

# ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED CONSTRUCTION AND OPERATION OF GAS CYLINDERS' WAREHOUSE AT ERF 3236 IN WALVIS BAY, ERONGO REGION- NAMIBIA



## ENVIRONMENTAL MANAGEMENT PLAN

Project Information	
<b>Project title</b>	Gas cylinders` warehouse at Erf 3236 in Walvis Bay.
<b>Proponent</b>	Industrial Gas Namibia
<b>Contact Person</b>	Mr. Elmo Kaiyamo +264 811299962
<b>Consultant:</b>	Candy Consultancy cc
<b>Consultant contact person</b>	Gabriel Joseph +264813796358
<b>Postal Address</b>	P.O. Box 55226 Rocky Crest <b>Windhoek</b>
<b>Email</b>	<a href="mailto:liliankondigo@gmail.com">liliankondigo@gmail.com</a> or <a href="mailto:candyconsultancy@gmail.com">candyconsultancy@gmail.com</a>

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# **1. CHAPTER 1: BACKGROUND**

## **1.1. INTRODUCTION**

Industrial Gas Namibia (IGN) is a wholly owned Namibian subsidiary of NMK Holdings Limited. IGN to date remains the only accredited and authorized Air Products Industrial Gas Distributor in Namibia. The company currently supplies oxygen, acetylene, nitrogen, argon, carbon dioxide, and specialized welding mixes for engineering, production, and mining facilities. The company caters for a wide range services including but not limited to the following industries: Agriculture, Construction, Food & Beverage, Glass & Minerals, Healthcare, Mining and Energy.

In terms of the Namibian environmental legislation (Environmental Management Act (No. 7 of 2007)) and the Environmental Assessment Regulations of 2012; an EIA is required to obtain an Environmental Clearance Certificate from the Ministry of Environment and Tourism (MET) before the project can proceed.

Furthermore, as per the requirements of the Environmental Management Act No. 7 of 2007, Industrial Gas Namibia has appointed Candy Consultancy cc to conduct an Environmental Assessment (EA) and develop an Environmental Management Plan (EMP) for the construction of the storage tank and operation of the gas cylinder's warehouse. This has been followed by an application for Environmental Clearance Certificate (ECC) to the Ministry of Environment, Forestry and Tourism (MET): Directorate of Environmental Affairs (DEA).

In this respect, this document forms part of the application to be made to the DEA's office for an Environmental Clearance certificate for the proposed gas cylinder's warehouse, in accordance with the guidelines and statutes of the Environmental Management Act No.7 of 2007 and the environmental impacts regulations (GN 30 in GG 4878 of 6 February 2012).

## 1.2. PROJECT LOCATION

The proposed site for the warehouse is situated at the corner of Rooikop road and 18<sup>th</sup> Road at the industrial area erf No. 3236. Erf 3236 is located in the industrial area, Walvis Bay in Erongo region, approximately 2 km from the Nampont harbour as shown in Figure 1 below.



### **1.3. PURPOSE OF THE ENVIRONMENTAL MANAGEMENT PLAN (EMP)**

This EMP has been developed for the proposed construction and operation of gas cylinders` warehouse at erf 3236 in Walvis Bay, Erongo Region- Namibia proposed by Industrial Gas Namibia. It forms the operational framework within which the proposed project is to operate within. All anticipated environmental and social impacts identified in the environmental scoping report are addressed, with a mitigation action, monitoring requirements, key indicator and responsibilities.

This EMP is incessant, and it requires compliance monitoring, updating and or amendment if the scope of operations change. All personnel working on the project will be legally required to comply with the standards set out in this EMP.

This section describes the Environmental Management Plan (EMP) for impacts associated with the proposed development. The EMP stipulates the management of environmental programs in a systematic, planned and documented manner. The EMP below includes the organizational structure, planning and monitoring for environmental protection at the proposed site of development and other areas of its influence. The aim is to ensure that the proponent maintains adequate control over the project operations to:

- Prevent negative impacts where possible;
- Reduce or minimise the extent of impact during project life cycle;
- Prevent long-term environmental degradation.
- Ensure public safety and health is protected

### **1.4. LEGAL AND OTHER REQUIREMENTS COMPLIANCE**

This report presents the EMP and has been undertaken in accordance with the requirements of the Environmental Management Act (EMA), No. 7 of 2007 and the Environmental Assessment regulations of 2012. As such, key requirements in accordance to this Act, classifies the proposed project as listed and invokes the need for an environmental management plan to sustainably implement this project in a manner that promote is environmental protection , economic viability and social equitable. However, legal compliance is not only limited to the EMA, but also applies to all relevant legal requirements identified in the ESR. When licenses are required example fire brigade certificate, the proponent should ensure that all licenses and permits are obtained and fulfilled as per conditions.

### **1.5. THE EMP ADMINISTRATION**

There is a strong need to clearly outline the roles and responsibilities of all stakeholders to ensure that the EMP is fully implemented. There is also a need for the proponent to appoint an overall responsible person (Site Manager) to ensure the successful implementation of the EMP.

It solely remains the responsibility of Gas Industrial Namibia to ensure;

- That all members of the project team, including contractors, comply with the procedures set out in this EMP;
- That all personnel are provided with sufficient training, supervision, and instruction to fulfil this requirement; and
- Ensuring that any persons allocated specific environmental responsibilities are notified of their appointment and confirm that their responsibilities are clearly understood.



**Table 1: Roles and Responsibilities in EMP Implementation**

<b>ROLE</b>	<b>ENVIRONMENTAL RESPONSIBILITIES</b>
Site/Warehouse Manager	Responsible to enforce EMP implementation to employees and contractors
Environmental Control Officer (ECO)	<p>Implement, review and update the EMP.</p> <ul style="list-style-type: none"> <li>• Ensure all reporting and monitoring required under EMP is undertaken, documented and distributed as required</li> <li>• Conduct environmental site trainings (tool box talks) and inductions</li> <li>• Conducts environmental audit at work site with the support of environmental and safety consultants.</li> <li>• Ensure implementation of preventive and corrective actions and close out all non-conformances.</li> <li>• Ensure materials being used on site are environmentally friendly and safe.</li> </ul>
The Department of Environmental Affairs	<p>Approve the EMP and any amendments to the EMP.</p> <ul style="list-style-type: none"> <li>• Receive and assess reportable environmental reports and non-conformances and provide conditions to be met by the proponent for safe and improved environmental and safety performance.</li> <li>• Review and approve environmental reports submitted as part of EMP implementation to allow for renewal of the environmental clearance certificate in future.</li> </ul>
Site Engineers	<p>Control and monitor actions required by the EMP.</p> <ul style="list-style-type: none"> <li>• Report all environmental issues to Environmental Control Officer</li> <li>• Ensure documented procedures are followed and records kept on site.</li> <li>• Participate in daily/weekly site inspection walk to identify and address environmental and safety deviations and non-conformances.</li> <li>• Ensure any complaints are passed onto the management within 24 hours of receiving the complaint.</li> </ul>

Employees	<p>Follow requirements as directed by site engineers and supervisors.</p> <ul style="list-style-type: none"><li>• Report any potential environmental issues to site engineer/Site Manager/supervisors, example oil spill/leaks, gas leaks, poor handling of waste, excessive dust generation, uncontrolled waste water run-off on site, other non- conformances and occupational safety hazards.</li></ul>
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**Table 2: Construction and Operation EMP (C&O EMP)**

Impact	Description	Effects	Class	Time frame	Responsibility	Action	Phase
<p><b>Noise pollution</b></p>	<p>Noise will be generated by the following:</p> <ul style="list-style-type: none"> <li>-Storage tank construction</li> <li>-Warehouse Operation activities</li> <li>-Trucks offloading and lifting of gas bottles</li> </ul>	<ul style="list-style-type: none"> <li>- The health of working personnel could be affected.</li> <li>- Noise generated could be nuisance to the nearby communities and businesses.</li> <li>-General annoyance to the public</li> </ul>	<p>Environmental</p>	<p>Permanent</p>	<p>Environmental Control Officer</p> <p>-Site Manger</p>	<ul style="list-style-type: none"> <li>- A construction interval will be established, used and adhered to.</li> <li>- Workers will be issued earplugs at all times to protect them from excessive noise.</li> <li>- Construction activities will be conducted during daytime.</li> <li>-Site notices will be erected on, around the site-notifying visitors, and nearby residents of different hazards on site.</li> <li>--Noise assessments should be conducted every quarter to ensure that operational activities are generating noise within the allowable threshold.</li> </ul>	<p><b>Construction &amp; Operation</b></p>

<p><b>Dust Generation</b></p>	<p>In Walvis Bay, the major contributor to deteriorated air quality is wind-blown sand and dust</p>	<p>- Can lead to respiratory illnesses especially to those working in the area.</p> <p>- General air pollution. Dust not only poses health impacts to workers and but to the public as well.</p>	<p>Environmental</p>	<p>Permanent</p>	<p>- Environmental Control Officer</p> <p>- Site Manager</p>	<p><b>Actions Prevention:</b></p> <p>Implement dust suppression methods where applicable (e.g., wetting with water, covering loads, etc.)</p> <p>Measures should however be taken to limit the volume of water used for dust suppression.</p> <p>-All trucks entering and exiting the warehouse must be covered to contain material being transported from emitting dust.</p> <p>-Any loading / offloading activities must cease if dust becomes airborne. Loading / offloading can continue after mitigation measures to reduce dust have been implemented. i.e.:</p> <p>-All staff working in dust producing environments must at all wear dust masks and related PPE.</p> <p>-A complaints register should be kept for any air quality related issues and corrective and preventive steps taken to address non-conformances.</p>	<p><b>Construction</b></p>
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Impact	Description	Effects	Class	Time frame	Responsibility	Action	Phase
						<p>-Real time wind direction and velocity monitoring which can be linked to air quality monitoring should be initiated.</p> <p>-Dust (air quality) monitoring must be conducted to determine the extent and source of dust pollution.</p> <p>-All information and reporting to be included in a bi-annual reports.</p>	
	<p>Dust generation from haulage trucks offloading/ loading materials into the warehouse</p>	<p>-Dust fallout can lead to respiratory illnesses especially to those working in the area.</p> <p>- General air pollution.</p> <p>-Nuisance to nearby residents</p>	<p>Environmental</p>	<p>Permanent</p>	<p>- Environmental Control Officer</p> <p>-Site Manager</p>	<p>-Ensure that protective equipment such as respirators are distributed to employees, and ensure their use.</p> <p>-Site notices to be erected on and around the site to inform visitors and surrounding residents.</p> <p>-Dust fallout measurement and collection.</p>	<p><b>Construction &amp; Operation</b></p>

						<p>-Warehouse dust scrubbers should be installed to prevent the dust from escaping.</p>	
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Impact	Description	Effects	Class	Time frame	Responsibility	Action	Phase
<b>Greenhouse gas emissions</b>	<p>Green House Gasses (GHGs) emissions will be produced from the following activities:</p> <ul style="list-style-type: none"> <li>• Fuels combustion for trucks and equipment</li> <li>• Industrial gases being handled on site could lead fugitive emissions.</li> </ul>	<p>-Climate change - Air pollution</p>	Environmental	Construction phase	<p>- Environmental Control Officer -Site Manager - Department of Environmental Affairs.</p>	<p>-Develop Standard Operating Procedures for all materials especially those with potential to emit GHGs  -Design an operation system that cuts on emissions.</p>	<b>Operation</b>

<p><b>Waste Generation</b></p>	<p>-Construction of the warehouse is associated with use of raw material and activities that results in waste generated and pollution. General waste as well as to some extent hazardous waste will be generated during the operation.</p> <p>-</p>	<p>-Pollution from waste</p>	<p>Environmental</p>	<p>Construction and operation phase</p>	<p>Environmental Control Officer -Site Manager</p>	<p>- Waste reduction measures should be implemented and all waste that can be re-used / recycled must be kept separate. -Ensure adequate waste storage facilities (bins, drums and / or bags) are available and that these are clearly labelled to allow for segregation of wastes into different classes at source. -Awareness on waste management for personnel is critical to enhance effective handling and disposal of waste. -Ensure barrier are constructed on site to block waste from being blown away by wind. -Ensure measure are in place to prevent scavenging by human and animal at waste storage sites. -Contaminated bilge water, wash water, etc. should be treated as potentially</p>	<p><b>Operation</b></p>
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Impact	Description	Effects	Class	Time frame	Responsibility	Action	Phase
						<p>hazardous waste that must be disposed of at appropriately classified facilities.</p> <ul style="list-style-type: none"> <li>-Waste in the warehouse area limits must be regularly removed and disposed of through implementation of waste removal programme.</li> <li>-Communication should be maintained with the municipality or private contractors regarding proper handling of different waste streams.</li> <li>-Waste should be disposed of regularly and at appropriately classified disposal facilities in Walvis Bay, this includes hazardous material (empty chemical containers, contaminated rugs, paper, water and soil) that are collected by authorised and licenced private waste collection and handling companies.</li> <li>-The Material Safety Data Sheets (MSDS) available from suppliers for disposal of contaminated products and empty containers should be shared with waste handling companies.</li> </ul> <p>-Waste water and sewage must be disposed of according to their relevant permit requirements.</p>	

Impact	Description	Effects	Class	Time frame	Responsibility	Action	Phase
<p><b>Safety and Health risks</b></p>	<p>-Every activity associated with the warehouse is reliant on physical labour and therefore exposes personnel to health and safety risks. Injuries can occur due to incorrect lifting of heavy equipment and materials, material falling from heights, stacked items tipping over, getting caught in moving parts of machines, accidents involving forklifts and vehicles, and exposure to hot and cold temperatures.</p> <p>- Some chemicals handled and stored on site are hazardous with inherent health risks to personnel on site due to inhalation, accidental ingestion, eye or skin contact.</p>	<p>-Injuries to workers such as Occupational dermatitis, slips and fall of humans and objects, musculoskeletal disorders, etc.</p>	<p>Health and safety</p>	<p>Construction and operation phase</p>	<p>ECO</p>	<p><b>Prevention:</b></p> <p>-All Health and Safety standards specified in the Labour Act should be complied with.</p> <p>Consider the World Health Organisation: International Health Regulations (2005) with specific reference to Section 4 (no. 3): “Strengthen public health security in travel and transport”.</p> <p>-Strict security control measures should be enforced at the entrance gate including alcohol testing and access permit checks.</p>	<p><b>Operation</b></p>

Impact	Description	Effects	Class	Time frame	Responsibility	Action	Phase
	<p>Security risks are related to unauthorized entry, theft and sabotage. These present a health risk, especially during upgrade and construction as well as during operation.</p>					<ul style="list-style-type: none"> <li>-Liaison with the Ministry of Health and Social Services, health division at Walvis bay municipality and the National Radiation Protection Authority is essential and should be maintained where necessary.</li> <li>- Clearly label dangerous and restricted areas as well as dangerous equipment and products.</li> <li>- Clearly demarcate areas where access is prohibited without special permission or areas where specific personal protective equipment (PPE) is required.</li> <li>- Provide all employees with required and adequate PPE where needed.</li> <li>- Equipment and products on site must be placed in a way that does not encourage criminal activities (e.g., theft).</li> <li>- Ensure that all personnel receive adequate training on operation of equipment and handling of hazardous substances.</li> </ul>	

						<ul style="list-style-type: none"> <li>- Always follow safe stacking and storage methods.</li> <li>- Implementation of maintenance register for all equipment, and hazardous substance storage areas should be applied.</li> <li>- Lockout / tagout procedures should be followed where applicable.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>-All personnel should be trained on basic first aid and further selected personnel be trained on advance lifesaving first aid. Functional first aid kits must be available on site at all times and be accessible. The contact details of all emergency services must be readily available and also placed on the notice boards on site.</li> <li>-Implement and maintain an integrated health and safety management system, to act as a monitoring and mitigating tool, which includes: colour coding of areas, operational, safe work and medical procedures, permits to work, emergency response plans,</li> </ul>	
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Impact	Description	Effects	Class	Time frame	Responsibility	Action	Phase
						<p>housekeeping rules, MSDSs and signage requirements (PPE, flammable etc.).</p> <ul style="list-style-type: none"> <li>- Security procedures and proper security measures must be in place to protect workers and clients.</li> <li>- Strict security measure should be in place to prevent unauthorised entry into restricted areas.</li> </ul>	
	Electrical hazards	-Fires and fatalities	Health and safety	Construction and operation	ECO	<ul style="list-style-type: none"> <li>-Employees should be trained on basic electrical safety before working on site.</li> <li>-Safety representative with training on electrical hazards emergency management should be station on site always during construction and operation.</li> <li>-Safety signs during construction and operation should be put on site, no go areas should be clearly labelled, and specifications for the different PPE on how to use should be clearly labeled and explained to personnel.</li> </ul>	<b>Operation</b>

Impact	Description	Effects	Class	Time frame	Responsibility	Action	Phase
	Other related hazards	Obstruction and cross contamination	Health and Safety	Construction and Operation	Site Manager and ECO	<p>Suppression systems to limit or prevent the formation of windblown dust should be applied.</p> <p>-The use of rumble grids and physical inspection of tyres should be implemented.</p> <p>-For bulk bags the stacking heights must be observed to prevent bag damage and product spillage.</p> <p><b>Mitigation:</b> - Any fuel spillage of more than 200 litres must be reported immediately to the Ministry of Mines and Energy and remedial action taken with delays.</p> <p>Emergency response plans and spill contingency plans must be in place and include all fuels, chemicals or hazardous substances being handled. -Spill containment equipment such as booms and absorbents must be readily accessible. All oil containers should be housed in band walls. Training in the use</p>	Construction and Operation

						<p>of booms and absorbents are vital and should be enforced.</p> <p>-Use of reputable and well trained contractors are essential.</p> <p>-A report should be compiled bi-annually of all spills or leakages reported and any monitoring results.</p> <p>The report should contain the following information: date and duration of spill, product spilled, volume of spill, remedial action taken, comparison of pre-exposure baseline data (previous pollution conditions survey results if available) with post remediation data (e.g. soil/groundwater hydrocarbon concentrations) and a copy of documentation in which the spill was reported to Ministry of Mines and Energy (where required for hydrocarbon spills).</p>	
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Impact	Description	Effects	Class	Time frame	Responsibility	Action	Phase
<b>Positive Impacts</b>							
<b>Employment creation</b>	The development provides an opportunity of outsourcing work	- Improves disposable income to those employed and their immediate families.	Socio-economic	Project life time	-Site Manager	- It should be ensured to work with local leadership e.g. councilors to advise during recruitment of non-skilled labour from local communities.	<b>Operation</b>
<b>Business linkages</b>	-Industrial and medical gas acquiring and contracting companies provide an opportunity for businesses.	<p>-Local suppliers will be presented with an opportunity to empower their businesses.</p> <p>-Construction workers can be provided with accommodation, food and services from the local community increasing business activities.</p>	-Socio-economic	Construction phase	-Site Manager	-The proponent will outsource most of its materials and services from Walvis Bay	<b>Operation</b>



**Table 3: Environmental monitoring plan**

Monitoring Parameters	Monitoring Location	Measurement unit/Method	Target Level/Standard	Monitoring Frequency	Responsibility for monitoring
Pollution of surrounding environment	Storage Warehouse	Odour detection	No complaints from employees, customers and public.	Daily	Environmental representative
Waste generation and collection	Storage Warehouse	Visual inspection Waste collection programme is implemented	No complaints from employees and the general public.	Daily/weekly	Environmental representative
Fire management	Storage Warehouse	Visual inspection	All personnel trained on fire management and control measures.  Minimum or sufficient number of firefighting equipment for the different fire source kept in the warehouse.  Good housekeeping maintained. All materials packed and stored accordingly. All chemical and gas materials stored and transported according to their respective MSDS.  Schedule for inspection and testing of firefighting equipment and gas bottles/storage documented and communicated	Daily	Environmental representative, All employees and contractors.
Safety and security	Storage warehouse public roads	Use of security cameras, Visual inspection Record of safety and security incidences/deviations	Number of incidences/deviations recorded	Daily	Environmental representative, Management, all employees and contractors
Socio-economic upliftment	Local population and businesses	Number of unskilled jobs contracted to local people.	Local people contracted. Local procurement of materials stock encouraged and done where feasible.	Ad hoc	Management

Grievances and complaints	Business operations	Receive and register all grievances and complaints from employees, contractors and customers.	Minimal grievance and complaints received	Business operations	Environmental representative / Management
COVID-19 pandemic	Industrial Gas Namibia Business office, Storage warehouse and employees and customers family residences	Visual inspection to detect anyone with COVID19 related symptoms. Register kept on the business sites to record names, contacts and temperature records of anyone that visits the business site that is suspected to be having COVID-19 symptoms.	No unnecessary movement and gathering. Taking of body temperature readings of anyone that comes in contact with the construction and operations, who is suspected to be having COVID-19 related symptoms. Anyone with body temperature reading of more than 38 degree Celsius is to be isolated with immediate effect, and the situation reported to medical officers/health authority.	Daily	Environmental representative, all employees are required to report any COVID19 suspected incidents

## 2. CHAPTER 2: CONCLUSION AND RECOMMENDATIONS

### 2.1. RECOMMENDATION FROM ENVIRONMENTAL ASSESSMENT PRACTITIONER

Based on the information provided, it is the opinion of Candy Consultancy cc that no fatal flaws have been identified for the proposed development and that the information contained in this report is sufficient enough to allow DEA to make an informed decision.

Candy Consultancy cc therefore recommends that Environmental Clearance be granted for the proposed development. However, the proposed activity is anticipated to have potential impacts on the surrounding neighbours such as the Trans-namib railway lines and on site traffic, as such Candy Consultancy advice that the proponent should meet the following conditions:

- Traffic flow **MUST** be monitored and a report must be produced.
- Certificate of fitness must be issued from Walvis Bay Municipality.
- An Environmental Control Officer with an relevant qualifications should be appointed for the implementation of the EMP

### 3. REFERENCES

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