Ethical problems deepwater horizon oil spill management essay

This report will include one of the recent ethical problems, Deepwater Horizon oil spill and a few case studies. Nature of the accident and decisions taken by parties involved will be analyzed and discussed according to the relevant ethical principles.

1. 2 Objective

There are several objectives to be met in this project. Firstly, we would like to investigate the design process and costing considerations of the well design, to see if safety was a major tradeoff, and possible ethical concerns involved. Secondly, we would also like to probe into how safety is communicated throughout the company's chain of command and the culture of the company towards safety, and discuss possible ethical concerns involved too. Thirdly, we would like to discuss more about the company, BP, itself and make comparisons with previous accidents that they had. Lastly, we would like to discuss several recommendations which might be useful in future cases.

1. 3 Ethical Concerns

In this project, several theory of ethics will be used to discuss the ethical concerns involved. They are defined here first for clarity, and in subsequent chapters they will be applied to the issue of concern.

1. 3. 1 Reversibility

1. 3. 2 Act Utilitarianism

Act utilitarianism attempts to determine which cause of action produces maximum happiness or

the greatest benefits as consequences. Rules must be broken, if necessary, to achieve this.

1. 3. 3 Rule Utilitarianism

Rule Utilitarianism asks two questions. What general rule would one be following? And does it

maximize benefits by following this rule?

1. 3. 3 Cost Benefit Analysis

It is often used in engineering; especially in large projects. This method reduces every factor and

consequence of an action into its monetary value and whether the action is acceptable or not is

based on the cost/benefit ratio. However, for our case study, using the cost-benefit analysis is not

appropriate since it involves human lives. Hence other approaches will be used to evaluate the

two case studies.

1. 3. 4 Risk Benefit Analysis

Risk-benefit analysis is the comparison of the risk of a situation to its related benefits. Exposure to personal risk is recognized as a normal aspect of everyday life. We accept a certain level of risk in our lives as necessary to achieve certain benefits.

1. 3. 5 Engineering Code of Ethics

In this case study, we will introduce certain code of ethics, in which certain relevant clauses will be extracted to be applied to the ethical evaluation. Below are a list of ethics which this paper will take reference from:

ASME Fundamental Canons

BP’s own Code of Conduct

IEEE Code of Ethics

Instituto De Consejeros- Administradores (Spain), Code of Ethics for Companies,

NSPE Code of Ethics

1. 3. 6 Universalizability

This is a general principal which demands consistency in our moral thinking. We will be using

Reversibility, a special case of universalizability in our case study. Reversibility means that one

who holds the reversibility will judge an action whether he is at the giving or the receiving end.

1. 3. 7 Respect for Individuals

This approach holds the rights of individuals of groups paramount to any overall benefits that

would be caused by an action. The highest right of an individual is his/her own life.

1. 4 Conflicts of Interest

Conflict of interest is a conflict between one's obligation to the public good and one's self-interest. The purpose of this section is to highlight the possible conflicts of interest between the various parties involved, namely BP Engineers, BP management and Halliburton. Knowing these conflicts of interest will give better understanding why and how the parties involved make decisions. It also helps to examine whether the parties involved are biased and are neglecting ethics at the expense of personal interest.

According to the American Society of Civil Engineers Code of Ethics Canon 1. d, 1. e, " Engineers should seek opportunities to be of constructive service in civic affairs and work for the advancement of the safety, health and well-being of their communities, and the protection of the environment through the practice of sustainable development." and " Engineers should be committed to improving the environment by adherence to the principles of sustainable development so as to enhance the quality of life of the general public."

As mentioned in the aforementioned code of thics, BP, as well as Halliburton, have obligation to preserve the environment health and well-being of their community, which in this case refers to people living nearby and those whose business are affected.

1. 4. 1 Public Interest

1. 4. 1. 1 Environment Health

Oil spills present high risk for enormous harm to marine life and ecosystem. In the short-run, toxic and smothering oil waste instigates mass mortality and contamination of fish and other food species. And, in the long-run, it triggers long-term ecological effects that may be even detrimental to the environment, compared to its short-run effect. Oil waste poisons the sensitive marine substrate, on which fish and sea creatures feed on. This will interrupt the food chain of the marine ecosystem, and is hamrful to the existence of certain species in the marine life. Furthermore, other wildlife including mammals, reptiles, amphibians, and birds that live in or near the ocean, will also be poisoned by oil waste and may lose their source of food.

1. 4. 1. 2 Community Interest

Oil spills can also have devastating short-term and long-term effects on the local economy and society. Oil waste invades and pollutes the coastal areas, which would drive tourists away from these places. People who are depending on recreational attractions and related facilities that have been developed for fishing, scuba diving, swimming, nature parks and preserves, beaches, and other resident and tourist attractions, for source of income will lose their means of living. These people will not only lose their source of income, but the property values for housing will tend to decrease, regional business activity declines, inhibitting future investment around the area.

(Commercial fishing enterprises may be affected permanently. Coastal areas are usually thickly populated and attract many recreational activities and

related facilities that have been developed for fishing, scuba diving, swimming, nature parks and preserves, beaches, and other resident and tourist attractions. Oil waste that invades and pollutes these areas and negatively affects human activities can have devastating and long-term effects on the local economy and society. Property values for housing tend to decrease, regional business activity declines, and future investment is risky. Thus, the three parties involved in the oil spill are obligated to take into account of this aforementioned public well-being.)

1. 4. 2 Self Interest

1. 4. 2. 1 BP Engineers

The engineers have put forward their concern over the lack of safety design to the management however they still go for the riskier safety option (as suggested by the managers) because they have self-interest in job security. As employees, they may fear of losing their job if they go head-on with the company or higher level management. As such, they did not whistle-blow and just continued doing the improper safety measures. The engineers' concern for protecting their job has outweighed the public safety and environmental damage.

1. 4. 2. 2 BP Management

As managers, they have responsibility to ensure the company is running at minimal cost and maximum profit. They managers usually work under specific time constraints and budgeted expenses to achieve their target performance. When they reach the target, they can get bonuses/incentives or be promoted to higher level position. This self-interest may motivate

managers to opt for the less costly design (at the expense of the safety issue).

1. 4. 2. 3 Halliburton

Halliburton tends to follow BP instructions for the oil well design to ensure the customer (BP) is satisfied although Halliburton knew that the failure probability was very high. If Halliburton insisted on BP to use the better oil well design, BP might disagree with Halliburton and find another oil rig operator. Halliburton might then lose its valuable customer. Moreover, its reputation on customer satisfactory would be damaged and Halliburton may lose possible future contracts with other customers.

CHAPTER 2: COST & TIME vs SAFETY

2. 1 Well Design

Firstly, Halliburton has proposed two primary options of well design to BP. One option involves two steel tubes, the liner and tieback. The liner tube is hanging from the liner hanger at the bottom of the casing already in. The tieback tube is inserted on top of the liner hanger. In this liner/tieback option, not only are four barriers for annular flow provided, but liner hanger also acts as second barrier for Hydro Carbon in annulus (BP, 2010). Furthermore, it has higher chance to succeed in cement lift. It is easier to remedy the cement job even if it is required. However, liner/tieback option has its drawbacks. It takes more time and cost to build as compared to the second option, long string casing.

On the other hand, long string casing involves running only one string of steel tube from the seafloor all the way to the bottom of the well. String

option only provides two barriers for annular flow (BP, 2010). Moreover, it is indicated by cement simulation that cement job will be likely unsuccessful because of formation breakdown. In addition, it would violate MMS regulations of 500 feet of cement above the top Hydro Carbon zone, and it is required bond log to be verified. In spite of the aforementioned risks, long string casing installation is less time consuming and less costly than liner/tieback which in turn influenced BP's decision to use the latter.

For economic reason, BP has decided to use the long string casing option despite its possible drawbacks. Liner/tieback option was rejected even though it will be safer option as recommended by Halliburton. On March 25, in his email for Allison Crane, Materials Management Coordinator of BP, Morel mentioned that long casing string will save at least 3 days (Henry Watson, 2010). In the following week, he emailed BP Completion Engineer and Drilling Engineer that it is better not to choose the tieback as it saves a lot of money and time.

2. 2 Centralizers

Secondly, BP has used only 6 centralizers that are attached around the casings to keep the casing in the centre of the well. It is important to keep the casing in the centre of the well because there is increased risk of gas flowing up the annular space around the casing due to formation of channels in the cement. To achieve only a minor gas flow problem, 21 centralizers are required to install according to Mr. Gagliano modeling. Mr. Gagliano has informed to BP engineer that modeling resulted in moderate gas flow problem with 10 centralizers (Henry Watson, 2010). However, BP engineer, Mr Morel, emailed back that it is hoped the pipe stays at the centre due to

gravity as it is a vertical hole, and “ as far as changes are concerned, it is too late to get any more product on the rig, our only option is to arrange placement of these centralizers” (Henry Watson, 2010).

Mr Waltz, BP’s Drilling Engineering Team Leader explained to Mr Guide, BP’s Well Team Leader that he wanted to make sure the centralizers were working well unlike their previous Atlantis job, and “ I do not like or want to disrupt your operations . . .. I know the planning has been lagging behind the operations and I have to turn that around.”(Henry Watson, 2010). Mr. Guide responded that “ it will take 10 hrs to install them. … I do not like this and … I am very concerned about using them.” Hence, even though BP has known the risks of having gas flow problem, they were just trying to get the job done faster rather than solving the problem.

2. 3 Cement Bond Log

Lastly, BP has skipped cement bond log test which determines whether the cement has bonded to the casing and surrounding formation. By performing the test, even if there is any channel in the cement for the gas flow, repairing the cementing job can be done by injecting additional cement to block any channel for the gas flow.

Mr. Roth, Halliburton Vice President of Cementing, said that the cement evaluation should be performed as a part of comprehensive system integrity test if the cement is to be relied upon as an effective barrier (Henry Watson, 2010). Moreover, a cement bond log test was required if there is an inadequate cementing job according to Minerals Management Service (MMS)

regulations. Mr. Gagliano’s simulation result showed that cementing job on Macondo well is inadequate cement job.

On April 18, BP has contracted Schlumberger for the cement bond log test if BP has requested those services (Henry Watson, 2010). On April 20, the Schlumberger crew was told that cement bond log test is not required to perform. The cement bond log test will cost over $128, 000 to complete. On the other hand, canceling it will cost only $10, 000. Furthermore, it would take additional 9 to 12 hours to perform the test. It would take more time if cement repairing job was required.

2. 4 Blowout Preventor (BOP)

Blowout preventer is used to automatically cut the pipe and seal the well to prevent the oil from leaking the well if any failure in system is occurred. Hence, it is very much important to have blowout preventer in a very risky operations like drilling of deep water oil well and to test the integrity of blowout preventer. Although blowout preventer had been fitted to BP wellhead, there was a failure in blowout preventer as the oil had leaked from the well although the reason for the failure is not known (Russell, 2010). Moreover, it is indicated in documents discussed during congressional hearings June17, 2010 that there were modifications made to BOP for the Macondo site which increased the risk of BOP failure.

2. 4 Theory of Ethics

In this chapter, we will attempt to use several theory of ethics to discern whether or not the company was doing the right thing ethically.

2. 4. 1 Reversibility

If BP engineers are required to operate on the oil rig platform, BP engineers would choose line/tie back casing, more centralizers installation as it concerns for their lives according to reversibility. Moreover, cement bond log test is going to be performed to make sure it is safe to operate.

2. 4. 2 Act Utilitarianism

By choosing long string casing, the operating cost and time will be reduced which could result in reducing the price that the public are required to pay. If there were no explosion of oil rig, choosing long string casing was good in act utilitarianism approach. However, there was explosion and oil leakage affects the marine lives and public's livelihood. Moreover, due to BP negligence, they were fined. Hence, according to Act Utilitarianism, choosing the long string casing, operation with just 6 centralizers and failure to perform cement bond log test should not be done.

2. 4. 3 Cost Benefit Analysis

BP has chosen the cheaper and less time consuming option. Hence, BP has done the right things in terms of cost benefit analysis. However, cost benefit analysis should not be used here because it concerned lives of the workers on the oil rig platform and the marine lives.

However, due to explosion and oil leakage, BP has to pay out more than the amount they should spend on well design, centralizers and cement bond log. Hence, they have under estimated the amount of money needed to pay if there is any accident occurred.

2. 4. 4 Risk Benefit Analysis

Although BP would save a lot of money and time, the option they chose is very risky as the simulation result shows there would be problem in gas flow. Moreover, the risk they have taken has very high chance of failures although a lot of time and money were saved. Hence, in term of risk benefit analysis, BP has chosen the wrong options.

2. 4. 5 Code of Ethics

According to IEEE's code of ethic, " engineer shall accept responsibility in making decision consistent with the safety health and welfare of the public".

According to National Society of Professional Engineers (NSPE) code of ethics, " Engineer shall hold paramount the safety, health, and welfare of the public."

Engineers are encouraged to adhere to the principles of sustainable development in order to protect the environment for future generations"

Hence, BP was unethical to choose the cheaper and less time consuming option according to the above approaches. Moreover, BP has violated the codes of ethic because it has neglected the safety of public and environment. If BP had chosen safer options rather than cheaper options, this tragic accident could have been prevented.

CHAPTER 3: THE 3Cs – Communication and Company Culture

3. 1 Whistle Blowing

When interviewed by CNN, a survivor from the BP's Deepwater Horizon, Daniel Barron III, mentioned that on the morning of the explosion, there was an argument regarding the decision to go ahead replacing the heavy mud, used to keep the well's pressure down, with lighter seawater to speed up the process. BP's management decided to proceed with seawater. After the exchange, Baron mentioned, chief driller Dewey Revette expressed concern and opposition regarding the decision made (Bloxham, 2010).

Like Mr Revette, there are many other Deepwater Horizon rig personnel who had concerns regarding the safety of the rig, which had they been heard and heeded, could have averted the tragedy. However, sadly, these concerns had not been voiced out properly and heeded. The workers have fulfilled their duty to whistle blow safety issues that might have led to the accident.

3. 1. 1 Universalizability

Workers should have whistle-blowed. If everyone abandoned their responsibility to whistle-blow, no action would be taken by the company to rectify the problem.

3. 1. 2 Act Utilitarianism

Again, whistle blowing should have been done. Whistle-blowing on safety issue promotes greater good of the society. While running the oil rig in the manner it was run saved cost, the benefit is not distributed equally and it may not even be comparable to the long term effects it caused. Only few BP

officials get most of the monetary benefit, while the cost is irreversible and is spread among people across countries.

3. 1. 3 Rule Utilitarianism

As to follow what the BP Code of Conduct dictates, workers should have whistle-blow-ed against the safety issue.

3. 1. 4 Respect-For-Individual

Workers have to balance his respect for company and his respect for their colleagues' lives and public's health and survival. Obviously, the latter outweigh the respect for the company. Thus workers did the wrong thing under this rule.

3. 1. 5 Code of Ethics

According to BP's own Code of Conduct, " If you are unsure of what to do in particular circumstances or concerned that the code is being broken, you have a responsibility to speak up. The code explains the mechanisms to do this . . . and the protections to ensure that retaliation against those who do speak up will not be tolerated..... Always... Stop any work that becomes unsafe."

Workers should have reported the safety issues and even gone to the extent of stopping work.

According to NPSE's Code of Conduct, " Engineers shall be guided in all their relations by the highest standards of honesty and integrity. Engineers shall advise their clients or employers when they believe a project will not be

successful. Engineers shall not promote their own interest at the expense of the dignity and integrity of the profession."

Workers should have persisted in advising BP management that if they continue their practice, accident is bound to happen. They should not have tried to promote their own self-interest of keeping their job at the expense of their colleagues' lives, public lives, and marine lives.

3. 2 Company Culture

It is true that the some workers are partly to blame for not reporting what they know is wrong. However, looking back at the very essence why they dare not speak up, it would be due to BP's culture. In a CNN interview, a Deepwater Horizon's rig survivor mentioned that it was understood that the act of raising safety concerns that might delay drilling schedule could cause them to lose their job (Bloxham, 2010). Employees and ex-BP-employees described how the management overlooked safety by neglecting aging equipment, pressured or harassed employees not to report problems, and cut short or delayed inspections in order to reduce production costs (Lustgarten, 2010). Beyond harrasment, some workers were even fired. Sneed, a former technician at Purdhoe Bay, one of BP oil field, was fired for attempting to stop work upon discovery of a crack in the steel skin of an oil transit line that may ignite stray gases (Lustgarten, 2010).

Not only the workers, subcontractors have also faced similar problem of not being able to force their concern regarding safety due to BP's company culture that prioritizes speed and finance on top of safety. Halliburton may fear that they face the same fate as BP's subcontractor, Kenneth Abbot who

was fired when he tried to reveal information regarding safety concern to BP official (Blizzard, 2010). Kenneth Abbott noticed that Atlantis was operating with incomplete and inaccurate engineering documents. A 2008 email from Abbott revealed a BP manager warning about incomplete design specifications being given to platform operators in violation of federal law and BP's own safety regulations. And he was fired for doing so.

The message that BP would like to bring across by these firings are clear, that they are not ready to follow the safety ideals.

3. 2. 1 Reversibility

The company would not have fired whistle-blowers if they are ones of higher rank, such as director or shareholders. Hence, the act of firing employees cannot be justified.

3. 2. 2 Act Utilitarianism

By firing these workers, BP eliminated threat of internal information leaking by setting these cases as example. However, on the other hand, workers may be demoralized because they know that have to be silent about whatever the company is doing or faulting even if it involves human lives, if they want to keep their job.

While hiding the safety inadequacies prolonged the period of BP's large profit and good reputation, the cost that BP and the world have to bear later on is way larger than the benefit it reaped. Not only workers lost their lives, enormous number of marine lives perished and billions of dollars are

pumped into cleaning up the oil spill and compensating affected civilians. Hence, BP's action is not justified.

3. 2. 3 Rule Utilitarianism

BP has to follow its own rule to protect those who speak up in matters regarding safety, in this case whistle-blowing workers. Hence, their action of firing workers instead cannot be justified.

3. 2. 4 Respect for Individual

The company has to balance between the respect for the workers and the respect for the whole company. The company might have fired these workers to protect the company's image and respect the company. However, they have neglected respect for individual worker's honesty and dignity. Hence, they should not have fired these workers.

3. 2. 5 Code of Ethics

According to Instituto De Consejeros- Administradores (Spain), Code of Ethics for Companies, " Carry out their activities in a professional, ethical and responsible manner."

According to this code, BP managers should do things in an ethical and responsible way.

The management was being informed by workers about the possible harm of the compromises on safety done on the rig and yet they did not take any action to investigate and rectify the problems. Moreover, they fired these people for raising the issue. In this case, BP had not been acting in a professional manner.

CHAPTER 4: INFORMATION MANIPULATION

BP has been accused of withholding vital information/manipulating information before releasing them to public.

4. 1 A series of information manipulation

Firstly, on May 19th 2010, BP America president Lamar McKay reconfirmed that the damaged well's maximum release rate hovered around 5, 000 barrels a day. However, Associate Professor Wereley of Purdue University estimated the damaged well's oil-release rate at a much higher figure, 95, 000 barrels a day (Raloff, 2010).

Secondly, Purdue's Werkeley mentions that if longer streams of video were made available, scientists can further check the gas-to-oil ratio emanating from the well to produce more accurate estimate. BP management has those numbers but hasn't shared them yet. And the oil giant also has not been sharing much video. On August 19th 2010, Transocean, the company that owned the oil rig, also alleged that BP was refusing to hand over information it needs about the explosion (BP rejects claims, 2010).

Thirdly, shortly after the oil rig exploded, BP purchased sponsored links at the top of internet search engines, Google and Yahoo to keep people from the real news. This rises the question: If BP were not trying to influence information on the Gulf oil spill, why would they buy sponsored links? BP spokesman Toby Odone told ABC News," We have bought search terms on search engines to make it easier for people to find out more about our efforts in the Gulf and make it easier for people to find key links to information on filing claims, reporting oil on the beach and signing up to volunteer" (Torbin,

2010). Nevertheless, the opponents argue that BP was manipulating search results on Google to keep their company image safe.

4. 2 Theory of Ethics

4. 2. 1 Reversibility Theory

If BP managers were the public (i. e. fishermen and people who use or live by the coast), they may want to know the actual oil spill amount so they can know how the oil spill will affect their livelihood and health. The authority and environmentalists also need to know the actual data so they can take the appropriate measures to solve the oil spill. Thus, BP should not underestimate the spill rate.

4. 2. 2 Utilitarian Theory

BP may think hiding the oil spill damage can help to mitigate the public panic, avoiding unnecessary chaos. With less panic, BP can focus on their cleaning-up measures. Thus BP hid information to bring maximum benefit to the public and themselves with the assumption that BP quickly and diligently cleans up the oil spill.

However, by hiding the information, BP can evade penalty that they have to pay to affected countries' government and take less clean up measures. Consequently, public's welfare will be compromised. Weighing both effects, BP should not have underestimated the spill rate.

4. 2. 3 Violation of Code of Ethics

4. 2. 3. 1 Underestimation of Spill Rate

According to IEEE Code of Ethics, “ To be honest and realistic in stating claims or estimates based on the available data.”

More than four independent engineers have pegged the spill rate at between 25, 000 and 100, 000 barrels a day (Raloff, 2010). This would suggest BP’s number is an outlier, said House Subcommittee on Energy and the Environment chairman Ed Markey. Wereley further assured that all of these estimates from outside the industry are considerably higher than BP’s. “ I don’t see any possibility – any scenario – under which their number is accurate,” he said. Thus, BP was neither honest nor realistic in stating estimates.

According to ASME Fundamental Canons, “ Engineers shall admit their own errors when proven wrong and refrain from distorting or altering facts to justify their mistakes.”

Responding to the public outrage and accusation, BP management defended themselves and said that estimates were hard to make since there was no way to attach a flow meter to the top of the gashes in the damaged pipe. However, Rachel Maddow (2010) disagreed with BP. She mentioned that If BP is found guilty of gross negligence because they reportedly failed to repair the damaged blow out preventer on the Deepwater Horizon, that penalty rises to $4, 300 per barrel. At the estimated spill rate of 25, 000 barrels a day beginning on April 20 until the completion of relief wells in August, the fines from the EPA alone would be 10. 7 billion dollars. As EPA oil

spill fines are well known throughout the industry, she commented that “ BP had a great deal of motivation to underestimate their original figures on the amount of oil being spilled.” BP has breached the ASME Fundamental Canons, underestimating figures for their own benefits. With Utilitarian Theory, BP does not bring the maximum benefit to the public as they will pay fewer penalties for the environmental damage.

4. 2. 3. 2 Withholding crucial information

According to NSPE Code of Ethics, “ Engineers shall avoid the use of statements containing a material misrepresentation of fact or omitting a material fact.”

When subcommittee Markey formally requested BP to make live streaming video from its wellhead available to the public, the video was compressed so that much of the fine detail was missing (Raloff, 2010). He emphasized that original unadulterated footage is necessary for high-quality flow analysis. Therefore, it is likely that BP has tried to omit relevant material facts from the public.

Steven L. Roberts, lawyer for Transocean, writes that BP has continued to demonstrate its unwillingness, if not outright refusal, to deliver even the most basic information to Transocean. “ This is troubling, both in light of BP’s frequently stated public commitment to openness and a fair investigation and because it appears that BP is withholding evidence in an attempt to prevent any other entity other than BP from investigating,” he wrote (BP rejects claims, 2010). This substantiates that BP has not released even the basic information to the related companies and authorities.

4. 2. 3. 3 “ Buying” online search engines and scientists

According to NSPE Code of Ethics, “ Engineers shall not offer or give, either directly or indirectly, any contribution or gift to influence pubic authority or to secure work.”

Critics have described BP’s move as unethical. Maureen Mackey, a writer on the Fiscal Times, an online news site, said: “ What it effectively does is that it bumps down other legitimate news and opinion pieces that are addressing the spill… and (BP are) paying big money for that.” He comments that BP is trying to salvage its battered image following the oil slick in the Gulf of Mexico. This shows that BP may “ buy” the mass media to manipulate information to serve BP.

In fact, BP’s unethical acts are also evident as BP has been offering signing bonuses and lucrative pay to prominent scientists from public universities around the Gulf Coast to aid its defense against spill litigation. BP attempted to hire the entire marine sciences department at one Alabama university, according to scientists involved in discuss