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ACHIEVING ENVIRONMENTAL JUSTICE FOR THE COMMUNITY OF
OPPORTUNITY, MONTANA: AN ASSESSMENT OF SUPERFUND CONCERNS

By

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Professional Paper

presented in partial fulfillment of the requirements
for the degree of

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in Environmental Studies

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EXECUTIVE SUMMARY

The community of Opportunity, Montana, is surrounded by an area many consider to be the largest Superfund site in the United States. The nearby Opportunity Ponds is a major consolidation area for mining-related contaminated wastes in the state of Montana, and Opportunity residents have voiced concerns about their well water, windblown dust, and other issues since at least the late 1990s. Furthermore, the community has been subjected to ongoing environmental injustices: they feel they have been left to bear an unfair environmental burden without compensation and feel left out of important decision-making processes that affect them.

I have positioned myself as a research consultant to the Opportunity Citizens Protection Association (OCPA), a community-based non-profit citizens group in Opportunity, Montana. In June 2006, I conducted a qualitative study by interviewing a total of 21 Opportunity residents in three focus group sessions. These participants represented 17 different households, which accounted for 7% of the total households in the community. The objective of the study was to gather information intended to give the community a voice and to help OCPA achieve its goals by encouraging greater community participation and more effectively representing the community on Superfund-related issues. By providing this information to OCPA, this study will help the community overcome the environmental injustices it faces.

Traditional qualitative methods were used to analyze the interview data, and five main theme categories emerged: Health, ARCO-BP's Role, OCPA Organization, Lack of Information, and Stigma. Under the theme of Health, participants expressed worry about personal and public health and raised concerns about the prevalence and types of illnesses present in the community. Several people suggested a health study be conducted. As far as contaminants of concern, participants considered beryllium to be most threatening because of its health effects being perceived as immediate and lethal. Regarding dust, participants were divided as to whether they considered it a health concern or not. When considering potential drinking water contamination as a health concern, the majority of participants felt the water was currently safe to drink and preferred to stay with their private well and monitor the water. The vast majority were opposed to installing a public water system as a preventive measure.

Under the theme of ARCO-BP's Role, the majority of participants expressed distrust of ARCO-BP, especially concerning its soil and water testing methods. There was consensus that ARCO-BP was responsible for the mining-related contamination; therefore, participants felt the company should be required to compensate the affected community. Numerous participants believed ARCO-BP should provide annual or biennial well water testing for residents indefinitely to safeguard against future threats of water contamination. Furthermore, participants expressed that they felt ARCO-BP has ignored them and their role in decision-making processes that have affected Opportunity. Additionally, participants felt the company has been inadequate in some aspects of maintenance at Opportunity Ponds and suggested actions to remedy this. The most popular suggestion involved ARCO-BP alleviating the dust by only working with a small section of contaminated material at a time and capping it before continuing with another section. Lastly, several participants expressed concern regarding ARCO-BP's method of transporting contaminated materials in uncovered train cars.

Under the theme of OCPA Organization, participants expressed opinions of OCPA as a citizens group. While participants were appreciative of the organization's efforts, the majority were not interested in participating because the group was perceived as being confrontational, argumentative, one-sided, and selective about membership. They felt that strong personalities offset the group's effectiveness. Participants would like to see a more cooperative and united approach. They would also like OCPA to present a more clearly defined agenda. Regarding OCPA's plans to acquire the Beaver Dam School property, participants were divided on whether they would support it or not. The ones who did not support OCPA's intentions did not understand where the park fit into the concerns of the community.

Under the theme of Lack of Information, the majority of participants commented on the perceived lack of information, mostly regarding monitoring and government agencies, and incomprehensible and inaccessible information. Comments focused on the inadequacy of EPA's and ARCO-BP's monitoring, pertaining mostly to dust and groundwater. Concerning the information that did exist, participants felt it was largely inaccessible or incomprehensible to residents. Moreover, the perception of several participants was that EPA and ARCO-BP were withholding important information from residents about the contamination situation in the community and at Opportunity Ponds.

Under the theme of Stigma, participants commented on the stigmatizing effects of living near the largest Superfund site in the nation. The majority of participants agreed that Opportunity has a negative reputation among other communities. Participants commented on the economic as well as personal implications of this stigma, which included the depreciation of property and the loss/lack of business in the area.

To conclude the paper, the community resident results were compared to OCPA's concerns and I detected areas of alignment and misalignment. Based on these, I provided recommendations to OCPA on organizational goals that the community could support, and whether or not the identified areas of misalignment could be reconciled. I also recommended ways OCPA could more effectively engage community residents and foster an interest for participating in the citizens group. These include being more visible in the community by: informing residents of the organization's accomplishments and the ways it has benefited Opportunity, distributing newsletters on a more frequent and consistent basis, and holding a community meeting composed of strictly Opportunity residents, excluding government agencies and ARCO.

OCPA is continually working to achieve environmental justice for the Opportunity community. It is my hope that the information provided as a result of this study will help OCPA improve its strategies for encouraging public participation, rallying community support, and representing the community on Superfund-related issues.

INTRODUCTION

The community of Opportunity, Montana, is virtually surrounded by an estimated 260 million cubic yards of contaminated wastes covering nearly 300 square miles (192,000 acres), part of what some consider to be the largest Superfund site in the United States¹ (EPA 1998; EPA 2005; Mercier 2001; WET 2005). Opportunity Tailings Ponds, located less than a mile north of Opportunity, has remained a major consolidation area for mining-related contaminated wastes in the state of Montana since the early 1990s.² The Atlantic Richfield Company (ARCO), which is actually a subsidiary of British Petroleum (BP), is considered the Responsible Party³, and the United States Environmental Protection Agency (EPA) and the Montana Department of Environmental Quality (MT DEQ) are the federal and state regulators, respectively. EPA is the regulating agency with the primary responsibility for overseeing the operations at the Opportunity Tailings Ponds.

Opportunity residents feel their rights as guaranteed by the Montana Constitution have been violated (McQuillan 2005). The Montana Constitution states, “All persons are born free and have certain inalienable rights. They include the right to a clean and healthful environment and the rights of pursuing life's basic necessities, enjoying and defending their lives and liberties, acquiring, possessing and protecting property, and seeking their safety, health and happiness in all lawful ways” (Montana State Legislature

¹ This is a contentious issue. Some claim the Upper Clark Fork Basin, from Butte downstream to Milltown Dam, to be the largest Superfund site in the nation, while others claim it to be the Hudson River, which has been contaminated by PCBs from the General Electric Hudson Falls Plant (Center for Land Use n.d.).

² From 1993 to 1994 a total of 270,600 cubic yards of contaminated wastes were transported to Opportunity Ponds from the Silver Bow Creek/Butte Area Superfund Site, specifically from the area of the Colorado Tailings and Butte Reduction Works facilities (EPA 2006).

³ Under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Responsible Parties are expected to conduct or pay for the cleanup of contaminated sites designated by EPA.

2005). Opportunity citizens have reported feeling that they bear an unfair environmental burden as they face the potential threats to their quality of life that come from living near a Superfund site. Furthermore, they have continually felt left out of meaningful public participation in the decision-making processes that affect them (Cobler et al. 2005; McQuillan 2005). These forms of environmental injustice that residents have been subjected to and consider a violation of their constitutional rights will be analyzed and discussed in a later section.

I have positioned myself as a research consultant to the Opportunity Citizens Protection Association (referred to as OCPA) in Opportunity, Montana. OCPA is a community-based non-profit citizens group formed during the summer of 2005, and it provides a resource within the community for Superfund-related information and support on various issues of concern, such as well water testing and windblown dust. According to a door-to-door survey of 30 random households conducted by Silberberger et al. (2006:33), “OCPA was most commonly recognized as a source of information” compared to other options including EPA and ARCO-BP.

The organization’s mission is to educate residents on Superfund issues and to provide a united voice in the decisions that impact the Opportunity community (see Appendix A for OCPA’s official mission statement). There are currently ten members, including Serge Myers as president, Skip Meyer as vice president, George Niland as media spokesperson, Maureen Holbrook as secretary, and Robert Pierce as treasurer. The citizens group has enlisted the technical expertise of the Clark Fork River Technical Assistance Committee (CFRTAC) and also receives some assistance from the Anaconda Environmental Education Institute (AEEI). Under the Comprehensive Environmental

Response, Compensation, and Liability Act (CERCLA), CFRTAC and AEEI function as Superfund Technical Assistance Grant (TAGs) groups, which serve affected communities by providing Superfund-related assistance, such as help with understanding technical site-related information.

In order to explore the Superfund-related concerns residents might have, I conducted a qualitative study in the Opportunity community during June 2006. The study employed focus group methodology to examine Superfund-related topics in a format that allowed Opportunity residents to discuss their concerns and share their experiences. The goal of the focus groups was to better understand residents' perceptions stemming from living a mile south of Opportunity Tailings Ponds (hereafter referred to as Opportunity Ponds or the Ponds). Unlike quantitative methods, focus group research enabled me to concentrate on the reasons behind the residents' perceptions and feelings. In this way, I could assess similarities and differences in residents' opinions, as well as the extent to which opinions were strongly or weakly held. This information will be shared with OCPA to help the citizens group achieve its goals, encourage community participation, and more effectively represent the community on Superfund-related issues.

The focus group discussions centered on four main topics that are of significant interest to OCPA: water quality concerns, dust concerns, the effects of stigma, and residents' opinions on OCPA as a citizens group. During a pre-study meeting, OCPA members expressed their primary issues of interest as being related to water quality and dust concerns. OCPA and elected officials also had concerns about the stigma of living on or near a Superfund site and the associated impacts on the community's economic future and vitality (Cobler et al. 2005). Thus, the primary objective of the research was

to gather information regarding residents' concerns, their understanding of the threats facing them, and their preferences regarding approaches for addressing their concerns. I will use my findings to provide recommendations to OCPA on organizational goals that the community could support.

The results of this study will spread awareness and help communities work collaboratively towards a healthier watershed and community. Opportunity and its people are connected to a broader community and environment, in particular, the Clark Fork River Basin, which stretches from Butte, Montana, to Sandpoint, Idaho. It is important to realize that the various rural and urban populations along the river are not isolated; they all face the deleterious impacts of toxic contamination resulting from over one hundred years of mining and smelting activities in the Butte and Anaconda area. During this time, heavy metal pollution deposited near the river has washed into the Clark Fork River and has gradually traveled downriver. This pollution has affected the quality of the water and the surrounding environment in communities dependent on the river for domestic water supply, irrigation, industry, and recreation. In turn, the people of the basin have been affected. Moreover, the transport of dust caused by ineffective or nonexistent dust-abatement methods within Opportunity Ponds has basin-wide impacts. In the words of the Clark Fork Coalition, a conservation group dedicated to protecting and restoring water quality throughout the Clark Fork watershed: "Through research, advocacy, and education, we are uniting citizens upstream and down in a big-picture awareness of watershed health and the central role of the Clark Fork River in creating healthy landscapes, vibrant economies, and livable communities" (Clark Fork Coalition

n.d.). By helping to unite the citizens of Opportunity, my research will serve as an early step in the realization of this vision.

Background⁴

In the late 1800s the beginnings of a frontier town were taking shape, and it later became known as Butte. The town laid claim to more than three hundred mines, nine stamp mills, and seven copper smelters, and it was fortunate to be situated above one of the richest mineral deposits in the world (MacMillan 2000). Before the advent of smelters, the region of present-day Butte and the Deer Lodge Valley was characterized by pristine countryside, clean air, and clean sources of water. Once smelting operations began, toxic sulfurous smoke and particulates from emissions settled on the town and its people, who complained of “burning eyes, searing nostrils, and clogging throats” (MacMillan 2000:26). During the four-month period from July to October in 1890, 192 deaths were reported in Butte, most resulting from smoke-induced pneumonia and typhoid. The smoke had become “a scourge rather than a harbinger of wealth, security, and progress” (MacMillan 2000:32).

In 1883, Marcus Daly, one of the notorious Copper Kings, anticipated a water shortage in Butte, so he started searching for a new smelter site to process the ores from his growing copper mine. He settled on land adjacent to Warm Springs Creek, which was located at the southwest corner of Deer Lodge Valley and 26 miles from Butte. Delighted at his find, Daly initiated the construction of Anaconda, Montana Territory, and within one month it became a thriving community. In 1899, Amalgamated Copper Company, a holding company controlled by Standard Oil, purchased Daly’s Anaconda

⁴ Most of the information found in this section has been adapted from parts of Donald MacMillan’s (2000) *Smoke Wars: Montana Copper, Montana Air Pollution, and the Courts, 1890-1920*.

Copper Mining Company, which was already considered the largest copper producer in the world (MacMillan 2000).

To accommodate the growing capacity of copper production, Amalgamated built the Washoe smelter complex referred to as Washoe Reduction Works on present-day Smelter Hill in Anaconda. Operations commenced in 1902, and the smelter became the largest and most modern in the world. According to MacMillan's *Smoke Wars* (2000), every day an estimated 7,000 tons of ore from Butte mines were refined at the smelter, releasing nearly 30 tons of arsenic trioxide. Significant quantities of sulfur dioxide, copper, antimony, lead, zinc, and other substances were also discharged into the air on a daily basis. Arsenic trioxide was formed as a byproduct of smelting copper ore with naturally occurring high arsenic content (Seattle & King County n.d.). As few as ten months after the Washoe smelter opened, hundreds of horses and cows lay dead throughout the various ranches in the valley. Many farmers and ranchers suffered significant financial losses. And livestock was not all that was affected. Also being poisoned were the surrounding present-day Deer Lodge National Forest and public domain forests, as well as other vegetation, crops, and irrigation canals (MacMillan 2000).

In 1914, the Anaconda Copper Mining Company established the rural community of Opportunity in an attempt to show that the company's smelting operation did not pose serious threats to people's health, their quality of life, or their ability to raise healthy livestock or crops (McQuillan 2005; Robbins 2005). The Company bought 500 acres of farmland and divided it into ten-acre tracts for smelter workers to buy cheaply. Today, Opportunity, Montana, remains a small, unincorporated community located about seven

miles east of Anaconda in Deer Lodge County. The town has an approximate population of 800 people or about 250 households (McQuillan 2005).

The copper smelting era of Butte and Anaconda endured until the permanent closure of the Washoe smelter by ARCO in 1980. For nearly 80 years, the smelter had brought economic prosperity to the area. Besides producing the copper that was to be used for such things as roofing, plumbing, and electrical equipment, the Anaconda Copper Mining Company provided Anaconda with a water and sewer system, lighting, paved streets, streetcars, Washoe Park, and jobs (Mercier 2001). However, the rest of the Deer Lodge Valley and its people received fewer benefits and paid a heavy price: they endured nearly a century's worth of air, surface water, groundwater, and soil pollution. The affected region has been estimated to cover approximately 300 square miles and consists of large volumes of toxic substances including arsenic, copper, lead, cadmium, and zinc in the forms of wastes, slag, tailings, debris, and contaminated soil, groundwater, and surface water (EPA 1998). According to William Woessner (1995:46) in his *Anaconda Groundwater Injury Assessment Report*, "the generation of contaminated groundwater will most likely persist for hundreds of thousands of years."

In September 1983, EPA added the contaminated area now designated Anaconda Regional Water, Waste, and Soils (ARWW&S) Operable Unit (OU) to its Superfund National Priorities List under the authority of CERCLA (EPA 2003). The Opportunity community is located in the south-central portion of the ARWW&S-OU. ARCO was declared the Responsible Party at the site because it had merged with Anaconda Copper Mining Company in 1977. ARCO was purchased by British Petroleum in 2000 and remains a subsidiary of the company.

A section of the Superfund site known as Opportunity Ponds has been utilized as the repository for contaminated wastes accrued from clean-up efforts. The Ponds originated in the early 1900s as an impoundment for a variety of wastes from nearby smelters. It was formed when smelting wastes were slurried to the area and spilled out onto the land's surface or in shallow excavations from which berm material was borrowed (Woessner 1995). This, combined with the fact that the area has a notably shallow water table, promoted the sense of "ponds." Today they consist of a series of raised earthen berms between which material has been layered.

Opportunity Ponds currently encompasses around 3,600 acres, and as of the 1998 EPA Record of Decision⁵, it contained an estimated 129.3 million cubic yards of tailings with thicknesses ranging from a few feet to over 50 feet (EPA 1998). The Ponds is currently owned and managed by ARCO-BP, under the oversight of EPA and the State of Montana (MT DEQ), and has become one of Montana's main mining-related waste repository facilities. This waste management site contains contaminated material not only from the surrounding Anaconda area, but also from other Superfund sites including the Colorado Tailings near Butte and other areas along Silver Bow Creek. In the near future, it will receive an estimated 2.6 million cubic yards from the Milltown Reservoir OU (located about four miles upstream of Missoula, Montana) when dam removal and sediment excavation occur (EPA n.d. [a]).

Paper Organization

This paper presents a historical background, an environmental justice analysis, the project's methodology and data analysis, an analysis of the different levels of

⁵ A Record of Decision is a public document that explains which cleanup alternatives will be used to clean up a Superfund site.

participation, the results, conclusions, and recommendations to help OCPA improve its strategies as a citizens group. The background section provides a summary of the history of mining and smelting activities and associated environmental impacts that have led to the current Superfund designation of the area surrounding Opportunity.⁶ An environmental justice analysis is provided as a justification of the need for this qualitative study of the community of Opportunity, which has been subjected to several forms of injustice. The methods and data analysis section explains how the focus group methodology was employed and the resulting data were analyzed. The participation levels section provides an evaluation of the various levels of community resident participation in the study, which helped to determine reliability of the identified themes. In the results section, each of the major themes and its associated sub themes are analyzed, and illustrative quotes from participants are provided. The paper concludes with closing remarks and recommendations to help the citizens group more effectively engage community residents and improve on organizational goals that the community could support.

⁶ Additional background information is provided in Appendices B and C, which include a description of previous water quality studies and my initial involvement with the community, respectively.

ENVIRONMENTAL JUSTICE ANALYSIS

Since the early 1990s, Opportunity Ponds, located less than a mile north of the Opportunity community, has been a major disposal facility and consolidation area for mining-related contamination in Montana. Residents have voiced concerns about their well water and other issues since at least the late 1990s (Kuipers 2005a). During Spring semester 2005, six other graduate students and I investigated the possibility that Opportunity residents had been subjected to an environmental injustice by conducting research for Professor Robin Saha's *Community Responses to Toxic Contamination* course. In 1998, EPA's Office of Environmental Justice set forth the Agency's standard definition of environmental justice:

The fair treatment of people of all races, cultures, incomes, and educational levels with respect to the development and enforcement of environmental laws, regulations, and policies. Fair treatment implies that no population should be forced to shoulder a disproportionate share of exposure to the negative effects of pollution due to lack of political or economic strength (Kuehn 2000:10682-83).

EPA further elaborated that environmental justice is "based on the premise that it is a basic right of all Americans to live and work in 'safe, healthful, productive, and aesthetically and culturally pleasing surroundings'" (Kuehn 2000:10683).

As part of the academic course, we reviewed EPA Record of Decisions and analyzed EPA meeting notes, public comments, consultants' reports, and relevant newspaper articles. We also interviewed involved stakeholders from both upriver and downriver of the Milltown Dam. At the conclusion of the course we compiled our findings in a report, *Final Report to Concerned Citizens of Opportunity*, given to community members; this report is cited as Cobler et al. (2005) in this paper.

By interviewing Opportunity residents, we found that they felt they continually bear an unfair environmental burden for the rest of society (Cobler et al. 2005). They felt that they were forced to endure, without compensation, the potential threats to health and property that came from living near a Superfund repository for the region's contaminated materials. Meanwhile, people living in areas once impacted by the displaced wastes are now benefiting from the cleaner and safer environment. This situation describes a specific type of environmental justice referred to as *distributive justice*, which has been defined as "the right to equal treatment, that is, to the same distribution of goods and opportunities as anyone else has or is given" (Kuehn 2000:10683). Proving that the small community of Opportunity has not experienced an equal distribution of environmental burdens, the nearby Opportunity Ponds has been the repository for mining-related contamination from multiple Superfund sites across the region. These include the Colorado Tailings near Butte, Montana, other areas along Silver Bow Creek, and the soon-to-be Milltown Dam sediments near Missoula, Montana (EPA n.d. [a]).

Kuehn (2000:10684) goes on to explain how environmental justice advocates view distributive justice as the "equal protection for all and the elimination of environmental hazards and the need to place hazardous activities in any community. In other words, distributive justice is achieved through a lowering of risks, not a shifting or equalizing of existing risks." Existing EPA policies and procedures have failed to promote justice because they have not provided adequate protection of a safe and healthful environment for community residents, contradicting their own definition. Long-term residential well water monitoring programs that would ensure safe and clean drinking water have not been implemented. Local residents feel that EPA has not

provided sufficient dust-control measures to remedy the ongoing dust problem and has not installed long-term air quality monitoring stations in the community⁷ (Kuipers 2005b). Residents have not been informed of the exact composition of the dust, nor has the situation been adequately addressed and mitigated despite numerous and ongoing complaints. Additionally, Opportunity has not received any compensation for living next to the regional repository for toxic materials. Meanwhile, other communities have benefited from Superfund activities that provided a cleaner, safer environment. These all contribute to the distributive injustice experienced by the community.

Local citizens have expressed that they never agreed to this long-term “dumping” near their homes. They reported feeling left out of the decision-making processes that affect them, from the delivery of the Colorado Tailings from Silver Bow Creek to Opportunity Ponds in the early 1990s to the latest decision to designate the Ponds as the future repository for contaminated sediments from behind the Milltown Dam (Cobler et al. 2005). Cobler et al. (2005:3) reported that local residents “often used words such as ‘powerless’” when describing their participation in such decisions. This lack of meaningful participation from the local community in influential government decisions exemplifies another form of environmental injustice referred to as *procedural injustice*. Kuehn (2000:10688) defines procedural justice as “the right to treatment as an equal...equal concern and respect in the political decision about how goods and opportunities are to be distributed.” Moreover, public participation that “only gives people a voice but does not allow them to express their values or which ignores their values in the final decision does not promote justice” (Cvetkovich and Earle 1994, cited in Hampton 1999:168). As a result of the procedural injustice, many Opportunity

⁷ Dust monitoring stations were not installed at the time this study was conducted in June 2006.

residents no longer spoke up or even attended EPA meetings because they “did not believe that their voice would make a difference” (Cobler et al. 2005:4).

Additionally, Cobler et al. (2005) reported that Opportunity residents have demonstrated a general lack of knowledge of what materials were being stored at Opportunity Ponds and have not been informed of what was in the dust coming from the Ponds, despite numerous requests. Silberberger et al. (2006) reported that over 80% of polled residents desired more information about the health and safety of Opportunity’s air and water. The report states that this significant response “reinforces other data suggesting that ARCO-BP and government agencies are not providing enough information to the community” (Silberberger et al. 2006:34). This is not surprising considering how Edelstein (2004:172) wrote that government agencies tend to “maintain strict control over information. This strategy reinforces the initial dependence and helplessness of citizens as well as their eventual distrust of agencies.”

OCPA, formed to help protect the Opportunity community, has begun to address these environmental injustices by enlisting the help of CFRTAC. Technical assistance is a necessity for citizens so they are not left to decipher complex technical information on their own. Hampton (1999:169) explains, “The provision of accessible information to all stakeholders and expertise for interpreting information is critical to maintaining procedural fairness and formal equality.” Otherwise, residents are left to suffer from ongoing environmental injustice. Bullard and Johnson (2000:558) summed up the issue when they stated, “Environmental protection is a right, not a privilege.”

My research helped to address Opportunity’s struggle for environmental justice by giving residents a voice for their concerns and feelings, a voice they felt had been

suppressed and ignored in the past. By providing this information to OCPA, my ultimate goal is to help the community be engaged in more meaningful participation in the future and help them protect against current and future toxic threats.

METHODS AND DATA ANALYSIS

The primary objective of this study was to gather information that would help the local citizens group of OCPA achieve its goals, encourage community participation, and more effectively represent the community on Superfund-related issues. Consequently, Opportunity residents were interviewed in June 2006. OCPA members had expressed an interest in having a qualitative study be conducted in Opportunity as early as Professor Robin Saha's *Community Responses to Toxic Contamination* Spring 2005 course. Furthermore, when Lois Gibbs of the Center for Health, Environment and Justice and of the Love Canal fame facilitated a strategy session with OCPA on February 15, 2006, she also recommended that such a study be conducted (R. Saha, personal communication March 27, 2006).

Focus group methods were used for this qualitative research because they created an informal environment that encouraged the sharing of opinions, feelings, and perceptions among participants. A *focus group* consists of volunteers gathered together to be interviewed as a group, with the discussion concentrating on a particular topic (Lobdell et al. 2005). Unlike door-to-door or mailed surveys, this approach provides a more active role for participants. Focus groups allow participants to interact with and respond to each other's beliefs and ideas, thereby allowing the researcher to gain insight into areas of agreement and disagreement (Krueger and Casey 2000). Furthermore, these interactions provide a social context where participants can consider their own views and evaluate their original responses after hearing what others have had to say (Patton 2002). Krueger and Casey (2000) describe how this kind of interaction enhances the quality of

data because participants tend to provide checks and balances on each other, which weeds out false or extreme views.

For study approval, I consulted the University of Montana's Institutional Review Board (IRB) in the beginning of May 2006. Included in my application for approval was a copy of all materials I planned to use: a telephone script for participant recruitment, an interview protocol for focus group discussions, and a demographics survey for additional community information. The IRB required the addition of an informed consent statement for participants to sign, indicating voluntary participation. Final IRB approval was granted by the end of May 2006.

Three focus groups were conducted during the month of June 2006, and a total of 21 Opportunity community members participated. These participants represented 17 different households, which accounted for 7% of the total households in Opportunity. The remainder of this section briefly describes interview protocol development, focus group procedures, and data analysis (see Appendix D for a more detailed account).

Interview Protocol Development

In order to carry out the research objective stated above, an interview protocol was developed to guide the structure of the interviews.⁸ *Focus Groups: A Practical Guide for Applied Research* by Krueger and Casey (2000) was consulted when developing the basic interview protocol format, which resulted in asking open-ended questions, requiring explanations and descriptions from participants as opposed to brief

⁸ In February 2006, I met with members of OCPA to discuss my research project goals and refine the central topics to be examined, which would provide the basis for the interview protocol used during focus group discussions. In attendance were Serge Myers, president, Skip Meyer, vice president, and George Niland, media spokesperson. In addition to giving approval, the OCPA members expressed that while they were interested in feedback about their organization and stigmatization, their main priorities were water quality and dust concerns.

responses. Key topics involved water and dust concerns, stigma issues, and the OCPA citizens group. Some questions were modified slightly for the focus group with OCPA members (see Appendix E for interview protocol).

A total of three focus groups were conducted; two were composed solely of community members not involved with OCPA, and one was composed of OCPA members only. Two participants who were unable to attend the non-OCPA focus groups were interviewed by telephone using the same interview protocol. The focus group sessions themselves, the sampling approach for the community resident focus groups, and the analysis of the data obtained from them are described below.

Focus Group Sessions

The sessions were held at the Community Club building located in Opportunity; each session lasted approximately two hours. I assumed the role of moderator and enlisted the assistance of an observer, an experienced qualitative researcher with a Ph.D. who served as a witness and note-taker. Before the group sessions commenced, each participant signed an informed consent form and voluntarily filled out a demographics questionnaire (see Appendices F and G, respectively, for copies of the forms used). They were assured that their names and association with comments would be kept confidential. Group size was kept to six or seven participants. This provided each person the chance to fully participate in group discussions, and I was able to obtain sufficient information on the variety of perspectives presented (Krueger 1998).

Sampling of Focus Group Participants

The chosen method of participant recruitment involved seeking out and interviewing *key informants*: observant people who have lived long enough in the

community to be able to distinguish the influential community members (Eng et al. 2005). These informants tend to also be knowledgeable about the community's social relations. Five key informants from the community were contacted. From them I assembled a list of 57 potential participants (54 different households), accounting for nearly one-quarter (22%) of the total estimated households in Opportunity. Participants were sought who were likely to be opinion leaders with some knowledge of the issues related to Opportunity Ponds. Additionally, none of these participants were affiliated with OCPA; members of the citizens group were interviewed in a separate focus group. I chose to use key informants and opinion leaders, which are described in Eng et al. (2005) and Finnegan and Sexton (1999), instead of a random sample of residents in order to capture the viewpoints of citizens who are most likely to influence future community decisions and actions.

As a result of recruitment efforts, fifteen potential participants agreed to partake in the focus group study; this sampling approach provided enough people for two focus groups. In addition, six OCPA members, four men and two women, agreed to participate in a third focus group, which gave a total of 21 community residents who participated in the research study.

The two non-OCPA focus groups consisted of a total of eight adult men and seven adult women; this included three husband/wife couples. All of the participants agreed to complete the voluntary demographics questionnaire (see Appendix G for copy of form). Results showed that participants had lived in the community from less than ten years up to 60 years, with an average of 32 years. Ages for the majority of participants ranged

from 40 to 60 years; the median was the 50-59 age group. One participant was part of the 18-29 age group, and several were in the 70-79 age group.

The majority of participants reported being married; each of the single, divorced, and widowed categories were also represented. Several participants reported having multigenerational families living in Opportunity. More than half of the participants were employed; occupations for the participants varied. There was one college student, three homemakers, two retirees, and the rest made up part of the working force. Specific occupations are not disclosed for confidentiality purposes. All but two participants were homeowners; the other two rented their home/apartment.

The streets and nearest cross-sections, as opposed to specific addresses, of participants' residences were reported in order to determine if the community was spatially well-represented. By mapping out these general areas, the involved residences were found to be distributed throughout the community and not all grouped in one area.

Based on the overall demographics information presented above, I am confident that I have captured a fairly representative sample from the community. There are no census data for Opportunity with which to compare the above demographic information. Therefore, representativeness was based on a subjective assessment. For example, the spokesperson for OCPA, a longtime resident, has reviewed the demographic information and has concurred that the demographic composition of participants in this study are representative of the Opportunity community as a whole.

Furthermore, when compared to the previously conducted Silberberger et al. (2006) survey, the results were comparable; comparisons of length of residency, average age, and employment status were roughly proportional to the levels reported in the

Silberberger et al. survey. For instance, 40% of participants in the previous survey had resided in Opportunity for 30 or more years, the average age of respondents was around 50 years, and the majority made up part of the working class.

Because this study was fairly representative of the community, it is more likely that the thoughts and feelings shared by the participants accurately represent the views and opinions held by the larger community.

Data Analysis

Following traditional qualitative analysis methods, the audio-recorded interviews were transcribed; I transcribed the OCPA focus group interview and hired a professional service to transcribe the other two group interviews. The two telephone interviews were transcribed from written notes. I then coded the data and detected common themes, i.e. words or phrases that identified the core meaning of each comment (Patton 2002). I also assigned each participant a pseudonym to protect confidentiality. Participants of the OCPA focus group will be referred to as “OCPA members” in this paper, and participants of the two focus groups without OCPA members will be referred to as “community residents,” “community resident participants,” or simply “participants” for consistency.

The coding technique used during data analysis was based on procedures used in Hasenbank’s (2005) study and was consistent with traditional qualitative coding processes (Glesne 1999; Patton 2002). Rather than using conventional techniques such as inserting marginal codes or cutting and pasting related snippets of transcripts, participant comments, hereafter used interchangeably with “responses,” from the interview transcripts were copied into a spreadsheet where the data could be sorted based on emerging codes. An individual response occupied a single cell in the spreadsheet and

represented a coherent idea made up of one to several uninterrupted sentences (see Figure 5 in Appendix D for example). After all transcription content was transferred to the spreadsheet, resulting in 850 distinct comments, I assigned each response a preliminary major code and sub code to identify the main idea expressed in that response (see Figure 6 in Appendix D for example) (Glesne 1999).

Once the preliminary coding was finished, the coding system was repeatedly revised as I examined similarities, tabulated comments, and merged rarely-used codes into other theme categories. This resulted in ten major themes (major codes), 38 distinct sub themes (sub codes), and 716 relevant, coded comments⁹ (see Figure 7 in Appendix D for list of codes). Further analysis led to the collapse of these ten original themes into five broad theme categories, along with their coherent sub themes, and they were labeled: Health, ARCO-BP's Role, OCPA Organization, Lack of Information, and Stigma (see Figure 8 in Appendix D for collapsed list of codes).

When reviewing these five themes, the influence of the interview protocol questions on participant comments was taken into consideration. Four of the five main themes were consistent with the topics presented by the researcher during the interviews. Comments pertaining to Health and ARCO-BP's Role were not asked about directly, but they resulted from questions on well water and dust concerns and "who was responsible." Comments pertaining to OCPA Organization and Stigma mostly resulted from questions specifically asking about OCPA and stigma issues. However, Lack of Information was a theme that emerged from the data without being asked for directly or indirectly during the focus group interviews.

⁹ These comments were relevant to the study and Superfund-related topics. The remaining 134 comments (of the 850 total comments) were considered not relevant because they contained only superficial information or otherwise did not pertain to the study objectives.

PARTICIPATION LEVELS

The following section provides a comparison of participation levels between community resident participants and OCPA members and between and within the community resident focus groups. Evaluating the level of participation helped to determine the robustness of identified themes. The two community resident focus groups are referred to below as Group 1 and Group 2. Comments from the two telephone interviews were part of the total percentages shown in Figure 1 but were not used otherwise in this section.

Of the 716 total comments, 553 (77%) were attributed to the 15 community resident participants and 163 (23%) were attributed to the six OCPA members. Figure 1 shows the distribution of these comments among the five broad themes of Health, ARCO-BP's Role, OCPA Organization, Lack of Information, and Stigma for both the community residents and OCPA members. As the figure shows, community resident participants were most concerned about discussing health and related issues, the OCPA organization, and ARCO-BP's role regarding their Superfund concerns. Each of these topics was represented more or less equally: each accounted for around 25% of responses, and each was discussed twice as often as the Lack of Information and the Stigma topics.

In comparison, OCPA members were most interested in discussing ARCO-BP's role (43%), commenting on the topic almost twice as often as any of the other themes. However, while less commonly expressed, health (27%) was also a relatively important topic of discussion, and OCPA members commented on the issue as often as community

residents. OCPA members similarly considered the perceived lack of information and the effects of stigma less of a concern relative to the other three topics.

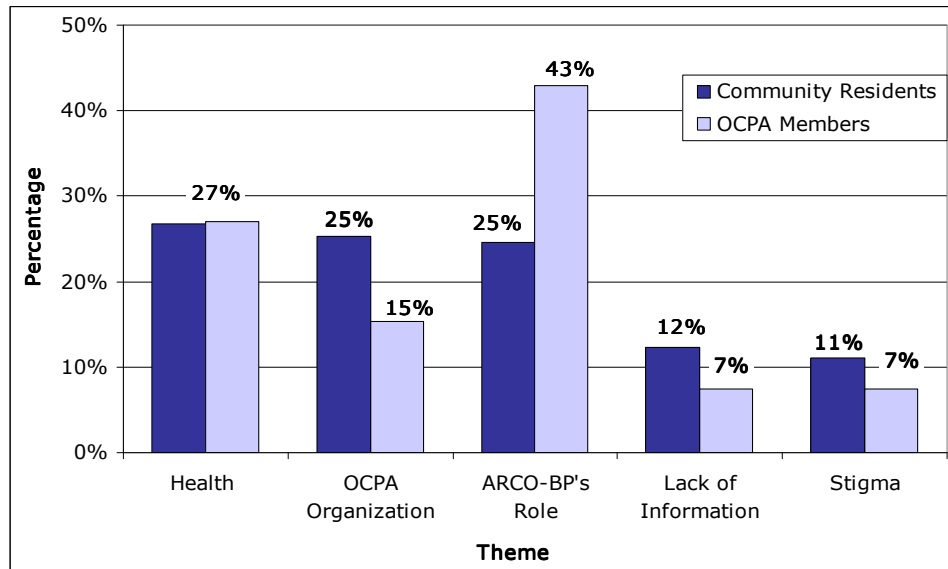


Figure 1. Comparison of Percentages of Total Comments by Theme for Community Residents and OCPA Members

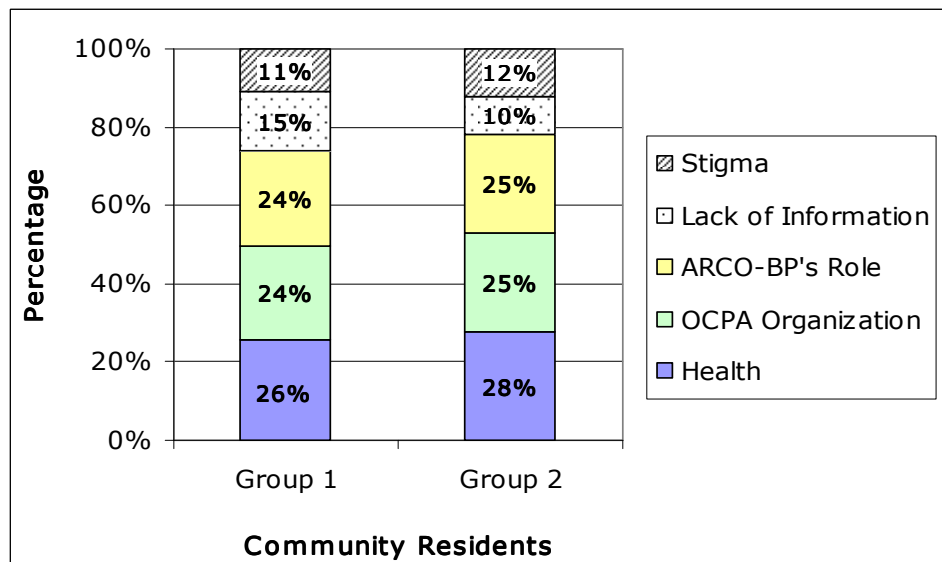


Figure 2. Percentage of Total Comments by Theme for Community Residents

Commentary was further examined by comparing each of the two community resident focus groups. Figure 2 reveals that the amount of discussion for each theme was fairly consistent between the two focus groups. Figures 3 and 4 reveal the variation in level of participation during each of the focus group sessions. Figure 3 shows that two of the seven participants in Group 1 provided 50% of the overall responses; however, the majority of participants contributed substantial comments to all five of the prevailing themes. Keith, contributing slightly more than a quarter of all comments, occasionally

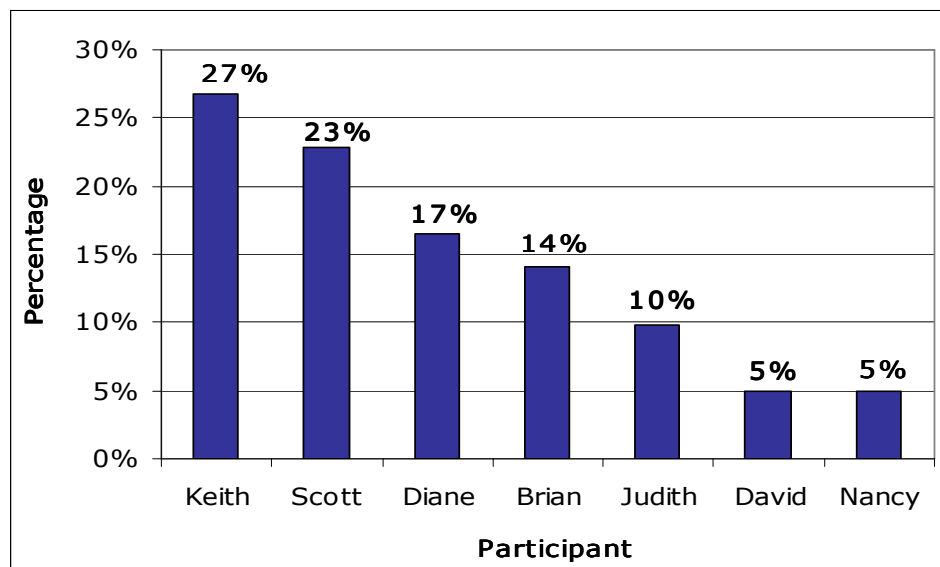


Figure 3. Participant Contribution to Discussions for Focus Group 1

dominated the conversations, but not so much that other participants refrained from expressing their own views. Scott contributed nearly a quarter of all comments, but he was more reserved than Keith. Scott, Diane, Brian, and Judith, provided an array of opinions and were sometimes influenced by other participants, but this led to dynamic discussions of topics. On the other hand, Keith seemed fully committed to his opinions and tended to reiterate his viewpoints for most of the discussions.

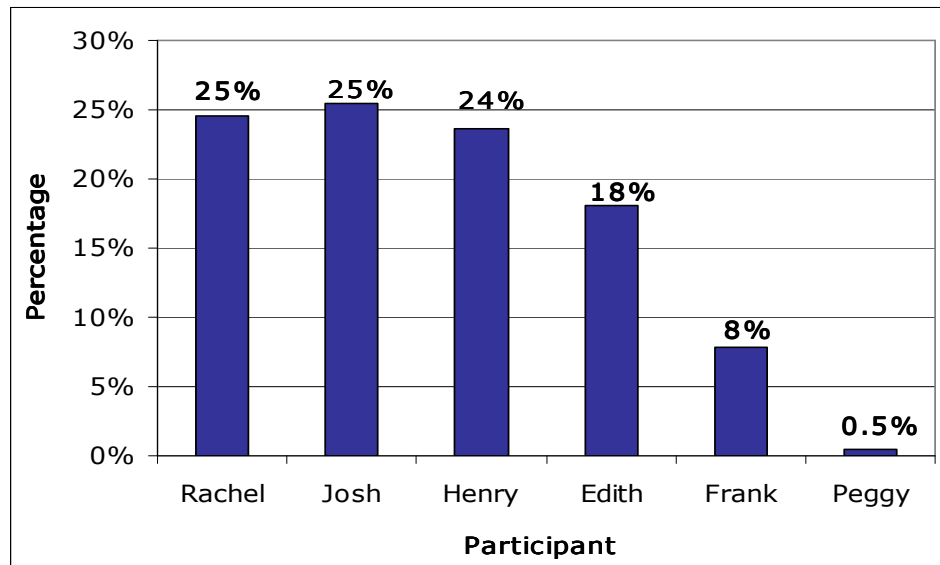


Figure 4. Participant Contribution to Discussions for Focus Group 2

For Group 2, three of the six participants together contributed equally to about 75% of total commentary (see Figure 4). Again, the majority of participants contributed substantial comments to all five of the prevailing themes. Only one of the participants seemed to be noticeably influenced by the others' opinions; this may be attributed to the fact that this person had not been established in the community as long as the other participants.

There were four participants from both groups who contributed less than ten percent of total comments: David and Nancy from Group 1 and Frank and Peggy from Group 2. These participants were considered candidates for follow-up interviews (see Focus Group Sessions subsection in Appendix D for discussion of follow-up interviews and criteria). After considering the behavior and nonverbal cues of each during the focus group sessions, Nancy was the only participant who was interviewed further; she was hesitant to partake in most discussions and seemed reluctant to express herself candidly.

In conclusion, nearly all of the participants in each of the focus groups contributed comments used to identify themes, and there was a relatively good distribution of comments among participants (see Appendix H for additional figures). Therefore, the identified themes were considered to be a reliable representation of what was expressed during the focus group interviews. One potential limitation of the study was that six of the 13 participants involved in the group discussions were part of a husband/wife couple. There were two couples in the first community resident group and one couple in the second group. I was concerned that this would limit the depth of the discussions if spouses mirrored each other's feedback regarding the interview questions. Fortunately, only one married couple echoed each other in responses; the other spouses contributed independently to group discussions, voicing distinct concerns and opinions and expounding on the other's beliefs when similar to their own. The atmosphere in both focus groups was such that nearly all participants were able to speak freely and express their viewpoints, whether they agreed with the consensus or not.

RESULTS

In order to analyze the emergent and prevalent themes from participant comments, data from both community resident focus groups and the two telephone interviews were combined to give a total of 15 community residents.¹⁰ As mentioned above, careful examination of the data revealed five main themes in the discussions; they involved, in order of most discussed: (1) Health – health concerns and the possibility of a public water system as a preventative measure to protect residents against water contamination, (2) ARCO-BP’s Role – the company’s role as the Responsible Party and its perceived responsibilities and shortcomings, (3) OCPA Organization – participation in and representation by the citizens group, (4) Lack of Information – the lack of essential information or information that remains inaccessible or incomprehensible to residents, and (5) Stigma – the stigmatizing effects of being associated with Opportunity Ponds. These, as well as their sub themes, are discussed below.

Health

Participant comments pertaining to this major theme accounted for 27% of the coded commentary provided by community residents. Associated sub themes included perceptions about the awareness of illnesses among community residents, the need for a health study, and contaminants of concern. Comments about the nuisance dust clouds, the public water system issue, and participants’ level of concern for each were also included because these have the potential to affect a person’s physical, as well as psychological, well-being.

¹⁰ All names reported in the results are pseudonyms, used in place of participants’ real names to ensure confidentiality.

Awareness of Illness, Health Study

There was consensus among community residents regarding the prevalence of illnesses within the community. Participants were in accord with each other as they discussed what seemed to them to be higher than normal incidents of cancer, multiple sclerosis, and mental disorders among community members. There was the general sense that everyone has been affected to some degree, either directly or indirectly, by the mining-related contamination within and surrounding Opportunity. One participant recalled her child's untimely death from long ago, "My [child] died of meningitis and something triggered it...maybe it was from all of the contamination." Another participant offered her personal circumstances involving cancer as she revealed, "[Several] of my children have cancer. They were all raised here, and my [pets died] of cancer." These tragedies have caused her significant and constant "stress and sadness," and she continues to worry about the future for her children and grandchildren. Keith summarized the feelings of the majority as he described the situation, "It does seem to be somewhat disproportionate, and I doubt there's probably anybody here that doesn't either have a friend or a relative who's had something and either cancer or some kind of a disease. Now, is that normal or is that outside the norm?"

In an attempt to address their concerns, participants suggested that some type of health study needed to be conducted; they described both a community health survey and an epidemiological study.¹¹ This approach could also give community residents some peace of mind by settling widespread speculation and uncertainty, which was echoed in Keith's appeal,

¹¹ A community health study would document the various types of illnesses found within a community and how many people afflicted by them. An epidemiological study would attempt to link health effects, such as cancer, to a cause, such as exposure to a chemical.

I know there's a lot of speculation and a lot of assertion, but have somebody come in and back it up with some hard data...having the data and having some scientific methods by which it's acquired is extremely powerful versus, you know, a lot of conjecture.

Some suggestions given by participants for the scope of a health study included investigating the conditions of living residents, autopsy records, death certificates, and the conditions of adults who grew up in the area. Regarding the last suggestion, Judith explained, "I think it's important to look at children who were raised here, who grew up with this – whatever the contamination is maybe that we grew up with. That's the genetics ...that has been affected most strongly I think," especially because many participants admitted to playing and swimming in the slump ponds (within the Opportunity Ponds area) as children.

Other health afflictions that were being experienced by participants included nasal infections, sinusitis, respiratory problems, and allergies. After mentioning how he was recovering from a nasal infection doctors could not explain, Josh recounted further,

I've gone out in the mornings or in the afternoons and start doing something in the yard, and all of a sudden, I get a hit [of] something in my eyes and [they] start to burn. What is it? I go in the house and wash [my] eyes out...but what is it in the air that you caught that got that irritated [in my] eyes? And it really burns, you know.

Another participant, Mary, described her recent physical decline, "I think the dust is affecting me because until last year, I was in perfect health. But now my health is failing; I have respiratory problems. I live close to the Ponds, and when the wind blows I get dust in my house." Also, some participants have noticed that allergies seemed to have become more prevalent, and Stan, who has lived in Opportunity for more than 30 years, even testified,

I have developed allergies in the last three years to everything in the environment, outside and inside. I believe the contamination has agitated it. I get four allergy shots a week, use nasal spray, and have had sinus surgery. I worry about my health; it is in the back of my mind all of the time and comes out every once in a while.

Not only were people concerned about their own health, but a few also worried about their pets as well. Edith, who has moved to Opportunity within the past decade, shared news about her dog, “Yeah, I’m concerned. My dog died six weeks after I got here, and I don’t see how it happened, but she had a huge copper toxicity level...and [recently] my cat is losing hair.” Ultimately, participants, like Mary who as a child was told by her mother to never go around the Ponds because it was contaminated, wondered if these health troubles may be linked to the surrounding Superfund pollution.

Contaminants of Concern

A few different contaminants of concern were mentioned during the discussions, including beryllium, arsenic, and heavy metals in general. Surprisingly, the contaminant referred to most specifically during conversation was beryllium. Many participants considered this contaminant more of a health threat than arsenic because its toxic effects were perceived as being more immediate. This sentiment was illustrated by Scott, and echoed by Brian, as he attested, “You come in contact with [beryllium], you’re dead.”

Some participants did not seem as concerned about potential arsenic contamination in their drinking water supply as they were about beryllium. Josh even admitted, “I would test more my wells for beryllium than I would for anything else myself. And we know it’s here and we know there’s a lot of it here.” This may be attributed to the fact that arsenic was being monitored through water testing, while beryllium was not. As long as test results remained below the accepted regulatory levels

for contaminants like arsenic, participants felt some peace of mind. In contrast, beryllium contamination could be unpredictable, such as in the case with the Bi-Mart discount store.¹² Several participants mentioned the Bi-Mart incident when a discount store was going to be built in nearby Anaconda, until beryllium was found buried at the site. Henry commented, “There is beryllium up there in barrels and that's buried, and we know it's there. But you can't go clean it up because if you open something like that up to the air and somebody's there, they're dead.” On the other hand, a remedy for arsenic contamination could be accomplished by drilling a deeper well in the short term or by using an alternative drinking water source.

Other concerns mentioned about arsenic and heavy metals in general included uncertainty about how contaminants moved through the food chain. Some participants wondered if eating beef from cows raised in the area posed any health risks. They also questioned textiles that were made from the wool of local sheep. However, contrary to the majority opinion, two out of the fifteen participants believed that arsenic could be good for people, especially for women's complexions. One such participant proposed, “I mean, you can live with arsenic. Arsenic is...possibly good for you.” The other participant followed up by responding, “Well, it is good for you. Women in this area have more beautiful skin than any place in the world. It's from the arsenic. Well, if you buy good face powder, it'll have arsenic in it.” Overall, one resident was concerned enough about drinking water contamination that he changed his lifestyle by obtaining water through an out-of-town source, the rest seemed satisfied with the current testing of their well water.

¹² Bi-Mart was an Oregon-based discount chain that canceled a sale agreement with Anaconda-Deer Lodge County after finding beryllium contamination on the 7 ½ acre parcel of land, a remediated Superfund site, where the estimated \$1.3 million store would have been built (Associated Press 2005).

Dust Concerns

While discussing the presence of dust clouds that originate from Opportunity Ponds, several participants expressed worry about the fact that blowing dust was not healthy to be breathing in, regardless of its composition. When asked about the presence of dust in the Opportunity community, Josh answered, “Oh, yes. You can pick it up in your house and stuff. All you have to do is vacuum it...we get a lot of dust.” Scott shared his concern saying, “ [ARCO workers are] in there following their guidelines and do it wearing the respirators when they're around it, but when they leave it's okay for that stuff to just sit there until the wind picks it up and then move it?”

In addition to a health concern, the dust clouds were considered a general nuisance and highway danger. Scott provided a typical description, verified by several others, of such a dust cloud, “It picks it up and it raises it a couple hundred feet in the air, and it's like a curtain going across the valley.” It was even declared by one of the participants, supported by several nods of agreement, that the dust clouds or storms reached as far as the town of Deer Lodge, about 25 miles north of Opportunity.

Only about half of the participants expressed health concerns regarding the dust. The other half believed the wind blows it from Opportunity Ponds north to other communities such as nearby Warm Springs, Galen, and Deer Lodge. For instance, Scott explained, “I'm not concerned because, like I said, I drive out of town when there's a big dust storm and it's coming off these ponds. You see where it's going; it's not coming here...if I lived seven miles to the north of I'd be very concerned.”

Public Water System

When asked about the possibility of a public water system as a preventative measure, ensuring clean drinking water if widespread contamination of the aquifer were to occur, only a few expressed support. Support from one of these participants was contingent on a minimal expense for individual residents. The majority of participants would much rather stay with their private well. One of the main reasons for favoring individual wells was preference for the taste of their well water versus chlorinated city water. Rachel verified, “I like my well water; I think it's terrific. I think it just tastes great and clean and I'm very confident that my well water's great,” to which others nodded in agreement. Her confidence in the quality of her well water stemmed from the fact that tests have shown no contamination. Various other reasons given include: retaining individual freedoms and not letting government gain too much control, avoiding an increase in taxes, and not wanting to pay for metered water. Some participants pointed out how they already pay for their water by paying for well maintenance and electricity to run the pump. Others felt indignant at the possibility of being required to pay for a water system they did not want because they did not cause the contamination. A few commented how they would much rather see a new sewer system than a water system. Ultimately, Keith's remark resonated with the majority:

So, I mean, I think that's one of the messages too that probably need to be communicated back to OCPA is, at least from my standpoint and I'd want them to know – I don't want city water coming in when I don't have a problem with my well, and if there's one or two problems with wells, you know, redrill those. Do something to handle those one or two.

Participants who preferred their private well believed the water system to be necessary only in the event of widespread contamination; otherwise, having ARCO-BP

drill a new, deeper well was considered sufficient. Most participants were concerned about the potential contamination of their well water by arsenic and other heavy metals, but they felt regular testing was enough to assuage their fears for the time being.

In summary, participants worried about their health and raised concerns about the prevalence and types of illnesses present in the community. Several people suggested a health study be conducted. As far as contaminants of concern, participants considered beryllium to be most threatening because of its health effects being perceived as immediate and lethal. Regarding dust, participants were divided as to whether they considered it a health concern or not. When considering potential drinking water contamination as a health concern, the majority of participants felt the water was currently safe to drink and preferred to stay with their private well and monitor the water. The vast majority were opposed to installing a public water system as a preventive measure.

ARCO-BP's Role

Participant comments pertaining to the ARCO-BP's Role theme accounted for 25% of total coded commentary. Associated sub themes focused on participant perceptions and opinions about ARCO-BP's involvement in nearby Superfund remediation. These sub themes included: distrust of ARCO-BP, the company's role in compensation for the community, and its role in creating feelings among community residents of being ignored. Also, participants commented on ARCO-BP's maintenance of Opportunity Ponds and suggested actions that would help to address their concerns.

Distrust of ARCO-BP

Participants expressed distrust of ARCO-BP when they mentioned the company's composite sampling method for testing soil contamination in residents' yards. ARCO-BP's method seemed suspicious to many of the participants including Brian, who mentioned, "I tried to tell them like where the grass [isn't] growing, check it there, but they wouldn't; they had a certain grid they had to go by. Well, there's a lot of dirt I've hauled in there, but there's a lot I haven't." Many of the participants questioned the accuracy of mixing individual soil samples together to obtain one average reading, and they further questioned the accuracy of testing only the top two inches of soil, as is done by ARCO-BP. Brian continued to explain his situation, "I [used] a backhoe and I turn it over and it still won't grow, and I've tried everything to make it grow. I've put lime in there and I fertilized it. It just will not grow nothing." Several of the participants would like ARCO-BP to test similar "hot spots" in their yards, but after hearing Brian's testimony, they felt ARCO-BP would not comply; therefore, they might not bother.

Another instance of distrust surfaced while discussing ARCO-BP's involvement in community well water testing. A few of the participants expressed that they would rather pay the expense of an independent laboratory than trust ARCO-BP. They were suspicious of ARCO-BP and were concerned that the company could possibly influence test results. While others did not trust the company, they felt they have no choice but to let ARCO-BP conduct the tests, citing financial reasons. Referring to previous well water testing conducted in the community, many community residents commented on the confusion over how some wells were found to be contaminated, while others within the same neighborhood tested clean. Henry explained,

Well, it just worries me what we've got here where one person up here, up the street here, can have contaminat[ion]. They come in and redo their [well]...the next one hasn't got any. Then the next one has got some – it makes you wonder how these tests are being done.

Several community residents expressed suspicion of EPA as well because they felt the abovementioned situation contradicted what the regulating agency has told them about groundwater flow beneath Opportunity Ponds not being able to reach the community. Henry summed up the general perception within the two groups with his statement: “I don't think ARCO could say anything to any of us that we wouldn't still wonder in the back of our minds.” However, contrary to the majority opinion, there was one participant who conveyed tentative satisfaction with ARCO-BP’s overall testing for contamination at residences. This person felt that the company’s testing methods seemed valid and believed it would be difficult for ARCO-BP to influence the test results.

Several of the participants seemed cynical when discussing ARCO-BP’s and EPA’s assurances that they were working to finish capping the wastes at Opportunity Ponds in the near future; nobody specifically mentioned the estimated deadline of 2010 (McQuillan, 2005). Scott questioned these assurances, “Yeah, but the issue is they're going to bring Milltown; they're bringing all of Butte's wastes.” This was followed by skeptical inquiries such as “Yeah, how long 'til they cap that?” and “Yeah, how long is it going to take to fill that place up?” from Keith and David, respectively. Scott captured the concerns of many as he forewarned, “What else are they going to bring in that we're not going to know about or what's in there...the next thing that'll be brought over here is the ASARCO smelter from East Helena – you watch.”

Who's Responsible and Compensation

There was consensus among participants regarding the belief that ARCO-BP was responsible for the Superfund contamination. The reason given, agreed upon by most participants, for ARCO-BP's culpability was that it bought the problem from the Anaconda Mining Company and landowners should be held responsible. Because ARCO-BP owned the Superfund land, they were responsible.

Given the above, nearly all participants felt the company should provide compensation for the Opportunity community. No one disagreed when a few participants attested that ARCO-BP was turning the area into a "dumping ground," and they should be held accountable to the community and be required to mitigate the situation. Many realized they could not do much about stopping wastes from coming in or cleaning up the repository, but they felt ARCO-BP, being the legally responsible party, should be obligated to compensate the community. Illustrating this point, Scott commented, "You know, if they're going to use [Opportunity Ponds] as a dumping ground then, you know, ARCO owes us something." David later added, "And it's a bad situation, and I love Opportunity, but I know also that there's a bunch of stuff up in the Ponds already, and it doesn't really make sense to put it somewhere else and contaminate a new area, but they should definitely compensate us." Voicing a similar request for compensation, Henry revealed,

We're afraid we're going to lose our property values. We're afraid the water's going to be ruined over a period of time. We're afraid about the sewer system. We're just...where are we going to be at? Is this all going to be taken care of in a couple of years and they're going to leave?

Nobody really mentioned anything specific as far as what the compensation should be, but the most commonly suggested way ARCO-BP could address residents' concerns

would be to provide indefinite annual or biennial (every two years) water testing for everyone.

Feeling Ignored

Nearly half of the participants felt that ARCO-BP has made little effort to involve community residents in any decision-making processes that affect Opportunity.

Explaining how she lost momentum and interest in fighting for a voice, Diane recalled,

There was a whole community here, and [ARCO] pretty much told us ‘too bad, it's our property, and we'll do what we damn well please down there,’ and I think that, I know for me, stopped everything. I thought, you're just not helping. I mean, you're not going to get anywhere with them. They're a big company and that's the way they feel – they don't owe us nothing.

Several of the participants expressed a perception that the welfare of Butte and even Anaconda were considered more important than Opportunity in the eyes of government agencies and ARCO-BP. Frank attested, “Well, remember here about five years ago [Butte] had the dust problem up there? Cured in a couple of weeks.” Adding to this, Scott declared, “If this was going on in Butte, you'd see a whole different climate and a lot of things being done too...[ARCO/EPA] made us feel like we just kind of like...they'll deal with it, forget about it.” Another participant claimed that even Anaconda was dealt with better than Opportunity.

Proper Maintenance

The majority of participants felt ARCO-BP, for the most part, has not demonstrated adequate maintenance of Opportunity Ponds, and they were worried about how the potential consequences of insufficient contaminated waste containment would affect the nearby community. For instance, several participants felt it was an unfair burden for them to be subjected to the blowing dust during the time it would take ARCO-

BP to cap the area. To resolve this, one of the most popular actions mentioned by several participants was capping the Ponds by working with a small portion at a time. For instance, Scott suggested, “Every day that stuff’s hauled in it’s capped immediately; not wait until one of them big bolts is full and then we’ll start capping it. And let’s face it, ARCO’s a subsidiary of British Petroleum – they got the money.” Brian added that this would be feasible because “they know how many yards they’re hauling in there a day. They do because they haul the same amount damn near every day.” Another suggested action to alleviate the blowing dust involved covering open areas with a tarp to provide temporary but immediate dust suppression. Expressing support for minimizing the dust, Edith shared her concern: “Well, recontamination. What’s the use of them doing all this? What does it matter that they test our houses and test our water and test our soil and we get it all cleaned up and it comes back and settles, comes back and settles. What’s the use of that?”

Other suggestions regarding ARCO-BP’s maintenance of Opportunity Ponds included lining them to prevent contamination from leaking into the aquifer and growing shrubs and trees to shelter the community from the dust. However, regarding ARCO-BP’s current efforts of growing vegetation, Frank dubiously commented, “I’ve never had much luck growing anything in gravel. That’s basically what they’re doing. Throw some grass seed in there and expect it to be lush and green and it’s not.”

A dissenting view was provided by one participant. Mary was the only participant to convey satisfaction with ARCO-BP’s efforts as she approved, “I think ARCO is doing a pretty good job controlling the dust.” When asked about possible

actions ARCO-BP could implement to improve the dust situation, she replied, “ARCO [should] just keep doing what they’re doing.”

A few participants mentioned that the trains currently transporting contaminated wastes to the Ponds were unsafe, and ARCO-BP should be required to cover the train cars. For instance, Scott recalled,

Just like the other day, I was a little bit late for work, and I got up there and that's the first time I've ever stopped for a train...and [the cars] were heaping. They were heaping; they weren't covered. There was dirt falling off the side and that's all the way from Butte.

Another participant who experienced a similar situation estimated the number of uncovered cars in one train to be between sixty and seventy. Given the nature of the polluted materials, being allowed to transport them uncovered did not make sense to any of the participants. Overall, the majority of participants worried that ARCO-BP has not effectively protected the community from contamination at Opportunity Ponds or from materials being transported to the waste containment area.

OCPA Organization

Participant comments pertaining to this major theme accounted for 25% of total commentary. Associated sub themes included views about participation in the OCPA citizens group as well as an evaluation of how effectively the organization represented the community.

Participation

To start with, participants were asked how knowledgeable they were about OCPA. Nearly everyone said they knew little about the citizens group except that it had organized past water and dust community meetings. When asked about participation in the organization, two out of the fifteen participants expressed an interest. The first

person's interest stemmed from sharing similar views about some of the issues: "I know the individuals; I've been thinking of joining them. I was prompted because I know them all and I have the same property value and health concerns." The second interested participant would join if OCPA would take a more active stance, in their opinion, and show more constant progress. Because this person only hears about the group occasionally, mostly when the community meetings are held, they felt OCPA was not as functional or productive as it could be. This particular participant commented about the OCPA-sponsored community meeting involving Lois Gibbs from Love Canal: "I thought it was fantastic. They brought this woman in; she knew so much. I was raring to go and then, how long has it been? Three, four months now? Nothing, I mean, and so I was just a little...I was really kind of disappointed 'cause I was ready to [help]."

The main reason why the other thirteen participants were not interested in joining the group was the use of what they called "extreme" tactics (as discussed below). Most believed the group's approach to be too argumentative rather than cooperative. Some felt OCPA lacked a clearly defined agenda. They felt there was not enough structure in the organization and that the group meetings were too much about complaining and less about productive efforts. Various participants felt there were strong personalities within the group that hindered its effectiveness and that the citizens group was one-sided, not open to other residents' suggestions, and selective in membership. One participant commented, "I think they were a little bit selective and pushed some people out that were involved in the committee because I heard that from other people...[OCPA] just told them that they didn't need to bother coming really, and they were kind of hurt." One

participant even admitted, “Well, I already did try to participate and found them to be a little too one-sided and not as open, so I probably wouldn't try it again.”

Representation

Two of the fifteen participants felt that OCPA represented fairly well the concerns of residents and the community as a whole. One of these participants offered, “Yeah, I think they are doing an adequate job, doing more than anybody has in the past;” however, he added, “They have a lot of potential; they could do more.” Other participants felt OCPA did represent the community in some aspects, but there were some dissenting views.

For instance, about half of the participants were supportive of OCPA’s plans to acquire the Beaver Dam School property in Opportunity. They viewed the proposal as a positive way to enhance the community. Support came from people like Judith who offered, “We need a park...the kids need something. And a park isn’t just for kids.” The other half considered the plan a mere distraction and not representative of community concerns. Henry remarked, “Well, my concern was everybody was worried about the air and everybody was worried about the sewer, everybody was worried about the water...what [OCPA was] asking for was a playground,” and he continued, “There's nothing wrong with it, but it...I don't think it even comes even close anywhere to any kind of a priority.” In accord with Henry, Frank stated, “We got on the wrong thing. We got away from the water, the air, and stuff like that.” Josh agreed, “That's not the main issue that I think are our concerns.” A different viewpoint was offered by Rachel regarding the plan. She asked, “So why would you want your kids to play in it?”

referring to residents' environmental concerns and suggesting that the area might possibly be too contaminated to be safe.

Overall, participants recognized the value of the citizens group. Among the honorable mentions were the comments of: "I think there's some of them that got some great ideas, and I think there's very smart people on there," "Well, somebody had to get this dust deal going...they're trying to get people together," and

I think what [OCPA members] are doing is commendable, their interest...you got to give them credit that they are trying to do something, which is, you know, it's a first step to taking action is difficult. Somebody has to step up to the plate.

One participant even pointed out the power of organized citizens: "It's an organized group of individuals with more teeth than any individuals would have alone."

However, as much as they appreciated OCPA, the majority believed this organization could be more effective by seeking out a more unified and cooperative approach and not using what the participants perceived as "extreme" or confrontational tactics. Such a sentiment was expressed by Keith, "I think that, you know, if we're going to be effective in anything that we deal with, with the company stuff, we need to have a reasonable concerted single effort that everybody buys into." For example, when dealing with ARCO-BP, Diane explained,

Before you approach Atlantic Richfield you should have your own little meeting and work all that stuff out before you go into them so you look more...you look more professional...instead of having like Brian said, yelling and screaming, two opposite sides. You're sitting there in front of Atlantic Richfield; they're not going to give you nothing because you're divided.¹³

Judith further added, "I understand fully the emotions that go along with this, but working with the company is not the time to be venting that stuff." Furthermore, many of

¹³ Diane was referring to OCPA appearing to be divided as a group in front of ARCO during community meetings.

the participants believed that OCPA's confrontational behavior and lack of a clearly defined agenda would result in ARCO-BP, government agencies, and those outside of the Opportunity community being less likely to take the community seriously. Many participants felt OCPA was proceeding with the agenda of a few, not of the community as a whole, as one of them commented,

The very vocal people that are kind of dominating the agenda on this – I don't know that they're really listening to what the concerns of the community [are]...there are [OCPA's] concerns, but I don't know that they're really the concerns of the community at large.

To remedy this, he suggested,

I think until you really sit down and have a discussion like this with everybody in the community, can you really represent them. And we're only talking about three, four hundred people down here; it's not that hard to have. You know, even sessions like [the focus group] that say 'hey, I want to meet and talk about this; I want to represent you on these issues. Let's sit down. I'll take an hour or two of your time,' and get everybody to sit down. [It would] take a few weeks, but get the agenda, get the issues and then do something constructive with it.

A few of the participants felt OCPA should reach out to the community and listen more to what others have to say, instead of focusing so much on pushing what participants claimed were members' personal agendas. One such person added, "They don't let others have a chance to express themselves." Another participant pointed out that some members seemed to be a "little bit abrasive and...if you go to the meetings, I think [some members have] a tendency to stick to [their] things of the meeting and not ask so much of other people." One particular participant felt that

You would go to this [community] meeting. You hear this whole vocal thing and then you talk to people afterwards, and it was like they didn't really agree with it...[OCPA's] got some good things to do, but then the manner in which they do them they shoot themselves in the foot, and they lose a lot of credibility not only with the company that they're fighting against, but I think with the people who they're trying to represent.

In summary, while participants were appreciative of OCPA's efforts, the majority were not interested in participating because the group was perceived as being confrontational, argumentative, one-sided, and selective about membership. They felt that strong personalities offset the group's effectiveness. Participants expressed that they would like to see a more cooperative and united approach. They would also like OCPA to present a more clearly defined agenda. Regarding the Beaver Dam School property, participants were divided on whether they would support the acquisition or not. The ones who did not support OCPA's intentions did not understand where the park fit into the concerns of the community.

Lack of Information

Participant comments pertaining to this major theme accounted for 12% of total coded commentary. Associated sub themes included the perceived lack of information, mostly regarding monitoring and government agencies, and incomprehensible and inaccessible information. Diane commented on the general frustration felt by residents: "And that's why people are pounding on the table, because they have no idea. I mean, information, information, information!" Keith likened the situation to parenting: "It's like the teenager [that] doesn't come home on time and you think the worse. It's no different here; we don't have the information, so what are we left to think?" The majority of comments focused on the inadequacy of EPA's and ARCO-BP's monitoring, pertaining mostly to dust and groundwater. Regarding the dust, several participants expressed concern about the fact that they still did not know what was in the dust and wondered about the risks and if they should be worried. With groundwater, participants were doubtful of EPA's assurances that the groundwater under Opportunity Ponds did not

flow towards the community. For instance, many participants wondered how this could be when arsenic contamination had been found in some wells within the community. They seemed reluctant to trust EPA when there was what seemed to be a discrepancy in the information presented. Also, Frank stated, “I don't know, I'm not an engineer or anything, but how often does the flow of water underground change directions?” which was followed by Edith who interjected, “We don't know that. We should know that.” In general, participants were not completely convinced of the accuracy or adequacy of EPA’s expertise or data regarding groundwater flow and contamination plumes, such as the South Opportunity Alluvial Aquifer Arsenic Plume area.

Concerning the information that did exist, participants felt it was largely inaccessible or incomprehensible. Josh mentioned that he received a periodic report about the Superfund situation,

There is a letter that comes out, which I get about, you know, what's going on and stuff to a certain extent. I don't remember who sends it to me, whether it was EPA or who it is. I get [it] every once in a while, but it really doesn't make any sense to me.

Moreover, the perceptions of several participants were that EPA and ARCO-BP were withholding important information from residents about the contamination situation in the community and at Opportunity Ponds. Some of the comments expressed included: “EPA is monitoring every day. They know what's going on, but they're not sharing it.” and “We just don't know; everything's hush-hush.” Furthermore, one of the participants revealed that about a year ago “when [workers at Opportunity Ponds] start[ed] making these [containment cells] and in preparation for what's coming from Missoula, [one of the workers] basically says, you know, you and [your family] should probably think about getting out of Opportunity.” This person asked the worker, who did not live in

Opportunity, if he would be concerned himself and he told her, “I would move out of Opportunity as fast as I could.” As of yet, this participant has not moved but has remained apprehensive about the health consequences of staying in Opportunity.

To address the lack of information, participants suggested several actions such as more government involvement from the state and county. They believed ARCO-BP should be held accountable to these agencies, but at the same time, the government agencies should be held accountable to the people they were supposed to be serving and protecting; otherwise, why were they paying taxes? Others suggested that EPA should be required to keep residents regularly informed through reader-friendly newsletters or even a website: one centralized location that would be easily accessible for most residents.

Stigma (Stigmatizing Effects)

Participant comments pertaining to this major theme accounted for 11% of total coded commentary. Discussions focused on the stigmatizing effects of living near the largest Superfund site in the nation, which included economic as well as personal implications. The majority of participants agreed that Opportunity has a negative reputation among other communities; only two participants disagreed. Many participants mentioned that they were often times asked by outsiders, “How can you live next to that toxic dump?” Negative comments about Opportunity were heard from people as far away as the Midwest. One participant was in the Midwest and described his encounter with a stranger: “Some guy said ‘You live next to that Superfund [stuff], don't you?’ And they hear it way back there, so it [isn't] just around Montana. They know where you live.” A few of the participants mentioned how even Anaconda residents felt that way. Judith shared, “When we went to school...us Opportunity kids [came] to Anaconda; we

were the ‘swamp people.’” Rachel commented, “I’ve heard people from Anaconda even make that statement that they think they’re much safer in Anaconda than we are in Opportunity, which is a big myth.” Some participants shared how they used to be affected by it, but they have since become accustomed to it and ceased to care as much anymore.

Concerning the economic impact, numerous participants felt this was evident in the depreciation of property. Many worried about not being able to sell their house or selling it for a significantly lower price than its worth if they ever decided to move. One participant tried to view it from an outsider’s perspective:

Well, you know, Love Canal was the first one that came with a big thing and apparently they gone in and moved everybody out and cemented it, but would any of you guys want to buy real estate at Love Canal right now? Would you? The government swears they went in and cemented it all.

Diane admitted, “If I would have known at the time [more than 20 years ago] that they were going to do this, I wouldn’t have moved down here.” However, another participant explained that she moved to Opportunity without knowing the situation but doesn’t regret moving here; she would rather stay and fight for a cleaner environment.

In the Anaconda/Opportunity area, some participants had even noticed both a loss of business and a lack of business coming in. A few mentioned the Bi-Mart store incident (referred to previously in Footnote 12, p. 31). They felt this had only damaged the area’s reputation further. One participant shared how local business was affected,

Somebody I knew...was going to come out one day and pick up [some] hay... never showed up...[they] approached him later, and he said he was all set to come and pick it up and his dad said, ‘You aren’t going up to get hay from Opportunity are you? That stuff will kill your horses,’ so he didn’t come.

As to why the stigma existed, participants claimed that the mere magnitude of contamination and being the nation's largest Superfund site was hard to ignore. They also attributed it to the various events in the surrounding area that have gained media attention, such as the installation of the Jack Nicklaus designer golf course in Anaconda, the incident of a large flock of geese dying at the Berkley Pit in Butte¹⁴, and the numerous newspaper articles including one in *The New York Times*. Furthermore, a few participants pointed out how having a nearby state park, the Anaconda Smoke Stack State Park, where visitors were only allowed to view it from afar did not represent an inviting image of the area. Frank explained, "Well, it's a little strange that the old stack up there is a state park that you can't put a foot on. I don't think you're going to visit it. It's a state park without visitors." When asked about solutions to alleviate the stigma, there was the general sense that while cleaning up the contamination would help, the Opportunity community would be tied to the negative reputation as long as the Opportunity Ponds repository existed. Meanwhile, as Rachel pointed out,

All the water and the soil or even the air and dust testing...no matter what the results all come up to be, it doesn't change the fact that we all still have to tell everyone or most of the world...that we are still living right smack dab in the middle of one of the largest Superfund sites in the country.

Summary of Results

By comparing the results from the community resident focus groups to the concerns of OCPA, I identified the following issues on which participants held similar views to OCPA and would likely support the citizens group: the prevalence of illnesses and the need for a health study, concern about property value depreciation, ARCO-BP's composite soil testing methods, the unsafe transportation of contaminated mining-related

¹⁴ In November 1995, the carcasses of 342 migrating geese were found floating in the contaminated water at the Berkley Pit in Butte, MT (Adams 1995).

wastes by train, residential well testing, and confusion over groundwater flow and well contamination in Opportunity. These issues were topics where community residents and OCPA agreed, but there were also areas of misalignment between OCPA's goals and the community's perspective.

OCPA has repeatedly expressed an interest in having a water system installed as a preventative measure to ensure clean drinking water over the long term. It did so in its first newsletter distributed in August 2005. OCPA members have also articulated that desire at water quality community meetings since and during the OCPA focus group conducted for this study. Both the OCPA members and community resident participants expressed concern about drinking water contamination, but unlike the OCPA focus group, the majority of community resident participants preferred to keep their private well as long as there was no widespread contamination. Participants felt that unless widespread aquifer contamination occurred, a new well drilled by ARCO-BP would be sufficient to address individual cases.

Other areas where OCPA's goals and community residents' views were not aligned involved the Beaver Dam School property and the dust problem. OCPA has plans to acquire the Beaver Dam School property with the intention of creating a community park.¹⁵ The issue was raised during both community resident focus groups, and half of the participants supported the project, viewing it as a positive way to enhance the community. The other half did not support it because they felt the project did not represent the community's concerns and was a distraction from priority issues, such as

¹⁵ According to OCPA, if it acquires this property, then the county will take ownership. The biggest obstacle to acquiring the property is the school building; the county does not wish to take over the property until OCPA comes up with a feasible plan to either keep the building by renovating it or to remove it.

water quality and dust. One participant even brought up the concern of safety for the children who would play at the park because of possible environmental contamination.

OCPA has led a campaign to alleviate the chronic dust problem caused by open, dry areas at Opportunity Ponds and other Superfund properties. They have co-sponsored several community meetings with CFRTAC to discuss the problem. The dust issue was discussed in both community resident focus groups, and based on study results, nearly half of the participants were concerned about the dust and its potential health impacts and as a nuisance problem. The other half expressed that they were not concerned because they felt the dust affected communities to the north such as Warm Springs and Galen instead of Opportunity. Recommendations for reconciling these different views will be discussed in the next section.

CONCLUSION AND RECOMMENDATIONS

Since its establishment in the summer of 2005, OCPA has provided a resource within the community for Superfund-related information and support on various issues of concern, such as well water testing and windblown dust. Unfortunately, the organization has not been able to rally as much community support as it would like, and community residents have been somewhat reluctant to participate in the organization. The objective of this study was to gather information intended to help OCPA improve its strategies as a citizens group – strategies that would serve to encourage greater community participation by more effectively achieving its goals and representing the community on Superfund-related issues.

In order to meet the study's objective, I conducted focus group interviews to explore concerns residents might have and to understand their perceptions and opinions regarding Superfund-related topics. These topics included water quality and dust concerns, stigma issues, and the OCPA citizens group itself. I gathered and analyzed the views of Opportunity community residents and compared them with OCPA's concerns to discern areas of alignment and misalignment. My in-depth analysis of the focus group data and the subsequent results have led me to develop a set of recommendations for the OCPA citizens group about rallying community support (recommendations are discussed below).

Recommendations – Organization of Goals

To begin with, OCPA should pursue the issues of concern for which its interests and views are similar to those of other community members, such as the aforementioned areas of alignment (the prevalence of illnesses, property value depreciation, ARCO-BP's

composite soil testing methods, the unsafe transportation of contaminated wastes by train, etc.). The citizens group will be able to gain support by showing the community it has listened to them and is pursuing their concerns.

By comparing participant results to the concerns of OCPA, several areas of misalignment were identified, including the installation of a public water system, the acquisition of the Beaver Dam School property, and dust concerns. Regarding support for a public water system, the majority of community residents were strongly opposed, and this issue would most likely not be reconcilable at this time. Most of the community residents were adamant about keeping their private wells and not wanting the chlorinated taste of city water, nor wanting to pay for something that was perceived as unnecessary. It seemed apparent that wells were symbolic of independence, which is strongly valued by Opportunity residents.

For these reasons, OCPA should be aware that if it decides to proceed with pursuing a public water system, it will be met with opposition, and OCPA might need to first generate widespread support to be successful. To gain support, OCPA could explain what its rationale is for wanting the water system and show why residents need to start thinking on a long-term basis (uncertainty about the South Opportunity Arsenic Plume and groundwater flow direction towards Opportunity and ARCO-BP's imminent departure from Montana). The key here is informing and educating residents.

Alternatively, OCPA should consider focusing on well water monitoring and testing, issues in which residents were very interested. It would be helpful for OCPA to collaborate with EPA, MT DEQ, and Anaconda-Deer Lodge County in developing a long-term residential well water testing program that would require annual or biennial

well water testing for all residents. The plan should also address financial and other actions to be taken in the event of widespread aquifer contamination, and it should include assurances to protect the Opportunity community when ARCO-BP finishes its work and leaves the area. For those residents who refuse to test their wells because they do not trust ARCO-BP, OCPA should continue to provide information about independent testing options, similar to Silberberger et al.'s (2006) water quality brochure. OCPA could also develop its own water testing service if it were able to secure a grant to do so. OCPA would also be able to foster community support if it helped residents understand their test results by having CFRTAC meet with them or write up a layperson's summary of the results. OCPA could advertise this as a free service to the community.

Participants were divided on whether they would support the acquisition of the Beaver Dam School property and OCPA's plans for a community park. This issue should be relatively easy to reconcile because those who did not support OCPA's plans did not understand where the park fit into the concerns of the community. I believe they would be more receptive if OCPA explained to residents why it considers the park a priority in order to justify the time and efforts spent on the issue. OCPA could point out that by creating the park, the citizens group would be serving the community by increasing residents' quality of life and improving Opportunity's negative reputation. I believe OCPA can successfully rally greater community support for this goal.

Only half of the participants agreed with OCPA regarding dust as a priority concern. The other half believed the dust to be a problem in other communities to the north rather than in Opportunity. These different views might be reconcilable, but several residents were strongly convinced of this perception. OCPA should be aware that

not everyone in the community shares its concerns about dust. It would be helpful for OCPA to provide as much accessible information as possible on the dust situation and mitigation, including the importance of the RealTime air monitors, and to encourage a public dialogue on the issue. By informing residents, those opposed may change their viewpoints.

To address participant comments about OCPA lacking a clearly defined agenda, it would be helpful for OCPA to make available to the public its agenda, outlining four or five priority concerns. The agenda should be detailed and include for each concern: 1) the reason OCPA considers it a priority item, 2) the group's plan of action, goals, and objectives for addressing the issue, and 3) how OCPA would be serving the community by addressing the issue. The agenda and specific goals could be updated annually.

It is important for OCPA to be detailed and thorough so residents can understand the group's perspective and be more informed when choosing to support the organization or not. It may be helpful for OCPA to ask the community for feedback on its agenda. There is an expectation from the community that OCPA will represent their concerns. By asking for feedback, the group can evaluate its alignment with community concerns and if necessary, adjust its agenda to generate more community support. Also, I recommend that OCPA be careful not to focus all of its energy on one issue so that residents can view OCPA as the community's voice on an array of issues that are important to the community.

Recommendations – Engaging the Community

Based on study results, nearly all of the participants knew OCPA only from its actions related to organizing past water and dust community meetings. It was apparent

that most, if not all, participants were unaware of OCPA's accomplishments. In order to generate more community support and involvement, OCPA could be more visible in the community. The organization could also work to bring recognition to its accomplishments, which would show how the group has benefited Opportunity. I believe residents would be more interested in and supportive of the organization if OCPA were to advertise these accomplishments, which include: enlisting the expertise and assistance of CFRTAC, being involved as a community voice in government decisions that affect Opportunity such as the discussions pertaining to ARCO-BP's *Opportunity Ponds Dust Management Plan*, having a working relationship with local and state agencies (ADLC, MT DEQ, EPA, NRDP), and winning a Montana Environmental Health Association (MEHA) Award.

To be more visible in the community, OCPA should distribute newsletters on a more frequent and consistent basis, asking CFRTAC and AEEI to help cover costs. Since its establishment in the summer of 2005, OCPA has sent out only four newsletters and mostly when community meetings were to take place. The organization could keep residents better informed of OCPA's activities by dedicating a section of each newsletter to describe the group, its goals, its current priorities, and its accomplishments to-date. It would be beneficial for OCPA to have various professional people write guest articles in the newsletters to add some variety and to foster more interest from residents. OCPA could also emphasize how it has responded to the concerns of the community. These steps will help show how OCPA, a group of volunteers, has begun to make a difference in areas where the community has been ignored in the past, and it should encourage greater community participation and support for OCPA.

Another way to gain community support and participation is for OCPA to hold community meetings that are strictly for residents, excluding outside agencies such as EPA, ARCO, MT DEQ, and ADLC. In these meetings OCPA and residents will be able to address and discuss similar concerns as well as areas of misalignment. The citizens group could also provide its agenda for public viewing (see previous mention on p. 55) and encourage feedback. The meetings will open a dialogue with the community and help OCPA more effectively represent the community on Superfund-related issues. They will also help residents feel more involved in the community, which may help encourage more participation in the citizens group.

Lastly, it is recommended that OCPA make itself more accessible to the community by setting up and advertising a general OCPA email address where people could send concerns and suggestions and also sign up to receive its newsletter. It is important that residents view the citizens group as one entity rather than specific individuals. In this way, residents may be more apt to be interested in and participate in the organization. Also, they should be made aware that they could contact OCPA for information and assistance, if for example, they are having difficulty contacting ARCO-BP, understanding their water test results, or even if they are experiencing difficulty with OCPA itself.

OCPA is continually working to achieve environmental justice for the Opportunity community. It is my hope that the information provided as a result of this study will help OCPA improve its strategies for encouraging public participation, rallying community support, and representing the community on Superfund-related issues. OCPA is in a position to give a united voice to Opportunity residents as they continue the quest

for “healthy landscapes, vibrant economies, and livable communities” (Clark Fork Coalition n.d.).

REFERENCES

- Adams, Duncan. 1995. "Did Toxic Stew Cook the Goose?" *High Country News*, December 11, Retrieved January 19, 2007 (http://www.hcn.org/servlets/hcn.Article?article_id=1520).
- Associated Press. 2005. "Contamination Leads BiMart to Cancel Anaconda Land Deal." *Billings Gazette*, March 19. Retrieved December 17, 2006 (<http://www.billingsgazette.com/newdex.php?display=rednews/2005/03/19/build/state/58-bimart-deal.inc>).
- Bullard, Robert D. and Glenn S. Johnson. 2000. "Environmental Justice: Grassroots Activism and Its Impact on Public Policy Decision Making." *Journal of Social Issues* 56(3): 555-578.
- Center for Land Use Interpretation. n.d. "General Electric Hudson Falls Plant." Culver City, CA: CLUI, Retrieved January 18, 2006 (<http://ludb.clui.org/ex/i/NY3190/>).
- Clark Fork Coalition. n.d. "About Us." Retrieved January 7, 2006 (<http://www.clarkfork.org/about/index.html>).
- Cobler, Sarah, Kate Colenso, Jen Euell, Darci Jones, Erin Kautz, Holly Truitt, and Pilar Venezian. 2005. "Final Report to Concerned Citizens of Opportunity." Missoula, MT: University of Montana, Environmental Studies Program.
- Edelstein, Michael R. 2004. *Contaminated Communities: Coping with Residential Toxic Exposure*. Boulder, CO: Westview Press.
- Eng, Eugenia, Karen Strazza Moore, Scott D. Rhodes, Derek M. Griffith, Leo L. Allison, Kate Shirah, and Elvira M. Mebane. 2005. "Insiders and Outsiders Assess Who is "The Community." In Barbara A. Israel, Eugenia Eng, Amy J. Schulz, and Edith A. Parker (Eds.), *Methods in Community Based Participatory Research for Health*. (chap. 4). San Francisco, CA: Jossey-Bass.
- Finnegan, John R. and Ken Sexton. 1999. "Community-based Environmental Decisions: Analyzing Power and Leadership." In K. Sexton et al. (Eds.), *Better Environmental Decisions*. (chap. 16). Washington, D.C.: Island Press.
- Glesne, Corrine. 1999. *Becoming Qualitative Researchers*. New York, NY: Addison Wesley Longman.
- Hampton, Greg. 1999. "Environmental Equity and Public Participation." *Policy Sciences* 32:163-174.

- Hasenbank, Jon F. 2005. Multivariate Calculus Student Perceptions: Homework, Quizzes, and Motivation. *The Researcher: A Publication of the Northern Rocky Mountain Educational Research Association*.
- Krueger, Richard A. 1998. *Developing Questions for Focus Groups*. Thousand Oaks, CA: Sage Publications.
- Krueger, Richard A. and Mary Anne Casey. 2000. *Focus Groups: A Practical Guide for Applied Research*. Thousand Oaks, CA: Sage Publications.
- Kuehn, Robert R. 2000. "A Taxonomy of Environmental Justice." *Environmental Law Reporter (University of Alabama School of Law)* 30:10681-10703.
- Kuipers, Jim R. 2005a. "Domestic Well Water Quality and Risks from Superfund Sources: Opportunity, Montana." MT: Clark Fork Technical Advisory Committee (CFRTAC).
- , 2005b. "Air Quality and Risks from Superfund Sources: Opportunity, Montana." MT: Clark Fork Technical Advisory Committee (CFRTAC).
- Lobdell, Danelle T., Suzanne Gilboa, Pauline Mendola, and Bradford W. Hesse. 2005. "Use of Focus Groups for the Environmental Health Researcher." *Electronic Journal of Environmental Health* 67(9):36-42. Retrieved November 15, 2005 (<http://find.galegroup.com>).
- MacMillan, Donald. 2000. *Smoke Wars: Montana Copper, Montana Air Pollution, and the Courts, 1890-1920*. Helena, MT: Montana Historical Society Press.
- McQuillan, Jessie. 2005. "Knocking Opportunity." *Missoula Independent*, October 6-13, pp. 16-19.
- Mercier, Laurie. 2001. *Anaconda: Labor, Community, and Culture in Montana's Smelter City*. Chicago, IL: University of Illinois Press.
- Montana State Legislature. 2005. "Montana Constitution." Helena, MT: Montana State Legislature, Retrieved March 14, 2006 (http://leg.mt.gov/css/mtcode_const/const.asp#top).
- Patton, Michael Q. 2002. *Qualitative Research & Evaluation Methods*. Thousand Oaks, CA: Sage Publications.
- Robbins, Jim. 2005. "In a Town Called Opportunity, Distress Over a Dump." *The New York Times*, August 24. Retrieved January 24, 1996 (<http://www.nytimes.com/2005/08/24/national/24opportunity.html?ex=128253600&en=9d8afb6e1ae66461&ei=5088&partner=rssnyt&emc=rss>).

- Saha, Robin and Kate Hasenbank. 2005. "Comments on CFRTAC's Oct. 11, 2005 Domestic Water Quality Report for Opportunity." Missoula, MT: University of Montana.
- Seattle & King County. n.d. "Toxic Hazards: Arsenic Facts." Retrieved January 5, 2006 (<http://www.metrokc.gov/health/tsp/arsenic.htm>).
- Silberberger, Jamie, Molly McKinley, Matt Cuffe, James W. Scarborough, and Allison Striby. 2006. "Community Water Survey Report for Opportunity, Montana: An Assessment of Community Concerns and Informational Resources." Missoula, MT: University of Montana, Environmental Studies Program.
- U.S. Environmental Protection Agency (EPA). 1998. "EPA Superfund Record of Decision Anaconda Co. Smelter, OU-04." Retrieved January 5, 2006 (<http://www.epa.gov/superfund/sites/rods/fulltext/r0898096.pdf>).
- 2003. "Anaconda." Retrieved January 5, 2006 (<http://www.epa.gov/region8/superfund/sites/mt/anacon.html>).
- 2005. "Five-year Review Report." Retrieved March 7, 2007 (<http://www.epa.gov/Region8/superfund/mt/anaconda/Anaconda5YearReview2005.pdf>).
- 2006. "EPA Superfund Record of Decision Butte Priority Soils Operable Unit, Silver Bow Creek/Butte Area NPL Site." Retrieved January 18, 2007 (<http://www.epa.gov/region8/sf/sites/mt/butte/Section2.pdf>).
- n.d. [a]. "EPA Issues Milltown Reservoir Sediments Record of Decision." Retrieved January 7, 2006 (<http://www.epa.gov/unix0008/superfund/sites/mt/milltowncfr/mrsrod.html>).
- n.d. [b]. "Milltown Reservoir Sediments Operable Unit: Of the Milltown Reservoir/Clark Fork River Superfund Site." [Pamphlet].
- Water & Environmental Technologies (WET). 2005. "Domestic Well Sampling Program Summary Report & Recommendations: Opportunity, Montana." Butte, MT: Author.
- Woessner, William. 1995. "Anaconda Groundwater Injury Assessment Report, Deer Lodge Valley, Montana." Helena, MT: Department of Justice.

APPENDICES

APPENDIX A. OCPA's Mission Statement

As a concerned group of citizens residing in the community of Opportunity, Montana, we hereby form this group with the following mission:

- V: Volunteer time and talents to the OCPA group for the purpose of protecting the residents of Opportunity, now and in the future, from issues arising from the dumping of toxic materials in the Opportunity Ponds.
- O: Offer scientific and other information on the dumping of the Milltown Reservoir sediment and other mining wastes and the possible biological and economical impact to the residents of Opportunity.
- I: Implement a plan of action which the OCPA Board and Members will follow to provide constructive discussions among the media, Environmental Protection Agency (EPA) and state and local government with the residents of Opportunity.
- C: Collaborate with other local entities to apply for funds in the form of grants and other Government assistance for the purpose of furthering the ecological, aesthetic, and recreational values of our property.
- E: Educate the population of Opportunity about the OCPA and its effort to provide a united voice in the decisions made that impact the health and safety of its residents, as guaranteed to us by our Montana State Constitution and Federal Laws.

APPENDIX B. Previous Water Quality Studies

Due to the potential public health and environmental health threats posed by the Anaconda area Superfund site, several past groundwater and domestic well water investigations have been conducted in Opportunity and its surrounding area. These studies include: CDM's April 1994 report for the EPA entitled *Remedial Planning Activities at Selected Uncontrolled Hazardous Substance Disposal Sites in a Zone for EPA Regions VI, VII, and VIII-Domestic Water Sampling In and Near Opportunity, MT Data Summary Report*, Water & Environmental Technologies (WET) 2005 report as part of a Natural Resource Damage Program grant for Anaconda-Deer Lodge County entitled *Domestic Well Sampling Program Summary Report & Recommendations: Opportunity, Montana*, and Woessner's 1995 report for the Department of Justice Natural Resource Damage Litigation Program entitled *Anaconda Groundwater Injury Assessment Report*. The first two studies were domestic well sampling programs, and results showed no contamination in exceedance of the current arsenic and metals standards (WET 2005). The third report characterizes the source, type, magnitude, and extent of the groundwater contamination situation in the Anaconda area, including Opportunity Ponds.

Opportunity residents have expressed concerns about the adequacy of the sampling programs. They were concerned that the wells sampled were not representative of the community as a whole because only a small percentage of households were tested, and there were very few wells tested in the southeastern section of town. Also, even though results of the well testing have not shown contamination in exceedance of the current federal standards, detectable levels of arsenic and other heavy metals, such as copper, iron, zinc, and manganese, have been found in some wells. This point has raised

additional doubt and uncertainty among residents as to the quality of their well water and potential health risks.

APPENDIX C. My Initial Involvement with Opportunity

During the last century of mining activity, metals and arsenic-laden sediments mixed with mine wastes and washed downstream to accumulate behind the Milltown Dam, which was constructed in 1907 and is located at the confluence of the Clark Fork and Blackfoot rivers. In 1983, the Milltown Reservoir site was added to the Superfund list and was designated Milltown Reservoir Sediments Operable Unit (MRSOU) due to the extensive surface water and groundwater contamination. An estimated 6.6 million cubic yards of polluted sediments are currently trapped in the reservoir, and arsenic has impacted the drinking water supply of the community of Milltown, located adjacent to the reservoir. Also, concentrations of copper and other metals pose a toxic health threat to aquatic life within the impoundment and immediately downstream (EPA n.d. [b]). Approximately 2.6 million cubic yards of toxic sediments have been approved for removal when the dam is to be deconstructed (EPA n.d. [a]).

Initially, the sediments were to be stored at nearby Bandmann Flats, but after considerable opposition by Missoula residents, environment groups, and elected officials including United States Senator Max Baucus, the repository site was changed to Opportunity Ponds (Cobler et al. 2005). Residents of Opportunity have expressed concerns regarding the potential for contamination from the addition of these toxic sediments to the Ponds, and they have been frustrated by the manner in which the decision to select Opportunity Ponds was made. Prompted by the desire to understand the community's perspective on the Milltown Dam issue, six other graduate students and I collectively conducted research as part of Professor Robin Saha's *Community Responses to Toxic Contamination* Spring 2005 course.

During the academic course, we researched EPA's revised decision by reviewing the EPA Record of Decision and analyzing EPA meeting notes, public comments, consultants' reports, and relevant newspaper articles. We also interviewed involved stakeholders from both upriver and downriver of the Milltown Dam. The class investigated the possibility that Opportunity residents had been subjected to an environmental injustice. A community meeting was held on April 13, 2005, to help us learn more about the water quality and health concerns of residents, as well as their concerns about Opportunity Ponds as a potential source of contamination. Also at the meeting, residents generated ideas for possible solutions to address these concerns, as well as the continual lack of participation in government decisions that affected them.

Our efforts in supporting and assisting the citizens in their struggle led to positive media attention and public awareness of their situation. News articles were published in the *Anaconda Leader*, *Montana Standard* (Butte), *Missoulian*, *Missoula Independent*, and *The New York Times*. By summertime, the citizens group named Opportunity Citizens Protection Association (OCPA) was formed. Our efforts also led to the involvement of technical support from groups such as the Clark Fork River Technical Assistance Committee (CFRTAC). Out of concerns about water quality, the adequacy and scientific rigor of WET's sampling program, and air quality, Jim Kuipers of CFRTAC compiled the reports *Domestic Well Water Quality and Risks from Superfund Sources: Opportunity, Montana* (2005a), and *Air Quality and Risks from Superfund Sources: Opportunity, Montana*, (2005b) in October 2005. I was also involved in assisting Dr. Saha with comments in an evaluation of Kuipers' water quality report. Our comments

were titled: *Comments on CFRTAC's Oct. 11, 2005 Domestic Water Quality Report for Opportunity* (2005).

This qualitative research was important in maintaining my involvement with the progression of the community in their struggle to be heard and valued in their current situation and the decisions that affect them so personally.

APPENDIX D. Methods and Data Analysis – Additional Information

In order to maintain the flow of the paper, some details have been reserved as supplemental information and provided in this appendix. Additional details about procedures used during the interview protocol development, focus group sessions, sampling of focus group participants, and data analysis are provided below. Also included is a discussion on follow-up interviews; only one participant fit my criteria and was interviewed further.

Interview Protocol Development

Focus Groups: A Practical Guide for Applied Research by Krueger and Casey (2000) was consulted when developing the basic interview protocol format. Initial questions were general and intended to initiate conversation within the group, create a comfortable atmosphere, and thereby, enhance the quality of the discussions as suggested in Krueger and Casey (2000). These introductory questions were straightforward and objective in nature. Subsequent questions were devised in a manner that would focus the discussions to the core issues of the research study: water quality concerns, dust concerns, stigma, and residents' opinions of OCPA as a citizens group. Additional probing questions (probes) were also prepared to generate further responses and stimulate discussion as needed. Some questions were modified slightly for the focus group involving OCPA members (see Appendix E for interview protocol and probes).

Focus Group Sessions and Individual Follow-up Interviews

Focus Group Sessions

With the verbal consent of everyone present, the focus group sessions were audio-recorded in order to maintain accuracy during later analysis. Electronically recorded data

was supplemented with field notes taken by the outside observer and myself, paying attention to conspicuous observations of the group's mood, individuals' actions and behaviors, and participants' interactions with each other (Krueger 1998; Lobdell et al. 2005).

After the sessions concluded, it was my intent to choose between one and three participants from each of the sessions to examine their perspectives in a more in-depth personal interview at a later time. I intended to target residents who seemed reluctant to speak or express themselves candidly, perhaps because they held minority views.

Contrary to my expectations, there were only two participants who fit the targeted profile. However, one of two participants chiefly supported her spouse's views and did not seem as though she would be receptive to further interview; therefore, only one participant was contacted for a follow-up interview. Everyone else was fairly candid and seemed able to express their opinions without hesitation or restraint. I interviewed this sole resident by telephone in order to examine opinions and perceptions that were not presented during the group session. Information was documented by taking detailed written notes during the phone conversation, which were later transcribed.

Sampling of Focus Group Participants

Potential participants were contacted by telephone and invited to participate using a prepared script approved by IRB. From a list of 57 potential participants, I was able to contact 46 residents, of which 15 agreed to partake in the focus group study. Many of the people contacted were either too busy because it was summertime, or they were just not interested. There were a sufficient number of participants to establish two separate focus groups. I also conducted a third focus group session that was composed strictly of OCPA

members. These people were recruited after I contacted OCPA and asked for members who would participate. Overall, a total of 21 community residents participated in the research study.

Data Analysis

The coding technique used during data analysis was based on procedures used in Hasenbank's (2005) study and was consistent with traditional qualitative coding processes (Glesne 1999; Patton 2002). A summary of Hasenbank's data analysis procedure and how it was used for this study is included below. These details serve as supplemental information to descriptions already provided in the data analysis section of the paper, above.

Participant comments, hereafter used interchangeably with "responses," from the interview transcripts were separated into individual cells of a spreadsheet under the column labeled Comment (see Figure 5 for example). Responses were recorded on two separate spreadsheets. This was determined by participant type, i.e. whether they were an OCPA member or another community resident (OCPA members are community residents as well); therefore, OCPA members' responses and community residents' responses were recorded on separate spreadsheets labeled as such.

For organizational purposes, each comment was assigned a context, pseudonym, and a number (see Figure 5 below). When the data were later sorted, the number assigned to each comment helped to retain the original order of responses, and therefore context, given during the interview. The context identified the central topic of discussion

Context	Major Code	Subcode	Who?	Number	Comment
Well water	ARCO's Role	Feeling Ignored	1 Brian	500	Or I think they're (ARCO) going to dump anything and everything in there (Opportunity Ponds). We don't have a say what goes in there.

Figure 5. Sample of Coding Procedure Using Excel Spreadsheet

when the response was given during the interview; the contexts used were Well Water, Dust, Stigma, OCPA Topic, and Other Concerns. Data from the two telephone interviews were incorporated into the community resident spreadsheet using italics to set them apart from the group data.

After all transcription content was transferred to the spreadsheet, I assigned each response a preliminary major code and sub code to identify the main idea expressed in that response (Glesne 1999). An example of a preliminary major code and sub code used is shown in Figure 6, below. Once the preliminary coding was finished, the coding

Context	Major Code	Subcode	Who?	Number	Block of Text
Stigma	Negative Reputation	Outsider Perception	Frank	4640	I've heard remarks, you know, about Opportunity because of being a dump out here and well not even just Opportunity. There's people that kind of throw Anaconda, the whole area into it.

Figure 6. Example of Preliminary Codes

system was repeatedly revised as I examined similarities, tabulated comments, and merged rarely-used codes into other theme categories. This resulted in ten major themes (major codes), 38 distinct sub themes (sub codes), and 716 relevant, coded comments¹⁶ (see Figure 7 for list of codes). Further analysis led to the collapse of these ten original themes into five broad theme categories, along with their coherent sub themes, and they were labeled: Health, ARCO-BP's Role, OCPA Organization, Lack of Information, and Stigma (see Figure 8 for collapsed list of codes).

¹⁶ These comments were relevant to the study and Superfund-related topics. The remaining 134 comments (of the 850 total comments) were considered not relevant because they contained only superficial information or otherwise did not pertain to the study objectives.

Major Code	Sub Code
Health	Awareness of Illness
Health	Health Study
Health	Contaminants of Concern
Health	Dust
Health	Not Concerned About Dust
Health	Other

Public Water System	History
Public Water System	Prefer Own Well
Public Water System	Septic System
Public Water System	Support Preventative Measure

ARCO's Role	Agreeable to ARCO's Methods
ARCO's Role	Compensation
ARCO's Role	Do Not Trust ARCO
ARCO's Role	Feeling Ignored by ARCO
ARCO's Role	Long-term Plan
ARCO's Role	Proper Maintenance
ARCO's Role	Who's Responsible

Participation in OCPA	Interested
Participation in OCPA	Knowledge of OCPA
Participation in OCPA	Not Interested
Participation in OCPA	Selective Membership

OCPA Representation of Community	Not Representative
OCPA Representation of Community	Representative
OCPA Representation of Community	Suggestions
OCPA Representation of Community	Supportive of OCPA's Efforts

Lack of (Accessible) Info	Discrepancy in What's Contaminated
Lack of (Accessible) Info	Monitoring
Lack of (Accessible) Info	More Involvement from Gov't
Lack of (Accessible) Info	No Disclosure of Info
Lack of (Accessible) Info	Pesticide Spraying
Lack of (Accessible) Info	Uncertainty

Negative Reputation	Addressing Negative Image
Negative Reputation	Doubts About Living in Opportunity
Negative Reputation	Outsider Perceptions

Economical Impact	Devaluation of Property
Economical Impact	Loss of Business

Preserving Rural Quality	Community Pastures
Preserving Rural Quality	Loss of Individuality
Preserving Rural Quality	Other

Figure 7. Preliminary List of Major Codes and Sub Codes

As discussed in Hasenbank's (2005) paper, the sorting tool of the spreadsheet program was used to facilitate data analysis. Data could be sorted alphabetically by major code, sub code, and participant name, or be put back into their original order by sorting by the number previously assigned to each participant comment. In this way, the comments can be viewed in their original context and can thus be analyzed more accurately. Sorting the data also allows the researcher to detect areas of agreement and dissent regarding emergent themes and select relevant quotes that illustrated these themes¹⁷.

Theme (Major Code)	Sub Code
Health	Awareness of Illness
Health	Health Study
Health	Contaminants of Concern
Health	Dust
Health	Not Concerned About Dust
Health	Other
Health	Public Water System

ARCO's Role	Agreeable to ARCO's Methods
ARCO's Role	Compensation
ARCO's Role	Do Not Trust ARCO
ARCO's Role	Feeling Ignored by EPA/DEQ/ARCO
ARCO's Role	Long-term Plan
ARCO's Role	Proper Maintenance
ARCO's Role	Who's Responsible

OCPA Organization	Representation of Community
OCPA Organization	Participation in OCPA

Lack of Info	Discrepancy in What's Contaminated
Lack of Info	Monitoring
Lack of Info	More Involvement from Gov't
Lack of Info	No Disclosure of Info
Lack of Info	Pesticide Spraying
Lack of Info	Uncertainty

Stigma	Economic Impact
Stigma	Negative Reputation

Figure 8. Final List of Major Codes and Sub Codes

¹⁷ See Hasenbank's (2005) paper for additional information.

APPENDIX E. Focus Group Interview Protocol

Opening

- 1) Okay, so let's begin! To get started, I'm going to go around the room and have everyone say their first name, how long they've lived in Opportunity, and what their favorite thing about the community is. So, first name, how long in Opportunity, and favorite thing...Let's start with....

Introductory

- 2) Who would like to tell me a little bit about the nearby Opportunity Ponds just for some background info?
- 3) I know that some people in town have some concerns about living next to Opportunity Ponds. Do any of you have concerns?

QUESTIONS:

Well Water

I know there was a study done within the last five years on Opportunity's well water. Some people in town have been concerned about the quality of their well water.

- 4) With a show of hands, how many people here are concerned about their well water, either now or for the future?
- 5) Would anyone like to share how or why they are concerned?
- 6) Is anyone's quality of life being affected as a result of these concerns and if so, how?
Can you tell me a little bit more about that?
Who else feels the same way?
Does anybody else have anything to add?
- 7) Is there someone or something you feel is responsible for the concerns about your well-water?
- 8) What actions, if any, would you like to see done to address your concerns?
Can you tell me a little bit more about that?
Who else feels the same way?
Does anybody else have anything to add?
- 9) What do you need to know or would like to know more about your well water?

Dust

- 10) Okay, let's move onto the dust issue: Some people in town have been concerned about the dust coming from the Opportunity Ponds area, or from the maintenance trucks hauling materials. Is anyone here concerned? With a show of hands, how many are concerned?
- 11) Would anyone like to share how or why they are concerned?
- 12) Is anyone's quality of life being affected as a result of the dust and your concerns about it? And if so, how?
Can you tell me a little bit more about that?
Who else feels the same way?
Does anybody else have anything to add?
- 13) Is there someone or something you feel is responsible for the dust problem?

- 14) What actions, if any, would you like to see done to address your concerns?
 Can you tell me a little bit more about that?
 Who else feels the same way?
 Does anybody else have anything to add?
- 15) What do you need to know or would like to know more about the dust problem?

Stigma

Okay, let's move on to another topic: In other communities near Superfund sites across the country, there is the perception from non-residents that a community is "tainted" and should be avoided.

- 16) Does anyone here feel that other Montana communities see Opportunity in a negative light because of Opportunity Ponds? Can I have a show of hands of who feels this way?
- 17.a) Why do you think that is?
 Who else feels the same way?
 Does anybody else have anything to add?
- 17.b) Does anyone disagree about non-residents seeing Opportunity in a negative light?
- 18) For those of you who feel Opportunity is seen in a negative light, has this affected you personally?
 PROBE: I'm hearing that its affected some of you in...way, has it affected anyone in some other ways, such as...emotional, health, economical, property values?
- 19) What are some ideas of ways to overcome this in the community?

OCPA—Community residents

Okay, let's move on to the topic of the local citizen's group called OCPA, which stands for the Opportunity Citizen's Protection Association.

- 20) With a show of hands, how many people know about OCPA?
- 21) Who can tell me a little about OCPA?
 [Does anyone else have something they want to add?]
- 22) How many here have received their newsletter?
 Do you read the newsletter? (any comments?)
- 23) How many here have been to any of the OCPA community meetings, such as the Dust Meeting held in March, there's also been a well water meeting last year?
- 24.a) For those of you familiar with OCPA, I'd like to know with a show of hands, how many of you feel OCPA represents the community well?
- 24.b) Okay, can you tell me some ways OCPA represents the community well?
- 24.c) And for those of you who feel they do not represent the community well, in your opinion, how could they better represent the community?
 Could you say a little more about that?
 Does anybody else have anything to add?
- 25) Are any of you interested in participating in OCPA? Why or why not?
 What could OCPA do to motivate or help you to participate in the group?
- 26) What kinds of specific goals or actions for OCPA would you support and which ones not?

**I'm going to list a few and tell me if they strike accord with you:

Public water system, Sewer system, Dust control, Well-water testing for everyone, and Acquiring the Beaver Dam property and school to turn into something for the community,

24) Now lets try to prioritize them as a group. Which items on this list do you think OCPA should focus on first? Let me repeat the list.

25) One last question--What do you need to know or would like to know more about OCPA?

OCPA—Modified section for OCPA members

Can someone tell me a little about OCPA – the group's goals and issues it's interested in? Does anyone else have something to add?

- How well do you feel OCPA represents the community?
- In your opinion, why do you think residents should participate in OCPA?
- Which of OCPA's issues do you think the community would most likely support and why?
- What would you like the community to know about your organization?

Ending

27) Is there anything that we should have talked about but didn't? (Summarize)

APPENDIX F. Participant Information and Consent Form

Focus Groups and Follow-Up Individual Interviews in Opportunity, MT:

Participant Information and Consent Form

Researcher Contact Information:

Kate Hasenbank
Environmental Studies Graduate Student
University of Montana
Phone: (406) 587-0635

Faculty Supervisor:

Dr. Robin Saha
Assistant Professor, Environmental Justice
University of Montana
Phone: (406) 243-6285

TITLE: Achieving Environmental Justice for the Community of Opportunity, MT:
An Assessment of Superfund Concerns

PROJECT DIRECTOR: Kate Hasenbank
University of Montana
Environmental Studies Program, RH 18
Missoula, MT 59812-4320
406-587-0635

Special instructions to the potential participant:

* This consent form may contain words that are new to you. If you read any words that are not clear to you, please ask the person who gave you this form to explain them to you.

Purpose:

*This study is a professional paper for the project director's master's degree in Environmental Studies at the University of Montana.

*The purpose of this study is to use focus groups to explore Opportunity residents' concerns and opinions regarding issues related to living in a community surrounded by contaminated mining-related wastes, such as the Opportunity Ponds area. Specific concerns to be examined include those related to air, dust, water, social and economic stigma, and the current effectiveness of the local citizen's group called Opportunity Citizens Protection Association, or OCPA.

*The information gathered during this study will be used to help OCPA, the local citizen's group, prioritize their goals, which will help them more effectively involve community members such as yourselves and represent you on Superfund-related issues.

Procedures:

*If you agree to take part in this research study you will be participating in a focus group. Participants will be gathered together to be interviewed as a group (six to eight participants per group) to discuss issues related to air, dust, water, social and economic stigma, and the current effectiveness of the local citizen's group called Opportunity Citizens Protection Association, or OCPA. The project director will be serving as the moderator, or interviewer.

*You will be asked to participate in the discussions during the focus group by expressing your concerns and opinions.

*You will be asked (participation is voluntary) to fill out a background questionnaire at the beginning of the focus group session.

*You may be asked to participate in a follow-up individual interview at a later date and separate from the focus group.

The study will take place at the Opportunity Community Club in Opportunity, Montana.

The focus group session will last for no more than two hours.

Risks/Discomforts:

*Answering the questions may cause you to think about feelings that make you sad or upset. If you have these feelings, you can leave the group at any time and/or you should consult your physician or a counseling professional.

Benefits:

* There is no promise that you will receive any benefit from taking part in this study.

* Your help with this study may help the local citizen's group of OCPA better represent the community on Superfund-related environmental issues and concerns in the Opportunity area.

Confidentiality:

*Your identity will be kept confidential at all times and will not be used during the analysis of the data or in the written report.

* Only the project director and her faculty supervisor will have access to files associating your identity to the collected focus group data.

* All data will be stored in a locked file cabinet.

* Your signed consent form will be stored in a cabinet separate from the data.

* The audiotape used to record the focus group session will be transcribed without any information that could identify you. The tape will then be erased.

Compensation for Injury

*Although we believe that the risk of taking part in this study is minimal, the following liability statement is required in all University of Montana consent forms.

“In the event that you are injured as a result of this research you should individually seek appropriate medical treatment. If the injury is caused by the negligence of the University or any of its employees, you may be entitled to reimbursement or compensation pursuant to the Comprehensive State Insurance Plan established by the Department of Administration under the authority of M.C.A., Title2, Chapter 9. In the event of a claim for such injury, further information may be obtained from the University's Claims representative or University Legal Counsel.” (Reviewed by University Legal Counsel, July 6, 1993)

Voluntary Participation/Withdrawal:

- * Your decision to take part in this research study is entirely voluntary.
- * You may leave the study for any reason.

Questions:

- * If you have any questions about the research now or at any time, please contact: Kate Hasenbank at 406-587-0635
- * If you have any questions regarding your rights as a research subject/participant, you may contact the Chair of the IRB through The University of Montana Research Office at 243-6670.

Participant's Statement of Consent:

* I have read the above description of this research study. I have been informed of the risks and benefits involved, and all my questions have been answered to my satisfaction. Furthermore, I have been assured that any future questions I may have will also be answered by a member of the research team. I voluntarily agree to take part in this study. I understand I will receive a copy of this consent form.

Printed (Typed) Name of Participant: _____.

Participant's Signature

Date

APPENDIX G. Demographics Questionnaire

All information given here is anonymous and will be kept confidential. The purpose of this questionnaire is to gather general background information from participants to see how the focus groups represent the community. If you have any questions, please feel free to ask me.

1. For how many years have you lived in Opportunity? _____
2. What street do you live on? _____
What is the nearest cross-street? _____
3. What is your marital status? (circle one) Single Married Widowed Other _____ (explain)
4. What is your age group? (please circle one)
18-29 30-39 40-49 50-59 60-69 70+
5. What is your current occupation?

If you are retired, what was your former occupation?
6. Do you have children that live in Opportunity? Yes _____ No _____
If yes, please list their ages:
7. Do you have grandchildren that live in Opportunity? Yes _____ No _____
If yes, please list their ages:
8. Are you a homeowner, or do you rent your home or apartment?

Thank you!

APPENDIX H. Participation Levels – Additional Figures

As shown in Figures 9 and 10, participant contributions were fairly comparable in each of the community resident focus groups. Also, the majority of participants contributed comments to all five of the prevailing themes. This additionally supports my assertion that the identified themes came from broadly held views.

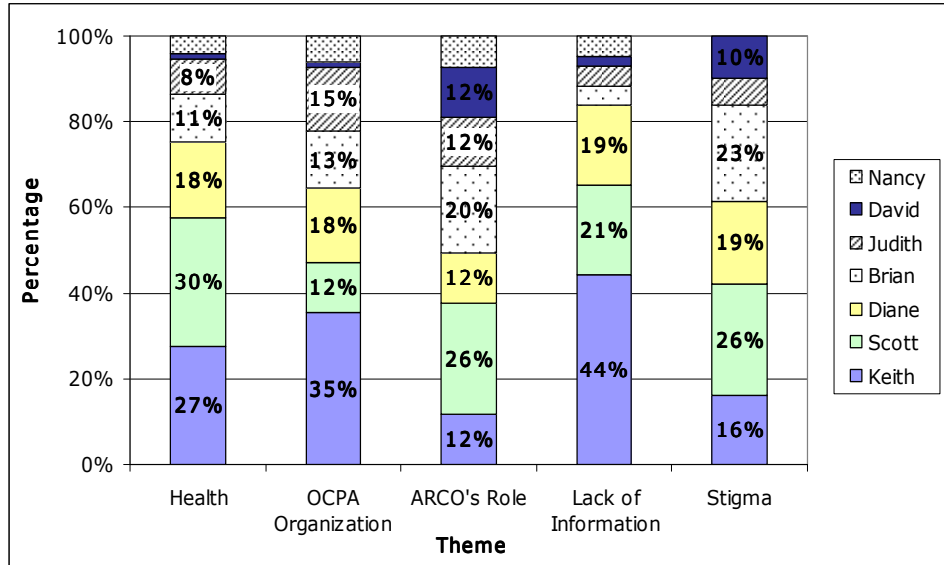


Figure 9. Participant Contribution to Total Comments per Theme for Focus Group 1

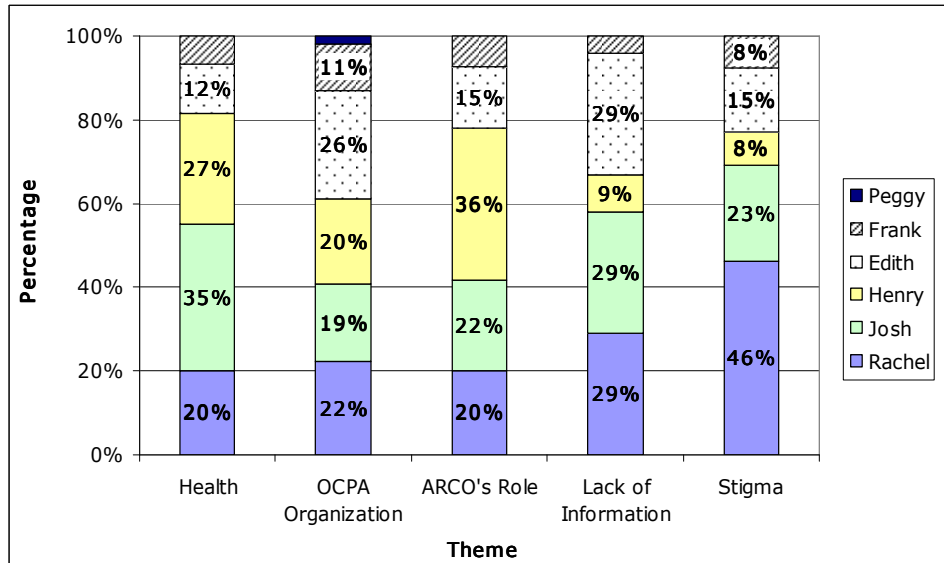


Figure 10. Participant Contribution to Total Comments per Theme for Focus Group 2