Finding a Solution for Mt. Dioxin: Community Environmental Health and the Management of Hazardous Waste

Part I: What to do with the Residents of Mt. Dioxin

The arrival of men dressed in moon-suits was a rather unusual sight in the Pensacola, Florida neighborhood. As children played in their yards and parents watched from their porches and windows, a small army of construction workers, dressed in protective equipment, drove into the abandoned wood-treating site that the homes of a small African-American community abutted. As the neighbors watched in amazement, the construction crew began digging. The fact that the workers took the time to protect themselves from the clouds of dust and dirt that quickly dominated the horizon, but neglected to warn the neighborhood of any possible hazards, unnerved many of the silently observing residents. Could they be breathing in poisoned air? Why didn’t anyone warn them?

The residents in the Rosewood Terrace, Oak Park, and Goulding neighborhoods of Pensacola were no strangers to the controversy surrounding the abandoned industrial plant near their homes. The former home of the Escambia Wood Treating Company (ETC) had been deserted since 1982. From the early 1940s throughout the 1950s, ETC used coal-tar creosote as a wood preservative to treat wooden utility poles and railroad ties. Excess chemicals were regularly washed away into an unlined earthen pit for disposal. Neighbors who been around during those days or who remember old stories remember flooding being a problem. The heavy summer storms common to Florida’s panhandle would wash whatever pooled in the storage areas across the whole place, sometimes pushing outside the plant’s fences into nearby streams and yards.

For many in these predominately working-class African American communities, these occurrences were typical signs of living near industry. Several families had lived on their land for three generations, as the neighborhoods were among the few places where African Americans could historically own land. Few however, worked at the ETC facility. Most of the men in the

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area worked blue-collar jobs elsewhere and earned enough to get by, but enough to contemplate leaving when the smells became harsh. For most, the Rosewood Terrace, Oak Park, and Goulding neighborhoods were the first real homes they could afford and they were determined to protect the lives they had built there.

In the mid 1950s, ETC installed equipment to recapture some of the preservatives for reuse, but continued to dispose of the remaining liquids either on-site or into the municipal sewage system. Using some of the best technology available back then, an oil/water separator was installed. A hot pond of contaminated wastewater was sprayed into a cold pond, forcing some of the waste to evaporate. The remaining water was then dumped into Pensacola’s sewer system. The contaminated material left over was then spread into storage ponds, ironically recalled by former workers of the plant as “the swimming pool.” The storage ponds were then left to evaporate on their own, using Mother Nature to remove leftover toxic chemicals. From 1970 to 1982, ETC switched to another chemical called pentachlorophenol (PCP) in place of creosote but continued to crudely dispose of the excess waste. These chemicals saturated the onsite soil and quickly began to drift offsite in groundwater, becoming a major health hazard for generations to come. One lifetime resident of the Pensacola neighborhood, Margaret Williams, recalls covering her face with a handkerchief when walking past the plant to prevent her nose and eyes from burning after inhaling the plant’s strong fumes. Exposure to dust and fumes from the plant were common and many local residents celebrated its closure in 1982.

Though ETC ceased operations in 1982, the company was required by state and federal environmental regulations to perform regular groundwater tests to ensure the site was safe for future use. In September of 1985, evidence began pouring in that something had gone very wrong. Creosote and PCP had seeped into the groundwater and had for forty years been moving slowly and surely offsite. In addition, soil tests revealed levels of dioxin, one of the most toxic and carcinogenic substances known to man, at levels 545,000 times higher than what was deemed acceptable at that time (See Attachment A). According to noted chemist and environmental activist Wilma Subra, tests of the soil surrounding the homes of local residents were among the worst ever discovered in the United States.

The health of local residents unfortunately did not go unharmed. Almost all the families living near the ETC site complained of some type of illness or health condition. Margaret William’s family suffered multiple health problems: her mother and father both died of cancer, as did two of her uncles. Most of her family experienced trouble breathing, both in acute episodes and chronically in the forms of asthma and respiratory infections. Many of the other residents reported incidences and deaths of cancer. Although no health study was conducted at the time to verify a cluster of cancers that could be attributed to living near the ETC site, most residents recalled not being able to remember a family or a house where someone did not have cancer. Other health problems, including high rates of miscarriages and birth defects were also reported.

The moldering ETC site did not go completely unnoticed. Besides the children who liked to play in the abandoned industrial equipment and trash and adults who scavenged metals and parts from the mess left behind, the federal Environmental Protection Agency (EPA) began to take notice of the potential for widespread contamination in late 1991. Nine years after the wood-treating
company abandoned the property, EPA inspectors began digging to determine the extent of the contamination. The results were not good. The initial holes dug by the inspectors went as far as fourteen feet down, revealing only further and further levels of contamination. By the time the initial plan for removing the contaminated soil before the contaminants could escape further was developed, it was determined that the digging would have to go down to at least forty feet.

The EPA’s involvement in the ETC site was largely due to the threat the creosote and PCP posed to groundwater contamination. If the chemicals continued to leach into the soil and become mixed in with fresh groundwater, the continually moving water underground could spread them throughout the region – endangering the Panhandle’s fragile ecosystem.

During the EPA’s initial efforts to investigate the contaminated soil, little effort was made to communicate with the local neighborhoods about the severity of the health risks. Men moving about the site in “moon-suits” were the first sign that suggested something suspicious was going on at ETC. Throughout the excavation process, nearby residents began to experience a sharp increase in headaches, nausea, dizziness, breathing problems, nosebleeds, and other acute health problems. The constant digging stirred up so much dust that neighbors’ homes quickly became coated in dirt and grime. Several neighbors decided that they had to do something on their own in order to protect themselves.

Frightened by the threats to their health and the degradation of their community, residents in the communities surrounding the ETC facility began meeting to discuss what could be done to put a stop to the digging. Gathering at the local Baptist church, angry residents developed the beginnings of a plan to confront the EPA. First in March of 1992, they formed a nonprofit organization called Citizens Against Toxic Exposure (CATE), placing their agenda to stop the excavation immediately in the public’s view. The organizers of CATE had little experience working as a nonprofit advocacy group. Some held leadership positions in local churches and others were simply housewives with the commitment and drive necessary to stand up in protest. All members of CATE were from the local neighborhoods affected by the ETC facility. However, they were not alone. Quickly the group found advice and support from several prominent organizations including the Citizens’ Clearinghouse for Hazardous Waste – a group formed by a hero of the anti-toxics movement, Lois Gibbs. Gibbs herself had been in the same situation that the CATE members found themselves in; a working class neighborhood that quickly became surrounded by a Superfund site and a struggle to fight for some type of protection and compensation. With this outside assistance, CATE began to mobilize their membership to write letters to local Pensacola City and Escambia County elected officials in an attempt to bring local politicians into opposition with the actions of the federal government. However, the local politicians sympathetic to the plight of the neighbors of ETC failed to disrupt the EPA’s plans to fully remove the soil in the manner they had originally chosen. With multiple levels of government involved, ranging from city officials of Pensacola to state bureaucrats in Tallahassee to the EPA, those local politicians lowest in the chain of authority had little influence to shape the remediation efforts. The digging would continue until the groundwater underneath the ETC site was safe from further contamination.
With their short foray into the conventional tactics of letter writing and political campaigning failing to produce results, CATE turned to more innovative and confrontational approaches to stop the digging. CATE began directly confronting the EPA and the construction workers at the ETC site by staging protests. Vigils were held outside the plant gates, a parade designed as a mock funeral procession with caskets, and forty white crosses were planted just outside the gates in memory of the lives believed lost due to pollution from ETC. Some residents even went so far as to stand in front of the construction equipment coming and leaving the excavation site. Despite these direct confrontations, the residents could not stop the digging.

As the excavation continued, it became clear to the EPA that the initial estimates of the depth of contamination had been grossly off. Early calculations from the construction crew proposed that 100,000 cubic yards of contaminated soil would need to be removed. By the time the digging was complete, 255,000 cubic yards of soil had been dug up. The result of more than a year of noisy, dusty, and potentially poisonous excavation was a mound of dirt, some 60 feet tall, 1,000 feet long, and 40 feet wide. The more than 300,000 tons of contaminated soil was the largest manmade or natural fixture in the neighborhood, prompting local residents to dub it “Mt. Dioxin.”

![Ariel Image of ETC Site and Mt. Dioxin. Note the close proximity of the houses to the site.](image)

The EPA spent roughly $5 million dollars excavating the soil alone. It is unlikely that anyone at the EPA or in the construction crews hired by the government thought of the excavation as the final step in cleaning up the ETC site. Yet money was running short. Treating the contaminated soil so that the harmful substances could be removed and the dirt reused was estimated to cost another $40-$50 million dollars, which at that time was more than twice the amount that was allocated to the EPA’s entire Southern Region’s cleanup budget. Unable to afford the treatment necessary to clean the soil, the EPA elected to cover Mt. Dioxin with a durable plastic liner in late 1993. Residents were told that this somewhat halfhearted approach was not final and that the plastic cover should last for at least 5-10 years. However, Florida’s vulnerability to major tropical storms and hurricanes proved to be an unsolvable challenge to this temporary solution.
Over the years, several holes developed in the liner and the contaminated soil became once again exposed to the elements, allowing dust laden with dioxins to blow over the surrounding neighborhood.

Though the plastic liner was intended to protect the local residents from further exposure to the contaminated soil, it had something of an unplanned consequence – if you were an engineer at the EPA. If you were a kid, you would know that a smooth plastic sheet running sixty feet in at a fairly good angle makes an excellent slide. Unfortunately, the manmade toxic landmark became something of a playground – and a symbol of the unintended consequences of the previous generation’s industrial dreams and the current generation’s inability to pick up all the pieces left over after those dreams became a toxic nightmare. By December of 1994, the extent of the contamination and the frustration of almost all parties involved in managing the site forced the EPA to add the site to the National Priorities List (NPL) of Superfund sites. Superfund sites are among the worst of the worst of contaminated places and are specifically regulated for long-term remediation by the EPA. This Pensacola neighborhood joined the ranks of America’s toxic homes, the catastrophic poisoning of large tracts of land that required massive amounts of money, labor, and management in order to protect human health and the environment (For a more in-depth history of Superfund, see Appendix B).

The designation of the former ETC industrial site brought a new wave of attention from politicians and EPA bureaucrats, as well as access to a larger pool of resources with which to manage the site’s cleanup. With renewed hope and vigor, CATE began lobbying the EPA once again to take action to protect their health and clean up their neighborhood. Realizing that they needed to take their fight against the EPA to the next level, CATE began seeking allies with experience in fighting the agency and receiving aid to clean up similar episodes of toxic contamination. Through the efforts of CATE’s leaders, the group again got in touch with activists from the Citizens Clearinghouse for Hazardous Waste (CCHW). The CCHW, run by Lois Gibbs, had emerged from the efforts to clean up the Love Canal, one of the nation’s first toxic neighborhoods to reach widespread public attention. The CCHW provided valuable information on the nature of dioxin and several organizing strategies that had worked elsewhere to pressure the EPA into more immediate action.

The concept of environmental justice was one significant connection made by CATE activists following the designation of the ETC site as a Superfund location. Environmental justice refers to the equal distribution of environmental goods and benefits to the public regardless of their race, class, or gender. In 1994, President Clinton enacted an executive order that called for all federal offices to examine the potential for a disproportionately higher burden of environmental hazards in minority and poor neighborhoods that were the result of the enforcement of environmental laws, clean up actions, and other related activities. In the late 1980s and early 1990s, the accusation of environmental racism on the part of government officials became a framework for minority communities to oppose the historical trend of hazardous and unwanted facilities being located in their neighborhoods. Environmental racism refers to both the intentional and unintentional racial discrimination in the enforcement of environmental rules and regulations, the intentional or unintentional targeting of minority communities for the siting of polluting industries, or the exclusion of minority groups from the decision-making process. The
city of Pensacola is made up of roughly 30% African American residents, compared to 65% Whites. However, the neighborhoods immediately bordering the ETC site are almost 100% African American – and poor. The average income of Pensacola is approximately $34,000, while those adjacent neighborhoods hover slightly above the poverty line. Past studies examining whether environmental hazards are unevenly distributed by race in the United States have found strong associations between the presence of poor minority groups and hazards like the ETC site. Furthermore, investigations of the remediation processes of such sites have been found to take up to 20 times longer when they are located in minority neighborhoods.

CATE members drew upon this research and accused the EPA of environmental racism, where the agency failed to properly clean up the contaminated soil and had drug their feet for decades before anyone started to pay attention. CATE pursued an additional strategy: sue the EPA. CATE organizers contacted the Lawyers Committee for Civil Rights and were put in touch with a civil rights attorney willing to take the case pro bono. This new tactic worked. Almost immediately, the EPA sent investigators to collect soil samples from the properties of the residents abutting the site. When the EPA finally completed the testing, they found high levels of contamination – just as the residents had suspected all along. By 1996, it became apparent that the health of the neighbors was indeed at risk and action needed to be taken. However, given the complexity of the situation, the long history of the sites, and the pressing demands of the residents, no clear solution immediately presented itself. How could 300,000 tons of contaminated soil be moved in such a way that the health and safety of the nearby residents could be protected without putting them in further harm? After all, it was the evacuation process that jeopardized their immediate health in the first place. While this remediation effort was meant to protect the broader environment by eliminating the threat of groundwater contamination, the digging and the storage of the contaminated soil on the surface only created a new problem: dioxin laden dust. With this more pressing threat becoming a major public and political issue, the EPA needed to find a solution to the problem: what to do with the residents of Mt. Dioxin?

End Part I
Part II: Where to Put Mt. Dioxin

Based on the levels of dioxin found on the residential properties surrounding the ETC facility, the EPA made the decision that no level of cleanup could protect the people living there and that relocation was the only way to ensure their safety. Once the decision was made to go ahead with the relocation, much debate over property value and processing ensued. Because of the contamination and the perceived undesirable location of the properties, the initial offers from the federal government were quite shocking to some of the residents. The first round of appraisals produced estimates of $20,000 to $27,000 for the homes of the victims of the ETC site. Where could they move to with that type of offer? Many thought that these offers were completely unacceptable and pressed the government for more. Others felt that they had no other choice and accepted the offers, often moving into very poor neighborhoods with high rates of crime. Those that held on claimed that other homes in Pensacola, similar to theirs, sold for $130,000. How could those two numbers be so far apart? Could environmental racism be playing a role once again?

Using the language of environmental justice to pressure the federal government into action, CATE was successful in increasing the buyout offers. All 358 households living directly in the shadow of Mt. Dioxin were relocated. The relocation effort, one of the largest ever pursued by the EPA, took place for almost eight years beginning in 1997 and cost the EPA $25.5 million dollars. The EPA was careful in its wording of the relocation effort, arguing that the relocation effort was due to special circumstances unique to the ETC site. Worried about setting a precedent that other neighborhoods could follow and end up costing the EPA further millions, the managers of the relocation effort argued that of the 358 homes, only 21 had enough contamination to typically warrant a buyout.

Furthermore, many of the activists involved with CATE felt that the EPA only selected the households closest to the site, while ignoring others that while not immediately adjacent to the site, were still subject to exposure to dioxin from the winds and rains washing the contaminated sediment away from the ETC site. These remaining households, also African-American and largely poor, began working with CATE to push for the relocation program to be expanded. CATE sought funds and conducted a health study with the assistance of the Escambia Department of Public Health. They found that many of the residents of bordering neighborhoods were also experiencing health problems. Yet the EPA decided to limit the relocation program to the initial 358 households.

Certainly there is a limit to how many households in Pensacola could have been affected by the ETC site. There is also a limit to the pockets of the EPA in relocating the most severely exposed. As of 2009, this issue remains an ongoing debate between CATE and the EPA. There was also a major issue that for decades remained unsolved. While all the relocation efforts from 1997-2005 proceeded, the shadow of Mt. Dioxin loomed in the distance. With the protective tarp covering the contaminated soil long past its 5-10 year lifespan, the problem of what to do with Mt. Dioxin continued to plague the EPA.
Given the hazards created by its excavation and storage on-site, what was the EPA to do with all that soil? The cost of treating the soil had climbed significantly since the first estimates in the 1990s. For a decade, the soil was left in place largely due to the cost of treatment. Since the EPA had relocated the homes immediately in jeopardy, was the best solution to bring in a new plastic liner and leave Mt. Dioxin untouched for another decade?

Could Mt. Dioxin be moved to a safer location? Was there some rural area in the Southeast where the soil could be safely disposed of? Unfortunately, dioxin has an incredibly long half-life and a confounding ability to bioaccumulate through ecosystems. Would digging up Mt. Dioxin (again) and loading the soil into dump trucks to be shipped out stir up more dust? Likely so, thought the EPA. Yet many of the residents who were left out of the relocation project fiercely want Mt. Dioxin out of their neighborhood. They had put up with it for decades, had been unfairly exposed to the chemicals left by ETC and the EPA, and not been compensated for all that trouble. Why shouldn’t Mt. Dioxin be moved somewhere else; made somebody else’s problem. The residents of the Clarinda Triangle neighborhood who lived nearby did not ask for the contamination to be left in the neighborhood.

With nearly two decades of inaction on the decision of what to do with Mt. Dioxin behind them, the EPA faced a major decision in 2009 as to what to do next. Could they leave the soil behind, build fences, and protect the city of Pensacola from further harm? Or should they listen to many of the left-behind residents and truck the pollution away, where another neighborhood and more unsuspecting citizens could deal with the problem? Or was there another way out?
Appendix A: Dioxin Fact Sheet

BACKGROUND
Dioxins are a group of 210 chemicals with similar structures and chemical properties. When found in the environment, dioxins are usually a mixture of some, or all, of these chemicals. Dioxins are of concern because of their highly toxic potential. Experiments have shown they affect a number of organs and systems. Once dioxins have entered the body, they endure a long time because of their chemical stability and their ability to be absorbed by fat tissue, where they are then stored in the body. Their half-life in the body is estimated to be seven to eleven years. In the environment, dioxins tend to accumulate in the food chain. The higher in the animal food chain one goes, the higher is the concentration of dioxins.

SOURCES OF DIOXIN
Dioxins are not intentionally produced and have no known use. They are the by-products of various industrial (bleaching paper pulp, chemical and pesticide manufacture) and combustion activities (burning household trash, forest fires, and waste incineration). Dioxins are found at low levels throughout the world in air, soil, water, sediment (the bottom of rivers, streams, and lakes), and in foods like meats, dairy, fish, and shellfish. The highest levels of dioxins are usually found in soil, sediment, and in the fatty tissues of animals, with much lower levels found in air and water.

EFFECTS OF DIOXINS ON HUMAN HEALTH
Short-term exposure of humans to high levels of dioxins may result in skin lesions, such as chloracne and patchy darkening of the skin, and altered liver function. Long-term exposure is linked to impairment of the immune system, the developing nervous system, the endocrine system and reproductive functions. Chronic exposure of animals to dioxins has resulted in several types of cancer. Based on animal data and on human epidemiology data, some dioxins are classified as a "known human carcinogen" while others receive the less certain “likely human carcinogen classification.” However, TCDD does not affect genetic material and there is a level of exposure below which cancer risk would be negligible. Due to the omnipresence of dioxins, all people have background exposure and a certain level of dioxins in the body, leading to the so-called body burden. Current normal background exposure is not expected to affect human health on average.

SENSITIVE SUBGROUPS
The developing fetus is most sensitive to dioxin exposure. The newborn, with rapidly developing organ systems, may also be more vulnerable to certain effects. Some individuals or groups of individuals may be exposed to higher levels of dioxins because of their diets (e.g., high consumers of fish in certain parts of the world) or their occupations (e.g., workers in the pulp and paper industry, in incineration plants and at hazardous waste sites, to name just a few).

HAS THE FEDERAL GOVERNMENT SET STANDARDS FOR DIOXINS?
The Federal Government has set some specific standards for dioxins in the environment to safeguard the public health. For example, the U.S. EPA has set a limit of 0.00003 micrograms of
2,3,7,8-TCDD per liter (ug/L or ppb) of drinking water and the U.S. Food and Drug Administration recommends against eating fish and shellfish with levels of 2,3,7,8-TCDD above 50 parts per trillion. However, recent studies suggest that dioxins may be far more harmful to human health than was previously believed and these standards as well as others set for soil, sediment, and food may change in the future.
Appendix B: Understanding Superfund

What is Superfund?

Superfund is the name given to the environmental program established to address abandoned hazardous waste sites. It is also the name of the fund established by the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended (CERCLA statute, CERCLA overview). This law was enacted in the wake of the discovery of toxic waste dumps such as Love Canal and Times Beach in the 1970s. It allows the EPA to clean up such sites and to compel responsible parties to perform cleanups or reimburse the government for EPA-lead cleanups.

How Superfund Works

The Superfund cleanup process is complex. It involves the steps taken to assess sites, place them on the National Priorities List, and establish and implement appropriate cleanup plans. This is the long-term cleanup process. In addition, the Agency has the authority

- to conduct removal actions where immediate action needs to be taken;
- to enforce against potentially responsible parties;
- to ensure community involvement;
- involve states;
- and ensure long-term protectiveness.

National Priorities List (NPL) Listing Process

The NPL is a list of the most serious sites identified for long-term cleanup. When EPA proposes to add a site to the NPL, the Agency publishes a public notice about its intention in the Federal Register and issues a public notice through the local media to notify the community, so interested members of the community can comment on the proposal. EPA then responds to comments received. If, after the formal comment period, the site still qualifies for cleanup under Superfund, it is formally listed on the NPL. Once it is listed, the Agency will publish a notice in the Federal Register and respond formally to comments received. In addition, EPA may issue a fact sheet or flyer to notify the community impacted by the site.

Remedial Investigation and Feasibility Study (RI/FS)

The RI/FS phase of the process determines the nature and extent of contamination at the site, tests whether certain technologies are capable of treating the contamination, and evaluates the cost and performance of technologies that could be used to clean up the site.

Record of Decision (ROD)

The ROD explains which cleanup alternatives will be used at NPL sites. It contains information on site history, site description, site characteristics, community participation, enforcement activities, past and present activities, contaminated media, the contaminants present, description of the response actions to be taken, and the remedy selected for cleanup. The development of the ROD also includes consideration of how the site could be used in the future.
Appendix C: Images of the Cleanup at ETC

Figure 1: Dump trucks moving contaminated soil to its final burial site.

Figure 2: Construction equipment readying the burial site for the contaminated soil.
Figure 3: Sign outside ETC site in May, 2010
Figure 4: Looking through the gates around the ETC site.

Figure 5: ETC after the cleanup.
Figure 6-11: Homes abandoned after being purchased from owners for relocation.