Race, Gender & Class: Volume 21, Number 1-2, 2014 ( )

Gender & Class Website: www.rgc.uno.edu

AN AFRICAN AMERICAN COMMUNITY AND THE PCB CONTAMINATION IN ANNISTON, ALABAMA: AN ENVIRONMENTAL JUSTICE CASE STUDY

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Abstract: The Monsanto Company produced polychlorinated biphenyls (PCBs) for an estimate of 40 years, and they discharged toxic waste into a West Anniston Creek and dumped millions of pounds of PCBs into open-pit landfills. The Anniston community is saturated with toxic, probable human cancer-causing chemicals that have been found in the dirt, water, air, food, and blood of residents. The federal government failed the residents in Anniston, Alabama. Governmental officials and Monsanto/Solutia deceived the residents. SweetValley/Cobbtown Community in West Anniston, Alabama and other communities of color share an unfair burden of exposure to environmental contamination. The Monsanto/Solutia landfills contaminated the West Anniston community (soil, water, and air) with PCBs, causing the community to be exposed to environmentally caused health risks. Through personal interviews and secondary data, this case study establishes a linkage between environmental contamination and residential knowledge and response to environmental change.

Keywords: Monsanto/Solutia; Anniston, Alabama; SweetValley/Cobbtown; polychlorinated biphenyls; community against pollution; environmental justice

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According to the 2000 census for Anniston, there were 24,276 people, 10,447 households, and 6,414 families residing in the city. There were 12,787 housing units at an average density of 281.5 per square mile. The racial makeup of the city was 48.71% White, 48.69% Black or African American, 0.27% Native American, 0.78% Asian, 0.07% Pacific Islander, 0.61% from other races, and 0.86% from two or more races. 1.68% of the population was Hispanic or Latino of any race. The median income for a household in the city was $27,385, and the median income for a family was $36,067. Males had a median income of $31,429 versus $21,614 for females. The per capita income for the city was $18,769. About 20.1% of families and 22.8% of the population were below the poverty line, including 35.2% of those under age 18 and 16.2% of those age 65 or over. (Wikipedia 2012). Anniston is a relatively low income area where the majority of residents have only a high school diploma or equivalent. The majority of minority residents were located very close to the Monsanto plant in West Anniston. (Lyon & Pinderhughes, 2004, Jones, 2000). Anniston, Alabama was considered one of the most contaminated cities on the planet.

> On the west side of Anniston, the poor side of Anniston, the peopleate dirt. They called it "Alabama clay" and cooked it for extra flavor. They also grew berries in their gardens, raised hogs in their back yards,Caught bass in the murky streams where their children swam and playedand were baptized. They didn't know their dirt and yards and bass and kids—along with the acrid air they breathed—were all contaminatedwith chemicals. They didn't know they lived in one of the most polluted patches of America…. In 1966 Monsanto managers discovered fish submerged in that creek turned belly-up within 10 seconds, spurting bloodand shedding skin as if dunked into boiling water. They told no one. In 1969, they found fish in another creek with 7,500 times the legal PCB Levels. They decided there is little object in going to expensive extremes in limited discharges. (Source Watch 2010:1)

The Sweetvalley/Cobbtown communities in West Anniston, Alabama and other communities of color in the United States host a disproportionate number of Superfund and other toxic sites, compared to White communities. This inequity has been termed "environmental injustice." Environmental injustice is a major social, political, and health issue in the United States (USEPA, 1994). More than twelve hundred hazardous sites in the United States are classified by the Environmental Protection Agency (EPA) as National Priority List(NPL) sites on the Federal Superfund List. Over two million Americans live within one mile of a superfund site. These sites are the most contaminated sites in the nation. They pose the greatest threat to the environment and the health of local communities, which negatively affect local property values and require an extensive cleanup. A study conducted by General Accounting Office (GAO) provided evidence that minorities and poor communities more often host toxic waste sites and other locally unwanted land uses (LULUs) than White and better off communities. That study revealed that three out of four of the off-site, commercial hazardous waste landfills in Region 4 (which comprises of eight states-TN, GA, AL, SC, NC, FL, KY, & MS in the South) happen to be located in predominantly African-

American communities, although African-Americans made up only 20% of the region's population (General Accounting Office 1983).

In 1982, Professor Robert Bullard focused on the population composition around eight waste facilities in Houston, Texas and found evidence that the facilities were located in minority areas (Bullard, 1983). Professors Mohai and Bryant in 1992, compared the proportion of people of color around sixteen toxic waste treatment and disposal facilities (TWTDFs) in three counties surrounding Detroit and found that race was the main predictor for the location of TWTDFs (Mohai & Bryant 1992). In 1995, Heitgerd and colleagues studied 1,200 United States Superfund National Priority List (NPL) sites and found that the percentage of the population reporting as minority, is higher in areas near NPL sites (Heitgerd et al., 1995). The term "environmental justice" was established in Warren County North Carolina, where the Environmental Justice Movement (EJM) emerged in the early 1980s (Bullard 2000). It refers to the fact that pollution often hit minorities the hardest. Toxic facilities are sited in communities which display the least political resistance and where the least powerful NIMBY (Not-in-My-Backyard) reactions happen in response to the proposed siting.

The Community, Environment, and Environmental Justice Problem

The West Anniston, Alabama communities have an unfair burden of exposure to environmental contamination. For over forty years residents of the Sweet Valley and Cobbtown communities were unaware of the environmental risks from the Monsanto landfills. TheMonsanto/Solutia landfills contaminated the environment with polychlorinated biphenyls (PCBs) causing the communities to be exposed to environmentally health risks (i.e., skin rashes, neurotoxicity, chloroacne, endocrine disruption, liver problems, reproduction problems, kidney problems, developmental problems, gastrointestinal disorders, immune system suppression, cancer, etc)(Chemistry Industry Archives, 2002; Cogliano, 1998; ATSDR, 1990). The Monsanto/Solutia plant disposed of hazardous and nonhazardous waste at two landfills. The west end landfill (WEL) and the south end landfill (SEL) are both located adjacent to the plant. The WEL is six acres of land that is located on the southern side of the plant. The WEL is unlined and was used for disposal of the Monsanto plant's waste from the mid 1930s until 1961.

In 1961, the WEL was purchased by Alabama Power Company (APC). Monsanto then began disposing of waste in their other landfill, the south end landfill. The SEL is located on the lower north eastern slope of Coldwater Mountain. The SEL is also unlined and was used for the disposal of hazardous wastes from the plant (ATSDR, 1999). The Monsanto/Solutia plant site, consists of a series of ditches that run along the boundaries of their facility. The Eastern Drainage Ditch (EDD) begins in the area of the SEL just southeast of the Monsanto/Solutia plant. The EDD continues along east of Montrose Avenue and Boynton Street which crosses under 10th street and the Norfolk, Southern, and Erie railroad tracks at 11th street, then empties into Snow Creek. The Northern Drainage Ditch (NDD) crosses north under railroad tracks to the southern ends of Bancroft and Duncan Streets, then travels northeast where it joins the EDD and Snow Creek. Most of the EDD consists of clay, but some parts are concrete that extends below the ground. The western end of the NDD has some watery flow that travels

toward Snow Creek. The Western Drainage Ditch (WDD), is located west of the West End Landfill (WEL) at the southwest corner of the Monsanto/Solutia plant. The EDD averages 2 to 3 feet deep and 3 to 5 feet wide, except at the Spring Street area where the ditch is 5 to 6 feet deep and approximately 5 feet wide. While producing PCBs, the Monsanto/Solutia plant routinely discharged the toxic waste from the landfills, to the drainage ditches into the West Anniston Creek known as Snow Creek(Alabama Department of Public Health, 1996).

The Snow creek flows through West Anniston to the north of the Monsanto/Solutia plant until it reaches Boynton Street. The Snow Creek then empties into the Choccolocco Creek. The Monsanto/Solutia plant is regulated under the Alabama Hazardous Waste Management and Minimization Act (AHWMMA). The EPA has authorized the Alabama Department of Environmental Management (ADEM) to implement the Resource Conservation and Recovery Act (RCRA) through AHWMMA for the federal RCRA program. Through investigations initiated under the RCRA program, the EPA and ADEM have determined that the Monsanto/Solutia plant, the adjacent community, and the drainage ditches that exists on the Monsanto property, to the downstream waterways (Snow Creek, Choccolocco Creek) are contaminated with PCBs. Nobody knows the exact quantity of pollution that Monsanto/Solutia discharged from its Anniston plant into the local waterways. People in West Anniston, which was closest to the Monsanto plant had cancer, kidney and liver problems but it wasn't until local fishermen began pulling deformed fish out of local creeks that anyone blamed Monsanto. (Lyon & Pinderhughes, 2004, Jones, 2000).

It is estimated that Monsanto dumped at least 5.5 million pounds of PCBs into the landfills near the plant, over a forty year period. It was not until the late summer of 1993 when the residents of West Anniston Alabama knew of the high levels of PCBs in the Choccolocco Creek. A contractor (that is now deceased) found deformed fish floating belly up in the Choccolocco Creek and had the fish tested for PCBs. The results given by the contractor, showed there was enough contamination to prompt an investigation by the state. On November 2, 1993, the Alabama Department of Public Health (ADPH) issued a fish consumption advisory. The advisory warned residents not to eat any fish (which residents had consumed for over forty years) caught from the Choccolocco Creek (USEPA, 2012, Chemical Weapons Working Group 2012, Coosa Riverkeeper, 2011, McCreless, 2012).

Public Health Concerns

Using Toxic Release Inventory (TRI) data provided by the Environmental Protection Agency (EPA), a query was generated to tally the total amount of Hazardous Air Pollutants (in pounds) released in the Calhoun County, Alabama for 2011. The query produced thirty-one different types of chemicals that were potentially present at all industrial facilities. The researchers have chosen to report twenty-two of the thirty-one total chemicals. TRI data reflect releases and other waste management activities of chemicals, not to what degree the public has been exposed to those chemicals. TRI data, in conjunction with other information, can be used as a starting point in evaluating exposures that may result from releases and other waste management activities which involve toxic chemicals.

Table 1*: TRI On-site and Off-site Reported Disposed of or Otherwise Released (in pounds), Calhoun County, Alabama, 2011*

Row #	Chemical	Total On-Site Disposal	Total Off-Site Disposal	Total On- and Off-Site Disposal
1	BENZENE	3,740.00	0	3,740.00
2	BIPHENYL	3,762.00	0	3,762.00
4	COPPER	59,358.32	4,995.81	64,354.13
5	COPPER COMPOUNDS	10	5,438.00	5,448.00
6	CUMENE	7,600.00	0	7,600.00
7	DICHLOROMETHANE	12,880.00	34,256.00	47,136.00
8	ETHYLENE GLYCOL	0	46,640.00	46,640.00
9	FORMALDEHYDE	7,644.00	0	7,644.00
10	FORMIC ACID	8,883.00	25,023.00	33,906.00
11	LEAD	18,795.14	4,667.97	23,463.11
12	LEAD COMPOUNDS	1,199.61	19,229.95	20,429.56
13	MANGANESE	61.02	4,638.35	4,699.37
15	METHANOL	66,871.00	0	66,871.00
16	NAPHTHALENE	906	10,686.00	11,592.00
17	NICKEL	68	4,642.00	4,710.00
18	NICKEL COMPOUNDS	123.1	24,095.20	24,218.30
19	PHENOL	22,518.00	323	22,841.00
20	TOLUENE	7,100.00	16,268.00	23,368.00
21	TRICHLOROETHYLENE	16,339.00	2,834.00	19,173.00
22	ZINC COMPOUNDS	2,229.45	94,165.42	96,394.87
	Total	246,595.64	433,981.04	680,576.68

Source: EPA 2013. TRI Explorer. Chemical Release Report.

This case study highlights the PCB contaminations made by Monsanto/Solutia Inc. in Sweet Valley/Cobbtown. With the use of EPA TRI data a search was executed on the amount of air emissions released by the registered TRI and Toxic Substances Control Act (TSCA) facility for 2008-2011.

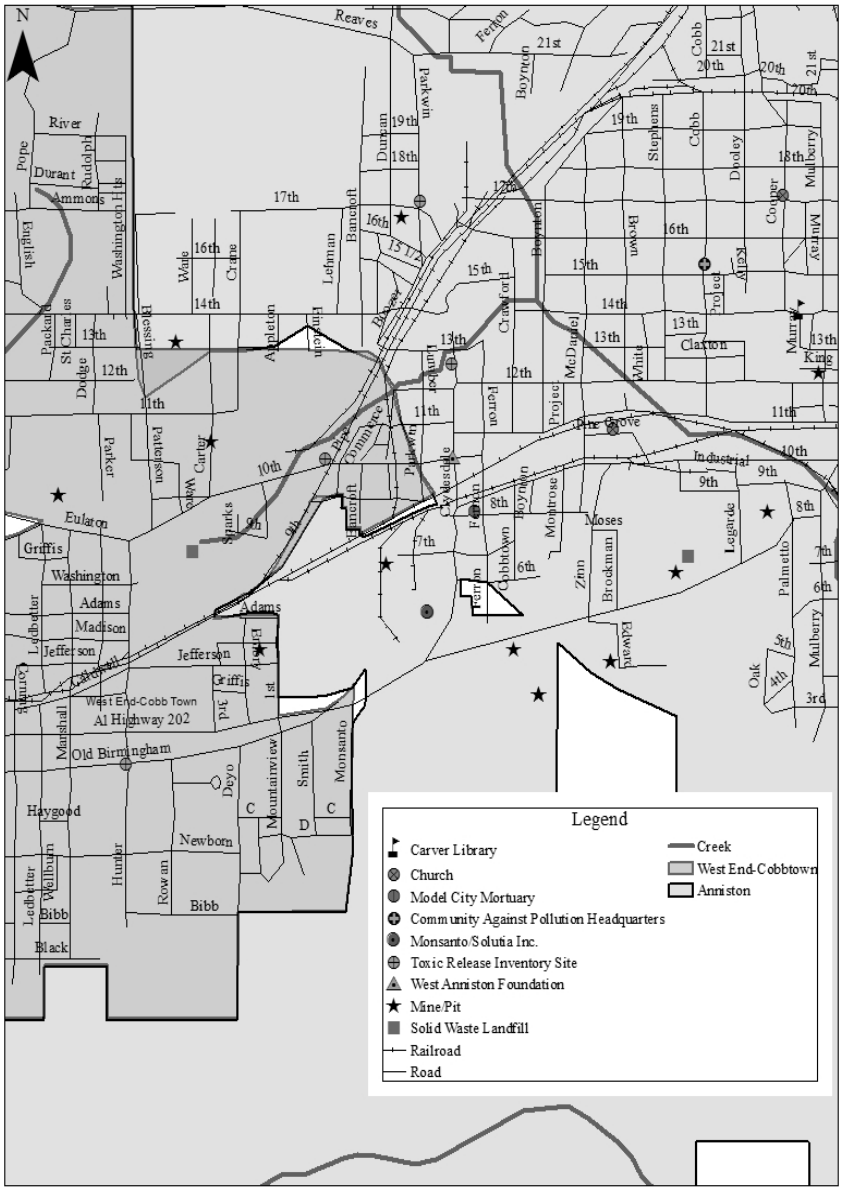
Table 2: *Names and Amounts of Chemicals Released to the Environment by Year (in pounds), for Monsanto/Solutia Inc.*

Chemical Name	Media	2011	2010	2009	2008
Benzene	Air Fug	3,740	6,700	5,506	5,080
Biphenyl	Air Fug	2,820	2,820	3,138	6,000
Biphenyl	Air Stack	942	720	763.29	1,064.17
Cumene	Air Fug	7,580	7,580	7,573	7,580
Cumene	Air Stack	20	20	15.67	18.07
Total	Air Emissions	15,102	17,840	16,995.96	19,742.24

Source: EPA 2013. TRI Envirofacts Report

Geographical Information Systems (GIS) was used to provide a spatial analysis

Figure 1: *Landmarks with Westend-Cobbtown and Anniston, Alabama*



Data provided by the U.S. Census, EPA, Environmapper and Jacksonville State University

Map created by Steven C. Washington

of Monsanto/Solutia as well as other hazardous facilities in our study area. Data obtained from EPA Enviromapper, toxic release sites are in Figure 1, which highlights key landmarks within West End/Cobbtown and Anniston city.

In 1996, according to Dr.Marshall[1], "One resident of the area whose blood was tested for PCBs found that she had an extremely elevated level of 240.0 mcg/l. Expected average levels should be less than 3 mcg/l to 20.0 mcg/l (Alabama Department of Public Health 1996, Chemical Weapons Working Group 1996). The EPA Region 4 asked the Agency for Toxic Substances and Disease Registry (ATSDR) to investigate public health concerns in the area of a chemical manufacturing facility in West Anniston, Alabama. ATSDR was asked to determine whether polychlorinated biphenyls (PCBs) and pesticides in soil, blood, and air are a threat to public health. ATSDR[2] provided the following conclusions:

- Exposures to PCBs in soil in parts of Anniston present a public health hazard. PCBs in residential soil present a public health hazard of cancerous and non-cancerous health effects for persons with prolonged exposure. PCBs in residential soils in some areas may present a public health hazard for thyroid and neurodevelopmental effects after exposure durations of less than 1 year.
- PCB exposures may have been more severe in the past. However, the fact that youngchildren have elevated levels of PCBs indicates that exposure may still be occurring at high levels.
- Exposures to PCBs in the air present an indeterminate public health hazard. The uncertainty regarding the levels of PCBs in the air in Anniston over long exposure durations,combined with uncertainty regarding air levels of PCBs to which people would be exposed attheir homes, precludes a determination of whether PCBs in air present a health hazard. More investigation needs to be conducted to a) identify persons living near the air monitors at whichelevated air PCB levels have been detected and b) define the limits of the area with elevated air levels for PCBs.
- ATSDR's evaluation of the health hazard potential, particularly with regard to the size of theexposed population and the levels or duration of exposure, is limited by data gaps. Further sampling and evaluation are needed to fully assess the scope of contamination and exposure. We are concerned about the potential for health effects at this site (ATSDR, 2010:1).

According to the lead attorney for Monsanto, defending the company against allegations the PCB pollution poses a health threat.

> The truth is that PCBs are everywhere. They are in meat, they are
> In everyone in the courtroom, they are everywhere and they have
> Been for a long time, along with a host of other substances. The truth
> Is that the men and women who have worked around PCBs, them mostly
> Over forty, sixty years, people in our plant, people in the electrical
> Industry, have not experienced any significant health problems which
> Can be associated or tied into or caused by PCBs other than a serious
> Skin condition called chloracne, which is easily treatable (Chemical Industry
> Archives, 2002:2).

Ms. Ruth Mims was the lead plaintiff in the Monsanto Company PCB case. She provides a comprehensive description of the impact of PCB contamination on their family farm.

> … the community evolved around her father's farm which was es-
> Tablished some seventy-years ago. She spoke of the subsistence
> Farm adjacent to Monsanto's property with a stream traversing it into
> Which Monsanto's waste pipes emptied. Ms. Mims testified that milk
> Cows, pigs, and other livestocks, owned by her father and other residents
> Drank from this contaminated stream, and the members of the neighborhood
> Ate these livestock and drank the milk from the milk cows. Ms. Mims
> Remembered children swimming in the PCB ladened stream and the flooding
> In the neighborhood as water cascaded from the mountainside where the
> Waste was stored, into the neighborhood (EJRC 2001b:2).

This article provides a brief introduction to the PCB contamination problem in Anniston, Alabama where there is discussion on the community and the environmental justice problem. The literature review explains how this environmental justice (EJ) problem creates an environmental risk perception among impacted residents while discussing some dimensions of risks. There is also discussion on community mobilization and trust in government agencies around the EJ problem. This study establishes a linkage between environmental contamination and residential knowledge and their responses in the context of communities with toxic sities undergoing clean-up. A case study method is used and a brief analysis of interviews is provided. The authors also provide some lessons learned that can be used by other communities faced with the same problem.

Literature Review

Knowledge is composed of two elements; awareness and information. Awareness is defined as knowing that an issue exists, without necessarily having detailed information or clear understanding of the issue. Residents may be aware of the existence of some pollution problem without having being specifically informed about it. Being informed is defined as having some specific information about an issue, beyond being aware of its existence. The importance of residents' environmental knowledge, as a condition for public participation in environmental decision-making has been noted since the 1970s. Towler and Swan suggested that:

> What we should be striving to do is to create a future citizenry which is knowledgeable about the biophysical environment and its associated problems, aware of how to become involved in the resolution of these problems, and is motivated to do so, and to make environmental decisions, one must have some knowledge about the environment (1972:54-55).

To be able to participate in local environmental decisions regarding local toxic sites, residents need to be aware that the site and the contamination exists, and to

be informed about the specific environmental issue, clean-up options, and participation forums.

Residents who are not aware that there is a contaminated site near their home will not seek to become informed or participate. Residents who are aware of the contaminated site but not informed about it may seek information about the site, but they are not likely to have preferences about the cleanup, or to feel they can meaningfully participate. Residents who are aware of the site and are informed about it would be the most likely to participate in clean-up decisions. It is essential to understand what residents know and do not know about their environment, and to understand the determinants of their knowledge level. In terms of information sources, newspapers have found to be the main source of environmental information, before television, magazines, and the radio (Rogers, 1995). Everett M. Rogers, reviewed past research on news diffusion and he found that most residents who read the newspaper often, uses it as their main form of communication in peer conversation, which indicates that friends, family, and neighbors also play an important part in determining residents' awareness and information about environmental contamination. Furthermore, local newspapers are the means through which the EPA announces public meetings about the site. Attendance at public meetings is also considered in addition to local newspaper reading, because public meetings are the main forums through which the EPA directly informs residents.

Importance of Environmental Risk Perception

Risk perceptions are residents' affective response to their awareness of the presence of a toxic site. One's perception of risk is defined as the degree to which one is worried by, or feels concerned about the contamination problem. Risk perceptions translate into an overall feeling of concern (Greenberg, Anderson, & Rosenberger, 1996). Environmental risk perceptions translate into stress that may affect residents coping mechanisms and responses. Responses to the stressor are determined by the degree to which an event is perceived as physical or life threatening. Both real and perceived sources of harm are linked to the pollution which may cause stress and concern by residents.(Greenberg & Scheinder, 1996). Many characteristics of neighborhoods can be sources of perceived risk. Michael Greenberg suggested that:

> It is necessary to focus on the social and political impacts of Hazardous sites on people who live in neighborhoods with Such sites. Local neighborhood level hazards are linked to Massive technology sites, such as hazardous waste sites, Factories and landfills; local activities, such as bars, fire and Police stations; (abandoned houses, vacant lots, bad roads and Sidewalks); and crime and other behavior hazards. While These hazards all affect neighborhood perceptions of toxic Sites they affect local populations (and their environment) be-Cause of the risks created by the pollution (Greenberg &

Scheinder, 1996:387-396).

With regard to actual risks related to the presence of hazardous sites the uncertainty characterizes the state of knowledge on the effects of the contaminated site. This uncertainty is mainly due to the unknown levels of resident's exposure, the unknown effect of exposure to toxic substances, and the unknown long term effects of exposure to toxic substances. The range of effects includes, effects on people (death, life-shortening, acute illness, disability, chronic illness, minor illness, emotional illness), effects on the environment (elimination of ecosystem, elimination of species, reduction of diversity, reduction of species, reduction of biomass, and loss of water source), social effects (disruption of communities, and negative distributional effects, such as effects on disadvantaged people in specific communities, and on future generations), economic effects (devaluation of property, decrease in appreciation of property values, loss of land productivity, and increased taxes). The authors indicate that communities with a toxic site are perceived as undesirable to live in, and their land values are depressed.

Dimensions of Risks

Risk perceptions vary widely from individual to individual. Billie Jo Hance and colleagues propose a list of characteristics and how people respond to them:

- *Locus of control*: Voluntary risks are accepted more readily than those are imposed. Risks under individual control are accepted more readily than those under governmental or other source of control. In the case of the presence of toxic sites, individuals do not have much control over the actual risk. Residents who have moved into a polluted area knowing about the contamination problem, the risk is voluntary.
- *Fairness and ethical aspects*: Risks that seem fair are more acceptable than those that seem unfair. One's perception that living in a polluted area is "unfair" could increase the degree of acuteness to which the risk is perceived. Risks that seem ethically objectable seem more risky than others. The ethical view of the pollution problem, and whether it is unfair, depends on local circumstances and on community characteristics. If a toxic facility was sited despite the community opposing it may seem unfair if the site was a factory providing employment to residents and was "discovered" as a source of contamination.
- *Trust in information sources*: Information about risk from trustworthy sources is more believable than information from untrustworthy sources. People who trust the source of information about the risk, feel well informed about the risk and see the risk as less acute.
- *Source of risk, extent of risk, and familiarity with the risk*: Natural risks are more acceptable than artificial, or man-made risks. Contaminated sites are always man-made, and risks associated with them are seen as higher than risks associated to natural hazards (tornadoes, floods, etc.). Dreaded risks such as health risks are less acceptable than those that are not health risks. Experience with a given risk decreases the acuteness in how it is perceived.
- *Understanding of risk*: Undetectable risks create more fear than detectable

> risks. The perception of the risk that is linked to a contaminated site is not directly detectable, and it increases the degree to which one perceives the risk. Risks that are well understood by science are more acceptable than those that are more uncertain. In the case of a contaminated site, risks are generally not well detected or well understood (Hance, Chess, & Sandman 1988)

Community Mobilization

Voice would be least costly for the individual if the community is already mobilized, and if one has time to devote to the mobilization effort (Wandersman & Giamartino, 1980; Beary, 2003, AAAS, 2003, Earthfirst Newswire, 2012) . The higher the cost of voice, the less likely voice is to be the chosen response. The cost of voice response relates to the difficulty of expressing concerns and dissatisfaction. It is lowered by the availability of political structures through which one can become active. The voice option depends also on the general readiness of the population to complain and on the invention of such mechanism that can communicate complaints cheaply and effectively. At the community level, this corresponds to a level of existing community mobilization against the contamination source and for the cleanup site in addition to the decisions related to the cleanup process(Beary, 2003, AAAS, 2003, Earthfirst Newswire, 2012). Sidney Verba and others studied that voice and it is affected by the individual's motivation to act, capacity to participate, and integration in social networks of recruitment (Verba, Schlozman, & Brady, 1995). They found that participation takes place in the context of rich interpersonal networks, and that the most active residents became active because they were asked. Most often they were asked by people they personally knew (through personal connections and neighbors). They focused on the role of social networks of recruitment for participation. Integration in social networks has been found to be related to community involvement.

Trust in Government Agencies

Michael Kraft's and Bruce Clary's responses to NIMBY (Not-In-My-Backyard) siting disputes, indicate that participants in NIMBY movements tend to lack trust in the government (Kraft & Clay, 1980). Distrust in the government agencies may lead individuals to become doubtful of the information they are given, and to find alternative sources of information, by themselves or through community groups. Pritha Gopalan focused on the role of trust in participatory processes in the context of socioeconomic interventions brought on by external agents into the communities (Gopalan, 1997). Trust is a crucial element of the participatory processes. She concluded that there can be no participation without trust and the high levels of trust can cause more participation. The more the individuals trust the government agencies the more likely they would participate in the decision-making processes related to the cleanup of the contaminated site. William A. Gamson studied the optimum condition for political mobilization and concluded that low trust or a belief that influence is both possible and necessary. Also, a high political

efficacy and beliefs that action is likely to be the most effective. Therefore, distrust may also be a predictor of participation. Grassroots action and residential neighborhood associations have been interpreted as alternative power structures, ideologically based upon the distrust in the government (Gamson, 1968, Anderson, 2011, Bullard, 2006).

Jeffrey Paige studied riot participation, and found that radical politics are caused by a strong sense of political efficacy (feeling empowered and having high levels of information about the government) and distrust in the political system (Paige, 1971). The optimum condition for political mobilization is a combination of high efficacy (feeling empowered, having high levels of information about the government) and low trust in political institutions. Therefore, in a belief that influence is both possible and necessary. Michael Greenburg, E.F. Anderson, and K. Rosenberger indicated that the lack of credibility is the largest obstacle to properly manage hazardous waste in the United States(Greenberg, Anderson, & Rosenberger, 1984). If there is a distrust between the polluters and the EPA, the public often distrusts both the EPA and the polluters. They focused on the main causes of distrust 1) the exaggeration of threats (people are frightened and angry), 2) the "psychology of fear", or the phobias that all sites causes cancer, birth defects, and miscarriages when those risks do not apply to all sites, 3) confusion about risks and health effects, and 4) ignorance about the effect of the contaminated site, due to the complexity of the effects and high levels of uncertainty with regard to the effect of toxic substances. If trust is a necessary factor of participation, then distrust may explain the generally low levels of participation.

Theoretical Framework

The residents of Anniston, Alabama were aware of the Monsanto/Solutia plant existence, but had no knowledge that their community was being contaminated with PCBs from the Monsanto/Solutia landfills. This study establishes a linkage between environmental contamination and residential knowledge and their responses in the context of communities with toxic sites undergoing clean-up. A theoretical framework is proposed for the responses to environmental change. The components of residents' response to environmental change are adopted in G.W. Evans and S.V.Jacobs framework (Evans & Jaccobs, 1982). They distinguished three interrelated response components; a cognitive component, an effective component, and a conative component The *cognitive component* is one's knowledge about the environmental stressor, related to one's awareness and information about the issue. The *affective component* refers to attitudes (risk perception, feelings, and concerns) regarding the issue. The *conative component* refers to behavioral responses to the issue as well as intentions to act.

The environmental justice framework (EJF) is used as a secondary framework to explain the residents' experiences of addressing a hazardous waste problem in their community. The EJF also put this critical environmental problem into the larger context of social, economic and political injustice. The EJF explains "who gets

what, why, and how much"(Bullard, 1993: 23). The five components of the EJF are 1) incorporates the principle of the right of all individuals to be protected from environmental degradation; 2) adopts a public health model of prevention (that eliminates the threat before harm occurs) as the preferred strategy; 3) shifts the burden of proof to polluters/dischargers who do harm, discriminate, or who do not give equal protection to racial and ethnic minorities, and other "protected" classes' 4) allow disparate impact and statistical weight as opposed to intent to infer discrimination; and 5) redresses disproportionate impact through targeted actions and resources. (Bullard, 2000, 1993; Rainey-Brown & Johnson, 2011).

Methods

This article is part of a larger research project of Dr. Laura D. Burgess.[3] Some questions that directed this research project are: 1) What took EPA so long to address PCBs contamination in Anniston? 2) When did EPA become actively involved in Anniston's PCBs contamination problem? 3) When did the community residents stop trusting EPA, ADEM, &ATSDR? 4) What can the community and others learn about the health effects of PCBs? 5) What do all the agencies have to do to rebuild and reestablish "trust" with the affected residents? 6) What strategy is needed by community/EJ groups to address the corporate culture of deceiving the public on environmental contamination? 7) What is Monsanto/Solutia hiding from Anniston's residents and the general public now? 8) What steps are needed to clean up the PCBs contamination? The West Anniston, Alabama site has not been listed on the National Priority List (NPL) as a Superfund site but the EPA treated the West Anniston site like a Superfund site. In 2000, the EPA initiated the process to qualify West Anniston Alabama as a Superfund clean-up site. The Superfund Removal Program (SRP) opened a community relations center (CRC) in West Anniston, Alabama. The researchers examined the residents' knowledge and perceptions about the PCBs contamination in West Anniston, Alabama. Based on the literature review, the residents must be aware of participation forums and public meetings about the contamination.

The researchers used snowball sampling which is a "method through which you develop an ever-increasing set of sample observations. You ask one participant in the event understudy to recommend others for interviewing, and each of the subsequently interviewed participants is asked for further recommendations (Babbie, 1992:292 & 309). The lead researcher first learned of this community problem in her professor's graduate class, *Environment and Society* class and decided to do more specific research on it by reading a collection of newspaper articles on the topic and then made it her research topic for her M.A. research practicum. She first made initial contact with two community residents who represented two community groups who were responsible for legitimizing the environmental problem as an environmental injustice and organized the community residents to hold Monsanto/Solutia accountable for endangering the lives of Anniston residents and contaminating the soil, air, and water in this predominately

African American community. After the researcher conducted extensive interviews with Mrs. Cassandra Roberts (The Sweetvalley/Cobbtown Community Task Force and David Baker (The Community Against Pollution Task Force), she asked them to recommend others to be interviewed for this research project. The community leaders provided the researcher with additional names for the researcher to contact to interview for her research project.

The researchers interviewed a total of twenty-five residents of West Anniston, Alabama. The researchers also talked in general to members of the SweetValley/Cobbtown Community Task Force and The Community Against Pollution Task Force. The SweetValley/Cobbtown Communities won their lawsuit against the Monsanto/Solutia plant. The jury found Monsanto liable for the contamination of SweetValley/Cobbtown Communities. The former residents of SweetValley/Cobbtown communities have migrated to newer communities. Mrs. Roberts is the community leader for the SweetValley/Cobbtown community, which no longer exists. The EPA tore down the condemned homes that were contaminated with PCBs. The contaminated homes, along with the soil, were sent to an EPA site in Alabama. The only businesses that are left in the SweetValley/Cobbtown community is Harris Funeral Home and Mars Hill Baptist Church where Mrs. Roberts is still an active member of the church. Mr. Sylvester Harris is the owner of the Funeral Home and Mr. Phillips is his assistant. Mrs. Roberts, Mr. Harris, and Mr. Phillips all agreed to be interviewed by the researchers. The second community group is the Community Against Pollution Task Force. The Community Against Pollution Task Force represents over 3,000 people in the West Anniston Community. The community leader is Mr. David Baker, The Community Against Pollution also filed a law suit against the Monsanto/Solutia plant. Mr. Baker agreed to an interview but several other members of the group refused to be interviewed because of court litigations.

Analysis of the Interviews

The responses from a majority of the interviewees were: 1) being betrayed and deceived by EPA, local government, and elected officials; 2) experiencing fear and a loss of community, 3) alienated from neighbors and friends, 4) feeling paranoid and suspicious of everyone since the PCB contamination has gone public 5) they had too many unanswered questions on Monsanto/Solutia "concealment" of the toxic PCBs and the "cover-ups" of confidential documents, and 6) puzzled on where to go to restart their life after being uprooted from their neighborhood. Five of interviewees mentioned that PCBs contamination in their neighborhood was parallel to the "secrecy and deception that surrounded the 1932 Tuskegee Syphilis Experiment … in the end there were no winners." Four of the respondents indicated that they heard years ago that the "landfill were leaking and Monsanto knew about it but did nothing about it." There were six respondents who replied that over the years a "few of their neighbors complained about feeling nauseated after eating fish from the Snow Creek and the Choccolocco Creek." "Sylvester

Harris, 63, an undertaker who lived across the street from the plant, said he always thought he was burying too many young children. I knew something was wrong around here" (Source Watch, 2010:2).

The brief summary below from Cassandra Roberts provides the best insight and comprehensive analysis of the environmental justice problem in Anniston Alabama.

> Roberts began her remarks with a story about a newspaper article she had read about two years ago. It was about a man who decided to test the fish in a stream about 15 miles from Roberts's home. He found that the fish were contaminated with PCBs. Two years later, she and her family heard from the Monsanto Company. They wanted to test residential property for PCB contamination. The company found contamination in her neighborhood and made a buy-out offer two months later. Roberts said that she has learned a lot at this meeting. Monsanto's original offer was similar to the government standards described in the last presentation. She said her mother had lived in her home in Anniston for 40 years. Her father died; he had always done a lot of outdoor work and had rashes on all parts of his skin that were exposed. However, Monsanto didn't address health issues. They offered "fair market value" for the homes, but this value was not nearly enough money to move and was not close to what the value should be. Also, some of the residents were relocated and others were not; this has caused much division in the community and has led to resentment and distrust among neighbors. This division is so great that the two groups of residents each have separate legal representation. The bank will not offer loans to upgrade homes now. Residents had only three months to make a decision about relocating, which was not enough time. Residents were not given enough information on the effects of the contamination to make an educated decision about relocation. Roberts suggested that the relocation policy be revised to provide more support for the community (Interview with Cassandra Roberts; USEPA, 1996:23, Personal Interview, 2002; EJRC, 2001a).

Mr. David Baker, Sr. President of Community Against Pollution (CAP) provided this statement to the subcommittee of the committee of the committee on appropriations.

> The people of Anniston have waited for more than 40 years for the
> Federal government to step in and help us clean up the PCB contaminants
> In our backyards, and in our playgrounds, our rivers, our creeks, and in our
> Bodies. Unfortunately, after 40 years of waiting I am here today to report
> That the Federal Government has failed the people of Anniston, and left
> The fox guarding the hen house…. It did not take us as rocket scientists,
> As a community, to recognize that fact that when they began to tear Sweet
> Valley and Cobbtown down understanding that it had been contaminated,
> It did not take an engineer that lived in the community to tell you that the
> Contaminants that went to Choccolocco Creek, and onto Martin Lake, it did not
> take an engineer to tell us that West Anniston in its entirety,was contaminated….
> We are scared because we have been told by EPA officials that since our
> community is highly polluted that we have to wash the balls the children play with
> if they are playing outside, we cannot plant a garden in our yard anymore. We

> have people planting collard greens in five-gallon buckets just to enjoy the land that they live on…. No one will loan us money on our property. No one wants to move into our community, and believe me, nobody really wants to move from the community…. Yes we need a health study, a health assessment and a health clinic. We need everything that could be offered because we have suffered so long.(U.S. Congress-Senate. 2011; Committee on Appropriations, 2003:37-39; Personal Interview 2002).

In 1996, an 80 year old African American resident, told Dr. Suzanne Marshall that in Anniston, "The people are dying. Even the houses are dying while observing the bulldozing of houses in his neighborhood as a result of PCB contamination caused by the Monsanto factory" (Chemical Weapons Working Group (1996:1-2). Ms. Roberts concluded that "No amount of money can repair the damage caused by exposure of generations to toxic chemicals, but we are happy to get some compensation" (EJRC, 2001a:1; EJRC, 2001b). The seriousness and long-term health impact of the PCBs contamination in Anniston created fear, paranoia, alienation, hostility, and distrust among the residents. Many of the residents thought that the survival of the fittest was the best strategy in this critical situation.

Update on Cassandra Roberts

In 2012, Ms. Roberts is the President of the West Anniston Foundation. The mission of the foundation is to revitalize and sustain the West Anniston community by promoting and supporting the health and education of the economically and socially disadvantaged residents and former residents of West Anniston. The vision of this foundation is to be recognized as the most trusted community revitalization organization in the region. They advocate for community development and as a leader in creating access to an empowered, healthy, and self-sustaining community. In 2009, the foundation received a $50,000 Technical Assistance Plan Grant (TAPG) from Solutia, Inc to review and comment on documents pertaining to PCB cleanup activities (West Anniston Foundation, 2012). Ms. Roberts concludes that, "We're really excited about West Anniston Today. Although all people need current information, people in Anniston have a special need for almost instant information from sources that they can trust" (West Anniston Foundation, 2012:1). Many individuals or residents are skeptical or suspicious of any information about West Anniston because of the PCB contamination that occurred about 30 years ago.

Update on David Baker

In 2012, Mr. Baker still works with state and federal agency officials to address environmental and health issues, especially those that originated in West Anniston. He is still active in the community and is involved in activities to ensure that West Anniston is monitored and cleaned up completely from the PCB contamination. In 2009, Shirley Baker-Carter, Executive Director of Mothers and Daughters Protecting Children (MADPCH) and Mr. Baker sent a letter to A. Stanley Meiburg, EPA Region 4 Acting Regional Administrator to express their concerns regarding

the Lead Site Administrative Order of Consent (AOC). West Anniston has been declared two superfund caliber sites a PCB and Lead site. They have two governing orders to address these sites (Letter to A. Stanley Meiburg, 2009). Mr. Carter is quoted from time to time about the contamination and the quote that is mentioned the most is: "my brother died at 17 of brain and lung cancer after growing up near the Monsanto plant. It seems like everybody in these neighborhoods has cancer" (Hewitt, 2002; Love, 2006; Wikipedia, 2012). He is an active member of the Calhoun County Chapter of NAACP, a member of the Coalition of Black Trade Unionists, and on the Board of Directors of Environmental Working Group (EWG).

Conclusion

The Anniston community is still grieving over PCBs contamination by Monsanto/Solutia. This article provides a linkage that shows the relationship between environmental contamination and residential knowledge and response to environmental change. The literature review indicates the importance of environmental risk perception, dimensions of risks, community mobilization, and trusts in government agencies. The researchers used a case study method to interview twenty-five Anniston residents to get their perception of the risks of the PCBs. Secondary sources were also used to assist the researchers in developing general explanations in the linkage of environmental contamination and environmental risk perceptions of the residents. Lessons learned are also offered to assist other communities dealing with similar environmental contamination disasters in their backyards.

Lessons Learned

- According to the U.S. Senate Committee on Appropriations, American citizens have the right to know about harmful threats and chemicals in their communities. Most importantly, they have a right to be protected from environmental risks by the USEPA (U.S. Congress-Senate, 2011).
- As of 2002, the residents of Anniston strongly believed that their community had abnormally high rates of cancer, miscarriages, and liver, heart and other ailments that can be traced back to Monsanto's PCB production. However, a comprehensive study of these illness rates have not been conducted. (Committee on Appropriations, 2003).
- ATSDR research on PCBs found that "1) reproductive function may be disrupted by exposure to PCBs; 2) neurobehavioral and developmental deficits occur in newborns who were exposed to PCBs in utero, and these deficits may continue through school-age; 3) other systemic effects are associated with elevated serum levels of PCBs; and 4) PCB exposure is associated with increased cancer risk" (Falk, 2002:2).
- ATSDR told Anniston residents that the best way to keep PCBs from getting into children's bodies is by making sure children wash their hands frequently (Anniston, Alabama Newsletter, 2001).
- Community outreach is most effective when it addresses issues or problems that directly affect concerned residents.
- Outside professionals can play an important role in assisting residents see the options in a given decision and gain the skills needed to evaluate alternatives (EJRC, 1997).

- Seeking residents' input can help build their confidence in managing problems and encourage them to think creatively about solutions.
- EJ watchdog organizations have to monitor EPA more to ensure that they adequately oversee, verify, and enforce environmental laws and regulations for toxic contaminations and toxic cleanups in minority economically disenfranchised communities.
- Seeking the input and cooperation of residents before undertaking significant planning can foster respect and trust for EPA staff among residents (EJRC, 1997).
- Building a sense of community among stakeholders is an important key to the success of the partnership.
- Creative partnerships or collaborations with community-based organizations and community stakeholders can help provide valuable training, education, networking, and empowerment benefits for impacted residents (EJRC, 1997).

Policy Recommendations

- Centers for Disease Control and Prevention(CDC) in collaboration with the Alabama Department of Public Health (ADPH) shall conduct a comprehensive study on the health illnesses associated with PCB contamination in Sweet Valley/ West End-Cobb Town community.
- EPA should use all of its defined powers to fine all companies to the maximum extent allowed by law, for all PCB production and contamination after 1979.
- The federal government should impose sanctions and criminal charges against companies that knowingly dispose of carcinogenic agents into local water systems, soil, and air.
- Citizens should be notified through the Emergency Planning and Community Right-to-Know Act (EPCRA) of all harmful chemicals and activities taking place in their community. Community outreach should be taken on behalf of the polluting facilities to create community rapport for issues that directly affect concerned residents.
- EPA should establish partnerships with community-based organizations(CBOs) and stakeholders to provide technical training, education, networking, and empowerment impacts for impacted residents.

Acronyms and Abbreviations

ADEM	Alabama Department of Environmental Management
ADPH	Alabama Department of Public Health
AHWMMA	Alabama Hazardous Waste Management and Minimization Act
AOC	Administrative Order of Consent
APC	Alabama Power Company
ATSDR	Agency for Toxic Substances and Disease Registry
CAP	Community Against Pollution
CBOs	Community-Based Organizations
CDC	Centers for Disease Control and Prevention
CERA	Comprehensive Environmental Response Compensation and Liability Act (also known as Superfund)
CRC	Community Relations Center
DHHS	Department of Health and Human Services
EDD	Eastern Drainage Ditch
EJ	Environmental Justice
EJF	Environmental Justice Framework
EPA	Environmental Protection Agency
EPCRA	Emergency Planning and Community-Right-to-Know-Act
ERRB	Emergency Response and Removal Branch
EWG	Environmental Working Group
FOIA	Freedom of Information Act

GAO	General Accounting Office
LULUs	Locally Unwanted Land Uses
MADPCH	Mothers and Daughters Protecting Children
NCP	National Contingency Plan
NDD	Northern Drainage Ditch
NIMBY	Not-In-My-Backyard
NPL	National Priority List
OSC	On-Scene-Coordinator
PCBs	Polychlorinated Biphenyls
PEHSU	Pediatric Environmental Health Specialty Unit
RCRA	Resource Conservation and Recovery Act
TWTDFs	Toxic Waste Treatment and Disposal Facilities
SAFE	Serving Alabama's Future Environment
SARA	Superfund Amendments and Reauthorization Act
SCEJTF	SweetValley/Cobbtown Environmental Justice Task Force
SEL	South End Landfill
SRP	Superfund Removal Program
START	Superfund Technical Assistance Response Team
TAPG	Technical Assistance Plan Grant (TAPG)
TRI	Toxic Release Inventory
USFWS	U.S. Fish and Wildlife Service
WAEJTF	West Anniston Environmental Justice Task Force
WEL	West End Landfill
WDD	Western Drainage Ditch

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Appendix A: Anniston, Alabama Chronology of EJ Problem

1917	The Southern Manganese Corporation began manufacturing at what is now the current Monsanto/Solutia Plant.
1920	The production of biphenyls began.
1930	The Southern Manganese Corporation became the Theodore Swann Company and began producing polychlorinated biphenyls at the Anniston Alabama facility.
1935	The Monsanto Corporation purchased the Swann Company.
1956	Monsanto considered polychlorinated biphenyls (PCBs) to be toxic enough, that they gave workers protective gear and clothing.
1960	A team of Swedish researchers discovered PCBs in the environment.
1966	Monsanto hired Mississippi State biologist (Denzel Ferguson) who informed them that fish in Snow Creek turned belly up in 10 seconds, shedding skin as if dumped in boiling water.
1970	It was reported that Monsanto was dumping approximately 16 pounds of PCBs per day into the Anniston water system.
1971	Monsanto ceased the production of PCBs in Anniston, Alabama.
1979	The Environmental Protection Agency banned the production of PCBs.
1983	Federal Soil and Conservation Service found PCBs in Choccolocco Creek but took no action again.
1985	Investigators led by Monsanto under a Consent Order with the Alabama Department of Environmental Management (ADEM), documented the presence of PCBs in sediment samples from off site drainage ditches add soil samples from private residences east and north of the facility. State Authorities found PCB contamination in Snow Creek and reported their finding to EPA; however, the EPA deferred cleanup of Snow Creek to ADEM.
1993	The West Anniston residents knew of high levels of PCBs in the Choccolocco Creek. Monsanto began contributing clean-up funds to the city of Anniston.
1995	The Alabama Department of Public Health (ADPH) concluded that exposure to soil and sediment in the West End Landfill, Eastern Drainage Ditch, Snow Creek, and Choccolocco Creek, presented a public hazard.
1996	Mars Hill Missionary Baptist Church and residents of SweetValley/Cobbtown Community filed a lawsuit against Monsanto.
1997	Monsanto settled with Mars Hill Baptist Church, awarding them $2.5 million and a new church van.
1999	The Community Against Pollution (CAP) filed a letter with the EPA, asking for action in regards to the PCBs contamination of Anniston, Alabama. The CAP sited that the contamination extended further into the community than stated earlier by EPA.
2000	The EPA initiates the process to qualify West Anniston, Alabama as a Superfund clean-up site. Phase I-residential and public areas of soil sampling at 144 locations.(February) Phase II-industrial and commercial sampling.(March) Phase III-residential soil and public areas sampling at 337 locations.(April) Phase IV-monitoring of air and residential sampling at 73 locations.(June) Phase V-residential and public areas soil sampling at 318 locations.(July) Monsanto merged with Pharmacia and Upjohn.
2001	A federal trial over PCB contamination in Anniston ended in a $40 million settlement.
2002	An estimate of 3,500 Anniston residents and business owners originally sued the companies, claiming Monsanto knowingly contaminated their community for decades with PCBs. The jury rules against Monsanto and finds Monsanto liable for contamination. Solutia, in another case, agreed to pay $43.7 million to as many as 5,000 property owners along Choccoloccco Creek and Lake Logan Martin where PCBs were found. CAP hires Johnny Cochran as their attorney, stating that the PCBs traveled further (than stated by DA) into their community. They believed their community is also directly affected by the contamination. Montgomery law firm indicated that they have 13,000 clients suing over PCB contamination in Anniston. However, apart from the lawsuits, the company has spent $40 million cleaning up contamination around Anniston.

	The Nehemiah Project (along with Monsanto/Solutia financing) has made a proposal, to begin the rebuilding of West Anniston, Alabama.
2003	Special hearing on PCB Contamination in Anniston, Alabama held subcommittee on the committee on appropriations.
	Monsanto/Solutia PCB settlement also includes cash to finance a PCB research laboratory. Solutia files for bankruptcy.
2007	An Agreement tentatively reached where Monsanto's financial stake in Solutia would be reduced from 20% to 17% in exchange for Solutia's dropping of it claims against Monsanto.
2009	Monsanto/Solutia paid $700 million to settle all legal cases against where $600 million went to residents and $100 million went to pay for the clean-up.
2010	Women still cannot breastfeed due to PCB contamination in the population.
2011	The U.S. Fish and Wildlife Service (USFWS) is working with EPA to outline a plan to fix the problems associated with the PCB contamination.
2012	EPA outreach office is closing after ten years of being involved in the efforts to clean up lead and PCB contamination sites in Anniston.

(Sources: Committee on Appropriations 2003, CNN 2002 Crean 2009 Source Watch 2010; Falk 2002, Coalition of
Communities for Environmental Justice 2010, Beiles 2000, Coosa Riverkeeper 2011, McCreless 2012)

Appendix B: What Are PCBs?

Polychlorinated biphenyls (PCBs) are a group of chemicals that were used in the 1950s to the 1979, to cool and lubricate electrical equipment (transformers and capacitors), and appliances (fluorescent light fixtures, television sets, and refrigerators). PCBs were released into the environment (air, water, and soil) during the manufacturing process and during the use of electrical equipment. There are no known natural sources of PCBs and because of residence to degradation, PCBs may persist in the environment for decades.

Today people can still be exposed to PCBs from contaminated soil, air, water, and food. In fish and turtle concentrate, PCBs are still present in water, sediment, and particular matter. So eating fish, turtles, chickens (including eggs), pigs, and cows that are raised in areas contaminated with PCBs can be a source of exposure. Vegetables grown in PCBs contaminated soil (and not thoroughly washed) can also be a source of PCBs in food. Adults and children may also come in contact with PCBs by swimming or playing in contaminated water or by accidently swallowing contaminated water during swimming or playing. People may also come into contact with PCBs in contaminated soil by gardening, by working, or playing outside in the dirt, and by eating clay, or red dirt.

Animal studies are useful in determining possible adverse health effect from exposure to PCBs. Animal data have suggested that there are potential effects on the thyroid gland, the liver, the skin, the eyes, the blood, and the immune system. Based on the cancer in animals, the Department of Health and Human Services (DHHS) has stated that PCBs may reasonably be anticipated to be carcinogens. The International Agency for Research on Cancer has determined that PCBs are probably carcinogenic to humans**.** The Environmental Protection Agency also proposed that PCBs are probable carcinogenic to humans (USEPA, 2012, Falk, 2002, CNN, 2002**,** Watnick, 2010, Anniston Alabama Newsletter, 2001, EJRC, 2001b, Beiles, 2000, McCreless, 2012, Coosa Riverkeeper, 2011**).**

Appendix C: Chronology of PCB Contamination in Anniston

1979-1980	Eckhardt Report (Waste Disposal Site Survey) citing Monsanto's Anniston Plant Landfill as a facility which handled hazardous waste.
	ADEM prepares CERCLA Preliminary Assessment and Site Investigation reports on the Anniston Plant Landfill.
1980-1981	Monsanto submits RCRA Part A Application and is granted RCRA Interim status to continue operating.
1982-1983	EPA file review and preliminary CERCLA Hazard Ranking System Scoring. Based on available data, preliminary score is below threshold score for proposal on National Priorities List.

1984	EPA requests RCRA Part B permit application including facility-wide groundwater investigation.
1985	Monsanto submits Part B permit application for EPA/ADEM review and comment. Alabama Attorney General discloses PCB contamination in Snow Creek, EPA defers cleanup of Snow Creek to ADEM. EPA issues RCRA 3008(a) Order to Monsanto for failure to implement on site groundwater monitoring program consistent with the RCRA regulations. ADEM conducts CERCLA Preliminary Assessment recommending "no further action" based on status as active RCRA-regulated facility.
1986-1987	Monsanto submits "Snow Creek Sediment Removal Protocol" to ADEM. EPA and ADEM jointly issue RCRA permit to Monsanto.
1987-1990	Monsanto continues to implement requirements of RCRA Part B permit including closure activities, groundwater monitoring, and development of groundwater corrective action systems. Monsanto implements Snow Creek sediment removal.
1991	EPA conducts RCRA Facility Assessment identifying solid waste management units and areas of concern.
1993	ADEM conducts investigation of PCB contamination in Snow and Choccolocco Creeks. ADPH issues "no consumption of fish" advisory for fish caught in Choccolocco Creek between Snow Creek and Lake Logan Martin.
1994	ADEM conducts Preliminary Assessment on West End Landfill. EPA defers action to ADEM pursuant to the RCRA deferral policy.
1995	ADPH and ATSDR conduct exposure investigation and health consultation in February and October. ADEM negotiates Consent Order with Monsanto to determine if PCB releases have occurred. As a result of the studies Monsanto initiates property buyouts and a relocation program in residential areas adjacent to and east of the facility. Monsanto constructs sediment pond and other stormwater runoff control devices to mitigate flooding and further transport of contaminated sediments in these areas.
1996	ADEM issues second Consent Order requiring additional characterization of off-site contamination; design and construction of additional run-off controls and acquisition of additional adjacent properties north of the facility.
1997-1999	Monsanto Company formed Solutia incorporated. Monsanto implements on-site control measures and investigation of off site contamination as required by the RCRA Part B permit re-issued by ADEM. EPA Administrator Carol Browner received letter from the West Anniston Environmental Justice Task Force(WAEJTF), now known as Citizens Against Pollution (CAP), asking for EPA action in regard to PCB contamination in Anniston.
1999	Solutia continues investigatory and control measures required under the permit. ADEM requests EPA take lead role in "remote" off-site remediation areas under CERCLA. (areas unrelated to the drainage pathways of Snow and Choccolocco Creeks). Data summaries of extensive soil and blood serum sampling, indicating widespread PCB contamination in west Anniston, is submitted by plaintiffs' attorney. This data was collected as evidence in a lawsuit filed against Solutia.
2000	EPA opens Community Relations Center (CRC) in Anniston and Initiates removal assessment through extensive sampling. ADEM responds to soil disturbance activities at various PCB-impacted areas in the floodplains of Snow and Choccolocco Creeks by requiring Solutia to perform corrective actions in these areas under the RCRA permit. Governor Siegelman sends letter to President Clinton requesting federal assistance in remedying the environmental contamination and human exposures in Anniston.

	EPA finalizes Administrative Order on Consent (AOC) to require Solutia to continue sampling and cleanup of residential properties to address short-term risks.
	EPA funds Southeast Pediatric Environmental Health Specialty Unit (PEHSU) at Emory University to assist with Continuing Medical Education in Anniston, Alabama. Key focus areas are medical education and training, telephone consultation, and clinical specialty referral for children who may have been exposed to environmental hazards.
2001	EPA begins negotiations with Solutia and Pharmacia (formerly Monsanto) on Remedial Investigation/Feasibility Study for off-site areas to address long-term risks.
	Solutia initiates first cleanup at a residential property. Other similar actions were delayed due to denial of access.
	EPA revises AOC to expand sampling and cleanup areas.
	EPA Environmental Response Team issues Final Summary of Technical Review and Evaluation of Potential PCB Releases. The report is an independent evaluation of on-site work to date. The report indicates several areas when additional study and/or work should be done.
	ADEM continues to require Solutia to address on-site and off-site contamination through the RCRA permit.
2002	March 25, EPA lodges Consent Decree in Federal Court in Birmingham
	April 4-June 3, public comment period on Consent Decree.
	Court upon completion of the comment period and ask the court to (1)enter the Consent Decree in its current form, (2)withdraw the Consent Decree, or (3) seek to modify the Consent Decree based on the comments.

Source: Committee on Appropriations. (2003).

Notes

[1] Dr. Suzanne Marshall is a member of Serving Alabama's Future Environment (SAFE) organization. SAFE affirms that all people have the right to live free from ecological degradation and destruction. SAFE promotes the ethical, responsible, and sustainable use of our unique ecological heritage in order to preserve public health , maintain species diversity, and further environmental justice and protection. http://www.ag.auburn.edu/auxiliary/grassroots/groups/safe.php

[2] According to ATSDR (2010), describing the public health hazards at this site is complicated. There is an inadequate description of sampling and analytical methods for some of the data. This lack of information has caused us to make estimates of PCB exposure that may overestimate or underestimate health risk. For this reason, our estimates of exposure magnitude and our public health conclusions might change.

[3] Dr. Burgess started this research project when she was a graduate student in Professor Johnson's *Environment and Society and Crime and Culture in America* courses. She proceeded to extend the research for her M.A. research practicum. For more information on the larger project contact Dr. Laura Dillon Burgess. The larger project examines the environmental contamination of PCBs by Monsanto/Solutia in Anniston Alabama. This contamination exposed the local residents to health risks of PCBs.