

The permitting and public relations of controversial projects in mining

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Tunderstand why the average American views mining with trepidation, historical context must be established as a framework for interpretation and public relations (PR) improvement.

Culture is impacted by nature, from the food we eat to the minerals we mine (Rogers and Steinfatt, 1999), and this mutual connection is termed natureculture (Okrusch, 2010). The natureculture that developed around mining relies on the historical image of the industry, which reinforces the misperception that mining and environmental stewardship are mutually exclusive. PR in modern mining struggles to present the new standard of mining and show the public why mining is essential. Figure 1 illustrates the vast mineral demand that mining strives to meet for each American (Minerals Education Coalition (MEC), 2020), but this demand has been overshadowed by mining's environmental history.

The mining industry has changed both technologically and culturally. These changes have been slow, which encourages many to continue viewing mining and environmental consciousness as mutually exclusive. This popular perception of mining turns modern mining engineers into marginalized persons, which increases the difficulty of effective communication since the marginalized person lies outside of his/her adjacent culture groups (Ellemers and Jetten, 2012; Rogers and Steinfatt, 1999). This controversial dynamic will be analyzed through two case studies in this article: Pebble Mine, owned by Northern Dynasty Minerals (NDM), and Black Butte, owned by Sandfire Resources America Inc. (SRA).

Pebble has, to date, failed in all of its attempts to become permitted due to concern for the water and the fish. Black Butte dealt with the same problems, on a smaller scale, but was able to become permitted. These two mines will be discussed in detail including local history, mine setting, mining history in America, prevalent culture groups, technology development and intercultural communication competence (ICC). The mining industry needs to evaluate its ICC skills since ICC directly determines the effectiveness of PR. Based on Barna's Stumbling Blocks for intercultural communication, methods for improving the mining industry's PR will be

Figure 1

Mineral demand for every American (MEC, 2020).



suggested in the hope of easing the permitting process for future mines by developing ICC.

Origins of a controversial industry

Mining has a long, complex history that has been fraught with controversy and discord. This article focuses on mining in North America, beginning in the 18th century, specifically as it relates to the states of Alaska and Montana. During the 18th century, reclaiming mined land was not a consideration, and federal regulations for mine permitting and reclamation bonding were not established until the 1970s (Environmental Protection Agency (EPA), 2021). Mining has a history of interpersonal controversy as well since conflict enveloped early American mining as people fought for power, influence and wealth.

Negative public image

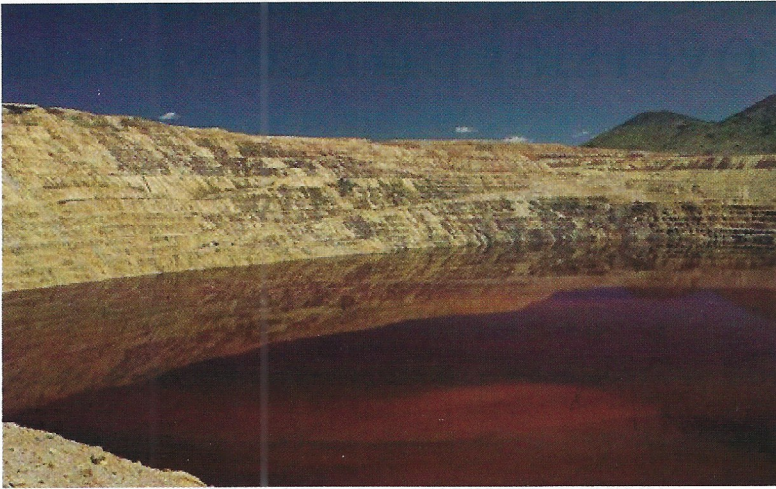
The Berkley Pit, shown in Fig. 2, began mining in the mid-1950s (Anaconda Co., 2016) and ceased operations in 1982 (Obscura, 2013). It is currently the largest superfund site (EPA, 2021) in the United States, and as such, receives persistent media attention that reinforces the collective cultural conscious perception of mining as consistently yielding environmental disasters.

The most recent major media attention the pit received was in

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Figure 2

The Berkley Pit in Butte, MT (Obscura, 2013).



December 2016 when a large flock of migrating snow geese landed on the pit. The Audubon Society initially estimated that the flock was approximately 10,000 birds, but later estimates ran as high as 25,000. Thousands of the birds died from kidney failure after ingesting heavy metals from the acidic pit water (Opar, 2016). This event made national news, and this is sadly the type of news that people expect to hear about mining. Derogatory aspects of mining history are better known and more publicized than responsible mining and successful reclamation. Consistent reminders of mining's historical character taints the lens through which society views and understands the modern industry, which presents numerous challenges for mines striving to create and maintain positive PR.

Proactive approach

The negative side of the mining industry's history makes it easy for many to overlook mines and companies that demonstrate best practices. Stillwater Mine, which is currently owned by Sibanye Stillwater, is an underground platinum and palladium mine that has been operational in Montana since 1986 (Montana Department of Environmental Quality (DEQ), 2021). The mine is located near the Stillwater River, which connects to Yellowstone River as shown in Fig. 3 (Stillwater Mining Co., 2016). Without any legal or regulatory obligation, Stillwater created a legally binding good neighbor agreement (GNA) with those adjacent to the active mine site to uphold best mining practices regarding personnel and environmental safety (The Local, 2017; Sibanye Stillwater, 2021).

Stillwater created its first GNA in 1998 (Company Histories, 2021), which holds the mining company accountable to a higher standard of environmental practice than is set forth in the law to "proactively address issues that may impact the livability and safety of the

neighborhoods" this business operates in (The Local, 2017). The GNA shows that Stillwater heeds the public's concerns and knows the importance of environmental stewardship (Sibanye Stillwater, 2021; The Local, 2017). While GNAs are relatively common in other businesses and industries, Stillwater was the first company to apply this type of contract in the American mining industry (The Local, 2017). It has worked wonders for its PR and facilitated their permitting for continuing development and operations (Sibanye Stillwater, 2021).

Another excellent example of the modern mining culture is Perpetua Resources, formerly Midas Gold. The company is going above and beyond federal and state regulations in its environmental practice as shown in its proposed mining development in central Idaho, the Stibnite Gold Project. The Stibnite site is a historical mining area that suffered from the negative consequences of poor historical mining, but Perpetua worked restoration into the initial mining phases as well as planning for closing reclamation. Perpetua plans to reclaim the area by fixing obstructed waterways, reducing historic mine drainage, and treating soil affected by high arsenic and antimony concentrations (Perpetua Resources, 2020). This project demonstrates how well mining and environmental stewardship go together, and it proves that fish and mining projects can coexist. Companies like Perpetua and Sibanye are setting a new standard for the mining industry, and their current work practices are expressions of the modern culture in the mining industry.

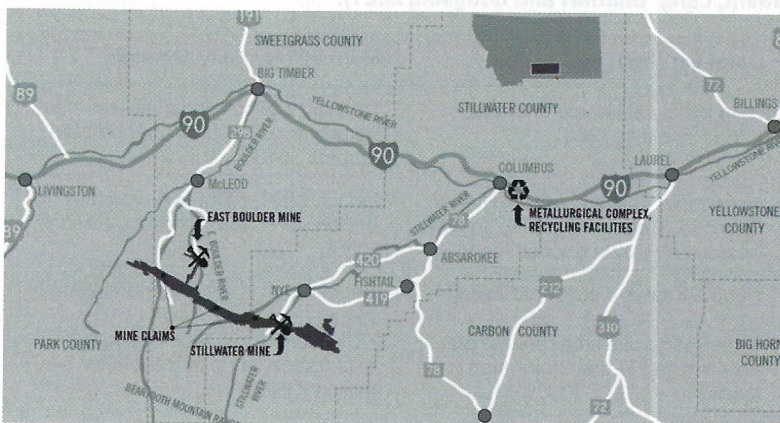
Cultural and communication shifts

Growth of environmental consciousness. Acid mine drainage is a common side-effect of abandoned metal or coal mines with sulfurous host rock, and this has proven especially troublesome in Silver-Bow county. The county is still dealing with the Berkley Pit, and will continue mitigating this mining disaster into perpetuity (EPA, 2021). Many smaller mines have been abandoned throughout Alaska and Montana since mine abandonment was essentially viewed as mine closure from the 18th century into the late-20th century (Alaska Miners Association, 2021; Montana DEQ, 2021). Historic miners did not consider sustainability or the ramifications of their actions on future generations of miners. The magnitude of this problem today continues to depict mining as environmentally irresponsible despite the enforcement of modern EPA regulations as part of best practices.

Standardized environmental regulations did not appear until 1948 when the Federal Water

Figure 3

Map of the Stillwater Mine and adjacent bodies of water (Stillwater Mining Co., 2016).



Pollution Control Act, which was later revised as the Clean Water Act (CWA), was passed (EPA, 2021). Roughly two centuries of poor environmental practice had its effect on water in America, and when this pollution control act was passed, only one third of the waters in the United States were considered clean water. Waterways in industrial areas and near mines were becoming increasingly polluted between 1956 and 1966 (EPA, 2016; Rinde, 2017). The EPA was officially formed in 1970 (Wisman, n.d.), and it immediately took action to change the national landscape and cater to a “grassroots movement” to “do something” about the deteriorating conditions of water, air, and land (Rinde, 2017).

This shift in America was a response to natureculture’s demand for action. Pollution of America’s waterways occurred in the ecosphere, but the ecosphere is twined with semiotics (EPA, 2016; Okrusch, 2010). Semiotics are signs and symbols with meanings, and semiotics collectively form the semiosphere. The semiosphere shapes culture and “is an integral part of the ecosphere.” This interaction is essential for showing how nature, the lifeworld, forced a culture shift; it also

provides context for interpreting culture clash surrounding mining projects (Okrusch, 2010).

The EPA enacted approximately 1,500 rules per year during its first five years, including revisions to old regulations, such as the CWA, that had been ignored or presumed obsolete. As a federal agency, the EPA establishes the minimum standard for all 50 states, but the states have authority to make environmental regulations stricter than the EPA’s base rules as they see fit. While the EPA works with many organizations,



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Table 1

Pebble Limited Partnership ownership history (courtesy of Gaunt, Lang, Ghaffari and Hodgson, 2021).

Cominco (Teck Resources)	Northern Dynasty Minerals
Held initial ownership after discovering Pebble in 1984.	Detailed environmental assessment begins in 1997 but is not completed until 2013.
Uses their Alaskan branch, Hunter Dickinson Group Inc. (HDGI), to hold interest in Pebble deposit lands.	In Oct. 2001, NDM acquires part of the property from Cominco through HDGI.
Pebble East is discovered in 2004.	Pebble East is discovered in 2004.
Teck Resources sold their 50 percent interest in the exploration lands.	NDM purchases Teck Resources' exploration lands at Pebble for \$4 million (USD).
HDGI sells their 20 percent interest in Pebble in 2006; Cominco no longer holds any interest in the area.	After acquiring the last of HDGI's ownership in Pebble, NDM has complete ownership of the deposit.
All information in this table is sourced from Pebble's 43-101 (Gaunt, Lang, Ghaffari and Hodgson, 2021).	Unable to fund 100 percent ownership, NDM forms the Pebble Limited Partnership through a joint venture with Anglo American.

one of its primary partners is the U.S. Army Corps of Engineers (USACE) (USACE, 2021). The USACE was established in 1802 and its mission statement revolves around “engineering solutions, in collaboration with our partners, to secure our Nation, energize our economy, and reduce disaster risk.” USACE provides technical analyzes on projects regarding environmental safety, especially projects that might impact navigable waters. The USACE had been active in evaluating the Pebble Mine permitting process (Pebble Limited Partnership (PLP), 2021), but it was not involved in permitting for Black Butte (Ronald, Evans and Williamson, 2020).

Communication platforms. Understanding environmental history is essential for providing a framework to interpret the case studies, but to see how PR and intercultural communication competence (ICC) have developed, we also need to look at technology growth. Black Butte and Pebble were officially discovered in the 1980s (Gaunt, Lang, Ghaffari and Hodgson, 2021; Ronald, Evans and Williamson, 2020), and the non-face-to-face modes of communication at the time were limited since the internet did not yet exist (Aspray and Ceruzzi, 2008). When the internet was invented, it permanently changed the semiosphere. Social media platforms are intended to facilitate interpersonal connections, but these platforms rapidly become news sources. Using social media as a primary news source facilitates the spread of misinformation (Vosoughi, Roy and Aral, 2018). While these platforms provide diverse means for mining to communicate and develop PR, they also increase the volume of opposing sources. Public exposure from

individuals can impact how mines are perceived, even if the mine has a social media presence. Studies showed that false information spread faster than factual information via social media (Vosoughi, Roy and Aral, 2018), and by shifting interpersonal interactions to the digital realm there is further room for miscommunication since common social cues, such as body language, voice and tone are removed (Chaffey, 2021). This negatively impacts the permitting process for developing mines since people share the collective cultural consciousness that mining practices have not changed from those of the past. This perception haunts the modern industry, and its effects are visible in the permitting and public relations of controversial projects, as shown through Pebble Mine and Black Butte.

History of the case studies

Case study selection. The Pebble Mine and Black Butte case studies used for this article were selected because both are categorized as in development copper mines, and both projects face environmental backlash for risk to adjacent fish populations (Gaunt, Lang, Ghaffari and Hodgson, 2021; Ronald, Evans and Williamson, 2020). The current permitting progress for each mine is this paper’s ultimate metric of each project’s success.

Pebble Mine. The Pebble deposit history traces back to 1984 when Cominco Alaska discovered the Sharp Mountain gold prospect near the southern margin of the current property (Gaunt, Lang, Ghaffari and Hodgson, 2021). A pilot flying near the Sharp Mountain Range noticed geologic discoloration, which led to drill sampling and the official discovery of Pebble in 1989. The mine is in southwest Alaska, north of Lake Iliamna.

The deposit is massive, and based on the current development plan, it would mine an estimated 1.5 billion tons over 20 years via openpit mining methods (PLP, 2021). The scale of the prospective mine caused the public and environmental agencies to balk, forcing PLP to redesign its first mining phase. PLP applied for permitting with the smaller design on Dec. 22, 2017, but the EPA denied the permit application, citing 404c in the CWA regulations. Input from the USACE was instrumental to this decision, and following the verdict, PLP appealed the permitting decision. The USACE requested an environmental impact statement (EIS) from Pebble on Jan. 8, 2018. A preliminary site assessment was completed in 2011, but to ensure information accuracy, Pebble issued a full EIS per EPA regulation and request of the USACE.

The EIS draft was issued in early 2019, but the final EIS was not released to the public until July 24, 2020 (Gaunt, Lang, Ghaffari and Hodgson, 2021). The most recent permit application was denied again by the USACE, and Pebble is continuing to fight the verdict with a request for appeal against the USACE on Jan. 21, 2021 (PLP, 2021). Ownership details for Pebble from its discovery to the formation of PLP are detailed in Table 1.

Black Butte. Black Butte is a mine being developed by SRA near White Sulfur Springs, MT (Ronald, Evans and Williamson, 2020). The movement to develop this deposit formed when local ranchers noticed indicator minerals on their property and learned about its potential. They contacted geologist Jerry Zieg, who was born and raised in White Sulfur Springs (Sandfire Resources of America Inc., 2021). After some investigation and testing, Zieg and his team officially discovered the Johnny Lee deposit in 1985 (Ronald, Evans and Williamson, 2020).

The Black Butte site has a long history of unsuccessful attempted mining. The earliest known attempt was in 1894 when two local ranchers sank a 30-m (99-ft) shaft 500 m (1,640 ft) west of the current deposit. They encountered heavy copper oxidation, which halted any serious mining development at the time. They periodically tried to continue their efforts, but oxidation prevented further development. Another homesteader, Johnny Lee, settled directly over the deposit in 1906, and in 1910 he sank a 15-m (50-ft) shaft over the deposit, which he worked intermittently until 1922. Like the other two ranchers, Lee encountered a large amount of oxidation that deterred serious mining endeavors. The Black Butte Mine named the deposit after Johnny Lee since he mined directly over the deposit (Ronald, Evans and Williamson, 2020).

The Anaconda Co. held mineral rights from 1977 to 1984 for the Johnny Lee deposit area (Ronald, Evans and Williamson, 2020), which was during the same time that the Atlantic Richfield Co. (ARCO) acquired the Anaconda Co. as a subsidiary (Anaconda Co., 2016). Cominco America Inc. (CAI), the company that discovered the Pebble deposit, held mineral leases near the Johnny Lee deposit from 1984 until 1990 when the price of copper dropped (Ronald, Evans and Williamson, 2020). Tintina Resources gained a controlling interest in the deposit's mineral rights by 2010, and then Sandfire Resources NL acquired a controlling interest in Tintina Resources Inc. in 2014. By 2019, Sandfire rebranded its American branch

Sandfire Resources America Inc. (Ronald, Evans and Williamson, 2020).

SRA currently holds three leases in the area that encompass all the Z Bar tract and all three leases are valid until 2040 with options to renew every 10 years (Ronald, Evans and Williamson, 2020). In spite of obstructions to mine development, SRA achieved mine permitting for Black Butte on the Johnny Lee deposit (Schlepp, 2021). The first mine operating permit application was submitted to the Montana Department of Environmental Quality in December 2015, and it underwent three revision phases before the final mine operating permit was issued in August 2017. When the technical report NI 43-101 was published on Dec. 10, 2020, 13 permits were already approved, but there were 27 remaining permits to be completed prior to mining (Ronald, Evans and Williamson, 2020).

With the current permit status, Black Butte aims to begin production early in 2022, and has already begun surface infrastructure development. Pending the approval of additional permits, SRA will develop the portal for underground mining (Schlepp, 2021). A draft EIS was submitted in March 2019 and the final EIS was submitted one year later and approved by the regulatory agencies (Ronald, Evans and Williamson, 2020).

Fundamentals of miscommunication

Tying it together. The unifying factor between these two mines is the fish: people rallied against both of these projects to protect fish in semiadjacent waterways (PLP, 2021; Sandfire Resources of America Inc., 2021). PLP never moved past the USACE review of its EIS, but it faced more vocal dissent than SRA since Alaska's economy is significantly more dependent on fishing than Montana's (Earth Justice, 2021). The actual location of both mines is generally misunderstood by many opposition groups and their supporters. This is expressed through semiotic association, such as the Black Butte mine being called the 'Smith River Mine' (Montana Trout, 2021) as well as Pebble opposition groups using the rallying cry of 'Save Bristol Bay' (Save Bristol Bay, 2021). Black Butte is 30 km (19 miles) by stream from the Smith River (Sandfire Resources of America Inc., 2021) and Pebble is 370 km (230 miles) from Bristol Bay by stream (PLP, 2021).

People promote antimining messages based on their expectations of mining from its historical, industrial precedent of pollution and conflict. This mentality inhibits many from seeing the necessity and benefits of mining. It takes time for mining PR to build trust with the public, especially when

Figure 4

Misinterpreting mine design (Save Bristol Bay, 2021).



mining companies are forced to remake the face of the mining industry. Mining companies are not the only groups publishing information about their mine(s), which increases the difficulty of clearly expressing modern mining industry practices to the general public. The variety of information sources, especially with the influence of social media, makes it challenging for the public to determine what is factual about these projects.

In this complex web of modern communication, what are some of the most pervasive issues for mining PR? Barna's stumbling blocks of intercultural communication are at play between the mining industry culture and those outside of the mining industry. Using the stumbling blocks of language differences, preconceptions and stereotypes, tendency to evaluate and high anxiety (Barna, 1994), obstructions to developing ICC in mining will be analyzed and ways to mitigate these problems to improve PR will be suggested.

Language differences. As both case studies are mines in the United States, the primary spoken language is English. However, just because two people, or groups, are speaking English does not mean that they are using the

same language. This is especially noticeable in mining. People who specifically work with mining PR are not necessarily engineers, but they must communicate with engineers to get the pertinent information for PR (Schlepp, 2021). Engineers are not known for communication skills, which exacerbates ICC issues since engineers focus on technicalities that people outside of mining cannot readily interpret. This leaves project information poorly contextualized. People outside of mining will provide their own context through the lifeworld instead, since that is the best framework they can establish, even though this is based on historical natureculture, which is not expressive of modern mining.

This issue stems from poor communication between mine design engineering components and the layperson's interpretation of the same design components. Mining is a unique discipline with a unique culture; mining culture has a different set of norms and sensory perceptions (Barna, 1994), so what people in mining perceive as significant will be different from what people outside mining view as significant. To most people outside of the industry, mining is a foreign concept that is rudimentarily understood as digging a hole to obtain ore. Mining companies tend to be clandestine regarding details of their mining methods, which is understandable, since this is private company information in a competitive industry.

Save Bristol Bay, an organization that is vocally anti-Pebble, published the graphic shown in Fig. 4 (Save Bristol Bay, 2021). In this graphic, an outline of Pebble's design is pasted over the city of Anchorage, AK. Superimposing the mine site over the city makes the mine appear large and imposing. It also relates the size of the mine to an area most Alaskans are familiar with. People need context to interpret information, and while this puts the mine in perspective for people unassociated with the mining industry, it also encourages misinterpretation.

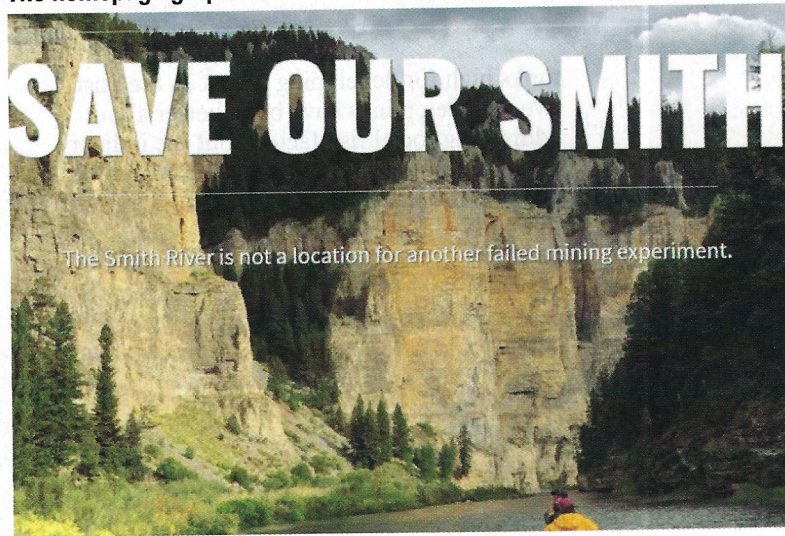
To anyone in mining, this comparison, based solely on footprint, is absurd, since miners know that openpit mining on this scale requires a large amount of space. So, while miners view this as a proportionally typical openpit mine, anyone unfamiliar with mining has nothing to objectively compare it. Improper context alters interpretation of this design, and this is just one of many examples of misinterpretation due to language barriers in mining.

Preconceptions and stereotypes.

Preconceptions and stereotypes are based on expectations formed from past experience, or as Barna (1994) puts it, "Stereotypes are

Figure 5

The homepage graphic on Save Our Smith (Save Our Smith, 2021).



overgeneralized, second-hand beliefs that provide conceptual bases from which we make sense out of what goes on around us, whether or not they are accurate or fit the circumstances.” The public’s preconceived notions about mining are based on the historical face of mining as a bad environmental actor, and this does not account for federal regulation, or mining’s culture shift.

One group protesting the SRA’s development of Black Butte features the graphic shown in Fig. 5 on the homepage of its website (Save Our Smith, 2021). The photograph and text are significant for communicating the perceived threat of mining based on stereotypes. The picture is a beautiful shot of the Smith River, the surrounding cliffs and forest with two fishermen by the river. The sky overhead is cloudy, as if trouble were brewing, which when paired with the main caption “Save Our Smith” in large, bold, all capitalized text, provides a rallying cry to protect the picturesque place shown in the image.

The subtext in Fig. 5 states, “...another failed mining experiment,” which is a clear expression of how this group expects mining to act according to its preconceptions of the mining industry. It assumes that Black Butte has already failed to show environmental stewardship just as historical mining failed, but it does not look at the modern examples of mines using good practices, like Sibanye Stillwater and Perpetua Resources. Preconceptions tend to ignore examples that contradict someone’s expectations in favor of “new information that corresponds to the image held” (Barna, 1994). News about the Berkley Pit’s snow geese incident in 2016 (Obscura, 2013) is a prime example of the preferred negative publicity for mining since it reinforces mining preconceptions and stereotypes. Mining PR is challenging since public perspective is steeped in stereotypes that prevent an objective approach to project evaluation.

Tendency to evaluate. Human beings will evaluate something rather than attempting to understand the other side’s perspective (Barna, 1994). This is especially true of the American public’s reaction to mining projects. Mining is such a politicized topic that it encourages the tendency to evaluate by demanding immediate action. While this example was taken specifically from Stop Pebble Mine, these types of semiotics are a unifying theme between the most vocal groups protesting in both case studies. If someone new to the Pebble controversy tried to learn about the mine, they might find Stop Pebble Mine before they find PLP’s official

webpage, and feel forced to make an immediate evaluation and decision without adequate background information.

As emotions become more involved around an issue, the tendency to evaluate escalates (Barna, 1994). Both Pebble and Black Butte are issues with deep emotional engagement, which causes an abrupt communication cutoff (Barna, 1994). The public views mining and environmental stewardship as mutually exclusive, which is not the case, but this perception taints PR attempts from developing mines. The permitting process is more difficult for developing mines since they have no way to demonstrate trust by practicing environmentally responsible mining methods, so it is easier for people to condemn mining rather than to extend their trust to the industry.

High anxiety. Fear and stress contribute to creating a high anxiety environment (Barna, 1994). These are more likely to appear when there is conflict (Barna, 1994), and since mines are controversial projects, high anxiety inevitably envelopes the surrounding intercultural communication. Mining is perceived fearfully by the public, and each group protesting Pebble and Black Butte’s development is united in fear and anger at the potential risks, but with the historical face of mining, is it any wonder that people fear this industry? There would be no need to rally to “Save Our Smith” or “Stop Pebble Mine” if there was not a prevalent fear of everything that could go wrong. This social and environmental anxiety seeps into the individual lives of others and continues to negatively impact attempts at PR from the industry.

Recommendations for developing intercultural communication competence

Improving communication. Social risk

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