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The Corporation Cycle of Environmental Injustice That Disrupts Equity

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By

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Abstract

This Honors thesis analyzes the impact of refineries on communities of color and how they lead to environmental injustices. Two case studies of refineries are analyzed in this thesis by understanding their buy-out policies. Both case studies deal with black majority communities, and they assess the damage caused by refineries. The damage assessment of each case investigates the harms associated with their lives including cultural heritage as well as displacement. Each case evaluates the residential buy-out process by looking at the negotiations between the corporation and the community about purchasing the property. This thesis provides an analysis of corporations' approach to non-white communities while they set up refineries and provide compensations to the communities through the buy-out process. The thesis argues that without certain protections and collectivization, policies from corporations like the buy-out process will perpetuate cycles of inequalities environmentally, socially, and economically.

Table of Contents

1 Introduction.....	3
2 Theory of Environmental Justice.....	5
2.1 Environmental Justice Theory.....	5
2.2 Environmental Injustice: Racial Disparities.....	8
3 Refinery Responsibility Perspective.....	13
3.1 Refinery Injustice.....	13
3.2 Environmental Injustice: Buy-Out Policy.....	16
4 Case One – Formosa Plastics Refinery.....	21
4.1 Background.....	22
4.2 Cultural Damage Assessment.....	24
4.3 Economic and Health Assessment.....	26
4.4 The Buy-out Process.....	29
5 Case Two – Marathon Petroleum Refinery.....	34
5.1 Detroit: Economic and Social Background.....	35
5.2 Damage Assessment.....	38
5.3 The Buy-Out Process.....	41
5.4 Buffer Zone Analysis.....	44
6 Conclusion/ Discussion.....	47

The Corporation Cycle of Environmental Injustice That Disrupts Equity

Chapter One: Introduction

As the United States begins to address climate change, the discussion on regulations of corporations and industries has become ever more prominent. The purpose of this research is to understand the relationship between establishment of refineries and housing to analyze how this creates severe harm for communities of color. The question that I ask in this thesis is: how are refineries responsible for the environmental injustice specifically in relation to non-white communities through housing buy-out policy? This thesis draws upon multiple research studies that have indicated the prevalence of refineries in communities inhabited by people of color, and how there is a disproportionate rate by which these communities are affected by environmental negligence from refineries and other industries.

The focus of this research is on the buy-out process in St. James Parish by the Formosa Plastics refinery along with Mossville by the Sasol Natural Gas refinery, and Oakwood Heights and Boynton by the Marathon Petroleum Company. Specifically, this investigation looks at how refineries deal with the environmental impact through house buy-outs and analyzes if environmental justice is achieved through this process. The study investigates whether a voluntary property purchase is consensual and fair. The study argues that reactions to the construction or expansion of refineries in these localities connect an environmental issue to systemic racism. The data relying on responses from residents, corporations, environmental advocates, and state government officials provide an understanding of how the people are impacted and how injustice is being perpetuated.

This analysis is a part of the continued investigation into federal and state environmental policy in relation to communities of color. Academics working in the field of environmental

justice have gained an understanding of how to assess the hazardous impact corporations have on socioeconomically disadvantaged communities. This thesis is an attempt to contribute to the scholarly conversation on environmental justice by focusing on a very specific tool of buy-out used by corporations who have suggested that this is a definite way to ameliorate harms faced by communities due to new refineries or expansion of the existing projects.

Chapter Two: Theory of Environmental Justice

This chapter will begin by addressing the early research that sheds light on the conditions of communities of color. In the United States, acceptance and recognition of environmental justice has been a lengthy battle, but research and media coverage in recent years have helped environmental justice discourse gain momentum and prominence. America views itself culturally as a country that presents economic opportunities to all who desire to achieve. The notion of equal opportunity goes against analytical research on the living situations of Americans from different environments, economic conditions, and social backgrounds. Exploring the concepts, terms, and theory surrounding environmental justice are crucial to answering the question of how refineries impact a non-white majority. The following section will discuss racial disparities, including seminal critical race theory pieces and how its practice applies to environmental justice theory.

Environmental Justice Theory

The ideas surrounding the environmental justice movement have gained the attention of scholars, lawmakers, and intellectuals alike due to its exploration of the conditions of those marginalized in relation to class, the environment, and law. The conversation around individuals' environmental conditions evolved to include a racial lens to understand marginalized communities that face socio-economic disadvantages disproportionately. The first study to incorporate a racial lens into the discussion of environmental inequities came from the United States General Accounting Office (GAO), which found a correlation between hazardous waste, poverty and race. Through Environmental Protection Agency files and interviews, the GAO identified four off-site hazardous waste grounds that correlated with Census Bureau as well as Department of Commerce data to calculate the demographics in range of the landfills (General

Accounting Office 1983, 2). The report noted that 26% of the American Southeast's population was black and below the poverty line and hazardous waste landfills were within three of the four analyzed communities (1). The report made omissions such as not explaining why the sites were selected, no listing of demographics of when the sites were established, or how the population as a whole developed (3). Despite the conclusion missing the nuance of systemic racism, the empirical data has since been employed in connection to environmental justice theory to critique and validate this racial disparity. Studies have since found that the analyzed communities reflect a larger issue of race disparity in refinery locations.

Another important piece of information used in environmental justice theory was revealed by the United Church of Christ's (UCC) Commission for Racial Justice. This covenant ministry branch conducted work similar to the GAO report through the Census Bureau and Department of Commerce to identify socio-economic and racial characteristics of geographic units with hazardous waste sites on a national level (United Church of Christ: Justice & Witness Ministries 1987, xiii). The term "hazardous wastes" comes from the defined problem made by the Environmental Protection Agency on the by-products of industrial production, which have caused generational health and environmental problems (xii). This report confirms the conclusion of the GAO's data, reinforcing that people of color below the poverty line disproportionately reside by clusters of facilities throughout the United States. Environmental justice scholars like Paul Mohai cite the GAO report as something that amplified the conversation, while the UCC report found groundbreaking information on waste sites across the nation, where selective dispersion suggests racism as a factor (Mohai et. al 2009, 406). Using these reports as references, scholars began to explain environmental inequities through the

framework of environmental racism and justice, which could foster awareness among communities with shared conditions.

That same year the UCC published its report, the founding father of environmental justice, Robert D. Bullard, and his co-writer, Beverly Hendrix Wright, emerged with a piece entitled, “The Politics of Pollution: Implications for the Black Community.” What was groundbreaking about their discourse on environmental harm was how the authors connected it to institutional racism—the understanding that racism systematically provides economic, political, psychological, and social advantages for white people at the expense of those of color (Bullard & Wright 1987, 72). Institutional racism appears in public policies that focus on the broad benefits, without giving attention to the cost to certain communities, and the environmental impacts on communities of color have been continually understudied (72). One of those policies is “zoning,” the idea that a spatial organization as a result of its social power or distribution of land has a political dimension that can influence and shape land in accordance with local needs and corporate interests (72). Systematic racism is apparent in refinery goods going to the advantaged while the air, water, and ground of the disadvantaged serve as the center for outsourcing (74). The authors argue that despite legislation being protectionist for trade, legal justice chooses a “fall guy” approach, where an apology or a violation paid is acceptable to allow the continuance of the production of the damaging refinery (74). Dr. Bullard and Wright note the term, “the path of least resistance,” from seeing communities of color not getting a fair cleanup process, citing examples from the GAO report (78). What is to be drawn from this framework is that communities of color that face environmental risks are vulnerable to outside interests, poor regulation, and unequal enforcement of regulations, which is why the movement calls for these problems to be addressed.

Bullard would go on to write more on this issue, increasing understanding of the topic while sustaining the interest of those seeking ways to fight against this institutional racism. The piece “Unequal Environmental Protection: Incorporating Environmental Justice in Decision Making,” explains that the environmental justice framework involves ethical analysis and strategies to eliminate unfair, unjust, and inequitable conditions and decision-making perpetuated by indiscriminately enforced laws with legislative support (Bullard 1994, 243). This piece calls for accountability from the government and other polluters in failing to reduce environmental and health threats (244). Bullard’s main point is that one must recognize the multi-level harm that environmental injustice causes (248). He described the goals of environmental justice as achieving procedural equity from the government, geographical equity in the configuration of refineries in communities, and social equity from those who have excused the problem (253-254). Environmental justice theory has inspired other intellectuals to comment on environmental injustices such as food insecurity, quality of environmental conditions, management of said conditions, and the notion of racially conscious legislative reform.

Environmental Injustice: Racial Disparities

It is important to add context to environmental justice discussions by recognizing broader literature on the material conditions of communities of color. An early law professor named Derrick Bell wrote the book *Race, Racism, and American Law* to connect critical legal studies, the idea of challenging objective truth and judicial neutrality in law, to the institutional conception of civil rights, highlighting the relationship between race and law (Bell 1973, 99). One of the legal examples he chose to study was the Supreme Court’s decision regarding *Brown v. Topeka Board of Education* and its effects of racial integration (85). He argued that the decision to end segregation incrementally raised the United States’ international credibility,

developed the South without welfare, and pacified the black veterans who had fought in the Second World War on the values of freedom and equality (99-107). Under the guise of legal formalism, these decisions have allowed the court to ignore racial inequalities when the rulings were not in convergence with white public opinion (109). When the rulings were not in convergence with white public opinion, equal protection under the law meant the white elite became the default perception in promoting economic and political health of the overall country (109). An interpretation of white interest converging comes from criminology expert Dr. Terressa A. Benz, who applied the text to Michigan's environmental justice issues (Benz 2017, 49). Environmental justice theory examines how policies serve the interests of the top, like corporations or refineries, while the poor people of color have no say in the zoning of said refineries (52). Noting the promotion of economic and political health means determining whether the implemented laws mitigated oppressive conditions (52), hence the call for change by environmental justice theory.

Another author influenced by critical legal studies as it transitioned into critical race theory was Kimberle Crenshaw. Her work described the cycle of disparity that further exacerbates different categorical conditions institutions place on individuals to further marginalize them by race, gender, and class (Crenshaw 1991, 140). Through a critical legal study lens, Crenshaw uses the case example of *DeGraffenreid v. General Motors*, where five black women alleged the employer's seniority system perpetuated the effects of historical discrimination against black women (142). The court dismissed the sex discrimination complaint since General Motors did hire women, white women, during a period when black women were not hired (142). No consideration was given to the element of racial discrimination despite their stated purpose for filing the suit (142). Crenshaw, therefore, introduced the term

“intersectionality” as a response to the conceptual limitations of single-issue analyses of race, gender, or class (151). The purpose of intersectionality in critical race theory is to elucidate the missing multiple intersecting facets of oppression from historical and contemporary issues in both the feminist and the civil rights perspectives (152). Part of the environmental justice movement is the display of an intersectional coalition that can more effectively demand fair conditions as an organization aware of how issues are interwoven (Malin & Ryder 2018, 2). Guided by Crenshaw’s and Bell’s works, environmental justice activists can connect the root causes of humanity’s role in ecological destruction by describing the intersecting interactions humans have with the environment, as is the case with the United States racial neglect.

The breadth of critical race theory works has allowed environmental justice theory to harbor like-minded individuals who have pursued work similar to Bullard’s. The author Luke Cole wrote about the idea for an “environmental poverty law,” a legal doctrine to target institutional racism for systemic change (Cole 1992, 641). This idea was inspired by Bullard’s “fall guy” approach and the notion of punishing individual violators. The “fall guy” approach, which emerged through terminology like NIMBY, meaning “not in my back yard,” is utilized by white communities successfully influencing environmental laws because they attract more attention and have more wealth to advocate for change (646). The other term, LULU, meaning “locally unwanted land uses,” is used for pollutant industries or refineries that are built elsewhere (646). That term corresponds with the other term PIBBY, meaning “place in blacks’ back yard,” from how LULUs largely end up in low-income communities due to the cheaper land (646). Cole observes that environmental problems disproportionately burden poor people and people of color, concluding that this affects the role of environmental and poverty lawyers (652-654). Analyzing the legislation that came from the development of conservation theory of the early

20th century to the middle of President Nixon's terms in office suggests the policies did not properly address poor people of color due to their voices being disempowered (659). The conversation is largely framed around industry owners' liberties and not property owners' enforced liberties.

Similar to how Cole attributed concepts to critical legal scholars and environmental activists, authors Paul Mohai and Bunyan Bryant kept in mind the fundamental contributions the GAO and UCC reports had on environmental injustice. The two authors conducted 793 face-to-face interviews around the city of Detroit to get opinions from different races of people on their living conditions (Mohai & Bryant 1992, 927). They found that most agreed with the existence of environmental injustice (931). The claim from this research, which cited the national UCC report, is that race has a role in the locations of commercial facilities since cheap land often surrounds communities of color (922). Mohai and Bryant concluded that the placement of hazardous waste sites was not by chance, that limited income and wealth prevent individuals from leaving those areas, and that historical racial disparities further restrict the mobility of poor communities of color (922). The two authors organized a conference on Race and the Incidence of Environmental Hazards at the University of Michigan, bringing together researchers to document the corroborated evidence of the GAO and UCC reports (Mohai et. al 2009, 409). Reflecting on this work, they highlighted environmental justice theory's history; Bullard's analysis of the PCB refinery riots in 1982 led to the GAO study, which was later published in the national report by the UCC that itself became incorporated into the confirmation study from Mohai and Bryant (406). These pieces are central to understanding the responsibility refineries have from the point of their inception, their added impact on these neighborhoods that are

predominantly poor and black, and the developing impact of economic incentives that must be criticized for their interest convergence.

Chapter Three: Refinery Responsibility Perspective

This chapter will begin by providing a background on a refinery's theoretical constructed functions in times of business and problem-solving. That section will feature an explanation of the beginning actions a refinery takes in setting up their business such as the work by Vicki Been. There will also be an analysis of Coase Theorem where the process of the refinery takes consideration of community advocacy in the study by James Hamilton, and the alternative argument for more collective action from Regina Austin and Michael Schill. The next section will focus on researching buy-out policy as a formulated solution through Ehud Guttel and Shmuel Leshem's article. The other business process known as Cost-Benefit analysis will be explored through Duncan Kennedy and A. R. Siders. The concluding information provided in this section presents James Elliot and Kevin Loughran's study comparing real buy-out policies of non-white majority communities.

Refinery Injustice

Environmental justice theory when applied to the corporation's refinery project and the people they neighbor reveals information on the existing protections that corporations have at the expense of entire neighborhoods. Vicki Been comments on how lawsuits in response to the refineries are interpreted through terms of equality rather than in fairness (Been 1992, 1006). Proving negotiations are a violation of the Equal Protection Clause based on the siting of the LULU is difficult since you must prove discriminatory intent in court (1063-1064). Been references the case example of *Village of Arlington Heights v. Metropolitan Housing Development Corp.* that involved a zoning controversy that prevented affordable housing to people of color from the inability to prove policies were intentionally designed to discriminate (1004). Therefore, the argument is to move away from using the equal protection clause as a way

of fighting refinery land permits and expansion (1065). Been suggests the moral theoretical argument on the fairness of citing to instead be evenly apportioned, meaning that the price of the property should be based upon the market's assessment of the risk of the LULU, instead of the current method of zoning (1066). Those arguments made in making it fairer have led to questions on how represented members of the neighborhood are against the overly represented company.

The level of power companies have over neighborhood's is apparent in the article by James Hamilton that discusses how firms like refineries that generate negative externalities consider how their location affects their prospective neighbors (Hamilton 1993, 106). Regulations from the second wave of environmentalism in the United States through the 1976 Resource Conservation and Recovery Act has prevented firms from establishing their own permitting and operation standards (108). Hamilton's argues that his perspective of the economic idea called Coase theorem holds that when property rights are well defined, a firm generating externalities will locate where it does the least damage (102). Thus refineries perceive opposition as a preventable variable; therefore, corporations use Coase theorem in politics to potentially negate the potential negativity (108). James Hamilton studies the bidding process, where communities bid for compensation to receive from facilities due to their risk from hazardous wastes (102). When observing communities, those that oppose the facility were found to have the most incentive to organize, leaving the facility to end up in a neighborhood where residents placed less value on the risks posed by its operation (122). Meaning that by calculating collective action such as voter turnout as a positive association of voting rates could result in the firm being reviewed or rejected.

To analyze affected areas by air pollutants on value reduction of residential properties, Robert Simmons approached the subject. He created a model to simulate air contaminant

concentrations in ambient air (Simmons 2015, 5). Using this model, the variables were calculated through the total residential sale period from 2011- 2014 to populate the spatial model as well as the variable to estimate the impact of the air pollution (14). The control areas are in East and South Metro Houston due to their similar demographics, housing stock, and proximity to facilities (5). Using data reported by the Texas Commission on Environmental Quality Annual Emissions Inventory for sulfur dioxide, the 10th highest ground level of this concentration to approximate the sustained level of respiratory risk was used as it is consistent with peer-reviewed literature along with literature on sales data in that period (1). The study found 3,964 sales that fit the model's coordinates, no sales of property less than \$10,000 or more than \$750,000, no new one-year-old or greater than 90-years-old property, and a square footage not less than 500 square feet or more than 5,000 square feet (6). The model concluded that property closest to the refinery saw 50% in losses for their houses, with all sales each year having six to eight percent losses (14). Suggesting that unique non-white majority communities that have low-income are more vulnerable to these conditions.

Once the refinery side of the perspective is understood, the work to change these conditions has been analyzed within environmental justice theory on how collective action begins for affected marginalized groups. Regina Austin and Michael Schill illustrate that traditionally poor citizens of color would tolerate pollution in the hope of its economic developments but have since realized the consequences are unacceptable (Austin & Schill 1991, 69). Grassroot organizations suggest success comes from the realization of the false prospect of jobs to low-income communities, a mutual desire of ending this pattern of white people largely having the mobility to move, and the conclusion that the solution to negotiating with refineries is to have them not built in the first place (71). The consequences of these conditions have made

activism outside the employment of the facility, despite negotiations being on health and environmental accountability (76). The outsourcing of labor has made it hard to collectivize with local activists who have less of a say on the practices within the facility away from the community's lived perspectives (77). The article has the hope that the grassroots movement will continue to see success in cultivating people from a shared culture and sentiment on their conditions.

Environmental Injustice: Buy-Out Policy

Ehud Guttel and Shmuel Leshem talk about buy-out policy and its existence in concept. Their piece argues that a buy-out policy is an agreement as an alternative solution in reducing liability and risk for the injurers when they purchase the property of any victim and help them relocate (Guttel & Leshem 2012, 1196). The point of the argument being that this is an evasion of their duty to take precautions with their damage (1197). The evasion done is important in reflecting on the responsibility a refinery has with unique racial demographics. The policy is viewed as a compromise, where the injurers will offer to buy-out victims only if their buy-out payments are lower than what they will otherwise have to pay in taking more precautions and the victims voluntarily join the buy-out where if the value of their property is not ideal it can be rejected (1198). From studying cost-benefit analysis, refineries can exploit victims by profiting from buy-outs if the victims payments are lower than their corresponding savings in precaution costs (1198). In what is termed as a "divide-and-conquer" strategy, a refinery negotiates with more than one victim in this entire community to not only relieve the cost to their greater expected harm, but also to pit victims against each other and offer victims buy-out offers with decreasing value (1201). Although not explicitly connected to the intersections of race in the

paper, the arguments make the consequences for non-white majority communities with unique conditions of decreased value with the in-mind bias.

Another aspect to explore is the ethical and moral questions related to buy-outs. Duncan Kennedy connects the issue of cost-benefit analysis suggested in Guttel and Leshem's analysis showing injurers profit from buy-outs when their precautions costs are saved when lower payments are given to homeowners (Guttel & Leshem 1992, 1197). Kennedy argues the need to question the efficiency in cost-benefit analyses when the benefits to the gainers exceed the costs of the losers (Kennedy 1981, 388). Kennedy suggests when the decision-maker, the corporation behind the refinery, makes the choice about the distribution of factors in evaluating the damage puts the victim, the majority black and low-income communities, at a loss or small gain in comparison to the facility profiting either way (417). There is the additional critique on the offer-asking problem in interest convergence; if the decision-maker is wealthy they have biases that affect the preventable harm due to how they evaluate their material conditions (401). The bargainer applying themselves to the task is what Derrick Bell references with the term of interest convergence, where under the legal guise of these buy-out negotiations they are offered broadly but the results are in the interest of white people, and in this case the corporation (Benz 2017, 52). Policymakers within the facility operate on profits, meaning from the first steps in the way they first set their zoning, environmental justice theory suggests the continued exploitation will only victimize the community the same.

From the point of addressing the buy-out policy as exploitative, a racial lens is introduced in evaluating buy-outs in practice in relation to communities of color that tend to have low-income conditions. A.R. Siders examines fairness of buy-out policies to communities of color through a cost-benefit perspective (Siders 2019, 4). From reviewing eight buy-out

programs, the author concludes a lack of transparency has led to public distrust (7). The study found that over-inclusive criteria creates a lack of interest in buy-outs, such as when the government documents that properties must “have a history of flooding,” in the aftermath of a flood would apply to many homes with no explanation of how much or what type (9). A term used in association with the houses selected in the buy-out policy is called a “managed retreat,” which is the purposeful movement of people and infrastructure out of vulnerable zones due to climate change (2). This analysis states that a managed retreat has a social inequity dilemma of purposefully relocating low-income communities that leaves the remaining community members exposed to hazards (16). The added lens from this research of environmental justice on institutional racism is another aspect on who is already vulnerable to forms of oppression when met with no transparency from the state and corporations that engage in cost-benefit analyses that creates winners and losers. This study presents how the buy-out program, if adjusted, could provide an adequate step to solve this continued disproportionate harm, however political factors at play in buy-out policies have yet to efficiently quell the inequalities within their cost-benefit buy-out programs.

Maria Foscarnis, Brad Paul, Bruce Porter, and Andrew Schrer discuss housing within international law, domestic law, and intellectual thought in discussing housing as a right and not just as a commodity (Foscarnis et. al 2004, 97). The ethical and moral importance of the human condition in a voluntary program to sell your house to hopefully move from a hazardous place to a better one is part of environmental justice theory of how the burden should not be on the property owner as it is their right to live safely. The right to housing is part of the grassroots movement to provide to all that live in the United States guaranteed housing (97). Under America’s economic system, property is made into a commodity through capital as a necessary

form of generational income that is intrinsically affected by nearby facilities by environmental injustices (103). Other countries have implemented programs such as temporary housing in moments of homelessness, but the United States' slow response has victimized homeowners and property holders to unfair practices (104). This article provides a critique of the United States' attempt to eliminate all forms of racial discrimination, that the policy of equal enjoyment in opportunity neglects the pursuit of equity in adequate and affordable housing.

How have buy-out policies worked in reality? Kevin Loughran and James Elliot did a study by creating a database that records the migration of property owners in a buy-out to see where it occurred and where they settled (Loughran & Elliot 2019, 2). By not interpreting buy-outs as mitigation programs, and instead as environmental mobility, the last step of the negotiation process can be prioritized in evaluating how well the harm was mitigated (3). The concept of environmental mobility is defined as local voluntary moves undertaken in the face of imminent environmental risk (1). Using the case of Houston, Texas between 2000 and 2017, 2366 were considered valid records since they appear in the buy-out records from Harris County Appraisal District, are included in the Census data, and the racial composition of origin to destination matched (8). The report revealed as marginally improving in practice with the relocation only being less than ten miles from their origination 90% of the time (17).

Demonstrating voluntary buy-outs show residents unable to break away from their communities.

Kevin Loughran, James Elliot, and author Phylcia Lee Brown wrote another piece that found that race plays a role in buy-outs; with race privilege being evident within historical trends of the program. This article evaluates racial privilege surrounding the disproportional rate that buy-outs are given to neighborhoods that are white in contrast to communities of color within urbanized areas that were labeled as environmental risks (Loughran et. al 2020, 1). This report

analyzes 40,562 properties acquired between 1990 and 2015 with Census data for demographics and found that during the 1990s if a residential population was 80% white it roughly had a 40% higher probability of receiving federal buy-out assistance than a county whose residential population was just 20% white (2). The other represented data with the 2000s data and information from 2010 to 2015 revealed the same general pattern of assistance given to high clusters of white residents compared to smaller population densities (4). Without explicitly referencing them, Dr. Bullard and Wright's tenet of institutional racism is supported by pointing out properties in neighborhoods have long been segregated and unequally served by programs and the notion of neutrality in legal formalism by Derrick Bell's interpretation is the fault in it functioning fairly and equitably.

Chapter Four: Case One - Formosa Plastics refinery

This chapter presents a case study of St. James Parish and Formosa Plastics Group as an example of corporate environmental injustice in a non-white majority neighborhood. The Parish is a governmental unit below state-level in Louisiana as a hold-over from the French and Spanish colonial period, which is roughly a large township or county elsewhere (*Southern Living* 2021). In 2020, St. James Parish's Fifth district had a population of 2,517 people (*American Census Bureau* 2020). In this Fifth district, where the refinery will soon be located, the population is 90% African American with the white population being on the edges of the districts (Meaders 2021, 136). In terms of environment, the parish, once home to slave plantations, is 40% wetlands (Younes et. al 2019). Refinery companies, including Formosa, own 14% of the land (Younes et. al 2019). The new Formosa Plastics refinery, originally planned to open in 2022, has an estimated cost of \$9.4 billion and will cover over a thousand football fields making up 2,400 acres of land (Mufson 2021). An environmental justice perspective suggests a threat posed to the parish, to its population, culture, and history in the face of this industrial expansion.

Using an environmental justice framework, this case study consists of four sections. The first section presents background information on the pervading issues such as the population's economic standing and the history of refineries within the state. The second assessment is on how cultural heritage has been affected by land permits granted to build and operate plants. The third focus will study the predicted continued exploitation of the community by looking at existing environmental violations and the environmental impacts in what is termed locally "cancer alley." The final section will compare the prospects of a property buy-out for the Formosa Plastics refinery with that of the community of Mossville and the Sasol Natural Gas Refinery. The analysis will consider conversations by activists, corporation opinion, community

opinion, records of the negotiations, and a reflection on what preceded. This analysis is to consider how refineries themselves are responsible for adverse impact on non-white majority communities.

Background

This background will begin by assessing the economic standing of this case study. Studies show that the median household income has gradually gone up since the \$25,000 median in 1990 to today's \$55,000 household income (*FRED* 2021). For comparison, the national household median growth in the last three years, has gone up to about \$70,000 (*Census* 2021). According to the American Census done in 2000, over 27% of children live in poverty in Louisiana (National Academy of Public Administration 2003). The 2000 Census also found that over a quarter of its residents 25 years or older have not achieved a high school diploma or equivalent (National Academy of Public Administration 2003). Current Census data of Mossville and St. James Parish shows about 61% of children live in poverty, and the median family income is only 60% of the state average (Mufson 2021). Currently the median home value in Louisiana is \$200,000 with the median sales price of \$250,000 ("Louisiana Real Estate Market..." 2021). Louisiana's current real estate market includes an appreciation of around 37% since The Great Recession, which in comparison to the national median home value appreciation averages around 99% ("Louisiana Real Estate Market..." 2021). Specifically for other places like Tangipahoa Parish that is connected to Lake Pontchartrain by New Orleans, homebuyers can see a price range of \$140,000 with even lower values for St. James Parish and Mossville (Mcauley 2019). This background is important as it has everything to do with the responsibility this corporation has when moving into this community.

The heavy industrial activity in Louisiana is part of the background of this case study. The Louisiana Toxics Project, in 1988, coined the term “Cancer Alley” to describe a march that stretched from Baton Rouge to New Orleans along the Mississippi river (Canicosa 2021). More than 150 chemical plants and refineries are in St. James Parish, and the term has gained popularity from its description of the health risks that affect the predominantly black and low-income neighborhoods (Canicosa 2021). Cancer alley ranks as one of the top ten most polluted areas of the country (Campisano 2021), with the United Church of Christ Justice and Witness Ministry supporting this claim (United Church of Christ: The Environmental Integrity Project 2018, 22). The term has ultimately helped residents in addressing ongoing environmental injustices along the nick-named area.

This project planned by the Formosa Plastics Group, a Taiwanese organization, is the result of its overseas success along with supposed economic benefits for the United States and Louisiana (IEEFA 2021). The Institute for Energy Economics and Financial Analysis did a report on the company, stating that its production of plastics, polyolefin, and polypropylene in Port Comfort Texas supported their movement to Louisiana in 2018 (IEEFA 2021). Other reasons for this acceptance could be from their rejection in building another facility in Taiwan, the Vietnamese government fining the company for environmental violations, and China being strained by the United States over trade tensions (IEEFA 2021). Currently, Formosa has offered little financial information on net margins, returns, costs of operation, and construction (IEEFA 2021). Formosa anticipates hiring around 10,000 workers with 8,000 of them being temporary construction jobs and an average yearly salary of about \$84,000 (Mufson 2021). This claim has been criticized due to jobs being outsourced to other states and countries leaving residents with little work availability to the new refinery.

Although the Louisiana state constitution recognizes environmental history, health, and protection for the state and the people, pro-business political appointees may continue environmental injustice (Roberts & Toffolon-Weiss 2001, 13). The Louisiana Department of Economic Development has stated the goal to attract development in the state with financial benefits (14). The power to approve budgeting of social services and industry incentives is not given to local governments (15). Some incentives include a 10-year industrial tax exemption and credit, a benefit the group Louisiana Coalition for Tax Justice says has caused state public schools to lose \$100 million each year (15). Another incentive is the Enterprise Zone program, permitting companies to locate in Louisiana if a company creates a minimum of five new jobs within its first two years of construction in a high unemployment, low income, and high participation in welfare programs zone (15). Meeting the criteria allows the state to give the company a tax credit of \$2,500 and a full rebate and return on its state sales and local sales taxes (15). From a lack of enforcement and little specification, the type of industrial operations eligible has caused heavy polluting jobs to be filled by commuters (16). Environmental justice advocates suggest individuals believe jobs for the economy is a priority over social welfare, with the communities that qualify often being black and poor creating a racial disparity.

Cultural Damage Assessment

The cultural damage that would occur from Formosa's planned project is assessed by the organized local work. In an article by *The Atlantic*, assessments of the plans have been advocated for by Sharon Lavigne, a teacher and resident for 39 years until retiring into becoming a full-time activist as a part of the faith-based environmental advocacy group Rise St. James (Groner 2021). She was teaching a class when her daughter told her about Formosa Group's plans, that its proximity to Louisiana's Sunshine bridge is just two miles from her grandfather's inherited

family home, inspiring Lavigne to organize a meeting (Groner 2021). Her experience at meetings with organizations like the Humanitarian Enterprise of Loving People that point out Louisiana Department of Environmental Quality's unfair conditions on regulations of pollution led her to attend permit hearings as her own activism through the created organization "Rise St. James" (Dermansky 2020). Through "Rise St. James," Lavigne led a march of a hundred people for the first time in 2018 (Dermansky 2020). The march took them through neighborhoods that saw the most serious environmental concerns (Dermansky 2020). The group continues to fight for the historical cemeteries that are on track to be proposed building sites (Groner 2021). Lavigne took the company to court over access to the cemetery in commemoration for Juneteenth, and the court sided with Rise and allowed the temporary engagement (Groner 2021). At the Juneteenth celebration, Lavigne attributed the success to those who died for their labor through slavery (Groner 2021), and generations of families continue to be neglected under the Formosa Plastics Group construction on their graves.

The significant history on how the state has become the way it is today is the first step in addressing this issue of systemic cultural damage. Slavery resulted in a concentration of wealth in Baton Rouge and New Orleans from the millions of people sold, making the state the second-richest state per capita preceding the Civil War (Groner 2021). After the Civil War, The Freedmen's Bureau gave slivers of land to those formerly enslaved to establish these parishes (Groner 2021). In the 20th Century, when oil was discovered in Louisiana, industries emerged especially during the World Wars that requested a high production of oil and processing (Meaders 2021, 116). Addressing these historical developments through environmental justice theory helps direct this discourse towards the presented danger to already victimized groups of people

Assessing cultural damage requires examining the tools used in managing business and residents. Dating back to 1926, Louisiana used zone enabled legislation in response to the discovery of oil to empower business (Meaders 2021, 115). Although the zoning powers extended to parish governments, zoning lacked public input from black communities on the edges of former plantations (115). St. James Parish did not have a comprehensive zoning plan until 2014, and from industry employment declining in 2004 to 2014, a decision made without the participation of the black residents of the Fifth district designated St. James as “industrial” and “residential/future industrial” allowing expansion of the petrochemical industry (135). This allowed a portion of the project to sit atop ancestral burial grounds, preventing scientists or the community from tending to these grounds (Mufson 2021). As a result of no access, there are disputes over the number of grave sites in the burials (Muller 2020). The River Road African Burial Grounds Coalition says the initial research into the burial site discounted anomalies such as trees as common markers of the head of the grave (Muller 2020), leaving more generations of families victim to business expansion.

Economic and Health Assessment

Addressing the environmental injustices requires an assessment of the health impacts of the overall industries of Louisiana. There have been numerous independent assessments done on environmental impact factors. A toxicology investigation was done by environmental medicine specialist Dr. Peter Orris in 1999, characterizing the residents’ blood contaminant tests as “locally generated” (Meaders 2021, 126). A similar toxicology investigation was done in 2007, by chemist Wilma Subra who said the dioxins in residents’ blood compared to neighboring plants averages at about 25% but the average resident of Louisiana had a 77% match to local chemical releases (126). Critics suggest the effects are much more alarming when analyzing air

and food samples in local fish populations as a possible pathway to contamination (127). Other limitations are from miscalculations due to dioxin rates being lumped with parish-wide data (127). The health impact data was not accessible to the public until 2017 when the Louisiana Tumor Registry was required by legislation to produce and release cancer incident accounts and rates at the Census tract level (122). The data collection requires access to health care and death certificates, but communities surrounded by industry were excluded due to an insufficient population coefficient from the parish's complicated incorporated status (122). The dismissal of the importance of the impact on tourism and devaluing of houses is also why they cannot collect a fair assessment of the corporations' environmental impact.

The available data indicates Louisiana has significantly high environmental hazards. In 1997, Louisiana was ranked second highest for toxic releases with 186 million pounds; by 2003, it became 154 million pounds becoming 11th in toxic releases (EPA 2003). St. James Parish did have a significant decrease in toxic releases, ranking itself in 1997 at 27th place with 16 million pounds and in 2000, that number changed to 90th place with 8 million pounds (EPA 2003). However, the issue is that toxins accumulate over time and would cause health risks later on. According to the National Cancer Institute's *Cancer Burden Fact Sheets*, in 2002 Louisiana ranks second highest overall in cancer mortality nationwide (EPA 2003). The average cancer deaths per 100,000 people by race showed cancer rates to be higher for black people than white people (EPA 2003). As for the community of Mossville, the average dioxin-chlorinated chemical levels are triple that of the general U.S. population, leaving a dangerous toxin that can cause skin discoloration, cancer, and damage to the reproductive as well as immune system (Meaders 2021, 125). These health impacts found by investigations compared to the trauma is monumental to such small communities.

Other organizations interested in studying the negotiations agreed upon between Louisiana and Formosa, The Coalition Against Death Alley in collaboration with Rise St. James, states the Formosa refinery will create job insecurity, lacks safety, and has no transparency on the revenue flow from the facility to the community (End Death Alley 2020). Additionally, the United Nations as part of the Human Rights sector, pointed out the governmental failure of: allowing this development, racial disparities in the permit placement, and the cultural violations (*UN News* 2021). The Human Rights sector argued that in 2014, St. James Parish within the Fifth district is 86.3% black and had land use changes, while the Third district which is 78.4% white were barred from chemical company construction (OHCHR 2021, 2). Other research has been done on Formosa's operation conditions in proximity to schools and residential homes, which permits 1.6 million pounds of toxic air pollutants and 15,400 pounds of ethylene oxide making it the fourth largest release in the United States (3). These emission levels of carbon dioxide combined with a few other facilities exceed the emissions of 113 different countries (4), which is a comparison worth noting considering the small population of St. James Parish.

The Formosa Project has also been assessed to be financially risky. The Institute for Energy Economics and Financial Analysis did a report saying that plastics prices were high during the project's planning process, about \$1,500 in 2012 to 2015, but have declined substantially to a little above \$400 from oversupply of ethane-to-petrochemical chain (IEEFA 2021, 10). Other financial risks, for example, are the report's under-estimate revenues generated from the first phase of construction, which is said to be almost a billion dollars short of the prediction set by Formosa (2). Taiwan Rating Service estimated a \$12 billion price tag with the local example support of the Mossville Sasol refinery that saw inflationary pressure as well as mismanagement problems in its construction (2). As far as the regulatory and reputational risks

that will present themselves in this construction, Formosa's bad credit rating is the result of Louisiana's cost discrepancies (5). By all accounts that the Formosa project sells itself on, the human cost and economic cost is too large to handle another refinery.

The Buy-out Process

Residents in the case study of St. James Parish and Formosa Plastics refinery have different views on what community solution they should support. For example, in an article by *The Nation*, resident Sharon Lavigne said that the fight to stay and stop Formosa through Rise St. James has a small membership size (Kardas-Nelson 2019). Her neighbors have said they are seeking buy-outs that could help them leave to an area with less pollutants (Kardas-Nelson 2019). Eve Butler, another resident, was diagnosed with breast cancer in 2017, having lived in St. James for several generations described the area as something that will not improve and is trying to leave (Kardas-Nelson 2019). This thinking is no coincidence, the 2019 budget for the predominantly white First district allocated \$600,000 for recreation and construction while the predominantly black Fifth District had \$115,100 allocated (Kardas-Nelson 2019). Butler has worked with the Louisiana Environmental Action Network (LEAN), the non-profit organization that has been in operation since 1986 (LEANWEB 2020). LEAN helped residents by requesting "voluntary relocation options be provided to residents whose health, safety, quality of life or property value is significantly diminished due to parish planning and development choices" ("Parish: St. James Parish" 2018). If interested in being purchased, the median value of a home there is \$136,400, \$26,000 less than the median value across the state, which would impact any transaction made (Kardas-Nelson 2019). This leaves a dilemma for someone like Lavigne who has support from Mossville residents who criticize the buy-out, while Butler has residents behind her supporting the process (Kardas-Nelson 2019). This underlying uncertainty from activists

comes from the unanimous support of not constructing Formosa as well as understanding the buy-out offered will continue injustice.

Despite the dilemma in siding on the buy-out option, there are those pushing for the policy with quick support. In a piece by *The Guardian*, resident and pastor Harry Joseph draws attention to the economic and health truths of tragedy in the parish and has been demanding residential buy-outs (Zanolli 2017). Pastor Joseph, as well as Eve Butler, have been at community meetings hosted by other companies about their expanding industry (Zanolli 2017). For a comment on the residential buy-out prospect, the head of general counsel of the company said, “I don’t feel it’s appropriate to bear the burden of solving that problem for the community. If the industrial complex wants to figure out a way to solve that problem, then we will be a part of that” (Zanolli 2017). Butler responded to the hosts of the meeting saying, “what you are looking at is a dying community, not because of the residents, but because of the way industry is allowed to come in” (Zanolli 2017). Since these meetings, the U.S. Corps. of Engineers ordered a full environmental review of the Formosa group’s plan to make an environmental impact statement (Volcovici 2021). This review will render a decision in two years, stalling the construction of the facility allowing for more public input (Mitchell 2021). The buy-out process’s success will be determined once the Corps reaches an agreement with Formosa, as this examination will help with evaluating fair home values to mitigate a managed retreat.

St. James Parish residents find difficulty in accepting a buy-out program due to examples of voluntary relocation packages like the town Mossville. The community of Mossville has described itself as a refuge for black people. In 1790, the formerly enslaved founded the town as a protection from oppressive forces, leaving vestiges of the past in the town like historical churches, squares, and graveyards (University Network for Human Rights 2021, 5). Since the

end of slavery as well as the growth of industry, this refuge's lack of political autonomy due to the settlement still having been controlled by the French at the time has led to a lack of historical racial representation in government (9). From state accommodations that allowed industries to be constructed like St. James Parish, a refinery was constructed by a company named Sasol (5). Sasol as a company originally saw success in South Africa in the 1950s until the end of apartheid when it purchased the Louisiana existing refinery Condea Vista (20). With state subsidies like tax exemptions as well as grants, in 2011, Sasol announced an expansion plan of an additional gas-to-liquid facility (20). A financially risky investment due to the existence of a few GTL plants in the world (21). The risks taken by Sasol present why a buy-out in the interest of the people lacks trust.

Assessments of the Sasol Voluntary Property Purchase Program will help understand the results of the negotiations. In a piece by the *Chemical & Engineering News*, a specialist of Sasol interviewed stated that about 80% of property owners were eligible from their one-on-one basis negotiations (Mullin 2016). Sasol stated they will pay the appraised value of a home or \$100,000, plus 60% of the appraised value of the original purchase price, with a \$1,000 early sign-on bonus and possible \$20,000 expenses (Mullin 2016). The additional wording to those eligible was under three categories: owner occupants who own or hold good title and occupy an "Improved property" have the minimum \$100,000 price; a rental property owner who owns, holds good title to, or leases an improved property to a third party even if vacant has a price of \$75,000; and an unimproved property owner who owns or holds good title to an unimproved property has a \$5,000 price (University Network for Human Rights 2021, 26). Homeowners in Mossville had 90 days to accept, leaving little time in the beginning negotiations of the purchase process (28). Respondents claim the company failed to adequately communicate with them as

opposed to the white residents in the small adjacent town of Brentwood (5). Mossville residents who rejected the offer were left surrounded by empty plots of land and a further encroaching unsteady Sasol refinery production.

Assessing the aftermath of the buy-out of Mossville also reveals more about the negotiations held. The University Network for Human Rights snowball sampled 30 interviewees, where a home-owner refers the interviewer to another home-owner (University Network for Human Rights 2021, 31). They found that 22 households did not feel voluntary, 20 households felt emotional distress or detachment, and 22 households expressed dissatisfaction with the financial compensation (32-50). Those who were satisfied with the arrangement had a theme of either being able to sell multiple properties or they knew personally how to have a better deal through a friend or knowing how to themselves build a new home for a low cost (51). This same report includes a study on the average sale price per property cluster, which does not account for individuals with more than one parcel sold, purchased by Sasol between the beginning of 2011 until the end of 2020 (54). After verifying 524 unique residential transactions, the findings suggest that significantly less was paid for Mossville properties on average compared to properties in Brentwood (54). Sasol admits the appraisals are impossible in Mossville as there have been no recent home sales (103). Sasol and LEAN have responded to the criticisms saying residents got proper compensation and Sasol did not take property owner demographics into account (Kardas-Nelson 2019; Sneath 2021). Michael Regan, the current head of the U.S. E.P.A., visited Mossville and said a report under his investigation will dig deeper into the alleged injustice residents say (Smith 2021). Other organizations that have commented include, the “Mossville Environmental Action Now,” saying the community has more debt, a loss in community, and poorer housing (Johnson 2020). The responsibility of the refinery in addressing

proper environmental justice to the non-white community ultimately failed in orchestrating a fair buy-out policy leaving St. James Parish a reminder of how the industries they neighbor will and continue to treat them.

Chapter Five: Case Two - Marathon Petroleum Refinery

This chapter analyzes the environmental impact of Marathon Petroleum Company on two predominantly nonwhite communities of Oakwood Height and Boynton towns in Michigan. Oakwood Heights and Boynton are two adjoining towns in South Detroit. These two towns have a population total of 8,000 people with 82.7% of black population (*Census Reporter* 2019). Marathon Petroleum Company is in the final stages of its project completion. It has finished its pipeline upgrade. Launched in June of 2007 and then completed in November of 2012 with a price of \$2.2 billion taking up 250 acres of land (“Detroit Heavy Oil Upgrade Project” 2012). The corporation has completed buy-out negotiations with Oakwood Heights, and it is beginning conversations with Boynton residents about a voluntary property purchase plan with the buy-out process costing the company about \$5,000,000 (Neavling 2020). This case study points to the threats that the residents in these communities face as the project enters into the final stages of completion. The analysis suggests that the land acquired for the oil production as well as for creation of the buffer zone would lead to an erasure of a community’s unique history.

This chapter is divided in four sections: the first section provides the contextual information on the economic status of communities in these two townships. The second section analyzes the harms done by Marathon Petroleum to the community and to the local environment. The third section will elaborate on the buy-out process implemented by Marathon Petroleum in Oakwood Heights and Boynton. The final section analyzes buffer zones as a form of mitigation for environmental damage. The analysis will have activist , corporation , community opinions, records of the negotiations, and a reflection on what preceded. Overall, the chapter seeks to analyze how refineries are responsible for serious harms to the majority black communities and to the environment.

Detroit: Economic and Social Background

Analyzing this case study requires to begin by looking at the economic and social standing of the City Detroit surrounding Oakwood Heights and Boynton. The city of Detroit had 55% people with income below the federal poverty threshold in 2000 (*Census Reporter* 2019). That number increased to 59.7% in 2010 (*Census Reporter* 2019). In 2019, 35% of Detroit residents have high school as their highest level of education, with 16.4% dropping out (*Census Reporter* 2019). Also in 2019, the median household income of Detroit was \$33,965, with about 66% of the population holding that wealth, which is much smaller than Michigan's median income of \$59,584 (*Census Reporter* 2019). Currently the median value of owner-occupied housing units in Detroit is \$58,900, compared to Michigan's median value of owner-occupied housing units being \$169,600 (*Census Reporter* 2019). The added issue to property ownership is 73% of those structures are single unit housing, making it more difficult for families (*Census Reporter* 2019). In Boynton almost 2,000 houses, which is about 42% of the homes in the town, are less than \$50,000 as of 2019 (*City Data* 2019). Poverty has affected Boynton and Oakwood Heights with an 82.3% and 86.5% increase respectively reflecting a deeper economic distress among the people living in these towns (*Forgotten Harvest* 2012). This evaluation of the conditions of Detroit and specifically Boynton and Oakwood Heights suggest a lack of influence and resources that is further stressed by industry.

The economic marginality of the African American experience in Michigan goes back before it was officially a state with its gradual civil rights legislation. In 1830, a declaration was made that people should not be deprived of the rights and privileges that white people had (Fitzgerald 2020, 1). By 1867, the state prohibited segregation in schools, and then in 1883 black people were able to vote and serve in the militia (Fitzgerald 2020, 1). These progressive agendas

helped make Detroit account for one-sixth of the country's employment while becoming an economically thriving city with a black population growing to 120,000 people from 1910 to 1930 (Fitzgerald 2020, 1). The response of this rising population resulted with the use of zoning for racially restrictive socioeconomic structures of power (Thomas 1994, 1). Zoning was justified in two court cases in 1926, *Village of Euclid v. Ambler Realty Company* in the Michigan court system and *Corrigan v. Buckley* in the Supreme Court, that gave unchallenged discriminatory ordinances to create residential segregation (2). After 1939, loans were unavailable for homeownership or education in black communities due to the Federal Housing Authority's inspired policy of redlining and the GI Bill not incorporating historically black colleges (Fitzgerald 2020, 2). Despite legislative civil rights being passed to stop racial discrimination in housing, modern uses of exclusion through environmental planning have affected these communities.

The towns of Oakwood Heights and Boynton, also referred to as South Detroit in this study, have historically dealt with displacement caused businesses going back to dislocation of small settlements of Native Americans. The commercial activities in the area were led primarily by Henry Ford after buying land along the Rouge River secured by the U.S. Army in the mid-1880's (Draus et. al 2019, 93). Many of the houses were built in the 1920s, allowing industry to move in first before the movement out of Southern states would cultivate black communities (93). Ford industries saw economic gains from this migration, but the funding of the World Wars was not sustainable and subsequently collapsed (94). Oakwood and Boynton have been chemically contaminated, physically isolated, and socially stigmatized by the block-by-block urban desolation from industrial activity (95), with this added context of the history of racial discrimination in housing and employment.

The Marathon Petroleum Corporation in South Detroit was first established in 1959, after purchasing Max Fisher's refinery and renaming it as Marathon Oil in 1962 (Benjamin & Henderson 2011). Aurora Gasoline Company, owned by Max Fisher, was in Southwest Michigan and saw moderate success in development of drills in producing oil barrels (Westbrook 2012). Max Fisher joined the board of directors at Marathon after this acquisition (*Jewish Historical Society of Michigan* 2005). Marathon has purchased corporation facilities like Speedway and Plymouth Oil Company across the country ("The Marathon Petroleum Story" 2019). Marathon's refinery is the only industry in Michigan that has major processes of crude distillation, catalytic cracking, and hydrotreating to create products like gasoline, diesel, and asphalt (*Hydrocarbon Technology* 2012). The Detroit refinery expanded in 2012, allowing the location to have a capacity of 100,000 barrels of crude oil a day ("The Marathon Petroleum Story" 2019). The expansion and switch to Canada's heavy crude oil was done by contractors selected by Marathon such as Fluor Corporation, a global engineering and construction company with a revenue of \$19 billion in 2016 (*Euro-petrole* 2017). These contract company giants argued the designs would reduce emissions below the EPA mandated regulations (Fluor Projects 2012), but once further examined would emit 40% more greenhouse gasses (Schneider 2016). The continued pursuit of expansion in business for Marathon Petroleum presents a cause for concern in commitments of safely expanding their operations within Michigan.

The Michigan government's relationship with environmental causes was less than ideal. In practice, after Marathon's refinery was introduced to the state, Michigan's government claimed contributions to the local economy were considerable ("Michigan's Oil and Gas Fields" 1966, 4). The Michigan Department of Natural Resources was created in the same year to reorganize the executive branch ("Executive Organization Act of 1965" 1965) and the

department helped create the Department of Environmental Quality in 1995 to transfer environmental regulatory programs as well as health programs over (“EGLE” 2019). In 2007, Governor Jennifer Granholm issued an executive order requiring MDEQ to develop and implement an environmental justice voluntary analysis plan for all state agencies (Rogers 2016, 12). This progressive stance continued to emerge by 2019, when MDEQ was renamed to Michigan Department of Environment, Great Lakes, and Energy (“EGLE” 2019), with an office created on environmental justice in the year 2020 (Nichols 2020). The development of these official titles is an example of supporting environmental justice.

However, the status of environmental action from the state has been lacking. The investigations available on Marathon as a result of these regulations caused 18 environmental violation notices (“Source Information Documents for: Marathon” 2021). Marathon was fined \$81,853, calculated by using the U.S. E.P.A. Clean Air Act Stationary Source Civil Penalty Policy which evaluates the length of time, the sensitivity, the harm, history of noncompliance, and size of violator (Moran 2020). Evaluating the amount can be blamed on two factors: that EGLE’s evaluation of emissions on plants was done in isolation rather than cumulatively from multiple locations (Benz 2017, 56). The second factor was articulated by the local resident Theresa Landrum who said that the proposed agreement is egregious because Marathon was allowed to negotiate down the penalty (Matheny 2020).

Damage Assessment

The local organizing in South Detroit has been the only assessment of the damage surrounding Marathon Petroleum’s refinery due to investigations not having been completed historically. Rhonda Anderson, resident of Detroit as an organizer with the Detroit chapter of the Sierra Club, has worked for two decades on the issue of air sample research to gain the attention

of state and federal officials (Schlanger 2016). Anderson said, “every child born in the city of Detroit should be sent home with a nebulizer,” with a majority of her family members having asthma with the haunting reminder of her aunt that died of an asthma attack (Schlanger 2016). The Michigan Department of Community Health estimated that in Detroit, nearly 2,500 children a year have asthma attacks linked to air pollution from particulate matter making the city the epicenter of asthma burden (Neavling 2020). Anderson’s organizing through the community was helped by another activist named Theresa Landrum, who was diagnosed with the same type of cancer that killed both of her parents that lived in Detroit (Neavling 2020). Landrum has commented on why this activism has taken a lot of time to get done, saying that authorities is more responsive to white communities from Detroit still suffering from Jim Crow and slavery from economic, environmental, and social racism (Neavling 2020). In 2011, *ForestEthics* reported that resident Adrienne Crawford from concerning smells air sampled her own home and found pollutants like benzene at levels 1,000 times greater than considered safe (Sanger 2011). This led to investigations by the Environmental Protection Agency which found that the toxic fumes came from toxic wastewater, due to the refinery sharing a sewer line with the City of Detroit (Sanger 2011). The work activists have done is the confirmation of the impact that Marathon Petroleum has on the community.

Other studies connecting the impact that Marathon Petroleum refinery has had on Boynton and Oakwood Heights has been on how the damage affects life in the communities. In 2010, The University of Michigan collected 2006 Toxic Release Inventory data from the Environmental Protection Agency to determine the amount of pollution every square kilometer (Rogers 2016, 7). It found that only 19% of Michigan’s population of color lives in a neighborhood without a hazardous waste facility (5). No state air quality monitors are in South

Detroit in identifying levels of methyl ethyl ketone, benzene, lead, and other metals that would lead to asthma and other irritants of the lungs (8). It is estimated that in South Detroit almost 65,000 workdays are lost every year to pollution-related illness, adding up to an estimate of \$6 billion local negative economic impact (“Environmental Justice Matters” 2020). By using pollution data, as well as the E.P.A. T.R.I. and tract-level demographic data from the 2000 U.S. Census, studies can measure the environmental racial inequality in Detroit (Downey 2006, 2). The study found the measure of environmental racial inequality in Detroit was disproportionately burdened by facilities in the year 2000 (11). Despite calculating exposure or risk having been historically unavailable, the research has since developed to accurately assess environmental inequities.

The gaps in research that has recently been filled has been due the expansion of Marathon Petroleum’s refinery along with the residential buy-out process. The Detroit Heavy Oil Upgrade Project was launched in June of 2007, a stated \$2.2 billion upgrade completed in November of 2012 (“Detroit Heavy Oil Upgrade Project” 2012). This expansion increased the refinery’s capacity of 106,000 barrels per day to 120,000 from the installation of 7,700 piles and 100 miles of pipe to transport Canadian crude oil (“Detroit Heavy Oil Upgrade Project” 2012). The Center for Public Integrity studied what the project proposed, hypothesizing long pipes require more processing for tar sands than lighter forms of oil causing more pollution if not properly regulated (Morris & Hamby 2012). This proved to be true when between 2009 and 2011, volatile organic compounds from the refinery increased by 36% in its construction (Morris & Hamby 2012). Despite these violations, Detroit City Council agreed on a financial incentive to give Marathon a 20-year tax abatement of \$175 million (Morris & Hamby 2012). The belief is Marathon’s expansion will bring \$230 million in new tax revenue through 2030 by creating 60 full-time

refinery jobs and 75 full-time contractor jobs which would collectively add \$16.5 million to the annual \$74 million payroll (Morris & Hamby 2012). Marathon now employs 514 full-time workers at its refinery, with 30 being listed as Detroit residents, which is more than the employed 15 Detroit residents before the expansion (Guillen 2014). The decision to outsource work has led to Marathon's abatement to taxes of a loss of \$146 million in revenue in over 23 years and about \$29 million in losses for the South Detroit community (Guillen 2014). Marathon blames the difficulty on finding qualified Detroit workers (Guillen 2014), recognizing the figures on educational attainment while neglecting the environmental injustices that would affect this statistic.

The Buy-out Process

Before the completion of the Detroit Heavy Oil Upgrade Project, the beginning articulation on the voluntary buy-out directed by Marathon Petroleum Company for the communities of Oakwood Heights and Boynton was unclear. The initial announcement from Marathon Petroleum Company was that all homeowners in Oakwood Heights are offered a buy-out package, with plans of creating a buffer between the expanded refinery and residences (Oosting 2011). This came as a rapid reversal from other state government plans, such as Detroit Mayor Dave Bing who commissioned the \$10 million Detroit Works Project to help city services motivate citizens to move back into the city (*CBS Detroit* 2012). 150 residents had participated and benefitted from \$2 million of combined investment opportunities such as new windows and roofs (*CBS Detroit* 2012). Marathon's first announcement offered homeowners a base price of \$40,000 that hoped to begin in 2012 and end in 2013 (Oosting 2011). When 2012 came around, Marathon changed the price to \$50,000 which to some people like resident Carrie Elliott feels too low considering the risk of unemployment and moving (Brush 2012). In an article by *Curbed*

Detroit, six residents were interviewed on the initial meetings of negotiations for the buy-out program (Cox 2012). Those interviewed said conditions were pressured with a six-month planning period as well as a \$1,000 bonus for signing up early, pitting the neighborhood's 500 homes against one another to avoid home value prices dropping (Cox 2012). Those six interviewed could not afford lawyers, suggesting that this method of buy-out by Marathon is to avoid a class action lawsuit (Cox 2012). Despite the state's intentions with the Detroit Works Project, they allow corporations to engage in predatory agreements to absolve issues they themselves cannot accomplish in improving the neighborhood.

The buy-out process was underway despite the community's frustrations of poor communication, with state representatives continuing to use coded language encouraging residents to build the community and stay. *MarketScreener* wrote an article saying the Oakwood Heights Property Purchase Program arrived ahead of schedule, with almost 90% of homeowners opting to enroll prior to the deadline, with the past year providing purchase offers to more than 250 homeowners (*MarketScreener* 2012). For those who live in the home as their primary residence, the offers start at \$50,000 plus a 50% on the average appraised home, and for rental property owners the offers start at \$30,00 plus 30% average appraised price in addition with \$3,000 for moving assistance (*MarketScreener* 2012). The acceleration of the purchase process has led to 147 homes along with 107 vacant and uninhabitable structures to have been purchased as well as the demolition of 99 structures, with help of the state municipalities disconnecting utilities (*MarketScreener* 2012). This all occurred over the course of a little over a year, leaving residents with a quickly changing environment in South Detroit with little evaluation on the historical plots of property.

After the completion of the Oakwood Heights Property Purchase Program, trust in the private corporation of Marathon Petroleum Refinery proved difficult for residents in Boynton because the company did not provide a clear idea on the buy-out for their residence. In an article by *Detroit News*, resident Emma Lockridge, resident of Boynton since the 1950s, said that she felt ignored by the Marathon purchase program and suggested that company's approach has affected the valued \$15,000 home as well as scared away homebuyers (Lynch 2014). Marathon Petroleum did state that the Detroit refinery plans to increase pollutant emissions as a response to new federal standards on vehicle fuel (Lewis 2016). Meaning the permitted cap on sulfur dioxide rose from 178 tons to 371 tons as well as nitrogen oxides grew from 357 ton to 642 tons (Lynch 2014). It was not until in 2020 when Michigan United Environmental Justice Organizer Emma Lockridge of the Lockridge family, pressured Marathon into purchasing homes in Boynton ("Marathon Petroleum Corporation Offers Home..." 2020). Marathon's buyout in Boynton offers at least \$70,000 plus the half-appraised price of each home along with the early sign-up bonus of \$1,000, relocation expenses, with the added assistance of \$500 to cover attorney fees ("Marathon Petroleum Corporation Offers Home..." 2020). General Manager Dave Leaver of the Detroit Marathon Petroleum refinery said that since these negotiations began with Boynton that their corporate responsibility has been met for the community (*WXYZ Team* 2021). In that interview, he said the company commits to not expanding into Boynton but to develop it into a buffer zone "Marathon Garden project" by demolishing purchased homes as well as abandoned houses or vacant lots (Kasuba 2020). Emma Lockridge commented that this buy-out is a form of accountability (Matheny 2020), but the company's responsibilities to the community is not completely addressed as indicated by historical inequalities, long-term damage, and unfair buy-out negotiations.

Buffer Zone Planning

Interconnecting the set voluntary property purchase program for Oakwood Heights and Boynton is the commitment by Marathon Petroleum Corporation (MPC) to install a green buffer zone. A report from the available information from MPC as well as the University of Michigan-Dearborn was put together to comment on the buy-out process and the buffer zone (Draus et. al 2018, 95-96). Through an environmental justice perspective, the report states that low-income communities are less likely to have healthy, nearby, safe environments for trees and a park from a lack of access as well as the abundant environmental harm (95-96). Promoted as “green infrastructure,” the commitment is to address Detroit’s high concentration of poverty as well as its high black populated community by enhancing and planning around these inequities (92). The buffer zone put by the Fort Street Bridge connects to the history between the people and business in these communities since the displacement of Native Americans in the 19th Century to white settlers as well as in the 20th Century involving racial tensions in the Ford industries (93). In 2011, the Fort-Rouge Gateway Partnership saw the bridge as a “high-need ‘hotspot’” that would maximize the benefits of green infrastructure (95). After MPC completed demolishing many of the homes in Oakwood Heights, FROG Partnership held conversations with members of MPC’s environmental division about the potential Detroit wildlife habitat now named as the Fort Street Bridge Park (96). Green infrastructure involving transportation and habitat life are additions to an unsafe environment, but the plan is more symbolic than the necessary remedying the residents’ desire.

Part of examining environmental justice spatially in the mitigation of a buy-out process is by looking at how buffer zones utilize the distance between an industry and a community. Distances from a facility have ranged from 100 yards to 3 miles using hazard indicators

constructed by circles presenting a radius away from the industry (Chakraborty & Maantay 2011, 119). The issue is buffer analysis is limited by the assumed small point of an industry, meaning superfund sites that occupy a larger space of a hazardous zone could be miscalculated (119). The analysis is also limited by arbitrary selections that have shown similar radius circles to other points, requiring discrete measurements to use multiple circles (119). The solution plan for a buffer zone is harmed when coordinating with racial patterns by industries when assumed or arbitrary collective percentages from that distance cause non-white populations to be subjected to buffer zones more than white communities (120). For example, in the state of Louisiana, Mobil Oil Corporation is .15 of a mile from nearby homeowners and Murphy Oil Company is 100 yards from neighborhood houses (Flower & Ragas 1994, 322). The buffer zone for Mobil was 1.5 miles with Murphy being 1 mile, with further examination into these determined zones suggesting they were based on how Murphy's area is prestigious and new developments would be limited by the buffer (322). Determining the length of a buffer from the examined bias of corporations suggests that buffer analysis would hinder addressing the issue of responsibility by the company.

Examining the commitments of addressing environmental justice by Marathon in organizing with FROG requires studying the agreed upon scope of the buffer zone. The plan is divided into two projects, the total size being 200 acres of land (Draus et. al 2018, 96). The first project is by the FROG Partnership, with the main idea of the Fort Street Bridge Park's design as a metaphor for visitors to understand the historical significance in its location (96). The goal being to value the members of the community as well as the labor put into it through sculptures and a corridor passing through the industrialized areas (97). As for the second project, in collaboration with the Detroit GreenWorks Solutions and the firm PEA incorporated, MPC plans

to create the Marathon Gardens green space as a novel multi-function ecosystem of land (98). This landscape would include forest, wetland, prairie grassland, spaces for urban farming, and park-like spaces accessible for bikes and walking (97). In 2015, a portion of it was completed including native plantings, coniferous trees, and animals that were placed as well as adopted by other species (97). The two projects have good intentions from having the criteria of responding to some of the community's environmental needs while meeting a social criterion of educating the public of the region's history, but the plans must demonstrate proper maintenance and monitoring of these sites to ensure their commitment follows through.

Chapter Six: Conclusion and Discussion

This research provides an in-depth look into towns that have been disproportionately affected by environmental negligence as a result of the development and expansion of refineries and other polluting industries in the area. The question posed in this thesis is: how are refineries responsible for the environmental injustice specifically in relation to non-white communities through housing buy-out policy? Investigating the corporation's acquired property allows for assessments of impact as well as the opinion of the affected people. The case studies suggest that holding refineries accountable for unregulated practices is critical for achieving racial and environmental equity. In conclusion, black and low-income residents need support by organizations and they need legal protections to begin to assess the true responsibility of refineries to communities that have been marginalized for generations..

This analysis explains that despite the ongoing risks associated with the construction of these industrial projects, the allocation of funds for public interest is unfair and perpetuates institutional racism. St. James Parish and Boynton township present examples where residents had to organize the hardest to gain recognition from the state and the corporations for their health, property, cultural rights, and the right to livelihood. The research has included individual and organizational perspectives to understand the socio-economic conditions of the communities of color that comprise the majority of these towns. Despite towns like Mossville and Oakwood Heights largely accepting the property purchase, the analysis of the negotiations found the agreements to be predatory from a priority for profit. These heavily industrialized areas suggest how important it is to remedy these racial disparities through engaging with state agencies that mostly side with businesses.

The environmental justice perspective provides an understanding of how people are impacted and how injustice is perpetuated by legal frameworks created by the federal, state, and local governments. The perspective was introduced in the environmental justice literature by studies such as the General Accounting Office and United Church of Christ reports that explained how communities with hazardous waste landfills are deeply impacted. The conversations initiated by Dr. Robert Bullard and Dr. Beverly Wright connected environmental justice to environmental and institutional harm by showing how communities became the “fall guy” in zoning and health regulations. The interest convergence analyzed by Derrick Bell and Luke Cole explains the fall guy being racially coded leading to hazardous waste sites being disproportionately in non-white, low-income communities. The bias of corporations, described by Ehud Guttel and Shmuel Leshem, leads to disproportionate racial impact. Inspired by this broader framework of environmental justice, this project’s case studies have shown the continued exploitation of vulnerable residents in two states.

What has been neglected in environmental justice research is the reasoning as to why the buy-out policy is so popular despite its predatory nature. These residents have experienced inequalities produced by living near a refinery for generations. Future research should evaluate the continued environmental impact on communities of color with the completion of Formosa Plastics refinery construction as well as the development of the Marathon buffer zones. Updating these case studies would provide insight into whether Formosa Plastics Group or Marathon Petroleum Company have kept their commitments to racial and environmental justice or focused only on business. The case studies suggest that holding refineries accountable for unregulated practices is critical for achieving racial and environmental equity. This study concludes that

without legal recognition or intervention by the state, the neighborhoods will continue to be over-polluted with the risk of losing more communities and lives.

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