

**Toxic Time Bomb:
Love Canal, Superfund, and the Establishment of
Environmental Rights and Responsibilities**

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PRIMARY SOURCES

Aerial Photograph of Love Canal in 1978. 1978. Accessed November 26, 2013.

<http://www.banksinfo.com/blog/love-canal-disaster-origin-cercla/>.

This photograph clearly shows the area of Love Canal and the 99th Street School sitting right on top of it. The Canal is surrounded by a residential neighborhood. The athletic fields were in the middle of the Canal, where children would often get splashed by the chemicals. I used this source to help me illustrate how close this neighborhood was to the dumping and how it would have affected them.

AP. "Love Canal Homeowners Release Officials They Held Hostage." *Lakeland Ledger*, May 20, 1980, Section C sec.

A similar article to the one published in the Sarasota Herald-Tribune on the same date, this newspaper article discusses the 2 EPA officials trapped in the offices of the Love Canal Homeowner's Association because of a crowd outside. Lois Gibbs declared she wanted the area declared a disaster area so the families could buy new homes at low interest rates. It was helpful in finding out more about the crowd and the reaction to the hostages.

Associated Press. "Love Canal Ex-Residents Get Share of Settlement." *Schenectady Gazette*, February 21, 1985.

This newspaper article talks about how Love Canal residents are getting payed a share of a settlement of a lawsuit against Love Canal. This article helped me understand how ex-residents felt about Love Canal after moving out.

Barrels of Waste at Love Canal. Accessed February 11, 2014. <http://www.greendiary.com/10-worst-man-environmental-disasters.html>.

This is a depiction of barrels of toxic waste from Love Canal. I used this source as part of the collage behind my title.

Beck, Eckardt C. "The Love Canal Tragedy." *EPA Journal*, January 1979. Accessed January 18, 2014. <http://www2.epa.gov/aboutepa/love-canal-tragedy>.

Eckardt C. Beck was the administrator of EPA Region 2 from 1977 to 1979. He visited Love Canal numerous times and had spoken to many members of the community. This article provides some background so the ordinary reader knows what had previously happened and how they dealt with the issue. Many Love Canal residents were quoted. This article provided me with many quotes and information that was the most pertinent to my website.

Blood Sample Being Taken for Epidemiological Investigation from Young Love Canal Resident. 1978. Love Canal Images, State University of New York at Buffalo, Buffalo, NY. Accessed February 9, 2014. <http://digital.lib.buffalo.edu/cdm/singleitem/collection/LIB-003/id/109/rec/148>.

This photograph depicts a young girl getting a blood test for an epidemiological investigation at Love Canal in 1978. I used this photograph to show how the residents of Love Canal were affected by the toxic waste and how the medical tests were used to argue their case.

Brown, Michael Harold. *Laying Waste: The Poisoning of America by Toxic Chemicals*. New York, NY: Pantheon Book, 1980.

Michael Brown was a reporter for the Niagara Gazette; he wrote more than 100 stories about Love Canal. He was awarded three Pulitzer Prize nominations and an award from the EPA. His book documents the entire Love Canal tragedy and the emergency declared by the State of New York. Written barely a year after the evacuation, this book was a huge help in understanding some important details and how it looked and felt at the time. As a reporter, Brown was around the Love Canal area quite often, allowing him to report very accurately about the tragic events.

Children Playing in Backyard Adjacent to Rising Toxic Waste. 1978. Love Canal Images, State University of New York at Buffalo, Buffalo, NY. Accessed February 9, 2014.
<http://digital.lib.buffalo.edu/cdm/singleitem/collection/LIB-003/id/548/rec/156>.

This photograph shows two small children playing with a sprinkler in their backyard. It is clearly adjacent to Love Canal and it is apparent that toxic waste is oozing out of the ground near them. I used this to show viewers the proximity of children to the chemicals.

Close-up of 'No Trespassing' Sign on Abandoned Love Canal Home. Love Canal Images, State University of New York at Buffalo, Buffalo, NY. Accessed February 9, 2014.
<http://digital.lib.buffalo.edu/cdm/singleitem/collection/LIB-003/id/75/rec/171>.

This photograph depicts a 'no trespassing' sign on an abandoned Love Canal home. It shows how most have left Love Canal for good, and it will never be completely safe. I used it as an example of why it is necessary to have ways to prevent future disasters.

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT OF 1980 "SUPERFUND". PDF. December 31, 2002.

This is the CERCLA, or Superfund, law. This is the newest version as of 2002, showing that it is a work in progress and new things keep becoming important to include, showing its significance. It is not just a one-time deal, it is ongoing, leading to a more complex and detailed law. It is very important still today in the cleanup of toxic waste sites for reuse.

Ecumenical Task Force. "Areas of Love Canal with Health, Environmental and Vegetation Hazards." Map. Buffalo, NY: Ecumenical Task Force, 1981. Accessed January 19, 2014. <http://greenmormonarchitect.blogspot.com/2008/05/women-pioneers-for-environment.html>.

This map highlights the areas of Love Canal with the worst problems. These hazards were typically found in the historically wet areas, because the dry streambeds carried the chemicals underground much faster. I used this source to help emphasize the dangers in the Love Canal area and to provide a nice visual representation.

Ferri, Deohn. "Communities of Color and Hazardous Waste Cleanup: Expanding Public Participation in the Federal Superfund Program." *Fordham Urban Law Journal* 21 (1993).

This study in the *Fordham Urban Law Journal* examines the Superfund program and how it ties in to environmental justice and environmental racism. It addresses the discontent and frustration associated with communities of color located near hazardous waste. It is

super helpful in understanding how to make my project more holistic and well rounded from many aspects. I find this particular area particularly interesting.

Gibbs, Lois. "Love Canal with Lois Gibbs." Interview. November 6, 2007. Accessed February 12, 2014. <https://www.youtube.com/watch?v=PrzqFPego4A>.

This is an interview that I found on YouTube. I used some selections from it in my website. It helped me understand how Lois Gibbs started the Love Canal Homeowner's Association.

Gibbs, Lois Marie, and CHEJ. "Love Canal :: Start of a Movement." Love Canal :: Start of a Movement. 1983. Accessed November 24, 2013. <http://www.bu.edu/lovecanal/canal/>.

This article about the history of Love Canal was immensely helpful in attaining an inside perspective and details on what Lois Gibbs was specifically doing. It had many details and confirmed a lot of information that I had not seen elsewhere.

Gibbs, Lois Marie. "Love Canal: A Still Unfolding Legacy of a Toxic Waste Community Disaster." Michael Bryson Roosevelt University. 1983. Accessed December 12, 2014. <http://sites.roosevelt.edu/mbryson/2013/12/01/love-canal-a-still-unfolding-legacy-of-a-toxic-waste-community-disaster/>.

This article about the history of Love Canal, written by Lois Gibbs, is very informative, especially the viewpoint on the LCHA. It was very helpful to me, especially for quotes for my website.

Gowan, Sam. *Love Canal Aerials, 1927, 1953, 1974*. 1991. Alpha Geoscience. Accessed January 21, 2014. http://www.alphageoscience.com/Highlighted_Projects.html.

This is a series of 3 aerial photographs taken of Love Canal in 1927, 1953, and 1974. They have been interpreted by the expert witness for the defense, Sam Gowan, who was the President of Alpha Geoscience at the time. It clearly shows where the school was built and how it evolved over time. It was very helpful in seeing exactly the lineup of the developments close together.

Love Canal Collection, 2009. Accessed May 1, 2014.

<http://digital.lib.buffalo.edu/cdm/landingpage/collection/LIB-003>.

This digital archive has proved to be an invaluable resource. I have found many visually compelling images, including the old man and dog offering 82 chemicals for sale, the two children playing adjacent to the overflowing canal, the girl getting a blood test, and the advertisements by Hooker and the LCHA. Many other photographs were also used throughout my website. These photographs helped me tell the story using pictures and helps to establish a connection between the reader and the subject. The diversity of image types included in the database was astounding. These photographs were some of my most valuable sources.

"Love Canal Crisis Grabbed International Attention." *Niagara Gazette*, December 31, 1978, Part 1 sec. Accessed December 17, 2013. Love Canal Collections Newspaper Database.

Not only was Love Canal capturing Americans' attention, it also captured millions of people's attentions across the globe seeing the most powerful and industrialized nation be

plagued by this issue. It helped me gain a greater understanding for how widespread the issue was communicated and how non-Americans viewed this issue.

Office of Public Health. "Love Canal Public Health Time Bomb." September 1978. Accessed April 23, 2014. http://www.health.ny.gov/environmental/investigations/love_canal/lctimbmb.pdf.

This source is a special report written by the Office of Public Health in NY to the NY State Legislature. It explains all the research they have done at Love Canal and what their suggestions for fixing it were. It ended with the Health Department Order (telling residents to evacuate Love Canal). This source was extremely helpful in understanding the tests they did to find the numbers and the chemicals involved.

Pollak, David. "The Love Canal, a Landfill of Hell, That's a Cesspool of Death and Disease." *Herald-Journal*, October 29, 1978.

This article, published soon after the first evacuation of Love Canal, discussed the issues that had just fully been realized and asked many questions that we still don't know the answer to. Only the test of time can truly say whether Mike Brown's wonderings will come true. I used this source for quotes and I used pictures of the article itself throughout my website.

President Carter and Lois Gibbs Signing the Love Canal Bill. September 30, 1980. Love Canal Images, University of Buffalo NY. Accessed January 13, 2014. <http://greenmormonarchitect.blogspot.com/2008/05/women-pioneers-for-environment.html>.

This photograph depicts Lois Gibbs and President Carter after they have signed the Love Canal Bill in 1980. I used this source to provide a visual for readers and a brief history of the agreement.

The Project (1987) (enacted).

This sub-law of Superfund discusses marine and natural resources and how they play into CERCLA and hazardous waste treatment. This source was helpful in better understanding how these laws worked and what came out of the original law.

Rolling a Barrel. Accessed February 9, 2014. <http://tarcreekfilm.com/tcblog/wp-content/uploads/2010/09/rolling-a-barrel.jpg>.

This is a photograph of two haz mat workers rolling a rusty barrel out of a Superfund site. I used this photo as part of the title on my home page.

"Treatment Projects Applied to 62 Percent of Superfund Sites." EPA. Accessed April 23, 2014. <http://www.epa.gov/superfund/accomp/news/treat.htm>.

This article explains how Superfund sites had actually been cleaned up through various remedies. It helped me understand what the severity of different sites and their cleanup processes.

United States Environmental Protection Agency. *Common Cleanup Methods at Superfund Sites*. Washington, DC: Office of Emergency and Remedial Response, 1994.

This brochure is a compilation of fact sheets created by the EPA, mostly in June 1992. They describe the different ways you can clean up a Superfund site, including Capping, Immobilization, and Leachate Collection. It also includes some helpful illustrations to provide visuals.

UPI. "Love Canal Residents Hold Hostage 2 EPA Officials To Press Demands." *Sarasota Herald-Tribune*, May 20, 1980, Section A sec.

This newspaper article discusses the "holdings" of 2 EPA workers as "hostages" until the relocation of around 700 families. This was due to an EPA study from May 17, 1980 showing abnormal chromosome damage- 11 out of 36. This source helped me understand how long the relocation process was going on and how bad the chromosome damage was on homes on the outer ring of the neighborhood.

Youth near Love Canal. Niagara, NY. Accessed November 24, 2013.

<http://chej.org/2013/02/making-a-bad-decision-worse-%E2%80%93-reselling-homes-at-love-canal/love-canal-image-2/>.

This photograph shows a group of kids standing up for their rights. They have signs that say a collection of phrases, aimed at Hooker and getting themselves evacuated from the area. The Center for Health, Environment, and Justice is the organization that Lois Gibbs founded and is still the executive director of today.

SECONDARY SOURCES

Abramson, Rudy. "The Superfund Cleanup: Mired in Its Own Mess." *Los Angeles Times*, May 10, 1993. Accessed February 12, 2014. http://articles.latimes.com/1993-05-10/news/mn-33610_1_superfund-reform.

This article focuses on the complexities involved with Superfund. I used several quotes from this source and found it helpful in getting a different viewpoint.

AP. "Chemical Company Will Use Sturdier Containers." *Star Tribune* (Minneapolis), January 17, 2014, A10 sec.

This is a brief article about the contaminated water in West Virginia that caused 300,000 people to have contaminated drinking water. I used this source to increase my knowledge about fracking and its consequences.

Associated Press. "Love Canal to Fracking: Niagara Falls Mulls Waste." *The Wall Street Journal*, October 20, 2011. Accessed February 1, 2014. <http://online.wsj.com/article/AP6a04a59c72344063a3453584f13b4841.html>.

This article is about the argument over whether or not the Love Canal treatment plant should treat fracking waste to discharge into the Niagara River. I found it ironic that Love Canal was becoming a possible site to help with future Love Canals.

Brown, Michael H. "A Toxic Waste Town." *The Atlantic*, July 11, 1989. Accessed February 11, 2014. <http://www.theatlantic.com/magazine/archive/1989/07/a-toxic-ghost-town/303360/>.

Michael H. Brown was a reporter for the Niagara Gazette during the crisis at Love Canal. His mudraking uncovered what was really going on. That is reflected in this article from 10 years after the evacuation. It was helpful to understand how he had changed his views on some things.

Cox, Robert M., Jr. "Superfund Destroys a Small Business: Liable for Cleanup Whether Guilty or Not." *Property and Environment Research Center Report* 21, no. 1 (Spring 2003). Accessed February 12, 2014. <http://perc.org/articles/superfund-destroys-small-business>.

This article approaches Superfund from the corporate point of view and takes a critical approach. It helped me see both sides of the argument.

EPA. *Horseshoe Road Superfund Site*. Accessed December 17, 2013. <http://www.earthlyreport.com/site/superfund-sites-keep-growing/>.

This sign is located at the entrance to the Horseshoe Road Superfund site. It is pretty nondescript, so it gives the reader a better idea of what these places really look like.

EPA. "Superfund Remedial Actions: Actual Remedy Types at Sites on the National Priorities List (NPL) (FY 1982-2002)." Chart. Environmental Protection Agency. Accessed April 23, 2014. <http://www.epa.gov/superfund/accomp/news/treat.htm>.

This pie chart illustrates the treatment plans used at Superfund sites and the percent they were used from 1982 to 2002. It helped to provide a visual explaining how cleanup is done.

Faust, Martha. "Discussion concerning Minnesota Brownfields Cleanup." E-mail interview by author. December 16, 2013.

Martha Faust is the executive director of Minnesota Brownfields, a non-profit that cleans up brownfields, or real property that may be close or contain chemicals that complicate resale and use. Reinvestment in these properties increases property value, reduces further issues, and takes development pressure off of green spaces. Faust helped me understand the difference between Superfund sites and Brownfields, and provided insight into the future of toxic waste damaged sites.

"Green Mormon Architect: Women Pioneers for the Environment." Green Mormon Architect: Women Pioneers for the Environment. May 24, 2008. Accessed April 25, 2014.
<http://greenmormonarchitect.blogspot.com/2008/05/women-pioneers-for-environment.html>.

This blog post included a general overview of the topic and several exceptional sources that I used in my website.

Hernan, Robert Emmet. *This Borrowed Earth: Lessons from the Fifteen Worst Environmental Disasters around the World*. New York: Palgrave Macmillan, 2010.

This source is extremely helpful in understanding what Hooker's line of thoughts were concerning their liability of owning Love Canal. It goes into depth about how Hooker found out what was happening and actively chose to ignore it. It also provides insight into what we can learn from some environmental mistakes going into the future.

Klass, Alex. "Current Perspective on CERCLA From an Environmental Law Professor."

Interview by author. May 11, 2014.

I interviewed Professor Alex Klass, a professor of environmental and energy law at the University of Minnesota Law School. It was extremely helpful to understand exactly how CERCLA worked and how it has impacted legal responsibilities for hazardous waste cleanup. I learned a lot about what CERCLA left out and did not address. I used many clips of Professor Klass in my website to explain the details of CERCLA and its significance. In particular, the exclusion of petroleum from regulations shocked me. I was not aware that CERCLA dovetailed with state liability laws and does not cover personal injury. This was an extremely helpful interview crucial to my research.

McGraw-Hill. "Love Canal: The Forgotten Wastes Of Love Canal." MS. Accessed April 25, 2014. http://www.mhhe.com/Enviro-Sci/CaseStudyLibrary/Topic-Based/CaseStudy_LoveCanal.pdf.

This case study is mostly an overview of the dangers of Love Canal and the basic events. It helped me attain a broader perspective.

Miller, Sheila. "Apply the Lessons of Love Canal to Fracking Debate." Editorial. *The Buffalo News*, February 9, 2013, Opinion sec. Accessed February 12, 2014. http://www.buffalonews.com/20130209/apply_the_lessons_of_love_canal_to_fracking_debate.html.

This opinion piece raised good points about the similarity of the problems at Love Canal and the modern problem of hydraulic fracturing. It surprised me that even people in the Love Canal area have not applied the lessons of Love Canal.

"MN Brownfields." MN Brownfields | Home. 2013. Accessed December 15, 2013.

<http://mnbrownfields.org/>.

Minnesota Brownfields is a nonprofit organization committed to cleaning up and reintroducing brownfields into the community. They are a less-serious version of Superfund sites. I used this website to gain new knowledge about far reaching effects of Love Canal. Brownfields and Superfund sites are the future of possibilities for toxic waste sites.

Olson, Jeremy, and Matt McKinney. "Neighborhood Alerted to Possibly Unsafe Fumes." *Star Tribune* (Minneapolis), November 8, 2013, sec. B.

There is a Superfund site in Minneapolis that is currently subject to a vapor alert. An old General Mills lab has potentially contaminated around 200 businesses and homes in the Como neighborhood of southeast Minneapolis. They are linked to contaminated industrial groundwater, posing potential long-term health risks. The presence of trichloroethylene (TCE) in the vapors is one of the same chemicals that were around Love Canal. The presence of TCE is most likely from the 1940s-1960s, the same time that Hooker Chemical was dumping Love Canal.

Pettinelli, Justin J. "Current Perspective on CERCLA From an Environmental Engineer."

Interview by author. May 16, 2014.

I interviewed Justin Pettinelli, a Senior Environmental Engineer at 3M. He works in 3M's Environmental, Health, and Safety Operations department, as a remediation expert. This interview helped me understand how CERCLA affects a large chemical corporation, such

as 3M, and how it has changed their operations. He provided logic on the benefits of doing remediation proactively, to prevent the chemicals from spreading any further.

President Carter and Lois Gibbs Signing the Love Canal Bill. September 30, 1980. Love Canal Images, University of Buffalo NY. Accessed January 13, 2014.

<http://greenmormonarchitect.blogspot.com/2008/05/women-pioneers-for-environment.html>.

This photograph depicts Lois Gibbs and President Carter after they have signed the Love Canal Bill in 1980. I used this source to provide a visual for readers and a brief history of the agreement.

Pritchard, Michael S., and Theodore Goldfarb. Case Study 6: Love Canal. 2006. TS, Online Ethics Center for Engineering. Accessed November 26, 2013.

www.onlineethics.org/Education/precollege/scienceclass/sectone/chapt4/cs6.aspx.

This is a case study done on Love Canal in terms of ethics and value issues. It discusses issues related to individual, corporate, and governmental responsibilities to ecological and environmental concerns. This source was helpful in understanding how Love Canal is related to ethics and human responsibilities.

Revkin, Andrew C., writer. "Love Canal and Its Mixed Legacy." In *Retro Report*. New York Times. November 25, 2013. Accessed December 15, 2013.

<http://www.nytimes.com/2013/11/25/booming/love-canal-and-its-mixed-legacy.html>.

Retro Reports did a feature on Love Canal 35 years later. They interviewed Lois Gibbs, the housewife partly responsible for the evacuation, and how the chemicals are still there

today. It helped to hear real people involved talk about their thoughts on it and how it remains today.

Rights and Responsibilities in History. National History Day. Accessed January 19, 2014.
nhd.org.

This is the logo of this year's National History Day theme (Rights and Responsibilities in History). I used it in my footers on my website.

Schons, Mary. "Superfund: How One Government Program Helps Clean Up Toxic-Waste Sites." National Geographic. January 21, 2011. Accessed May 14, 2013.
http://education.nationalgeographic.com/education/news/superfund/?ar_a=1.

This website explains that CERCLA (Superfund) is administered by the Environmental Protection Agency since its creation in 1980. It talks about how the growth of manufacturing led to an increase in toxic byproducts. This was my first basic overview, helping me narrow down my topic and gain preliminary insight.

Stroup, Richard L. "Controlling Risk: Regulation or Rights?" *The Freeman*, March 1, 1995. Accessed February 12, 2014. http://www.fee.org/the_freeman/detail/controlling-risk-regulation-or-rights#axzz2tAxl4yFp.

This is an article describing confusing situations with confusing solutions. It used Superfund as an example, saying that it hasn't worked out as good as it should have. I found the information on Superfund useful and used a quote from the article.

"Superfund SARA Overview, Laws, Policy and Guidance." United States Environmental Protection Agency. December 12, 2011. Accessed January 11, 2014.
<http://www.epa.gov/superfund/policy/sara.htm>.

This is a page on the EPA website that clearly explains how SARA, or The Superfund Amendments and Reauthorization Act, amended Superfund and reflected on the original law (CERCLA). I used this source to get a good understanding of what it did and how it improved on the original law.

"Superfund Sites in the United States." Map. The Pollution Information Site. 2011. Accessed December 12, 2013. <http://scorecard.goodguide.com/env-releases/land/>.

This map shows all current Superfund sites in the United States, Guam, and Puerto Rico. I found it helpful to illustrate how widespread it really is and Love Canal is just a case study, not the only occurrence. It is happening all over and most people didn't realize it until hearing about the Love Canal disaster. It is not one of a kind.

Thompson, Carolyn. "Life Returns: 25 Years Later, Love Canal a Thriving Neighborhood." *The Daily Gazette* (Albany/New York State), August 1, 2003, Section B sec.

This newspaper article talks about how residents are living in Love Canal. It has counters to why it shouldn't be happening and also specific reasons to why it is okay. Lois Gibbs was still concerned, saying she worked so hard to get the original residents evacuated for new residents to move back for a potential relapse. The chemicals remain in the ground, and kids are now living quite close. It remains a worrisome issue and is cause of great discussion still today. They have the right to live there, but it isn't advisable to potentially

repeat history in the same place. Many people still feel a responsibility to keep people out.

Underground Storage Compliance Act Hearings, 107th Cong., 107-953 (2002) (testimony of Committee on environment).

These hearings on the underground storage tank compliance act are direct results of Love Canal. It brought into play the importance of underground storage for toxic chemicals, eventually leading to this testimony by the committee on environment. It is in microfiche form, allowing it to be stored in a very small amount of space. This source has helped me identify the scope of some impacts of Love Canal.

University of Minnesota. "Ford Case: Background Information." Ford Case: Background Information. Accessed February 11, 2014.
<http://www1.umn.edu/ships/cases/ford/info.htm#cancer>.

This is a University of Minnesota case study of the Twin Cities Ford Plant, which closed in 2011. It discusses the suspected chemical dangers and the health concerns. It was the best local viewpoint, especially as I live less than a mile from the Ford Plant and I don't want another Love Canal.

Webster's Ninth New Collegiate Dictionary. 9th ed.

Ecumenical: worldwide or general in extent, influence, or application. I ran across this word while finding primary documents from the Ecumenical Task Force and I was not sure what it meant.

"WV for Moratorium on Marcellus." WV for Moratorium on Marcellus. Accessed February 12, 2014. <http://wv4mom.org/>.

This website is advocating for a moratorium on fracking wells in West Virginia. It is like Love Canal, but has way more chemicals involved and spreads over a very large area. I found many posters that I used in my website.