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**CORPORATE SOCIAL RESPONSIBILITY WITHIN THE
NUCLEAR INDUSTRY: A CASE STUDY OF THE
HANFORD SITE**

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Abstract

This case study of the Hanford site in Washington state explores whether the various businesses that comprise the nuclear industry are upholding ethical standards and operating in a socially responsible manner. The paper begins with an overview of the nuclear industry and a history of the Hanford site. It then analyzes a series of recent events that occurred at the site and explores whether the companies involved acted in a socially responsible manner. It concludes by offering lessons learned and considering global implications.

Introduction

The nuclear industry involves a wide range of projects that include nuclear energy production, defense, security, waste management, as well as construction and decommissioning. The majority of these projects are government held and contracted out to corporations who routinely work and are experienced in this field. Contracts for nuclear projects range from being worth millions of dollars to billions of dollars depending on the scope of work. This means the industry is extremely profitable for those corporations who have the assets and employ the appropriate skill set to operate in this niche market. However, with potential for large profits comes potential risks and hazards that are exclusive to this industry.

Since the nuclear industry is so unique it is important to understand how businesses operate under these conditions. Theoretically, standards on both the business and government side of the contract would be raised to mitigate potential risk to workers and the environment. However, it is not unusual to see lawsuits settled in relation to these projects for issues such as negligence and false claims. To further understand the issues that occur on such projects, where these issues stem from, and how businesses respond I will be using the Hanford Site in Eastern Washington as a case study. I will be using a case study for simplicity because there is a myriad of nuclear projects currently ongoing not only in the United States but also across the globe. The companies that are typically awarded these contracts are a select few and rather than focus on several projects at once I would like to fully understand their operations in the context of a single project. This will be done by analyzing two specific current events that have occurred at the Hanford Site as well as general business practices using a basic framework of corporate social responsibility. These events will be analyzed using contracts, court documents, and media statements from the companies and government organizations involved. Overall this analysis will allow for a better understanding of how companies operate in the nuclear sector, whether their operations can be considered socially responsible, and furthermore which stakeholders are benefiting the most from the way these businesses operate.

First I will introduce the history of Hanford Site and then define corporate social responsibility (CSR) in the context of this paper and introduce a framework for how CSR will be analyzed. I will then evaluate the companies' CSR statements against the CSR framework and definition. This evaluation will be used to determine if the companies involved in the events occurring at the Hanford Site are acting in a socially responsible manner and honoring their CSR statement. I believe that in several cases the companies in question have not acted in a socially responsible manner and that there will need to be a change in the culture of not only the companies but also the industry to correct these accepted business practices.

History of Hanford

In 1943 the residents of White Bluffs and Hanford, Washington were given 30 days by the United States' government to evacuate their homes and move over 30 miles south to what would become the Tri Cities. The reasons behind the request was inexplicable to the residents, but for the government this 538-acre area was going to be turned into one of three sites to aid the top-secret Manhattan Project, a project directed by General Leslie R. Groves and US physicist Robert Oppenheimer to build the first atomic weapon for use during the Second World War.¹ Hanford was seen as a prime location to be used for the Manhattan Project due to its proximity to the Columbia River and the access to energy from both the Grand Coulee and Bonneville dams.²

The Manhattan Project was initiated after concerns that Nazi Germany was pursuing their own atomic weapon for use. It was discovered through the scientific community that two German physicists had discovered nuclear fission of uranium. With pressure from the scientific community President Roosevelt formed a small committee to start the Manhattan Project that would include production and research facilities at Hanford, Washington; Oak Ridge, Tennessee; and Los Alamos, New Mexico.³

Construction and operations of the Hanford Site was contracted to E. I. DuPont de Nemours & Company with the US Army Corps of Engineers acting as the government lead.⁴ After the residents of Hanford were evacuated the construction of the first large-scale nuclear reactor in the world, the B-reactor, commenced and was completed in a total of 11 months.⁵ Following the construction of the B-reactor the D- and F-reactors were built becoming functional in 1944 and 1945 respectively. These reactors produced the plutonium-239 that was used in the Fat Man bomb dropped over Nagasaki, Japan on August 9th, 1945.⁶ This event, coupled with the bombing of Hiroshima using the Little Boy bomb three days earlier, effectively ended the war in the Pacific. However, the consequences of these events reverberated for decades to come.

The production of plutonium did not stop at the end of World War II. In 1947 the DuPont contract ended and the US Army Corps of Engineers was replaced by the Atomic Energy Commission (AEC). A new contract was awarded to General Electric (GE) by the AEC for operating the site. As the United States and Russia entered into the Cold War the Hanford Site expanded to include nine nuclear reactors and several reprocessing plants.⁷ During the next several decades portions of GE's contract was split and reassigned to various companies. These companies included Vitro Engineers, JA Jones Construction, Douglas United Nuclear, Isochem, and Boeing Computer Services.

Unfortunately, with peak production of plutonium came the peak production of chemical waste that is produced as a byproduct of extracting plutonium from irradiated

¹ Department of Energy, "Hanford History," <http://www.hanford.gov>, (June 26, 2017)

² Harrison, John, "Hanford Nuclear Reservation," <http://www.nwcouncil.org>, (October 31, 2008)

³ Department of Energy, "B-Reactor," (2017)

⁴ Harrison, "Hanford Nuclear Reservation," (2008)

⁵ Department of Energy, "Hanford History," (2017)

⁶ Department of Energy, "Hanford History," (2017)

⁷ Department of Energy, "Hanford History," (2017)

nuclear fuel rods. The waste produced from plutonium production results in a mixture of over 1500 chemical constituents that are highly toxic. It was decided the most efficient and effective way to dispose of the waste was to put it in carbon steel tanks reinforced with concrete buried underground. The area where the 177 tanks were buried was aptly dubbed "Tank Farms."⁸ Eventually space ran out for storing waste in the tanks and chemical waste was then placed in open trenches and holding facilities. Placing the chemical waste in the underground tanks was at first considered a short-term solution. However, some of the waste has been sitting in the tanks for over 70 years now since the beginning of the Manhattan Project.⁹

By the early 1970s the AEC was receiving criticism for not being sufficiently rigorous in their safety policies.¹⁰ The AEC was therefore abolished and the responsibilities were split between the Energy Research and Development Administration (ERDA) and the Nuclear Regulatory Commission (NRC). Not many years later ERDA became the Department of Energy (DOE) that is the current government body at the Hanford Site.¹¹

In 1989 the Tri-Party Agreement was formed between the Washington State Department of Ecology, the United States Environmental Protection Agency, and the United States Department of Energy. The agreement is a legally binding document that outlines and ensures these three agencies will work together to clean up the Hanford Site in accordance with two federal laws. These laws are the Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). The agreement establishes cleanup duties, responsibilities, and outlines milestones as well as provides a basis for budgeting.¹² In fact, the DOE formed an office specifically focused on the Hanford tank farms. This office is called the Office of River Protection (ORP) and its main mission is to oversee the cleanup and treatment of the tank farm waste left by previous decades of high plutonium production.¹³

Corporate Social Responsibility

The concept of corporate social responsibility (CSR). CSR dates back to the early twentieth century, but truly began to be a part of business during the 1950s.¹⁴ CSR is arguably an umbrella term that has an array of slightly varied definitions.¹⁵ The CSR definition being used for the purpose of this paper is as follows: "the responsibility of a business organization to implement context-specific organizational actions and policies

⁸ Department of Energy, "Tank Farms," <http://www.hanford.gov>, (2017)

⁹ Department of Energy, "Tank Farms," <http://www.hanford.gov>, (2017)

¹⁰ Anthony Ripley, "AEC Is Split in Personality Struggle," *The New York Times* (1974)

¹¹ Alice Buck, "A History of the Energy Research and Development Administration," *Department of Energy* (1982)

¹² Department of Ecology State of Washington, "Hanford Tri-Party Agreement," <http://www.ecology.wa.gov>, (2017)

¹³ Department of Energy, "Office of River Protection," <http://www.hanford.gov> (2018)

¹⁴ Archie B Carroll, *A History of Corporate Social Responsibility* (2008)

¹⁵ Alexander Dahlsrud, *How Corporate Social Responsibility is Defined: an Analysis of 37 Definitions* (2006)

that take into account stakeholders' expectations as well as the impact of its activities on employees, customers, the community, and the triple bottom line."¹⁶

However, to further analyze whether the actions of a company fulfill the definition of CSR, I will be using Archie Carroll's CSR framework. Carroll's framework is a widely accepted and cited method for understanding the basis of CSR.¹⁷ Therefore by breaking down the definition into four simple components I will be able to more accurately analyze why CSR is not being fulfilled.

Carroll created a pyramid to illustrate the four components that comprise the basis of CSR:¹⁸



Source: Carroll (1996)

Figure 1: Carroll's CSR Pyramid; (Carroll, 1996)

Forming the base of the pyramid is economic responsibility indicating the most basic expectation of a business is to be profitable. Now this may seem like an odd concept that a business must be profitable to be socially responsible. However economic responsibility is a "baseline requirement" for businesses. Carroll states, "...society expects, indeed requires, business organizations to be able to sustain themselves and the only way this is possible is by being profitable...and have enough resources to continue in operation."¹⁹ If a business was not profitable it would cease operations and every other responsibility that the business had would at that point be irrelevant. Carroll later states that, "Those firms that are not successful in their economic or financial sphere go out of business and any other responsibilities may be incumbent up on them become moot considerations."²⁰ Therefore the base requirement of all businesses when it comes to CSR is that they are fulfilling an economic responsibility.

¹⁶ Niccolò Pisani, Arno Kourula, Ans Kolk, and Renske Meijer, *How global is international CSR research? Insights and recommendations from a systematic review* (2017); Ryszard Piasecki and Janusz Gudowski, *Corporate Social Responsibility: the Challenges and Constraints* (2017)

¹⁷ Wayne Visser, *Revisiting Carroll's CSR Pyramid* (2006)

¹⁸ Archie B Carroll, *The Pyramid of Corporate Social Responsibility: Toward the Moral Management Organizational Stakeholders* (1991)

¹⁹ Archie B. Carrol, *Carroll's Pyramid of CSR: taking another look* (2016)

²⁰ Carroll, *Carroll's pyramid of CSR: taking another look* (2016)

Economic responsibility is followed directly by legal responsibility; the expectation of businesses to follow laws and policies put in place by the government.²¹ The legal responsibility extends to include, "Providing goods and services that at least meet minimal legal requirements."²² To put this responsibility in terms of the nuclear sector, this would mean companies are not only following laws at all levels but are managing waste, decommissioning, and constructing buildings in a manner that comply with nuclear quality assurance codes as well as any other applicable quality assurance codes.

Beyond these two basic expectations of businesses are ethical and philanthropic responsibilities. However, both of these areas are vast. Carroll states that ethical responsibilities are defined by, "...those standards, norms, or expectations that reflect a concern for what consumers, employees, shareholders, and the community regard as fair, just, or in keeping with the respect or protection of stakeholders' moral rights."²³ However, more generally the ethical responsibilities of business is to reach above the governing laws and policies to operate beyond the bare minimum. Ethical responsibilities can be applied to any aspect of business including the way businesses operate regarding the environment, consumers, employees, and shareholders. By fulfilling ethical responsibilities a business will be, "Preventing ethical norms from being compromised in order to achieve business goals."²⁴ Specifically, businesses operating in the nuclear industry have an ethical obligation to maintain and protect public health, the environment, and future generations. All three of these areas are highly vulnerable and can easily be disrupted and negatively affected by unethical business practices.

Philanthropic responsibilities form the tip of the pyramid and mainly revolve around engaging in social projects that are, "...voluntary or discretionary...guided by business's desire to participate in social activities that are not mandated, not required by law, and not generally expected of business in an ethical sense."²⁵ This could be in terms of time, money, or resources from the business. Some of the earliest concrete examples of CSR come in the form of philanthropic service. Take for example, Henry Ford and John D. Rockefeller. Both were wealthy businessmen known for monetarily supporting communities through donations to various organizations, education, and community welfare.²⁶ Today philanthropic responsibility is one of the most popular and well known aspects of CSR.

However, it should be noted that CSR encompasses much more than just philanthropy. Although philanthropic responsibility is an important part of CSR it is not the main focus or overall goal of the concept. Carroll states that, "The pyramid should not be interpreted to mean that business is expected to fulfill its social responsibility in

²¹ Mark S Schwartz and Archie B Carroll, *Corporate Social Responsibility: A Three-Domain Approach* (2003)

²² Carroll, *Carroll's pyramid of CSR: taking another look* (2016)

²³ Carroll, *The Pyramid of Corporate Social Responsibility: Toward the moral Management Organizational Stakeholders* (1991)

²⁴ Carroll, *Carroll's pyramid of CSR: taking another look* (2016)

²⁵ Carroll, *Carroll's pyramid of CSR: taking another look* (2016)

²⁶ Carroll, *A History of Corporate Social Responsibility*

some sequential, hierarchical, fashion, starting at the base....the pyramid is viewed as a unified or integrated whole."²⁷

The four categories listed above are not mutually exclusive but overlapping and integrated with each other.²⁸ In fact, ethical responsibility should be fully integrated in every aspect of the pyramid. Ethical considerations should be made at every level by corporations from economic to philanthropic.²⁹

CSR is considered an umbrella term and one important concept that CSR alludes to is sustainability. The latter part of the CSR definition, "...triple bottom line," refers to the concept of "people, planet, profit," also known as sustainability. Although the CSR framework does not explicitly outline the environmental impact of the company as a responsibility, it is a sub-category within ethical responsibility.³⁰ As previously stated, ethical responsibility includes obligation to protect the environment, public health, and future generations. All of these areas are crucial to the concept of sustainability defined as, "Development that meets the needs of the present without compromising the ability for future generations to meet their own needs."³¹ The complementary definitions of CSR and sustainability lead to the idea that CSR is a pathway to achieve sustainability.

³² CSR focuses on management practices and organizational operations that fulfill Carroll's framework and ultimately comply with the above definition of CSR.

Other terms that can be encompassed by CSR are global citizenship report, environmental sustainability report, corporate citizenship, corporate sustainability, and responsible business.³³ It is important to recognize these terms due to the fact that companies often create CSR statements under these titles.

Throughout this paper the four components of CSR in Carroll's framework will be used as a basis for analyzing if in each scenario the companies involved are acting socially responsible. However, the focus of analysis is the first three categories that apply more directly to how businesses operate within a scope of work. This means for a company to be truly socially responsible they will be fulfilling all categories of Carroll's framework by acting accordingly in their operations. If a company is acting socially responsible they will fulfill Carroll's framework and consequently will adhere to the above definition.

Prime Contractors and their CSR Policy

There are three companies that will be the focus of this paper due to their involvement in events occurring at the Hanford Site. Each of these companies have

²⁷ Carroll, *Carroll's pyramid of CSR: taking another look* (2016)

²⁸ Schwartz and Carroll, *Corporate Social Responsibility: A Three-Domain Approach* (2003)

²⁹ Carroll, *Carroll's pyramid of CSR: taking another look* (2016)

³⁰ Ivan Montiel, *Corporate Social Responsibility and Corporate Sustainability* (2008)

³¹ Sanjay Sharma and Irene Henriques, *Stakeholder Influences on Sustainability Practices in the Canadian Forest Products Industry* (2005)

³² Daojui Hu, *Corporate Social Responsibility (CSR) Governance into Sustainable Development* (2014); Ionela Carmen Pirnea, Marieta Olaru, and Cristina Mois, *Relationship between corporate social responsibility and social sustainability* (2011)

³³ Ivan Montiel, *Corporate Social Responsibility and Corporate Sustainability* (2008); Ionela Carmen Pirnea, Marieta Olaru, and Cristina Mois, *Relationship between corporate social responsibility and social sustainability* (2011)

released a CSR statement. It is important to analyze whether the statements released by the companies fulfill the basic requirements of the CSR framework and further fulfill the CSR definition. However, these CSR reports are simply media statements. These statements can be seen as good PR for the company since they imply that the company is truly applying their values and vision in each of their projects. Whether or not this implication is true will be assessed later when analyzing events that have occurred at the Hanford Site.

Bechtel National, Inc. holds the contract for the design and construction of the waste treatment plant.³⁴ Bechtel is a multi-billion dollar privately held engineering and construction company that has been contracted by the United States government to work on over 80% of all nuclear projects within the United States. They also hold 150 prime contracts in the nuclear industry worldwide.³⁵ On their website they list their core values as ethics, safety & health, quality, people, culture, relationships, innovation, and sustainability. Bechtel also states their vision is to, “Be the world’s premier engineering, construction, and project management organization by achieving extraordinary results and earning a fair return on the value we deliver.”³⁶

The core values and vision statement of Bechtel clearly fulfill each of the four categories of Carroll’s framework. Economic responsibility is implied in the statement, “...earning a fair return on the value we deliver.” Since one of their core values is ethics it fulfills their ethical responsibility. Legal responsibility is also fulfilled since ethics implies that the company will be reaching to achieve standards above the law. Bechtel even touches upon philanthropic responsibility when stating culture and relationships as values. Therefore, Bechtel’s core values and vision statement fulfill all four categories of Carroll’s framework and consequently the CSR definition. This means that if Bechtel were to follow their CSR statement they would be acting socially responsible in all aspects of their operations regarding work at the Hanford Site.

Bechtel originally subcontracted the startup and commissioning portion of the vitrification plant to URS Corporation. However, in 2014 URS Corporation was acquired by another engineering giant, AECOM.³⁷ AECOM is a public, multinational, multi-billion dollar engineering and construction company. They are similar to Bechtel and have worked on a myriad of government projects within the United States as well as worldwide. Their CSR mission reads, “To deliver access to safe and secure infrastructure to those who need it most, to create opportunity for the leaders of tomorrow and to protect our planet so that, together, we can realize our dream of a better world.” Their website lists their core values as safeguard, collaborate, inspire, anticipate, deliver, and dream.³⁸

AECOM’s statement of values and vision in some ways relate very closely to that of Bechtel. This is important because a company would theoretically want their subcontractor to hold very similar values and work ethic. However, AECOM’s statement of values and vision does not as clearly fulfill each of the CSR categories. The

³⁴ Department of Energy, “DOE-ORP Prime Contracts,” <http://www.hanford.gov>, (2017)

³⁵ Bechtel National, Inc., “Nuclear Power,” <http://www.bechtel.com>, (2018)

³⁶ Bechtel National, Inc., “Vision, Values & Covenants,” <http://www.bechtel.com>, (2018)

³⁷ AECOM, “AECOM Completes acquisition of URS Corporation,” <http://www.aecom.com>, (2014)

³⁸ AECOM, “Core Values,” <http://www.aecom.com>, (2018)

statement of, "...to protect our planet..." eludes to environmental protection which is an ethical responsibility. Therefore the company is reaching beyond laws to a reach a level of legal responsibility. Also, "...deliver access to safe and secure infrastructure to those who need it most..." eludes to the idea that AECOM holds some philanthropic responsibility. There is no direct connection to economic responsibility in their values or vision statement. However, by acknowledging that AECOM is a multi-billion dollar company leads to the idea that they are fulfilling their economic responsibility. Therefore AECOM's values and vision statements less explicitly comply with the four categories of CSR to fulfill the CSR definition. Regardless, like Bechtel, if AECOM were to comply with their CSR statement they would be acting socially responsible in all aspects of their business operations at the Hanford Site.

The third company is CH2M Hill Plateau Remediation Company (CHPRC) that holds the contract for the cleanup and decommissioning of buildings such as the plutonium finishing processing plant (PFP).³⁹ CHPRC is a subsidiary of CH2M Hill which is an engineering and construction firm. CH2M Hill was recently acquired by Jacobs Engineering.⁴⁰ CH2M Hill provides nearly half of the multi-billion dollar revenue for Jacobs Engineering. CH2M Hill states its core values as safety, ethics, the CH2M Hill Foundation and sustainability. These core values are nearly identical to its parent organization, Jacobs, who states their mission as, "To be the world's premier design, engineering, construction, and technical services firm delivering end-to-end, innovative solutions that provide superior value to our clients."⁴¹

CH2M Hill's CSR statement clearly complies with ethical responsibility since one of their core values is ethics. If ethical responsibility is being met then the company is reaching past the bare minimum, consequently fulfilling their legal responsibility as well. The CH2M Hill Foundation supports various causes that fulfill the philanthropic responsibility.⁴² Similar to AECOM, there is no direct connection to economic responsibility by CH2M Hill in their CSR statement. However, it is implied by their success as a corporation. Therefore CH2M Hill fulfills the four categories of CSR and the CSR definition. It is important to note that the work being done at the Hanford Site is actually by CHPRC and not CH2M Hill. Since CHPRC is a subsidiary of CH2M Hill it is the responsibility of CH2M Hill to make sure they are flowing down and implementing their CSR statement within CHPRC. If CH2M Hill implements their CSR statement within their subsidiary then the work being done at the Hanford Site by CHPRC should be socially responsible.

³⁹ Department of Energy, "DOE-ORP Prime Contract," (2018)

⁴⁰ Jacobs, "Jacobs Completes CH2M Acquisition, Creating \$15 Billion Professional Services Leader Focused on Delivering Innovative Solutions for a More Connected, Sustainable World." (2017)

⁴¹ CH2M Hill, "Who We Are," <http://www.ch2m.com>, (2018)

⁴² CH2M Hill, "CH2M Hill Foundation," <http://www.ch2m.com>, (2018)

Case Study of the Hanford Site

The Business Practice of Forming LLCs

A widely accepted business practice in the nuclear industry is the formation of LLCs by larger engineering firms. Forming an LLC can establish the scope of work under a smaller business which allows for consolidated decision making. Since these smaller businesses are not made to last longer than the contracted work allows, they typically do not form their own core values or CSR reports outside of a mission statement. Theoretically, parent corporations will flow down their core values and safety measures. In fact, the entire purpose of these companies is to complete contracted work and allow for the parent organization to collect on profits. Now this may not seem too different from the basic economic level of CSR. However, the main difference is the fact that a LLC effectively mitigates risk. This means, if something happens while doing work the complainant can only sue the LLC for its assets and not the larger parent organization.

Organizations forming LLCs with competitors or within themselves to consolidate a specific scope of work or to mitigate risk is not uncommon in the field of government contracts. This is a typical way that these engineering and construction firms operate within this industry, especially on projects such as the Hanford Site. The following are two examples of LLCs formed by larger companies in regards to the Hanford Site.

In January of 2017, Bechtel and AECOM announced they had created a LLC called the Waste Treatment Completion Company (WTCC). The purpose of WTCC is to finish the remaining construction and lead the startup and commissioning of the vitrification plant. A Bechtel employee, formerly Manager of Organizational Effectiveness, was named the President and General Manager of WTCC.⁴³ The new company became operational in March of 2017 and approximately 1370 of the 3000 workers at the vitrification plant were transferred to WTCC.⁴⁴ Bechtel stated that the, "New entity will enhance safety and efficiency at Hanford Site Construction project."⁴⁵ Yet, since Bechtel still holds the prime DOE contract, they are still in charge of project leadership, engineering, and procurement. Effectively this means that Bechtel and AECOM have jointly subcontracted their own work to themselves under a different name while still maintaining a portion of the scope of work.

Another example of larger companies forming an LLC in regards to the Hanford Site is the prime contract between the DOE and Washington River Protection Services, LLC (WRPS) for the management of tank farms.⁴⁶ WRPS was formed by AECOM and Atkins Engineering, a British engineering and construction company.⁴⁷ This is very

⁴³ Bechtel National, Inc., "Bechtel, AECOM Create Structure to Drive Completion of Nuclear Waste Treatment Plant," <http://www.bechtel.com>, (2018)

⁴⁴ Annette Cary, "Bechtel spins off Hanford Vit plant work to new company," *Tri-City Herald*. (2017)

⁴⁵ Bechtel National, Inc., "Bechtel, AECOM Create Structure to Drive Completion of Nuclear Waste Treatment Plant," (2017)

⁴⁶ Department of Energy, "DOE-ORP Prime Contract," (2018)

⁴⁷ Washington River Protection Solutions, "About WRPS," <http://www.wrpstoc.com>, (2018)

similar to WTCC with the main difference being that WRPS holds a contract with the DOE-ORP directly instead of with their parent organization.

The concept of forming LLCs to mitigate risk or consolidate scope of work is a gray area when it comes to CSR. The formation of LLCs is within the bounds of legal responsibility and as long as the company turns a profit they are also fulfilling their economic responsibility. Yet, is it ethical for these corporations to form LLCs to mitigate risk? In short, no.

If a company was truly acting in a socially responsible manner they would be operating in a way that would naturally mitigate risk. Ethical considerations for the environment, public health, and worker safety would be implemented to avoid negative consequences. If an accident did occur during these operations then a socially responsible company would take responsibility for its actions and pay the price. However, by forming LLCs to mitigate risk the larger companies are effectively saying that they don't intend to operate at that level of social responsibility and would like to collect on profits while not having to pay the price if something goes wrong.

However, forming an LLC to solely consolidate the scope of work does not have the same unethical implications. It becomes unethical when the parent corporation starts pressing issues, such as monetary gain, and influencing management decisions for their own benefit. The DOE has methods of mitigating some of the interference by parent organizations in lower level management decisions of these subsidiaries. However, ultimately the lead managers of the subsidiaries still report back to the board of directors for each of their parent companies. This allows firms to maintain power of management practices. Some of these pressures flowed back down to the subsidiary by the parent organization could be to meet incentivized milestones or activities to gain award fees. These pressures would be in the interest of the business to fulfill the basic economic responsibility to turn a profit. This type of back door management emphasizes the interest of the parent corporation over the purpose of the LLC. When this happens neither the parent company nor the subsidiary is operating in a socially responsible manner.

It is hard to discern in each case if the LLC was formed to mitigate risk or to consolidate scope of work. Furthermore it is unclear if the parent corporation is using back door management to push for monetary benefits. If these LLCs were formed solely to consolidate scope of work then Bechtel and AECOM are acting socially responsible and in line with their CSR statements. However, if these LLCs were formed to mitigate risk or back door management is prominent, then neither Bechtel nor AECOM is acting socially responsible and both are out of line with their CSR statements.

Demolition of the Plutonium Finishing Plant (PFP)

According to the DOE, the plutonium finishing plant (PFP) is one of the most hazardous facilities on the Hanford Site. Built in 1949, the PFP was used to make plutonium pucks and plutonium oxide powder with liquid from irradiated fuel rods. The pucks and powder were then shipped off to be placed in storage for future weapons use. Two-thirds of the nation's stockpile of plutonium was processed at PFP during the Cold War. By 1989, when processing ceased, PFP consisted of over 60 structures with

4 main buildings. When production ended, the PFP facility was left largely as-is and was still heavily guarded up until 2009 when all of the high-security material was officially shipped from PFP to holding sites such as Savannah River. In fact, there was more than 20 tons of high-security material, much containing plutonium, which was left in various processing stages within the PFP facility.⁴⁸

In 2008, the DOE contracted the decommissioning and deconstruction of the plutonium finishing plant facility to CH2M Hill Plateau Remediation Company (CHPRC). The contract is a cost-plus contract with the award fee being \$51,057,421 if the project was completed by the beginning of 2015.⁴⁹ This means all cost of the work done is charged to and covered by DOE and then once work is completed the company will receive a specified amount of money as profit. However, this would only be awarded to the company if the work was complete by January of 2015 and as specified in the contract, the “fee is reduced in a linear declining method.”⁵⁰

In January of 2018 the Division of Environmental Public Health of the Department of Health (DOH) wrote a letter to the Department of Energy (DOE) verbalizing concern for events that occurred during the ongoing demolition of PFP. The letter outlined 6 issues that the division was concerned with, called for a stop of work, and included a list of requests that needed to be completed before March 9, 2018.⁵¹ For analysis, the issues outlined in the DOH letter have been categorized by failure to protect public health and failure to protect the environment.

Issue 1: Failure to Protect Public Health

DOH referred to two separate contamination events that happened during 2017 both of which resulted in a take-cover event. The first 2017 event resulted in inhalation of contaminants by workers while the second event resulted in contamination of objects that left the Hanford Site.

The first even took place on June 8, 2017 while a gallery glovebox was being extracted from one of the PFP buildings, an alarm sounded detecting low levels of contamination. 350 employees were instructed to take-cover but were eventually released to continue work.⁵² After the June 2017 event, DOH reported that air samples from a public access point measured contamination from americium-241 to be, “...at 3.26 times the National Emission Standards for Hazardous Air Pollutants (NESHAPs).”⁵³ Immediately after the event, a CH2M Hill spokesman stated that no employees on the project had inhaled any of the radiation contamination. However, several months later in

⁴⁸ Department of Energy Office of River Protection, *The Hanford Story- Plutonium Finishing Plant*, (2012)

⁴⁹ Department of Energy Office of River Protection, *Plateau Remediation Contract*, (2008)

⁵⁰ DOE, *Plateau Remediation Contract*, (2008)

⁵¹ Department of Health, *Letter of Concern for Contamination Events Resulting from Plutonium Finishing Plant (PFP) Demolition Performed under Comprehensive Environmental Response Compensation and Liability Act (CERCLA) Removal Action*, (2018)

⁵² Department of Energy Office of River Protection, *Statement on Take Cover*, (2017)

⁵³ DOH, *Letter of Concern*, (2018)

October 2017, DOE released a statement confirming 31 people had tested positive for low levels of internal radiation from the incident.⁵⁴

Another contamination event occurred in December 2017 when cars affected with alpha contamination from the PFP demolition activities drove off the Hanford Site potentially further spreading the alpha contamination.⁵⁵

Both of these events explicitly put public health in danger and even harmed several individuals working on the project. This clearly violates the ethical responsibility of the company to protect public health. The company also violated legal responsibilities by not complying with NESHAPs. Controls, such as NESHAPs, are put into place as minimum requirements and a company acting in a socially responsible manner would strive to reach beyond the minimum. These events show little to no sign of socially responsible conscious work with a strong disregard for public health.

Since these events are not in compliance with the CSR framework it is clear that they are not in compliance with the CSR statement made CH2M Hill. Ethical responsibility to protect public health is the prominent violation in this event. CH2M Hill stated that one of their core values was ethics, therefore CH2M Hill was not operating with regard to their own set of values.

Issue 2: Failure to Protect the Environment

As mentioned previously, "...air samples showed elevated levels of americium and plutonium isotopes from the demolition activity at PFP."⁵⁶ DOH stated that they have seen a trend upwards in contamination levels. With this trend upwards comes concern that these particles will, "...migrate through air pathways, water, and other biological vectors."⁵⁷

Also, the Removal Action Work Plan (RAWP) established a radiation contamination boundary commitment for the demolition of the PFP facility. However, DOH noted that these boundaries have moved considerably outward. In fact, the Tri-Party Agreement revised the RAWP boundaries and reduced their size.⁵⁸ This means, in comparison to the current established radiation contamination boundaries the radiation contamination has far exceeded the established limits.

Again, both legal and ethical responsibilities were violated by the company. The company provided a service that effectively violated both RAWP and the Tri-Party Agreement. To fulfill legal responsibilities the company must provide services that are in compliance with codes and policies applicable to the scope of work. With the contamination boundary far exceeding the established boundary the company violated legal responsibilities. Without reaching minimum legal requirements it is impossible for the company to reach beyond the law. Likewise, if the company had been acting ethically, protection of the environment would have been a top priority and legal requirements to maintain appropriate boundaries would have been met.

⁵⁴ Annette Cary, "More Hanford workers may have inhaled radioactive particles," *Tri-City Herald*, (2017)

⁵⁵ DOH, *Letter of Concern*, (2018)

⁵⁶ DOH, *Letter of Concern*, 2018

⁵⁷ DOH, *Letter of Concern*, 2018

⁵⁸ DOH, *Letter of Concern*, 2018

The issues listed above present a wide basis for concern of public health and environmental protection. Although these issues can be considered accidents, they cannot be brushed away as inevitable. In the letter, DOH asked how two similar contamination events could happen in the same year since safety controls were supposedly tightened after the first event. In fact, DOH went as far as to state, "Allowing alpha contamination off site is a serious and uncommon issue that we believe should be preventable through best management practices."⁵⁹ This leads us not to the question of whether these events were right or wrong. Leading agencies have already deemed them unacceptable and the incidents that occurred show a total disregard for any CSR implementation. Rather, the question is why are CSR policies not being followed and why do these events keep occurring?

To further understand and analyze this question, we have to step away from the technical day to day activities of the demolition and focus on the overarching fact that this demolition is a business contract. Effectively, there are two side to the contract, DOE and CH2M Hill, and each party has their own set of interests. DOE is mainly concerned with mitigating the risk that PFP presents and furthering the cleanup of the Hanford Site keeping in mind "fiscal responsibility."⁶⁰ Meanwhile, CH2M Hill's interests are completely different. Ultimately, they are contracted by DOE for specific cleanup tasks with the purpose of turning a profit. In fact, CH2M Hill is fulfilling one of the basic levels of CSR by gaining profit from their contracted tasks. They are ultimately fulfilling the interests of executive management and shareholders by maximizing their bottom line. This should be done while also implementing their CSR policies which would fulfill the four categories of the CSR framework. Otherwise, the company is acting out of economic obligation to their shareholders with complete disregard for being socially responsible.

However, due to the nature of the contract CH2M Hill was only maximizing their bottom line if they finished the project by the 2015 date. The table below shows that during the time of these two contamination events the company was losing \$19,214 per day.⁶¹ To truly maximize the bottom of line in the interest of immediate stakeholders such as executive management and shareholders, the work needed to be finished quickly. In fact, at the time of the June 2017 event the company had already lost approximately \$13,755,901 of their original available fee.⁶²

⁵⁹ DOH, *Letter of Concern*, 2018

⁶⁰ Department of Energy Office of River Protection, "ORP Mission," <http://www.hanford.gov>, 2017

⁶¹ DOE, *Plateau Remediation Contract*, (2008)

⁶² DOE, *Plateau Remediation Contract*, (2008)

The linear declining method is defined in the following table:

	Date	Available Fee	Fee Reduction	Days	Reduction/Day
Start of Curve (after 100 day adj)	1/9/2015	\$ 51,057,421			
			\$ (7,607,421)	538	\$(14,140)
Step 1 of Curve	6/30/2016	\$ 43,450,000			
			\$ (13,450,000)	700	\$(19,214)
Step 2 of Curve	5/31/2018	\$ 30,000,000			
			\$ (18,000,000)	122	\$(147,541)
End of Curve	9/30/2018	\$ 12,000,000			

Figure 2: Linear Declining Method. (DOE, CHPRC Contract, 2008)

These award fees are seen as incentives to complete the contracted work and everyday past the forecasted date of completion is consequently a loss in overall profit.⁶³ This arguably creates a conflict of interest for the operations of the company. The conflict is between the company choosing to operate in a socially responsible manner disregarding any financial losses or disregarding social responsibility in favor of minimizing financial losses. Now this is not to say that a company cannot turn a profit and also integrate themselves in obligations beyond economic. However, the contract is essentially requiring the company to choose between reducing work speed to ensure safety controls are met while operating at a reducing profit or increasing operating speed to reduce overall loss but increasing risk. On a very basic level this is comparable to driving above the speed limit. The faster you drive the quicker you will arrive at your destination. However, faster driving increases your chances of receiving a speeding ticket or even, in a worst case scenario, losing control of the car and crashing at a high speed. In the end, what is more meaningful, risking life and limb to arrive at the destination earlier or slowing down in the name of safety and arriving late? Many will tell you that nowhere you are going is more important than the value of your life. Yet once large sums of money are attributed to every minute you are late to the destination, perspective may change.

This raises the question of how much is worker safety and environmental protection worth? Collectively are they worth more than \$14,140 per day? What about \$19,214 or even \$147,541?⁶⁴ In the name of humanity the answer may be yes, however in the name of a cost-benefit analysis the answer may be no. This is not to say the company does or does not explicitly analyze the cost-benefit of worker safety and environmental protection against the daily reduction fee. However, when decisions to speed up work or rushing to make milestones are made in the name of money, then worker safety and environmental protection is ultimately weighed against, and valued less than, the daily reduction fee.

⁶³ DOE, *Plateau Remediation Contract*, (2008)

⁶⁴ DOE, *Plateau Remediation Contract*, (2008)

It is clear that CSR was not implemented at any level in regards to the incidents that occurred during the PFP demolition. The lack of CSR implementation appears to connect to a rushed schedule to maximize profits. A company must value ethical, legal, and even philanthropic responsibilities over cutting costs and maximizing profit before they can be socially responsible. However, monetarily in the contract these areas were weighed as less than the on-schedule completion of the demolition.

WTP False Claims Case

Bechtel is employed by DOE to complete the construction of a vitrification (vit) plant on the Hanford Site. A vit plant is considered the cornerstone of processing nuclear waste by turning the waste into glass logs. Hanford will be the home to largest vit plant in the world once it is completed. However, this project presents a unique issue as the waste being held at Tank Farms is mixed waste. Therefore a pretreatment facility (PT) will need to be built to sort the high level waste (HLW) from the low-activity waste (LAW) before each can go through individual vitrification processes.⁶⁵ Hanford is not Bechtel's first foray into the construction of a vitrification plant. Bechtel had previously been a part of the similar design and construction of the Defense Waste Processing Facility at Savannah River, South Carolina.⁶⁶ Nor is this the first time for AECOM to work on a project like this since they were also involved with the Savannah River project as well as several others.⁶⁷

In 2013 a false claims case was filed against Bechtel and URS Corporation by three vitrification plant employees. The complaint stated that both corporations had fabricated the closure of technical issues, including falsely claiming they adhered to requirement and specifications such as nuclear quality assurance-1 (NQA-1), to gain milestone payments.⁶⁸ The case was settled in 2016 with Bechtel and AECOM, since they had acquired URS Corporation by this point in time, to pay \$67.5 million and \$57.5 million, respectively, for a total of \$125 million to the federal government.⁶⁹

Once again to analyze this event in terms of CSR it is important to understand the way the contract was set up between Bechtel and DOE. Bechtel earns money in three distinct ways through its Hanford contract. First, the company earns money by "just being there." This is considered the "...baseline fee as the contractor for the WTP project."⁷⁰ Second, Bechtel earns revenue based on the labor they employ. Finally, much like the previous CH2M Hill contract, they earn award fees for completing activities, milestones, and also on performance evaluations. This means certain award amounts are attached to closing particular activities and meeting scheduled progress on

⁶⁵ *United States of America Ex Rel. Gary Brunson, Donna Busche, and Walter Tamosaitis, PH.D. vs Bechtel National, Inc., Bechtel Corporation, URS Corporation, and URS Energy & Construction, Inc.*, 2013

⁶⁶ Bechtel National Inc., "Savannah River Remediation, South Carolina, USA" <http://www.bechtel.com>, 2018

⁶⁷ AECOM, "Savannah River Remediation," <http://www.aecom.com>, 2018

⁶⁸ *United States of America Ex Rel. Gary Brunson, Donna Busche, and Walter Tamosaitis, PH.D. vs Bechtel National, Inc., Bechtel Corporation, URS Corporation, and URS Energy & Construction, Inc.*, 2013

⁶⁹ Annette Cary, "Hanford contractors to pay \$125 million settlement," *Tri-City Herald*, 2016

⁷⁰ *United States of America Ex Rel. Gary Brunson, Donna Busche, and Walter Tamosaitis, PH.D. vs Bechtel National, Inc., Bechtel Corporation, URS Corporation, and URS Energy & Construction, Inc.*, 2013

the facilities. Performance evaluations are actually broken up into two parts, project management and cost incentives. Project management is the only subjective measure connected to an award fee.⁷¹ This means how the DOE perceives Bechtel's performance will determine the percent of the available award fee they receive. Cost incentives on the other hand only gain Bechtel an award when they operate at less than or equal to the scheduled contract costs.

The false claims case outlines several issues that arose leading to fraudulent transactions between Bechtel and the DOE. Some of the issues outlined in the case are as follows:

Issue 1: False Closure of Technical Issues

In February of 2006 a team called the External Flowsheet Review Team (EFRT) brought forth a series of technical issues they perceived to be of major importance or of potential importance. These issues would need to be resolved in order for the vit plant to be successful. To resolve these issues the DOE-ORP incentivized the resolution of the issues by December of 2010 by attaching 80% of the 2010 award fee to their closure. This included attaching \$3.75 million to the closure of a specific technical issue M12, Undemonstrated Leaching Process. Also, issue M3, Inadequate Mixing in Vessels, was additionally incentivized by \$50 million in funding if closed by the deadline of December 2010. Both M3 and M12 were considered resolved by the end of 2010 and Bechtel received the \$50 million in funding attached to M3, the \$3.75 million attached to M12, as well as a portion of the award fee and millions more in costs covered. However, with further investigation it became apparent that Bechtel did not actually resolve these issues and they still did not meet requirements, specifications, or in several cases NQA-1 code.⁷²

This is a clear violation of not only Bechtel's CSR statement but also the CSR framework. By falsely qualifying the technical issues as closed the company is effectively lying, which is an ethical issue. The company violated its ethical obligations to truly resolve the technical issues. By disregarding the company's ethical responsibility sub-categories such as protection of the environment, protection of public health, and general safety were marginalized. Although these issues present little to no risk at the present moment, if they remained inadequately resolved they would increase the risk for negative consequences once the vit plant became operational. These consequences would ultimately impact the environment, public health, general safety, or all of the above. Also, since these consequences would occur in the future they would impact future generations. Negatively affecting future generations goes against the concept of intergenerational fairness which is an important part of sustainability.

Bechtel also did not meet the legal obligations in this scenario. The company is responsible for creating a product that complies with all applicable codes and requirements. Yet several resolved technical issues did not comply with the mandated

⁷¹ *United States of America Ex Rel. Gary Brunson, Donna Busche, and Walter Tamosaitis, PH.D. vs Bechtel National, Inc., Bechtel Corporation, URS Corporation, and URS Energy & Construction, Inc., 2013*

⁷² *United States of America Ex Rel. Gary Brunson, Donna Busche, and Walter Tamosaitis, PH.D. vs Bechtel National, Inc., Bechtel Corporation, URS Corporation, and URS Energy & Construction, Inc., 2013*

quality standards. This is a clear violation of the legal responsibilities of the company. More broadly, the company falsely claimed award money for issues that should not have been accepted as closed. This is a blatant violation of the law and their responsibility to operate within the walls of the law.

Issue 2: Money Spent Lobbying

The Bechtel-DOE contract specifically states that, "...none of the funds obligated on this award shall be expended, directly or indirectly, to influence Congressional action on any legislation or appropriation matters pending before Congress..."⁷³ Bechtel violated this agreement with the DOE by using funds from the contract to influence Congress. They used the money to lobby for Congressional support, additional funding at the Hanford Site, influencing Congressional members to allocate the budget in their favor, as well as endeavoring to influence the language of the appropriations bill.⁷⁴

Ultimately this is a violation of Bechtel's legal responsibility to honor the DOE contract. However, this can be seen as a violation of ethics as well. Not only did Bechtel use taxpayer money to support their lobbying efforts but they also, "...claimed to DOE and Congress that the money was to be used to "accelerate" the design and construction of the WTP."⁷⁵ Later it became clear that this was not the purpose of the \$45 million dollars that was additionally allocated to the WTP project. This violates Bechtel's ethical responsibility to be transparent and honest with their use of government funding.

Issue 3: Failure to Meet Procurement Specifications

It was found that Bechtel allowed 78 or more procurements that did not meet various safety requirements or specifications. Together these procurements cost the DOE hundreds of millions of dollars and many would need to be procured again to meet the safety standards for use in the facility. However, it should be noted, some procurements had already been installed in particular facilities. A known example is piping installed in the PT facility that does not meet requirements or specifications that would allow it to last 40 years or withstand potential earthquakes. This means some procurements will not only need to be procured again but will need to be uninstalled, this increases the cost even more. It was also found that, "Bechtel permitted subcontractors to deviate from quality requirements in order to save cost and time."⁷⁶

Similar to the false closure of technical issues, the failure to meet procurement specifications violates both the legal and ethical responsibility of the company. Since the

⁷³ *United States of America Ex Rel. Gary Brunson, Donna Busche, and Walter Tamosaitis, PH.D. vs Bechtel National, Inc., Bechtel Corporation, URS Corporation, and URS Energy & Construction, Inc., 2013*

⁷⁴ *United States of America Ex Rel. Gary Brunson, Donna Busche, and Walter Tamosaitis, PH.D. vs Bechtel National, Inc., Bechtel Corporation, URS Corporation, and URS Energy & Construction, Inc., 2013*

⁷⁵ *United States of America Ex Rel. Gary Brunson, Donna Busche, and Walter Tamosaitis, PH.D. vs Bechtel National, Inc., Bechtel Corporation, URS Corporation, and URS Energy & Construction, Inc., 2013*

⁷⁶ *United States of America Ex Rel. Gary Brunson, Donna Busche, and Walter Tamosaitis, PH.D. vs Bechtel National, Inc., Bechtel Corporation, URS Corporation, and URS Energy & Construction, Inc., 2013*

procurements did not even meet the basic safety standards these actions cannot be accepted as fulfilling legal responsibility. Likewise, allowing subcontractors to cut corners to save costs is a violation of the safety and quality standards that are mandated. These actions clearly disregard the legal responsibility of the company.

Ethically, failure to meet procurement specifications threatens future environmental protection, public health, and general safety. Since these products do not meet specifications there is reason to believe that negative consequences could ensue when the vit plant became operational. Another ethical violation is that the money used to procure the products and the money used to re-procure the products is all from the DOE. Procuring items that do not meet the standards is an inappropriate use of government spending, which violates the company's ethical obligation to responsibly use government funding.

Issue 4: "Welds that Failed to Meet Requirements"⁷⁷

There are certain places in the WTP facilities that are known as black cells. Once these areas are sealed they will stay sealed indefinitely and therefore need to be able to last at least 40 years, which is the intended lifespan of the overall facility. However, it was discovered that welds had been completed and accepted in such places that did not meet requirements. Vessels that had been procured to be placed in the black cells also did not meet requirements. In order to inspect the welds and related procured items would cost the DOE millions of dollars. Not to mention, if the welds needed to be redone or items needed to be procured again to meet the safety requirements the cost would be raised by even more millions of dollars.⁷⁸

Once again, by not meeting basic requirements Bechtel did not fulfill its legal responsibility. Likewise, ethically they disregarded what potential impact these substandard welds could have on the environment, public health, and general safety in the future. This scenario is another example of inappropriate use of government funding which is an ethical violation.

Not only do all of these issues presented in the false claims case not meet the ethical responsibilities of a corporation, most don't even meet the legal requirements. However, what is being met either directly or indirectly in all of these cases is the economic responsibilities of the company. Now it is true that both Bechtel and AECOM ended up paying a fine for their involvement in these actions. However, this does not necessarily mean they did not obtain economic responsibility. If both companies still made a profit after the fine is paid from the work that they did on the project then the responsibility is filled. In fact, if the companies still made more money after the fine was paid than if they had not involved themselves in the previously stated actions then one could say that they are further fulfilling their monetary responsibility to stakeholders.

In this case both companies involved here were not blatantly disregarding their ethical obligation to employees as much as they were to the environment and the

⁷⁷ *United States of America Ex Rel. Gary Brunson, Donna Busche, and Walter Tamosaitis, PH.D. vs Bechtel National, Inc., Bechtel Corporation, URS Corporation, and URS Energy & Construction, Inc., 2013*

⁷⁸ *United States of America Ex Rel. Gary Brunson, Donna Busche, and Walter Tamosaitis, PH.D. vs Bechtel National, Inc., Bechtel Corporation, URS Corporation, and URS Energy & Construction, Inc., 2013*

community. If the vit plant were to be built without conforming to determined specifications and requirements it could pose potential risk when the facility actually started processing waste. This is saying the companies chose the award fee over quality. Effectively, gaining the millions of dollars being offered by closing-out technical issues outweighed actually finding an appropriate solution to these issues. Likewise, saving millions of dollars on subcontractor work and procurement outweighed the benefit to the company of procuring items up to the specified quality levels.

With this said, in retrospect it is clear that incentivizing the company with money to complete and close-out technical issues did not work out as planned. Instead of solving these issues it appears that in the end management rushed to approve these issues as closed without coming to any reputable solution.

International Aspect

The nuclear industry and the companies that work within it are global. These projects and issues are not exclusive to the United States and appear in one form or another throughout the world. Companies such as Bechtel, AECOM, and Jacobs Engineering have worked on well-known nuclear projects from the United Kingdom to South Korea. Bechtel specifically has worked on 150 prime nuclear contracts outside of the United States, putting the total international nuclear projects the three companies have worked on well above 200.⁷⁹

CSR is a global concept and the framework for CSR is applicable across all countries and cultures. A company should still be fulfilling its basic economic responsibility when doing business abroad. If a company is not turning a profit with their services abroad then, similar to domestic work, the company will most likely fall to bankruptcy. The second category, legal requirements, can get a little more complicated abroad. When working in another country it is not only important to know the laws of the company's country of origin but also the laws of the country the company is participating in work. Cultural adherence and respect can fall under both legal responsibilities and ethical responsibilities of a company. Arguably this is so because cultural aspects of a country can be found in their laws and legal requirements for temporary residents and visitors of their country. However, cultural norms that are not found in laws are simply up to the visiting individual to honor and respect. Some of these cultural expectations not found in law should be honored by the company to not only reach beyond the laws of the country but also to foster a strong professional relationship with the government and citizens. Beyond cultural aspects, a company will need to fulfill its ethical responsibilities by not only working above both applicable US laws and foreign laws but by upholding ethical responsibilities to issues such as human rights amongst others.

In the foreign nuclear industry there appears to be many issues that arise due to lack of adherence to CSR policy. As previously stated, Bechtel, AECOM, and CH2M Hill all have published CSR statements that are in line with the basic CSR framework. Work being done abroad by these companies does not always follow their CSR statements or

⁷⁹ AECOM, "Markets," <http://www.aecom.com>, 2017; Bechtel, "The Bechtel Report," <http://www.bechtel.com>, 2018; Jacobs, "Nuclear Overview," <http://www.jacobs.com>, 2017

the CSR framework. However, the issues arising abroad can be different from the events that were occurring domestically at the Hanford Site.

Bechtel has held a business relationship with Saudi Arabia for over 75 years working on non-nuclear projects. Currently, the company holds a contract with Saudi Arabia to build the Riyadh Metro.⁸⁰ However, Saudi Arabia has announced that it is in the process of awarding a contract for the country's first nuclear reactor. Companies from five different countries, the United States, China, France, South Korea, and Russia have all bid on the Saudi Arabian nuclear deal.⁸¹ In fact, the United States has hopes of winning the contract to aid a bankrupt American company called Westinghouse. Bechtel has also expressed interest in the nuclear contract and has declared that they would like to be a part of the project. Brendan Bechtel, CEO of Bechtel, stated, "It would be a pretty sad day to the U.S.-Saudi relationship if the team USA solution was not successful...If it's going to happen, we should be part of helping allies develop a peaceful civilian nuclear program."⁸²

This quote from Brendan Bechtel shows an interesting relationship between international affairs, international business, and the contract award process. Ultimately, if Bechtel, or the US bid for the contract, did not win the Saudi Arabian nuclear deal then business relationships and potentially political relationships could be affected. These potential effects could sway the decision of who is awarded the contract. If the bidding companies were to take any action to sway the award process, such as bribery or corrupt practices, then the companies would be in breach of not only their own CSR statement but also the CSR framework. However, if the companies simply bid on the project and took no further action, but the Saudi Arabian government awarded the contract based on their own perceptions, the company would not be violating their social responsibility. Ultimately, the nuclear deal should be awarded to the bid that best fulfills the Saudi Arabian government's needs.

However, a recent lawsuit has connected Bechtel to alleged participation in corrupt schemes to win Saudi Arabian contracts by knowingly paying off Saudi princes through a third party. Although the company refutes these allegations, there has been evidence that members of Bechtel may have participated in corrupt practices as recent as the 2014 Riyadh metro contract.⁸³

Although the allegations are not connected specifically with the nuclear plant award process, these assertions of corrupt practices could be examples of how the company has been doing business abroad. Ultimately participating in any type of bribery, domestic or abroad, is considered not only illegal but also unethical. When a company participates in bribery it clearly violates the CSR framework in terms of their legal and ethical responsibilities. In some countries bribery and corrupt practices are merely a part of life. However, in international business, especially in an industry such

⁸⁰ Vivian Nereim, "Bechtel in Talks Over Potential Role in Saudi Nuclear Program," <http://www.bloomberg.com>, 2018

⁸¹ Mahmoud Habboush, "Saudi Arabia is Getting Ready for its First Nuclear-Power Deals," <http://bloomberg.com>, 2018

⁸² Vivian Nereim, "Bechtel in Talks Over Potential Role in Saudi Nuclear Program," <http://www.bloomberg.com>, 2018

⁸³ Christopher Williams, "Bechtel linked to 'corrupt' Abu Dhabi group," <http://www.telegraph.co.uk>, 2017.

as nuclear where safety and quality are key, bribery and corrupt practices should be left behind. It is up to the corporation to acknowledge that bribery is accepted in the country that they are working in but is illegal and unethical and therefore should be unacceptable. Regardless if the bribe is simply to obtain a contract or if it further violates safety and quality, bribery is a violation of the CSR framework and companies that partake in these actions are not acting in a socially responsible manner.

These issues are not that common in the domestic nuclear industry of the United States. Yet, the award process in Saudi Arabia poses new issues that arise in the international community. Many countries in the Middle East and Southeast Asia are looking to form nuclear power programs and invest in the construction of nuclear power plants.⁸⁴ Large corporations from all over the world have the chance to bid on these contracts and work with these governments. In fact, in 2008 CH2M Hill was awarded the contract to manage the United Arab Emirates nuclear program in Abu Dhabi. As more countries form nuclear programs and progress towards investing in these programs, it is important that these companies operating in the nuclear industry are acting in a socially responsible manner. There are new risks and issues that can arise while working in the nuclear industry outside of the corporation's home country. It is up to the corporation to choose to be working in a socially responsible manner that fulfills their economic, legal, and ethical responsibilities in all ways possible.

While new issues present themselves in the nuclear industry while working abroad, issues similar to those in the United States still exist. In 2008 the United Kingdom awarded their Sellafield decommissioning contract to a consortium of private companies including AECOM, Areva, and Amec Foster Wheeler. However in 2015 the contract was stripped away from the consortium due to management issues leading to excessive spending.⁸⁵ The original price of the Sellafield contract was estimated to be around 22 million GBP yet the price had been exponentially growing to end up around 67 billion GBP or more. Although the companies were working behind schedule and above cost they were awarded around 54 million GBP in 2012 for performance fees and a contract extension was awarded to the consortium in 2013 for five more years.⁸⁶ The management and cost issues that incurred resulting in the loss of the contract are not clearly laid out, however there is a possibility that these issues are in violation of CSR policies.

Being behind schedule or above estimated cost does not necessarily mean that a company is in violation of the CSR framework. Theoretically a company could be in perfect alignment with the CSR framework in terms of economic, legal, and ethical responsibilities and still fall behind schedule or create more costs. This could happen when adherence to safety policies slow down scheduled work or adherence to quality standards create higher than proposed cost for the project. However, it is clear the British government believes that the rising price and slow work is not due to unavoidable issues such as safety and quality. This can be seen by the fact that the

⁸⁴ World Nuclear Association, "Emerging Nuclear Energy Countries," <http://www.world-nuclear.org>, 2018

⁸⁵ Reuters Staff, "Consortium loses UK's Sellafield nuclear waste clean-up contract," <http://www.reuters.com>, 2015

⁸⁶ Mark Leftly, "Sellafield failed by private clean-up firms: Series of expensive mistakes has led to review at nuclear plant," <http://www.independent.co.uk>, 2013

government took away the contract from the private companies and intends to find a strategic consultant from the private industry while continuing the work themselves.

If the cost of a project is consistently rising it is important to understand where these costs are coming from. In the nuclear industry where contracts are often government issued in the form of cost-plus award, as was seen in the Bechtel false claims case, the company is not always concerned with keeping the overall project cost down, as much as they are concerned about obtaining award fees and cutting their own personal cost. This is where costs and schedule begin to interact negatively with the CSR framework. While a company should be looking out for their personal economic responsibilities, the CSR framework expects them to be working at an ethical level where they would be taking into account the overall cost of the project. Since the government is covering the cost of the project it does not always affect the company if the price of the project continues to rise. However it is the company's ethical responsibility to make sure they are producing the best possible product in a safe manner while keeping costs reasonable and as close as possible to their original proposed cost.

This example of AECOM, along with Areva and Amec Foster Wheeler, at Sellafield shows that the issues with contracts and meeting ethical responsibilities are not apparent just in the United States. It shows that even in another country issues regarding the management of the contracts and keeping the private companies up to an ethical standard are difficult and can result in consequences.

In general, the international nuclear industry is still developing. While large nuclear projects have been in progress in places such as Europe, Russia, and China for several years, other areas of the world are just beginning their entrance into the nuclear industry. However, issues at current international nuclear projects show that CSR is not just being violated in the United States but also globally. Although several countries are working towards the construction of nuclear power plants, countries such as Germany and Sweden are in the process of decommissioning all of their nuclear plants.⁸⁷ This shows that there is a wide range of work to be done in the global nuclear industry and that for the work to be done safely and properly, companies need to step up and adhere to their CSR policies in line with the CSR framework. Similar to the industry in the United States, these changes may need to be prompted by different contract managing techniques and overall change in operations within the nuclear industry.

Conclusion

It is clear from the cases analyzed at the Hanford Site that contractors working in the nuclear industry are not engaging in the CSR framework or even implementing their own CSR statements. In fact, these cases emphasized that the companies' CSR statements were purely for PR and were no way applied to their work on the Hanford Site. Bechtel, AECOM, and CH2M Hill, all fulfilled the basic economic responsibility of business to turn a profit but failed to reach past this level. In several examples the companies did not even achieve legal responsibility. At the very least a business's

⁸⁷ Bechtel, "Bechtel, GE Hitachi Nuclear Energy Join Forces to Pursue Nuclear Plant Decommissioning," <http://www.bechtel.com>, 2017

economic responsibility should be fulfilled within the walls of the law. Fines and settlements will not always fix the problem of a company continuing to act in a less than legal manner. If a company has the money to pay the fines and if they ultimately perceive they will make more money by acting illegally and unethically then they may continue to do so. The ability to adhere to the laws must come from within the company most reasonably stemming from upper management and flowing down these expectations.

Unfortunately, it may be unfair to expect a business to reach levels of ethical responsibility when they are incentivized by contracts that push them to act otherwise. It would be nice to believe that companies would act ethically even if they will lose money in the process of doing so. However, that is not reality. Reality is that businesses are made to turn a profit by fulfilling the work that they specialize in and are contracted to complete. Maybe if contracts incentivized ethical behavior and worker safety above any activity completion or milestone date then there would be a change in behavior. This may not work in all cases, but it seems that if large sums of money were attached to the quality and safety of the work being done rather than the date it is completed by, firms would focus more on the quality and safety because it would lead to the money.

There seems to be a disconnect and failure to achieve a higher level of operation within CSR by these companies in these examples. Although, every single company mentioned in relation to the issues at the Hanford Site alleged they held safety and ethics at a high regard this is not shown through their actions. This is not to say that these companies routinely operate in this manner, however it is important to note that these issues are not exclusive to this project. A quick search of any nuclear cleanup project in the United States will bring forth claims and cases that hold a stark resemblance to the ones described above. These cases often end in fines or settlements and little is reported on the subject aside from in newspapers local to the area the project is located.

It appears that it is the culture of the industry to put economic responsibilities first. The practice of forming LLCs further emphasizes the concept that these companies are focused on economic responsibility. To change the culture of the industry is to change the culture of the companies and what they perceive are acceptable business operations. While changing contract incentives may be a step in the right direction, truly stamping out issues that arise from blatantly disregarding ethical responsibilities to workers, environment, and the community will most likely need to come from within the company. These decisions will be based on the idea that ethical responsibility ultimately outweighs economic responsibility. In other words the companies will, "take into account stakeholders' expectations as well as the impact of its activities on employees, customers, the community, and the triple bottom line." Currently there is a huge imbalance between what executives and shareholders receive versus the price of safety for workers and the environment. Ultimately, for these companies to be truly socially responsible this needs to change.

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