

1.0 Background

Chidex Oil & Gas Corporation is a Canadian company that specializes in the extraction, production, and distribution of natural gas in Canada and also distributes this product beyond the borders of the country. It is located in Manitoba, Winnipeg and it carries out its activities majorly by engaging in offshore drilling on the high seas. As we know, offshore drilling is a sensitive activity. Healthy oceans are very important and significant to marine life and also to coastal communities who depend majorly on economic activities like fishing and tourism. The act of offshore drilling puts our oceans at risk of permanent destruction.

2.0 Key Environmental Issues

A number environmental issues arise from the drilling of oil on the high seas as well as processing the oil for consumable purposes. Key environmental issues will be discussed as well as regulatory and non-regulatory policies that have been set up for the containment of these issues. These key issues include; water pollution in the event of an oil spillage, endangerment of marine life, air pollution from emission of gases like CO₂ during drilling and processing of oil, and exposure to harmful gaseous substances. The regulatory frameworks include; The Climate Change and Emissions Reductions Act, Contaminated Sites Remediation Act, and the Canadian Environmental Protection Act (CEPA). A non-regulatory policy employed is Standards set up by the International Organization of Standards (ISO) to provide specific guidance on how to comply with requirements. However, some risk management tools would be employed to serve as both risk prevention/monitoring and risk containment strategy. These tools include an Environmental Impact Assessment (EIA), setting up an Environmental System Management (EMS) program and preparing Audits (particularly CO₂ emissions audit).

- **Issue 1 – Water pollution in the event of an oil spillage**

In the event of an oil spillage terrible harm can be caused to the water polluting it in the process which then sets off a chain reaction of all other degradation activities. Oil spillage can be caused by breakdown of equipment, people making mistakes or being careless, natural disasters such as hurricane, or even deliberate terrorists act. The oil will float on the water, heavy oil can sometimes sink, although very rare. The oil usually spreads out rapidly across the water surface and turns to an oil slick and as the oil continues spreading it finally becomes a sheen which is rainbow-like in appearance. The Contaminated Sites Remediation Act is one regulatory instrument used to regulate this occurrence, it provides for the remediation of contaminated sites and if possible restoration of such sites. The corporation will surely pay the cost of remedying the site and the polluter (Chidex Oil & Gas Corporation) could be fined up to C\$500,000 for a first offence and up to C\$1,000,000 for subsequent offences and also the corporation's reputation is tarnished. An effective tool that can be employed here in order to take care of this issue is the Environmental Management System (EIA). Basically an EIA statement has to be prepared to manage this activity and its risks and also to provide ample mitigation plans in the case of an adverse effect - all these of course will be included in the EIA report. An EIA would be the most effective tool to manage this because it includes effective steps as part of its processes that would be very adequate for managing an issue such as this. In the EIA a proper scoping of the project and the environment at risk by its activities would be carried out, and here various factors would be identified such as; the boundaries of the

project, public concerns, environmental setting (i.e. physical, social and biological characteristics of the environment), attention drawn to Valued Ecosystem Components (VECs) and also the key environmental issues would be identified. After this is done, the key environmental issues would be assessed to identify interactions between the project and the environment and determine the magnitude, nature and consequences of the predicted effects. And then appropriate mitigation measures to tackle these effects would be identified as well as a follow up program to verify the accuracy of the assessment and also to determine the effectiveness of the mitigation measures implemented. All these and more would be done before a final report is put together for project approval. So with this, appropriate measures would be taken to reduce the risk of water contamination by oil and to effectively save the water from gross degradation in the case of a spillage. Without any doubt, the EIA would be the most articulate tool to effectively tackle this issue as it takes a stepwise approach in dealing with the problem.

- **Issue 2 - Endangerment of marine life and habitat**

When an oil spill occurs it can bring terrible harm to marine life and thereby threaten the existence of its life forms. These spills can be very harmful to marine birds, mammals and also can harm fish and shellfish. Oil destroys the insulating ability of fur-bearing mammals, such as sea otters, and the water-repelling abilities of a bird's feathers, thus exposing these creatures to the harsh elements. Many birds and animals also ingest oil when they try to clean themselves, and get poisoned in the process. The Canadian Environmental Protection Act (CEPA) is a regulatory instrument used to put this action in check, which governs the regulation of toxic substances and water pollution. CEPA also establishes a system for evaluating and regulating toxic substances and imposes requirements for pollution prevention planning and emergency plans. Under CEPA's enforcement they can be fined between C\$100,000 to C\$6 million if found in violation. Coincidentally the risk management tool used for issue one also applies to this issue, the EIA tool would be the most effective tool for managing this issue as it would do a proper scoping of both the project and its effects on the environment. In this process of scoping the boundaries of the project would be properly identified as well as the key environmental issues, which in this case is the destruction of marine life and habitat. A baseline data would be presented depicting a picture of the state of things prior to the initiating of the project. After this the effects would be assessed, in this part of assessment forecasting techniques would be employed to quantify or rather rank or estimate the consequences of the predicted effects giving the firm and public a bit of a reality check as to what is at stake should there be a spill. In its own way it increases the level of caution exercised. These predictions however are based on objective methods. After this, a proper mitigation measures would be identified to help tackle the spotted effects, it would identify technical and economically feasible measures that will help mitigate the project's adverse environmental effects. This mitigation is designed to eliminate, reduce or control the project's adverse environmental effects. It can include a restitution for any damage to the environment caused by the effects either through replacement, compensation, restoration or any other means. So in general, mitigation will be used to address all the adverse environmental effects. The EIA will ensure careful and conscious steps are taken to avoid the risk actualizing as well as effectively containing it in the case of an occurrence.

- **Issue 3 - Air pollution from emission of gases like CO₂ during drilling and processing of oil**

Off-shore drilling activities cause air pollution of Volatile Organic Compounds (VOCs), which include methane, carbon dioxide, and nitrogen oxides. They are produced from offshore installations like gas venting on shuttle tanks when oil is loaded onto these tanks for transport, as well as gas flaring, gas turbine exhausts, diesel or fuel exhausts, well testing and diffuse emissions from the platform and drilling place. The Climate Change and Emissions Reductions Act is a regulatory instrument that can be used to contain this. It sets targets for emissions reductions and also requires periodic reporting on progress made to that effect. This regulation can impose carbon taxes on the corporation. The perfect tool that can be used to tackle this issue of air pollution through CO₂ emissions is to implement an Audit System. An environmental audit is a systematic process that is used to evaluate the environmental performance of an organization. Performance is evaluated against predetermined standards or criteria and these criteria can include government regulations, corporate policy and procedures, and industry standards. So an audit will be carried out on the amount of CO₂ emitted for the purpose of setting up a proper monitoring system to curb the issue. The reason for audit is because audits serve as an internal evaluation by company and other government agencies, to verify compliance with legal requirements such as the Climate Change and Emissions Reductions Act which stipulates “to set targets for emissions reductions and also requires periodic reporting on Manitoba’s progress in achieving those targets”. Apart from ensuring alliance with regulatory stipulations, audits as well also ensures that compliance is maintained with their own internal policies and standards. So the audits will help identify compliance problems, as well as weaknesses in the management systems, or areas of risk, and the findings will be documented in a written report. In summary, an audit will serve as a risk assessment tool and also as a risk compliance tool as well, therefore, with the establishment of an audit environmental performance would be greatly improved thus tackling the issue of excessive CO₂ emissions.

- **Issue 4 – Exposure to harmful gaseous substances**

In carrying out operations there is risk of exposure to harmful gases such as Hydrogen Sulfide (H₂S) in oil field, and Ammonia (NH₃). Ammonia causes irritation of skin, eyes nose and throat. Some of these other gases can have an adverse effect and lead to death. A non-regulatory instrument that can be used to control this is compliance with the International Organization of Standards (ISO). The ISO has certain standards as concerning working in places that involve exposure to some gases, especially associated with the handling of crude oil and petroleum products. An example is the ISO 8216-0 family which provides for gases that may be derived from crude oil processing or recovered from natural gas and/or crude oil production. The ISO 8216 establishes the detailed classification of liquefied petroleum gases within class F (Petroleum fuels) and should be read in conjunction with ISO 8216/0. These liquefied petroleum gases as stated above may be gotten from crude oil processing or recovered from natural gas and/or crude oil production. So as these ISO standards are adhered to, a safe working environment can be assured to a great extent. These standards are added to, and revised from time to time. They have no legal standing and no particular punishment for non-compliance. However, it’s a due diligence defense. An effective tool that can be used as a management of this risk is setting up an Environmental Management System (EMS). An EMS is a framework that would effectively manage the potential/actual risks associated with operations such as these. When carrying out an EMS, first of all a plan would be prepared which would include written procedures and processes that must be

put in place to ensure compliance with all available regulations, statutes, by-laws, permits and even certificates of approval. It would also make sure that solutions satisfy the requirements of all necessary regulations or standards. And then an implementation of the plan would be carried out as well as an appropriate reporting system to the board on updates in the implementation of the plan and how it is working. Periodic audits and reviews would be conducted for the purpose of ensuring that the procedures are being followed in consistency and that the risks are being appropriately considered. Then a proper follow-up system would be carried out for the purpose of improving the goals of the EMS. And then an overall managerial overview would be carried out and if some more loopholes are identified at this stage, another policy/plan would be brought forth that would tackle the problem and then the circle of its implementation continues. An EMS is a continuous loop of environmental management that would ensure that risks are properly managed, it is also a very good due diligence defense. With these, the EMS is the best tool for handling the issue at hand.

3.0 Conclusion

Chidex Oil & Gas Corporation which is involved in offshore drilling activities for the purpose of oil extraction will have to work pretty hard in order to evade the risks that is accompanied with its activities. The above stated tools would be very apt and decisive in their management of the various environmental issues raised. The tools would help to reduce, prevent and tackle the various risks that the operation may pose as well as making sure that the environment is first put into consideration before the commencement of any project or activity. And also these risk management tools help to promote growth and development in a sustainable way; one that would last even in dynamism. The corporation also know fully well that it would be a hundred percent liable for any mishap that will have a detrimental effect on the environment or its workers.

4.0 References

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