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St. Louis, Michigan: Oak Grove Cemetery

HST 302

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St. Louis, Michigan, also known as the “Middle of the Mitten,” is a small town located near Central Michigan. Founded in 1853 by Joseph Clapp, St. Louis, has a population of 7, 400 people<sup>1</sup>. It is a close knit community trying to cover up part of its ugly past and move forward. Pollution and contamination from the Velsicol Chemical Corporation rocked St. Louis for decades and has left the community with a stigma; a characteristic residents have been desperately trying to get rid of. This small town and the people who call it home have all been affected by the contamination of their natural surroundings in different ways, and damage has stuck with them all through the years. This particular case study takes a closer look into the Velsicol Chemical Corporation, the contamination and pollution that the Pine River faced as a result of the plant, and what kind of harm it caused for not only the town itself, but the harm it could have possibly caused St. Louis’ peaceful cemetery: Oak Grove.

Located in the northwest corner of St. Louis is Oak Grove Cemetery (Figure 1), established in the mid 1880’s. The cemetery is located in a beautiful area, in the midst of rolling hills, complete with tall oaks and slender maple trees (Figure 2). It is the perfect place to go for peace and a good place to think. Preparations are currently ongoing to add an additional four acres of land (complete with water lines, roads, and plotting for burials) to give Oak Grove a total of forty acres of developed area, out of the approximate fifty-five owned by St. Louis.<sup>2</sup> But just like the town of St. Louis, Oak Grove Cemetery experienced some of the consequences of the Velsicol Chemical Corporation.

Ground was broken for the fifty-four acre Michigan Chemical Company plant on September 15, 1935. Michigan Chemical Company (later known as Velsicol Chemical Corporation) was established along the beautiful banks of the Pine River. It was a chemical

processing plant and refinery. Around this time, the McClanahan Refinery in St. Louis opened as well. Michigan Chemical Company produced numerous amounts of different organic and inorganic chemical compounds and products until it was closed down in 1978.<sup>3</sup>

Unfortunately, in the 1930's no one saw any of the possible future consequences that the location of the plant site would have. This plant would end up being a major threat to public health, welfare, and the environment of St. Louis because of the widespread contamination caused by the bad waste management practices and the discarding of these chemicals directly into Pine River.<sup>4</sup> As early as 1935, the year that these two companies opened, the damage started. The St. Louis McClanahan Refinery was actually dumping waste into the Pine River and polluting it. Later in 1939, the Leonard Refinery in Alma purchased the McClanahan Refinery and moved it. The monitoring of pollution started to take place.<sup>5</sup>

In the 1940's a bigger clue as to the pollution that Michigan Chemical Company caused was revealed. Residents of St. Louis had to stop eating the fish caught from Pine River. This was because several times over the summer dead fish started appearing on the surface of the river. Not only was it just dead fish appearing, but also oil slicks started to cover the surface as well. Strong odors coming from the river prompted some citizens to start a petition. By August of 1944, the Michigan Chemical Company started to manufacture DDT. Four years later, a man from Switzerland (Paul Muller) won the Nobel Prize for discovering that the properties of DDT kill insects.<sup>6</sup> Because some of these properties were killing insects, this leads to the question, what else did the DDT properties kill? Plenty of wildlife depends on insects as food. If the DDT was infecting the insects, and for example, birds were eating these insects, then not only did DDT kill insects, but they indirectly killed birds as well.

The year 1963 was when Velsicol Chemical Corporation. took over the Michigan Chemical Company. Velsicol did nothing of positive importance for St. Louis. Between the years of 1967 and 1970, the Department of Natural Resources composed studies that showed that Velsicol had a negative impact on the Pine River. Because of the toxins and pollutants, the part of the Pine River located near the Plant practically had no life existing there! By 1970, a complete ban on fishing in the Pine River was given to all citizens.<sup>7</sup> (The no-consumption advisory for the species of fish in the Pine River is still in effect today!)<sup>8</sup>

The chemical making did not stop at Velsicol despite the contamination. PBB (fire retardant) was being produced in 1971. Somehow, one of the plant's workers accidentally ended up replacing the MGO in the cattle feed with PBB instead! (This happened because Michigan Chemical Company actually hired employees that could not read.) Not only did this put humans at risk for getting infected with PBB through eating beef, but it led the killing of over 30,000 cattle all across Michigan. (It was done on purpose to help put an end to the PBB outbreak.) This was considered one of the worst chemical and agricultural in the U.S.<sup>9</sup> Famers and cattle owners lost a lot of money in the process.

Velsicol was forced to shut down because of all the damage and harm that the chemical pollutants had caused, all the money that was lost to those damages, a Congressional hearing, and worker and farmer lawsuits. The plant agreed to construct a 2 foot thick slurry wall around its former site and cover it with a 3 foot thick clay cap.<sup>10</sup> This was done in hopes to stop the contamination that was discovered. But this did not mean that the contamination was over. In 2006, a study found that the slurry wall was failing to keep the contamination out of the river. By 1994, fish samples indicated that the average concentration of DDT was 23.3 ppm. Not only

were these samples taken sixteen years after the plant was forced to close, but average concentration of DDT almost doubled since 1989! This was not just happening with the fish; an increase in DDT and PBB among ducks and sediments happened as well.<sup>11</sup> The problem seemed to be getting worse.

Finally in 1998, an emergency clean-up plan for the Pine River and the DDT contamination was implemented. The clean-up is still on-going today (Figure 3). According to the City of St. Louis' website, "from 1998 to 2006 a variety of actions were taken at the site to address contamination in the Pine River at a cost of almost \$100 million."<sup>12</sup> Installations of sheet piling and dewatering and dredging operations are some of what had to be done in order to clean up the contamination. The hope is that one day the former chemical site will be in a condition in which it allows the community of St. Louis to reuse and have access to the water, as well as able to use it for recreational purposes.<sup>13</sup>

So now the question is, what did all of this pollution and contamination do to harm Oak Grove Cemetery? For the purpose of this case study, finding information on pollution and contamination that Oak Grove Cemetery faced was difficult. It is obvious that the cemetery did not suffer as many consequences as some of the residential areas did, or even as many as Pine River itself did. One of the major possible consequences that Oak Grove could have faced was the contamination of the groundwater. In cemeteries, groundwater is used to water the plants and the flowers surrounding the graves, usually by the deceased's family. The ground water is used for the plant life around the whole cemetery; to water the grass and plants by the groundskeeper, or the lawn care crew. If the groundwater happens to be contaminated, then the plants and flowers that are being given this water will end up being contaminated as well. This could result in plant illness or the death of the plant. Soil that gets contaminated could result in unhealthy grass growth. Polluted groundwater, soil, and plant life could also end up affecting the

surrounding wildlife at the cemetery. Drinking the groundwater or eating nuts, or grass off of contaminated soil could make ill or kill birds and squirrels.

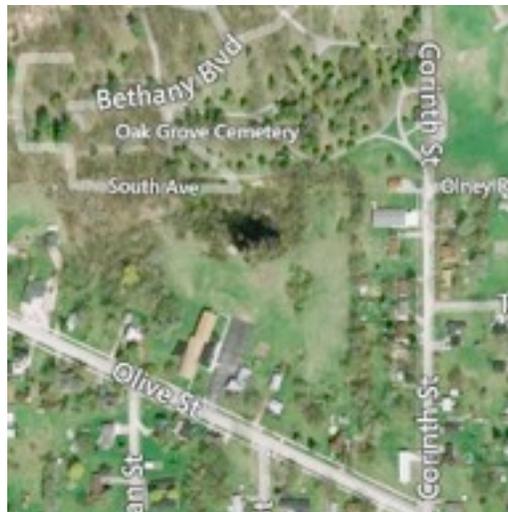
Also, many times when people go to cemeteries, they can end up sitting in the grass, praying on the grass, or working on the landscaping surrounding their loved one's grave. In doing any of these activities, touching the earth would happen. The contaminated soil would end up on their hands. If they have an open cut, or do not wash their hands, that contamination could possibly end up in their bloodstream, causing possible illness or complications. According to Michigan Department of Community Health, "Trichlorobenzene, tetrachloroethene, trihalomethane, and cyclohexane were detected in groundwater samples taken from monitoring wells on the Former Burn Area (FBA)."<sup>14</sup> People of St. Louis were expected to have no contact with the water, but if they had to, then as very little contact as possible. Other chemicals that were found in the groundwater were sulfate, oil, and grease. These were found in the county drain near the FBA. Luckily the sulfate in the water was below the screening level for drinking water, and people's health would not be affected if they came into contact with water that was contaminated with sulfate. As for the oil and grease, there were also low levels of these in the water, too low for an accurate measurement, leaving the question if it was actually very harmful chemicals or just the normal levels of grease and fat from natural sources (for example, fats from plant material).

Based on the pictures of Oak Grove Cemetery today (Figure 4 and Figure 5) and because of the very little information that could be found on any possible contamination, the cemetery seems to be in good shape. The grass and the surrounding trees look green and strong. The Michigan Chemical Company and then later Velsico Chemical Corporation. was probably the worst thing that St. Louis could have structured and developed in their little city. Although the plant itself was only there for about forty years, the damage that it has caused has lasted longer

than that. St. Louis is still recovering from the contamination and pollutants that were thrust upon it back so many years ago. Low property values, contaminated rivers, and plant and wild life, have left this city trying to rebuild itself and trying to hide the ugly past away. The hope that St. Louis has is that in the future the stigma of the Velsico Chemical Corporation will one day be a memory. Until then, they seem to be trying their best to live their life, and to make a better name for their little city.

## Maps/ Pictures

**Figure 1**



**Bing Map Hybrid.**

Photo Credit: EPA.GOV

**Figure 2**



**Oak Grove Cemetery, Present day**

Photo Credit: [www.stlouismi.com](http://www.stlouismi.com)

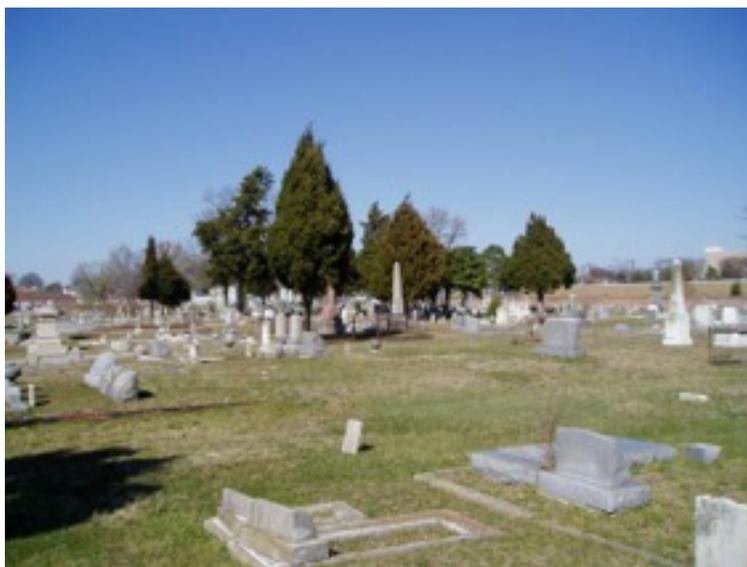
**Figure 3**



**Pine River, Present day**

Photo Credit: [St.LouisMi.com](http://St.LouisMi.com)

**Figure 4**



**Oak Grove Cemetery, Present Day**

Photo Credit: St.LouisMi.com

**Figure 5**



**Imagery Map, Oak Grove Cemetery**

Photo Credit: EPA.GOV

## **Endnotes**

1. City of St. Louis, *City of St. Louis*. (2005).
2. United States Environmental Protection Agency, *Five Year Review Report*. (Sept. 2002).
3. United States Environmental Protection Agency, *Five Year Review Report*. (Sept. 2002).
4. *Alma College: Pine River Timeline*.
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6. *Alma College: Pine River Timeline*.

7. U.S. Environmental Protection Agency, *Velsicol Chemical Corp. (Michigan) Superfund Site*. (May 2012).
8. Dykstra, Susan, *PBB Contamination of Cattle Feed in Michigan, 1973*. (May 2010).
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10. Hesse, J L., and R A. Powers, *Polybrominated biphenyl (PBB) contamination of the Pine River, Gratiot, and Midland Counties, Michigan*. (1978).
11. U.S. Environmental Protection, *Velsicol Chemical Corp. (Michigan) Superfund Site*. Agency. (May 2012).
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13. Michigan Department of Community Health, *Public Healthy Assessment: Public Comment Release*, (May 2012).
14. Michigan Department of Community Health, *Public Healthy Assessment: Public Comment Release*. (May 2012).

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<http://www.stlouismi.com/1/stlouis/cemetery.asp>

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