

1 ENVIRONMENTAL MANAGEMENT PROGRAMME

1.1 INTRODUCTION

This section presents the Draft Environmental Management Programme (EMPr) for the Proposed Acetylene Gas Manufacturing Plant, located in Daleside (hereafter referred to as the Project).

This EMPr is a delivery mechanism for environmental and social mitigation measures identified in Section 8 of the Final EIR and provides a systematic approach to bringing environmental and social considerations into decision making and day-to-day operations. It establishes a framework for tracking, evaluating and communicating environmental and social performance and helps identify and manage potential environmental impacts. The EMPr details the mitigation and enhancement measures.

This EMPr will be a living document, and will continue to develop during the design and construction phase to enable continuous improvement of the Project's social and environmental performance. The EMPr will also be reviewed against changes in the regulatory regime and in the event of new policies or guidelines from Air Products or governmental agencies. Periodic reviews and updating will also be carried out throughout the Project lifecycle, to incorporate changes in activities and any changes in the overarching management systems.

1.2 EMPr SCOPE AND OBJECTIVES

The primary objective of this EMPr is to facilitate appropriate environmental management and mitigation measures during all phases of the Project to minimise potential environmental impacts that may arise during the implementation of the Project during the construction and operational phases. Management and mitigation measures associated with the decommissioning of the facility have also been provided in this EMPr.

1.2.1 Regulatory Requirement

An EMPr for the Project is required by the Environmental Impact Assessment (EIA) Regulations promulgated in terms of Chapter 5 of the National Environmental Management Act (NEMA) (Act No 107, 1998), as amended. An EMPr is therefore required as part of the Environmental Impact Assessment process undertaken for the Project. The EMPr is a legally binding document on the applicant as a condition of approval of the Project by the Gauteng Department of Agriculture and Rural Development (GDARD), in addition to other conditions that may be stipulated in the Environmental Authorisation (EA), if granted.

1.2.2

Project Standards

The design of the Project EMPr is based on Air Product's relevant standards, codes, practices and specifications that apply to the design, construction, and operation of the Project. Air Products is certified for quality, environmental and health and safety management systems (ie ISO 9000 and ISO 14001) and is also rated 5 Star by the National Occupational Safety Association (NOSA).

In compliance with ISO 14001 (Environmental Management System), Air Products developed an Environmental, Health and Safety Policy. This EMPr is compliant with Air Products Environment, Health and Safety Policy which sets out basic principles, to which all projects shall adhere to. These principles include compliance with all applicable environmental, health, and safety laws and regulations; continual improvement in environmental, health and safety performance with the ultimate goal of zero injuries and zero emissions of toxic and hazardous materials and open discussion of environmental, health, and safety practices and performance.

Air Products has in place a suite of environmental and health and safety procedures to guide the company's activities with respect to the construction and operation of an acetylene gas production facility. The list below provides the key environmental and health and safety procedures referred to in developing this EMPr.

Table 1.1 *Key Air Products Procedures*

Document Title	Date	Description
Environmental Management System	October 2008	An Environmental Management System (EMS) enables an organization to systematically plan, control, measure and continually improve its environmental performance. Imbedded in the Air Products EH&S Management System are elements of an EMS consistent with the ISO 14001 specification for EMS's. This procedure provides an overview of the ISO 14001 standard and provides elements of the ISO 14001 standards which are relevant to Air Products operations.
Environmental Best Management Practices (BMP)	October 2008	Site Managers are required to identify and implement environmental BMPs applicable to their facility, processes, and operations. BMPs for minimizing wastes, discharges and releases from many typical Air Products facilities, processes, and operations is provided in this procedure and has been incorporated into the Environmental Management Programme (EMPr) for this Project. Where laws and regulations have requirements more stringent than those found in this procedure, they shall be followed.

Document Title	Date	Description
Storage and Containment of Environmentally Hazardous Substances	October 2008	This procedure applies to Air Products-owned facilities that store environmentally hazardous substances in aboveground tanks, underground tanks, storage vessels or containers. It stipulates the requirement for appropriate labelling, installation of barriers, leak detection monitoring systems and training of staff.
Waste Management	October 2008	This procedure establishes standards for the appropriate management, storage and disposal of all waste types likely to occur at a Project site.

The EMPr for the Project is therefore required in order to:

- assist in ensuring continuing compliance with South African legislation and Air Product's standards and procedures;
- provide a mechanism for ensuring that measures identified in the EIA are implemented to mitigate potentially adverse impacts:
- provide assurance to regulators and stakeholders that their requirements with respect to environmental and socio-economic performance will be met; and
- provide a framework for compliance auditing and inspection programs.

Air Products is committed to providing resources and establishing the systems and components essential to the implementation and control of the EMPr. These include appropriate human resources and specialized skills, training programs, communication procedures, documentation control and a procedure for the management of change.

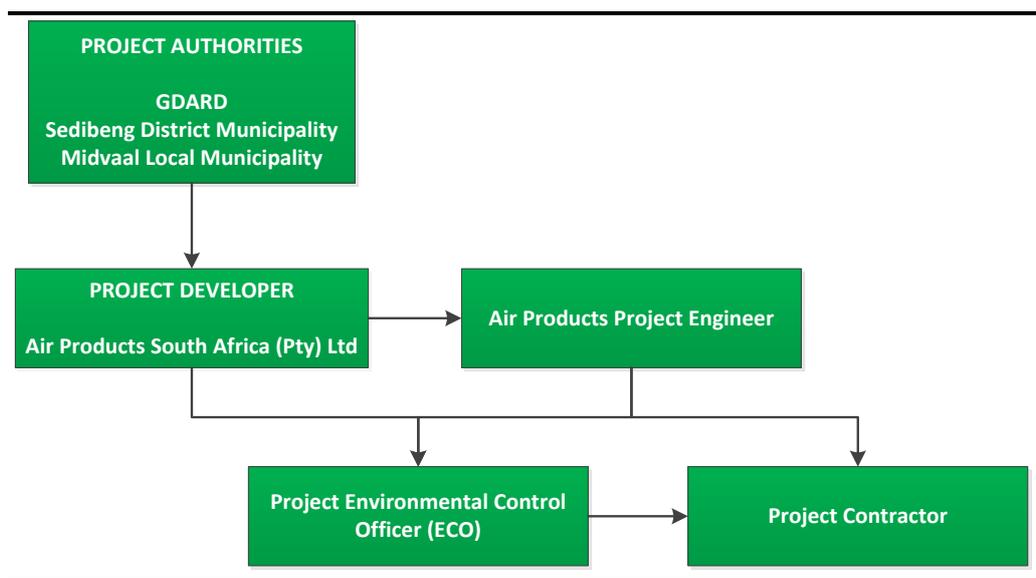
2.1 PROJECT EMPr STAFF ORGANIZATION

The Project will have dedicated personnel competent on the basis of appropriate education, training, and experience that will manage and oversee the Environmental, Health and Safety (EHS) aspects over the Project lifecycle. Air Products will however retain the primary responsibility for meeting environmental commitments throughout the Project life span.

2.1.1 Key Project Roles

The key environmental management roles during the construction and operation of the Project include but are not limited to: the Project Developer (Air Products), the Project Engineer, Project Contractors (civil works contractor, building contractor, landscape contractor etc), the Environmental Control Officer (ECO), and representatives of the Project authorities. The EMPr implementation organogram (Figure 2.1) illustrates the Project staff required, as well as the linkages between staff, the project developer and Project authorities.

Figure 2.1 Project EMPr Staff Organogram



During construction, Air Products will delegate responsibility of the EMPr implementation to construction contractors. In the same way, Air Products

may engage contractors for certain operational aspects and would delegate the same responsibility. Air Products will manage and monitor the Project Contractor's implementation of the EMPr through contractual mechanisms and regular direct oversight. Air Products will have a supervisory Project Engineer on the site. An ECO (Environmental Control Officer) will also be appointed to monitor compliance with the EMPr and other conditions of approval (ie Environmental Authorisation and Air Emissions Licence (AEL) if granted). Furthermore, the Project authorities including GDARD, Sedibeng District Municipality and Midvaal Local Municipality will also be involved in the oversight of the Project and EMPr implementation, primarily through the compliance monitoring activities.

2.1.2 *Key Staff Responsibilities*

Project Developer

For the purpose of this EMPr, the Project Developer refers to Air Products, who is thus ultimately responsible for compliance with all conditions of approval of Project development or any aspect thereof by any Project authority. The Project Developer will:

- ensure that all relevant approvals and permits have been obtained prior to the start of construction activities on the site;
- ensure that the EMPr has been amended and/or approved (if required) by the GDARD prior to the start of construction activities on the site;
- ensure that GDARD has been notified of the date on which construction activities will be commencing;
- ensure that all conditions of approval have been complied with, particularly by Project Contractors;
- appoint the required specialists to make input into the pre-construction/ design phase (ie ecologist); and
- appoint a suitably qualified or experienced ECO prior to the start of construction activities on the Site, and for on-going compliance monitoring during the operational phase.

Project Engineer

For the purposes of this EMPr, the Project Engineer refers to the Air Products engineer/technician who is responsible for the technical and contractual implementation of the Project development. The Project Engineer will:

- ensure that the requirements as set out in this EMPr and any other conditions stipulated by relevant Project authorities are implemented;

- assist the ECO in ensuring that the conditions of the EMPr are adhered to and promptly issue instructions requested by the ECO to the Project Contractor;
- assist the ECO in making decisions and finding solutions to environmental problems that may arise during the Project lifecycle;
- review and approve construction method statements with input from the ECO;
- order the removal of person(s) and/or equipment not complying with the specifications (as required by the ECO or otherwise); and
- provide input into the ECO's on-going internal review of the EMPr.

Project Contractor

For the purposes of this document the Project Contractor refers to any company or individual appointed by the Project Developer to undertake the construction and any operational aspects of the Project. The Project Contractor will:

- ensure implementation of all applicable environmental specifications during all works on the site, including all additional requirements as may be contained in approved method statements;
- ensure that all sub-contractors', employees, suppliers, agents etc are fully aware of the environmental requirements detailed in the EMPr;
- liaise closely with the Project Engineer and the ECO to ensure that the works on the site are conducted in an environmentally sound manner;
- inform the Project Engineer as well as the ECO should environmental conditions on the site deteriorate, eg dumping, pollution, littering and damage to vegetation; and
- undertake instructions to rectify any non-compliance matters as issued by the Project Engineer, on request of the ECO.

Environmental Control Officer

The ECO will:

- ensure that the Project Contractor has a copy of the EMPr and all agreed method statements;
- undertake regular site inspections (with frequency determined by the nature of the on-site activities as may be appropriate) to audit compliance of all parties with the requirements of the EMPr;

- advise/recommend on actions or issues impacting on the environment to the Project Engineer, who shall issue any required site instructions to the Project Contractor;
- conduct environmental education and awareness training with the Project Contractor and its staff on key requirements of the EMPr, environmental safeguards, good housekeeping practices, and general aspects relating to site sensitivity ;
- review and approve construction method statements together with the Project Engineer (when applicable);
- assist the Project Contractor in finding environmentally responsible solutions to problems that may arise;
- recommend to the Project Engineer the removal of person(s) and/or equipment not complying with the EMPr;
- undertake photographic monitoring during the construction phase;
- keep records of all activities/ incidents concerning the environment on the site in a site diary;
- take immediate action on the site to stop works where significant and irreparable damage is being inflicted on the environment, and inform the Project Engineer immediately of the occurrence and action taken; and
- undertake regular internal review of the EMPr and make recommendations regarding its updating to the Project Engineer and Project Developer.

The ECO has the authority to recommend to GDARD that works be stopped if in his/her opinion serious harm to, or impact on the environment is likely to occur or has occurred and such actual or potential harm or impact is in contravention of the EMPr, and which is or may be caused by construction or related works.

The ECO shall keep a site diary in which events and concerns of environmental significance are to be recorded. The ECO will compile a monthly report of such events, concerns and general compliance of the Project Contractor. The ECO's monthly report will be submitted to the Project Engineer and if required, to the GDARD. The ECO is also required to attend regular meetings of the project management team to report on environmental issues and to minute the requirements that emerge.

The ECO will be responsible for the compilation of a final completion checklist for the Project, completed when all construction works related to the Project have terminated and the site has been cleared of all construction related debris, materials or equipment not forming part of the permanent works. The completion checklist will audit the Project Contractor's compliance with the construction phase requirements of the EMPr throughout the duration of the construction phase and, together with a final written report, will be submitted to the GDARD in order to achieve "environmental closure" for the construction phase of the project.

2.1.3 *Construction Method Statements*

Method statements will be required for specific activities that are identified to pose a risk to the environment and/or which require site specific detail beyond that contained in the EMPr or when requested by the Project Engineer.

A Method Statement is a "live document" in that changes can be implemented by the Project Contractor and the ECO, as circumstances unfold. A Method Statement describes the scope of the intended work in a step-by-step description, in order for the ECO and the Project Engineer to understand the Project Contractor's intentions. This will enable them to assist in devising any mitigation measures, which would minimize environmental impact during these tasks.

Method statements should consider Air Products Standard Procedures for specific activities. For example, in terms of waste handling and storage, the Air Products Waste Management Procedure (October 2008) shall be referred to.

2.1.4 *Training and Awareness*

Air Products will identify, plan, monitor, and record training needs for personnel whose work may have a significant adverse impact upon the environment, in accordance with clause 4.4.2 of ISO 14001. The Project therefore recognizes that it is important that employees at all levels are aware of the Project's environmental and social policy; potential impacts of their activities; and roles and responsibilities in achieving conformance with the policy and procedures. This awareness raising and training will be achieved through a formal training process and will be tailored for the specific job requirements and (as applicable) will include awareness and competency with respect to:

- general awareness relating to activities on site, including environmental and social impacts that could potentially arise from Project activities;
- legal requirements in relation to environmental performance;
- necessity of conforming to the requirements of the EIA and EMP, including reporting requirements (ie such as incident reporting);

- activity-specific training (ie waste management practices);
- roles and responsibilities to achieve that compliance, including change management and emergency response.

Training shall include:

- HSE induction for all personnel, including visitors;
- emergency response training; and
- EMPr specification training.

Furthermore, the Project Contractor/s is required to develop and implement HSE training programs for its personnel. In particular, the Project Contractor, in consultation with the ECO, shall arrange for a presentation to site personnel to familiarise them with the environmental requirements of the approved EMPr. This presentation should take cognizance of the level of education, designation and language preferences of the personnel. The Project Contractor's training program will be audited by Air Products to verify its adequacy and appropriateness.

Environmental education of staff can be assisted by compilation of posters placed on the site, eg designated eating areas and site offices.

2.1.5

Communication

Channels of communication must be established between Air Products, the Project Contractor and external stakeholders. In accordance with clause 4.4.3 of ISO14001, Air Products shall establish and maintain procedures for:

- internal communication between the various levels and functions of the Project staff organisation; and
- receiving, documenting and responding to relevant communication from external interested parties.

A grievance procedure must be established and maintained to record any complaints or comments received from the public during the construction and operational phase. The grievance procedure should be underpinned by the following principles and commitments:

- disseminate key information to directly impacted stakeholders;
- seek to resolve all grievances timeously; and
- maintain full written records of each grievance case and the associated process of resolution and outcome.

The responsibility for resolution of grievances will lie with Air Products and its Project Contractor/s.

2.1.6 *Documentation*

In accordance with clause 4.4.5 of ISO 14001, Air Products will control HSE documentation, including Project licenses, approvals, this EMPr; associated procedures; checklists, forms and reports, through a formal procedure. The document control procedure will describe the processes that the Project will employ for official communication of both hardcopy and electronic documents and the requirement for electronic filing, document tracking and version control numbers.

Air Products is responsible for maintaining a master list of applicable Project HSE documents and for communicating this list to the appropriate parties.

The Project Contractor/s will be required to develop a system for maintaining and controlling its own HSE documentation. All Project records and documentation will be kept on site and will be backed up at Air Products head office. Records will be kept in both hard copy and soft copy formats and will be archived for the life of the Project.

2.1.7 *Emergency Preparedness and Response*

An appropriate and timeous response to emergency situations will ensure that the environmental consequences of such situations are managed and curtailed.

Air Products will prepare plans and procedures to identify the potential for, and response to, environmental accidents and health and safety emergency situations and for preventing and mitigating potentially adverse environmental and social impacts that may be associated with these. A Site Emergency Plan will be developed in accordance with the Air Products Site Emergency Planning Procedure (August 2009). The objective of a Site Emergency Plan is to:

- prevent the loss of life and protect the environment;
- provide sufficient manpower, equipment and funds to respond to an emergency incident; and
- maintain records and disseminate accurate information concerning emergencies to the workers, public and government.

The Air Products Site Emergency Plan shall cover the following situations and issues:

- HSE critical product integrity issues;
- off-site incidents affecting the facility;
- security incidents;
- fire;

- transport emergencies;
- loss of containment;
- process emergencies;
- gas and chemical releases;
- failure of utilities;
- pipeline emergencies;
- natural disasters; and
- medical and health emergencies.

The Site Emergency Plan shall also consider site evacuation requirements and emergency alarms. Emergency drills will be conducted to demonstrate preparedness for response and a schedule of drills and testing of emergency instruments will be prepared by Air Products. To ensure preparedness, all key staff on site shall be trained on the requirements of the Site Emergency Plan.

A list of emergency services contact numbers shall be posted at various locations around the facility. As a minimum, the following emergency services shall be included on the list:

- GDARD: +27 (0) 11 240 2900
- Fire Department: 10111
- Disaster Management: 107
- Ambulance Services: 10177
- South African Police Services 10111

Emergency preparedness and response will be reviewed by Air Products on an annual basis and after the occurrence of any accidents or emergency situations so that lessons learnt inform continuous improvement. The local authorities such as the Fire and Police Department should visit the site annually to understand the associated emergency events. Investigations of accidents or incidents will follow formal documented procedures.

2.1.8 *Checking and Corrective Action*

Checking includes inspections and monitoring as well as audit activities to confirm proper implementation of the EMP as well as effectiveness of its mitigations. Corrective actions include response to incidents, non-compliances, and non-conformances. Actions also include those intended to improve performance and prevent future non-conformances.

Inspection

HSE inspections will be conducted weekly on an ad hoc basis and formally once every month. The results of the inspection activities will be reported to Air Products to be addressed.

Monitoring

Monitoring activities shall include the recording of information to track performance with relevant operational controls and environmental objectives and targets. The main objectives of the monitoring program will be to:

- comply with regulatory requirements (ie emissions as stipulated);
- monitor changes in existing physical, biological and social characteristics of the environment, compared both to the baseline;
- determine the effectiveness of the control and mitigation / enhancement measures and provide a basis for recommending additional or alternative measures;
- verify that all project management plans are appropriate and relevant to their respective project activities and phases; and
- provide accountability and a sense of ownership through the Project lifecycle.

The GDARD requires monitoring activities as part of an EIA. The monitoring plan has therefore been incorporated into the list of EMP commitments below.

Auditing

Air Products will conduct regular audits to monitor compliance with the Project EMP. The Project Contractors' performances towards meeting these requirements will also be assessed. The audit shall be performed by qualified staff and the results shall be reported to Air Products to be addressed. The audit will include a review of compliance with the requirements of the Environmental Authorisation, approved EMP and Air Emissions Licence and will include, at a minimum, the following:

- completeness of HSE documentation, including planning documents and inspection records;
- conformance with monitoring requirements;
- efficacy of activities to address any non-conformance with monitoring requirements; and
- training activities and record keeping.

Corrective Action

Air Products shall establish and maintain procedures for defining responsibility and authority for handling and investigating non-

conformances, taking action to mitigate any impacts caused and for initiating and completing corrective and preventive action.

Any corrective or preventive action taken shall be appropriate to the magnitude of problems and correspond with the environmental impact encountered.

Reporting

All records related to the implementation of this EMPr (eg audit reports, incident reports, etc) must be filed by Air Products in a safe place where they can be easily retrieved. These records should be available for scrutiny by relevant Project Authorities at any time.

This section covers the environmental specifications and recommendations required during the following phases of the Project:

- pre-construction - *Table 3.1*;
- construction - *Table 3.2*;
- operation - *Table 3.3*; and
- decommissioning - *Table 3.4*.

The EMPr outlines the following:

- affected receptor;
- potential impact to the receptor;
- project activities resulting in the potential impact;
- proposed mitigation measure;
- parameters for monitoring;
- timing/frequency for monitoring activities; and
- responsibility for implementation.

Table 3.1 Pre- Construction Phase: Environmental Management Programme

Issue/ Receptor	Potential Impact	Project Activities/ Environmental Aspects	EMP Mitigation	Parameters for Monitoring	Timing/Frequency	Responsibility
Legal	Regulatory non-compliance resulting in a fine	Commencing with the Project with no adherence to regulatory requirements	Notify all registered I&APs and key stakeholders of the opportunity to appeal the Environmental Authorisation, if granted.	Advertisement I&AP notification letter	Within 12 days of receiving the EA	Air Products Independent Environmental Assessment Practitioner
			Notify GDARD prior to commencing with construction.	Proof of communication	Within the number of days stipulated by the EA	Air Products Appointed Environmental Control Officer
			Obtain and review the Air Emissions Licence from the Sedibeng District Municipality to ensure all requirements can be complied with.	Air Emissions Licence	Within 60 days of the granting of a positive EA	Air Products
			Obtain a permit from the GDARD to translocate the Conservation Important species (<i>Declining Boophane disticha</i>) to the south western section of the property, where no development is to take place.	Permit Visual verification	Prior to construction	Air Products
			Ensure that the Project is compliant with the requirements of the MHI Regulations; the MHI Risk Assessment must be submitted to the Local Provincial Director of the Department of Labour, the Chief Inspector of the Department of Labour and the local authorities.	Proof of submission	Prior to construction	Air Products
Soils and Groundwater	Potential contamination of soil and	Accidental spills and leaks of materials used.	Develop a Stormwater Management Plan which shall detail drainage to separate clean and dirty water systems.	Stormwater Management Plan	Prior to construction	Air Products Project Engineer

Issue/Receptor	Potential Impact	Project Activities/Environmental Aspects	EMP Mitigation	Parameters for Monitoring	Timing/Frequency	Responsibility
	groundwater resources		Conduct a detailed dolomite stability investigation if required by Local Council as well as discussions with the Council for Geoscience.	Dolomite stability investigation	Prior to construction	Air Products
Flora	Potential impact of alien invasive species on remaining grassland	Removal of vegetation and topsoil	Remove and dispose of all Category 1 alien invasive species in the correct manner. This shall be done in consultation with a qualified and experienced horticulturalist.	Visual verification	Prior to construction and during operations	Air Products Appointed Horticulturalist
			Remove all <i>Melia</i> trees and associated seedlings from the site. This shall be done in consultation with a qualified and experienced horticulturalist.	Visual verification	Prior to construction and during operations	Air Products Appointed Horticulturalist
Air Quality	Potential emissions to the atmosphere	Generation of dust and other air pollutants as a result of construction and operational Project activities	Develop a fugitive dust emissions management plan which shall include: <ul style="list-style-type: none"> paving of all on-site roads to minimize entrained dust emissions; regular sweeping of on-site roads to minimize silt loading; and total enclosure of material storage. 	Fugitive dust emissions management plan	Prior to construction	Air Products Appointed Environmental Control Officer
			Develop gaseous emissions management plan which shall include: <ul style="list-style-type: none"> regular maintenance and repair of vehicle fleet; minimize vehicle idling times; and minimize the use of the backup generator usage. 	Gaseous emissions management plan	Prior to construction	Air Products Appointed Environmental Control Officer
Socio-Economic	Community involvement and benefits	Construction and operational Project activities	Establish a grievance procedure to allow community members to raise concerns and issues relating to the Project.	Grievance procedure	Prior to construction	Air Products

Issue/Receptor	Potential Impact	Project Activities/ Environmental Aspects	EMP Mitigation	Parameters for Monitoring	Timing/Frequency	Responsibility
		CSI Fund	Align Corporate Social Initiatives (CSI) programmes with the existing/or planned municipal community development projects.	Project CSI priorities	Prior to construction	Air Products
	Creation of employment opportunities	Required Project workforce for the construction and operational phase	Ensure recruitment of Project workforce is undertaken in line with the Air Products recruitment policy. In particular, preference must be given to local residents, suppliers and consideration given to gender equality.	Recruitment policy	Prior to construction	Air Products
	Training and skills development	Training of Project workforce	Ensure that the appointed Project Contractor/s and suppliers have access to Health, Safety, Environmental and Quality training as required by the Project.	Training program	Prior to and during construction	Air Products Project Contractor/s
	Procurement of goods and services	Goods and services required to support Project activities (ie construction materials and plant equipment)	Ensure procurement is undertaken in line with the Air Products procurement policy.	Procurement policy	Prior to construction	Air Products Project Contractor/s
			Liaise with the relevant local Ward Councillor to ensure local procurement of goods and services is maximised.	Local supplier agreements	Prior to construction	Air Products
Waste	Potential spill or leak from waste storage and transport facilities to soil and groundwater resources	Waste handling, storage and disposal	Development of a Waste Inventory in accordance with Air Products SOP for Waste Management (25-011202)	Waste inventory	Prior to construction	Air Products
			Recycling, reclamation and recovery opportunities shall be investigated with local companies such as Oil Skip (recycle used oils).	Local contractor agreements	Prior to construction	Air Products

Issue/Receptor	Potential Impact	Project Activities/Environmental Aspects	EMP Mitigation	Parameters for Monitoring	Timing/Frequency	Responsibility
			Notify the municipal Waste Services to ensure waste material is disposed in an appropriate manner at a licence landfill site with the capacity to receive such wastes.	Communication with municipality	Prior to construction	Air Products
Unplanned Events	Risk of fire and explosions	Operation of facility	Develop a Site Emergency Plan in accordance with the Air Products Site Emergency Planning Procedure. The plan should be approved by a qualified risk consultant/local authority.	Site Emergency Plan	Prior to construction	Air Products
			Determine which municipality has the appropriate emergency response skills and equipment (readiness) to assist in the case of an emergency. At least once a year, that municipality emergency response departments (fire, medical and criminal response) should visit the Project site to familiarise themselves with the site and its activities. The site emergency plan should be shared with these authorities.	Agreements with emergency response authorities and proof of communication		

Table 3.2 Construction Phase: Environmental Management Programme

Issue/receptor	Potential Impact	Project Activities/ Environmental Aspects	EMP Mitigation	Parameters for Monitoring	Timing/Frequency	Responsibility
Legal	Regulatory non-compliance resulting in a fine	Commencing with the Project with no adherence to regulatory requirements	Ensure that the approved EMP, Environmental Authorisation and Air Emissions Licence are kept on site and is available throughout construction.	Approved EMP Environmental Authorisation Air Emissions Licence	Prior to construction	Air Products Project Contractor/s
Soil Resources	Disturbance and loss of soil resources	Clearance of vegetation and removal of the existing buildings on site will involve grubbing/excavating	Remove and stockpile suitable top soils for reuse during site rehabilitation and landscaping.	Visual verification	Prior to construction	Project Contractor/s
			Maintain all trees around the existing farmhouse and ensure there is no disturbance to these roots.	Visual verification	During construction	Project Contractor/s
			Re-vegetate and/or landscape areas of the site that are not used for buildings and infrastructure as soon as possible after disturbance.	Visual verification	During construction	Project Contractor/s
			Clearly demarcate construction zones to minimise the site work footprint and ensure workers restrict works to demarcated areas.	Visual verification No-go areas outlined on site layout plan	Prior to construction	Project Contractor/s Environmental Control Officer
	Increased potential for soil erosion	Exposure of bare soils by site clearing activities	Confine heavy vehicles and machinery to designated working areas and access roads.	Visual verification	Daily, during construction	Project Contractor/s
			Pile topsoil stockpiles to a height of no more than 2 meters and use adequate sheeting to cover stockpiles.	Visual verification	Prior to construction	Project Contractor/s
			Establish hardstanding on and around the facility as well as stormwater management infrastructure around the Project site to reduce erosion.	Construction schedule Visual verification	During construction	Project Contractor

Issue/receptor	Potential Impact	Project Activities/ Environmental Aspects	EMP Mitigation	Parameters for Monitoring	Timing/Frequency	Responsibility
Air Quality	Potential PM ₁₀ emissions	Construction activities have the potential to generate dust from vehicles on dirt roads, site levelling, earth moving and vegetation clearing	Surface or pave Tilliet Road to be discussed with municipality. All site roads to be surfaced or paved	Visual verification	During construction	Air Products Project Engineer
			Use dust minimizing techniques such as the dampening of road surfaces.	Visual verification	On high wind days during construction.	Project Contractor/s
			Ensure regular maintenance and repair of construction vehicles and machinery.	Vehicle and equipment maintenance log	Periodically during construction	Project Contractor/s
			Reduce vehicle idling time.	Visual verification	Daily	Project Contractor/s
			Cover all materials with the potential to lead to dust emissions, during transport.	Visual verification	During construction	Project Contractor/s
			Clear and remove excess dirt or mud on access roads as a result of project activities.	Visual verification	Weekly, during construction	Project Contractor/s
			Enforce speed limits of 20kph on unhardened roads and surfaces.	Staff awareness	During construction	Project Contractor/s
			Minimise the drop heights for transfer of materials that could emit dust.	Visual verification	During construction	Project Contractor/s
Noise	Potential increase in noise emissions	Use of machinery and equipment for construction as well as the movement of vehicles from and to the site	Ensure that all equipment is operated and maintained in accordance with the original specifications in terms of noise ratings.	Equipment maintenance log	Periodically during construction	Project Contractor/s
			Avoid undertaking construction activities, including vehicle movements to/from the site at night.	Construction schedule	During construction	Project Contractor/s
			Communicate and consult with surrounding neighbours and local communities regarding the construction work schedules.	Proof of consultation	Prior to and during construction	Project Contractor/s Environmental Control Officer with

Issue/receptor	Potential Impact	Project Activities/ Environmental Aspects	EMP Mitigation	Parameters for Monitoring	Timing/Frequency	Responsibility
						the local ward councillor
			Identify areas where hearing protection must be worn and erect sign-posting at these high noise areas.	Visual verification	Prior to construction	Project Contractor/s Environmental Control Officer
Flora	Loss of grassland and floral habitat	Removal of vegetation and topsoil	Ensure that no dumping occurs outside of the site boundaries, including any stockpiles or construction equipment.	Visual verification	Daily, during construction	Project Contractor/s Environmental Control Officer
			Designate a laydown area for construction equipment and materials. The laydown area should be on an existing disturbed area, as indicated in green on the site sensitivity map (Figure 6.22).	Site layout plan	Prior to construction	Project Contractor/s Environmental Control Officer
			Limit vegetation removal to the footprint of Project infrastructure and avoid the south-western portion of the property.	Visual verification Site layout plan	During construction	Project Contractor/s Environmental Control Officer
	Potential impact of alien invasive species on remaining grassland	Removal of vegetation and topsoil	Appoint a qualified and experienced horticultural specialist to redesign the current landscaping to indigenous Highveld species only and to maintain the <i>Searsia lancea</i> and <i>S pyroides</i> individuals.	Landscape plan Visual verification	On completion of construction	Air Products
			Develop a long-term site monitoring plan for alien invasive plants.	Monitoring plan	Prior to construction	Air Products appointed Horticulturalist
			Remove any emerging alien invasive seedlings.	Monitoring plan	During construction and operation	Air Products appointed Horticulturalist
Fauna	Loss of faunal habitat and open	Removal of vegetation and	Ensure that no dumping occurs outside of the site boundaries, including any stockpiles	Visual verification	Daily, during construction	Project Contractor/s Environmental

Issue/receptor	Potential Impact	Project Activities/ Environmental Aspects	EMP Mitigation	Parameters for Monitoring	Timing/Frequency	Responsibility
	space	topsoil	or construction equipment.			Control Officer
			Designate a laydown area for construction equipment and materials. The laydown area should be on an existing disturbed area, as indicated in green on the site sensitivity map (Figure 6.22).	Site layout plan	Prior to construction	Project Contractor/s Environmental Control Officer
			Limit vegetation removal to the footprint of Project infrastructure and avoid the south-western portion of the property.	Visual verification Site layout plan	During construction	Project Contractor/s Environmental Control Officer
			Maintain a section of grassland as a buffer between properties and shall be protected from disturbance during construction activities.	Visual verification	During construction	Project Contractor/s Environmental Control Officer
	Potential sensory disturbance to fauna	Noise and light disturbances from machinery, vehicles and workers	Ensure that all equipment is operated and maintained in accordance with the original specifications in terms of noise ratings.	Equipment maintenance log	Periodically during construction	Project Contractor/s
			Avoid undertaking construction activities, including vehicle movements to/from the site at night.	Construction schedule	During construction	Project Contractor/s
			Ensure lighting is kept to a minimum and where possible directed downwards with hoods.	Visual verification	Daily during construction	Project Contractor/s
	Potential loss of faunal species and reduction in corridor movement	Accidental spills from poorly maintained or unlined storage containers poses the risk to faunal species	Ensure that all storage containers are water tight and inspected regularly for leaks.	Inspection logs	Daily during construction	Project Contractor/s
			Implement effective clean-up measures in the case of an accidental spill or release.	Visual verification and site emergency plan	During construction (as required)	Project Contractor/s Environmental Control Officer
			Prohibit any snaring or harvesting in	Environmental	During construction	Environmental

Issue/receptor	Potential Impact	Project Activities/ Environmental Aspects	EMP Mitigation	Parameters for Monitoring	Timing/Frequency	Responsibility
			/outside of the Project site.	awareness training and site posters		Control Officer
			Include small culverts at the base of the site perimeter wall to allow movement of fauna.	Building plan for wall Visual verification	Prior to construction	Project Engineer
Socio-economic	Community involvement and benefits	Construction and operational Project activities	Maintain a grievance procedure to allow community members to raise concerns and issues relating to the Project.	Grievance log	During construction	Air Products
	Training and skills development	Training of Project workforce	Ensure on-going environmental training and awareness of the Project workforce.	Training records	Weekly, during construction	Project Contractor/s Environmental Control Officer
Heritage, Archaeological and Paleontological Resources	Potential disturbance or destruction of heritage resources	Excavations as well as land clearing activities	Conduct a paleontological field assessment, should bedrock be impacted on by the Project and submit a protocol for finds to the South African Heritage Resources Agency (SAHRA) for comments prior to undertaking the activity.	Detailed geo-technical investigation Paleontological field investigation (if required)	Prior to construction	Project Engineer
			Immediately alert SAHRA and a qualified and experienced archaeologist and/or palaeontologist, if any new evidence of archaeological sites or artefacts, paleontological fossils, graves or other heritage resources be found.	SAHRA notification and specialist appointment (if required)	During construction	Air Products Environmental Control Officer
			Develop a Chance Find Procedure, in the event that any heritage resources are identified.	Chance find procedure	Prior to construction	Air Products Environmental Control Officer
Traffic	Potential increase in traffic volumes	Construction vehicles and machinery	Discuss lighting at the Kalksteen / Tilliet Road intersection with the local municipality	Visual verification	During construction	Project Engineer in consultation with the Midvaal Local Municipality

Issue/receptor	Potential Impact	Project Activities/ Environmental Aspects	EMP Mitigation	Parameters for Monitoring	Timing/Frequency	Responsibility
			Prohibit on-street pick up/drop offs on Tilliet Road, Kalksteen Road or the M61.	Staff awareness	During construction	Project Contractor/s
			Surface or pave Tilliet Road to be discussed with municipality. All site roads to be surfaced or paved	Local municipal approval Visual verification	During construction	Project Engineer in consultation with the Midvaal Local Municipality
			Provide road signs and road markings according to the SARTSM requirements at all intersections from the M61 to the site.	Local municipal approval Visual verification	During construction	Project Engineer in consultation with the Midvaal Local Municipality
Unplanned events	Spills to soil and groundwater resources	Storage and handling of hazardous materials	Store all hazardous materials on hardstanding with an impermeable surface which should also be bunded.	Visual verification	During construction	Project Contractor/s
			Refuel equipment and vehicles in designated areas and utilise drip trays.	Visual verification	Daily during construction	Project Contractor/s
			Undertake concrete mixing on impermeable plastic lining.	Visual verification	Daily during construction	Project Contractor/s
			Contain and clean up all spills in accordance with the site emergency plan.	Visual verification Incident report	During construction (as required)	Project Contractor/s Environmental Control Officer
	Risk of vehicle accidents	Construction vehicles travelling to and from the site	Enforce speed limits with the speed limit on site restricted to 20km/h.	Incident report Staff awareness	During construction	Project Contractor/s Environmental Control Officer
			Communicate any hazards or problems with the local roads to the relevant local/regional government.	Authority communications (if required)	During construction	Project Engineer

Issue/receptor	Potential Impact	Project Activities/ Environmental Aspects	EMP Mitigation	Parameters for Monitoring	Timing/Frequency	Responsibility
			Design a journey management schedule that avoids peak hour travelling times during the day. Avoid night trips.	Journey management schedule	Prior to construction	Project Contractor/s
			Drivers to adhere to the road signs and avoid driving on road shoulders.	Staff awareness	During construction	Project Contractor/s Environmental Control Officer
			Require competency training for vehicle drivers and conductors before mobilisation is allowed.	Training record	Prior to and during construction	Project Contractor/s
			Use road signs at strategic points regarding the construction traffic.	Visual verification	During construction	Project Contractor/s
			Certify all vehicles for roadworthiness (and renew as required).	Roadworthiness certification	During construction	Project Contractor/s
Waste	Potential spill or leak from waste storage and transport facilities to soil and groundwater resources	Waste handling, storage and disposal	Manage site clearance and construction wastes in accordance with Section 5.8.10 of the Air Products Waste Management Procedure (October 2008).	Visual verification	During construction	Project Contractor/s Environmental Control Officer
			Appoint a suitable local contractor to transport and dispose of wastes off site at an appropriately licensed waste management facility for treatment and disposal.	Waste contractor agreement Waste disposal certificates	Prior to and during construction	Air Products
			Develop a comprehensive waste management plan for all phases of the Project.	Waste management plan	During construction	Environmental Control Officer
			Store all waste products within designated areas with hardstanding. Wastes shall not be stored on-site for more than 90 days.	Visual verification	During construction	Project Contractor/s Environmental Control Officer

Issue/receptor	Potential Impact	Project Activities/ Environmental Aspects	EMP Mitigation	Parameters for Monitoring	Timing/Frequency	Responsibility
			Segregate all solid wastes to facilitate reuse and recycling of specific materials.	Waste recycling programme	During construction	Project Contractor/s Environmental Control Officer
			Store all hazardous and liquid waste materials eg fuel for generators, including any contaminated soils in a bunded area of 110 percent of the stored material's capacity. This waste shall be disposed of at an appropriately licensed waste management facility for treatment and final disposal.	Waste disposal certificates	During construction	Project Contractor/s Environmental Control Officer
			Clearly label waste accumulation and storage areas.	Visual verification	During construction	Project Contractor/s
			Retain records and reports pertaining to waste management activities for a minimum of three years, or longer.	Waste manifest documentation	During and after construction (>3 years)	Air Products Project Contractor/s

Table 3.3 *Operation Phase: Environmental Management Programme*

Issue/ Receptor	Potential Impact	Project Activities/ Environmental Aspects	EMP Mitigation	Parameters for Monitoring	Timing / Frequency	Responsibility
Air Quality	Potential PM ₁₀ , SO ₂ NO ₂ and VOC emissions	Vehicle entrainment from product and raw material trucks and vehicle tailpipe emissions from forklifts and backup generator exhaust	Regularly sweep on-site roads to minimize dust.	Visual verification	During operation	Project Engineer
			Ensure all raw product and by-product storage is enclosed.	Visual verification	During operation	Project Engineer
			Conduct regular maintenance and repair of the operational vehicle fleet.	Maintenance log	Periodically, during operation	Project Engineer
			Reduce vehicle idling times.	Visual verification	During operation	Project Engineer
			Ensure off-site compliance with the SA NAAQS by restricting the use of the backup generator to cover for Eskom power failure/s .	Generator log	During operation	Project Engineer
			Conduct ambient air quality monitoring in accordance with AEL requirements (It is recommended that passive sampling of VOCs be conducted at the south-eastern boundary, as well as at the closest sensitive receptors).	National Ambient Air Quality Standards (NAAQS) Emission Limits	During operation	Air Products Appointed Air Quality Specialist
	Potential PH ₃ and acetone emissions	Fugitive emissions from plant	Ensure that all storage containers are water tight and inspected regularly for leaks.	Inspection schedule	Daily, during operation	Project Engineer
Noise	Potential increase in noise emissions	High pressure manifolds, metal on metal contact, compressor generators and pumps	Clearly demarcate and label high noise areas (ie the compressor room, generator room and use of power tools). Hearing protection should be worn by all Project staff.	Visual verification	During operation	Project Engineer
			Provide quiet areas for food and rest breaks to reduce employee exposure to noise from production activities.	Designated area	During operation	Project Engineer

Issue/Receptor	Potential Impact	Project Activities/Environmental Aspects	EMP Mitigation	Parameters for Monitoring	Timing / Frequency	Responsibility
			Maintain machines and plant equipment and include modifications or additions to noise mufflers, gas and compressed air outlets or duct silencers.	Maintenance log	Periodically, during operation	Project Engineer
			Where practical, add noise barriers (ie between production area and offices) and the site boundaries.	Visual verification	During operation	Project Engineer
			Use 'low noise' equipment, and methods of work where feasible.	Equipment noise rating levels	During operation	Project Engineer
			Use alternatives to diesel/petrol engines and pneumatic units, such as hydraulic or electric-controlled units, where feasible.	Equipment specifications	During operation	Project Engineer
			Reduce throttle settings and turn off equipment and plant when not used. Limit activities associated with high levels of noise to daylight hours only.	Staff awareness	During operation	Project Engineer
			Plan vehicle/ equipment movements to avoid travel through residential areas.	Project traffic route	During operation	Project Engineer
			Avoid clustering of machinery and other large operational vehicles near residences and other sensitive land uses.	Visual verification	During operation	Project Engineer
			Conduct representative noise measurements at intervals not exceeding 24 months, and/or when changes or additions to plant structures or machinery are made that would significantly change the noise exposure.	Gauteng Noise Control Regulation Limits	During operation	Air Products Appointed Noise Quality Specialist

Issue/Receptor	Potential Impact	Project Activities/ Environmental Aspects	EMP Mitigation	Parameters for Monitoring	Timing / Frequency	Responsibility
Flora	Potential impact of alien invasive species on remaining grassland	Remaining open areas on site	Implement long-term alien invasive plant monitoring of the area focussing on each growing season.	Monitoring reports	During operation, annually	Air Products Appointed Horticultural Specialist
			Continually remove any emerging alien seedlings.	Visual verification	During operation, annually	Air Products Appointed Horticultural Specialist
			Ensure there is no encroachment on the remaining grassland in the south west of the site	Visual verification	During operation	Project Engineer
Fauna	Potential sensory disturbance to fauna	Noise and light disturbances from machinery, vehicles and workers	Ensure that all equipment is operated and maintained in accordance with the original specifications in terms of noise ratings.	Equipment maintenance log	Periodically during operation	Air Products
			Ensure lighting is kept to a minimum and where possible directed downwards with hoods.	Visual verification	Daily during operation	Project Contractor/s Air Products
	Loss of faunal species due to spills	Uncontrolled run-off from the site or spills from poorly maintained or unlined storage containers poses the risk to faunal species.	Strictly enforce operational protocols to prevent and/or contain any accidental spillages.	Method Statement for accidental spills	Throughout operation	Air Products
			Ensure that all storage containers are water tight and inspected regularly for leaks.	Visual Inspection	Throughout operation	Air Products
			Implement effective clean-up measures in the case of an accidental spill or release.	Method Statement for accidental spills	As necessary	Air Products
		Cover the two water catchment pits.	Visual verification	Prior to operation	Project Engineer	
Socio-	Potential nuisance	Air and noise	Implement the grievance procedure to allow	Grievances logged	During operation	Air Products

Issue/Receptor	Potential Impact	Project Activities/Environmental Aspects	EMP Mitigation	Parameters for Monitoring	Timing / Frequency	Responsibility
Economic	to the community	emissions as well as traffic resulting from the operation of the facility	community members to raise concerns and issues relating to the Project.			
	Community benefits	CSI Fund	Align Corporate Social Initiatives (CSI) programmes with the existing/or planned municipal community development projects.	Project CSI priorities	During operation	Air Products
	Creation of employment opportunities	Required Project workforce for operations	Ensure recruitment of Project workforce is undertaken in line with the Air Products recruitment policy. In particular, preference must be given to local residents, suppliers and consideration given to gender equality.	Recruitment policy	Prior to operation	Air Products
			Ensure that its recruitment policy has reasonable targets for the employment of local residents and South African suppliers (originating from the local municipality) and promote the employment of women as a means of ensuring gender equality.	Percentage targets for recruitment policy are met	Prior to operation	Air Products
	Training and skills development	Provision of training	Ensure that all appointed Project Contractor/s and suppliers have access to Health, Safety, Environmental and Quality training as required by the Project.	Training records and training material	Prior to and during operation	Air Products
			Ensure multiskilling and skills development activities through the Air Products 400 Skills Development Plan to ensure ongoing capacity building of the Project workforce.	Training records	During operation	Air Products
	Procurement of goods and services	Operational procurement requirements are	Ensure procurement is undertaken in line with the Air Products procurement policy.	Procurement policy	Prior to operation	Air Products

Issue/Receptor	Potential Impact	Project Activities/ Environmental Aspects	EMP Mitigation	Parameters for Monitoring	Timing / Frequency	Responsibility
		predicted to be limited to routine maintenance of the facility and its' equipment	Liaise with the relevant local Ward Councillor to ensure local procurement of goods and services is maximised.	Local supplier agreements	Prior to operation	Air Products
Heritage, Archaeological and Paleontological Resources	Potential disturbance or destruction of heritage resources	Project operations	Immediately alert SAHRA and a qualified and experienced archaeologist and/or palaeontologist, if any new evidence of archaeological sites or artefacts, paleontological fossils, graves or other heritage resources be found. Comply with the Chance Find Procedure.	SAHRA notification and specialist appointment (if required)	During operation	Air Products
Traffic	Potential increase in traffic volumes	Increased traffic for the transportation of raw material from suppliers, final product, by-product (lime); goods (deliveries) to and from the site and commuter trips	Develop a journey management schedule that avoids peak hour travelling times during the day. Avoid night trips.	Journey management schedule	Throughout operation	Air Products
			Prohibit on-street pick up/drop offs on Tilliet Road, Kalksteen Road or the M61.	Staff awareness	During operation	Air Products
Waste	Potential for spills or leaks impacting soil and groundwater resources	Sanitary waste systems	Ensure no chemicals are disposed of down sinks, drains, or toilets.	Inspection schedule Staff awareness	During operation	Project Engineer
			Dispose of sanitary wastes through permitted municipal sanitary sewer.	Staff awareness	During operation	Air Products
		Lime slurry	Consider donating the unsold lime by-product from the operational activities to a Non-Profit Organisation (NPO) in the Municipal area. This can be done in partnership with the relevant municipal authorities.		During operation	Air Products

Issue/Receptor	Potential Impact	Project Activities/ Environmental Aspects	EMP Mitigation	Parameters for Monitoring	Timing / Frequency	Responsibility
		Acetylene generator	Collect alkaline wash water and reuse. .		As necessary	Project Engineer
		Scrap cylinders and maintenance wastes	Remove and recover acetone, to the extent possible.	Visual Inspection	As necessary	Air Products Waste contractor
			Dispose of through an Air Products-approved disposal contractor.		As necessary	Air Products
		Storage, handling and disposal of wastes	Manage wastes in accordance with Section 5.8.10 of the Air Products Waste Management Procedure (October 2008) and project Waste Management Plan.	Visual verification	During operation	Project Engineer
			Appoint a suitable local contractor to transport and dispose of wastes off site at an appropriately licensed waste management facility for treatment and disposal.	Waste contractor agreement Waste disposal certificates	During operation	Air Products
			Store all waste products within designated areas with hardstanding. Wastes shall not be stored on-site for more than 90 days.	Visual verification	During operation	Project Engineer
			Segregate all solid wastes to facilitate reuse and recycling of specific materials.	Waste recycling programme	During operation	Project Engineer
			Store all hazardous and liquid waste materials including any contaminated soils in a bunded area of 110 percent of the stored material's capacity. This waste shall be disposed of at an appropriately licensed waste management facility for treatment and final disposal.	Waste disposal certificates	During operation	Project Engineer
			Clearly label waste accumulation and storage areas.	Visual verification	During operation	Project Engineer

Issue/Receptor	Potential Impact	Project Activities/Environmental Aspects	EMP Mitigation	Parameters for Monitoring	Timing / Frequency	Responsibility
			Retain records and reports pertaining to waste management activities for a minimum of three years, or longer.	Waste manifest documentation	During and after operation	Project Engineer
			Consider donating the unsold lime by-product from the operational activities to emerging farmers found in the Municipal area. This can be done in partnership with the relevant municipal authorities.	Local agreement	Prior to and during operation	Air Products
Unplanned events	Potential contamination of soil resources from accidental spills/leaks	Accidental spills/leaks from: raw material, product and by-product unloading, loading and storage areas; equipment and parts cleaning	Ensure spill kits are readily available.	Visual verification	During operation	Project Engineer
			Report and clean up any spills or leaks immediately according to the site emergency plan.	Incident report	During operation, as necessary	Project Engineer
			Periodically check acetylene cylinders for signs of deterioration or damage.	Visual verification	During operation, on a monthly basis	Project Engineer
			Periodically check containment areas for leaks.	Visual verification	During operation, on a monthly basis	Project Engineer
			Keep containers and parts cleaners closed when not in use.	Visual verification	Daily, during operation	Project Engineer
	Risk of vehicle accidents	Construction vehicles travelling to and from the site	Enforce speed limits with the speed limit on site restricted to 20km/h.	Incident report Staff awareness	During operation	Air Products
			Communicate any hazards or problems with the local roads to the relevant local/regional government.	Authority communications (if required)	During operation	Project Engineer
			Design a journey management schedule that avoids peak hour travelling times during the day. Avoid night trips.	Journey management schedule	During operation	Project Engineer

Issue/Receptor	Potential Impact	Project Activities/Environmental Aspects	EMP Mitigation	Parameters for Monitoring	Timing / Frequency	Responsibility
			Drivers to adhere to the road signs and avoid driving on road shoulders.	Staff awareness	During operation	Project Engineer
			Require competency training for vehicle drivers and conductors before mobilisation is allowed.	Training record	During operation	Air Products
			Certify all vehicles for roadworthiness (and renew as required).	Roadworthiness certification	During operation	Project Engineer
	Risk of fire and explosion	Operation of acetylene generator and storage of acetone	Equip the facility with an emergency shut-down system to stop all electrical machinery.	Visual verification	During operation	Project Engineer
			The acetylene plant will be designed, constructed, operated and maintained to Air Products Acetylene Plant Design Standard.	Visual verification	All project phases	Project Engineer
			An emergency water deluge system shall also be provided to cover the cylinder filling .	Visual verification	During operation	Project Engineer
			Establish an on-site emergency plan to be followed inside the premises of the installation or part of the installation classified as a major hazard installation in consultation with the relevant health and safety representative or the relevant health and safety committee	Site Emergency Plan	Prior to operation	Air Products
			Discuss the emergency plan with the relevant local government, taking into consideration any comment on the risk related to the health and safety of the public	Site Emergency Plan	Prior to operation	Air Products
			Review the on-site emergency plan and	Updated Site	Every three years	Air Products

Issue/ Receptor	Potential Impact	Project Activities/ Environmental Aspects	EMP Mitigation	Parameters for Monitoring	Timing / Frequency	Responsibility
			where necessary, update the plan, in consultation with the relevant local government service at least once every three years.	Emergency Plan	during operation	
			Sign a copy of the on-site emergency plan in the presence of two witnesses, who shall attest the signature.	Signed Site Emergency Plan	During operation	Air Products
			Ensure that the on-site emergency plan is readily available at all times for implementation and use.	Site Emergency Plan	During operation	Air Products
			Test the on-site emergency plan at least once a year and keep a record of such a test.	Emergency Plan Audit	Annually, during operation	Air Products
			Employees and contractors shall be made aware of the site emergency plans and trained on all emergency requirements.	Training record Staff awareness	During operation	Project Engineer
			Familiarise neighbours with the emergency alarm sounds.	Record of drill	During operation	Project Engineer
			Undertaking shared (including the neighbours) emergency-drills once every six months or at agreed intervals.	Record of drill	During operation, every six months	Project Engineer
			Notify neighbours and authorities of any hazardous installations of new machinery on site.	Proof of notification (if required)	During operation	Project Engineer

Table 3.4 Decommissioning Phase: Environmental Management Programme

Issue/Receptor	Potential Impact	Project Activities/Environmental Aspects	EMP Mitigation	Parameters for Monitoring	Timing/Frequency	Responsibility
Legal	Regulatory non-compliance resulting in a fine	Legal compliance	Compile a decommissioning plan which includes an environmental plan for reinstating the site to its original state.	Decommissioning plan	Prior to decommissioning	Air Products
			Notification of regulatory authorities including the local municipality and emergency response departments.	Proof of notification	Prior to decommissioning	Air Products
Waste	Potential for spills or leaks impacting soil and groundwater resources	Decommissioning the facility	Identify suitable disposal sites and confirm capacities for disposal for general and hazardous wastes prior to the initiation of decommissioning activities.	Updated waste inventory	Prior to decommissioning	Air Products
			All metal shall be sold for scrap and machinery; and infrastructure and buildings shall be dismantled such that as much of this waste can be reused or recycled.	Updated waste inventory	During decommissioning	Air Products
			Undertake a survey to ensure that no asbestos has been used on the site. If asbestos has been used, a specialist contractor shall be used to dispose of the asbestos.	Updated waste inventory	Prior to decommissioning	Air Products
			Ensure adherence to the Air Products Decommissioning and Dismantling Acetylene Plant Procedure (April 2008).		Prior to and during decommissioning	Air Products