Toxic Playground: A Retrospective Case Study of Environmental Justice in Baltimore, Maryland

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ABSTRACT

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Environmental justice is an emerging field that combines issues of racism, classism, and sexism with the distribution of environmental amenities and disamenities. Arising from the civil rights movement, the environmental justice movement seeks to redress inequitable distributions of environmental burdens and amenities. When communities with high percentages of minorities or low-income families bear a disproportionate share of environmental burdens an environmental injustice has occurred. Past research has focused primarily on the distribution of disamenities but recent research trends have begun to explore the distribution and access to amenities as well.

This research examines how Swann Park, a neighborhood park in Baltimore, Maryland, transformed from an amenity to disamenity through arsenic contamination of the park's soil. The contamination source was a pesticide manufacturing plant formerly located adjacent to the park, Allied Chemical Company. The park was initially closed in 1976 during precautionary testing for kepone. After a small section of the park was remediated, the park was reopened after only a few short months. More than 30 years later it was discovered that arsenic levels in the park were more than one hundred times the
level considered safe. Documents indicate that Allied Chemical was aware of the contamination as early as 1970 and chose not to share their data with state or local health officials. Through personal interviews, archival data collection, and document review, this research seeks to determine whether or not an environmental injustice occurred in 1976.

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CHAPTER 1: INTRODUCTION

According to Robert Bullard “…all people and communities are entitled to protection of environmental and public health laws and regulations” (Bullard 1996, 493). In reality, many people do not receive these protections due to their ethnicity, nationality or economic status. When communities with high percentages of minorities or low-income families bear a disproportionate share of environmental burdens an environmental injustice has occurred. Environmental burdens - or disamenities - can include, among other things, landfills, incinerators, industrial plants, and brownfields. An environmental injustice also has occurred when these communities are lacking in environmental amenities, such as parks or street trees. Environmental justice is an emerging field that combines issues of racism, classism, and sexism with the distribution of environmental amenities and disamenities. The environmental justice movement seeks to redress inequitable distributions of environmental burdens and amenities (Matsuoka 2003).

Environmental injustices are studied for three main reasons. The first is to identify and call attention to the problem. The second is to rectify the problem. In the case of disamenities, rectifying the problem may involve remediation of contaminated sites, updating pollution control technology, or even site relocation. The third reason for investigating environmental injustices is to determine just compensation. Communities disproportionately affected by the siting of a
disamenity may suffer reduced property values, elevated health care expenses, or relocation costs.

Environmental Justice and Amenities
The notion of environmental justice was once thought to apply only to environmental disamenities. Early literature focused solely on minority exposure to toxic waste and pollution. As the benefits of access to amenities became more widely known, the focus shifted to include amenity access as well as exposure to disamenities. A process not yet fully understood is the process whereby an amenity becomes a disamenity. Not all amenities are created equal. In the case of public parks, areas of high crime or gang activity can cause the park to be viewed as a haven for unscrupulous individuals and behavior (Brownlow 2006).

Study Description
In many urban areas, parks and playgrounds compete for space with industrial areas. Amenities and disamenities in close proximity to one another open up the possibility for reduced environmental quality of the amenity as a result of the disamenity. Soil and water contamination, as well as reduced air quality can diminish the benefits of local amenities. This is just what happened at a neighborhood park in Baltimore, Maryland. For 56 years, Swann Park shared a fence with a pesticide manufacturing plant. As a result of containment shed failure, arsenic used at the facility caused soil contamination at the park.
In 1976, officials were mainly concerned about kepone contamination at Swann Park. The same company that operated the Baltimore facility – Allied Chemical Company – had recently reported kepone contamination at its Hopewell, Virginia plant. As a result, Swann Park was closed for a precautionary investigation in March 1976. Allied Chemical, the EPA, and the State of Maryland collected split soil samples from the park and analyzed the samples for kepone and a variety of other heavy metals. Split soil sampling is a method where one sample of soil is divided up among interested parties and then each party conducts an analysis. The results – presented to a panel of 16 federal, state and local health experts known as the Kepone Task Force – revealed safe levels of kepone and slightly elevated levels of arsenic in one region of the park. Allied Chemical remediated the portion of the park with elevated arsenic levels by replacing the top 4 - 6 inches of soil along the fence that the park shared with the plant (Division of Solid Waste Control 1976). The panel then determined that a health hazard no longer existed and Swann Park was reopened. Later that year, the City of Baltimore purchased the site for freeway construction and the plant was closed. The building was demolished and a clay containment cap was installed.

More than 30 years later, in 2007, the Honeywell Corporation – which merged with the Allied Chemical Company in 1999 – contacted the Maryland Department of Environment (MDE) regarding the 1976 kepone investigation. While going through old files, Honeywell discovered documents that showed
Allied Chemical had conducted soil testing that showed much higher levels of arsenic contamination than previously thought. As early as 1970, Allied Chemical conducted private soil sampling that indicated unsafe arsenic levels. Documents also show that Allied Chemical conducted sampling in addition to the split samples taken during the kepone investigation that showed arsenic levels much higher than was shown through EPA testing. One document indicated topsoil arsenic levels as high as 10,000 ppm (Reiter 1976a Appendix D). Honeywell voluntarily turned these documents over to the MDE in 2007.

As a result of these findings, the Mayor of Baltimore, Sheila Dixon, closed Swann Park a second time to the general public on April 19, 2007 for retesting. The results showed high levels of arsenic in the soil. Arsenic levels in the soil at Swann Park ranged from 23 mg/kg to 2,200 mg/kg with a geometric mean arsenic concentration of 339 mg/kg (ATSDR 2007 Health Consultation). The source of the arsenic contamination is believed to originate from the Allied Chemical plant.

The discovery that Swann Park has remained open for more than 30 years despite high levels of arsenic contamination raises many questions. Through interviews and archival document review, this thesis seeks to answer three main questions. First, what social and political factors contributed to the reopening of Swann Park in 1976? Understanding the social and political climate is important in environmental justice studies because both factors can influence decisions that are made. Second, what role did citizens play in the closing and
reopening of the park? Whether or not local citizens were involved in the
decision-making process, and even what steps were taken to inform them, is
important to consider because local citizens are often the most directly affected
by the decisions made. Finally, was an environmental injustice perpetrated in
1976? This question is the main focus of this study.
CHAPTER 2: BACKGROUND INFORMATION

Environmental Justice Overview

Since the late 1980s scholars have debated the meaning of the term “environmental justice.” The traditional definition of environmental justice can be traced to two pioneering studies that examined locations of hazardous waste facilities in communities dominated by African-Americans (GAO 1983; United Church of Christ Commission for Racial Justice 1987). According to these studies, environmental injustice occurs when people of color are forced, through their lack of participation in the decision-making process, to live with a disproportionate share of environmental disamenities. This definition has evolved to include people of other racial and ethnic backgrounds (Bullard 1996).

Over time, environmental justice literature began to consider income as well as race in determining injustice (Hurley 1995; Bullard 1996, 1999). Pellow and Brulle (2005) argue that the environmental justice movement must consider social class and political hierarchies within communities of color in order to fully address the situation. It can be said that the environmental justice movement has always been about class, although not a fundamental organizing principle (MacMilliam 2000). Pellow and Brulle also point out that there are many cases of injustice that cannot be explained by race alone. In studies that consider both race and income, communities with high minority populations are also communities of low income. However, low income communities do not always
have high percentages of minorities as illustrated in Tarrant and Cordell's 1999 study of proximity to an outdoor recreation site.

Eventually, the main debate regarding environmental justice centered on the issue of whether or not there was intent to discriminate. Two categories of definitions emerged - those that focused on intent and those that focused on the inequitable outcome (Downey 2005). According to Been (1995) an environmental injustice occurs only when companies intentionally place hazards in minority neighborhoods. Agyeman et al. (2001) argue that companies that select the path of least resistance (minority areas with little economic or political clout and inexpensive real estate) have committed an environmental injustice even if the intent to discriminate was not readily apparent. Pulido (2000) proposed that inequities were not the result of discriminatory intent, but rather the product of white privilege. By focusing on individual discriminatory acts Pulido argues that researchers miss the role of structural and dominating forms of racism that contribute to inequality.

Downey (2005) maintains that much research to date has defined environmental justice in narrow terms and therefore we only have an understanding of certain forms of it. He presents five broad categories that cover a wide range of possibilities: discriminatory intent, disparate exposure, disparate social impacts, disparate health impacts, and relative distribution. These five categories can be applied to one set of data. For example, Anderton et al. (1994) found in their study of treatment, storage, and disposal facilities (TSDFs)
no significant racial difference between census tracts that contained a TSDF and tracts that did not. The study also concluded that poverty rates and facility siting were negatively correlated. However, when Downey’s five definitions are applied to Anderton’s study, a different conclusion is reached. While discriminatory intent was not shown, disparate social impacts and exposure are revealed based on income. Relative distribution inequity is evident for both race and income. The use of this definition shows that while intent was not the driving force for facility siting, racial inequality does indeed exist.

The majority of environmental justice literature focuses on urban areas (Bullard 1983; Pulido 2000; Perkins et al. 2004; Chakraborty 2006; Schweitzer and Stephenson 2007). Historically, urban areas have experienced greater concentrations of environmental burdens. During America’s early industrial period, manufacturers chose sites close to densely populated areas because most workers walked to their jobs. After World War II, middle and upper class white residents began to leave the city in droves, a phenomenon that would come to be known as "white flight." Urban centers became dominated by minorities and others with low economic status.

Recently, scholars working in this field have expanded the scope of their research to include the distribution of amenities as well as disamenities (Young 1996; Aldy et al. 1999; Tarrant and Cordell 1999; Lindsey et al. 2001; Nichols 2001; Talen 2003, Matsuoka 2003; Perkins et al. 2004). Equal access to parks, recreation areas, clean air, clean water, and safe food has become a pressing
issue in recent years. The benefits of environmental amenities are well known. For example, urban forests have the ability to positively affect emotional health, enhance job satisfaction, and enhance overall quality of life (Perkins et al. 2004). Preserving natural resources for recreation and tourism also provides numerous social and economic benefits for all persons (Driver et al. 1991). Environmental benefits include mitigating urban heat island effects and filtering pollution. Unfortunately, these amenities are often not distributed equitably to urban residents.

In a study conducted by Perkins et al. (2004) social factors impeding urban reforestation efforts in Milwaukee are examined. The Greening Milwaukee program was open to any resident with adequate residential space who wished to receive a free tree. The study found that 91 percent of applicants were homeowners while the homeownership rate of the city was only 45 percent. Furthermore, only 33 percent of the applicants picked up their tree, 89 percent of whom were homeowners. This inequity may be due to the fact that renters may not experience the ecological benefits of their investment in tree planting due to a reduced time spent living at the location. Nor would they stand to gain from increased property values as in the case of a homeowner. Another roadblock for renters in the Greening Milwaukee program is the lack of transportation in low income, high rental neighborhoods to retrieve the tree. Overall, the program was targeted to homeowners and failed to reach out to the renter population.
A common trend in amenity literature focuses on the demographics of residents living near recreational sites. In 1999, Tarrant and Cordell examined the demographic characteristics of residents living in close proximity to outdoor recreational sites of the Chattahoochee National Forest in North Georgia. Using census block groups, results showed that within 1500 meters of the site, the average minority population was much lower than the national average. However, the average median household income was also below the national average.

A similar study was conducted by Lindsey et al. in 2001. This study examined the demographics of residents living in proximity to urban greenways in Indianapolis, Indiana. The authors concluded that communities with higher than average minority populations and lower than average household incomes had greater access to the greenways than communities with a high percentage of white population and higher household incomes. In contrast, surveys administered to residents and trail sampling indicated that residents using the trails were more likely to be white and have higher than average income and education (Lindsey et al. 2001).

Baltimore: Population Trends

Baltimore has been a very diverse city since the 1800s. New York is often thought of as the primary point of entry for immigrants but Baltimore also served as a major hub for receiving immigrants into America (Parker 2004). The early to mid-1800s saw a major influx of African slaves and immigrants from Europe.
Railroad construction and expansion of national public works attracted many people from England, Ireland, and a large population from Germany. By 1832, up to eight thousand immigrants were arriving in Baltimore each year (Olson 1997). Some immigrants continued westward but others settled in Baltimore due to the availability of unskilled labor jobs. The large influx of people taxed many of the city's resources, from housing to health care. The death rate rose early in the 1830s after a marked decrease was seen in 1822. The increased death rate was thought to be caused by contamination of water supplies by human and animal sewage that resulted from overcrowding.

Competition for jobs and housing led to instability between white immigrants and African Americans. Immigrants were now fighting for jobs once reserved for black workers, such as laborers in the coal yards. Violence, riots, and fires were common occurrences well into the mid-1800s. In spite of pressure from the immigrant population, the black community maintained its presence in the field of seaman, oystermen, and brick-makers mainly due to past experience that immigrants could not compete with. Since market conditions in Baltimore did not favor slave labor, the number of free blacks in Baltimore approached 100 percent by 1851 (Olson 1997).

After the Civil War, immigration continued to rise, peaking at twelve thousand immigrants each year, mostly German. The German population became well established as entrepreneurs, doctors, and school teachers. German newspapers, banks, churches, and schools were established and
thrived. They also introduced a variety of new festivals and traditions. Immigration, particularly German Jewish continued until the early 1900s. Foreign immigration tapered off in the mid to late 1900s.

By the 1930s, South Baltimore was a thriving industrial community that rivaled northern cities such as Detroit (Durr 2003). Iron and steel production dominated the economy while textile manufacturing was a close second. South Baltimore was dominated by large companies such as Bethlehem Steel Corporation, the city’s single largest employer, and General Motors. Due to the proximity to employment, South Baltimore’s population was made up largely of white, blue collar, working class residents. Housing closest to one’s place of employment was seen as a benefit. Meanwhile, restrictive covenants prevented African Americans from living in these industrial areas. Although steel manufacturing began to decline after WWII, South Baltimore remained an industrial hub due to its proximity to the sea port.

Beginning in the late 1980s, Baltimore began to experience a dramatic emigration. Between 1980 and 1990 Baltimore lost 11 percent of its population (U.S. Census Bureau). The main cause of this population shift was a decrease in manufacturing jobs. Mechanization replaced a large portion of skilled labor jobs that residents had relied on. White flight out of the city and into the suburbs is a phenomenon that began in the 1960s and occurred into the yearly years of the 21st century.
Segregation ordinances played a vital role in shaping the social landscape of Baltimore. Baltimore was the first city in the nation to legally segregate its city blocks by color. On May 15, 1911, Mayor J. Barry Mahool signed into law an ordinance separating blocks by color for residences, churches, and schools (Power 1983). Prior to this ordinance housing was integrated in all twenty wards of Baltimore. A significant increase in the African American population between 1880 and 1900 sparked desire in the white community for segregation. Blacks migrating into the city had little money and limited job opportunities. They often lived in small cramped quarters, sometimes living two to three families per house. These neighborhoods became Baltimore's first slums.

Disease was a primary concern in the early 1900s. Overcrowding and unsanitary conditions were facilitating the spread of communicable disease, with tuberculosis being the most widespread and fatal disease. A citywide plan was put into effect to control the spread of the disease. Laws against spitting were enacted and the local government sought to clean up and "humanize the urban environment" (Power 1983). Public baths were established and hospitals were created. However, these facilities were for the white population only.

Overcrowding and a lack of sanitation continued to plague neighborhoods while the black population continued to increase. White families with the financial means left these neighborhoods and the vacant houses were quickly filled with double and triple family occupancy. The demand for better housing caused the
black community to expand west and north of central Baltimore. When the black community attempted to move east, the white community resisted. Tension and violence prompted the passing of the first segregation ordinance. The ordinance stated that no black person could move into a block where more than half of the residents were white and no white person could move into a block where more than half of the residents were black (Power 1983). Blocks that were mixed prior to the ordinance were to remain that way until the market determined their destiny. The City of Baltimore deemed that such an ordinance was constitutional because it was within the state's police power to control friction between the races. A total of four segregation ordinances were passed, all having the same basic premise. The segregation ordinance remained in effect until 1917 when the Supreme Court struck down a similar ordinance in Louisville, Kentucky, thus ending segregation ordinances in other cities as well (Power 1983). However, segregation remained in Baltimore in the form of restrictive covenants until 1968 when the Supreme Court ruled that all housing discrimination, both public and private, was unconstitutional.

Today, Baltimore continues to be influenced by a past marked by de jure and de facto segregation. The ruling of segregated housing as unconstitutional did not mean that housing was immediately integrated. Housing patterns in Baltimore today continue to show signs of segregation, largely out of preference and utility. The African American population in Baltimore continues to rise while Caucasian numbers have stabilized. African Americans that move into Baltimore
may prefer to live in areas that have remained predominantly black due to Baltimore's segregated past.

Another housing trend that has persisted is the presence of primarily white neighborhoods in industrial areas. Because proximity to employment was considered an amenity in the days before automobile travel, the most desirable housing was reserved for non-immigrant white families. In 2002, Boone examined TRI sites and their location within Baltimore City census tracts. Boone's study concluded that more TRI sites are located in census tracts that are primarily Caucasian. Even though Baltimore's segregation laws were overturned long ago the social patterns still exist.

Baltimore Parks

The current focus of environmental justice literature has expanded to include the study of amenities as well as disamenities. Public health research showing the role of parks in reducing obesity rates has made them a prime subject for environmental justice review. While some cities struggle to meet accessibility goals for park access, Baltimore is unique in that it maintains an abundance of parks, both large and small (Figure 1). This abundance of recreation space was not easily obtained. Prior to the second half of the nineteenth century, park establishment was a difficult process (Tuason 1997; Rosenzweig and Blackmar 1992). In Baltimore, parks were created by piecing together small pieces of private land or relying on donations of large tracts. Indeed, most of Baltimore's large parks, including Druid Hill, Leakin, Patterson, Clifton, and Carroll, are
located on land that once belonged to Baltimore's wealthy elite. Initially, these tracts were situated well beyond the Inner Harbor. In 1899, the Municipal Art Society was established to promote city beautification. The Society hired the Olmsted Brothers architecture firm to suggest ways the city could improve and expand its park system. The resulting report included plans to create numerous small parks and playgrounds, expand larger parks, and set aside areas for future use (Zucker 1995; Buckley, Bailey, and Grove 2006). Many of the recommendations made by Olmsted Brothers were adopted.

Even though parks are considered public space not everyone has equal or equitable access to these spaces. In the city of Baltimore, both social and spatial constraints limited access to some parks by African Americans. Although Olmsted Brothers sought to achieve a "roughly equitable distribution" of resources for "all the people" (Korth and Buckley 2006, unpaged), the reality of various social and political factors often prevented this from occurring. For example, when J. Wilson Leakin died in 1922 his will stipulated that his downtown estate be sold and the profits used to purchase a large tract of land for a new park. On the recommendation of Frederick Law Olmsted, Jr. the Crimea estate of Thomas Winans was purchased and "Leakin Park" was established next to an already existing park (Boone et al. In Press). Although Baltimore's east side was in greater need of a park, its declining population and rising cost of land made it less appealing as a possible location.
By the early 20th century, several studies and reports pointed to the lack of park space for Baltimore's inner city residents. A study by the Urban League in the mid-1930s noted a shortage of recreation space for African Americans as well as facilities (Reid 1935). In 1938, the South Baltimore Improvement Association reported that many children had long distances to travel in order to reach safe areas to play. The National Recreation Association for Baltimore's Board of Public Recreation issued a plan in 1941 that concluded that the ratio of park acres to total African American population was quite out of proportion, especially in the city's congested northwestern and eastern sections. This congestion, caused by the sharing of former single family white housing by two or even three African American families, further taxed the already inadequate small parks. The plan recommended that the city acquire an additional 473 acres for the enlargement of 11 playgrounds and the creation of 14 new playgrounds (Pangburn and Allen 1941).
Having access to a local park did not necessarily mean that African American residents could take full advantage of all that a park had to offer. Residential segregation made some parks, that were within close proximity to Caucasian neighborhoods, off limits. Baltimore city ordinances of 1910, 1911, and 1913 segregated the city into "white" and "colored" blocks, as well as segregated churches and schools (Boone et al. In Press). Recreational activities at the parks were also subject to segregation. African American children were not allowed to play organized sports with Caucasian children and police were known to break up inter-racial games of baseball, football, and soccer. Although frequently challenged by social groups, citizens, and even realtors, the ordinances persisted.
Parks were not the only amenity that fell under segregation ordinances. Golf courses also were labeled as either "white" or "colored." A 2008 historical account by Wells, Buckley, and Boone illustrates how the Carroll Park golf course figured into the struggle to desegregate Baltimore's recreational facilities. Up until 1930, Carroll Park golf course was a "whites only" facility. It wasn't until the Monumental Golf Club of Baltimore challenged this designation that African Americans were permitted to play at this facility. Baltimore's Board of Public Park Commissioners (BPPC) granted access to African American players in August of 1934 based on precedents set in Washington, D.C., and Philadelphia, and on the belief that allowing African Americans to play at this course would not have an adverse impact on nearby white neighborhoods (Wells, Buckley, and Boone 2008). Public outrage and protests forced the BPPC to reverse its decision and instead designate certain days for Caucasian and African American players. In 1936 this decision was again changed to allow unrestricted access to African American players at the Carroll Park facility but they were banned from other facilities in the city. This decision was made to satisfy the separate but equal policy.

Throughout the next 20 years battles were fought over whether the recreational facilities available to African Americans were equal to those of whites. On November 7, 1955 the Supreme Court upheld a ruling that the legal authority for Baltimore's park segregation was overturned with the decision to integrate schools (Brown V. BOE 1955). This ruling meant that all parks, golf
courses, swimming pools, and beaches were open to all citizens regardless of race.

Today, Baltimore’s African American population has better access to more parks than the white population (Wells, Buckley, and Boone 2008). White flight from the city to the suburbs has allowed the African American population, once confined to the inner city, to move into areas where park space was more abundant. While this can be seen in a positive light, as this thesis will illustrate, not all park space can be considered an amenity. Future environmental justice literature needs to address the quality of amenities and how well they are meeting the needs of its population. Parks that experience high rates of crime, contamination, or even a lack of basic maintenance need to be assessed differently than their counterparts (Smoyer-Tomic et al. 2004). Using a needs-based approach as well as examining the quality of available space will go a long way towards addressing environmental justice concerns.
CHAPTER 3: HAZARDOUS WASTE

Then and Now

Hazardous waste storage and disposal has been a prominent environmental issue for the past three decades. However, prior to 1976 it was almost a non-issue for most people. There was no unified opinion that hazardous industrial waste was a threat to public health. There was also no regulation that required facilities to report their waste disposal practices. For many facilities waste disposal involved discharging pollutants freely into the air or nearest body of water. Alternatively, wastes were stored in steel drums and buried at undisclosed locations. By the early to mid 1970s federal clean air and water acts provided some regulation over the incineration, and water and ocean dumping of some hazardous wastes but land disposal was still unregulated (Szasz 1994). Since there was no record of how much waste was being generated or how it was being handled, the environmental and health effects of these chemicals were largely unknown.

The Love Canal disaster of 1978 placed toxic waste disposal on the national stage. The EPA called Love Canal "one of the most appalling tragedies in American history" (Beck 1979, unpaged). Love Canal was certainly not an isolated incident; it just happened to be the most publicly covered event. American households began to fear toxic waste and that fear sparked a dynamic social movement (Szasz 1994). Out of this movement came grassroots
organizations and eventually more permanent social organizations. Legislation was also enacted to address hazardous waste disposal so that future toxic waste disasters could be mitigated.

Regulations addressing hazardous waste disposal aim to correct the "market failure in which hazardous waste generators avoid paying the full price of safe disposal in the short run by shifting those costs and the attendant long term risks to the general public" (Williams and Matheny 1998). Regulation strives to shift the cost and burden of hazardous waste disposal back to the generator in order to benefit the public. Unfortunately, the intent of regulation and the real world result is often very different. While hazardous waste regulation attempts to benefit the general public, it calls attention to previously unknown hazardous waste sites, which can lower property values, decrease tourist activity, and cause migration from the area. Two very important pieces of legislation, the Resource Conservation and Recovery Act (RCRA) and the Emergency Planning and Community Right-To-Know Act (EPCRA), have contributed to improved waste management practices but they too have their limitations.

Resource Conservation and Recovery Act

Regulatory action to manage toxic waste dates to the 1970s. The EPA began laying the framework for RCRA in early 1970. RCRA regulations use tracking and permitting to control hazardous waste from the generating facility to the disposal site. RCRA regulations apply to all generators of waste, large or small, federal or private. Most importantly, this law banned all open dumping,
encouraged reduction of waste, and promoted recycling and safe disposal of hazardous waste. RCRA set four main national goals: 1) To protect human health and the environment from the potential hazards of waste disposal; 2) to conserve energy and natural resources; 3) to reduce the amount of waste generated; and 4) to ensure that wastes are managed in an environmentally sound manner (U.S. EPA 2008). To achieve these goals the EPA established three programs: the solid waste program, the hazardous waste program, and the underground storage tank program. The solid waste program addressed non-hazardous industrial and municipal waste disposal. This program set standards for landfills and other facilities. The hazardous waste program established a program for controlling solid waste during all management stages. Finally, the underground storage tank program addressed underground storage tanks containing hazardous substances and oil-based products.

Like most early solid and hazardous waste legislation, RCRA suffered from a lack of support and enforcement authority. Even though RCRA was in the works months before Love Canal was declared a federal emergency a lack of support hampered its implementation. Section C required that the EPA reduce hazardous waste generation by the spring of 1978 but the regulatory constituency and Carter administration stalled until it was too late. A lack of public concern and industry backing also added to the delay. Had the EPA developed its regulatory program on time, regulations would have been in place well before the Love Canal disaster.
Criticism from the public for not having a hazardous waste program in place prior to Love Canal led to passage of the Federal Hazardous and Solid Waste Amendments in 1984 which strengthened RCRA. These amendments required RCRA to phase out land disposal of hazardous waste and implemented an underground storage tank monitoring program. In addition, the EPA was given increased enforcement authority and more stringent hazardous waste management standards were put into place.

One of the biggest limitations of RCRA is that it does not apply to inactive or abandoned sites. Once a site becomes inactive it is regulated by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Commonly referred to as Superfund, CERCLA was enacted in 1980 to address and clean up abandoned hazardous waste sites and to compel responsible parties to perform cleanups or reimburse the government for EPA-lead cleanups (U.S EPA - Superfund). Sites eligible for cleanup under CERCLA must first be placed on a national priorities list, which ranks the sites by imminent health threat. Unfortunately the Superfund program is underfunded and identifying responsible parties for clean up can be a difficult and time consuming process. This means that many sites will remain a threat to public and environmental health.

Emergency Planning and Community Right-To-Know Act

The Toxics Release Inventory (TRI) program also addresses industrial toxic substances. Demands by the public and environmental groups to know what is
being released by industrial facilities led to the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986. EPCRA requires facilities to report the chemicals and their quantities that are stored onsite. In addition, the EPA and individual states must collect data on chemical releases, either planned or accidental, and transfers. These data must be made available to the public in the Toxics Release Inventory, which covers 650 toxic chemicals. Additional data on the chemicals in the TRI were required by the Pollution Prevention Act of 1990. The TRI along with the Pollution Prevention Act enabled citizens to be informed about their environment and to hold companies responsible for the proper management of chemicals.

While the TRI program provides a comprehensive database of chemicals stored, transferred or released, it has several limitations. The biggest limitation is that facilities self report the TRI data they submit to the EPA. The data that are provided are usually only estimated release data, not actual monitoring data. By providing estimated data the TRI may be unreliable and grossly underestimated. A study conducted by the Environmental Integrity Project found that companies may be failing to report up to 15 percent of their emissions data (Environmental Integrity Project and Galveston-Houston Association for Smog Prevention 2004). Their report noted that some specific chemicals, such as benzene and butadiene, may actually be four to five times higher than what is reported. The Environmental Integrity Project also cited a lack of adequate emissions monitoring and relaxed EPA oversight. Instead of the EPA tightening regulations
to compensate for the underestimated release data, the EPA adopted new, weaker, rules for air emissions reporting in 2004.

While the TRI covers approximately 600 chemicals it does not cover all toxic chemicals that have the potential to harm the public or the environment. Chemicals and chemical groups that are required for TRI reporting must meet one of three criteria. The substance in question must be anticipated to cause: 1) significant adverse acute health effects; 2) cancer, teratogenic effects, reproductive effects, neurological effects, heritable genetic mutations; or 3) adverse effects on the environment because of its toxicity, persistence or bioaccumulation potential (www.scorecard.com). While the EPA has the authority to add, delete, or change maximum limits of chemicals listed under the TRI, they seldom review environmental health data to determine if new chemicals meet any of the above listed criteria. According to EPA's Toxic Substances Control Act (TSCA) Inventory, the chemicals covered under the TRI account for less than 1 percent of the approximately 75,000 chemicals manufactured in the United States.

In addition to an incomplete list of chemicals, TRI reporting requirements only apply to specific sources of pollution. TRI currently covers major manufacturing plants in specific industrial sectors but does not include commercial activities such as dry cleaners, hospitals, airports, automobiles, or agricultural application of pesticides. If a facility covered by TRI qualifies as a small business, having fewer than ten employees, or generates less than the
threshold for certain TRI chemicals they may be exempt from reporting TRI data. Chemicals that are used during manufacturing processes are also exempt from TRI reporting. The TRI only requires facilities to report their chemical waste, not the type or quantity that is used or may remain in the final product.

Arsenic

Arsenic is a naturally occurring element that can be found throughout the earth's crust. In fact, it ranks twentieth in abundance among elements present in the crust (Yang and Donahoe 2007). Frequently referred to as a metal, elemental arsenic is a grey, solid material. It is rarely found in the environment alone. Arsenic that has combined with oxygen, sulfur, or chlorine is referred to as inorganic arsenic; combined with carbon or hydrogen it is referred to as organic arsenic (ATSDR 2007b). There are many types of arsenic compounds but arsenic trioxide is one of the most toxic and prevalent forms (ATSDR 2007a). Most organic and inorganic arsenic compounds are white or colorless and have no smell or taste. These traits make it difficult to detect arsenic in food, water, air, or soil without chemical testing.

Since the discovery of arsenic by Albertus Magnus around 1250, arsenic has been known as a poison (Smith 2001). It was used primarily as a homicidal agent from the Middle Ages until the early eighteenth century when improved methods for detecting arsenic in body fluids were developed. Around 1900 the use of arsenic shifted to the making of insecticides, rat poisons, herbicides, and wood preservatives, as well as pigments in paints, wallpaper, and ceramics.
Arsenic was even used as a treatment for syphilis when a German pharmacologist named Paul Ehrlich combined arsenic with sulfur (Smith 2001). Arsenic was also present in Fowlers Solution, one of the most long-lived medicinal preparations for the treatment of psoriasis.

Modern uses of arsenic still include wood preservatives and pesticides. About 90 percent of the arsenic produced in the world is used for wood preservation, although it is no longer produced in the United States (ATSDR 2007b). Wood that is pressure treated with copper chromated arsenate (CCA) is resistant to rotting and decay. In 2003, U.S. manufacturers of wood preservatives began a voluntary phase out of CCA; however, wood that was treated prior to this phase out could still be used for new structures (ATSDR 2007b).

Inorganic arsenic-based pesticides can no longer be used in the U.S. but organic arsenic compounds in pesticides are still allowed. Primarily used on cotton crops, organic arsenic compounds are effective at controlling johnson grass and bark beetles. It is also used for cotton defoliation, a soil sterilant, and as a silvicide in forest control (United Nations Environment Programme, International Labour Organisation and World Health Organization 1992).

Once arsenic has entered the environment it cannot be destroyed, it can only change form. For example, it may change by reacting to molecules in the air, soil, or water, or by interacting with bacteria. Arsenic that is emitted from combustion processes can be transported long distances before settling in the
soil. Arsenic is also water soluble and can contaminate lakes, rivers, and groundwater sources. Leaching of arsenic into groundwater is a major public health concern due to the threat of contaminated drinking water.

While groundwater contamination is of primary concern, arsenic-contaminated soil can also pose health concerns. Inhaling blowing soil, eating vegetables grown in contaminated soil, and children ingesting soil are ways that arsenic can enter the body. If the source of contamination is an industrial facility, the radius of soil contamination can be quite large. In a study conducted by Folkes, Kuehster, and Litle in 2001, it was found that the concentration of arsenic emitted from stacks of an industrial plant was much higher for properties situated more than 1000m from the plant than properties adjacent to the plant. In the case of a contaminated lot, a lack of ground cover may cause wind to carry contaminated soil short distances, but the health risk would decline with distance. As Folkes, Kuehster, and Litle note, background levels of arsenic, either naturally occurring or anthropogenic (e.g. pesticide application), must be determined before the true contamination from a stationary source can be determined.

The health effects of arsenic exposure are dependent on the route of exposure and size of dose. Exposure can occur through inhalation, skin or eye contact, or ingestion. For the general public living in areas free from arsenic contaminated sites or high industrial activity, the risk of adverse health effects from inhaling arsenic is low. However, workers exposed to arsenic dust during arsenic mixing, or sanding or cutting of pressure-treated wood, have a much
higher risk from exposure. Arsenic trioxide is readily absorbed through the lungs and can cause adverse health effects. Inhaling high levels of arsenic (more than 100 $\mu$g/m$^3$) can cause sore throat and irritated lungs (ATSDR 2007b). Chronic exposure to lower concentrations can lead to circulatory and peripheral nervous disorders, conjunctivitis, and perforation of the nasal septum (ATSDR 2007b, ATSDR: General Information).

Direct contact with arsenic dust or arsenic-contaminated soil on an acute level is unlikely to cause adverse health effects. Unless the surface of the skin is broken, acute exposure will only lead to surface irritation. Arsenic is absorbed through the skin in low levels but is quickly eliminated from the body.

Ingestion of arsenic is the most prevalent route of exposure. Ingestion can occur from drinking contaminated water, eating contaminated food, or from children eating soil that has been contaminated with arsenic. Once ingested, arsenic is quickly absorbed and can lead to significant health effects. While toxicity from natural sources of arsenic is rare, as little as 1 to 2.5 mg/kg of arsenic trioxide is a potentially fatal dose (ATSDR: General Information). Once in the gastrointestinal tract, the effects of arsenic poisoning can manifest themselves anywhere between thirty minutes and several hours, depending on the dose. Initial symptoms can include burning lips, severe abdominal pain, nausea, gastrointestinal hemorrhage and diarrhea. Large doses can cause organ failure and death. It should be noted that an acute dose of 1 to 2 mg/kg is usually seen in suicide or homicide cases.
Generally speaking, the risk of arsenic poisoning from exposure to arsenic-contaminated soil is low. Tsuji et al. (2005) examined residents living in close proximity to a former pesticide manufacturing plant that has a history of arsenic-contaminated soil. Urine and toenail samples, soil, house dust, and homegrown vegetables were analyzed for concentration of arsenic. Tsuji et al. found that arsenic levels present in urine and toenail samples were below the ATSDR set level for all participants and arsenic concentrations in house dust was not correlated with soil arsenic levels. Twenty-five types of vegetables showed low levels of arsenic, <0.6 mg/kg, while tomatoes showed concentrations near or below detection levels. Sipter et al. (2008) found that vegetables grown in gardens flooded with arsenic-contaminated water had concentration levels below detection limits. They concluded that the heavy metals found in the soil were not well absorbed into the vegetables.

**Arsenic in Bangladesh**

Perhaps the best known case of arsenic contamination occurs in Bangladesh. In the 1970s aid organizations started promoting groundwater as a safer alternative to polluted stream or pond water (van Geen, Ahmed, and Graziano 2005). More than 10 million tube wells were constructed to provide groundwater through public and private wells. The groundwater provided to over 100 million people was contaminated with arsenic, exhibiting levels higher than the permissible level of 0.05 mg/L (Safiuddin and Karim 2001). The source of arsenic was naturally occurring in the iron rich soil of Bangladesh. The constructed tube wells caused
the arsenic in the soil to mobilize and contaminate the water. The contaminated water is the used for drinking, cooking, and irrigation. As a result, 90 percent of village people tested have arsenic in their hair, nails and urine above the normal level. This has caused a large number of people in Bangladesh to suffer from chronic arsenic poisoning.

**Arsenic Regulation**

Although the risks of arsenic exposure have been known for some time, U.S. regulations to limit and control human exposure to arsenic are relatively new. In 1942, the Public Health Service set a recommended maximum level of arsenic in drinking water at 50ppb (U.S. EPA- Fact Sheet). This level was based on non-cancerous health effects. It was not until 1974 that the EPA adopted this level of 50ppb as the maximum containment level (MCL) for drinking water as part of the Safe Drinking Water Act of 1974. In 2002, the standard for arsenic content in drinking water was lowered to 10ppm.

While contaminated drinking water is the most common route of exposure, arsenic-contaminated soil can pose the same health risks. Due to the fact that oral exposure is less likely to occur from contaminated soil, clean up levels are set for soil rather than Maximum Containment Levels (MCL’s). The MCL is the highest level that a contaminant is permitted in drinking water. Clean-up levels are set by the individual states and are based on historic background levels of naturally occurring arsenic and whether the area is residential or industrial. The
proposed clean-up level for arsenic in the eastern region of Maryland is 2.3 ppm (State of Maryland Department of the Environment 2000).
CHAPTER 4: METHODOLOGY

Study Site

The location of this environmental justice study is Swann Park in Baltimore, Maryland. Located in the West Federal Hill neighborhood on the South Baltimore Peninsula, Swann Park is a small neighborhood park with several baseball diamonds, football fields, and soccer fields (Fig. 2). Originally named Moale Point, Swann Park was constructed in 1907 as a city park. Most of the park’s 11.06 acres was purchased from Charles Moale in 1902. The park regularly hosts little league games and serves as the Digital Harbor High School practice field.

Fig 2: Map of Swann Park and Surrounding Area (www.googlemaps.com)
Just north of Swann Park is the former location of the Allied Chemical Company. Allied Chemical, located at 2000 Race Street, was in operation from 1920 to 1976. The plant covered 6.2 acres and shared its southern border with Swann Park. The Allied Chemical Company manufactured Epsom salts, arsenic acids, and calcium and lead arsenates. Kepone blending was added to production in 1959. The facility ceased operation in late 1976. The City of Baltimore purchased the site for freeway construction (Edelson 2007). The building was demolished and a clay containment cap was installed.

Today, the location remains a primarily industrial area. Above the former Allied Chemical Company location is Interstate 95. Although the Federal Hill neighborhood is considered one of the fastest growing and most desirable places to live in Baltimore, residential housing near Swann Park is very limited. Less than 300 yards from Swann Park is a collection of seven row houses (Fig. 3). Across from those row houses is an abandoned building (Fig. 5) and directly behind is the Schuster Concrete Company (Fig. 4). Across the harbor industrial factories line the shoreline.

Fig. 3: Row Houses Adjacent to Swann

Fig. 4: Schuster Concrete behind the Row Houses
Interviews

This study used semi-structured personal interviews with key informants as the main method of data collection. As Crabtree and Miller point out in their book, *Doing Qualitative Research* (1999), key informants have access to perspectives and observations otherwise denied to the researcher. In addition, they provide an efficient way of gathering information in a resource limited environment. Key informants are also important because they can offer “access and sponsorship” to key areas of my research. For example, developing a relationship with a key informant may then lead to access to other informants with whom the key informant is working.

The interview questions were based on the respondents' knowledge of events leading to the closure and subsequent reopening of Swann Park in 1976. Key informants were organized into categories of agency representatives, local residents, and members of the Swann Park Task Force. Each respondent was asked the same two questions and then three to four additional questions tailored
to their specific category. The two questions that were presented to each respondent were developed in order to provide a point of comparison. When using interview responses as research data there is a possibility of introducing inaccuracy to the study. By asking multiple respondents the same question the answers can be compared to identify inconsistencies.

Personal interviews also have the potential to bring bias into a study (Hewitt 2007). To minimize bias to the greatest possible extent I structured the interviews around open-ended and non-leading questions. I also took great care to avoid using positive or negative connotations when discussing the events at Swann Park. Personal bias brought to the interview by the respondent is often unavoidable but can be minimized by verifying responses against multiple data sources whenever possible. Crabtree and Miller (1992) refer to this as the triangulation method for determining trustworthiness of qualitative research.

The fact that so much time has elapsed since the park first closed presents unique challenges when it comes to collecting interview-based data. The first limitation is that most of the individuals who were directly involved with the original Swann Park controversy were unreachable. Many of the individuals have moved out of the Baltimore area and could not be reached. Unfortunately, some key individuals have since passed away (e.g. the Baltimore Director of Recreation in 1976). Some individuals chose not to speak with me for personal reasons. The second limitation is that people often forget the details of an event that occurred over 30 years ago. Some of the respondents were unable to
answer the interview questions because they could not recall what had happened. Limitations such as these are unavoidable and must be worked around.

Archival Data Collection

Archival data collection was used in this study to supplement data collected through personal interviews. Archival data collection consisted of document review, media coverage analysis, and census data collection.

Document review was a vital tool used in this study. Document review can provide verifiable data that may not be presented in interviews. Official documents can support or refute arguments. Documents can also provide a look into the past when involved people are unreachable or cannot recall certain details. In this study, documents provided to the Maryland Department of the Environment (MDE) by the Honeywell Corporation from 1976 provided vital data that would have been otherwise unobtainable. I reviewed public health documents, government statements and reports, official documents from Allied Chemical Company, and reports issued by the Swann Park Task Force.

Media coverage of events surrounding Swann Park was reviewed from two time periods and from two different perspectives. Since the second closing of Swann Park was a relatively recent event, current media coverage was readily available through newspapers and web blogs. Newspaper microfilm at the Enoch Pratt Free Library in Baltimore, Maryland, allowed me to review media coverage from February to August, 1976. Media coverage serves two purposes:
it serves as a data source and it illustrates how well informed the public is about
the issue. Information provided by the media can be used with documents and
interviews to obtain and compare data. Since most people become informed
about issues through the media, lack of media attention concerning an issue may
signal a lack of public knowledge. Likewise, if an issue is well covered, the public
may be better informed and might be more likely to involve themselves.

There are some limitations to the use of media coverage as data. Media
sources are supposed to provide an unbiased view; however, personal bias may
creep into reporters’ stories. Reporters are also frequently working on short
deadlines and may not verify information before it is presented to the public. Due
to these limitations, any data taken from newspaper articles or websites used in
this study were verified to the best of my ability.

Media coverage as an indication of public knowledge was limited to
printed media. Archived broadcast media for 1976 is severely limited and was
unavailable for analysis at the time of this study. Another limitation to this study
was the lack of access to neighborhood newspapers or newsletters. Only the
major Baltimore newspapers are available on microfilm. Since Swann Park was
a small neighborhood park, news of its closure in 1976 may have been limited to
neighborhood newsletters and word of mouth.

The most common source of data in environmental justice studies are
census data. Census data have the ability to provide demographic information at
multiple scales, from census block group to a national scale. The scale at which
a study is conducted greatly affects the conclusion. In general, the unit of analysis used should be appropriate to the research question and should not dilute or inflate the affected population. A large portion of early research relied on zip code areas as the unit of scale (Willard 1982; Bullard 1983; United Church of Christ Commission for Racial Justice 1987; GAO 1993). However, the use of zip codes has been criticized for several reasons (Baden 2007). Zip codes were developed by the postal service, and reflect their needs, not the makeup of the community. They are also subject to change at anytime without public notice. Studies conducted at a national scale blur historic, economic, and cultural differences that exist at the regional and local level (Schweitzer and Stephenson 2007). Current research tends to employ more local spatial scales, such as census tract or ward level. Census tracts are viewed as more appropriate for study because they are more likely to reflect the community’s view of where one neighborhood ends and another begins (Been 1995). Census tracts are meant to remain stable but when a census tract does change, the change is published.

For this study tract level data were deemed appropriate. Data from the 1970 and 1980 census were employed for census tract number 2303, which encompasses Swann Park. For comparison, census data for the City of Baltimore was also analyzed for both 1970 and 1980.

Demographic variables analyzed in this study are consistent with past, as well as current, environmental justice literature. Early literature considered only race as the determining factor of environmental injustice but current trends have
included factors such as income, unemployment rate, and percent of persons living below the poverty line. This study considered seven demographic variables: race, highest education level completed, unemployment rate, household median income, persons living below poverty level, renter vs. owner occupied housing, and median home value.

Data Analysis

Data were analyzed using common qualitative research methods. Interview data were coded after the interview had taken place to identify patterns and inconsistencies. Archival documents were also analyzed for patterns and inconsistencies, particularly when comparing internal Allied Chemical Company memos and reports and documents from the Kepone Task Force. Citizen knowledge and involvement was gauged by using personal interview data as well as examining media coverage. Media coverage was obtained by scanning the most prominent Baltimore newspaper of the time, the *Baltimore Sun*, and noting the number of articles that appeared during the timeframe of February 1976 to August 1976. Current media coverage was also examined to obtain information on local residents still in the area.
CHAPTER 5: DATA COLLECTION AND RESEARCH

The bulk of the data for this thesis was acquired from semi-structured interviews. After obtaining Institutional Review Board (IRB) approval, I interviewed six key informants: the director of the Parks and People Foundation*, the program director of the MDE, a representative from the MDE's Department of Environmental Justice, a member of the Swann Park Task Force who is also president of the Federal Hill Neighborhood Association, former Baltimore park superintendent and city forester, and a resident who has lived in Baltimore for 80 years. Five interviews were conducted in person and one was conducted via telephone. Each respondent was given a copy of the interview questions so that they would have an idea of my research interests and could prepare themselves. The interviews were tape recorded so that the interview could be transcribed and coded for further analysis. The respondents were given the option of remaining anonymous or having their name used in my study. The transcripts of the interviews are available in the appendices.

Demographics

In an environmental justice study, the demographics of the area being studied are important factors to consider. In the past, race figured prominently in determining whether or not an environmental injustice had occurred. Today, race is just one of several factors researchers take into consideration. This study considered seven demographic variables: race, education level, unemployment

* Parks and People is a Baltimore organization working to improve the physical, social and environmental quality of neighborhoods through greening activities (www.parksandpeople.org)
rate, household median income, persons living below poverty level, renter vs. owner occupied housing, and median home value (See Table 1).

When compared to the City of Baltimore as a whole, the demographics of the population living near Swann Park stand apart. According to the 1970 census, the census tract that includes Swann Park was 99.8 percent Caucasian and in 1980 it was 99.0 percent. In comparison, the City of Baltimore was 52.9 percent and 43.9 percent Caucasian in 1970 and 1980, respectively. The high percentage of Caucasians living near Swann Park, a primarily industrial area, is consistent with Boone’s (2002) findings that housing in industrial areas of Baltimore were once reserved for white workers. This housing pattern has persisted throughout the years.

The education levels of people living near Swann Park differed from the city as well. For both 1970 and 1980, a greater percentage of residents, 25 years of age and older and living in the City of Baltimore, had obtained a high school diploma compared to census tract 2303 and more than five times the number of people had received some form of college education. A surprising increase in the percentage of people with less than a high school diploma occurred between 1970 and 1980. In 1970 the percentage of people having completed less than four years of high school for census tract 2303 was 12.7 percent and 8.3 percent for the City of Baltimore. Ten years later those statistics had risen to 55.4 percent and 30.6 percent for the Swann Park tract and the City of Baltimore respectively.
The high percentage of people without a high school diploma could possibly be explained by the high number of manufacturing jobs in Baltimore. Factory jobs require little formal education and do not typically provide incentives for people to receive their high school diploma, much less a college education.

Unemployment rates for census tract 2303 and Baltimore City show a substantial difference in 1970. The percentage of people in the labor force in census tract 2303 who were unemployed was 5.3 percent, much lower than the city-wide average of 8.0 percent in the City of Baltimore. The 1980 unemployment rate was also substantially lower for the Swann Park census tract as compared to Baltimore City.

The median income for 1970 was $462 higher for the City of Baltimore than for the Swann Park census tract. By 1980, however, the Swann Park census tract had a median income that was $1975 higher than the City of Baltimore. The median housing value for the City of Baltimore was significantly higher than the Swann Park census tract in both 1970 and 1980. Poverty rates for the City of Baltimore were also higher for the census years studied, 7.5 percent greater in 1970 and 2.0 percent greater in 1980.

The number of vacant homes in an area can have an influence on economics. Vacant homes that are not being maintained can cause property values of surrounding homes to decrease. An increase in vacant homes can also be an indicator of people leaving the area for various reasons such as lack of job availability or an increase in crime. In 1970 the percentage of vacant
homes in the Swann Park tract was 4.1 percent, which was 2.3 percent higher than the City of Baltimore. By 1980, that statistic had increased to 6.2 percent for the Swann Park tract; however, it was slightly less than the percentage for the City of Baltimore (7.0 percent).

Table 1: Census Data Summary (Government Public Library of Johns Hopkins University and U.S. Census Bureau).

<table>
<thead>
<tr>
<th>Variable</th>
<th>1970</th>
<th>1980</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Swann Park</td>
<td>Baltimore</td>
</tr>
<tr>
<td>% Caucasian</td>
<td>99.8%</td>
<td>52.9%</td>
</tr>
<tr>
<td>% People who completed less than 4 years of education</td>
<td>12.7%</td>
<td>8.3%</td>
</tr>
<tr>
<td>Unemployment rate</td>
<td>5.3%</td>
<td>8.0%</td>
</tr>
<tr>
<td>Median income</td>
<td>$8,353</td>
<td>$8,815</td>
</tr>
<tr>
<td>Median home value</td>
<td>$5,500</td>
<td>$10,000</td>
</tr>
<tr>
<td>% People living below poverty level</td>
<td>6.5%</td>
<td>13.9%</td>
</tr>
<tr>
<td>% Homes left vacant</td>
<td>4.1%</td>
<td>1.8%</td>
</tr>
</tbody>
</table>

Citizen Knowledge

The level of citizen knowledge is a very important factor to consider in an environmental justice study. Well informed citizens are often more likely to feel empowered to take action when they feel they have been wronged (Rappaport 1984). Newspapers provide an important source of information for U.S. citizens. Although television was playing an increasing role in bringing news coverage to people, 48 percent of American people polled in 1971 read newspapers as their primary source of news information (Rimmer and Bergen 1985). The Baltimore Sun is Maryland’s largest daily circulation newspaper and is nationally known. Until 1995 the Baltimore Sun produced two daily editions, the morning edition and the evening edition. Due to its wide circulation among Baltimore residents,
the *Baltimore Sun* was examined in depth for coverage of the Swann Park closings.

Media coverage of Swann Park closing in 1976 was very limited. The first and only newspaper article appeared in the *Baltimore Sun*, morning edition on March 4th. The article claimed that the park was closed as a precautionary measure and that the closing was "a cause for concern, but not for alarm" (Burns 1976). This news article discusses exclusively the presence of kepone and does not mention any arsenic contamination. The article does mention the seven Race Street row houses and states that the Kepone Task Force will attempt to assess exposure” of the families (Burns 1976). A similar article also ran in the March 4, 1976, evening edition of the *Baltimore Sun*.

While neither the closing of Swann Park nor the presence of arsenic in the soil was extensively covered by the *Baltimore Sun*, kepone was a subject that garnered a fair amount of attention. One article that appeared in the *Baltimore Sun*, morning edition, almost a month before Swann Park was closed discussed the high cancer rate in South Baltimore, presumably due to kepone manufacturing. Two more articles concerning kepone appeared in the *Baltimore Sun* that year, one in mid-March and another in mid-April. Both articles discussed the health effects of kepone exposure. The March article specifically discussed the Allied Chemical Company and worker exposure to and testing for kepone. A thorough search of the archived *Baltimore Sun* newspaper editions did not produce any further coverage of Swann Park.
The primary method for gauging citizen knowledge was through personal interviews. During the interviews, respondents were asked when and how they first learned of the initial closing of Swann Park. Two respondents who are local citizens did not learn that Swann Park had been closed until April 2007 when the park was closed for the second time. Calvin Buikema has been living in Baltimore for 40 years and his home is about a 15-minute drive from Swann Park. In 1976, Buikema was working for the City of Baltimore as the City Forester. When I asked him if he had heard about the park being closed in 1976 he responded that he had not heard about it, and if he did he didn’t remember. Buikema reasoned that if he had read or heard something, he wouldn’t have paid it much thought because “it just didn’t concern (him).” Working for the city as the City Forester, Buikema had little reason to frequent Swann Park. Other than a few scrubby bushes, there was nothing but grass at Swann Park. However, just a few years after Swann Park was closed and reopened, Buikema became the City Superintendent of Parks. The Superintendent of the Carroll Park District (the district Swann Park falls under), William Tart, became his assistant. When I asked Buikema if they ever talked about the past events at Swann Park, he said that it never came up in discussion. According to Buikema, Tart never had any reason to tell him about the events that had occurred.

Alva Brown lives in a row house just up the road from Swann Park. She was the second local resident interviewed for this study. Brown has lived in the same house in Baltimore for over 80 years. Like Buikema, Brown only recently
learned that Swann Park was ever closed in 1976. During the interview, Brown stated that she gets most of her news information from television, but she doesn’t recall seeing anything about the park closing on TV. In 1976, Brown’s two children were in their 30’s and she didn’t have any reason to go to the park, although she admitted that her children played there almost daily when they were young. During the interview, Brown opined that even if the City of Baltimore or Allied Chemical had notified residents of the contamination and park closing it wouldn’t have “made a difference” because the neighborhood people didn’t like to get involved in community issues. Brown did, however, express anger that she had to find out about the park’s past problems more than 30 years after the fact.

Working closely with the residents of West Federal Hill, Heather Moore, President of the Federal Hill Neighborhood Association, was also interviewed for this study. Also a member of the Swann Park Task Force, Moore’s primary responsibility is making sure that the interests of local residents are protected. Moore stated during the interview that several residents living in the row houses adjacent to Swann Park during 1976 are still living there. From speaking with these residents, Moore concluded that none of the residents had been informed or involved in any decisions or events concerning the state of Swann Park in 1976. Like Brown and Buikema, these local residents were not informed of the arsenic contamination until the park was closed a second time in 2007.
Role of Allied Chemical Company

Reviewing the internal Allied Chemical Company documents that were turned over to the MDE by Honeywell provided information on the role that Allied Chemical played in the contamination and clean-up of Swann Park. A common thread connecting all the internal documents reviewed is that Allied Chemical was aware of the presence and extent of arsenic in the soil at Swann Park. A document dated November 3, 1971 offers clear proof that the Allied Chemical Company was aware of arsenic contamination at Swann Park years before EPA testing closed the park. This document details the results of sampling and analysis performed on soil removed from Swann Park, soil taken from the Acid Plant soil, and sediment from the Patapsco River. Analysis of 15 soil samples taken from Swann Park in 1970 showed an average of 23 percent arsenic by weight. The report states that the contamination originated from bulk storage and handling of arsenic, leaky dust collection bags, and the practice of water washing drums used for storing arsenic trioxide and allowing the waste water to discharge to open soil.

Another document dated September 21, 1972, three and a half years before initial EPA testing of Swann Park, acknowledged that both the mud at the bottom of the river adjacent to the plant and the soil at Swann Park were contaminated with arsenic. This document, a piece of paper with hand written notes by an unknown author, did not give specific data for arsenic at Swann Park but simply stated "Swann Park --- arsenic trioxide (playground)."
After Allied Chemical conducted sampling of the Swann Park soil alongside the EPA as well as independent sampling, a report detailing the procedures and analysis was prepared. This internal document was labeled “confidential and privileged.” The arsenic analysis was performed by Allied Chemical at the Baltimore Plant location. On two different dates, surface and core samples were taken from the soil along the shared fence with Swann Park. The results of the surface testing showed that arsenic content ranged from 12 ppm (mid-field, furthest from the plant location) to 6600 ppm (closest to the arsenic storage shed). The core samples ranged from 180 ppm to 995 ppm. These low and high values were found at the same locations as the low and high surface values. Allied Chemical Company also sampled the surface soil at the Main Ball Diamond. Arsenic content here ranged from 18 ppm to 138 ppm.

While valuable, these three Allied Chemical documents concerning arsenic contamination at Swann Park do not tell us what, if anything, the company planned to do with this information. They do show that Allied Chemical had knowledge of the existence and extent of arsenic contamination. Allied Chemical Company was not prepared to take responsibility for the contamination. This is revealed in a letter dated March 24, 1976, to the Executive Secretary of the Federal Working Group on Pest Management. In this letter, J. Magliocco, a member of Allied Chemical’s Agricultural Division, requested detailed information on arsenic residue from pesticide application. In addition, it is noted in the February 25th soil report that a possible source of arsenic at the baseball fields
was pesticide application after the park was re-sodded. According to a letter from W.M. Reiter, Allied Chemical’s Associate Director for Pollution Control, to Sam Morekas, Head of the Hazardous Waste Section at the Maryland State Department of Health, Allied Chemical also conducted a literature review on arsenic content of various soils in the U.S. This letter stated that the arsenic content of agricultural soil can range from 1 ppm to more than 100 ppm.

Kepone Task Force

The Kepone Task Force was composed of individuals representing the U.S. EPA, Maryland Department of Natural Resources, Maryland Department of Licensing and Regulation, Baltimore City Health Department, Environmental Health Administration, Maryland Department of Health and Mental Hygiene, and the Maryland Department of Transportation. This task force was established to address the issue of kepone contamination. It was also the sole decision-making body regarding health and safety at Swann Park from the initial closing in March to the reopening a month later. According to internal Allied notes taken at the initial Kepone Task Force meeting on March 11, 1976 (Appendix F), the objectives of the Task Force were to:

1). “Develop ways and means for the disposal of any solid waste presently on site at the Baltimore Agricultural Plant”;
2). “Determine whether it is necessary to accomplish the clean up of any contamination external to the plant”; and
3). “Ascertain if state waters have been violated.”
According to the March 11th meeting notes, no member of the press or general public were in attendance at the initial meeting and members of the Task Force were not allowed to speak to the press. All information would be communicated to the press by the Chairman, Donald Noren, Director of the Environmental Health Administration. It is also in this internal document that Reiter states that “it is opined that the primary problem at Baltimore will not be Kepone but will be related to arsenic operations” (Reiter 1976b, Appendix F).

Role of U.S. EPA

At the time of Swann Park’s initial closing in April, 1976 there was no state level environmental agency. For this reason the U.S. EPA played a prominent role in Swann Park decision-making. Maryland falls under EPA Region 3: The Mid-Atlantic Region. With their main office in Philadelphia, Region 3 is responsible for Delaware, Maryland, Pennsylvania, Virginia, West Virginia, and the District of Columbia. The U.S. EPA was involved with Swann Park case from the beginning. The EPA conducted the initial soil testing on Swann Park as well as the follow-up testing before the park was reopened in 1976. Although Allied Chemical conducted split sampling with the EPA, the Kepone Task Force relied on the EPA analysis. February 13, 1976 preliminary top-soil testing by the EPA produced a finding of less than 0.25 ppm of arsenic (Reiter 1976a, Appendix D). Although Allied Chemical’s private testing results indicated much higher levels of arsenic Allied Chemical was not required to reveal – nor did they – provide their findings.
The large discrepancy in arsenic levels between the EPA analysis and the analysis the Allied Chemical Company conducted privately could be attributed to the small number of samples taken by the EPA compared to the extensive testing Allied Chemical conducted. The initial sample taken by the EPA on February 13th was a preliminary sample and not representative of the entire park. The samples taken on March 18th were taken from the area along the shared fence. The high arsenic levels found in the area were attributed to the close proximity of Allied Chemical's dump area. This region of the park was resodded before opening. Samples taken by the EPA on March 23rd were taken from each of the four ball fields. The arsenic content of this soil was attributed to recent resodding of the outfield and the pesticide application that followed.

Findings of the Kepone Task Force

Although formed to deal with the issue of kepone contamination, the Task Force did consider levels of arsenic contamination at Swann Park. Ultimately, the Task Force found that the level of arsenic at Swann Park did not pose a health risk. This decision was based upon data provided by the U.S. EPA and one set of data provided by Allied Chemical. The issue of additional sampling was raised at the April 7, 1976, Task Force meeting but was never discussed further. As noted earlier, Allied Chemical was not required to share any sampling data conducted before February 1976 or data collected during split samples with the U.S. EPA. Table 2 shows data available to the Kepone Task Force.
Table 2: Summary of Swann Park Arsenic Testing Results
(Swann Park Task Force 2007)

<table>
<thead>
<tr>
<th>Date</th>
<th>Sample taken by</th>
<th>Depth in Inches</th>
<th>Arsenic in Parts Per Million</th>
<th>Data available to Kepone Task Force</th>
</tr>
</thead>
<tbody>
<tr>
<td>1965</td>
<td>Allied Chemical</td>
<td>Unknown</td>
<td>3,000 - 2,000</td>
<td>No</td>
</tr>
<tr>
<td>1970 &amp; 1973</td>
<td>Allied Chemical</td>
<td>Unknown</td>
<td>10,000</td>
<td>No</td>
</tr>
<tr>
<td>02/13/76</td>
<td>EPA</td>
<td>1 - 2</td>
<td>.25</td>
<td>Yes</td>
</tr>
<tr>
<td>02/25/76</td>
<td>Allied Chemical</td>
<td>1 - 2</td>
<td>1,000 - 6,600</td>
<td>No</td>
</tr>
<tr>
<td>03/18/76</td>
<td>Allied Chemical</td>
<td>1 - 3</td>
<td>2,140</td>
<td>No</td>
</tr>
<tr>
<td>03/18/76</td>
<td>Allied Chemical</td>
<td>3 - 8</td>
<td>995</td>
<td>No</td>
</tr>
<tr>
<td>03/18/76</td>
<td>EPA</td>
<td>6</td>
<td>1,100 &amp; 1,340</td>
<td>Yes</td>
</tr>
<tr>
<td>03/19/76</td>
<td>Allied Chemical</td>
<td>1</td>
<td>138</td>
<td>Yes</td>
</tr>
<tr>
<td>03/23/76</td>
<td>EPA</td>
<td>1</td>
<td>144</td>
<td>Yes</td>
</tr>
</tbody>
</table>

In a private meeting between two Allied Chemical representatives, one of whom was W.M. Reiter, Task Force Chairman Noren, and Dr. Max Eisenberg, a Task Force member, Allied Chemical made an offer to restore Swann Park so that it could be reopened (Reiter 1976b). Originally, Allied Chemical Company had considered resodding the entire park but instead offered a restoration proposal to the Task Force (Draft Proposal 1976). This restoration proposal included removing topsoil from an area 100 feet in width along the entire shared fence followed by the installation of new topsoil and new sod. Both Allied Chemical and Chairman Noren agreed to this proposal and it was recommended to the Governor as a plan of action. It was noted in the Task Force meeting minutes that this restoration was a “precautionary measure.”
The Task Force also considered the arsenic found in the soil of the baseball fields. The Task Force determined that the presence of arsenic in the ball field soil was due to the installation of new sod within the past year. Herbicides had been sprayed on the sod and were known to contain arsenic at levels as high as 150 ppm. These herbicides were thought to account for the presence of arsenic, not Allied Chemical Company operations. Furthermore, the Task Force considered the arsenic in the ball field soil to be insoluble and, therefore, not a threat. However, as part of the remediation plan, lime was to be added to the soil to raise the pH and promote grass growth. Trask, an EPA representative on the Task Force, expressed concern that raising the pH of the soil could make the arsenic more soluble. It was decided that lime was necessary but that it would not be applied to the most heavily contaminated areas.

What the Kepone Task Force Did Not Know

The withholding of Allied Chemical data showing higher arsenic levels than determined by the EPA played a large part in Swann Park being reopened prematurely. As Table 2 illustrates, samples showing the highest arsenic levels were taken by the Allied Chemical Company. There is no evidence from Kepone Task Force meeting minutes that arsenic levels of that magnitude were discussed. Heather Moore, member of the Swann Park Task Force, was interviewed for this study. Moore described interviews that she and other members of the Swann Park Task Force conducted with four Kepone Task Force
members. Of the four members interviewed, not one recalled seeing data from Allied Chemical Company that indicated arsenic levels as high as 6,600 ppm.

The Kepone Task Force was under the impression that the arsenic present in the grass surrounding the baseball diamonds was due to herbicide application from recently installed sod. In meeting notes from April 19, 1976, the Kepone Task Force subcommittee on disposal stated that the form of arsenic resulting from the herbicide application was insoluble and not a direct threat to public health. Allied Chemical had reason to believe that this was untrue. In a 1972 handwritten document the phrase “Swann Park --- arsenic trioxide (playground)” appears, illustrating that Allied Chemical knew that the form of arsenic present was carcinogenic.

Allied Chemical did not share their testing results with the Kepone Task Force because they considered the results to be subject to attorney-client privilege (Swann Park Task Force 2008). Allied Chemical knew of the arsenic contamination at Swann Park as early as 1965. Allied Chemical representatives were also present at Kepone Task Force meetings and were aware of the discrepancy between EPA data and their own findings. Allied Chemical was also aware that the arsenic present at Swann Park could pose a health threat. A memo written by W.M. Reiter on March 22, 1976 states that the arsenic present is arsenic trioxide, “the carcinogenic form” (Reiter 1976a).
CHAPTER 6: DISCUSSION

The story of the closing of Swann Park is not a simple one. This study has sought to tell the story of Swann Park using an environmental justice frame. Three main questions were posed: What were the social and political factors that led to the park’s reopening in 1976? What role did local citizens play? Was an environmental injustice perpetrated in 1976? The answers to these three questions tell the story of Swann Park.

Social and Political Factors

The social and political climate during the kepone/arsenic investigation of Swann Park in 1976 played a large part in the reopening of the park despite remaining arsenic contamination. There was not one deciding factor that caused this outcome but rather a combination of a lack of information, poor communication, and inconsistent regulation. These factors together influenced almost every decision made by the Kepone Task Force.

Lack of Complete Information

The key factor in the arsenic contamination at Swann Park going unnoticed for over 30 years was the fact that key information on the level of contamination was withheld from the Kepone Task Force by the Allied Chemical Company. Since Allied Chemical considered their data to be subject to attorney-client privilege they did not inform the Kepone Task Force that their arsenic level findings were drastically higher than the EPA’s. While this argument does carry some weight,
Allied Chemical only began marking their internal reports and memos confidential eight days after the first meeting of the Kepone Task Force. An internal memo informed Allied Chemical Company executives that each page of every report will be marked “Privileged and Confidential – proposed on the Advice of Counsel.” The fact that this practice began only after it was apparent that the EPA would be conducting more soil sampling and that arsenic, as well as kepone, contamination would be addressed gives the appearance that Allied Chemical was intentionally withholding information.

The Swann Park Task Force determined after interviewing members of the Kepone Task Force that had Allied Chemical shared their data with the Kepone Task Force more sampling would have been conducted. The Kepone Task Force did in fact discuss the need for more samples. In the notes of a March 7, 1976, subcommittee meeting, one of the issues to be resolved was the question if more samples were needed, and if so, how many and by whom (State of Maryland 1976). At the time of this meeting the results from the March 18, 1976 sampling were not available.

The results from the March 18, 1976 sampling, while high in some areas, were easily explained. The extremely high arsenic concentrations were along the fence closest to the arsenic storage shed. The lower levels were found in the outfields of the baseball diamonds and were attributed to recent sod installation and herbicide application. Given these predictable results, the Kepone Task Force did not have a solid reason to perform further soil analysis. If Allied
Chemical would have come forward with their conflicting data more samples would have been taken in an attempt to explain the discrepancy.

*Focus on Kepone, Not Arsenic*

Swann Park was originally closed in March of 1976 as a precautionary measure to test for kepone contamination. The precautionary testing was caused by kepone contamination discovered near an Allied Chemical Company plant located in Hopewell, Virginia. Due to this discovery in Hopewell, the focus on the Baltimore plant and Swann Park was kepone, not arsenic. It was during an initial surface test conducted by the EPA that arsenic was discovered, albeit a small amount of 0.25 ppm. Subsequent testing by the EPA brought to light the underlying problem of arsenic contamination but as the Kepone Task Force meeting notes show, it was never the primary focus. This is supported by repeated reference to resodding the areas along the shared fence as “a precautionary measure.”

Health concerns were also centered on Kepone exposure. One month before Swann Park’s 1976 closure an article appeared in the *Baltimore Sun*’s morning edition discussing the dangers of kepone. Three more articles appeared that month, two in the morning edition and one in the evening. The article in the evening edition of the *Baltimore Sun* specifically discusses kepone testing near the Race Street Allied Chemical Plant and at Swann Park but does not mention the presence of arsenic. Blood sample analysis was performed on Allied Chemical Company workers as well as some nearby residents and baseball
coaches. The analysis tested only for kepone exposure, not arsenic. A statement issued by the Baltimore City Health Department on April 27, 1976, discusses the soil testing and blood sample analysis, but again no mention of arsenic is made. The statement by the Health Department also indicates that the resodding is purely a precautionary measure.

During interviews with a representative from the MDE as well as with Heather Moore the question of how high levels of arsenic could go unnoticed for over 30 years came up. Both Moore and the MDE representative opined that a major reason was that the Kepone Task Force was not focused on arsenic. The combination of a lack of scientific knowledge on the health effects of arsenic contamination in soil and the perceived immediate threat of kepone exposure led to arsenic taking a backseat.

*Lack of Scientific Knowledge and Regulation*

As discussed in Chapter 3, hazardous waste is viewed very differently now compared to the 1970s. Scientific knowledge concerning arsenic contamination was limited primarily to drinking water. While the health effects of arsenic exposure had been known for several decades, there was, and still is, much debate over where regulation levels should be set for exposure. In 1976 there were no state or federal regulations concerning soil-based arsenic contamination. Therefore, when the Kepone Task Force was presented with the soil analysis data on arsenic levels they had limited scientific research to consult and no regulation levels with which to work.
While scientific knowledge of the effects of arsenic-contaminated soil was limited at best, a lack of communication between researchers and public officials contributed to the misinformed decisions made regarding Swann Park. Dr. Genevieve Matanoski, from the Johns Hopkins School of Public Health, offered to present her research of South Baltimore cancer rates and the Kepone Task Force declined.

Applying lime to the new sod to raise pH values was another poor decision. Harry Trask, an EPA representative, pointed to evidence that indicated that arsenic would become more soluble with increasing pH. The subcommittee did not appear to take this concern seriously, although they did agree that lime would not be added to the areas showing the highest concentration of arsenic. While the addition of lime did not play a part in the arsenic contamination going unresolved for more than 30 years, it might have caused increased exposure to the public by causing the arsenic to leach into the ground water or the nearby Patapsco River.

A lack of hazardous waste regulation also influenced the process by which decisions regarding Swann Park were made. There was no public involvement at the Kepone Task Force meetings and very limited effort made to inform the public of the situation. Today, CERCLA and other regulatory structures, have procedures built into them that require public notification and involvement. In 1976 there was no publically accessible list of contaminated sites. Today, Maryland possesses a State Master List that informs the public of sites that are
contaminated with hazardous substances and a Disposal Site Registry that prioritizes the sites that are actively releasing hazardous chemicals (Swann Park Task Force 2008).

While ensuring that the public has easy access to information regarding the location of hazardous waste sites is a step in the right direction, that information alone will not lead to public participation, involvement, or even sentiment. Had such an information system been available in 1976, it may or may not have caused local residents to voice their concerns on public health and cause the Kepone Task Force to consider further the health impacts of the arsenic contamination. During his interview, Calvin Buikema commented that the people of Baltimore lead very busy lives and often do not concern themselves with things going on in their city. As a result, they do not go out of their way to inform themselves of local issues nor do they actively involve themselves. This said, information regarding the arsenic contamination at Swann Park in 1976 should have been made readily available to local citizens.

The remediation of Swann Park in 1976 lacked any sort of follow up monitoring. This is perhaps the biggest contributing factor to the arsenic contamination going unresolved for more than 30 years. Had the Kepone Task Force requested that continued monitoring be included in the remediation plan, the remaining arsenic contamination would have likely been discovered during future testing. Today, long-term monitoring is an important component of any successful remediation plan.
We should also bear in mind that that the Allied Chemical Company operated during a time before full disclosure was required. Documents show that Allied Chemical knew they were releasing arsenic into the atmosphere and the type of arsenic being released was cancerous. They also knew that Swann Park was contaminated. Even though Allied Chemical was aware of these facts, there were no regulations on the books to force them to disclose any of their information. Allied Chemical protected itself under attorney – client privilege because they knew that alone would protect them. Today, TRI requirements would have compelled Allied Chemical to monitor their releases and to make this information known to federal agencies and to the public.

The desire to reopen Swann Park quickly may have also played a part in the park not being fully remediated. An internal Allied Chemical Company memo dated March 22, 1976 stated that immediate action was necessary because the park was scheduled to reopen in 3 - 4 weeks. At the time this internal document was written, the results from the March 18th EPA sampling were not yet available. This suggests that the schedule for the park reopening was decided before the extent of the problem was fully realized. Other documents mention the initial idea of resodding the entire park; however, it was decided that only a 100-foot strip along the shared fence would be replaced. Although no reason for this decision is given in any of the available documents, the short timeframe to reopen the park could have played a role. Had the park been fully resodded, much of the surface arsenic contamination would have been removed.
Citizen Involvement

After reviewing many documents and interviewing local citizens, it is apparent that no effort was made to involve residents in the decision-making process regarding Swann Park in 1976. Both Calvin Buikema and Alva Brown were asked questions regarding their knowledge and involvement in events occurring at Swann Park in 1976. Neither Buikema nor Brown recalls any effort being made, either by Allied Chemical Company or the City of Baltimore, to inform or involve them or their neighbors. A representative from the MDE's Office of Environmental Justice interviewed for this study spoke with many citizens of Baltimore after Swann Park was closed in April 2007. Of the people this MDE representative spoke with, not one person recalled being notified of Swann Park’s closing in 1976 or of the contamination. Also, none of the citizens interviewed for this study or those who the MDE representative had contact with recalled any meetings or information sessions that the public was invited to attend.

In an internal Allied Chemical Company document it was stated that meetings of the Kepone Task Force or their subcommittees were to be closed to the public as well as the media. As noted previously, there were no public meetings held to inform the public, answer questions, or to hear comments from local citizens. Public involvement was not required by any regulations in 1976. It was not uncommon for state or local agencies to not inform or involve local citizens of decisions being made that could possibly affect them. Hazardous
waste would not emerge as a pressing issue until two years later when the contamination at Love Canal became a major news story. As previously discussed, this lack of involvement by the City of Baltimore could be a result of the public not showing an interest in local events, therefore the city did not make an effort to involve them. Another possible reason for a lack of public information or involvement could have been to avoid panic over health effects that were not fully understood. While the health effects of kepone were understood to some degree, the health effects of arsenic contaminated soil were not. It is also worth noting that since arsenic was not the primary concern and the kepone concentrations found were substantially lower than anticipated, it is possible that the Kepone Task Force did not consider Swann Park an issue worthy of involving the public.

Did the contamination of Swann Park amount to an environmental injustice? Deciding whether the events that occurred at Swann Park in 1976 constitute an environmental injustice or not depends on a variety of factors, mainly which definition of environmental injustice is used. Early literature suggests that an environmental injustice is racially motivated, while later literature takes into account the intent to discriminate and an inequitable outcome (Downey 2005). More recent interpretations evolved to consider not only race but other factors such as income.

If one views environmental injustice in narrow terms – that is, as discrimination against a racially disadvantaged population – then the
demographics of the neighborhood surrounding Swann Park do not support such a claim. The census tract that included Swann Park in 1970 and 1980 was almost exclusively Caucasian, while the City of Baltimore had a population of slightly more than 50% Caucasian. Based on race as the deciding factor alone, an environmental injustice was not perpetrated in 1976.

If a broader view of environmental justice is employed, intent to discriminate based on demographics other than race alone must be proven. Based on the additional demographics, Swann Park does not fit the typical profile of an environmental injustice. As previously discussed, the census tract containing Swann Park is almost entirely Caucasian. Economic factors also do not fit the traditional profile. The Swann Park census tract has a lower unemployment rate, a higher median income, and a lower rate of poverty than the City of Baltimore. Intent to discriminate must also be proven using this definition. The intentions of a group of people regarding an event that occurred more than 30 years ago can be difficult to interpret. After reviewing all available documents from the Allied Chemical Company and the Kepone Task Force, it does not appear that there was any intention to not fully remediate Swann Park based upon the demographics of local citizens. In order to prove intent, there would need to be some evidence that the demographics of the neighborhood were considered and played a factor in the decisions made. If we consider the fact that the Kepone Task Force was not aware of the extensive level of arsenic contamination, it is not possible to prove intent to discriminate. While Allied
Chemical was fully aware of the arsenic contamination and the levels that were present, discrimination did not appear to factor into their decision to withhold information from the Kepone Task Force. It is more likely that the Allied Chemical Company withheld information regarding arsenic levels in order to avoid the costs associated with fully remediating Swann Park and possibly surrounding yards.

The final definition to consider is whether or not there was an inequitable outcome concerning Swann Park and local residents. Based on the demographics previously discussed, the neighborhood surrounding Swann Park does not fit a typical profile of environmental justice studies. The lack of minority populations and greater wealth make this tract more affluent than the City of Baltimore as a whole, as well as other surrounding neighborhoods. However, demographics aside, Swann Park could be seen as more valuable to the local residents of this particular census tract than others. The area immediately surrounding Swann Park is mostly an industrial area with little green space or recreational facilities. Swann Park also served as the practice field for a local high school's baseball team. These factors alone could support the argument that an inequitable outcome was produced. Had the neighborhood surrounding Swann Park been more residential with multiple parks and recreational facilities, the case for an inequitable outcome would not be quite as strong because Swann Park would have been considered less valuable.
Although applying the above two definitions to the study of Swann Park does not indicate an environmental injustice, the contamination of Swann Park was in fact an injustice to the residents of Baltimore. If we consider the procedural aspects of Swann Park, an argument can be made that there was a procedural injustice. Although Swann Park does not fit early definitions of environmental justice, the actions that Allied Chemical and the state and local government took were not just. The neighborhood surrounding Swann Park is primarily working-class and citizens were not considered nor involved in the decision making process. Although there might not have been intent to discriminate, by not taking the local citizens into account an injustice was perpetrated.

Current situations, like Swann Park, require a new definition of environmental injustice. No longer is an environmental injustice only about race or class. Environmental injustices are occurring in primarily white, working and middle class neighborhoods. Contamination in an affluent neighborhood is no more just than contamination in a disadvantaged neighborhood. Considering only the presence of intent to discriminate is also an outdated and limited indicator. No longer does a polluter have to intend to expose a population to health hazards. A polluter that is negligent is just as responsible as one that showed intent. Taking into account these two factors, a broader definition of environmental justice will arise. This new definition will be based on fairness and morality rather than race and class.
Recent Developments at Swann Park

After the discovery of arsenic contamination in 2007 a remediation plan was developed between Honeywell, the MDE, and the U.S. EPA. As part of the remediation plan, Honeywell removed approximately 13,000 tons of contaminated soil from Swann Park. The MDE and Honeywell tested remaining soil to ensure that the remaining soil met cleanup standards. The park was then covered with two feet of base soil and over one foot of topsoil. The park was then seeded for grass cover. Honeywell also made water and electrical improvements, and built foundations for lighting, dugouts, fences, bleachers, pedestrian pathways and roadways. Swann Park is scheduled to reopen in 2009 after further improvements by the City of Baltimore.

Conclusion

Considering all the data, the argument for Swann Park as an environmental injustice is weak. Many social and political factors played a role in the events that occurred in 1976. While it is apparent that the Allied Chemical Company deliberately withheld vital information regarding the arsenic contamination at Swann Park, it does not appear that the demographics of the local neighborhood played any part in their decision to do so. Rather, it seems that Allied Chemical knew they would be closing the Baltimore Agricultural Plant later that year and hoped to avoid costly remediation of the site. A lack of knowledge concerning the risks associated with exposure to arsenic-contaminated soil possibly played a role in Allied Chemical’s decision to withhold information along with a lack of
regulation requiring monitoring and reporting of hazardous chemicals used and released.

Although the contamination of Swann Park may not be considered an environmental injustice in the traditional sense, the fact that Swann Park remained contaminated and exposed visitors to arsenic, on a daily basis in some cases, for over 30 years is an injustice to all those who live near and frequent Swann Park. The greatest injustice occurred to those residents living in the seven row houses adjacent to the park. At the very minimum, local residents deserved to have been informed of the events occurring in, what is close enough to be, their backyard. Ideally, the local residents should have been represented and involved in the decision-making process from the very beginning.

While many regulations in place today would prevent some of the events that led to the arsenic contamination of Swann Park from going unnoticed there are many lessons that can be learned in order to avoid a future situation from occurring. The first lesson to take away is the importance of continued monitoring of remediated sites. CERCLA has monitoring provisions but a lack of resources can limit the frequency of follow-up testing, or even prevent it from occurring at all. The second lesson to be learned is the importance of communication between researchers and decision makers. Scientific study is constantly making advancements in our knowledge of managing hazardous waste and public health. Consulting researchers as part of developing a remediation plan could go far in making sure the best management practice is
employed. The final lesson to be taken away is the importance of making information on contaminated sites easily accessible to the general public. Currently, some states have lists of hazardous sites available but they are often difficult to locate and do not provide comprehensive information on the contamination, clean-up plan, or timeframe for remediation. Making information easy to access and understand can lead to increased public participation which in turn can lead to a better relationship between citizens and decision makers. A better relationship between citizens and decision makers could decrease the frequency of environmental injustices that occur. Taking these lessons into account and constantly improving the way hazardous contamination is dealt with can go a long way in ensuring that what happened to Swann Park does not occur again.
RESOURCES


Korth, C., and G. Buckley. 2006. Leakin Park: Frederick Law Olmsted, Jr.’s critical advice. The Olmstedian 16(1, Fall).


U.S. Census Bureau. < www.census.gov >


APPENDIX A

**Interview Questions**

What has been your involvement with Swann Park?

What factors contributed to the reopening of Swann Park in 1976?

What was the response of local citizens to the closing of the park in 1976?

What was the response to the reopening?

What was the resident’s level of involvement in the decision making process to reopen Swann Park in 1976?

What led to the testing document request made by the MDE to Honeywell in 2007?

How and when did you first become informed of the events taking place at Swann Park in 1976?
On May 13, 1976, a meeting of the Expanse Subcommittee on Disposal was held to discuss matters relating to the Allied Chemical Plant at 2000 Race Street. The attendees were:

- Sam Moeckel
- Walter A. Miles
- Richard Race
- William B. Yanovitch
- Winifred Miller
- Y. Stanley Kinnamon
- Vernon Goodlin
- William N. Reiter
- John Magliooco
- John M. Bowers
- Harry V. Tkack
- Francis M. Alpizer
- Bill Schurup

Division of Solid Waste Control, HSM
division of Solid Waste Control, HSM
Division of Solid Waste Control, HSM
Water Resources Administration
Baltimore City Health Department
Bureau of Research, SCA
Baltimore City Interstate Division, SCA
Allied Chemical Corporation
Allied Chemical Corporation
Allied Chemical Corporation
EPA Region III, Philadelphia, Pennsylvania
EPA Region III, Philadelphia, Pennsylvania

Several items of concern were discussed. Each will be described separately below.

1. Oman Park

The subcommittee was informed of the present situation and the methods being used to place new sod at the park. These methods are as follows:

1.1. Placement of the contaminated area along the fence, consisting of a 10' wide strip adjacent to the main baseball diamond and a 100' wide strip on the lower end of the park.

1.2. Placement of 4-6 inches of topsoil on the disced area.

1.3. Addition of lime to bring the soil pH up to a level conducive to grass growth.

1.4. Installation of sod.

Allied Chemical has agreed to provide water to Baltimore City to aid in establishing the new sod.

Mr. Tkack (EPA) expressed concern over the use of lime to raise the soil pH. He cited published reports that indicate that Arsenic is "fixed" at low pH's and more soluble at higher pH's in the soil. He
MEMORANDUM FOR THE RECORD
May 17, 1976
Page 2

recommended that lime not be used.

It was agreed that, although this is a concern, some pH adjustment is
needed to establish the sod. Therefore, the area that appears to be
most heavily contaminated (a 50' side strip along the fence), will not
have lime added. The remainder of the area will be treated with lime.

II. Erosion Control at Disposal Area

Allied Chemical presented a copy of the construction permit issued by
Baltimore City for the grading and covering of the disposal area. The
City has added a provision that requires Allied to place topsoil and
to seed the affected area upon completion. Bill Yanovitch (SHI)
stated that, since construction will begin in the area within one year,
the interim erosion control measures being taken now (i.e. straw bales
around the perimeter of the site) will be sufficient. Mr. Goodwin (SHI)
agreed to contact the City on this matter and to request that the
requirement for topsoiling and seeding be rescinded.

III. Highway Footings in the Disposal Area

Mr. Goodwin (SHI) informed the subcommittee of the State Highway
Administration's intention to excavate portions of the disposal area
for the placement of the footings. He stated that Allied Chemical's
recommendation to relocate the footings on the surface of existing
grades would increase costs as much as $250,000 — primarily because
of the need for additional fill material. After much discussion, it
was agreed that excavation sufficient only to allow the tops of footings
to be level with existing grades would be permitted. However, the
bottoms of excavations must not penetrate the groundwater table.
Should any groundwater be encountered, all such water must be collected,
analyzed, and treated prior to discharge. It was further agreed, as
an interim recommendation pending completion of the groundwater study,
that all excavated material will be retained at the immediate vicinity
of the disposal area.

IV. Groundwater Study

The proposed study on the groundwater conditions in the disposal area,
that will be performed by Allied's contractor Coraghy & Muller, was
described to the subcommittee. No objections to the proposal were
raised at this time.

Mr. Reiter (Allied Chemical) stated that there were some questions as
to the procedure for the Total Chlorinated Hydrocarbon analyses. Allied
will resolve these questions and report back to the subcommittee.

Copies of Mr. Yanovitch's notes of the meeting of May 12 with Coraghy
& Muller and Allied Chemical were distributed to the subcommittee
members. The detailed proposal will be distributed to the subcommittee
members as soon as it is received.
V. Disposal

An updated inventory of kapone related materials now being stored at
the plant is attached. Additional materials will be generated as
decommissioning of the Air-Milling operation proceeds. Pumpable
liquid wastes from this operation will be stored in a 30,000 gallon
rail tanker. Solid wastes will be placed in drums and stored in the
Quonset hut with the other materials. Disposal methods for these
materials were discussed by the subcommittee. Allied Chemical has
been in contact with several firms in the country in reference to the
wastewater sludges. The most promising of these is Chenbro, near
Niagara Falls, New York. No decision has been made by Chenbro as yet.

Incineration of the non-arsenic containing kapone materials is being
considered. Incinerators located in three military installations
are being investigated as to the possibility of their use. They are:

1. Fort Detrick
2. Edgewood Arsenal
3. Indian Head

Of these, the proposed high temperature incinerator at Indian Head
appears to be the most promising. Mr. Tracy (EHQ) will approach the
Department of Defense on this matter. Another unexplored possibility
is the use of local reclamation firms. A meeting has been scheduled,
May 25, with Mr. Robert Taylor of American Recovery to discuss this
matter.

Ann M. Norell, Head
Hazardous Waste Section

Richard Race
Sanitarian

CH2M0000164
APPENDIX C

STATE OF MARYLAND - KEPONE TASK FORCE
SUB-COMMITTEE ON DESPECIAL
STATUS REPORT, 4/7/76
ITEM 3: CONTAMINATED GROUND - SPARK PARK

BRIEF DESCRIPTION OF PROBLEM: The park is immediately adjacent and to the south of the Allied Chemical Plant; it encompasses approximately 11 acres and has four baseball diamonds and a football field. To date, the only chemical analysis available is from one surface soil sample obtained in February indicating 10.8 ppm Kepone and less than .25 ppm arsenic.

CURRENT STATUS OF ACTIVITIES/INVESTIGATIONS: Two soil samples at 6" depths were taken on March 18; one approximately 15 feet south of the Kepone storage shed and one approximately 50 feet south of the arsenic trioxide stock. Four surface soil samples, from each baseball diamond, were also obtained. All samples are being analyzed by the EPA laboratory and by Allied Chemical laboratories. Results of analyses are not yet available. The Allied Chemical Corporation has offered $100,000 to pay for costs associated with rehabilitation of the park.

ISSUES TO BE RESOLVED:
- Is there a need for additional sampling/analysis? If so, how many more samples, where, when, by whom?
- What are the "decontamination" options? Discuss advantages/disadvantages
- On-site containment or removal? If on-site containment is selected, what are methods? If removal, what are problems?
- What are "critical" paths for decisions?
- Other issues?
BALTINORE AGRICULTURAL PLANT

GHANN PARK SITUATION

1. Park was closed by City Health Department on 3/3/76 due to presence of kepone in soil.

2. Allied Chemical soil sampling (1970, 1973 and 1976) have shown:
   a. Arsenic: (1) 2,000-10,000 ppm on surface 20 ft. from fence line
      (2) at 200 ft. from fence line 150-2200 ppm
      (3) at 400 ft. from fence line 60-150 ppm
   b. Kepone - concentration varies 0.2 to 950 ppm with distance from plant.
   c. Signs of herbicide emission are apparent -- a large section of grass appears to have been killed.

3. Arsenic is probably present as arsenic trioxide, the carcinogenic form. EPA opinion is that kepone concentrations >1 ppm represent a health action level.

4. State and EPA sampling of Park soil has occurred on 2/13 and 3/13 with collection of additional samples expected. February 13 results were 11 ppm Kepone and <0.25 ppm arsenic (~300 yds. from plant fence).

5. Cost of sodding estimated at $100,000.

6. Allied offer to disc, place 3" top soil layer and sod would be made to Task Force Chairman, D. Noren, prior to meeting on 3/24. Field details to be worked out by Division and City landscape personnel.

7. Immediate action as a community relations project should permit opening of Park in 1-4 weeks.

8. Suggest Urox operations be completed before sod is placed in Park.

WMR/zm
3/22/76
APPENDIX E

State of Maryland
DEPARTMENT OF HEALTH AND MENTAL HYGIENE
ENVIRONMENTAL HEALTH ADMINISTRATION
231 WEST FREITON STREET
Baltimore 21201
Phone P 392-1271

April 19, 1976,

TO: Donald H. Borum, Chairman
State of Maryland – Expose Task Force

FROM: Sam Koreka, Chairman
Subcommittee on Disposal
State of Maryland – Expose Task Force

SUBJECT: Subcommittee on Disposal: Recommendations for Decontamination of Swann Park

The Subcommittee on Disposal, during its meeting of April 11, 1976, reviewed all information available from chemical analyses of soil samples and has reached the following conclusions:

1. Based on results of chemical analyses for Expose of soil samples from various locations on the baseball diamonds at Swann Park, and on the report by the Health Effects Subcommittee that no detectable levels of Expose were found in the blood of nearby residents and baseball coaches, the Subcommittee on Disposal concluded that no action is required at this time for removal or other treatment of soil or ground cover of material from the baseball diamond areas.

2. Reports of chemical analyses for arsenic from soil samples from various locations on the baseball diamonds, and at two locations approximately fifty feet south of the Allied Chemical Plant property line indicate arsenic content ranging from 13 ppm to 114 ppm at the baseball diamonds, and 1,100 ppm and 1,300 ppm, respectively, at the two locations in the vicinity of the Allied Chemical Plant property line. It was also reported that the new sod installed within the past year by Baltimore City was known to contain as high as 150 ppm arsenic which is attributed to herbicides used by sod growers to control weeds. The form of arsenic found is considered insoluble and not a direct threat to public health. However, as a precautionary measure, the Subcommittee recommends that an area of Swann Park of
approximately 100 feet in width and along the entire length of the
planted property be treated as follows: Existing ground cover should
be plowed under the ground and dined, followed by application of
new topsoil and new sod.

cc: All members - Subcommittee on Disposal

Dr. Max Eisenberg

Mr. James D. Clise

Mr. Walter A. Miles
APPENDIX F

ALLIED CHEMICAL CORPORATION

MEMORANDUM

March 12, 1976

TO: A. J. von Frank

SUBJECT: State Kepone Task Force Meeting, March 11, 1976

The initial meeting of the State of Maryland Kepone Task Force was held on March 11 in Baltimore. The undersigned and W. S. Ferguson had been requested to be in attendance to function as an informational source on the plant activities. The membership of the Task Force is listed in the attachment. The Task Force objectives are:

1. to develop ways and means for disposal of any solid waste presently on site at the Baltimore Agricultural Plant;

2. to determine whether it is necessary and, if needed, to accomplish the clean-up of any contamination external to the plant;

3. to ascertain if state waters have been violated.

The Task Force is divided into subcommittees based on area of technology involved. Preliminary reports will be required from each of the subcommittees within 10 days for submission to Dr. Solomon* and the Governor. The meeting was low key — no press or public attendance. The Chairman specified that none of the Task Force members were to talk to the press. All contact with the news media would be made by the Chairman. The Task Force approach did not indicate any vindictiveness towards Allied Chemical. The developing program appears as a disciplined cooperative technical effort. USEPA representatives took a back seat during the discussions and during subcommittee discussions. Whether conditions will continue at a low profile will depend to a large degree on EPA's future posture. EPA, by public release of information and close auditing of State performance, could change the entire atmosphere. It is opined that the primary problem at Baltimore will not be Kepone but will be related to arsenic operations. Activities of the subcommittees were defined as follows:

HEALTH EFFECTS

The evaluation of plant neighbors and plant workers which was initiated in October 1975 will continue with completion of employee evaluations being given priority.

* Secretary, Department of Health and Mental Hygiene
WATER POLLUTION

The Water Resources Administration is proceeding to obtain river sediment and water samples near the plant and in the outer harbor. Coordination with the City of Baltimore, Department of Health will be effected. The Division of General Sanitation has accumulated information on the migration patterns for fish and shellfish. The samples of aquatic life will be expanded. Thus far, sampling has been limited primarily to oysters. Test results are all below 1/10 ppm Kepone with an average estimate by Dr. Eisenburg, Laboratory Supervisor, as approximately 0.03 ppm Kepone.

AIR POLLUTION

The Environmental Health Administration, Bureau of Air Quality Control intends to examine filters from four high volume samplers for Kepone. The nearest sampler is approximately 1.75 miles from the plant. A new high volume sampler will be located adjacent to the plant (site not picked as yet) to determine whether re-entrainment of Kepone from the soil is occurring. It is estimated that the sampler will be installed within approximately one week.

SOLID WASTE

The Hazardous Waste Section of the Division of Solid Waste Control plans to sample the plant dump during the coming week. The objective is to identify the extent of contamination in order to estimate a suitable disposal technique. Analyses will be performed by the State and USEPA laboratories. An extensive and systematic sampling of Swann Park is expected to be initiated next week in an attempt to evaluate the extent of contamination. Analyses on all soil samples will be for Kepone, arsenic, chlorinated organics and possibly mercury.

Presently Swann Park is closed to the public. The State is working with the USEPA in an attempt to specify concentrations of Kepone and arsenic which would be acceptable from a health standpoint. Comments by some of the participants indicated that present thinking for both arsenic and Kepone would be an allowable concentration of 1 ppm or less.

All correspondence with the Task Force is to be directed to Dr. Max Eisenburg. He will provide internal distribution.

There were two questions posed to Allied on the manufacture of Ant & Roach Paste. These will be answered by the undersigned in a letter to Dr. Eisenburg.
In a meeting with the Water and Solid Waste Subcommittees an agreement was reached by the undersigned that sampling of the dump site would involve six core samples taken to a depth of approximately two feet. Allied Chemical will be notified prior to the sampling of the dump and Swann Park so that split samples can be obtained. Upon completion of the sampling, Allied can proceed with the installation of a six inch clay seal on the dump site and any contaminated plant ground. The approval of this action will be obtained in writing prior to installation of the clay.

River sediment samples collected by the State will also be split with Allied.

State Highway Department will provide hydrological information to the Solid Waste group and Water Resources Administration. Highway corings which extended to a depth of 60 feet have been analyzed chemically. These data are being released to the undersigned. The highway personnel in attendance indicated that their plan would involve deposition of 6-12 feet of fill over the dump site with eventual installation of a concrete seal.

There was considerable opinion among the technical people that the best approach would be to leave the dump in its present location. A final decision on this will entail consideration of hydrological data.

The next Task Force meeting will be held on March 24 in Baltimore.

W. M. Reiter

WMR/nm
cc: J. W. Bratt
    E. W. Callahan
    J. H. Devoe
    W. S. Ferguson
    J. Flint
    J. P. Fundersol
    R. F. Manning
    J. D. Mullins
Interview with Calvin Buikema on May 2, 2008

M: When Swann Park was initially closed in 1976 for the precautionary testing, what was the response of the community?

C: Well, let's back up here a little bit. Let me see here...1976...I need to try and figure out what I was doing in 1976. I would have been here 7 years and at that point I was the city forester for Baltimore city and except for if...and I don't recall reading anything in the papers...it is something that would have never trickled down to me. Like I told you on the phone, it would have been an administrative thing that would have been known by the director of parks and rec and probably the superintendent of the Carroll Park district. It is divided into 5 park districts and that particular park falls into the Carroll Park district. I am trying to think of who was the superintendent at the time...it could have been a guy named William Tart; who later became my assistant. Unfortunately Tart doesn't live here anymore; I think he lives in a town called Snowhill, Maryland. It is on the other side of the Chesapeake Bay and south a little bit, near the Virginia border. But you may be able to find him in the phonebook. But I believe at the time he was the area superintendent and probably would have been the one of the men who went out to put the signs up.

M: How far were you living from Swann Park?

C: Quite a ways away. Unless it was in the papers, and I read it and don't recall, I don't know much about what happened.
M: So people around here wouldn’t have known about it.

C: Not unless they read the paper. People here are funny. If you go to the east side of town and you say have you been to Garrison Blvd, which is a main street on the west side of town, they will say “where is Garrison Blvd?” That’s just the way it is…and if you say to somebody well have you ever been to Glen Burnie or Washington, DC they will say no, I have never been there. A lot of people use public transportation, they go to work, they come home, they go to church, they come home, they go to the store, they come home but they don’t venture out. A lot of people never go to the beach, go fishing, they never go to an amusement park. They might go to a movie theater if there was one within walking distance.

M: So it sounds like people are not involved in other communities outside of their own.

C: That little row of houses by the park is not really tied to anything. It just sits there all by itself. The nearest neighborhood, Federal Hill, they have paid some attention to it but still. When something happens…they just built a big building right here on the corner…one day they are out there knocking the old place down, an auto parts, and I wondered what was going on. So I made a few phone calls and they said oh they are going to build a thing for the school. They are building offices, dorms, a student union and all that…we didn’t know anything about it. We live on the other side of the street and we didn’t know anything about it. Now the people who live on that side of the street knew about it, they
had community meetings and they showed them drawings but we didn't know anything about it.

M: That is interesting you bring that up. The citizens don't really make an effort to get themselves involved and the city doesn't go out of its way to make sure everyone is informed.

C: No. I just noticed something the other day for the first time, and they may have been doing it for a while, they didn't do it while I was still working, they are doing a master plan for a very large park in the city and there were signs all over the park; master plan meeting with the date, time, and location. So the citizens can come if they want and have input. We never did anything like that. In fact, they used to just do these plans, do the work, and a lot times never told anybody.

M: So would you say back in 1976 that people were not involved in the decision making process.

C: Not like they are today. If there was a playground that was deteriorated someone might call and say we need the playground fixed and they might go ahead and build a new playground and much to their surprise, the trucks roll up and in 6 months they have a new playground. But that's the way people are around here.

M: Do you think that is a result of the city not reaching out or does the city not reach out because there isn't an interest?

C: I don't think there is an interest. I think people have their minds on other things. This is not a wealthy city, although there are some wealthy people who
live here, but this city…even if you look at the census map of where we live right here it is listed as distressed. I think people worry about food, they worry about their kids’ health, they worry about other things. I don't think they worry too much about whether the street is going to get paved or if a playground is going to be built or a park is being closed. There are things that are more important to them. Now the people that it might have been important to are the kids and adults that played ball there.

M: How and when did you first learn of the events at Swann Park?
C: I really became aware of it, I guess, when it hit the papers 6 or 7 months ago.
M: Oh, so you didn't even hear about it back in '76?
C: No, and if I did I don't remember. It just wasn't something that concerned me. There was no reason for any of the street tree guys to go there. Ever since you called I have been trying to remember if I had heard anything and I went through boxes of newspapers I saved about parks and recreation and I couldn't find anything that I cut out about Swann Park.
M: When I was at the library today, I came across a book about the parks of Baltimore and it had a layout of their future plans for the park. It ranked them by priority A, B, and C. How were these priorities established?
C: You mean as far as improvements? Well, the way it happens now is people put in requests. Usually it is done on a complaint basis and a planner at the department of parks and rec goes through and says what should be done when.
Then she funnels that down to the department of planning and it's put with all the other city stuff and given a priority. Everything is ranked according to its urgency.

M: I think I have asked all my planned questions. Is there anything that you think might be helpful?

C: No, unfortunately the gentleman you should have talked to has passed away. He was the director of recreation.

M: What was his name again?

C: Doug Tawney. There is one other person that is still around that may know something, she was his executive secretary. Her name is Stephanie Esworthy. She was right by his side during most of his career. You might be able to talk to her by phone.
APPENDIX H

Interview with Heather Moore on May 2, 2008

M: When was the Federal Hill South Neighborhood Association established?

H: We were established as a neighborhood association in 1993.

M: So this association is relatively new?

H: Yes.

M: I am not familiar with the role of a neighborhood association so could you describe to what it is that you do.

H: The neighborhood association represents the neighbors who live in a particular boundary, which in the case would be Cross St, Light St, Fort Ave and Covington. Within that boundary there are 1200 homes. Basically the neighborhood association is meant to keep a good quality of life and that involves doing everything from replanting and cutting, having socials and get-togethers, advocating city, state, and local officials for different policies, such as development, parking, housing, whatever issues that are stirring in the neighborhood. Our neighborhood is a pretty well gentrified middle to upper middle class neighborhood with every socioeconomic status living in that area. The area has definitely become gentrified over the last 15 to 20 years and gone from a real blue collar neighborhood to what it is today. It is probably one of the nicest neighborhoods in the city, coveted place to live. There are a lot of young professionals, some families, some elderly, but mostly a lot of people just starting out.
M: So how is a neighborhood association different from a homeowners association?

H: A neighborhood association includes everybody; you don't have to be a homeowner. You could be a renter or whoever to join. We don't have rules...you don't have to paint your doors certain colors for example.

M: What is your role in the Swann Park Task Force?

H: I was the neighborhood liaison; there was no official title other than task force member. I was the only person who didn't have a scientific background so I was there representing neighborhood interests, what community members wanted or what their concerns were.

M: Were local citizens involved in the decision making process to close or reopen the park in 1976?

H: I don't know specifically but based on information I learned while being on the task force, that doesn't sound like that was the case at all. It didn't sound like very many people had input into that at all given the way which information was disclosed or not disclosed.

M: So what would you say the level of information was about the events that were occurring?

H: I would say that they didn't know very much at all and that they didn't have any input into whether the park should remain closed or not. Have you been over to the park?

M: I have.
H: There are not too many residents living in close proximity with the exception of the 5 or 6 row houses. Those are the people you should be talking to. Some of those people have lived there their whole lives and some of them bought that property as an investment.

M: Do you happen to know what the response was of the local citizens to the closing?

H: I don't know. We didn't get into that too much…the task force.

M: Were you living in Baltimore during that time?

H: No. I did talk to some of the older people in my neighborhood and they kind of remembered it but didn't feel that they had any information. There are not a lot of people who were around back then that I know or who came forward and offered information.

M: Do you know what factors contributed to the reopening of the park despite the contamination?

H: The only thing I know about that is that they didn't look at arsenic at all, they were looking at something else. And although they found arsenic in the ground, they didn't disclose that.

M: Because the initial investigation was for kepone.

H: Right, so they addressed the kepone and although they found arsenic, nobody ever asked about it. So they didn't disclose it and nobody asked about it. And that was what triggered the re-closure last year, when all that came to light.

When Honeywell bought the site somebody found all these boxes with this
information and thought…"oh my god, we have to give this information to someone". That was when they turned over the information to the health department and that’s when they decided to close it, and I think that was done within a day of getting that information. So we have to give credit to Honeywell for being upfront where it seems like Allied buried it and viewed it as privileged.

M: One of the possibilities I am examining is that back in 1976 arsenic was not seen as bad as it is today. Especially in soil, even to date there is not a great deal of research or standards for arsenic contaminated soil.

H: Given the tone of the stuff that I have read, that really doesn't seem to be the case. Back then…it's not like it is today where it's bad if you don't tell what you know…back then it was more of a closed door society where "we're sorry if we are making fish have three heads but that's our information to have and that's what you get for living next door". Where now with rules and the EPA things are set up to protect people. Reading things…it just felt like they were keeping a secret rather than saying arsenic is ok and kepone is not, or visa versa. That whole area down there is just a mess of industrial stuff.

M: One of the documents I read from Allied actually said that they knew their containment shed was not 100% intact.

H: Right, did you read where someone said the park looked like it was covered with snow there was so much arsenic? If that happened today the national news would be all over it but back then they probably just sent someone to shovel it up and kept it quiet.
M: I would think that if they were trying to cover something up they wouldn't have made the test results so easily accessible.

H: I don't think the results were accessible at all back then. Although they sent interoffice memos to each other, nobody ever expected it to go outside of the company.

M: Now that the testing is done and a remediation plan drawn up, what is the task force doing now?

H: We're done. We were tasked with looking back, we weren't part of the clean up effort, we were looking at what happened and trying to find ways that it wouldn't happen again. We looked at all these different things and we came to the conclusion that we are in a different time and it would be unlikely that something like would happen again. The morals and ethics have changed in the business. But still...there were some clear suggestions made to MDE for making some improvement to their website and their ability to track these brownfields, just better tracking. I think the recommendations that came from the task force were pretty strong and hopefully they will make a difference. Ultimately, the time is different and the results would have been different. Who knows 20 years from now what the next step will be.

M: Those are all the questions I have unless you know of something else that would be helpful or interesting to note.

H: Well, I wish I would have been here in '76 and able to help more. I think you have chosen a hard time to look at because there are not a lot of people around.
APPENDIX I

Interview with Jackie Carrera on May 2, 2008

M: My first question is, I know you obviously have kind of been working with Honeywell and the issues with Swann Park, but can you kind of give me an overview of what involvement Parks and People have had with Swann Park and either the current clean up actions or the investigation?

J: None

M: None?

J: Absolutely none

M: Are local citizens being involved in the decision making process regarding the current issues at Swann Park?

J: I don't know. Now I do know who you can ask. Would that be helpful?

M: That is most definitely helpful.

J: Porcha Harris is the director of recreation for the parks. They are the ones who are responsible for the properties. They have a report, have you looked on the parks and rec website?

M: I have

J: Good, then you know the answer, because that’s where I was going to refer you to. Now you might want to meet with Porcha to get a more updated…just get a more updated report on what has transpired since that report was written. The other group is the Health Department.

M: I have already contacted them, they have not responded to me.
M: I am not sure if you will be able to answer this question either but were residents involved in or informed of the events regarding Swann Park in 1976?

J: I don't know, I'm sorry.

M: That's alright. Do you happen to know what led to the request of the testing documents by the MDE (to Honeywell)?

J: I think that it was when Honeywell and Allied…when their corporate transition took place, which was fairly recent as far as I understand and that triggered questions about the park.

M: Is there any other information that you can provide that you think might be helpful?

J: With the exception of what I have already given you? No. Now that I understand more that you are looking back at the history…most of the people I know are brand new.

M: Great, thank you so much for taking the time to talk to me.
Interview with James Carrol on May 2, 2008

MC: I am going to start from the top, I have already asked [MDE representative] some of these but you may have some information to add. What lead to the request of the testing documents by the MDE to Honeywell?

JC: Initially what had happened was in the course of conducting a document review of the former Race St facility, Honeywell discovered some old tests that had been collected in the soil at Swann Park and at that point they disclosed those results to the department and to the city. The city health director at that point stepped in and in consultation with the parks and recreation decided that they would close Swann Park because of the levels of arsenic in the soil.

MC: Ok, let me see if I understood you correctly, it was actually Honeywell that contacted the MDE with these old test results that they found.

JC: Correct.

MC: Can you describe the level of involvement, if any, that local citizens have had in the decision making process regarding Swann Park for either past or current events?

JC: I can describe the role that community involvement activity, at least as far as I am aware of, which is essentially from last year until today. There have been several public meetings in which presentations have been made both by Honeywell and the City of Baltimore, the parks and recreation department, the health department and the department of the environment in which we have gone
to the public and described what the environmental conditions are at. Oh, I should also throw in there the ATSDR, the Agency for Toxic Substances and Disease Registry. All of those agencies and Honeywell have come to public meetings to describe what has been found at the park, the investigation results and then also what proposed response action plans are in an attempt to solicit community input on the environmental conditions and also what the future configuration of the park should be. So there has been, in my personal opinion, there has been a moderate public interest in Swann Park. I say moderate just because several meetings I have been at there haven't been that many citizens. It's mainly the people from the McComas neighborhood and a couple people from the surrounding residential neighborhood, a lot of environmental consultants and representatives from various attorneys and then the rest would be the City of Baltimore, ATSDR and Honeywell's consultants.

MC: Would you say that the comments and concerns of the local residents have been well received and taken into consideration?

JC: I know that when we receive public comments, in fact we received comments on the response action plan that were very good and we incorporated those comments into our comments back to Honeywell on their proposed response action plan.

MC: What factors contributed to the reopening of the park in 1976 despite the contamination?
JC: Well, from what I can tell of the documents that I have seen, it appeared that at that time Allied Signal had provided the City of Baltimore with funding to go in and put clean soil in to cover areas or portions of areas at the park and there is a reference in the documents that there was a certain amount of diskling in the soils. I have only seen this looking at the documents that Honeywell produced so I don't know if the City of Baltimore has any other information or not. There was a task force report that has come out with three different reports; you may want to take a look at that because that may have some greater information on the historical events that occurred back in 1976 and what lead to the reopening. My general impression is that because there had been soil brought in to cover over the park, at some point the decision was made that it was sufficient at that time to reopen the park because it was closed for a while.

MC: Right, my understanding is that it was the southwest corner of the park that Allied Signal remediated by replacing the top 2-3 inches of topsoil. The whole park was the supposedly retested and the results presented to a panel of health experts. So it has been my understanding that only a portion of the parks soil was recovered with soil, is that correct or incorrect?

JC: I don't know, because again I have seen some of the accounts and documents that I was looking at that indicated that the city was provided funding, almost $100,000 worth of funding, and that the intent was to bring in soil and it wasn't just the southwestern corner that was to be address but it was essentially all along the boundary of the former Race St. facility. The southwestern corner
makes sense to have the bulk of the remediation coverage to take place because that’s where the arsenic shed and most of the arsenic operations occurred at the Race St. plant. It should have actually been the northwest corner. Because the southwest corner would have put it right up against the Middle Branch but on the far side of the Race St. facility. The north side, northwest corner would have been on the same side and right next to the arsenic shed and where the arsenic operations occurred.

MC: I do remember looking at a map and thinking that location didn't make sense so it may have been a typo in whatever article I got that info from.

JC: I would go to the Baltimore City Health Department web page and I believe they have posted the results of the task force report and it might have some additional information that might be useful to you.

MC: Were local resident involved in or informed of the events at Swann Park in 1976?

JC: I have not seem any information either way on that.

MC: OK. I believe that’s all the questions I have for you unless you have any other information you think might be useful to me.

JC: If you're interested in some of the community outreach activities that have gone on, the ATSDR has been involved and the person to talk, with respect to the most current events, would be Laura Werner. She is with the ATSDR up in Philadelphia and her phone number is 215-814-3141. Honeywell also has a website up about Swann Park and they have posted their construction activities
and some additional activities. So that is something that may be of use to you. Also the City of Baltimore Health Department has something on Swann Park along with the task force reports. I also suspect that [MDE rep] has shared with you that on the MDE webpage there is a link that takes you to a whole bunch of information on Swann Park.

MC: Ok, great. Thank you so much for taking the time to speak with me.

JC: Oh you’re welcome!
APPENDIX K

Interview with MDE representative on May 2, 2008

MC: My first question is what lead to the request of the testing documents by the MDE to Honeywell?

MDE: What lead to the initial request….hmmm…I am trying to think…you know those are the things, and again I apologize, that I don't know. What I did was when I called the office of solid waste, they deal with things like soil contamination, anything that is deposited to the land, and they are cognizant of those specific dates. I would be more than happy to give you names but you should probably talk to those people because they would have specific dates. I do have a chronological list of events that I printed out that may help.

MC: I think I already have that document and I believe the date was April 15, 2007. I might be wrong on the exact date but it was in April of 2007 that the MDE requested the documents from Honeywell.

MDE: Well…thereabout, it was in April. There are some things that go back to March, but I thought you meant like way back in 1970's.

MC: No, I am inquiring about the most recent request. I was just wondering because I am sure no one was just sitting around saying to themselves you know, 30 years ago, that testing that was done, I want to look at that again. I am just wondering what caused the renewed interest.
MDE: You know, I am not really sure. And again, when it came to the department, it was the Attorney Generals office, they take care of legal matters and from there it sort of trickled down to the different administrations that were specifically responsible for it. So that’s pretty much it, I couldn't give you the specifics on it.

MC: Ok, that's fine.

MDE: I was hoping that…and if I had known I would have probably had someone from that department here…I was thinking you were more interested in the EJ part of things.

MC: I am, just not necessarily current things that they are doing now. I am interested more in the process equity between the precautionary testing and when the part was said to be safe to reopen. The time period between there is what I am focusing on.

Has the MDE Office of Environmental Justice been involved in the recent events and the investigation?

MDE: Only to the extent that the office was notified, more so because they anticipated that we would get lots of calls. Just so you know, the Office of Environmental Justice is more of an advocacy office, it's not a technical office that would offer any type of technical assistance. Generally speaking, when I get complaints, I am in a position to refer that to a specific division which would handle that specific scenario, in this case Swann Park, and then what I usually do is get the technical folks downstairs…make them aware just so they are not
like "oh I didn't know about this...". So...then pretty much they will take care of it and what I ask them to do is to give me periodic updates. So that's pretty much what this office does. We were not really involved with Swann Park.

MC: Ok, I wasn't sure if the investigation that was ordered by Mayor Dixon, if the Swann Park Task Force was consulting you or not.

MDE: No, they weren't actually. It came out of our AG's office and Horatio who is our director of waste management also was involved with that.

MC: What factors contributed to the reopening of Swann Park in 1976 despite the contamination?

MDE: You know...again...I am sorry but I am not sure. Because of my time constraints I did not get a chance to look at this chronologically but it is my understanding that it was not in operation in 1976. So...do you have a different understanding? My understanding is that it was in operation between 1955 and 1976...wait a minute...hold on a second...the operations closed....

MC: Allied chemical?

MDE: Yes.

MC: The information I have may not be correct, most of this is from newspaper articles. It was my understanding that precautionary testing to test for kepone, Swann Park was closed on March 1976. Tests were performed by Allied Chemical and they found high levels of arsenic and kepone at the southwest corner of the park. Allied then remediated the site and the soil was retested. The results were presented to a board of state and local health experts. The
panel determined that it did not pose a health hazard and the park was reopened.

MDE: And this was 1976?

MC: Yes, late 1976 was when the park was reopened.

MDE: What I am going to do actually… I am going to… make a few phone calls.

Jim Carrol is the program manager for the MDE. If a lot of your questions are specific to the park it might make sense to conference him in as well.
Interview with Alva Brown on

M: Alva, how long have you been living at your current address on McComas St?
A: I have lived here for 86 years.
M: Wow, that's a long time. Were you born there?
A: I was just a little over a year old when we moved here. I will be 87 next November.
M: Good for you! My next question is where do you normally get most of your news information?
A: In general I watch the news on the TV.
M: Ok, back in 1976 when Swann Park first closed how were you notified that the park was closing? How did you first find out about it?
A: Oh gosh that was a long time ago. To be honest, I never even know the park was closed. My kids played there every day when they were little, every day. They were grown in '76 but I never noticed the park being closed. I just found out recently that they closed the park back then.
M: How did that make you feel to find out over 30 years later that the park was closed and you were not notified even though you lived right next to it?
A: We used to play as kids at the park when they were making the chemicals, we never knew it was bad for us. You could see it coming out of the chimney. It would be a real dark orange and the wind would blow it across the sky. We
never paid any attention to that. I am mad that someone didn't tell us sooner that what we were doing was dangerous.

M: Back in '76, did the City of Baltimore inform residents of what was going on in the city?
A: They usually kept things to themselves.

M: Do you think if the City or even Allied Chemical had told the residents what was happening with regard to Swann Park it would have been well received? Did the people want to know what was going on?
A: I think the people would have wanted to know what was going on. But I don't know that anybody would have done anything. We pretty much keep to ourselves.

M: Would you agree or disagree that the people of Baltimore do not involve themselves in things outside of their neighborhood.
A: I would definitely agree. Sometimes they don't even involve themselves in their own neighborhood.

M: Ok, that's really all the question that I had to ask you. Is there anything you would like to add?
A: You know I can't even really say anything bad about it. My children played there, I am 86 years old and we are all healthy. So I guess everything worked out ok.