can be seen from the water table to over 200 feet deep depending on location. The groundwater contamination and plume are extremely complex in the Wolven area and are still being defined with additional monitoring wells. Initial data indicates a main plume to the west and several smaller, narrower groundwater plumes to the northeast and southeast.

The PFAS groundwater impacts from the former Wolverine tannery in downtown Rockford are highest on-site, with discharges going west to the Rogue River. The groundwater plume is expected to follow along the flow of the river to the south and additional monitoring wells are being installed to confirm this. Concentrations in on-site monitoring wells range from non-detect to 450,000 ppt, with the highest concentrations being found in the shallow groundwater monitoring wells.

Site description

The Wolverine World Wide site consists of an inactive tannery facility located at the northern end of downtown Rockford in Kent County and a former disposal facility on House Street in Belmont, Kent County. The inactive tannery is surrounded by commercial businesses located to the south of the site, residences to the east and north, and the Rogue River and residences located to the west. The recreational White Pine Trail runs through the western portion of the site along the bank of the Rogue River. Rum Creek also flows through a portion of the tannery property. The former Belmont disposal facility is located in an area of mixed rural and residential land, with houses located directly across from the site on House Street.



The former Wolverine World Wide tannery operations.

Site history

- **Former Tannery Site:** 123 N. Main St. N.E., Rockford. Wolverine began leather tanning operations for shoe production in the late 1800s and operated for over a hundred years before ceasing processing in 2009. The facility included tannery buildings, an on-site wastewater treatment plant, warehouse and storage buildings, and an office building. The company constructed the wastewater treatment plant sometime between 1950 and 1960. Demolition of on-site buildings began in 2010 and was completed in 2011. All but one of the tannery structures have been demolished. Waterproofing of leather as part of site operations began in the late 1950s and used Scotchgard™, a product which at that time contained high levels of some PFAS compounds.

- **Wolven/Jewell Source Area:** (North of 10 Mile): Algoma Township.

This area contains residential wells identified with high PFAS concentrations. Historic aerial photographs from the 1950s and early 1960s show a gravel mining operation in the area. Interviews with community members indicate waste associated with Wolverine operations was brought to this area for disposal. Investigators are gathering more evidence from this location to confirm details.

- **House Street Disposal Area** (and surrounding properties): 1855 House St. N.E., Belmont. The House Street property was used for disposal of industrial waste by Wolverine since at least the 1950s. House Street Disposal, the name of the former waste facility, was a licensed and regulated facility authorized by the state of Michigan. House Street Disposal's license expired in 1978, but it appears that no waste was disposed of at the site after 1970. Used exclusively by Wolverine, waste disposed of at the site included lime-sludge waste from tanning treatments, and lime slurry waste, which was disposed of in trenches dug across the property. The property also contained seepage pits, which were used for disposing of lime liquor (mixture of lime, water, dissolved protein, and fat) and other liquid waste.




Drums removed from a property across the street from the House Street Disposal Area.



EPA Community Involvement Coordinator Diane Russell (center left) interviews a community member to learn her concerns about the Wolverine World Wide site. (Also present, is intern Darren Donnelly (far left) and EPA CIC Kirstin Safakas (third from left).



EPA On-Scene Coordinator Jeff Kimble (back center) holds a Western Michigan University hydrogeology course site tour in August 2018.

	<h3>EPA and PFAS</h3> <p>The EPA is committed to supporting states, tribes, and local communities in addressing PFAS. EPA is continuing to work to develop a PFAS Management Plan that will outline the agency's approach to addressing the PFAS challenge. The agency is working to release the plan as soon as possible. Learn more about this effort by visiting www.epa.gov/pfas</p>	<h3>Michigan and PFAS</h3> <p>Launched in 2017, the Michigan PFAS Action Response Team, or MPART, is the first multi-agency action team of its kind in the nation. Agencies representing health, environment and other branches of state government have joined together to investigate sources and locations of PFAS contamination in the state, to take action to protect people's drinking water, and to keep the public informed as we learn more about this emerging contaminant. Learn More about this effort by visiting www.michigan.gov/pfasresponse/</p>
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Next steps
 EPA and DEQ will review the data generated from these investigations with local, state, and other federal partners. Together, the teams will evaluate the next steps for both properties as directed under the legal order.

A feasibility analysis, or an analysis that compares different cleanup options, will need to be completed by Wolverine to assess what type of cleanup can be done.

Figure 5 on the next page outlines EPA and DEQ's timeline of activities and future site activities planned.

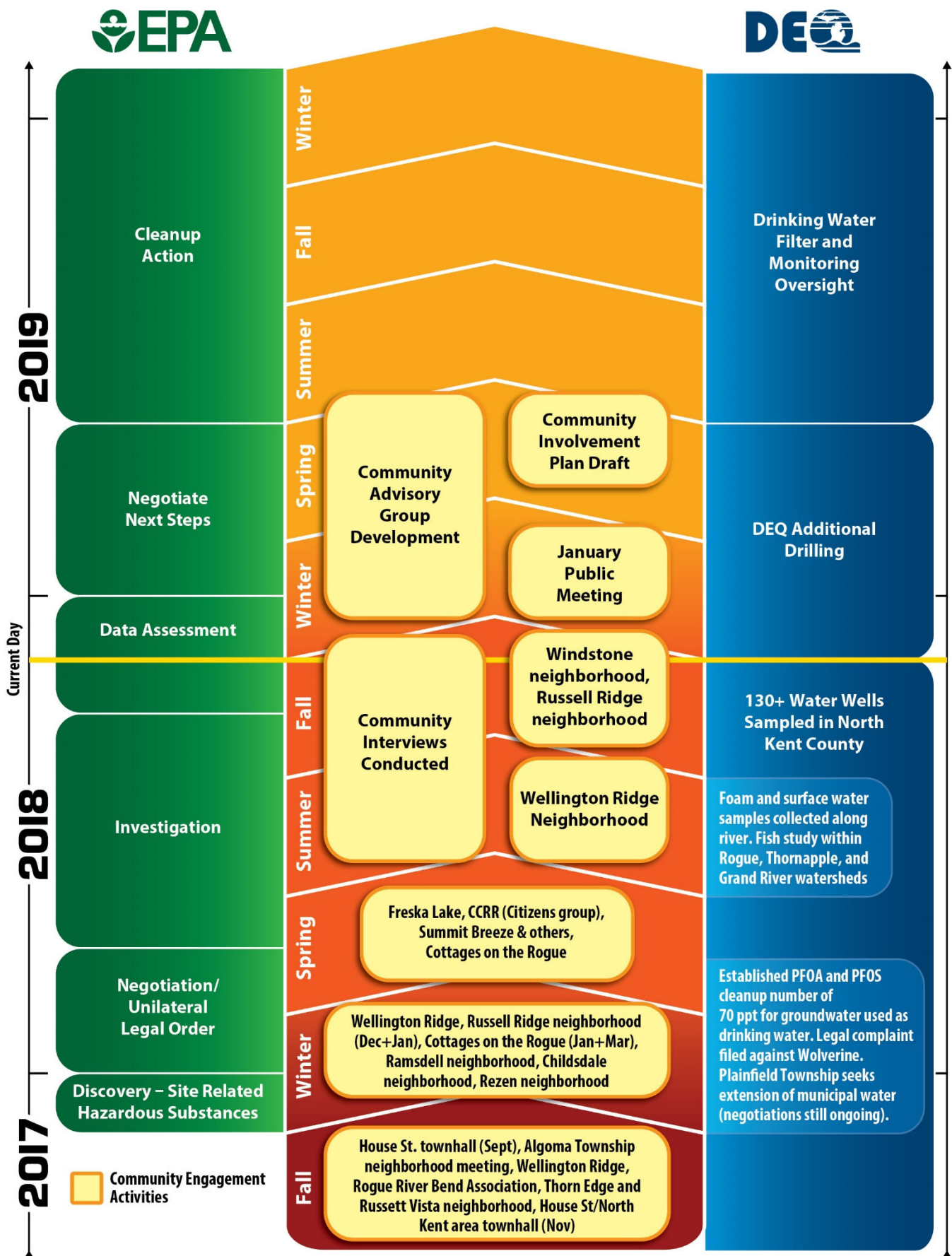


Figure 5 shows EPA and DEQ's timeline of site activities to-date and future activities planned.

PUBLIC TOWN HALL MEETING ANNOUNCEMENT

Hosted by DEQ and EPA

WHEN: Wednesday, January 23, 2019

6 p.m. – 8 p.m.


Information tables 6 p.m. – 7 p.m.

Public meeting 7 p.m. – 8 p.m.

WHERE: Rockford High School

4100 Kroes St NE

Fine Arts Auditorium

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**WOLVERINE WORLD WIDE:
Investigations Underway**

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