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1. ENVIRONMENTAL MANAGEMENT PLAN

1.1 Schedule of Definitions

Auditing a systematic and objective assessment of an organisation's activities and services conducted and documented on a periodic basis.

Contractor shall hereinafter in this document refer to the Principal Contractors, Main Contractors and those Specialist Contractors appointed directly by Alistair and includes any agent, sub-contractor, employee, staff member, worker, assistant, apprentice, labourer, workman, hired hand, job-holder or member of the workforce acting on the Contractors behalf.

Employer for the purpose of the document means Alistair (Pty) Ltd (Alistair).

Engineer for the purposes of this document the Engineer shall be seen as any Alistair person responsible for a phase or activity associated with the proposed facility.

Engineer's Representative for the purposes of this document the Engineer's Representative shall been seen as a person to whom the Engineer's responsibilities are delegated.

Environmental management programme is a detailed plan of action prepared to ensure that recommendations for enhancing positive impacts and/or limiting or preventing negative environmental impacts are implemented during the life-cycle of a project.

Environmental specification refers to instructions and guidance for specific activities designed to help prevent, reduce and/or control the potential environmental implications of these activities.

Hazardous substances and materials are solids, liquids, or gases that can harm people, other living organisms, property, or the environment. They include materials that are radioactive, flammable, explosive, corrosive, oxidizing, asphyxiating, bio-hazardous, toxic, pathogenic, or allergenic. Also included are physical conditions such as compressed gases and liquids or hot materials, including all goods containing such materials or chemicals, or may have other characteristics that render them hazardous in specific circumstances.

Monitoring a systematic and objective observation of an organisation's activities and services conducted and reported on regularly.

Person(s) shall hereinafter in this document means "including any agent, sub-contractor, employee, staff member, worker, assistant, apprentice, labourer, workman, hired hand, job-holder or member of the workforce appointed by and acting for and on behalf of the Employer, Engineer or Contractor.

Pollution refer to any change in the environment caused by substances, noise, odours, dust or heat, emitted from any activity, including the storage or treatment of waste or substances, construction and the provision of services, whether engaged in **by** any person, where that change has an adverse effect on human health or well-being or on the composition, resilience and productivity of natural or managed ecosystems, or on materials useful to people, or will have such an effect in the future.

Relevant person for the purpose of the document means a person closely connected the proposed Alistair logistics facility or a person who undertakes a task appropriate to the proposed facility.

1.2 List of Acronyms

BATNEEC	Best available technology not entailing excessive cost.
Contractor's HSE Officer	Contractor's Heath Safety and Environmental Officer.
EA	Environmental authorisation.
EAP	Environmental Assessment Practitioner.
ECC	Environmental Clearance Certificate
ECO	Environmental Control Officer.
EIA	Environmental Impact Assessment Report.
EMP	Environmental Management Programme Report.
MSDS	Material Safety Data Sheet.
PPE	Personal protective equipment.
S&EIR	Scoping and Environmental Impact Reporting.

1.3 Scope of this Document

This EMP covers actions associated with the proposed Alistair oil and gas logistics support base which are considered pertinent to proper environmental management and control in terms of the relevant legislation of Namibia

In order to ensure a systematic and robust approach to the management of environmental impacts during the planning and design, pre-construction and construction activities, operation, rehabilitation, and closure phases of the proposed facility and to prevent long- term or permanent environmental degradation as a result thereof, this EMP does the following:

- Assigns roles and responsibilities to the parties charged with its implementation.
- Sets out environmental specifications that are applicable to the proposed facility and its associated activities and provides guidance in order to achieve these environmental specifications.
- Defines corrective actions, which must be taken in the event of incidents and/or non-compliance with these environmental specifications.
- Specifies requirements and procedures for monitoring, auditing and reporting.
- Specifies requirements and procedures for record keeping.
- Acts as a monitoring and auditing tool for ensuring compliance with the provisions of the EMP
- Makes provision for periodic review of the EMP.

1.3.1 Environmental Impacts

The following list of impacts summarises those that were identified and assessed as part of the Environmental Impact Assessment Report (EIAR) for which the EMP proposes mitigation measures in order to reduce negative impacts and enhance positive impacts:

- land use;
- flora;
- fauna;
- groundwater;
- air quality;
- noise
- and
- socio-economic.

1.4 Organisational Structure

Efficient implementation of the environmental specifications, effective monitoring and auditing, as well as clear responsibility and accountability allocation requires that various role-players be defined for the implementation of the project.

Therefore, for the purpose of this document, the following role-players are defined, based purely on responsibility and accountability allocation.

1.4.1 Reporting Relationships

Figure 1 is a depiction of the role-players and their reporting relationships for the proposed project during all phases of the project as given in section 1.4.1. This figure depicts the practical reporting relationship, not necessarily the contractual or institutional relationships. All official communication and reporting lines related to the EMP (including instructions, directives and information) shall be channelled according to this organisational structure.

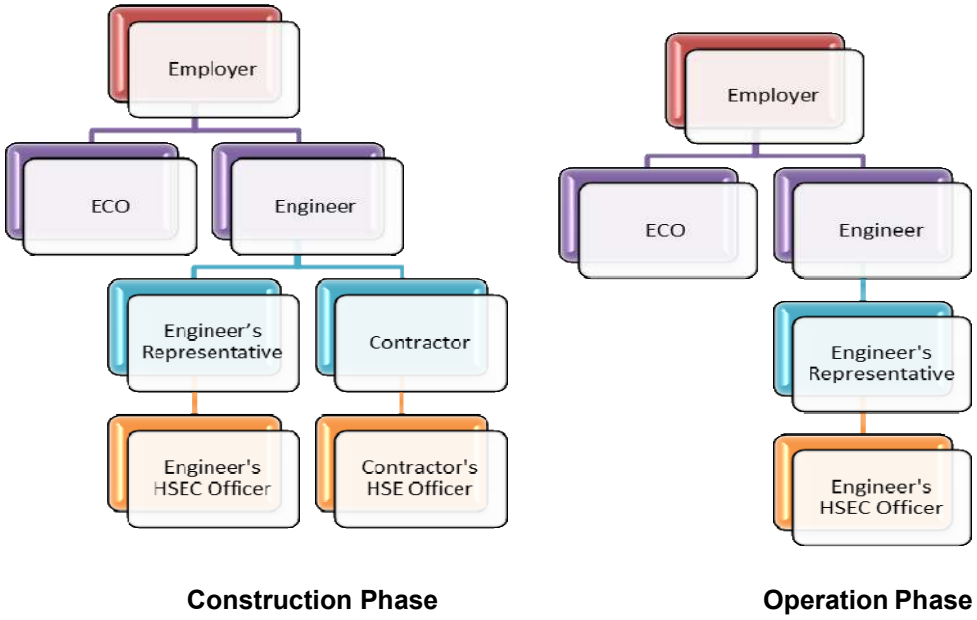

Figure 1: Role Players and their Reporting Relationships

1.4.2 Roles and Responsibilities

1.4.2.1 Employer

Alistair will be the Employer for all components of the work related to the proposed facility. Ultimately, the liability associated with environmental non-compliance rests with the Employer. The Employer is responsible for the following:

- Implementation of the approved EMP
- Submission of any substantial changes, updates or amendments of the EMP to MEFT: DEAT.
- Ensuring that the provisions of the ECC are binding on the Engineer and/or Contractor operating on the site during the various project phases.
- Ensuring that environmental inspections are conducted to establish how well the Engineer and/or Contractor is complying with conditions of the ECC.
- Ensuring that compliance/non-compliance records are kept in good order and made available on request by the authorities.
- Ensuring that a copy of the ECC is available on site at all times and all relevant persons are familiar with or made aware of the contents of such.
- Complying with all applicable environmental legislation, regulations and guidelines, and

ensuring that the Contractor undertakes responsibility to do the same.

1.4.2.2 Engineer

The Employer appoints an Engineer as its responsible agent to ensure that persons adhere to environmental specifications/ the EMP It is noted that the Engineer may delegate certain authorities and responsibilities to the Engineer's Representative.

The Engineer and/or Engineer's Representative also has the power to stop any activity in contravention of the environmental specification/ EMP. When the direction is given by the Engineer to persons in terms of the EMP, it is deemed to be after due consultation with the Environmental Control Officer (ECO).

1.4.2.3 Environmental Control Officer (ECO)

The ECO, appointed by the Employer, will:

- Be well versed in environmental matters.
- Have a general understanding of the relevant environmental legislation and processes.
- Have a good understanding of the ECC and EMP.
- Have a general understanding of the hierarchy of environmental compliance reporting, and the implications of non-compliance.
- Be able to resolve conflicts and make recommendations on site in terms of the requirements of the environment specifications.
- Keep accurate and detailed records of all EMP-related activities on site
- Monitor specification on site and project compliance with the conditions of the ECC and keep a register of non- compliances.
- Identify and assess previously unforeseen, actual or potential impacts of the project on the environment.
- Ensure the maintenance of the on-site public complaints register.
- Conduct site inspections during the defects liability period, and bring any environmental concerns to the attention of the Employer.
- Recommend to the Employer that any person suspend any or all work on site if they fail to comply with the environmental specifications.
- Advise on the rectification of any pollution, contamination or damage to the project site, rights of way and adjacent land.
- Attend site meetings (scheduled and ad hoc).
- Arrange the presentation of the environmental awareness training course.
- Ensure that the Employer and Engineer are made aware of all applicable approved changes to the EMP
- Ensure that environmental performance audits are undertaken quarterly.

The Contractor and the Contractor's HSE Officer are answerable to the ECO, via the Engineer, for non-compliance with environmental specifications. The ECO provides feedback to both the Engineer and the Employer. Issues of non-compliance raised by the ECO must be taken up by the Employer, and resolved with the relevant entities via the Engineer.

1.4.2.4 Contractor

The Contractor is appointed by the Employer to undertake the works as specified in the Main Contract. It is the responsibility of the Contractor to do whatever is necessary to ensure that he and his appointed advisor are well versed in environmental matters so that they may accurately and efficiently carry out the requirements of the environmental specification.

The Contractor shall:

- Be responsible for the implementation of the applicable environmental specifications in accordance with the requirements and provisions of this EMP.
- Ensure that all persons who carry out all or part of the Contractor's obligations comply with the requirements and provisions of this EMP.
- Report any non-compliances and/or incidents to the Engineer and/or Engineer's Representative
- Ensure that any relevant persons acting on the Contractor's behalf attend the environmental awareness training course.

The Contractor is liable for any and all remedial work required in terms of the environmental specification resulting from his negligence, mismanagement and/or non-compliance.

1.4.2.5 Contractor's Heath Safety and Environmental (HSE) Officer

The Contractor's HSE Officer, employed by the Contractor, is responsible for managing the day-to-day on-site implementation of this environmental specification, and for the compilation of regular monitoring reports. In addition, the Contractor's HSE Officer must act as liaison and advisor on all environmental and related issues, seek advice from the Engineer's ECO when necessary and ensure that any complaints received from the public are duly recorded and forwarded to the ECO.

The Contractor's HSE Officer should:

- Be well versed in environmental matters.
- Have a general understanding of the relevant environmental legislation and processes.
- Have a general understanding of the hierarchy of environmental compliance reporting, and the implications of non-compliance.
- Have a general understanding of the ECC and EMP.
- Be able to resolve conflicts and make recommendations on site in terms of the requirements of the environmental specifications.
- Keep accurate and detailed records of relevant EMP-related activities on site.
- Report to the Contractor, ECO and Engineer on monitoring of environmental issues.

1.5 Planning and Design Phase Specification

The Planning and Design Phase refers to the period where the preliminary design for the proposed facility is finalised. The Planning and Design Phase activities are the responsibility of the Employer and it is anticipated that this phase will be complete during 2014.

1.5.1 Final Design

The Employer will ensure that the engineering companies appointed to finalise the designs:

- Are professionally registered and carry professional indemnity insurance.
- Are aware of the ECC and Conditions attached to it, including the EMP
- Meet all relevant environmental legal requirements.
- The Employer will consult with the ECO should any significant modification be made to the final design. The Employer in consultation with the ECO will decide on the necessary actions, such as applying for an amendment to the ECC, whilst ensuring compliance with the existing ECC and EMP conditions.

1.5.2 Commissioning of Tenders

The Employer will ensure that all tendering Contractors are made aware of:

- The contents of the ECC and EMP.
- The auditing, monitoring and reporting requirements as stipulated in the EMP
- The penalties arising from non-compliance with the EMP.
- The policies, standards and procedures that must be adhered to.
- Site induction, including environmental awareness training, and medical requirements.

1.6 Construction Phase Specification

The Construction Phase refers to the period of the project during which the actual work is carried out, deemed to include site establishment and site works until site handover to the Employer.

1.6.1 Site Establishment

The Contractor will:

- Submit a layout plan/ method statement for site establishment to the Engineer that is designed to minimize disruption and disturbance to neighbours and to the environment
- Restrict all activities, materials, equipment and persons within the area/s specified.
- Erect site notices at the construction site informing persons of restricted access, the nature and timeframes of the construction activities, and appropriate contact details.
- Erect and maintain permanent and/or temporary barricading, type and location as directed by the Engineer, prior to starting construction.
- Maintain all demarcation barriers for the duration of construction activities, or as otherwise instructed by the Engineer.

1.6.2 Labour and Social Issues

1.6.2.1 Standard Hours of Operation

For the standard hours of operation cognisance will be taken of exposure to the community, so that heavy construction related activities will not take place between 18:00 and 06:00.

1.6.2.2 Site Access

The Employer will ensure that access to the site, including associated infrastructure and equipment, is off-limits to unauthorised persons at all times during construction.

1.6.2.3 Supervision

The Contractor will ensure that persons are supervised and refrain from trespassing beyond the demarcated site.

1.6.2.4 Personal Protective Clothing

The Contractor will ensure that persons are issued and wear the relevant personal protective equipment (PPE) according to Alistair requirements.

1.6.2.5 Toilet/Ablution facilities

The Contractor will ensure that:

- Temporary chemical toilets are provided as approved by the Engineer.
- Ablution facilities are supplied at a minimum ratio of 1 toilet per 15 people on site.
- All temporary chemical toilets are secured to the ground to prevent them from toppling over due to wind or any other cause.
- The entrances to the ablution facilities are adequately screened from public view.
- Ablution facilities are maintained in a hygienic state and regularly serviced.
- That a licensed service provider removes the contents of the temporary/portable ablution facilities from site.
- Disposal of the contents of the temporary/portable toilets waste is disposed of at a licenced sewage works.
- Prior to establishment of the ablution facilities, the Engineer approves an appropriate location for establishment.

1.6.2.6 Eating facilities

The Contractor will ensure:

- That eating facilities are provided in the Contractor's lay down area.
- Food is only consumed within the eating facilities.
- No open fires for the purpose of cooking food are permitted.
- That braais are carried out in designated areas.
- Prior to establishment of the eating facilities, the Engineer approves an appropriate location.

1.6.2.7 Site Accommodation

The Contractor will ensure that no workers are accommodated on site overnight.

1.6.3 Safety and Health

The Contractor will ensure that:

- Applicable notice boards and hazard warning notices are put in place and secured.
- Night hazards are indicated suitably (e.g. reflectors, lighting, traffic signage).

- Emergency and management contact details are prominently displayed.
- An emergency assembly point is identified and demarcated.
- No open fires for the purpose of warming are permitted.
- Safe practice is maintained at all times according to the Occupational Health and Safety Act (Act 85 of 1993).

1.6.4 'Housekeeping' Activities

The Contractor will ensure that the housekeeping system is maintained according to Alistair requirements.

1.6.5 Protection of Flora and Fauna

The Contractor will ensure that:

- No vegetation is cleared without the prior permission of the Engineer.
- Gathering of firewood, fruit, muthi plants, crops, or any other natural material in areas adjacent to the site is prohibited.
- No poaching of fauna is allowed and the disturbance of animals and their habitat is minimised wherever possible.

1.6.6 Protection of Archaeological and Paleontological Remains

If remains or artefacts are discovered on the site during earthworks, work will cease and the Contractor will immediately inform the ECO via the Engineer, who will contact the South African Heritage Resources Agency. If these appear to be human remains the South African Police Service will also be contacted. The ECO will then contact a professional archaeologist for an assessment of the find and required reporting of such.

1.6.7 Site Clearing

Site clearance will take place in accordance with approved drawings as issued by the Engineer to the Contractor. Timing of the activities will be planned as agreed by the Engineer and Contractor before commencing with the work. Compliance to the site clearing plan will be monitored by the Engineer and photographic record will be kept.

1.6.8 Topsoil Stripping and Stockpiling

The Contractor will ensure that:

- Once an area has been cleared of vegetation, the soil will be levelled and prepared for construction related activities.
- Soil removed from site is used for a suitable purpose or disposed of at a landfill site.
- Cleared vegetation is disposed of at a landfill site.

1.6.9 Subsoil Strata Stripping and Backfilling

The Contractor will:

- Excavate material on site in accordance with the relevant SANS codes.
- Ensure excavation of materials is avoided under high wind conditions or when a visible dust plume is present.

- Ensure dust suppression is carried out to prevent excessive fugitive dust.
- Perform checks on the quality and compaction of backfill to foundations.
- Ensure uncontaminated imported material is used as fill.

1.6.10 Exposed Surfaces

The Contractor will ensure that:

- All embankments, unless otherwise directed by the Engineer, are protected by berms and channels to prevent rainwater from cascading down the face of the embankment and causing erosion.
- Vegetation commences after the completion to reduce the risk of soil erosion.

1.6.11 Stockpile Management

The Contractor will ensure that:

- Stockpiles are not situated such that they obstruct water pathways i.e. they shouldn't extend outside the designated areas or impact on adjacent storm water systems.
- Stockpiles do not exceed 2m in height unless otherwise agreed with the Engineer.
- Stockpiles exposed to windy conditions or heavy rain, are covered by sheeting or chemical coatings, depending on the duration of the project. Stockpiles may be further protected by the construction of berms or low brick walls around their bases.

1.6.12 Storm Water Management

The Contractor will ensure:

- Material is properly stockpiled so as not to obstruct natural water pahways over the site.
- During construction, unchannelled flow is controlled to avoid soil erosion.
- The periodic checking of the site's drainage system to ensure that the water flow is unobstructed.

1.6.13 Access Routes/Haul Roads

The Contractor will ensure that:

- Access to the construction site is via existing roads.
- Existing access roads impacted on by spillages from construction activities are cleared of such material at the earliest opportunity.
- Damage to the existing access roads as a result of construction activities is repaired to the satisfaction of the Engineer.
- Vehicle speeds do not exceed the designated speed limits or a safe speed limit.

The Engineer will:

- Implement dust control measures where necessary, as indicated by the Engineer.
- Implement traffic safety measures (e.g. traffic warning signs, flagmen) where required.
- Pay attention to minimising disruption of the flow of traffic on existing roads and reduce the danger to other road users and pedestrians.

1.6.14 Services Management

1.6.14.1 Potable water Supply

The Engineer will ensure that the Contractor has access to an existing potable water take off point. The Contractor will ensure that persons utilise the potable water take off point provided.

1.6.14.2 Electricity Supply

The Engineer will ensure that:

- The Contractor has access to an existing electrical point.
- The Contractor installation complies to the SANS 10142.

The Contractor will ensure that persons utilise the electrical point provided safely.

1.6.15 Materials Handling, Use and Storage

1.6.15.1 General Principles

The Contractor will ensure that:

- Storage areas are designated, demarcated and fenced if necessary.
- A notice board with the contact details of the responsible party is displayed at the gate to the storage area.
- Storage areas are kept tidy.
- Fire prevention facilities are present at all storage facilities.
- Storage areas shall not be utilised for accommodation purposes.

1.6.15.2 Material Deliveries

The Contractor will ensure that all material lay-down areas and stockpiles are approved by the Engineer.

1.6.15.3 Hazardous Substances and Materials

The Contractor will ensure that:

- Hazardous substances/materials are stored in designated and appropriately designed and constructed areas within a secured area on site.
- Hazardous substances/materials are stored in tanks or drums located within impermeable facilities where required. The volume of the impermeable storage facility must be as approved by the Engineer.
- Storage areas containing hazardous substances/materials are demarcated with appropriate signage.
- The integrity of the hazardous substances/materials storage vessels must be checked on a monthly basis.
- Storage facilities are well-ventilated.
- Material Safety Data Sheets (MSDS's) are readily available on site for all chemicals and hazardous substances/materials used on site.
- Where possible and available, MSDS's additionally include information on ecological impacts

and measures to minimise negative environmental impacts during accidental releases or escapes.

- Persons are made aware of the health risks associated with any hazardous substances/materials used, and are provided with appropriate protective clothing/equipment.

1.6.15.4 Paints

The Contractor will ensure that paint, paint containers and products are disposed of in the hazardous waste bins provided.

1.6.16 Fuel (petrol and diesel) and Hydrocarbons

The Contractor will ensure that:

- Refuelling is confined to designated areas and the area is underlain by an impermeable surface.
- Emergency repairs done on machinery using hydrocarbons have a drip tray placed strategically to avoid incidental spillage.
- Drip trays are emptied daily into appropriate disposal containers and serviced when necessary. In particular, drip trays are closely monitored during rain events to ensure that they do not overflow.

1.6.17 Light Management

The Contractor will ensure that:

- Lighting on site is set out to provide maximum security and to enable easier policing of the site, without creating a visual nuisance.
- Lighting installed on site does not interfere with road traffic or lead to unacceptable light pollution to the surrounding community.

1.6.18 Noise Management

The Contractor will ensure that:

- No amplified music is allowed on the site.
- When construction activities output levels are above 85dB the necessary PPE is worn.

1.6.19 Air Emissions Management

The Contractor will ensure that:

- Vehicles and machinery are kept in good working order and meet manufacturer's specifications for safety, fuel consumption etc.
- Should excessive emissions be observed, the equipment is to be repaired as soon as possible.
- The Engineer will ensure that access roads and other cleared surfaces are treated with Dustex whenever possible and especially in dry and windy conditions to avoid excessive dust.

1.6.20 Waste Management

The Contractor will ensure that:

- No burying/dumping of waste materials, vegetation, litter, builders' rubble or refuse occurs on site.
- Burning of waste does not occur.
- Littering on the site is forbidden and the construction site is cleared of all litter at the end of each working day.
- General waste drums are not overfilled and emptied regularly into mass waste containers provided by the Engineer.
- Waste is placed in designated mass waste containers located within demarcated areas designed to prevent waste from being blown out by wind.
- All builders refuse is deposited at an appropriate waste disposal facility.

The Engineer will ensure that:

- Mass waste containers are provided in sufficient numbers and capacity to store solid waste produced by the Contractor.
- Mass waste containers are covered at all times during transport.
- Waste collected from site is undertaken by a licensed Contractor and removed to an appropriate waste disposal facility.
- Reports of the quantity and proof of responsible disposal of waste are kept and submitted to the ECO.
- Waste disposal is done according to -Waste Management procedure.

1.6.21 Emergency and Response Procedures

1.6.21.1 General

The Contractor will ensure that an emergency is handled according to Alistair Emergency and Response procedure.

1.6.21.2 Fire

The Contractor will ensure that:

- Precautions are taken (e.g. suitable fire extinguisher, welding curtains) when working with welding or grinding equipment near potential sources of ignition or combustible material.
- All fire-fighting equipment is routinely inspected by a qualified investigator for efficacy thereof.
- Fire fighting equipment is present and accessible at all times.

1.6.21.3 Accidental leaks and spillages

The Contractor will ensure that:

- The accidental or negligent spillage of any fuels or potentially hazardous substances is cleaned up immediately using the appropriate methodologies, equipment and materials.
- The necessary materials, equipment and chemicals are available on the site to deal with spills of any of the hazardous substances/materials present.
- Relevant persons on site are trained to carry out a spill contingency plan should such an event occur.
- Any contaminated soil or water is removed and stored in an appropriate container until it can

be disposed of at a licensed landfill site, and proof thereof submitted to the ECO.

1.6.22 Community Relations and On-going Public Participation

The Contractor will direct members of the public to the Engineer who in turn will contact the ECO. The ECO will ensure that:

- The matter in question is handled as per the established complaints procedure.
- The matter in question is referred to the Engineer for investigation.
- The matter in question receives feedback regarding the findings of the investigation.
- All matters received, since the previous site management meeting, are discussed at the next meeting.
- All queries, comments and complaints from the general public are addressed.

The Engineer shall ensure that:

- The matter in question is registered as an incident and investigated.
- Action is taken to eliminate aspects noted or to minimise risk where applicable.
- Effective corrective and preventative measures are implemented to prevent reoccurrence.

1.6.23 Compliance with the ECC and EMP

1.6.23.1 Tolerances

Environmental management is concerned not only with the final results of the Contractor's operations to construct and commission the proposed facility, but also with the control of how those operations are carried out.

Tolerance with respect to environmental matters applies not only to the finished product but also to the standard of the day-to-day operations required to operate the proposed facility

It is thus required that the Contractor complies with the environmental requirements on an on-going basis and any failure on his/her part to do so shall require the Engineer to:

- instruct corrective measures to the Contractor at the Contractor's expense; and
- make recommendations to the Employer for the imposition of penalties.

1.6.23.2 Penalties

Penalties will occur for the transgressions and non-compliances where the Contractor inflicts damage upon the environment or fails to comply with any of the environmental specifications. The Contractor is deemed not to have complied with the environmental specifications if:

- There is evidence of contravention of the environmental specifications contained in the ECC and EMP and/or applicable legislation within the boundaries of the site, and/or haul/access roads.
- There is evidence of non-conformances to legislative requirements relevant to the specific contract.
- Environmental damage ensues due to Contractor's negligence.
- The Contractor fails to comply with corrective or other instructions issued by the Engineer

within a specific time.

Penalties may be issued, as agreed to with the Employer, per incident at the discretion of the Engineer. The value of the penalty imposed shall be as agreed by the Engineer and the Contractor in the specific contract and enforcement shall be at the discretion of the Engineer.

Such fines will be issued in addition to any remedial costs incurred as a result of non-compliance. The Engineer will inform the Contractor of the contravention and the amount of the penalty, and may deduct the amount from monies due under the specific contract or as prescribed by law.

If the issue of non-compliance is not addressed to the satisfaction of the Engineer within the specified timeframes, the conditions contained in the specific contract shall be imposed.

Payment of any penalty in terms of the contract shall not absolve the offender from being liable from prosecution in terms of any law.

1.6.23.3 Removal from Site and Suspension from the Project

- Non-compliance with the conditions of the EMP constitutes a breach of Contract. The Engineer, at the request of the ECO or of his own conviction, with permission of the Employer, has the power to remove from site any person who is in contravention of the EMP, and if necessary, the Engineer can suspend part or the whole of the project, as required until the breach is remedied.

1.6.24 Internal Monitoring and Auditing

The Contractor will:

- Undertake fortnightly site inspections (with the Engineer's ECO and Contractor's HSE Officer) to monitor environmental performance and conformance
- Take immediate action when non-compliance is noted and implement corrective actions.

The ECO will:

- Conduct sufficient site inspections (depending on the stage of the project) to prepare monthly inspection reports.
- Issue notices of non-compliance to the Engineer whenever transgressions are observed.
- Request immediate action by the Engineer when a notice of non-compliance is issued.
- Will compile monthly reports on compliance with the ECC and EMP and a verbal report shall be given at the Site Meeting to the Engineer.

1.6.25 Reporting

The ECO will conduct sufficient site inspections (depending on the stage of the project) to prepare monthly inspection reports.

1.6.26 Post Construction Activities

A meeting is to be held on site between the Engineer and ECO, after construction, to approve all remediation activities and ensure that the site has been restored to a condition acceptable to the

ECO and Engineer within the agreed period.

The Contractor will ensure:

- All structures comprising the site establishment are removed from the site and surrounding areas.
- All residual stockpiles are removed.
- All leftover building materials are removed from the site.
- The areas are checked for spills of substances such as oil, paint, diesel, etc. and these are cleaned up.
- All rubble is removed from the site to an approved licensed landfill site.
- Fences, barriers and demarcations associated with the construction phase are removed from the site unless stipulated otherwise by the Engineer and ECO.
- The site is and surrounding areas are cleared of all waste.
- Damage that the construction works has caused to neighbouring properties or facilities is repaired.

1.7 Operational Phase Specification

The Operational Phase refers to the period of the project after site handover during which the proposed logistics base will operate.

1.7.1 Environmental Awareness Training Course

The Employer will ensure that relevant persons appointed attend the environmental awareness training course prior to commencing work on site. The environmental awareness training course will be conducted at a level understandable by the attendees. The environmental awareness training shall, as a minimum, include the following:

- The importance of conformance with the ECC and EMP and other environmental policies and procedures.
- The significant environmental impacts, actual or potential, of their work activities.
- The environmental benefits of improved personal performance.
- Their roles and responsibilities in achieving conformance with the ECC and EMP and other environmental policies and procedures.
- The potential consequences of departure from specified operating procedures.
- The mitigation measures required to be implemented when carrying out their work activities.

An environmental awareness training refresher course will be attended annually.

1.7.2 Site Induction and Medical

The Employer will ensure that relevant persons appointed:

- Are trained and declared competent and/or legally authorised to undertake such work.
- Undergo health, safety and environmental site induction prior to commencing with work on

the site as per the Conditions of Employment.

- Undergo the prescribed medical examinations prior to entering the site as per the Conditions of Employment.
- Inductions and medical records are maintained.

1.7.3 Hazard Identification and Risk Assessment

The Engineer will ensure that persons undertake Hazard Identification and Risk Assessment(s) prior to the commencement of work in order to address all aspects around Health, Safety and the Environment. This aspect will be undertaken in close liaison with the Engineer's HSEC Office.

1.7.4 Labour and Social Issues

1.7.4.1 Code of Conduct

The Employer will formulate an employee code of conduct that, amongst other matters, establishes respect for all persons and that prohibits the sexual harassment of minors and women both in and outside of the workplace.

1.7.4.2 Access

The Employer will ensure that access to the proposed facility is off-limits to unauthorised persons at all times.

1.7.4.3 Personal Protective Equipment

The Employer will ensure that persons are issued and wear the relevant personal protective equipment (PPE) according to Alistair requirements.

1.7.4.4 Toilet / Ablution Facilities

The Employer will:

- Provide waterborne sewage ablution facilities.
- Supply ablution facilities at a minimum ratio of 1 toilet per 15 people on site.
- Ensure the entrances to the ablution facilities are adequately screened from public view.
- Ensure the ablution facilities are maintained in a hygienic state and regularly serviced.

1.7.4.5 Eating facilities

The Employer will ensure:

- Only designated eating facilities are utilized.
- Food is consumed only within the designated eating facilities.
- No open fires for the purpose of cooking food are permitted
- All hygiene standards are maintained concerning the preparation of food on site and the disposal of food wastes.

1.7.4.6 Site Accommodation

The Employer will ensure that no workers are accommodated on site overnight except potentially

for emergency response personnel.

1.7.5 Safety and Health

The Employer will ensure that:

- Applicable notice boards and hazard warning notices are put in place and secured.
- Night hazards are indicated suitably (e.g. reflectors, lighting, traffic signage).
- Emergency and management contact details are prominently displayed.
- An emergency assembly point is identified and demarcated.
- No open fires for the purpose of warming are permitted.
- Safe practice is maintained at all times according to occupational health and safety legislation.

1.7.6 'Housekeeping' Activities

The Engineer will ensure that the housekeeping system is maintained according to the Alistair requirements.

1.7.7 Traffic Management

The Employer will ensure that a Traffic Management Plan is implemented and maintained:

- Control the movement of vehicles and machinery on the site so that vehicles and machinery remain on manoeuvring areas.
- Control the movement and access of vehicles and pedestrians.
- Ensure that existing access roads impacted by spillages from operational activities are cleared of such material as soon as practically possible.
- Implement dust control measures where necessary.
- Implement traffic safety measures (e.g. traffic warning signs, flagmen) where required.
- Pay attention to minimizing disruption of the flow of traffic on existing roads and reduce the danger to other road users and pedestrians.

1.7.8 Operational Procedures

To initiate operations at the facility it will be important that all activities associated with the operations are identified and operational procedures are drafted and implemented. Operational procedures provide employees and contractors with guidance as to how certain activities need to be undertaken. Operational procedures provide a training tool for personnel as well as providing a tool to monitor compliance with those protocols.

The Employer will compile, implement and maintain operational procedures, based on the specifications for start-up, normal, abnormal, upset and emergency conditions for the proposed facility.

1.7.9 Emergency and Response Procedures

The Employer will:

- Establish, implement and maintain procedures to identify potential emergency situations and potential incidents that can have impacts on the safety, health and environment and how to

respond to such.

- Respond to potential and actual emergency situations and accidents and prevent or mitigate associated adverse safety, health and environmental impacts, and record such.
- Periodically review and, where necessary, revise its emergency preparedness procedures, in particular, after the occurrence of accidents or emergency situations.
- Periodically test such procedures where practicable.

1.7.10 Materials Handling, Use and Storage

1.7.10.1 General Principles

The Employer will ensure that:

- Storage areas are designated, demarcated and fenced if necessary.
- A noticeboard with the contact details of the responsible party is displayed at the gate to the storage area.
- Storage areas are kept tidy.
- Fire prevention equipment is present where required.
- Storage areas shall not be utilised for accommodation purposes.

1.7.10.2 Material Deliveries

The Employer will ensure that:

- All material is delivered via main access points.
- All material is delivered to the designated storage locations.
- Reports of the quantity of material received are kept.

1.7.10.3 Hazardous Substances and Materials

The Employer will ensure that:

- Hazardous substances/materials are stored in designated and appropriately designed and constructed areas within a secured area on site.
- Hazardous substances/materials are stored in tanks or drums located within impermeable facilities where required. The volume of the impermeable storage facility must be according to legal and Alistair requirements.
- Storage areas containing hazardous substances/materials are demarcated with appropriate signage.
- The integrity of the hazardous substances/materials storage vessels must be checked.
- Storage facilities are well-ventilated.
- Material Safety Data Sheets (MSDS's) are readily available on site for all chemicals and hazardous substances/materials used on site.
- Where possible and available, MSDS's additionally include information on ecological impacts and measures to minimise negative environmental impacts during accidental releases or escapes.
- Persons are made aware of the health risks associated with any hazardous substances/materials used, and are provided with appropriate PPE.

1.7.11 Waste Management

1.7.11.1 General Waste

The Employer will ensure that:

- General waste disposal is done according to Alistair Waste Management procedure.
- General waste sorting is undertaken at source.
- No burying/dumping of waste materials, vegetation, litter, builders' rubble or refuse occurs on site.
- Burning of waste does not occur on site.
- Littering is forbidden and the area is cleared of all litter at the end of each working day.
- Domestic waste drums are not overfilled and emptied regularly into mass waste containers.
- General waste is placed in designated mass waste containers located within demarcated areas and designed to prevent waste from being blown out by wind.
- Handling, transportation and disposal of general waste complies with the legal requirements.
- The appropriate PPE is provided and utilised.
- Mass waste containers are covered at all times during transport.
- Waste collected is undertaken by a licensed contractor and removed to an appropriate waste disposal facility.
- The quantity and proof of responsible disposal of waste are kept and provided to the ECO.

1.7.11.2 Hazardous Waste

The Employer will ensure that:

- Waste disposal is done according to Alistair Waste Management procedure.
- Hazardous waste sorting is undertaken at source, where practical.
- No burying/dumping of hazardous waste occurs on site.
- Burning of hazardous does not occur on site.
- Hazardous waste is placed in designated mass waste containers located within demarcated areas and designed to prevent waste from being blown out by wind.
- Handling, transportation and disposal of hazardous waste complies with the legal requirements.
- The appropriate PPE is provided and utilised.
- Mass waste containers are covered at all times during transport.
- Hazardous waste collected is undertaken by a licensed contractor and removed to an appropriate waste disposal facility.
- The quantity and proof of responsible disposal of waste are kept and provided to the ECO.

1.7.12 Water Management

1.7.12.1 Water Supply (Potable and Process Water)

The Employer will:

- Implement monitoring programs for principal water bearing services to ensure that they are checked for leaks.

- Measure and record the volume of water used by the proposed facility.
- Implement water saving opportunities where practical.

1.7.12.2 Storm Water Management

The Employer will ensure that stormwater falling on the proposed facility site is collected via bund walls and sumps. The collected water will be used in the Plant

1.7.12.3 Sewage Effluent

The Employer will ensure that:

- The sewage reticulation network is operated according to the Alistair procedure.
- Implement a monitoring program for the sewage reticulation network to ensure that such is operating effectively.
- The purified sewage effluent discharged meets the legal requirements.

1.7.13 Air Emissions Management

The Employer will:

- As far as practicably possible prevent, inhibit or retard the pollution of air by:
  - implementing good environmental practice;
  - sufficient forward planning; and
  - taking into consideration best available technology not entailing excessive cost (BATNEEC) management principles.

1.7.14 Noise Management

The Employer will ensure that:

- Regular planned maintenance includes the checking and replacement, if necessary, of intake and exhaust silencers.

1.7.15 Monitoring

The purpose of the environmental monitoring is to provide an early warning system of undesirable impacts arising from the operation of the proposed facility. The key objectives of environmental monitoring are to:

- Provide information on the impact of an operation's activities.
- Detect short- and long-term trends with respect to environmental conformance.
- The Employer will compile and implement a monitoring programme, based on statutory limits and guidelines, for the following environmental aspects:
  - Air Quality
  - Noise

1.7.16 Community Relations and Ongoing Public Participation

The Employer will direct members of the public to the ECO
The ECO is responsible for addressing queries, comments and complaints from the general public and will ensure that:

- The complaint is registered as an incident and investigated.

- Action is taken to eliminate aspects or to minimise risk where applicable.
- Effective corrective and preventative measures are implemented to prevent re-occurrence.

1.7.17 Internal Monitoring and Auditing

The ECO will compile annual reports on compliance with the ECC and EMP.

1.7.18 External Monitoring and Auditing

An independent auditor will conduct annual audits, whereafter a report will be compiled on compliance with the ECC.

1.7.19 Reporting

The ECO will conduct annual audit reports. The annual audit reports will be for Alistair purposes. An independent auditor will conduct annual audit reports.

1.8 Decommissioning Phase Specification

1.8.1 Decommissioning Risk Assessment

A risk based decommissioning assessment will be undertaken approximately five (5) years prior to closure of the operation to identify the ideal scenario for decommissioning planning.

1.8.2 Decommissioning Plan

The following steps will be required for the formulation and execution of a decommissioning plan:

- Establishment of a multi-disciplinary team that will manage all facets of decommissioning. This team will consist of a project manager as well as various technical and production expertise, including engineers and environmental specialists.
- Identification of equipment, structures, buildings and land that must be disposed of.
- Disposal by sale of moveable equipment will be arranged and at the same time tenders will be invited for the removal and disposal of fixed equipment and structures. Other assets e.g. buildings, land and structures will either be sold or held in trust until change of ownership has been negotiated and finalised.
- Once all equipment and structures have been removed, demolition and disposal of foundations, concrete works and roads will commence. Disposal sites for the rubble will have to be identified prior to this phase.
- After the demolition and cleaning phase, rehabilitation of the disturbed areas above will commence.

It is not possible to provide an accurate estimate of the duration of each stage, since overlap will occur. It is expected however, that the first year after cessation of operations will be spent on disposal of equipment (mobile and fixed) and structures.

The total period from cessation of operations to the commencement of monitoring may be 18 months to two years. The post decommissioning phase (aftercare) of monitoring (and remedial action) is expected to take another five years before the situation can be declared stable.