THE ENVIRONMENTAL IMPACT ASSESSMENT FOR TANK WELD METAL LAYING OF PIPELINES AND PETROLEUM FACILITY @ RIO BUENO, LOT 3, HOLLAND HILL, TRELAWNY

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CLIENT: Tank Weld Metal

WORK DONE BY:

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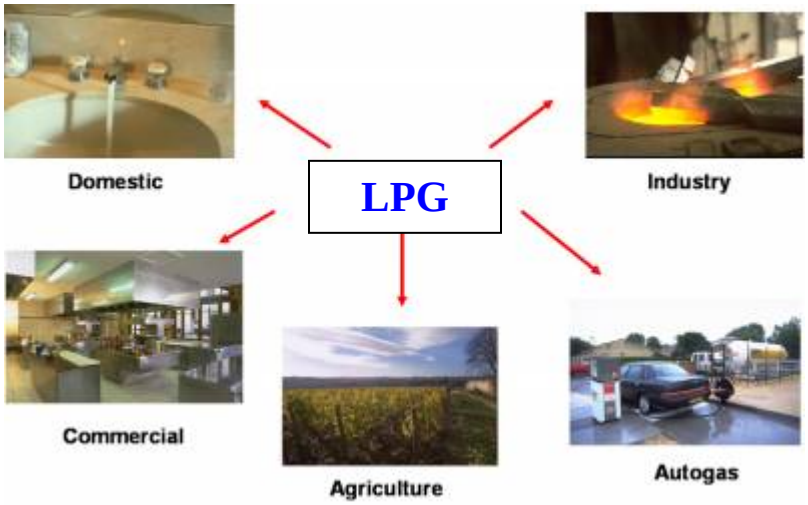
EXECUTIVE SUMMARY

Introduction

This document presents the findings of an Environmental Impact Assessment (EIA) of the proposed ***Laying of pipeline and Liquid Petroleum Gas (LPG) storage and loading facility at Lot 3 Holland Hill, Rio Bueno, Trelawny.*** The National Environmental and Planning Agency (NEPA), as a part of its permitting process requires that projects of this nature conduct an EIA of the proposed development. EnviroPlanners Limited was contracted to conduct the study in accordance with the terms of reference approved by NEPA.

The Proposed Development

LPG is an environmentally friendly source of energy with a wide range of applications: domestic (heating, cooking, hot water production), industrial, agricultural, catering and automotive fuel. LPG is used in hundreds of applications by millions of users throughout the world. When LPG is burnt it produces the cleanest emissions of all oil-based products, with a low carbon dioxide output.



This gas is a pure, lead-free product that is virtually devoid of sulfur and particles. LPG does not produce sulfur dioxide (SO_2), and only generates a limited amount of carbon dioxide (CO_2) and ozone. It also generates very limited quantities of carbon monoxide (CO), nitrogen oxides (NOx), unburned hydrocarbons and particles. When burned, LPG is odorless and the noise level is very low.

The operations of the proposed facility will include the receipt of LPG from ships, via a underground pipeline from the Rio Bueno port to the storage facility, which will be constructed as a part of the project; the storage of this product in purpose mounded design containers, the loading of product into bulk trucks and trailers and the filling of same into cylinders, using an automated filling system. There will be no processing of the LPG received and no bi-products will be generated. The only adjustment to the product will be the addition of the stenching agent to produce the characteristic smell.

This pipeline to be constructed, will run from the port at Rio Bueno to the storage site, delivering LPG up to a rate of five hundred gallons per minute (500 gpm). It will be constructed with 8-inch diameter Schedule 80 black iron pipe. The line will be buried and joints will be welded or flanged. The ships' pumps will aid transfer through the pipeline. The tank farm will consist of fourteen (14) storage tanks, each of ninety thousand (90,000) gallons capacity, for the storage of liquid propane and butane, collectively know as Liquefied Petroleum Gas (LPG) or cooking gas. Mounded technology will be utilized in the construction; this is the most modern and safest technology available in the industry.

Methodology

A multi-disciplinary team of experienced scientists and environmental professionals was assembled to carry out the required resource assessment, generation and analysis of baseline data, determination of potential impacts, recommendation of mitigation measures and possibly alternative. An interactive approach among the environmental team members and other project professionals was adopted. The EIA team worked very closely with the other project team members including the project manager, engineers and surveyors.

The team utilized the Charette-style approach to data gathering, analysis, and presentation whereby team members conducted the reconnaissance investigations together to determine the critical elements for analysis and the issues to be highlighted in the design and planning process. Team meetings were held to discuss the progress of investigations and to analyses and facilitate

integration of data toward an understanding of the systems at work in both the natural and built environment.

Baseline data for the study area was generated using a combination of:

- Field studies
- Analysis of maps, plans, aerial photos
- Review of engineer's reports and drawings
- Review of background project documents
- Structured Interviews
- Social Surveys
- Internet Searches
- Agency requests and document searches

Written environmental searches were undertaken through the WRA, NWC and ODPEM. In addition website searches of the National Environment and Planning Agency (NEPA), Meteorological Service of Jamaica, and NWC was undertaken to obtain relevant information.

Detailed methodologies for the physical, biological and socio-economic aspects of the baseline survey are presented in the report. Additionally, limitations to the study were identified.

Regulatory Framework

An application for an environmental permit for the construction and operation of a LPG storage and loading facility at Holland Hill, Rio Bueno, Trelawny; was submitted to the National Environment and Planning Agency (NEPA). NEPA requested that an environmental impact assessment be done. Terms of Reference were prepared by EnviroPlanners Limited based on the NEPA generic terms of reference and submitted to NEPA for approval. Several pieces of legislation were identified as being relevant to the project and included the Natural Resources Conservation Authority Act, Clean Air Act, the Public Health Act, and the Natural Resources conservation Authority (Air Quality) Regulations among others which are mentioned in section 5 of the report.

The Existing Environment

The facility is to be located on four point seven (4.7) acres of land, which forms Section 1 of lot 3 of the property known as Holland Hill (Volume 1295 Folio 707), near Rio Bueno in the parish of Trelawny. The entire property, which is owned by Tank-weld, is divided into two (2) sections. Section 2 is occupied by Tank-Weld's operation.

In addition to the shared border with the existing Tank-weld operation, the site is bordered by: a parochial road, the North Coast Highway and undeveloped land with un-cleared vegetation. The entire property was cleared by Tank-weld when they embarked on their development, so the proposed site is has only shrubbery. The land on the other side of the parochial road, immediately opposite to the proposed site is also un-developed. However further along this road, about 400 metres away there is a housing community adjacent to another parochial road, which separates it from the undeveloped land.

The Physical Environment

In the Rio Bueno area the Coastal aquiclude is composed primarily of limestone reef rubble and blocks of chalk deposited down slope of the Montpelier hinterland, in the late Miocene (Mines & Geology, 1974). Exposures in the recent road cuts along the North Coast Highway in the vicinity of Rio Bueno and as Holland Hill is approached, shows relatively thin and discontinuous bauxitic soils on the surface and minor karstification throughout the depth of the limestone exposure. The absence of karstification in the limestone is a clear indication of relatively low permeability and its classification as an aquiclude. The main water resources product from Coastal aquiclude is surface runoff.

Hydrology& Drainage

The proposed project will not be a significant impact on water resources in the area. There is no existing water body within the sphere of impact, neither are there any natural drains. The only impact will be the incremental increase (less than 2%) in surface runoff as a result of the construction of structures and paved surfaces which will inhibit percolation. This impact is not considered to be significant.

The drainage system on the site will be designed to accommodate Jamaican climatic conditions, based on data of 100 years average, and will follow the existing natural contours in order not to disrupt the natural drainage system.

Natural Hazard:

No incidence of flooding has been recorded for the project site. The recent construction of the new highway will not increase the possibility of such incidence as the highway drainage system on the southern side does not interact with the northern side where the site is located.

The OAS seismic risk maps of Jamaica shows that the project site lies in an area that can expect earthquake with strength measured on the Modified Mercalli Intensity scale of up to 6, with a 10% chance of exceedance in any 50 year period.

Air Quality and Noise:

The noise levels recorded at the site of the proposed development are well within the NEPA guideline for perimeter noise. The site is not impacted by the any surrounding activities, except for traffic on the highway; which forms the southern boundary of the site.
Respirable particulates levels were well within the recommended ambient air quality PM10 guidelines established by NEPA.

Biological Environment:

The project site is highly disturbed and does not exhibit a great deal of biodiversity. The sparse vegetation indicates that the site may have been cleared in the past and is only partially re-colonized by a few naturally occurring species. Shallow soil and the storage and stockpiling of material on the site (Fig. 1), seems to have prevented. As con be expected with such limited vegetation the site does not support any significant fauna. The impact of the project on biodiversity is therefore considered to be insignificant.

Socio-economic Environment:

To sensitize the community about the project and to poll their views a survey was conducted by the project consultant – EnviroPlanners Limited. A total of 69 persons were interviewed in and around the Rio Bueno community, located in the parish of Trelawny. The communities polled consisted primarily of informal residential settlements, interspersed in parts with small businesses. Participants interviewed were from communities that would be directly impacted by the project.

Many residents do not perceive that construction will hinder commuter travel. However thirty eight percent (38%) of the persons polled believe that in the construction phase, it may be disruptive, especially in terms of dust and noise nuisance.

The majority of the residents is looking forward to the project and sees it as a means for increasing the socio-economic quality of their lives. Some are currently employed but see the project as enhancing current inflows or providing employment for others.
Survey findings revealed that residents of Rio Bueno hold the following views about the project:

Public Health and Safety:

There is a police station in Rio Bueno and a clinic. The nearest major hospital is in St. Anns Bay. There is also a fire station in St. Anns Bay and one in Falmouth, which is the major town in the parish of Trelawny. With these amenities and excellent connecting roads the public health and safety needs of the project can be adequately addressed.

Potential Impacts and Mitigation Measures:

Project of this nature will have impact of varying degree, both positive and negative, long term and short term. The major impacts expected from this development are:

- The loss of the options for alternative uses of the land represents an irreversible commitment of land resources. This loss of the option may be considered to be a negative

impact. Mitigation is not considered for this impact but is addressed in section 9 under the heading Consideration of Alternative.

- The excavation of trenches to accommodate the pipelines poses the risk of soil erosion during incidences of heavy rainfall, however mitigation measures will minimize this impact.
- The use of heavy equipment during construction works will inevitably generate noise, which may create a nuisance for nearby residents and workers. This is a negative impact but is not considered to be significant, as the duration will be short-term.
- The site grading and excavation activities will produce fugitive dust which may result in increased levels of air borne particulate matter. This situation will be worst during the dry season and during times of prevailing wind. The occurrence of fugitive dust is periodic and short-term, lasting only for the duration of the construction activity, and is therefore not considered a significant impact.

Consideration of Alternatives:

The following alternatives were considered:

- The “do nothing” alternative which would mean continuing to transport bulk LPG across the dangerous terrain from Kingston to the north coast.
- Site the facility at or near the port in MontegoBay, Discovery Bay or Ocho Rios

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Outline Monitoring Programme:

Once a permit is granted for the proposed development, and before site preparation and construction activities begin, a detailed Monitoring Programme will be prepared for submission to NEPA, for approval. The Monitoring Programme should include the following components; an inspection protocol; parameters to be monitored; frequency of monitoring and reporting procedures. The duration of the monitoring programme should be for the entire construction period, with monthly reporting. The detailed Monitoring Programme is best prepared after the

permit is received as this would allow for the Terms and Conditions of the permit to be taken into consideration, and included in the monitoring programme as appropriate.

During the Construction Phase:

- Transportation and storage of construction material to ensure best practice and minimum impact.
- Proper disposal of waste, via a licensed waste disposal contractor to landfill.
- Proper repair of road surfaces that may be damager in the pipe laying process.
- Appropriate warning sign and flagmen are utilized.

Post construction:

- Appropriate warning signs are maintained.
- Safety requirements are adhered to.

Conclusion:

Based on all the data collected and analysed in relation to the proposed development of the LPG Storage and Filling Facility; at Holland Hill, Rio Bueno, Trelawny; the project will have a positive impact on the surrounding communities and also at the national level.

- Eliminate the risk involved in the transportation of LPG from Kingston to the north coast..
- Ensure a secure supply of LGP for the north coast.
- Provide employment opportunities both during construction and operations.

The project will also have some negative impact such as dust and noise nuisance, but these will be generally short term and can be minimised by application of the appropriate mitigation.