

7.0 ENERGY GENERATION

7.1 Introduction

The proposed undertaking will require some form of energy to facilitate the seismic phase of the overall operation. In order to calculate the energy requirements it is important to determine the energy source and/or its alternate in conjunction with the required fuel management and transportation. It is anticipated that the proposed undertaking will have some impact on the environment, but these are expected to be short and local as a more stable and reliable source of energy is sought.

7.2 Energy Requirements

It is anticipated that the energy demand for this phase of the project will be minimal as it will only be required to power minimal electrical equipment. Nevertheless, once the phase is in operation, it will require a constant supply of energy to power the equipment and its auxiliaries. The demand of this phase is the lowest of the entire process (drilling + production) and therefore it is expected to be temporary in nature. This demand is expected to increase exponentially as the project moves forward and will entail the powering of sophisticated equipment.

7.3 Energy Supply Source

The energy source is an important factor when considering this type of activity. US Capital Energy will exercise caution in selecting the source for this stage. This will include incorporating the appropriate safety measures and the implementation of strict operational codes.

Since seismic activities are more often carried out in remote locations and far from any power transmission lines, power supply for the seismic phase will be provided by both portable diesel and gasoline generators. The gasoline generators will be small and highly

portable making their use important. It is anticipated that the larger diesel generators will be used to power the seismic equipment including computer hardware and the respective camps. Once in operation, the project proponent will ensure that all the generators are properly functional and that there are no spills on site. To mitigate these negative effects, the generators will be enclosed by containment booms. In conclusion, US Capital will utilize generators to produce and meet its electrical demand.

7.4 Alternative Energy Sources

Energy can be derived from a myriad of alternative sources including thermal, solar, wind, tidal and nuclear energy. Solar panels and wind energy are recommended as secondary sources of electricity but their use is limited to night time lighting. These two options may be used along with the generator energy source.

The energy requirements are very small and there are no other more suitable options available for the generation of the required energy. Potentially, a limited amount of power for the camp site and office could be provided using solar energy but since most, if not, all of the camps will be located in forested surroundings, this prevents it from being a viable alternative option.

7.5 Fuel Management for Energy Generation

US Capital will require fuel for its seismic operation. The fuel sources (diesel, gasoline and butane) are readily available from the commercial sector. The demand will be according to the different equipment most notably the diesel generators.

7.5.1 Cooking Fuel (if applicable)

Fuel such as butane and propane used for cooking by workers (campers) during the seismic stage will be stored using the recommended guidelines. Each site will store these fuels with the proper containment measures. The transportation of butane and propane will be the responsibility of the company, which will follow the recommended guidelines for the transportation of Hazardous Materials. The company will also be responsible for the replacement of any faulty or corroded butane or propane container.

7.5.2 Fuel Storage and Transportation

Fuel for the diesel generator will be stored in a 500 gallon tank with bonded secondary containment. If additional fuel is required it will be obtained from the local supplier who will be responsible for the transportation. It is anticipated that no fuel other than the specified fuel will be kept on site for the duration of the seismic activity. US Capital will make every effort to mitigate any localized spills that can occur as a result of fuel dispensing. This would include the use of drip pans and absorbent materials.

Fuel for the gasoline generators will be stored in appropriate containers clearly marked with the stored contents' name. These will be placed in an enclosed location and used accordingly or as required by the generating needs.

7.6 Impacts and Mitigation Measures

The energy requirements are very small and the methods of generating the energy required are modern. Nevertheless, the installation of the temporary generators has the potential to create negative environmental impacts in the following areas:

- ❑ Orientation to the site will focus on the environmental contributions that these have on the project sites. The company should place the exhausts/mufflers in less visible locations provided there is enough wind.
- ❑ Negative impacts can result from the siting and placement of the diesel generators. These may include diesel and waste oil spills and leaks. US Capital will ensure that measures are in place to prevent this and if there are any spills, they will be mopped up and disposed according to the environmental guidelines. All waste oil or contaminated fuel will be store on site until further DoE disposal.
- ❑ Negative impacts will result from the operation of the generators. Noise displacement will be minimized by installing adequate mufflers and maintaining these at all times. Modern generators have a portable housing that encloses the engines thereby further reducing the noise produced by the generators.
- ❑ Waste batteries, if any, will be removed from the well sites and properly discarded.

Table 7.1 Matrix of potential impacts to the environment

Category of Project Activity	Preferred Options for Carrying out Project Activity	Direct and Indirect biological and physical Impacts	Recommended Mitigative Measures	Residual Impacts Mag/ Dir/ Dur/ Slope
A. Seismic Phase:	1.0 Diesel Generators	Excessive noise pollution	Use silencers on muffler, route muffler pipes underground or use generator housings	low/ dec/ short/ local
		Pollution risk due to accidental spills from fuel and oil storage tanks	Place gen-sets in an enclosed bond wall with 110% capacity of fuel tank	
			Transport fuel in sealed containers only	
		Air pollution and combustion fumes	Keep generators properly serviced and use recommended fuels and additives only	
	2.0 Alternative Sources	Not viable at this point	Not viable at this point	