 Eskom	SPECIFICATION	Group Capital Division
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Title: **Kusile 60 Year ADF Project SHE Document Identifier: 240-163062107**
Specification

Alternative Reference
Number:

Area of Applicability: **GCD Kusile ADF**

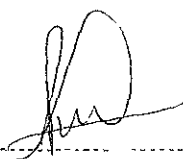

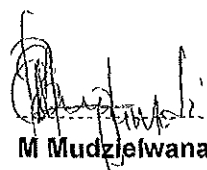
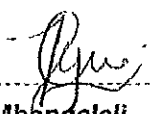
Functional Area: **Safety Health & Environment**

Revision: **1**

Total Pages: **104**

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Compiled by	Supported by	Functional Responsibility	Authorized by
			
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Area of Applicability: **GCD Kusile ADF**

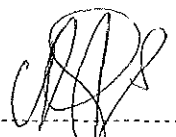
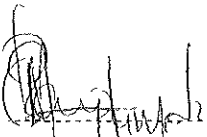

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1. Introduction

Kusile Clean and Coal Technology Projects SHE specification is a Construction Regulation CR2014 requirement. The Construction Regulations require the Client to issue a SHE specification to the Contractor.

2. Supporting Clauses

2.1 Scope

This specification sets out the minimum legislative and organizational requirements for works at Kusile Power Station project. The scope of the project is to construct and commission an ash disposal facility (ADF).

ADF construction activities include but not limited to the following

- 1) A dry ash disposal facility;
- 2) A conveyor belt system for the transportation of ash from the power station to the ash disposal site/facility,
- 3) A single waste stream comprised of combined bottom ash and fly-ash,
- 4) Services including electricity and water supply in the form of overhead power line and pipelines respectively,
- 5) The construction of new storm water management and infrastructure, and drainage system; and
- 6) Linear infrastructure such as roads to and from the site, culverts and channels
- 7) Stream Diversion
- 8) Wetland rehabilitation (Wetland Offset Plan)

2.1.1 Purpose

All Contractors are required to execute their works in accordance with this specification as well as other legal documents

2.1.2 Applicability

This specification is applicable to all Principal Contractors, Sub-Contractors, Service Providers, Suppliers and all the activities and processes carried out for and on behalf of Kusile Coal and Clean Technology Projects. This document shall apply throughout Kusile Coal and Clean Technology Projects.

2.1.3 Effective date

This Specification shall be implemented from date of authorization

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2.2 Normative/Informative References

2.2.1 Normative References

- [1] 32-727 Safety, Health, Environment and Quality Policy
- [2] 240-62196227 Life-saving Rules Standard
- [3] 240-126456962 Waste Management Plan
- [4] 240-62946386 Vehicle & Driver Safety Management Procedure
- [5] 32-37 Substance Abuse
- [6] 32-124 Eskom Fire Risk Management
- [7] 32-136 Contractor Health and Safety Requirements
- [8] 32-95 Eskom Environmental, Occupational Health Management procedure and Safety Incident
- [9] 32-93 Eskom Vehicle and Driver Safety Management
- [10] 240-43848327 Employees' right of refusal to work in an unsafe situation
- [11] 32-418 Working from Heights Procedure
- [12] 32-520 Procedure Manual for Performing Occupational Health and Safety Management and Environmental Management: Conducting EH&S Risk Assessment
- [13] 32-123 Emergency Planning
- [14] 32-407 Behaviour Safety Observation Procedure
- [15] 240-133087117 Environmental Incident Management Procedure
- [16] 32-726 SHE Requirements for the Eskom Commercial Process
- [17] 39-98 Safe use of Lifting Machines and Lifting Tackle
- [18] ISO 45001 Health and Safety Management systems-Requirements
- [19] ISO 9001: 2015 Quality Management Systems- Requirements
- [20] ISO 14001:2015 Environmental Management Systems Specification with guidance for use
- [21] All remaining sections of Section 4, Employees Policies and Procedures of the Contract
- [22] Applicable South African Standards (SANS) for scope of work /Project
- [23] 32-1134 Access Control at Eskom Premises
- [24] 32-524 Manual, Developing a SHE Specification
- [25] Kusile Coal and Clean SHEQ statement of commitment
- [26] Water Use Licences
- [27] Eskom Vehicle Safety Specification
- [28] All relevant South African Legislations (National, Provincial and Local)
- [29] 240-70172585 Vegetation management and maintenance within Eskom Land, servitude and rights of way.
- [30] Applicable International Standards
- [31] Environmental Management Plans
- [32] Environmental Authorizations
- [33] Licenses/ Permits
- [34] 240-56296995 Standard for Record Retention Periods
- [38] 32-477 Safety, Health and Environment Training and Development Procedure
- [39] Eskom Operating Regulations for High Voltage Systems
- [40] Eskom Plant Safety Regulations (Low Voltage Regulations)

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- [41] 32-736 Eskom land and Biodiversity Policy
[42] 32-815 Land and Biodiversity standard
[43] 32-246 Work instruction for Reporting on Environmental Expenditure and Income

2.2.2 Informative

- [44] National Environmental Management Act No 107 of 1998
[45] National Environmental Management Waste Act 59 of 2008
[46] All relevant South African legislation-provincial, municipal by-laws
[47] Occupational Health and Safety Act and regulations. Act 85 of 1993
[48] National Heritage Resources Act No 25 of 1999
[49] Fencing Act, 1963 (Act No 31 of 1963)
[50] Conservation of Agriculture Resources Act, 1983 (Act No. 43 of 1983)
[51] National Veld and Forest Fire Act, 1998 (Act No 101 of 1998)
[52] Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act, 1947 (Act No 36 of 1947)
[53] 240-56927739- Group Capital Execution Assurance Construction SHEQ Operational plan
[54] 240-155373927 Eskom COVID-19 OHS Policy Statement

2.3 Definitions

Definitions 1

2.3.1	Agent or Project Manager	A competent person who acts as a representative for an Employer
2.3.2	Baseline Risk Assessment.	(32-520) baseline operational risks refer to the health and safety risks associated with all standard processes and routine activities in the business.
2.3.3	Client	Any person for whom construction work is being performed.
2.3.4	Competent Person.	Means any person having the knowledge, training, experience, and qualifications, specific to the work or task being performed, provided that, where appropriate, qualifications and training are registered in terms of the South African Qualifications Authority Act, 1995 (Act No 58 of 1995), those qualifications and training must be regarded as the required qualifications and training and is familiar with the Act and with the applicable regulations made under the Act

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2.3.5	Contractor.	Means an employer as defined in section 1 of the Act who performs construction work and includes Principal Contractors. In relation to this document, where the word "Contractor" is used, it will mean all or some of the following. Principal Contractors, Contractors, Suppliers, Vendors, Service Providers and Consultants.
2.3.6	Construction Work	Means any work in connection with: a) The construction, erection, alteration, renovation, repair, demolition or dismantling of, or addition to, Building or any similar structure, b) The construction, erection, maintenance, demolition or dismantling of any bridge, dam, canal, road, railway, runway, sewer or water reticulation system, or the moving of earth, clearing of land, the making of excavation, piling or any similar civil engineering structure or type of work c) The construction, erection, maintenance, demolition or dismantling of any bridge, dam, canal, road, railway, runway, sewer or water reticulation system, or the moving of earth, clearing of land, the making of excavation, piling or any similar civil engineering structure or type of work
2.3.7	Construction site	means a work place where construction work is being performed

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2 3 8	Designer	<p>means any of the following persons</p> <p>A competent person who:</p> <ul style="list-style-type: none"> a) Person who prepares a design b) Person who checks and approves a design c) Person who arranges for any person at work under his/her control to prepare a design, including an employee of that person where he or she is the employer, or designs temporary work, including its components, d) An architect or engineer contributing to, or having overall responsibility for, the design e) A Building service engineer designing details for fixed plant f) A Surveyor specifying articles or drawing up specifications g) A Contractor carrying out design works as part of a design and build project, or an interior designer, shop-fitter or landscape architect.
2 3 9	Eskom Requirements.	Eskom requirements which evolves from directives, policies, standards, procedures, specifications, work instructions, guidelines or manuals
2.3 10	Fall Protection Plan	<p>Means a documented plan which includes and provides for.</p> <ul style="list-style-type: none"> a) All risks relating to working from a fall risk position, considering the nature of work undertaken, b) The procedures and methods to be applied in order to eliminate the risk of falling, and c) A rescue plan and procedures
2 3.11	Hazard	Means a source of, or exposure to danger
2 3.12	Hazard identification.	Means the identification and documenting of existing or expected hazards to the health and safety of persons, which are normally associated with the type of construction work being executed or to be executed

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2.3 13	Medical surveillance practitioner	means a planned programme or periodic examination (which may include clinical examinations, biological monitoring, or medical tests) of employees by an occupational health practitioner or, in prescribed cases, by an occupational medicine practitioner
2.3 14	Method Statement	is a written document detailing work procedures and sequences of operations
2 3.16	Pre-Task Risk Assessment (DSTI)	Pre-Task Risk Assessment (DSTI): a meeting which is held prior to the commencement of the day's work with all relevant personnel associated with the work task in attendance.
2 3.17	Risk	The probability that injury or damage will occur
2.3 18	Risk Assessment.	Means a programme to determine any risk associated with any hazard at a construction site in order to identify the steps needed to be taken to remove, reduce, or control such hazard
2 3.19	Safety Health and Environmental File	Means a file or other record in permanent form, containing the information on the SHE management system during construction including all information relating to construction phase after the handover to Client
2.3 20	Safety Health and Environmental Plan	Means a written plan that addresses hazards identified during the risk assessment process as well as the identified impacts in the SHE Specification. This would typically include safe work procedures to mitigate, reduce or control the hazards identified and is specific to each construction project undertaken. This is usually compiled by the principal contractor or contractor and approved by the Client or Agent for which contracting work would be performed
2 3.21	Safety, Health and Environmental (SHE) Specification	Including the base line risk assessment, means a documented specification of significant residual SHE requirements for a construction site, which a competent and resourced Principal Contractor or sub-contractor would not have been aware of. This is to ensure the health and safety of employees and the direct and indirect communities, as well as duty of care for the environment. The Client/Agent compiles the SHE specification which shall be specific to each construction project.

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2.3.22	Safe Work Procedures	Safe Work Procedures are a series of specific steps that guide a worker through a task from start to finish in a chronological order. Safe Work Procedures are designed to reduce the risk by minimizing potential exposure.
2.3.23	Aspect	An activity, product or service of the organization, which can or has a potential to interact with the environment.
2.3.24	Impact	Any change to the environment whether adverse or beneficiary wholly or partial resulting from an environmental aspects.
2.3.25	Eskom Engineering Manager	The person responsible for ensuring that the designer fulfils his professional and legal obligations with respect to the implementation of his design.

2.3.1 Document:

Not Applicable

2.4 Abbreviations

Abbreviations 1

Abbreviation	Explanation
ASIB	Automatic Sprinkler Inspection Bureau
COLD Act	Compensation for Occupational Injuries and Diseases Act
CR	Construction Regulations 2014
CV	Curriculum Vitae

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DMR	Driven Machinery Regulations
DOL	Department of Employment and Labor
EA	Environmental Authorization
EMP	Environmental Management Plan
EO	Environmental Officer
SABS	South African Bureau of Standards
DSTI	Daily Safety Task Instruction
GCD	Group Capital Division
GSR	General Safety Regulations
HCS	Hazardous Chemical Substances
HIRA	Hazard identification and risk assessment
HV	High Voltage
ISO	International Standard Organization
KPS	Kusile Power Station
LTIR	Lost Time Incident Rate
LV	Low Voltage
NDT	Non – Destructive Testing
NEMA	National Environmental Management Act
NEMWA	National Environmental Management and Waste Act
NM	Near Miss
NWA	National Water Act (Act No. 36 of 1996), as amended
OHNP	Occupational Health Nursing Practitioner

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OHS Act	Occupational Health and Safety Act No 83 of 1993
OHS	Occupational Health and Safety
ORHVS	Operating Regulations for High Voltage Systems
PPE	Personal Protective Equipment
PTO	Planned Task Observations
PC	Principal Contractor
PM	Eskom Project Manager
RoD	Record of Decision
RPO	Radiation Protection Officer
SACPCMP	South African Council for the Project & Construction Management Professions
SAMTRAC	Safety Management Training Course
SES	Standard Environment Specification
SHE	Safety, health, and environment
WUL	Water Use License

2.5 Roles and Responsibilities

2.5.1 Contractual and Legal Roles & Responsibilities

Although the provisions of this Specification typically only refer to the Contractor, compliance herewith is also required from Subcontractors, Service Providers and Suppliers. The Contractor remains responsible for compliance with the requirements of this Specification by Subcontractors and shall ensure that each Subcontractor complies with the requirements hereof at all times and as applicable. Without derogating from their obligations and responsibilities under the contract, the Contractor shall ensure that the requirements to comply with the provisions of this specification is included in all Subcontracts involving activities on Site (or at other places, if any, as may be specified under the Contract as forming part of the Site) and / or activities otherwise covered by this specification.

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Failure by the Employer to enforce compliance with the requirements of this specification shall not relieve the Contractor from any responsibility or obligation whether under the contract or under applicable Law

The Employer requires that the management of SHE matters be to a standard of excellence aligned with world class best practices. The Contractor carries prime accountability and responsibility for the health, safety and welfare of the Contractor's Personnel and for any works that may expose any other person other than their personnel. No health, safety and welfare requirements specified by or imposed on the Employer (whether under the contract or under applicable Law) shall be construed or operate, as between the Employer and the Contractor, to reduce the Contractor's accountability and responsibility for the health, safety and welfare of the Contractor's Personnel.

The Contractor is responsible for adequately informing the Contractor's Personnel of all relevant information of this SHE Specification and the Contractor's SHE Plan.

The Contractor shall take prime responsibility for all aspects of environmental management associated with the works and activities they are responsible for under the contract.

The requirements of this specification should not be considered to be exhaustive and the Employer reserves the right to add, delete or modify conditions where it is considered to be appropriate in this specification.

Where additions, deletions or modifications are made to this specification, the Employer shall advise the Contractor of the change. The Contractor shall be solely responsible for informing the Contractor's Personnel and its subcontractor of these changes. The Employer shall not be responsible for any failure caused by a Subcontractor not receiving a notification or failing to act upon such notification.

2.5.2 Eskom Health and Safety Manager/ Practitioner

The responsibility of the Health and Safety Manager / Practitioner is to provide assurance, as well as advice, assist and support to the Project Manager in the management of the health and safety issues on the project which includes ensuring proper co-ordination amongst the various Contractors. The SHE Manager / Practitioner will also be responsible for assisting in the development of site and project specific SHE Specifications, and ensuring that SHE specification are issued with enquiry documents and that the Contractors SHE plans are submitted, evaluated and approved. He/she will be responsible for auditing and ensuring compliance to legal requirements.

2.5.3 Contracts Manager

Responsible for distributing information formally to the Principal Contractors. He/She is responsible for managing the contract with the Principal Contractor and ensures that the SHE specifications are developed and issued with tender enquiries and that the Principal Contractor's SHE plan is approved.

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prior to commencement of work. He/she must ensure that all the statutory requirements, Eskom and SHE specification and SHE plan requirements are adhered to by Principal Contractor and (if applicable) their Subcontractors at all times

2.5.4 Discipline Project Manager/Project Manager

The Discipline (Civil/Mechanical/Electrical/C&I) Project Manager/Project Manager is accountable to ensure that the Project Life Cycle Model (PLCM) is effectively implemented within a programme and ensure that the projects are completed on time, within cost, quality and employing relevant resources optimally in the portfolio

2.5.5 Safety Officer

Responsible for monitoring compliance of Contractors to this document and reporting both non-compliance and positive messages to the Project Manager

2.5.6 Designer

The Designer is the person responsible for the overall management of the project design as well as ensuring the management of the compliance of the completed works to the design during and after construction on site. The Designer shall ensure compliance with the Occupational Health and Safety Act in terms of Construction Regulations 2014, Regulation 6.

2.5.7 Principal Contractor's accountabilities for their Contractors

In the event that the Principal Contractor (PC) needs to introduce a new Contractor, the PC must first inform the Project Manager (PM). Such Contractors must, in every respect, meet the Employer's SHE requirements.

- 1) Should the PC appoint a Contractor, the PC would then have role and responsibility in relation to Contractors similar to the way the Employer has in relation to the PC
- 2) The PC is directly accountable for the actions of their Contractors. The PC will also be responsible for initiating any remedial action (recovery plan) that may be necessary to ensure that the Contractor complies with all requirements
- 3) The PC shall ensure that the Contractors appointed have the necessary competencies and resources to perform the work safely.
- 4) PC shall provide any Contractor who is making a bid or appointed to perform construction work, with the SHE specification, who would in turn provide the PM with a SHE plan for review.
- 5) The PC shall carry out audits on a monthly basis to ensure that their SHE plan is being implemented and maintained. Monthly audit reports should be submitted to the PM.
- 6) The PC shall carry out audits on the Contractor monthly to ensure that the Environmental Authorisation, Water use license, Waste Management License, Environmental Management

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Programme / Plan and other applicable permits conditions are being implemented and maintained Monthly audit reports should be submitted to the PM

- 7) The PM and/or the PC shall stop any Contractor from executing construction work which poses a threat to the safety and health of persons or the environment or if it does not comply with the approved SHE plan.
- 8) The PC shall have a disciplinary process and an organisational structured procedure to deal with employees who have transgressed organisational and legal requirements
- 9) The PC's Construction Manager/Supervisor shall provide a list of names and contact telephone numbers of all their employees as well as the Contractor employees on site This list shall be updated as and when new Contractors commence on site
- 10) The PC's Construction Manager/Supervisor shall keep a record of all employees including the Contractor employees, including date of induction, relevant skills and licenses, and be able to produce this list at the request of the relevant officials These records shall be filed in the SHE File
- 11) The PC shall ensure that their managers and supervisors give clear and unambiguous instructions for the work in hand to the personnel for whom they are responsible for The instructions shall include, but not necessarily be limited to
 - a. description of the objective/scope of work
 - b. sequence of work/method statements
 - c. hazard identification and risk assessment (prior to commencement of work)
 - d. Precautionary/preventative measures that are to be taken.
 - e. Identification of sensitive features that may be impacted upon by the project
- 12) Employees are responsible for their own health and safety and that of their co-workers in their respective areas of work on the project. They must be made aware of their responsibilities during induction and awareness sessions some of which are:
 - a. Familiarising themselves with their workplaces and health and safety procedures.
 - b. Working in a manner that does not endanger them or cause harm to others.
 - c. Keeping their work area tidy
 - d. Reporting all incidents/accidents and near misses
 - e. Protecting fellow workers from injury
 - f. Reporting unsafe acts and unsafe conditions
 - g. Reporting any situation that may become dangerous
 - h. Carrying out lawful orders and obeying health and safety rules.
 - i. Declaring to the employer if taking medication, which may have intoxicating effects
- 13) Every employee must undergo site induction provided by the Employer before commencement of the contracted work. Only once this induction has been received will each employee receive a site access permit
- 14) It must be highlighted to all employees, that anyone who becomes aware of any person disregarding a health & safety notice, instruction or regulation shall immediately report this to the person concerned. If the person persists, stop the person from working and report the matter to the PM and the PC Supervisor immediately.
- 15) Over and above induction training, Contractors are required to ensure before an employee commences work on the project, that the supervisor in control has informed the employees of their scope of authority for that site/workplace

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2.5.8 Eskom Construction Health and Safety Agent/Manager

Where a Construction Work Permit is required as contemplated in terms of Construction Regulations 3(1), the Client must without derogating from their health and safety responsibilities or liabilities, appoint a competent person in writing as an agent to act as their representative, and where such an appointment is made the duties that are imposed by the Construction Regulations 2014 upon a Client, apply as far as reasonably practicable to the agent so appointed.

The Construction Health and Safety Agent/Manager shall be registered with the SACPCMP Council of South Africa. He/she is responsible for developing and implementing the Client SHE Specification and defining the systems of SHE management required for the safe execution of the Kusile Coal and Clean Technology Projects.

2.5.9 Eskom Project Engineer

The Project Engineer is the person responsible for ensuring that the designer fulfils his professional and legal obligations with respect to the implementation of his design.

2.5.10 Eskom Site Project Manager

He/She is responsible for the overall management of the project on-site.

2.5.11 Eskom Environmental Manager/Advisor/ Officer

The responsibility of the Environmental Manager / Advisor / Officer is to provide assurance, advice, assist and support to the Eskom Site / Project Manager in the management of the environmental matters on the project which includes ensuring compliance to the Environmental Authorisation (EA), Permits and Licenses.

2.5.12 Independent Environmental Control Officer

To advise the PM on environmental matters and furthermore ensure compliance to all legislative requirements pertaining to the construction project.

2.5.13 Construction Manager

Responsible for the management of all construction activities on the project.

2.5.14 Construction Supervisor

Day to day supervision of all construction activities.

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2.5.15 Management and Supervision of Construction Work

The PC shall ensure that the performance of all specified work is managed and supervised in accordance with the requirement of OHS Act CR 8 throughout the contract period.

The PC shall appoint a full-time Construction Manager in accordance with the requirement of CR 8(1)

The Project & Construction Manager shall be registered with the SACPCMP

The PC and Subcontractors shall ensure that the performance of all specified work is supervised throughout the duration of the contract by a sufficient number of competent appointed representatives of the Contractor, who have experience in the type of work specified

No work shall commence and / or continue without the presence of an appointed Construction Manager, Construction Health & Safety Manager / Officer, Construction Supervisor or appointed Assistant Construction Supervisor(s) from the PC as per Construction Regulation requirements during execution of the work. These supervisors shall be fluent in the language for communications as defined under the Contract

The PC and Subcontractor require ensuring that resourcing is in accordance with Project Plan and Schedule for life of work. An estimation of key activities is required to be identified for the life cycle of the project and resource plan requires aligning accordingly. The number of appointed persons shall be determined by the size and the risk of the project

2.5.16 Construction Health and Safety Manager/s and Practitioner/s

The PC and Subcontractor shall appoint a full-time Construction Health and Safety Manager and Practitioners. Number of SHE Practitioners shall be done considering the nature and the scope of work being performed in accordance with the requirement of CR 8 (5)(6). The Construction Health and Safety Practitioners shall be professionally registered with the SACPCMP and preferably Health and Safety Managers.

Note 1: All Construction Health and Safety Practitioners appointed in terms of the CR, regulation 8(5), to the Kusile Coal and Clean Technology Projects, must have the minimum criteria of exposure to civil work construction, as is stipulated by the SACPCMP Council

If the competent person is deferred by the SACPCMP Council to that of a Candidate Construction Health and Safety Manager/Practitioner, the Contractor shall place such a person under the direct supervision of a fully registered Construction Health and Safety Manager/Practitioner. A Candidate Construction Health and Safety Manager/Practitioner may not operate in the capacity of a Construction Safety Manager/Practitioner on his or her own and may not be appointed in terms of CR regulation 8(5)

2.5.15.1 Construction Professional Registration

The PC and all their appointed Contractors shall be registered in their respective levels as professionals in terms of the requirements of the SACPCMP

The SACPCMP web address is <http://www.sacpcmp.org.za>

SHE professionals are required to register as professionals with the SACPCMP.

Construction Managers are required to register as professionals with the SACPCMP

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2.6 Process for Monitoring

This document is valid for the duration of the works and will be amended as and when necessary, as requirements are being amended and therefore it will be required for the PC and the Contractor's plan to be amended accordingly

This document is subject to document control processes and shall be updated when it is due for revision or when conditions dictate

Conformance to this document shall be through regular safety inspections and by Monthly Audits

2.7 Related/Supporting Documents

- 1) Flash report form (Generated by SAP_EHS)
- 2) Audit Action plan
- 3) Monthly Statistic Template
- 4) Baseline Risk Assessment

3. Document Content (SHE Specification)

The SHE specifications are Eskom's minimum requirements. The Contractor is expected to develop a SHE plan which meets these requirements as well as all the relevant applicable legislation. Eskom in no way assumes the Contractor's legal responsibilities. The Contractor as the legal entity, therefore an employer in their own right is and remains accountable for the quality and the execution of their health and safety program for their employees and subcontractor employees. This SHE specification reflects minimum requirements and should not be construed as all encompassing. The Contractor is expected to recognize OHS management system that will incorporate this requirement as well as all relevant applicable legislation.

3.1 Eskom, Health, Environmental Quality Statement of Commitment

The Principal Contractor and the Subcontractors shall each have a SHEQ Policy authorised by their Chief Executive (OHS Act Section 16(1) appointee) that clearly states overall SHEQ objectives and commitment to improving Safety, Health, Environment and Quality performance and must be displayed and shared with all stakeholders. It should also include the description of the organisation scope and the arrangements for carrying out and reviewing such policy.

Eskom has a SHEQ Policy (32-727) that clearly states the policy principles by which Eskom operates and the commitment to SHEQ excellence and is authorized by the Eskom Group Chief Executive. Eskom SHEQ Policy will be handed to the Principal Contractor when the Contractor commences on site.

A toolbox talk to discuss the SHEQ Policy must be done with all the employees on site and attendance register sent to the Project Manager and then filed in the SHE File.

The SHEQ statement of commitment is available upon request from the Project Manager.

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Principal Contractor and the contractors shall align to the Eskom SHEQ policy.

3.2 Employer's Lifesaving Rules

Without derogating from any other requirements under the Contract, the Employer has identified 10 Lifesaving Rules which require special attention and management over and above what is required under this Specification. These rules are

Life Saving Rules 1

Rule	Description
1	Open, isolate, test, earth, bond, and/or insulate before touch
2	Hook up at height
3	Buckle up
4	Be sober
5	Ensure you have a permit to work
Site Specific Add-ons	
6	No reversing without a flagman/spotter/banksman
7.	Cellphone usage (No walking, driving, lifting, rigging whilst talking, texting or listening to music on the cellphone)
8	Earphones usage (No earphones are allowed on the Construction site, SABS approved hearing protection needs to be worn by employees)
9	Speed limit (Exceeding the speed limit on site will not be tolerated)
10.	Reversing (As far as reasonably, practicably, possible eliminate reversing but where unavoidable refer to point 6 above)

Any matter dealt with in this specification is also dealt with under applicable Laws, the two are intended to be mutually explanatory and supplementary, the one to the other. In case of conflict or difference between this specification and the applicable Laws, the Law shall prevail. The Law is the minimum requirement and the Project Manager may still add more stringent requirements based on the Risk Assessment.

There shall be zero tolerance for failure to comply with the SHE requirements on Site (and at other places, if any, as may be specified under the contract as forming part of the Site). Any person who is, or appears to the Project Manager, to transgress the SHE requirements may be required to leave.

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and/or be refused access to Site (and at other places, if any, as may be specified under the Contract as forming part of the Site) If such person is a Contractor's Personnel, the Contractor shall take necessary steps against such person (including disciplinary action, where appropriate, and the removal of the person from Site (or from other places, if any, as may be specified under the Contract as forming part of the Site).

Without limiting or derogating from the PM's rights above or under Sub-Clause 6.7 [Health and Safety] of the Contract, the PM may, where he/she considers appropriate, issue a personal transgression notice ("Personal Transgression Notice") to any Contractor's Personnel who transgress or fail to comply with the SHE Requirements. The Personal Transgression Notice procedure encompasses a three-stage warning process.

- 1) First stage is when an employee has complied to all the safety requirements in doing their work and their actions are commendable the employee is then issued with a green notice to say well done keep it up.
- 2) Second stage is when an employee is not complying maybe through oversight or not paying attention but understands the reason to comply and implication. The employee is then issued an amber card to say refocus and always remember to comply
- 3) Third stage is when an employee is not complying although gross negligence of the safety rules and procedures even though they were went thru all the training The employee is then issues with the red card.

3.3 General Requirements

- 1) Ensuring adherence to the environmental specifications,
- 2) Ensuring that Method Statements are submitted to the ECO/Eskom EO for approval before any work is undertaken. Any lack of adherence to this will be considered as non-compliance to the specifications
- 3) Ensuring that any instructions issued by the Project Manager, on the advice of the ECO, are adhered to
- 4) Ensuring that there must be communication tabled in the form of a report at each site meeting, which will document all incidents that have occurred during the period before the site meeting;
- 5) Ensuring that a register is kept at the site office, which lists all the early warnings and Non Conformance Reports (NCR) issued by the ECO,
- 6) Ensuring that a register of all public complaints is maintained.
- 7) Sharing of Key information pertaining to License and permits
- 8) Budget for specialist studies/engineering changes for key risk areas
- 9) Ensure that all employees, including those of sub-Contractors receive training before the commencement of construction in order that they can constructively contribute towards the successful implementation of the environmental requirements of the Contract
- 10) The most important actions by the Contractor to ensure compliance with the environmental requirements, relates to the establishment of an adequate and appropriate organizational structure for ensuring the implementation and monitoring of the requisite environmental controls
- 11) Compile an Environmental monitoring plans outlining all the construction activities, associated environmental impacts and how they will be mitigated,

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- 12) Ensure that the project pricing makes provision for environmental costs and expenditure reporting
- 13) Contractor shall attach a company waste management plan including the typical waste inventory and templates used for keeping waste records
- 14) Contractor must align to latest version of project Environmental Management System in line with ISO 14001 standard
- 15) Attend key meetings at Project level, External specialist/experts, authorities (DEFF, DHSWS, DMR etc
- 16) *Include environmental considerations as an item on the agenda of the monthly site meetings*
- 17) Undertake environmental awareness training of all site staff during the commencement of each Contract, with regular refreshers for the duration of the Contract
- 18) Environmental protection shall include, but not be limited to, the following issues.
- 19) Noise pollution, gaseous emissions, noxious and/or offensive odour, liquid waste collection and solid waste separation and collection
- 20) In the event of any perceived conflict between the "environmental laws" and the contract documents, the contractor shall, prior to commencing the work, refer such conflict to the Project Manager.
- 21) Without limiting the Contractor's responsibilities under the applicable legislation, the work shall be conducted in such a manner as to ensure that:
 - a No substance that can harm or is likely to harm the environment is allowed to leak, spill or escape from any container or storage area.
 - b. No oil or other effluent is permitted to escape into the drainage system and/or local storm water system
 - c Borne pollutants generated during execution of the Work are contained to prevent air pollution.
 - d No sediment generated is permitted to escape into the drainage system and/or local storm water system
 - e No harmful solids or liquids are permitted to spill from containers whilst in transit on the premises.
 - f All oil-based waste material shall be kept segregated and placed in sealed 200 liter drums. This material shall be disposed of through oil recycling company approved by the PM
 - g All water-based waste material shall be kept apart. Small amounts shall be collected and stored in 200 liter containers. Large amounts shall be pumped into a bulk tanker for disposal. Prior to disposal, all water-based material shall be sampled to allow analyses to be carried out.
 - h. The Contractor shall follow the applicable disciplinary procedure in instances of all disciplinary measures

In the event of a major SHE transgression whilst conducting work witnessed by a member of the PM's staff or the Contractors' own supervision, the Contractor shall ensure that the individual, or individuals, transgressing (including supervisors) stop the operation as soon as it is safe to do so and ensure that the situation is safe. A breach of lifesaving rules would constitute a transgression of this magnitude

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Other transgressions of this type would include failure to exclude those not involved in the work activity from dangerous areas such as below personnel working at height or other serious hazards

The Contractor is expected to deem a serious transgression of the nature described above as a lack of competence to conduct the task safely. Therefore, it is necessary to immediately eliminate further risks to their workers and other site personnel. The Contractor shall adhere to the following steps.

- 1) Start preliminary investigations
- 2) Investigate the acts or omissions of the supervisor.
- 3) Conclude the investigation
- 4) Submit the investigation for the approval of the PM
- 5) Await the outcome of the disciplinary process of those individuals.
- 6) Conduct retraining if required.
- 7) Restart activities
- 8) PM has the right to communicate lessons learnt to other Contractors on site

The Contractor may in the time taken to follow the above steps use a different group or workers if they are suitably trained and competent.

In the case of a major transgression that is evidently a result of an individual's act or omission, for example breaking any lifesaving rule that maybe not sober or driving without a seatbelt, the disciplinary process may apply to the individual alone and works may continue without the individual

The Contractor shall comply with the Occupational Health and Safety Act 85 of 1993 ("OH&S Act") and all applicable regulations promulgated under the OH&S Act and in particular the Construction Regulations 2014 ("Construction Regulations"), all as amended from time to time. The Contractor shall furthermore comply with applicable South African National Standards or International Standards and with Employers Policies and Procedures.

It is the duty of the Contractor and their Subcontractors to ensure that they are familiar with all applicable Laws, SANS standards and these requirements

The Contractor shall compile and maintain an up to date SHE file and include updated legal register listing all applicable Law and SANS standards

3.4 Contractor's SHEQ Policy and Plan

The Contractor shall each have their own SHEQ Policy that shall be duly signed by an authorised signatory concerning the protection of the environment, health and safety of Contractor's Personnel and others in their execution of the Works. The policy shall include but not limited to, a description of their organisation and the arrangements for carrying out and reviewing such policy

A copy of the SHEQ Policy shall be provided as a tender returnable. Tenderers shall furthermore supply method statements containing sufficient detailed information to demonstrate compliance to this Specification.

Principal Contractor's SHEQ policy shall be provided to the Subcontractors once appointed

The Contractor shall prominently display a copy of the policy in the workplace where the Contractor's personnel normally report for service

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3.5 SHE Plan Requirements

The Contractor shall develop a suitable and sufficient SHE Plan for the execution of the Works. This shall be submitted to the PM for approval in not less than 28 days before mobilization of the first Contractor's Personnel on Site (or at other places, if any, as may be specified under the Contract as forming part of the Site).

The Contractor shall not be allowed to commence any Construction Work until the SHE Plan has been approved by the PM. The PM's approval of the SHE Plan shall not, however, relieve the Contractor of any responsibility under the Contract.

The Contractor's SHE Plan shall demonstrate the management process and procedures that shall be adopted to ensure compliance to requirements listed in this Specification and other contract documents requirements. The approval criteria for health and safety plans is available from the PM and will be done as per Construction Regulation 5.1. (I)

These management processes shall identify each construction activity, the foreseeable internal and external hazards, the specific precautions and controls that shall be necessary to ensure that the Works commence and continue safely and without risks to health or to adjacent operations.

The SHE Plan shall further demonstrate the Contractor's commitment to safety, health and environmental requirements and shall, as a minimum include the following elements:

1. Compliance to this Specification
2. The Contractor SHE Policy. (OH&S Act section 7)
3. Indication of Competent Supervision (CV's to be included). (Construction Regulation 8(7))
4. Documented proof of assessment of competencies of appointed persons (e.g. scaffold erectors, riggers etc.)
5. Duties and safety responsibilities of all appointed persons
6. Selection, placement and training procedures, including induction and ongoing training in 'Basic Safe Work' and Occupational Health & Safety training for newly hired or promoted supervisors (OH&S Act section 8(2)(i))
7. Occupational Health & Safety communications and meetings, including daily safe task instructions and project SHE meetings.
8. Assessment and management procedure for their Subcontractors, including audit requirements for SHE Plans
9. Safety awareness promotions.
10. Occupational Health and Safety Workplace Environment controls, including provision for monitoring employee exposures to noise, dust, etc (Hazardous Chemical Substances Regulation 4)
11. Personal Protective Equipment procedure and rules (OH&S Act section 8, General Safety Regulation 2)
12. Control of dangerous and hazardous substances (Hazardous Chemical Substances Regulations, Section 43 of OH&S Act, 1993)
13. System of hazard identification and risk control, such as Risk Assessments, Daily Safe Task Instructions and Communications. (OH&S Act section 8, Construction Regulation 9)
14. Inspection and maintenance of plant, tools and equipment prior to introduction to Site (and to other places, if any, as may be specified under the Contract as forming part of the Site) and regularly thereafter (Construction Regulation 23)

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15 Accident and incident reporting, recording, investigation and analysis, which ensure that corrective action, are taken and this action is communicated to report initiators (General Administrative Regulations 8 & 9)

16 Medical and first aid arrangements (General Safety Regulations 3) Evacuation and emergency planning arrangements, (Construction Regulation 29) Environmental Regulations for Workplaces 9)

17. Substance abuse policy and procedure. (General Safety Regulation 2A)

18 Workers welfare facilities (Construction Regulation (30)

19 Daily site safety inspections and audits processes.

20. Letter of good standing with a compensation insurer

21 Identification of Environmental Aspects, their associated impacts, mitigation measures and management thereof

Note. Contractors performing non-construction support services shall provide a scope specific plan agreed with the PM prior to submission

The Contractors SHE Plan shall be reviewed from time to time (and in any event as and when required by the PM) to ensure that it fully addresses all the issues and complies with these requirements to the satisfaction of the PM The Contractor may request the approval criteria from the PM

3.6 Appointments and Supervision

The Contractor shall in writing appoint as per the OHS Act requirements and shall ensure that all his appointees are made aware of their accountabilities and responsibilities in terms of their appointment and that they advise and assist these appointees in the execution of their duties

The Contractor shall provide and keep up to date an outline organogram and a list of names and contact telephone numbers of all appointments as required from the table below

The Contractor shall keep a record of all Contractors' Personnel, indicating their date of induction, relevant skills and licenses, and be able to produce this list at the request of the PM

The Contractor shall ensure that the performance of all specified work is supervised throughout the duration of the Contract by a sufficient number of competent appointed representatives of the Contractor, who have experience in the type of work specified

No work shall commence and / or continue without the presence of an appointed Construction Manager, Construction Health & Safety Manager or Officer, Construction Supervisor or appointed Construction Supervisor Assistants as per Construction Regulation requirements during execution of the work These supervisors shall be fluent in the language of communication as defined under the Contract.

In determining the number of appointed competent supervisors, the nature and scope of work being performed shall be taken into consideration and consented to in writing by the PM The required appointed Construction Supervisor (Construction Regulation 8(7)) shall not leave the Project Site during working hours unless there is a sufficient number of appointed competent Assistant Construction Supervisor/s (Construction Regulation 8(8) to assist with supervision

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Persons who are suitably qualified and duly authorized to the satisfaction of the Project Manager shall sign appointment letters and competency certificates of the persons appointed as Construction Supervisors or Assistant Construction Supervisors in terms of Construction Regulation 8(7) or 8(8). Relevant training certificates and proof of experience of assignees shall be submitted with the SHE Plan. In determining the number of appointed competent Construction Health and Safety Officers to the number of employees, the nature and scope of work being performed shall be taken into consideration. Unless otherwise approved by the PM a minimum average ratio of one Construction Health and Safety Officer to 200 employees shall be applied. Similarly, unless otherwise approved by the PM all Construction Health & Safety Officers must be available for health and safety meetings and shall participate fully in all activities outlined in this Specification and in the Contractors SHE Plan.

Furthermore, only full-time Health & Safety Officers will be appointed in writing and shall have no other duties, unless otherwise approved in writing by PM. All safety officers and managers involved in construction activities will be required to hold SACPCMP safety professional registration by August 2015 legal implementation date. Safety practitioners joining the Kusile project after the August 2015 implementation date shall be required to register immediately with the SACPCMP and attain the relevant registration most timeously subject to the PM's approval on a case by case basis.

The Contractor shall ensure that where there are two or more appointed safety officers that there is a sufficient safety management structure to manage safety professionals and the responsibilities required to execute the works appropriately. This safety organization shall be led by a suitably qualified and experienced individual who will be appointed in writing as the Contractor Health & Safety Manager. The Health & Safety Manager's full CV will be submitted to the PM for approval.

The Contractor shall ensure that the following appointments are made in writing, as applicable.

Reference	Description
16(1)	Chief Executive Officer
16(2)	Persons assigned functions to assist the Chief Executive Officer (if required)
17	Health and Safety Representative (As per OHS Act 85 of 1993)
19	Health and Safety Committee Member (As per OHS Act 85 of 1993)
19	Chairperson of Health and Safety Committee (As per OHS Act 85 of 1993)
GSR 3	First Aiders (As per OHS Act 85 of 1993)

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GSR 5(1)	Person that pronounces & certifies a confined space safe for the duration of work being conducted (applicable for confined spaces)
DMR 17(2)	Goods Hoist Inspector
GAR 9(2)	Incident / Accident Investigator
DMR18(11)	Lifting Machinery Operator (Appointment or Permit)
DMR18(5)	Lifting Machinery Inspector
DMR18(10)(e)	Lifting Tackle Inspector
EMR 9	Portable Electrical Equipment Inspector
VUP 10	Portable Gas Container Inspector
VUP 13(1)(b)	Pressure Vessels Inspector
LEPC Regulations (6)(1)	Competent Person to examine and maintain lift, escalator or Passenger Conveyor
HCS 3(3)	Hazardous Chemical Substances Co-coordinator
Asbestos Regulation 21	Person registered as an Asbestos Contractor (Asbestos AIA) by the Department of Labour
CR 5(1)(k)	Appointment of the Contractor by the Employer
CR 7(1)(c)(v)	Subcontractor Appointment by the Contractor
CR 8(7)	Construction Supervisor appointed by the Contractor's OH&S Act Section 16(2) assignee
CR 8(8)	Assistant Construction Supervisor appointed by the Contractor's OH&S Act Section 16(2) assignee
CR 8(5)	Construction Health and Safety Officer

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CR 9(1)	Person to Compile Risk Assessments
CR 10(1)(a)	Competent Person to compile Fall Protection Plan
CR 12(1)	Person to supervise temporary works
CR 13(1)	Person to supervise Excavation Work
CR 14(1)	Demolition Work Supervisor
CR 21	Competent Person in the use of Explosives & Development of the Method Statements
CR 17(1)	Competent Person as Suspended Platform Supervisor
CR 17(8)(b)	Competent Person to Conduct Performance Test of Suspended Platforms
CR 16(1)	Competent Person as Scaffolding Supervisor
CR 19(8)(a)	Material Hoist Inspector
CR 20(1)	Competent Person as Bulk Mixing Plant Supervisor
CR 21(2)(b)	Competent Person as Explosive Powered Tool Inspector
CR 21(2)(g)(i)	Appointed Person responsible for issuing & collection of Explosive Powered Tools cartridges & nails or studs
CR 23(1)(k)	Construction Vehicle and Mobile Plant Inspector
CR 24(e)	Competent Person for Temporary Electrical Installation Inspections
CR 28(a)	Competent Person for Stacking and Storage Supervisor
CR 29(h)	Competent Person as Fire Fighting Equipment Inspector
CR 18(1)(a)	Rope Access Supervisor (new appointment)
CR 8(1)	Construction Manager (new appointment)
SANS 12480-1&3	Crane coordinator – Tower crane operations /Appointed Person Mobile Crane operations

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CR 8 (2)	Assistant Construction Manager (new)
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Notes to the appointments listed above: Section 16(1) creates a legal presumption and therefore no appointment is required. The Contractor shall provide the full names, contact telephone number and business address of the Chief Executive Officer

3.6.1 Health & Safety Representative Required Competencies:

- 1) General Health and Safety Training
- 2) Health and Safety Representative Training
- 3) *Hazard Identification and Risk Assessment Training*
- 4) Incident Investigation and Root Cause Analysis Technique Training

3.6.2 Construction Supervisor Required Competencies:

Typical Minimum Qualifications.

- National Diploma in Built Environment

Competencies.

- 1) Three years applicable experience in construction management
- 2) General Health and Safety course
- 3) OH&S Act and Regulations or Mine Health and Safety Act and Regulations course, as applicable (latest version of the Act and Regulations)
- 4) Incident Investigation and Root Cause Analysis Technique Training
- 5) *Hazard Identification and Risk Assessment Training*
- 6) Job Observations Training
- 7) Attended an accredited supervisor's safety course

If the Commencement date precedes the date of issue of this Specification (rev 0), the Contractor shall have a period of three months to comply with the above competency requirements, except to the extent required by applicable Law in which case immediate compliance is required

3.6.3 Safety Officer Appointment

Typical Minimum Qualifications

- National Diploma in Safety Management or Environmental Health

All safety practitioners shall be registered with Statutory Body- SACPCMP from August 2015

Competencies

- 1) OH&S Act and Regulations (latest version of the Act and regulations),
- 2) COIDA Act (latest version of the Act);
- 3) Incident Investigation and Root Cause Analysis Technique,
- 4) *Hazard Identification and Risk Assessment Training,*
- 5) Health & Safety Auditing;

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- 6) Emergency Preparedness Coordination Training
- 7) Samtrac

3.6.4 Environment Officer Appointment

Typical Minimum Qualifications.

- National Diploma or B-Tech or Degree in Environmental Sciences/Management,

Competencies

- 1) Minimum 3 years' experience in Environmental Management
- 2) Minimum 2 years in Construction Environment
- 3) Auditing;
- 4) Understanding of applicable environmental legislation
- 5) Environmental Incident Investigation, and
- 6) Nature Conservation (Biodiversity)
- 7) Environmental Authorization Training
- 8) Water Use License Training

Note 1 An Environmental Officer must have at least 2 years of experience working on a construction project, managing environmental compliance, inclusive of exposure to wetlands management in that period

3.6.5 Occupational Hygienist

Typical Minimum Qualifications

- National Diploma or B-Tech or Degree in Environmental Health/BSc Sociology,
- Registered with South African Institute of Occupational Hygienist (SAIOH)

Competencies

- Minimum 3 years' experience in Occupational Hygiene

Note 2 The Contractor must ensure that those persons who have the relevant qualifications achieved via the Recognition of Prior Learning (RPL) standard; must have such qualifications graded by the SAQA body in order to determine the overall level of qualifications and competency in terms of environmental management. Overall RPL Grading must meet the minimum level of grading equivalent to that of a National Degree or Diploma. All additional training in terms of environmental legislation will be mandatory, over and above the SAQA grading.

Note 3: Before appointing Environmental Managers and Officers to the Kusile Coal and Clean Technology Projects, the Contractor shall submit the CV and verified copies of such qualifications to the Project Manager for verification and acceptance by the client appointed Construction Health and Safety Manager/SHE Manager and the GCD Environmental Manager/Officer
The Contractor shall appoint and provide a full time, suitably qualified and competent Environmental Officer (EO) for the duration of the Contract, with a minimum average ratio of 1 Environmental Officer per package.

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Tenderers must provide examples of Contractor's Personnel considered appropriate for the required appointments and, where possible, details of intended appointees, with the Tender.

The actual appointments equivalent to original requirements shall be communicated to the PM for approval at least 28 days before mobilisation of the first Contractor's Personnel on Site (or at other places, if any, as may be specified under the Contract as forming part of the Site) and shall include a copy of the appointment letter, a Curriculum Vitae and relevant certificates of competency for the proposed role

Where the works are carried out on areas governed by the Mine Health and Safety Act 29 of 1996 or other Law applicable to mining activities, the appropriate equivalent appointments and assignments shall be made as required

3.7 Induction and Training

All Contractor's Personnel shall undergo induction as provided for and required by the legislation before commencement of work on Site (or on other places, if any, as may be specified under the Contract as forming part of the Site), and shall be renewed annually. Appropriate time must be set aside for training (induction and other) of all Contractors' Personnel including the annual Re-Induction Training.

Additionally, all Contractors' Personnel shall undergo Eskom's Health, Safety and Environmental Induction Training before commencement of work on Site (or on other places, if any, as may be specified under the Contract as forming part of the Site). This training shall be arranged by the Contractor, with the Employer

Visitors to the site shall be required to undergo and comply with the SHE Induction requirement prior to being allowed access to site. This training shall be conducted by a person deemed competent to deliver the training.

All visitors shall remain in the care and custody of a person (host) who has received a full induction. Acknowledgement of receiving and understanding the induction shall be signed by all persons receiving this induction. A copy of this signed understanding of induction shall be maintained by each person for the duration of their site visit per Construction Regulation 7(8).

Prior to induction all Contractors Personnel shall undergo a pre-employment medical examination and be confirmed fit for duty, in accordance with paragraph 8.6 Medical Surveillance Programme. This examination shall be arranged by the Contractor at the Contractor's cost. A copy of the certificate of fitness shall be presented for permanent record at the Project Office and kept at the Contractor's Project Site office as a permanent record.

Personnel are responsible for their own health and safety and that of their co-workers within their work area. They shall be made aware of their responsibilities during induction and awareness sessions which include.

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- 1) Familiarizing themselves with their workplaces and Health Safety and Environmental requirements
- 2) Working in a manner that does not endanger them or cause harm to others
- 3) Keeping their work area neat and orderly, free from excessive materials which could pose hazards
- 4) Reporting all incidents / accidents / occupational ill-health and near misses
- 5) Protecting fellow workers from injury
- 6) Reporting unsafe acts and unsafe conditions
- 7) Reporting any situation that may become dangerous
- 8) Carrying out lawful orders and obeying health, safety and environmental rules

The Contractor shall ensure that all Contractors' Personnel undergo general work induction with regard to the approved SHE Plan, general hazards prevalent on Site (and prevalent at other places, if any, as may be specified under the Contract as forming part of the Site), Construction Risk Assessment

The Contractor shall ensure that all Contractor's Personnel undergo their specific work induction with regard to the approved SHE Plan. The Contractor shall ensure that Contractor's Personnel are informed of and understand of the work to be performed, the specific hazards prevalent to the work performed and the control measures required to mitigate such risks.

Training qualifications and competencies shall be required from the Contractor before mobilization of resources

The Contractor shall ensure that all Contractor's Personnel working on Site (or on other places, if any, as may be specified under the Contract as forming part of the Site) are adequately trained in the type of work / tasks to be performed. This training shall extend to include relevant procedures, hazard identification and risk assessment. Contractor's Personnel shall have the appropriate qualifications, certificates and tickets, and shall work under competent supervision. Copies of records of appropriate training and qualifications for all Contractors' Personnel shall be kept and maintained on site.

When there is an amendment to an Act, Regulation, Kusile Site requirements, all affected staff shall undergo the relevant re-training through either toolbox talk, awareness, or any other form of communication.

3.8 Occupational Health, Rehabilitation and Hygiene

3.8.1 Compensation for Occupational Injuries and Diseases

The Contractor shall submit, and shall ensure that each Subcontractor submits evidence of current registration and a Letter of Good Standing with the Compensation Fund or, with a licensed compensation insurer. This shall be renewed as and when required so as to remain valid for the duration of the Contract.

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3.8.2 Employee Health and Wellness Programme

The Contractor shall submit details of his Employee Health and Wellness Programme as part of their SHE Plan which shall include a Medical Surveillance Program and an Employee Assistance Program as detailed below

3.8.3 Employee Assistance Programme

Contractors or Subcontractors should have an Employee Assistance Programme (EAP) services. All costs in this respect shall be borne by the Contractor.

3.8.4 Health Awareness Programme

An HIV, AIDS, COVID-19, TB, etc Awareness programmes will be implemented by the Contractor to their employees. This will include voluntary counselling and testing (VCT) of individuals, HIV/AIDS, COVID screening, etc. and ongoing support for affected individuals. The Contractor shall ensure that the Contractor's Personnel are aware of this programme

3.8.5 Occupational Hygiene

The Contractor shall appoint a qualified Occupational Hygienist to perform the above services as informed by their Health Risk assessment.

Identification The Contractor shall identify the occupational stressors, which could include exposure to chemical, physical, ergonomic and biological hazards, etc to which any person may be exposed because of their work activities

Risk assessment. Once the occupational stressors have been identified, the risk shall be assessed in accordance with statutory requirements including manual handling, the nature of the stressor, the work process, the exposure severity and duration, possible adverse effects etc.

Control measures The Contractor shall provide details of all control measures that shall be implemented to eliminate or reduce exposure to occupational stressors. Where mechanical means are employed, they shall provide details of how these shall be maintained to ensure that they are operated at maximum efficiency

Monitoring The Contractor shall provide and adhere to effective monitoring procedures. These procedures shall include the planning, carrying out and recording of the results of the measurement programme. This is to confirm the effectiveness of the implemented control measures and the results shall be made available to the PM on request

3.8.6 Medical Surveillance Programme

The Contractor shall ensure that all Contractors' Personnel are registered on a medical surveillance programme appropriate to their occupational exposures and in possession of a valid medical health

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certificate. The certificate of fitness shall also be required that is relevant to the type of work (risk based) that the employee will be performing. The PM will only accept medical surveillances conducted by Registered Occupational Health Practitioners who hold valid qualifications in occupational health.

The Contractor shall ensure that all Contractor's Personnel have undergone pre-entry medical examination before starting work on Project Site (or on other places, if any, as may be specified under the Contract as forming part of the Site). An exit medical examination shall be done by all Contractors' Personnel before leaving the Project Site (or other places, if any, as may be specified under the Contract as forming part of the Site). The pre-entry and exit medicals shall, as a minimum, be to the standard of what is referred to as 'Red Ticket' medical fitness certification, similar to that which is used at South African mines.

The certificate shall be issued before the employee commences work and shall be presented at induction. If the Contractor does not provide proof of valid certificates of fitness for a Contractor's Personnel, then such **Contractor's Personnel shall not be permitted access to Site (or such other places, if any, as may be specified under the Contract as forming part of the Site).**

The certificate shall be renewed annually (for personnel who are not office bound including drivers) and once every 2 years (for personnel who are office bound). The frequency to renew the medical fitness certificate shall also be determined by the risk profile and or as per recommendations of the medical practitioners.

Exit medicals shall be conducted immediately by the Occupational Health Practitioner prior to the termination of the employee's engagement on Site (or at such other places, if any, as may be specified under the Contract as forming part of the Site).

All Contractor's Personnel shall be issued with the required medical records to prove medical status at the time of exiting the Site (or such other places, if any, as may be specified under the Contract as forming part of the Site).

The Contractor shall provide a documented process for managing those Contractor's Personnel who are issued with a conditional certificate of fitness.

In instances where sick leave is taken for a period of one week or more, the Contractor shall submit a declaration signed by the Contractor's Personnel in question indicating that she or he did not suffer any *illness or injuries which occurred in the period of absence, which may affect his ability to work on Site (or at such other places, if any, as may be specified under the Contract as forming part of the Site)*.

3.8.7 Emergency Care

The contractor and the employer must post all site emergency numbers in every office.

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The Contractor shall ensure that Contractors' Personnel are familiar with the emergency numbers and also are provided with stickers, with the emergency numbers printed on, to place inside their hard hats

The Contractor shall have one first aid box to cover the first 5 persons on Site (and at other places, if any, as may be specified under the Contract as forming part of the Site) and thereafter one for every 50 or team of workers, or part thereof.

Additional first aid boxes shall be provided if the risks and / or distance between work teams or workplace requirements require it (it shall be available, compliant and accessible for the treatment of injured persons at that workplace)

Prominent notices or symbolic signs compliant with SANS 1186 shall be displayed by the contractor in prominent places in the workplace, indicating where the first aid box or boxes are kept as well as the name and contact details of the First Aiders. Among others, the following should be included in the First Aid Box:

- Item 1. Wound cleaner/antiseptic (100ml).
- Item 2. Swabs for cleaning wounds.
- Item 3. Cotton wool for padding (100 g).
- Item 4. Sterile gauze (minimum quantity 10)
- Item 5. 1 Pair of forceps (for splinters)
- Item 6. 1 Pair of scissors (minimum size 100 mm).
- Item 7. 1 Set of safety pins.
- Item 8. 4 Triangular bandages.
- Item 9. 4 Roller bandages (75 mm X 5 m)
- Item 10. 4 Roller bandages (100 mm X 5 m)
- Item 11. 1 Roll of elastic adhesive (25 mm X 3 m).
- Item 12. 1 Non-allergenic adhesive strip (25 mm X 3 m)
- Item 13. 1 Packet of adhesive dressing strips (minimum quantity, 10 assorted sizes).
- Item 14. 4 First aid dressings (75 mm X 100 mm)
- Item 15. 4 First aid dressings (150 mm x 200 mm).
- Item 16. 2 Straight splints
- Item 17. 2 Pairs large and 2 pairs medium disposable latex gloves.
- Item 18. 2 CPR mouthpieces or similar devices.

3.9 Emergency Preparedness and Response

3.9.1 Emergency Response Plan

The Principal Contractor shall provide a site specific emergency response plan. Using the Site specific emergency plan, the Principal Contractor, together with their Subcontractors, shall develop their own

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emergency response plan (as a guideline) for both site and offices and submit this plan to the Project Manager for review. It may be decided that one site specific emergency response plan be used for all Contractors. The Principal Contractor will ensure that their employees and their Subcontractor employees are trained on this plan. The plan shall be amended as required by the PM.

Periodic emergency drills shall be undertaken by Eskom, however, the Principal Contractor shall initiate their own emergency drills with permission from the PM. The Principal Contractor will make in advance arrangements with the PM, at least five (5) days in advance. Details of such drills shall be recorded and such records shall be made available on request.

The Contractor shall be responsible for ensuring that their emergency plan is reviewed every two years or after every incident which caused the emergency plan to be activated or as advised by the PM. Any changes made shall be briefed to all persons affected and the information provided to the PM.

3.9.2 Fire Safety

The Contractor shall develop fire safety and evacuation procedures for any area under his control prior to the commencement of any work thereon. The procedure shall take into consideration the size of the area, types of work being done (e.g. cutting, welding, grinding, etc.), amount of combustible materials present etc. It shall take account of any hot work permit arrangements and all other applicable fire and evacuation procedures. All Contractor's Personnel entering and working on the

Project Site, and other places, if any, as may be specified under the Contract as forming part of the Site, shall be trained in fire safety and emergency evacuation and any other duties they are required to perform e.g. Fire Warden.

Existing fire management systems in buildings shall be maintained during construction whenever possible. Any changes shall be approved by the PM before implementation.

The Contractor shall be at all-times available for any meetings and interventions that are arranged by the PM for the sake of fire and emergency safety.

3.9.3 Fire Safety Plan

The Contractor shall prepare a Fire Safety Plan which shall include

- 1) The designation and organisation of Contractors' Personnel to carry out fire safety duties, including fire watch service, if applicable
- 2) Emergency procedures to be used in the case of fire, including
 - a. method of sounding the fire alarm,
 - b. notifying the fire department;
 - c. instructions to Contractor's Personnel,
 - d. firefighting procedures,
 - e. evacuation routes;
 - f. location of assembly points, and
 - g. Integration with existing emergency procedures.

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- h The control of fire hazards in and around buildings
 - i Maintenance of firefighting facilities.
- 3) Display in strategic places a site plan that will illustrate the assembly points, locations of means of raising the alarm and extinguisher media. A plan shall be drawn up for each area under the Contractors control and shall, where appropriate, include office and welfare facilities

3.9.4 Fire Alarm Shut-down

The Contractor shall inform the PM of all fire alarm shut-down requests in writing 7 days prior to any part of a fire alarm system being shut down. When this is required the Contractors shall develop alternative procedures, as approved by the PM, to follow during a fire alarm shutdown.

3.10 Work Stoppage

The PM is entitled to stop the execution of the Works and issue non-conformance notices for health, safety and environmental violations. Any non-conformances/findings/observations found during audits/inspections shall, where practicable, be raised, discussed and resolved with the Contractor.

The conditions that can lead to work stoppages include but shall not be limited to.

- Management of change. This is when there are changes to the work environment (e.g. management / supervisory changes) and or construction work (e.g. modifications to the design) at any phase of the construction period, and / or amendments with regards to the Employers rules and regulations and / or legislative amendments, which may lead to
 - Unsafe acts / behaviours by Contractor's Personnel,
 - Unsafe conditions resulting from unforeseen hazards, changes in working procedures, *unexpected weather conditions and malicious acts of vandalism*
 - Environmental legal contraventions

In the event of unsafe conditions being identified by any person, the process to be followed shall be.

- 1) The PM shall be informed immediately
- 2) The work activity shall be stopped immediately and conditions made as safe as possible as an interim measure
- 3) The affected workforce shall be removed from the work area and the Contractor shall correct
- 4) the health and safety deficiencies by allowing only the people in the area that are competent to make the area safe.
- 5) The Contractor shall ensure that no other work is being performed in the area during this time.
- 6) The area shall be barricaded and a sign placed with the wording "Unsafe Area – Authorized

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- 7) Access Only". Where necessary, guards shall be posted to prevent entry
- 8) The PM shall review the affected parts / sections of the SHE Plan with the purpose of providing additional SHE information to the Contractor to enable the establishment of a safe working environment.
- 9) The Contractor shall revise the relevant sections in the SHE Plan to accommodate the changes.
- 10) The Project Manager shall review the revised provisions in the SHE Plan to ensure they are adequate and approve it before the work activity is commenced. The work activity / work area shall be subject to additional monitoring in the initial stages to ensure that safe conditions remain
- 11) Before the workforce is allowed back in the area, the Contractor shall ensure
- 12) The area is re-inspected by the Contractor's Health and Safety Officer and Construction
- 13) Supervisor who shall note corrective actions taken,
- 14) Declare the area safe for work by signing off on the "work stoppage" notice issued by the Project Manager

3.11 Hazard and Risk Management

3.11.1 The Kusile Coal and Clean Technology Projects SHEQ Policy is "Zero Harm to People and the Environment"

Refer to the Kusile Coal and Clean Technology Projects SHEQ Policy.

3.12 Hazard Identification

The Contractor shall identify hazardous and potentially hazardous work operations. They shall demonstrate that work hazards, work activity risks and the mitigating measures have been considered in their risk assessments. Activity based risk assessments shall be carried out by competent persons.

The Contractor shall provide work task risk assessments and examples of work methodologies to the PM, at least 56 days prior to site establishment to allow for the PM to review them

The Contractor shall provide work task method statements and/or written safe work procedures to the PM at least 56 days prior to mobilisation of the first Contractor's Personnel on Site (or at other places, if any, as may be specified under the Contract as forming part of the Site).

3.12.1 Specific Health and Safety Hazards

In complying with the requirements of Construction Regulation 5(1)(a), the specific known health and safety hazards pertaining to the environment and physical conditions that the Contractor may be exposed to in performing his work on Site (or on other places, if any, as may be specified under the Contract as forming part of the Site) are listed in the baseline risk assessment

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The Employer will make all reasonable efforts to provide the baseline risk assessment. However, the Contractor shall do detail assessment of the hazards and risks associated with the work under the Contract for which they are responsible. Without derogating from any other requirements under the Contract, the work shall not be executed on Site (or at other places, if any, as may be specified under the Contract as forming part of the Site) until the PM has reviewed and approved the Contractor's Risk Assessment and Method Statements

The Contractor shall on a daily basis and for every task to be performed, conduct a pre-task risk assessment with all Contractors' Personnel involved with the task(s). The pre-task risk assessment shall form the basis of the daily pre-job briefings / tool box talks prior to the start of work. Proof of communication as well as confirmation that it was received and understood by all will be noted on a standard form, which shall be kept at the job site during the job execution. The completed signed pre-task risk assessment form shall be filed in the Contractor's Health and Safety File

The Contractor shall conduct undertaking in such a manner as to ensure, as far as reasonable practicable, that Others who may be directly affected by their activities are not thereby exposed to hazards to their health and safety

Any person who design, manufacture, import, or supplies any article for use at work shall ensure, as far as reasonable practicable, that the article is safe and without risk to health when properly used and that it complies with all prescribed requirements

A Section 37(2) agreement must be signed between Eskom and the Principal Contractor at the time of awarding the contract. Note: The SHE specification will be deemed as the procedural agreement of compliance as contemplated in Section 37.2 of the Occupational Health and Safety act 85 of 1993

The Principal Contractor must ensure that a Section 37(2) agreement is entered into and signed between the Principal Contractor and all their appointed sub-contractors for the contract.

3.13 Project SHE and Security Rules

The Contractor and each Subcontractor shall be bound by and shall comply with the requirements of this document (SHE Spec 240-163062107) and the PM Instruction from time to time in connection with the Safety, Health and Environmental requirements may prescribe as. The Contractor shall ensure that each Sub-contractor and all Contractor Personnel comply with all such rules and regulations.

3.14 Incident Investigations

The Contractor shall report all incidents and accidents including near miss incidents, first aid, medical treatment, lost time incidents (disabling injuries & fatalities); OH&S Act Section 24 and 25 incidents, electrical contact, major equipment damage, and Environmental Incidents including chemical

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spillages to the Project Manager within 24 hours of them occurring, or before the end of the work shift. The Contractor shall ensure that all incident reporting classifications and investigation requirements are aligned with the following documentation:

32-95 OHS Incident Management Procedure, 240-131838225 OHS Management Incident Procedure Definitions and Classification parameters standard and, 240-13307117 Environmental Incident Management Procedure. This may include investigation format or documentation requirements.

All incidents including near miss should be reported to the project using the flash report within 24 hours. For any incident (near miss, first aid, medical) that has contravened any of the Statutory Requirements, Employer's Lifesaving rules as well as Lost Time incidents, the Contractor's Representative (including the Subcontractor's Representative, if applicable) may be required to present to the project. The presentation should as a minimum include the incident and the mitigation measures that would be implemented to prevent a recurrence including the implementation of a deadline for all corrective actions to be implemented.

The Contractor shall ensure that immediate post incident drug and alcohol samples are taken for all parties who are involved in the accident. This may include machine operators, riggers, flagmen and supervisors as well as any witness and the injured. Testing may take place even if there is no property damage or injury, as in the event of a near miss. The Contractor shall ensure that these facilities are available outside regular site hours if the Contractor is conducting any activities outside of normal working hours.

If it is found that the Contractor or their Subcontractors are not reporting incidents, steps (which may include disciplinary action) shall be taken against the line management of the Contractor and /or Subcontractors.

A comprehensive and detailed investigation report, including supporting documents, proof of actions taken and proof of communication to other affected employees, shall be completed within 14 days of the incident and submitted to the Project Manager formally for review, comment and trending. Should the contractor require a greater period of time to conduct the investigation then permission should be sought from the Project Manager or the Project Manager's assigned SHE professional. Medical reports received by the contractor after the investigation submission should be forwarded immediately to the Project Manager SHE personnel.

Low and moderate near miss investigations should be initiated within 24 hours and submitted within 72 hours as they are contained in the near miss flash report form. For incidents where the cause is obvious and the remedial action is limited to trending, incident recall / lessons learnt or similar actions, the Contractor should submit the completed investigation report within 30 calendar days. For Section 24 incidents, the Contractor must notify the project and the Department of Labour within 24 hours.

The Contractor shall ensure that all accidents / incidents are investigated by a competent person and are discussed at the relevant SHE committee meeting. The Employer

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reserves the right to participate in any accident / incident investigation if the accident / incident is directly linked to any activity related to the Works.

Case studies shall be compiled for all [high & extreme priority] near misses, lost time incidents and fatalities and cascaded as lessons to be learnt across the Project

The Contractor shall keep at his Project Site Office a record of all accidents and incidents reported in the form of the OH&S Act Annexure 1 investigation form as referenced in the OH&S Act (Incident Investigation Report)

The Employer reserves the right to conduct an independent investigation of any accident and / or incident reported by the Contractor or Subcontractors over and above their own investigations. The Contractor and Subcontractors shall co-operate fully with the investigation and implement any additional improvement measures.

Investigations shall begin as soon as practicable after the incident / accident has occurred. Where applicable and with appropriate authorisation (when required), photographs shall be taken of the scene of the incident as well as any equipment involved. Interviews with witnesses shall be conducted as soon as possible after the incident occurred whilst it is still fresh in their memory and if necessary followed up later to determine if further information was recalled.

The Contractor shall initiate investigation of all incidents within 24 hours and supply to the Project Manager as per the 32-95, 240-131838225 and 240-13307117 procedures unless otherwise specified by Project Manager, which shall include but not limited to:

- 1) Date, time and place of incident,
- 2) Description of incident,
- 3) Root causes of incident/accident,
- 4) Type of injury and/or (if any),
- 5) Medical treatment provided (if any),
- 6) Persons involved,
- 7) Loss or damage sustained (if any),
- 8) Names and contact details of witness/s,
- 9) Description of corrective action to prevent a recurrence (with clear deadlines and persons identified for taking remedial action).
- 10) All corrective actions shall be closed out within 14 days of the date of the incident, unless otherwise agreed by the Project Manager.

3.15 Reporting and Meetings

Programme

The Contractor must incorporate the approval timelines by the Employer.

Progress Reporting

- 1) The Contractor must incorporate the SHE requirements into the Construction progress reports submitted weekly and monthly.

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- 2) The Contractor must submit weekly and monthly SHE reports
- 3) Environmental Management reports to be submitted as per timelines determined and agreed upon by Environmental department
- 4) Submit weekly Manpower numbers per Principal Contractor and Subcontractor on Monday for the previous week.
- 5) Submit actual man-hours worked monthly
- 6) Health and safety trainings, campaigns, stand downs.
- 7) Principal Contractor shall report on a weekly basis Health and Safety statistics and Meeting Requirements
- 8) The SHE matters must be discussed in the Contractor's daily, weekly and monthly meetings
- 9) The Contractor will be required to attend the Contractor SHE Manager's meeting
- 10) The Contractor will be required to attend the Environmental meeting as specified by Environmental Authorizations and Water Use Licenses.
- 11) The Contractor will be required to attend weekly, monthly and as when required *environmental meetings*
- 12) SHE Monthly reports must not be submitted later than the 2nd of every month,
- 13) Status on incidents investigated and recommendations closed out
- 14) Status on audits conducted and findings closed out
- 15) Eskom project team shall define and provide a reporting template.
- 16) Week refers to. Monday to Sunday as per Weekly Health and Safety Statistics Template, Report should be submitted before or on close of business the Monday
- 17) Toolbox Talks
- 18) The Project Emergency coordinators meet on adhoc basis, to discuss emergency plans, responses and changes on the acts and bylaws and any other feedback from activities conducted by the Employer on various Contractors as well as lessons learnt.

3.15.1 Record Keeping

The Contractor shall keep and maintain a SHE File at their Project Site Office in which records of this Specification and the SHE Plan shall be kept in accordance with the requirements of the OH&S Act.

All information required in this Specification and SHE Plan shall be recorded in the SHE file for the duration of the contract

The SHE file that will be maintained will be per construction site.

The Contractor shall also record in the SHE File

- 1) Information about removal or dismantling of installed plant and equipment,
- 2) SHE information about equipment cleaning and maintenance programmes;
- 3) Nature, location and markings of services,
- 4) List of as-built drawings

The file must be kept on site and must be available on request for audit and inspection purposes

The SHE File shall be handed over to the Project Manager on completion of the last of the Defects Notification Periods and prior to the issue of the Performance Certificate

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3.16 Employee Engagement and Behaviour Based Safety

The objective of behavioural safety observations is to assess and address the actual safe and unsafe behaviours of people in the workplace, as well as workplace conditions - which are caused by the actions or non-actions of employees, Contractors or their supervisors (Refer to Eskom Behavioural Safety Observations procedure 32-407) (Appendix B)

The Contractor must release their employees to attend the employee engagement as facilitated by the Employer

The Principal Contractor is expected to describe in the SHE plan how their company would implement a behavioural safety programme.

The Contractor shall retain suitable anonymous data from the programme and use these leading indicators to support their safety programme. The Contractor will make sure that this data is available to the Employer if requested

3.17 SHE Audits

SHE Audits on Contractors will be carried out by the Employer, Authorities and External Service Providers. Amongst others monthly, quarterly, bi-annual, annual, biennial etc. audits shall be conducted on Principal Contractors and /or contractors to ensure compliance with the said requirements. Eskom reserves the right to monitor and conduct un-announced inspections to ensure compliance and provide assurance to the Client representatives and their stakeholders

3.17.1 Compliance and approval of Contractor SHE Plan

The Contractor's SHE Plan / SHE File will be audited so as to confirm compliance to the requirements of the Eskom SHE specifications and legal requirements. Appointed contractor's SHE plans/SHE File shall be verified by a Employer Representative prior to appointed contractor given access to site. Once compliance is confirmed, only then will the Contractors SHE plan/SHE File be approved by the Project Manager for implementation.

These audits shall be attended by the contractor's site SHE personnel. Contractor's Project Site Manager or representative may be required to attend opening and closing meeting. Implementation of the SHE Plan may be assessed by the Employer's Personnel by conducting a systems and physical conditions evaluation of the SHE Plan delivery.

3.17.2 Subcontractor Compliance

The Principal Contractor will conduct monthly audits on their Subcontractors. The Principal Contractor shall review and approve the sub-contractor SHE Plan to ensure compliance with the said requirements. The SHE Plan shall include as a minimum

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- 1) Risk Assessments,
- 2) Method Statements,
- 3) Permits-to-Work,
- 4) Safe working procedures

The Contractor shall review the Subcontractors submission and how it fits within the Contractor's SHE Plan

3.17.3 Contractor SHE Performance Evaluation Compliance

The Contractor shall provide a SHE Statistical and Non-Statistical Reports, dashboards, presentations as per the Employer requirements

The Project Manager shall audit Contractor SHE performance on an ongoing basis against Eskom requirements

3.17.4 Internal Audits

The Contractor shall conduct his own internal audits on Contractor's Personnel for the implementation of their SHE Plan on a monthly basis or when the scope of work changes

A summary of the findings and the corrective actions shall be submitted to the Project Manager on completion of the audit. *The final report shall be submitted within seven days after completion of the audit*

The Contractor shall provide an audit non-conformance action plan identifying responsibilities for close out of non-conformances. This shall be reviewed with the Project Manager on at least a weekly basis to ensure close out of audit non-conformances.

3.17.5 Third Party Legal Compliance Verification Audits

If the Contractor has a third party legal compliance verification audit that is conducted on their activities on Site (or at other places, if any, as may be specified under the Contract as forming part of the Site), a copy of the findings and corrective actions must be provided to the Project Manager. The report shall be provided within seven days after the completion of the audit.

3.17.6 SHE Plan Audits

Audits shall be conducted by the Project Manager or other Employer's Personnel on the Contractor's implementation of their SHE Plan. These audits shall be attended by the Contractor's Representative

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3.17.7 Site Inspections by Contractors' Management

The Contractor should conduct regular site inspections monitoring for SHE compliance on a weekly basis and submit report. The Contractor should make arrangements to accommodate the Employer representative on this inspection.

3.17.8 Permit to Work System (PTW)

The Eskom Permit to Work System (PTW) specify and provide requirements for the application of compulsory health and safety standards and procedures for the safeguarding of Plant and persons. This system forms an integral part of the approval process for work under the Work Co-ordination Process. The following Eskom Regulations shall be complied with:

- Eskom Plant Safety Regulations, GGR 0992,
- Eskom Operating Regulations for High Voltage Systems, ESKPVAEY6

The contractor shall ensure that adequately experienced personnel with the required levels of education are nominated by the Contractor to attend all relevant training specific to the appointments required by the roles. Training shall be provided free of charge by Eskom, however, the candidates time shall be for the contractors own account.

3.18 Work Co-ordination Meeting

Work coordination meeting is the Client's mechanism designed for monitoring and coordination of activities for contractors working within the same area. It allows work to proceed without risk, health and safety of contractor personnel, visitors, service providers and client personnel. The following is required:

- Attendance of morning meetings: - Responsible Construction Manager, Supervisor and SHE Personnel meet on daily basis to discuss how they will be interfacing to accommodate each other's activities to meet project milestones.

The Contractor should ensure that all relevant personnel attend both formal and informal meetings as necessary to ensure coordination between Contractors. Safety officers shall not be authorized to represent the Contractor in coordination issues unless approved by the Project Manager.

The Work Co-ordination Meeting provides the management arrangements for reviewing, controlling and monitoring each Contractor and their individual work packages whilst they are present and working on Site (or working at other places, if any, as may be specified under the Contract as forming part of the Site).

The Work Co-ordination Meeting identifies the complete SHE working requirements the Contractor will need to provide to the Project Manager to enable assessment of their procedure and controls. It is designed to allow the work to proceed without risk to the health and safety of Contractors' Personnel, other contractors operating in the vicinity, visitors, delivery personnel and Employers' Personnel.

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The Work Co-ordination Meeting is a data collection vehicle requiring specific information to be provided by the Contractor to the Project Manager. All the information provided will have an influence on the effective and safe delivery of a work package.

In the design of a work package, the Contractor has a responsibility through their SHE Plan to provide specific information.

This comprises

- 1) A safe system of work for the overall work package
- 2) Method Statements covering how individual work elements will be completed
- 3) Risk Assessments for each work element

As part of the methodology for the delivery aspect, a Contractor has additional responsibility to provide work task data. This will include:

- 1) Work package logistic details.
- 2) Names of the contractors work team/s
- 3) Names of Subcontractors to be used and their work team/s;
- 4) Work team competencies, skills and appointments,
- 5) Proposed start day/time,
- 6) Expected finish time for the day,
- 7) Expected finish day / time for the overall work package (if not the same day),
- 8) Location / zone of work package delivery

Work Package delivery information:

- 1) Permit requirements,
- 2) Tools, plant and equipment to be used,
- 3) Current certifications for the plant and equipment, where applicable,
- 4) Non hazardous materials to be used including the material safety data sheet,
- 5) Hazardous materials to be used including the current material safety data sheet.

Work Package management:

- 1) Supervisory arrangements,
- 2) SHE monitoring arrangements.

Work Package SHE requirements

- 1) Emergency Plan,
- 2) First Aid arrangements,
- 3) Firefighting arrangements

The Work Co-ordination Meeting scheduled by the Employer provides an assessment of the work package information against the overall work programme being carried out. It ranks each of the Contractors' activities and hazards against their individual SHE risk.

The Contractor shall submit his Work Co-ordination Package to the Project Manager at least seven days prior to the work activity, unless as otherwise consented to by the Project Manager.

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3.19 Environmental Management

3.19.1 General Requirements

Refer also to the following

- 1) Water Use licences and general authorisations
- 2) Environmental Authorisations, permits
- 3) Environmental Management Plans and Environmental Impact Reports
- 4) Offset Requirements
- 5) Specialist Environmental recommendations based on final designs where applicable

It is imperative that all licenses, permits are valid in accordance with final designs for construction. It is a Contractor's responsibility to comply with these requirements.

Highlighted on this document are minimum requirements for compliance by *Contractors*, however detailed requirements are as Environmental Management Programme (EMPr), Environmental Authorization, permits, licenses and specialist environmental recommendations based on final designs.

The Contractor is expected to appoint the following environmental resources for this project. The Contractor is required to ensure that resourcing is in accordance with Project Plan and Schedule for life of work. An estimation of key activities is required to be identified for the life cycle of the project and resource plan requires aligning accordingly. The number of the required resources must be depended on the magnitude of the project or the project scope.

3.19.1.1 Minimum Requirements for Compliance by Contractors

- 1) The Contractor must submit the Method Statements to the project for approval before undertaking any works allowing a maximum of 21 days for Employer review. No work will commence without an approved Method Statements.
- 2) Ensure that any instructions issued by the PM, on the advice of the ECO, are adhered to.
- 3) There must be a report at each site meeting, which will document all incidents that have occurred during the period before the site meeting.
- 4) Keep a register at the site office, which lists all the transgressions issued by the ECO.
- 5) Keep and maintain a register of all public complaints.
- 6) Provide environmental awareness to all employees, including those of sub-contractors before the commencement of construction in order that they can constructively contribute towards the successful implementation of the environmental requirements of the contract.
- 7) Ensure compliance with the environmental requirements, relating to the provision of adequate resources for the implementation and monitoring of the requisite environmental controls.
- 8) Compile an Environmental monitoring plan outlining all the construction activities, associated environmental impacts and how they will be mitigated;
- 9) Ensure that the project pricing makes provision for environmental costs.
- 10) Contractor shall attach a company waste management plan including the typical waste inventory and templates used for keeping waste records.

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- 11) Include environmental considerations as an item on the agenda of the monthly site meetings.
- 12) Compile and implement the necessary Method Statements, and Undertake environmental awareness training of all site staff during the commencement of each Contract, with regular refreshers for the duration of the Contract
- 13) Ensure that the environmental authorizations required in terms of National Environmental Management Act, 1998 (section 24) are sought prior to storage of dangerous goods, including petrol, diesel, liquid petroleum gas or paraffin, in containers with a combined capacity of
- 14) More than 30m³ (30 000L) but less than 1000m³ (1ML) at any one location or site, GNR 386 (7)
- 15) More than 1000m³ (1 000 000 L or 1ML) at any one location or site, including the storage of one or more dangerous goods in a tank farm, GNR 387 {1(c)}
- 16) Spillage of Hazardous Chemical Substances
- 17) Any spillages that occur shall be treated in accordance with the requirements indicated on the MSDS.
- 18) Identify appropriate storage areas for stockpiling of materials, storage of hydrocarbons and storage of hazardous substances and ensure that these areas are appropriately prepared for their purpose
- 19) Disposal of hazardous substances shall be done in terms of the relevant legal requirements
- 20) Limit spillage of hazardous substances or substances with the potential to cause contamination of the environment.
- 21) Develop emergency protocols for dealing with spillages particularly where these pose a pollution risk or involve hazardous substances
- 22) The Contractor shall comply with all relevant Laws, environmental legislation, regulations, and
- 23) Employers Policies and Procedures

3.19.1.2 Compliance Obligation

Front end planning requires supplying in line with the future compliance checks for life of construction and commissioning. The compliance obligation will require approved permits, licenses, certificate and authorisations. The contractor must submit permits and licenses related to the scope of work i.e waste transportation, pest control certificates, and permitted landfill site in compliance with key licenses and permits etc. All external audit reports must be supplied to the owner.

3.19.2 Site Establishment and Management

Note: All Facilities must be fully COVID-19 compliant.

3.19.3 Temporary Facility Layout Plan

The Contractor shall submit a detailed site layout plan for acceptance by the Project Manager.

Note: No site establishment shall take place prior to approval of the plan for temporary site camps and laydown/stockpile areas, by the Project Manager.

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The Contractor shall produce a Contractor's Yard layout plan detailing the position and environmental specifications for all buildings, vehicle wash areas, fuel storage areas, hazardous materials storage areas, drainage systems, cement storage areas and any other necessary infrastructure for approval by the Project Manager

The Contractor shall ensure that there are adequate collection facilities for liquid run-off for any areas where there is a liquid pollution potential and that any vehicle maintenance is only carried out on surfaces that are easily cleaned and contained. Non-flammable, oil-resistant coverings shall be used to protect concrete surfaces from staining

Refer to Employer Policies and Procedures - Project site facilities and services for more details Site facilities shall be established and maintained by the Contractor or be maintained as agreed with the Project Manager and/or in accordance with the contractual agreement. The facilities include, but are not limited to the following: (OHS Act Construction Regulation 30, Facilities Regulations) and

- 1) Temporary Facility Layout Plan
- 2) Sheltered eating facilities
- 3) Change rooms
- 4) Ablution facilities (sufficient)
- 5) Site Sheds, Offices and Amenities
- 6) Lay down and Storage
- 7) Temporary Site Services
- 8) Waste Storage Facilities & Receptacles
- 9) Designated smoking areas

The Principal Contractor must develop their site establishment procedure and this must be in line with the EMPr, environmental authorisations and other permits and licenses

3.19.3.1 Sheltered dining rooms and eating facilities

The Contractor shall provide and maintain adequate dining room facilities appropriate to the workforce size and work duration, that conform with the requirements of the OHS Act, Construction Regulations, Facilities Regulations and the Hazardous Chemical Substances Regulations. Furthermore, the Contractor shall provide, to the acceptance of the Project Manager, sheltered eating areas for use by the contractor employees. The maintenance and cleaning of eating areas shall be the responsibility of the Contractor. All costs involved are deemed to be included in the tender price.

Eating areas shall provide adequate shelter and shall be ventilated and lighted. Tables and backed seating shall be provided. Suitable receptacles with lids for depositing waste shall be provided at convenient points inside and outside the eating areas.

The dining room facility, and all electrical appliances utilized for the purpose of boiling water and or heating food, shall be kept in a state of good repair and hygienically clean.

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3.19.3.2 Change rooms & Shower facilities

Where required, the Contractor shall provide and maintain adequate and suitable changing and washing facilities appropriate to the workforce size and work duration, that conform with the requirements of all applicable legislation. The Contractor shall ensure that separate changing facilities are provided for both genders

3.19.3.3 Ablution facilities

Where required, the Contractor shall provide and maintain adequate and suitable sanitized portable ablution facilities appropriate to the workforce size and work duration that conforms to the requirements of all applicable legislation. Separate ablution facilities shall be provided for both genders. These portable ablution facilities will be kept tidy and hygienic during the duration of the Project

Where the Contractor makes use of existing facilities provided by the project, the Contractor shall ensure that their employees support the aim of keeping these facilities clean and hygienic

3.19.3.4 Site Sheds, Offices and Amenities

The Contractor is responsible for suitable offices, parking area, eating facilities etc for their employees.

The Contractor will ensure that reverse parking is executed on site as well as on the ash dump area

3.19.3.5 Lay down and Storage

The Contractor shall include in its temporary facilities plan, a detailed plan for all lay-down areas required for storage of materials, chemicals, equipment and machinery

The Contractor shall provide and maintain adequate and suitable storage facilities appropriate to the scale of the project and work duration, that conform to the requirements of the OHS Act, Construction Regulations, Regulation 28, and as approved by the Project Manager

Note: No establishment of laydown and storage areas and facilities shall take place prior to approval of the Contractor site layout plan by the Project Manager.

3.19.3.6 Temporary Site Services

No employee will be allowed to erect living accommodation on site

The Principal Contractor must develop their site establishment procedure/method statements and this must be in line with the EMPs, Environmental Authorisations and other permits and licenses.

3.19.3.7 Existing Services

The Contractor shall give prior notice in writing to the Project Manager of their intention to begin excavation work in any area. The PM will then arrange to have the approximate location of all known buried cables and or other existing services indicated to the Contractor and, where practical, marked

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on the ground before excavation commences. All movement and removal of existing buried services will, if necessary, be carried out by the Contractor.

The Contractor shall immediately inform the PM of any existing services uncovered during the work. Prior to any excavation work, a scan shall be done by the Contractor to determine the location of any hidden services underground. Where possible, air driven shovels are to be used for any excavation work. The Contractor may only make use of manual labour as a last resort.

Note: The Contractor shall be responsible to obtain all permits to work for excavations to be dug, power line crossings, hot work to be conducted, from the project, prior to commencing with excavation work. The PC will give a copy of all application for permits to the PM.

3.19.3.8 Installation and Maintenance of Temporary Construction Electrical Supply, Lighting, and Equipment

The Contractor shall ensure that all temporary electrical supply, lights and equipment are installed and used in accordance with the OHS Act, Electrical Installation Regulations, relevant South African National Standards and by-laws, Regulations of the OEM and supplier concerned, including the PSR and ORHVS regulations. Attention shall be given to the positioning of such equipment in order to *minimize pollution caused by noise and fumes*. Every portable generator shall be issued with a drip tray and refuelling of these generators shall be done in such a way to prevent any spillage. Each Portable generator shall be fitted with an earth and/or earth spike.

All electrical installation shall have a C.O.C issued by a competent and appointed person.

3.19.3.9 Site De-establishment

The Contractor shall submit to the Project Manager, a Site de-establishment Plan that complies with the project Environmental requirements, at least 12 months or unless specified by the PM the prior to any de-establishment of Contractors under its control.

3.19.3.10 Rehabilitation Plan

The Contractor shall ensure that a Rehabilitation Plan is developed and submitted to the Project Manager for approval before rehabilitation starts. The plan must comply with all applicable Environmental Legislation and the Project Environmental Authorisation, EMPr and other legal requirements. Contractor is required to undertake progressive rehabilitation on all areas where work is complete.

The Contractor needs to have a plan in place of areas that can be rehabilitated that should include removal of structures such as buildings, slabs, wash bays, top soiling and revegetation using plant species that were before Construction or any indigenous species. Rehabilitation of the damaged areas to be done concurrently with construction where applicable or after completion of construction activities.

The Contractor is responsible for the rehabilitation of the laydown and any other area under their control.

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3.19.4 Fauna and Flora

All vegetation that requires removal from an area shall be determined and demarcated in conjunction with the Project Manager. Cutting and chipping shall be the method of vegetation clearance and bulldozers where necessary.

All contractors shall ensure that no disturbing, injuring or killing of any fauna for any purposes. Contractors are responsible for the management of snakes, bees, rodents, etc. The contractor shall provide competent individuals for snake catching, bee management, rodents management, etc in their areas of responsibility. No person should take out any animal species and snakes caught should be released at a designated area. All areas shall be kept clean and tidy of all waste materials but particularly waste food products that will attract rodents and scavengers.

3.19.5 Herbicides

A herbicide register shall be compiled and maintained by the Contractor, and a copy handed to the Project Manager / environmental advisor on completion of the project / contract. A copy shall be provided to the Project Manager as part of the SHE File. The application of herbicides shall be in accordance with the Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act No. 36 of 1947. Only Government approved and tested herbicides with a low environmental risk shall be used. Only registered pest control operators may apply herbicides on a commercial basis. All staff applying herbicides shall be trained in the application of herbicides, and shall be provided with suitable PPE.

3.20 Hazardous Materials / Chemicals Management

The Contractor must develop the method statement for Hazardous Materials / Chemicals Management for approval by the Project Manager. HCS shall be managed in accordance with HCS Regulations of the OHS Act 85 OF 1993. Prior to any Hazardous Chemical Substance (HCS) being brought onto the Project Site (or onto any other places, if any, as may be specified under the Contract as forming part of the Site), the Contractor shall supply the Project Manager with the following:

- 1) Material Safety Data Sheets (MSDS) for materials in accordance with the requirements of the
- 2) OH&S Act - Regulations for Hazardous Chemical Substances,
- 3) Purpose for using the hazardous substance,
- 4) Proposed arrangements for safe storage,
- 5) Proposed methods for handling / usage,
- 6) Proposed method of disposal;
- 7) Hazard communication / training plan.
- 8) A copy of the assessment that shall fulfil the requirements of the HCS regulations
- 9) Details of maintenance of control measures to ensure optimum efficiency.

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The information shall be provided for the Work Co-ordination Process at least seven (7) working days prior to the expected delivery. The Project Manager will review and may approve or reject the use of any hazardous chemical substance after receiving the above information.

3.20.1 Storage of Hazardous Substances

A register of Hazardous Substances and Material Safety Data Sheets shall be developed, maintained and kept at the Contractor's Project Site Office and shall be made available to the Project Manager. The associated assessments shall include all method statement submissions.

Without limiting the Contractor's responsibilities under applicable Legislation, work shall be conducted in such a manner as to ensure that:

- 1) No substance, which can harm or is likely to harm the environment, is to be allowed to leak, spill or escape from any container or storage area
- 2) No oil or other effluent is permitted to escape into the drainage system and / or local storm water system
- 3) No oil or other effluent is permitted to escape into the ground and cause soil contamination.
- 4) All powdered pollutants generated during execution of the works are contained to prevent air pollution.
- 5) No sediment generated is permitted to escape into the drainage system and / or local storm water system.
- 6) No harmful solids or liquids are permitted to spill from containers whilst in transit on the premises.
- 7) All fixed facilities such as generators, compressors and transformers shall be situated within bounded facilities.
- 8) All portable facilities such as portable generators shall be located on suitable portable bunds or drip trays
- 9) Spill kits shall be provided at all fixed facilities.
- 10) All bunds and drip trays shall utilize oil absorbent booms
- 11) All bunds and drip trays shall be designed and operated such that no fauna can use the facility as a drinking trough
- 12) Hazardous Substance storage facility must be located out of 1 in 100 flood line.
- 13) Fire extinguisher should be available at conspicuous space and should be serviced as required.

3.20.2 Flammable and Combustible Materials

Use and temporary storage of flammable and combustible liquids shall be managed in accordance with Construction Regulations (CR 25) and GSR 4 of the OHS Act 85 OF 1993. Proper bund walls and signage indicating the volume it can take +/- 10%

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Proposals to store fuel and other flammable and combustible materials shall have written approval from the Project Manager. The volumes allowed to be stored will be dependent on site conditions, South African Statutory Regulations, and EMPs/EAs

All fuels shall be stored in a secure bunded area. Any total volume greater than 40 liters shall be stored in a secure flammable / combustible materials store. Suitable precautions shall be taken to contain any spillage and / or leakage. Environmental absorbent material shall be readily available for controlling accidental spillages.

A plan of the proposed bunded area shall be provided to the Project Manager for approval prior to construction. This shall include details of containment and drainage.

Before a machine, plant and / or equipment is refueled, the motor shall be stopped. Refueling shall take place at designated safe areas and appropriate warning signs installed. Suitable drip trays shall be used to prevent spillage at the filling nozzle. Environmental absorbent material shall be readily available for controlling accidental spillages.

All fuel storage areas shall comply with the following minimum requirements.

- 1) A risk assessment shall determine the health and safety measures and controls that shall apply.
- 2) Storage shall be well clear of occupied buildings by a distance of at least 50 metres
- 3) Storage areas shall be kept free from all combustible materials
- 4) All danger signs shall be prominently displayed, i.e.
- 5) Flammable Liquid,
- 6) No Smoking,
- 7) No Naked flames,
- 8) Appropriate Hazardous Chemical Identification

3.20.3 Explosives

Explosives shall not be brought onto the Site (or onto any other places, if any, as may be specified under the Contract as forming part of the Site) or be used without the written permission of the Project Manager.

The use of explosives shall only be permitted with an approved license. The use of explosives shall only be permitted within the confines of a clearly defined and controlled Danger Area.

The use of explosives shall require a review of the Site Emergency Arrangements. A specific method statement shall be provided for each blasting operation and as required under the Contract.

Explosives or detonators shall not be stored on the Project Site (or on any other places, if any, as may be specified under the Contract as forming part of the Site).

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Detonators and other explosives shall never be carried or stored in the same container Explosives or detonators shall not be stored on the site The provisions of all relevant Acts and Regulations shall be strictly observed

3.20.4 Water Management

The Contractor shall develop a water management plan giving due consideration to water conservation and pollution prevention It is the responsibility of each Contractor to manage storm water issues within their allocated areas of operation including laydown areas, this should include upstream and downstream Fencing within laydown areas may not be used to demarcate the area of responsibility Contractors are responsible for the entire area that they are allocated

Contractors are expected to manage the channels located downstream of their respective fences to ensure that no silt is released resulting in a negative environmental impact to other contractors Any sanitary and welfare facilities utilised by the Contractor shall be regularly maintained such that there is no leakage or wastage of water.

The Contractor shall use water recycling systems This can include the introduction of grey water systems or recirculation water systems Any vehicle washing facilities shall be in line with regulatory requirements An adequate supply of drinking water shall be made available for Contractor Personnel Additionally, Contractor for Contractor Personnel shall provide sanitary means for consumption (e.g. water fountains or individual drinking cups)

No construction shall be allowed within the 1:100 year flood lines Should any pollution of the watercourse occur, reporting must be done immediately but not less than 24hours in terms of Section 20 and 30 of the National Water Act and NEMA, and it must be reported to the project

Water usage on site shall be verified with the Project Manager / environmental advisor / ECO to ensure compliance with legislation Borehole water shall be verified as suitable for human consumption All incidents related to water abstraction, contamination shall be reported within 24 hours Records of water quantities abstracted should be kept Activities that may have impact on watercourses/bodies including amongst others streams or wetlands

Chemical toilets shall not be within 50m of the drainage lines / ways The Contractor must have a water use programme that will measure water use and reduce consumption The Contractor will be expected to comply with project WUL, EA, EMP's and all other related water permits No activity shall be conducted that trigger a water use without valid permit

3.20.5 Storm Water Management

The Contractor shall have a Storm Water Management Plan prior to construction being initiated and should be approved by the Project Manager Contractors should construct storm water management measures in their laydown areas or on any other places, if any, as may be specified under the Contract

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as forming part of the Site before commencement of works. Storm Water Management Infrastructure to be installed should be strictly according to approved detail drawings or best practices standards or guidelines

3.20.6 Fire Hazards

Refer also to 84LPS012A, "Fire Protection for Contractor's Yards"

No fires shall be allowed on the Project Site (or on any other places, if any, as may be specified under the Contract as forming part of the Site) at any time without the expressed authorisation of the Project Manager

The Contractor shall develop emergency protocols for dealing with fires, which may include a Fire Management Plan in accordance with the National Veld and Forest Fire Act (No 101 of 1998) and ensure that all staff is educated in fire prevention and will be held responsible to avoid the risk of fire

No area is to be denuded of vegetation to create firebreaks, to prevent or make fires. No open fires are allowed on site. The Contractor shall ensure that operations are in compliance with statutory requirements at all times. The Contractor Environmental Officer shall ensure that in areas with a high fire danger rating, staff are made aware thereof. Smoking shall be restricted to designated areas or shall not be allowed, particularly in areas that have a high fire danger rating

Contractor shall ensure that adequate Fire Fighting equipment is available on site, particularly near hot work

Note: Areas requiring firebreaks must be confirmed with the project

No fire for the purpose of cooking or warming without the Project Manager's approval

3.20.7 Waste Management

All waste generated shall be re-used, recycled and where not practical possible disposed of at a registered waste management facility. A register of both hazardous and general waste shall be kept. A waste management plan/method statement shall be compiled before commencement of work. Records of waste disposal shall be kept and updated all the time. No waste, be it biodegradable or not, shall be left on site once work has ended. Domestic and hazardous waste generated shall not be burned, buried, or disposed of on Eskom or Landowner property, but will be controlled and removed to a registered waste site on a regular basis (Daily / Weekly, etc). The *Principal Contractor* and sub-contractor working on site shall ensure that waste oil, fuel, and chemicals are confined to specific and secure areas throughout the construction period. These materials shall be stored in a bunded area with adequate containment for potential spills and leaks

The Contractor may collect waste to a registered waste management facility. Where the Municipality does not have a weighbridge, the Contractor is responsible for obtaining a formal notification to this effect

Contractors shall ensure that sufficient waste bins/containers/skips, with lids are made available for waste control. The Contractor shall comply with the requirements of NEM Waste Act 59 of 2008, other legal requirements pertaining to waste and Eskom waste management standard

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Quantities of disposed waste shall be recorded and reported on a monthly basis. Set up system for regular waste removal to an approved facility and minimize waste by sorting wastes into recyclable and non-recyclable wastes,

Equipment maintenance and storage

- Ensure that all plant is in good working order,
- Undertake maintenance within specified area (workshop), and use drip trays for all stationary or parked plant and when servicing equipment away from designated areas

3.20.7.1 Waste Classification

The Contractor is responsible for waste classification in terms of DEA Waste Classification Regulations R635 or whichever the latest

3.20.8 Air, Dust and Noise Management

Refer to Environmental Management Plan

The Contractor shall ensure that dust and noise are managed in such a manner that they comply with Environmental requirements and no complaints are received. The operating hours shall be according to the *Project Environmental Management Plan*. Factors shall be considered such as wind which can often affect the intensity to which these impacts are experienced.

To ensure that noise does not constitute a disturbance during construction activities, all construction works shall occur between specific working hours, all in accordance with the Contract. Mitigation measures shall be implemented as required and agreed with the Project Manager. Dust suppression measures shall be in place to reduce the dust caused by the movement of heavy vehicles and other sources. Air quality control measures shall be in place to reduce the amount of air pollution caused by such things as silica in dust, vehicle emissions and other sources.

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3.20.9 Environmental Incidents

Refer to Environmental Management Plans

All environmental incidents such as pollution (air, water, land, noise, etc), birds killed, and animals killed, and plants destroyed, public complaints etc shall be reported to the Project Manager within 24 hours of such occurrence.

All environmental incidents occurring on the Project Site (or on any other places, if any, as may be specified under the Contract as forming part of the Site) shall be recorded, detailing how each incident was dealt with in an Environmental Incident register in accordance with Eskom procedures (240-133087117)

The Contractor shall be held liable for any infringement of any environmental statutory requirements and ensure that all emergency incidents are reported to the project

3.20.10 Basic Hazard Identification

The specific known safety and health hazards pertaining to the environment and physical conditions that the Contractor may be exposed to in performing his work on the Project Site (or on other places, if any, as may be specified under the Contract as forming part of the Site) are listed below

The Contractor shall however make his own assessment of, and satisfy themselves with the hazards and risks associated with the Works

3.20.11 SHE Hazards

- 1) Heat exhaustion
- 2) Sunburn
- 3) Insect bites and stings
- 4) Snake bites
- 5) Rodents
- 6) Thunderstorms
- 7) Wind

3.21 Fire Safety

The Principal Contractor/Contractor shall develop a fire safety procedure for the specific construction site prior to commencing work. The procedure must take into consideration the size of the site, type of work being done (e.g cutting, welding, grinding, etc) and amount of combustible materials. It must be developed in accordance with the hot work permit of the Eskom Plant Safety Regulations, Eskom

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Fire Risk Management requirements and all other applicable Regulations. All workers entering and working in the construction site need to be trained in fire safety and any duties they are required to perform. Pre-existing fire systems in buildings shall be maintained during construction whenever possible. Any changes must be approved by the Project Manager.

3.21.1 Fire Safety Plan

The fire safety plan shall include as a minimum:

The designation and organization of site personnel to carry out fire safety duties, including fire watch, service, if applicable.

The emergency procedures to be used in the case of fire as a minimum, including:

- 1) Sounding the fire alarm.
- 2) Notifying the fire department.
- 3) Instructing site personnel.
- 4) Fire fighting and emergency procedures.
- 5) The control of fire hazards in and around the building.
- 6) Maintenance of fire fighting facilities.

3.21.2 Eskom Fire Safety Guidelines

3.21.2.1 Fire Systems

Fire systems must not be impaired in an occupied building unless by a trained and SAQCC registered person, capable of reinstating the system after it has been inspected, tested or maintained. Alternative procedures may be taken to ensure that all persons in the building can be informed promptly should a fire occur, and the Fire Department including Eskom Security is notified. Installation of fire systems should be carried out by an ASIB (Automatic Sprinkler Inspection Bureau) certified person.

Fire Management requirements:

- 1) **Fire Safety Plan** Prior to the commencement of construction or building alterations, a fire safety plan and risk assessment shall be prepared for the construction site.
- 2) **Fire Warning** A suitable means of alerting site personnel to a fire shall be provided, and capable of being heard in all areas of the building.
- 3) **Portable Extinguishers** suitable extinguishers must be available on the construction site and in cases of hot work and be readily available at the location.
- 4) **Combustible Liquid and Flammable Liquid Storage** storage of combustible and flammable liquid on the construction site is not permitted unless stored in approved flammable cabinets or outdoors away from the buildings.
- 5) **Smoking Restrictions** Smoking is not permitted indoors, at entrances to buildings or near air intake systems in accordance with Eskom Policy and legislation requirements.
- 6) All sites shall be fitted with an alarm system.

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3.21.2.2 Fire Watch

Fire watch (with tours at intervals of not more than one hour apart) shall be provided when a portion of a building is occupied while construction operations are taking place, with provision for the fire watch to sound the alarm, notify the Eskom Fire Department and Eskom Security, (except where the building and construction sites are provided with a fire alarm system or similar equipment acceptable to the Manager, Occupational Health and Safety)

3.21.3 Cutting, Welding, and Hot Work

Prior to cutting or coring of concrete suspended slabs, cast in place or pre-cast walls, slab on grade the contractor must either X-ray the slab or if X-ray is not feasible provide other approved alternate method for determining live electrical instruments concealed in the slab or walls. Signage shall be posted to ensure no one enters the affected area during X-raying.

When welding or cutting work is performed, an adequate number of approved fire extinguishers shall be provided by the Contractor. The Contractor shall provide a 30 minute fire watch after the operations has ended to ensure that no fire starts

- 1) Hot work permit must be displayed at all times.
- 2) Employee must be competent
- 3) All oxy-acetylene welding equipment shall be fitted with a flash back arrestor.
- 4) All oxy-acetylene pipes must be clamped with the correct clamps to separate it in case of emergency

3.22 Hazard Identification and Risk Assessment

The Project Manager shall prepare and provide a Baseline Risk Assessment as per the Scope of work for an intended construction work project to the Contractor as part of the contract

The *Principal Contractor* shall develop a Risk Assessment in line with Construction Regulation 9 (1) (a-e), in alignment to Eskom 32-520 procedure. The Contractors are expected to have different types of risk assessments for their scope of work.

Emerging risks and hazards must be managed during construction work. This means that if there are significant changes to a process or activity, or any new process, then these should also be subjected to risk assessment.

All risks must be rated. Activity based risk assessments shall be conducted by an appointed competent risk assessor of the *Principal Contractor*. Risk assessment shall be developed by the team and outcome shall be shared with employees.

The baseline risk assessment shall be developed by the cross-functional team

The following people must be involved when compiling the risk assessment

- 1) Project Manager
- 2) Construction Manager
- 3) Supervisors
- 4) Specialists
- 5) SHE officers

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- 6) SHE Reps
- 7) Employees with experience of the task
- 8) Union representative if available

Attendance registers must be kept of all the employees involved in compiling the risk assessment. Please refer to Annexure F (Risk assessment Template), it may be used as a minimum guideline.

3.22.1 Construction Hazards

- 1) Construction vehicles and equipment
- 2) Noise
- 3) Dust
- 4) Smoke
- 5) Vibration
- 6) Slippery conditions
- 7) Fire hazards
- 8) Falling objects
- 9) Open foundations, drains, trenches, sumps and manholes, etc.
- 10) Hazardous chemicals, materials and gasses
- 11) High pressure vessels and piping
- 12) High temperature machinery and equipment
- 13) Live electrical equipment and power supplies
- 14) Rotating machinery and equipment
- 15) Oil and chemical spillages
- 16) Working at heights
- 17) Confined spaces
- 18) Sharp tools and objects
- 19) Welding, grinding and cutting operations
- 20) Blasting operations
- 21) Overhead cranes
- 22) Radiation
- 23) Laser equipment

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3.23 Forums for SHE Communication

Effective governance and communication structures have been established on site where project SHE matters are discussed. Below is an outline of the different forums, where Project Site Management shall engage with the Contractor(s) on SHE issues. This also includes the frequency of the different forums as well as the mediums to be employed.

3.23.1 Project Kusile Coal and Clean Executive SHE Committee Meeting

The Executive SHE Committee shall meet to discuss health, safety and environment issues on a monthly basis during initial phase of the project, thereafter ad hoc meetings as deemed by the PM. This meetings shall be attended by Contractor Senior Project Management and Project Site Management.

3.23.2 General SHE Walk Down

The Project SHE Walk Down will commence on a weekly basis and shall be attended by the Contractor representatives, SHE Practitioners and Eskom Representatives.

The Site Management from the Contractor shall lead the site walk downs with the Eskom Project Manager, on a weekly basis, to demonstrate their commitment towards SHE matters. These site visits will be used to identify both strengths and areas for improvement regarding SHE issues. Site walk downs will be documented and relevant report submitted to the Eskom Project Manager, within 24hrs, inclusive of an action plan to close out all deviations noted during such a walk-down.

Project staff and site management of the Project Manager, including all levels of supervision, will be required to do Visible Felt Leadership inspection (VFL'S and Behavioral Safety Observations). The Contractor shall ensure participation and co-operation from all employees during such interventions.

3.23.3 SHE Representative Meeting

The Project Site Management will host on a monthly basis a meeting in which all Contractor SHE Representatives will be invited to attend. The meeting will consist of rotating topics on Safety, Health, and Environmental issues currently applicable on Site.

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3.23.4 Foreman & Supervisor forum

The Project Site Management will host on a quarterly basis a meeting in which all Contractor Foremen and Supervisors will be invited to attend. The meeting will consist of rotating topics on Safety, Health, and Environmental issues currently applicable on Site.

3.23.5 Emergency Coordinators Meeting

The Project Emergency coordinators meet quarterly to discuss emergency planning and response activities, changes on the acts and bylaws and any other feedback from activities conducted by the Employer on various Contractors as well as lessons learnt.

3.23.6 GMR 2's Meeting and Plant Walk

The Project Site Management conducts monthly meeting and quarterly plant walk with Principal Contractors GMR 2 1 OR Person in charge of compliance. This is compulsory to all contractors onsite.

3.23.7 SHE Managers (Eskom and Contractors) Meeting

The Project Site Management will host on a monthly basis a SHE Managers meeting in which all Contractors are invited to attend. The meeting discusses SHE performance, progress and improvement initiatives etc.

3.23.8 Contractors Environmental Meetings

Contractors Environmental Meetings are held at intervals as determined by Employer Environmental Manager, such meetings are chaired by the Employer Environmental Manager and attended by the ECO, Employer Environmental Practitioners as well as designated environmental resources of all Contractors.

Attendance registers shall be kept for all the meetings.

The Principal Contractor/s and their sub - contractor/s shall provide a communication plan outlining the discussions and decisions to their staff, the mediums they will employ and how they will measure the effectiveness of their SHE communication.

Every meeting conducted on site shall include SHE as a standing agenda point and minutes of these meetings shall be available on site at all times.

NOTE: These meetings do not replace or act as a substitute for the required SHE statutory meetings.

Statutory SHE Committees in terms of Section 19 and 20 and General Administrative Regulations 5 of the OHS Act and Eskom requirements shall be established.

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3.24 Construction Vehicles & Mobile Plant

The Contractor shall adhere to the Project site traffic management plan

All motor vehicles operated by the Contractor's Personnel within the Project Site (or at other places, if any, as may be specified under the Contract as forming part of the Site) shall, in all respects, comply with the South African Road Traffic Ordinance and Road Traffic Act

A Principal Contractor and contractor shall ensure that all construction vehicles and mobile plant are operated by a person who has received appropriate training, is certified competent and in possession of proof of competency and is authorised in writing to operate those construction vehicles and mobile plant.

Designated drivers shall be in possession of a current driver's license, valid for the class of vehicle they are required to operate. The driver's license shall be kept on the person and shall be produced on request

The maximum speed limit within the boundaries of the Project Site is 40 km/h. Additionally, the maximum speed limit within the boundaries of the Project Site construction office and parking areas is 20 km/h

No Contractor drivers or operators may talk on cell phones or two way radios whilst driving under any circumstances. This includes the use of hands-free kits. Cell phone calls by drivers shall only be made when the vehicle is stationary, in a place of safety, and with the engine switched off.

It is the responsibility of the driver to ensure that

- 1) They and their passengers wear seat belts whilst the vehicle is in motion. This applies to front and rear seat passengers
- 2) They comply with all safety, direction and speed signs
- 3) The vehicle loads are properly secured onto vehicles
- 4) The vehicles are not overloaded and are within their safe working load limit

Instructions for the transportation of tools/equipment/material & persons on the back of construction vehicles must be adhered to

- 1) No Contractor Personnel are to be transported in the back of construction vehicles.
- 2) Tools, equipment & material transported in vehicles shall be secured in order to prevent movement,
- 3) Vehicles shall be provided with fixed & firmly secured seats and seat belts - adequate for the number of passengers being transported. Passengers in vehicles shall only be transported according to the number of seat belts present.
- 4) The driver & all passengers shall be seated with seatbelts fastened whilst the vehicle is in motion
- 5) Construction vehicles, such as bakkies, shall be fitted with roll over protection devices (e.g. roll bars) and approved by the Department of Road and Transport.

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The Contractor shall ensure that the Contractor Personnel do not

- 1) Ride on the back of elevators, cranes or other mobile plant equipment.
- 2) Leave vehicles unattended with the engine running. Ignition keys shall be removed in all cases when the vehicle is left unattended.
- 3) Park vehicles in unauthorised zones/areas or where parking will obscure other vehicle or pedestrian visibility.

Contractors must establish a formal key control or similar stringent authorisation for operators / drivers of all construction vehicles (plant and equipment). All construction vehicle keys must be secured overnight and prevent unauthorised use

The Project Manager or Employer personnel reserves the right to search any vehicle on the premises or when entering or leaving the Project Site (or at other places, if any, as may be specified under the Contract as forming part of the Site) The Contractor shall be solely responsible for the safety and security of any of his vehicles (including private vehicles) on the Project Site (or at other places, if any, as may be specified under the Contract as forming part of the Site)

The Contractor shall attach unique identification markers on all of their vehicles that are permitted to enter the Project Site (or at other places, if any, as may be specified under the Contract as forming part of the Site) A current maintenance logbook is required for all cranes and construction equipment which shall be made available for inspection at any time The logbook shall be located in the cabin of the crane or construction equipment

The Contractor shall ensure that visibility (e.g. switching on of lights, reflectors, barricades equipped with lights, use of orange beacon lights, etc.) is installed on all construction vehicles and mobile plant in order to identify the location of the vehicles or plant at all times All construction vehicles when travelling on the Project Site (or at other places, if any, as may be specified under the Contract as forming part of the Site) shall use headlights at all times. All construction vehicles when travelling on the Project Site (or at other places, if any, as may be specified under the Contract as forming part of the Site) shall have reflectors and orange beacon light at all times.

All Contractors using mule utility carts are required to implement an approved procedure All mules require bakkie whip flags in addition to all other requirements.

Contractor must maintain vehicles in roadworthy condition and hold a valid vehicle license (DISC). Vehicles shall be subject to inspection by the Employer on random basis Vehicles which are found to be in an un-roadworthy condition shall not be permitted onto the project site.

In the event where the Contractor does not own the Equipment, the Contractor is still responsible for ensuring all conditions are complied with by all of their Subcontractors. Drivers/operators shall be responsible for the travel-worthiness of all loads conveyed by them Precautions shall be taken to lash all loads properly and securely Loads projecting from vehicles shall be securely loaded In daytime a red flag and during darkness a red light or red reflective material shall be attached to the extreme end of such projecting material

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Every mobile machine shall have a "Flagman or spotter" when reversing and be fitted with a siren/hooter alarm which sounds when the machine is reversing

All construction vehicle operators, flagmen, banksmen, signalmen, or points men are to wear high visibility reflector vests at identified high-risk sites and construction projects. All flagmen, banksmen, signalmen, or points men at identified high-risk sites and construction projects are to be positioned with warning flashing lights and warning signs in such a way that they are visible to the operators at all times (during the day and night)

All buses including minibus taxis used to transport Contractor personnel shall be fitted with a siren/hooter alarm which sounds when the vehicle is reversing. This includes vehicles working both inside of the construction area.

All buses of all sizes shall carry warning triangles, all seats be fitted with seat belts, appropriate number of emergency exits (1 per 12 passengers), fitted with yellow reflective tape. Fold up / jockey seats are not permitted. All steps must have anti slip treads installed.

All "flagman's or spotters" will be trained in the hazards associated with the machine and the operation that they are conducting. Refresher training must be conducted on a quarterly basis.

In the event of machinery working in a confined area with adjacent obstructions or plant, the Contractor shall establish a construction zone. The zone is established around a plant operation and all personnel are excluded. A trained spotter will be used to ensure personnel do not venture into the zone mistakenly.

Segregation of walkways must be provided where applicable and feasible on the Job Site in order to ensure that pedestrians on the job site are protected from the hazards of the actual "working" area. Walkways need to be clearly marked with the appropriate signage.

Drivers of all vehicles must allow appropriate travel distance between vehicles travelling in front of them and at no time shall "tailgating" be permitted.

All personnel conducting construction works on public roads shall conform to South African Road Traffic Signs Manual.

All vehicles being used to escort large loads or other construction plant will be identified as an escort vehicle by a magnetic sign on sides and rear of vehicles. Escort vehicles shall not use hazard flashers, as it is impossible for other road users to interpret their meaning or to determine the direction of travel.

All self-propelled lighting towers that are used on the project will be designed in a way that in the event of a mechanical failure when raising or lowering the mast, personnel will be standing in a place where they are not in danger from the falling mast. All personnel erecting and operating lighting towers will be trained in line with the manufactures requirements and the owners risk assessment before use.

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All employees working on the continuous ash dam project at Kusile Refurbishment and Construction Project must wear high visibility vests (Refer to Eskom Procedure 240-44175132)
Heavy construction vehicle parking sites, driveways, or any site should be designed in such a way that no reversing is required. Where reversing is unavoidable, it shall only be done with the presence of a flagman or a banksman.

Vehicle and pedestrian management must be incorporated in the traffic management plan.

Ensure that all traffic signs are displayed.

All ADT's and related mobile equipment shall be fitted with anti-collision sensors.

All EMV and LDV's shall have reflective strips as follows:

- Orange on both sides of the vehicle.

NB! The strips shall cover the entire length of the EMV or LDV.

All drivers of construction vehicles and mobile plant shall have medical certificates of fitness to operate those construction vehicle and mobile plant, issued by an occupational health practitioner in the form of Annexure 3 of the Construction Regulations.

The Principal Contractor will submit a detail list of all vehicles that will require site access to the Project Manager.

The speed limit within the bounds of the construction site is 20 km/h. Site speed limit is 40km/h.

ADT's speeds shall be pre-set not to exceed 40km/h.

It is the responsibility of the driver to ensure that:

- 1) He/she and their passengers wear seat belts whilst the vehicle is in motion.
- 2) Comply with all traffic road rules, safety, direction and speed signs.
- 3) Ensure that vehicle loads are properly secured and loaded onto vehicles; and
- 4) Ensure that vehicles are not overloaded.
- 5) The Principal Contractor shall ensure that their employees and those of sub-contractors do not:
 - a) Ride on back of bakkies, cranes or other mobile plant equipment.
 - b) Leave vehicles unattended with the engine running.
- 6) All vehicles shall be locked chock blocks fitted and keys removed, and
- 7) Park vehicles in unauthorised zones/areas.
- 8) Leave vehicles locked, chock blocks fitted and keys removed, and
- 9) Ensure that all construction vehicles and plant are maintained according to the manufactures specifications. All servicing and repairs must be carried out by the Contractor in a designated area.

Records of maintenance must be kept on site. Mobile plant will be inspected on a regular basis to ensure that pipe's do not burst.

All waste from servicing must be disposed of in accordance with the environmental legislation.

Display construction vehicle signs on all vehicles entering a construction site.

3.24.1 The use of amber, rotating or flashing lights on construction vehicles:

- 1) The use of amber, rotating or flashing lights shall be in accordance with the requirements of the National Road Traffic Act, (Act no 93 of 1996)

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- 2) (Reference: Regulation 176 substituted by regulation 48 of Government Notice R846 in Government Gazette 38142 dated 31 October 2014 – See Annexure G (Requirements for identification lamps)
- 3) No construction vehicle is allowed to use the amber light whilst driving on a public road.
- 4) The construction vehicles fitted with amber rotating lights must have a manual operated switch. The amber rotating lights must be switched off when the construction vehicle enters a public road.

3.24.2 Interaction between Mobile Machinery and Pedestrians

The Contractor must take reasonably practicable measures to ensure that pedestrians are prevented from being injured as a result of being run-over by construction vehicles and or mobile machinery.

3.25 Housekeeping

The Contractor is responsible for clearing his work area to the satisfaction of the Project Manager. In cases where an inadequate standard of housekeeping has developed, compromising health, safety and cleanliness, all staff has the responsibility to bring it to the attention of the Project Manager. The Project Manager will have the authority to instruct the suspension of the relevant Works until the area has been tidied up and made safe. Neither additional costs nor extension of time to the Contract shall be allowed as a result of such work stoppage. Failure to comply will result in site cleaning by Others at the cost of the Contractor.

Leads, hoses, and extension cords shall be hung up (approximately 2.5m) with a non-conductive material, off all floors, stairways, and walkways. Leads, hoses, and cords are to be removed from the work area when the work is completed or when they are no longer intended to be used. Lead, hose, and cord "roll-ups" will be required if an excessive amount of equipment accumulates in a work area creating housekeeping or trip hazards. Electrical cords must not be hung by tie wire or any other material that can cut the cable. The Contractor shall add additional insulation to a hanging point if it is connected to a metal structure or scaffold.

Before storing any material, the Contractor must consult the Project Manager for allocation of a stacking area. Nails and staples etc protruding through timber and packaging shall be removed or bent over so as not to cause injury.

All packaging material including boxes, pallets, crates, etc shall be removed from the work area immediately. Where such items as protruding rebar and anchor bolts create impalement or tripping hazard, they shall be properly protected and conspicuously marked.

The Contractor shall carry out regular safety / housekeeping inspections (daily) to ensure maintenance of satisfactory standards. The Contractor shall document the results of each inspection and shall maintain records for viewing.

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Eating areas shall be kept in a clean and tidy manner. Regular clean up (picking up litter/waste) should be undertaken by the Contractor. The Principal Contractor shall document the results of each inspection and shall maintain records for viewing.

3.26 Signage

All symbolic safety signage that the Contractor is to use/display shall conform to the requirements of SANS 1186 and General Safety Regulations 2B.

The display of the following signs is mandatory.

- 1) For Site Establishment The Contractor's Company Sign must be posted at their site offices to reflect the name and contact details of the Construction Manager, Construction Supervisor, Health and Safety Manager/Practitioner; First Aider(s); Health and Safety Representative, Evacuation warden and the Construction Works Permit Number
- 2) "Radio-Active Material" symbolic signs for radioactive material storage areas
- 3) The location of every First Aid Box, Fire Extinguisher and Emergency Exit is to be clearly indicated by means of appropriate signage
- 4) When in use, an explosive Power Tool shall have signage warning of its operation
- 5) Other specific signage for high risk activities shall be displayed e.g. Use of Explosives
- 6) Contractor(s) shall post Company Sign on all fuel storage containers

The Contractor shall provide the signage where work is carried out, where unauthorised entry is prohibited and/or where alerting and cautioning passers-by to be aware of potential dangers. The Contractors shall provide the signage in accordance with the scope and work area. The contractor shall provide signage in accordance with the EMPr requirements.

3.27 Compressed Gas Cylinders

General Safety Regulation 9, SABS 1548, OHS Act 85 of 1993 and SANS10263-2 2008 shall apply. Storage areas should be a minimum of 30 meters from all buildings. Storage areas shall be securely fenced in an open mesh cage, in a shaded area, on stable and solid surfaces. For security and ventilation purposes, a wire mesh fence should surround the storage area. The enclosure shall be kept locked.

Hazard and danger warning signs must be prominently displayed at storage area, e.g.

- 1) No Smoking
- 2) No open Flames
- 3) Contractor Identification and Emergency Contact information

Adequate ventilation must be provided. Cylinder cages shall be maintained in the open air. Storage areas must be kept free from all combustible materials; no other materials must be stored in cylinder enclosure.

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Full cylinders must be kept apart from empty cylinders in a clearly designated area so that it will not be necessary to open valves to check whether cylinders are empty or full

Cylinders must always be chained separately in an upright position in appropriate cylinder stands. Cylinders must be stored in rows with aisle in-between for ease of access and removal in the event of a fire or emergency. Adequate firefighting equipment provided by the Contractor must be readily available. Cylinders for reactive gasses (e.g. oxygen and acetylene) shall be stored separately.

Flammable and oxidising gasses must not be stored together. Greases and oils must never be allowed to come in contact with Oxygen. Cylinders will only be allowed on site in an approved trolley, properly secured and with a chain.

All gas cylinder torches to have flashback arrestors fitted on both sides (tank and torch)

3.28 Personal Protective Equipment (PPE)

All Contractor Personnel on the Project Site (or at other places, if any, as may be specified under the Contract as forming part of the Site) and visitors shall use the following SANS or the relevant internationally recognised authority approved risk based PPE **at all times**. Unless otherwise approved **as a minimum**:

- 1) Head Protection (Hard Hat);
- 2) Protective Footwear with Ankle Support and Toe Protection,
- 3) Eye Protection - Impact Safety Spectacles with Side Shields. Prescription glasses must comply with the same standard or cover impact safety spectacles must be worn over them,
- 4) High Visibility Clothing or Vest;
- 5) Long Pants are Necessary at All Times on the Job Site
- 6) Sleeves on Shirts Shall be Required to Cover the Bicep or be at least 10cm long, whichever suits the individual.

Additional PPE shall be identified from task risk assessments for specific areas and tasks. This may include long sleeves, Dust masks (FFP2 or FFP5) flash resistant clothing (Level 2A or higher) for any type of live electrical work or verification of lockout/tagout, hearing protection i.e. ear plugs, muffs or helmet mounted ear defenders providing appropriate protection against the noise source.

Welders, brazers, cutters and aiders shall wear suitable eye protection, gloves and apron spats with secure and maintained screens provided to protect onlookers and passers-by

Users of floor breakers and plate compactors shall be required to wear metatarsal guards.

Users of breakers breaking down concrete piles shall wear gloves with impact protection on the top side of the hand should a guard or other collective measures not be available to protect the users

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hands Suitable impact resistant eye and face protection shall always be worn for grinding, chipping and chasing, with secure and maintained screens provided to protect onlookers and passers-by

Personnel using face shields and welding shields shall be required to wear a hard hat when working in active construction areas on site, unless the hard hat cannot be worn with the welding hood due to confinement or body positioning, the Contractor shall have an approved management process that allows for the identification and elimination of existing falling object or bump hazards.

When working with hazardous chemical substances, (e.g. acids or caustic material) eye protection, gloves and special overalls shall be worn.

The Contractor shall ensure that his employees understand why the personal protective equipment is necessary and that they use them correctly
Strict non-compliance measures must be administered to any employee not complying with the use of PPE and that employee shall be removed from the Site

3.28.1 Issue, Replacement and Control of PPE

The Principal Contractor must provide a detailed procedure with a matrix on the issuing, maintenance and replacement of PPE for all employees and sub - contractors on site

The Principal Contractor is required to keep an updated register of all PPE issued, including that of employees and contractors.

PPE provided by the Contractor must comply with Eskom Personal Protective Equipment Specification 240-44175132

3.29 Machinery, Tools and Equipment

The Contractor shall ensure that all machinery, tools and equipment are identified, safe to be used and maintained in a safe condition

Concrete power float machines will be selected with the ergonomics of the operator taken into account The machine will be fitted with an automatic stop device should the operator lose control.

All machines driven by means of belts, gear wheels, chains and couplings shall be adequately guarded A machine is guarded when persons cannot gain inadvertent access to the moving parts.

The Contractor shall maintain an inventory list for all machinery, tools and equipment on site

The Principal Contractor shall ensure that all machinery, tools and equipment shall be listed on an inventory list and handed to security with a copy kept on site. Ensure regular update accordingly. All machinery, tools and equipment to be regularly inspected at least monthly or as required by legislation and risk assessments Registers of tools shall be kept on the safety file The equipment should be numbered or tagged so that it can be properly monitored and inspected

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All machinery, tools and equipment shall have the necessary approved test or calibration documentation where applicable prior to being brought onto the premises /site and the records shall form part of the SHE plan

All fuel driven equipment shall be properly maintained in accordance with the manufacturer's recommendations and legal requirements

The Client reserves the right to inspect items of plant or equipment brought to site by the Contractor for use on this contract. Should the Client find that any item is inadequate, faulty, unsafe or in any other way unsuitable for the safe and satisfactory execution of the work for which it is intended, the Project Manager shall advise the Principal Contractor in writing and the Principal Contractor shall forthwith remove the item from the site and replace it with a safe and adequate substitute. In such cases, the Principal Contractor shall not be entitled to extra payments or extensions of time in respect of delay caused by the Project Manager's instructions.

The Contractor shall ensure that they have all the necessary registers to record all tools and equipment

All employees operating or using machines and tools shall:

- Be competent
- Have a valid certificate
- Have proof of any form of task related training

3.29.1 Machine Guarding

An assessment should be conducted in writing to ensure that all machines and tools are fitted with a guard and the assessment should be kept in the safety file

Machine guards shall be painted on the outside in the same colour as the machine or tool

Inside of guards and moving or rotating parts shall be painted orange

All guards shall be inspected by a competent person on a monthly basis as well as by users prior to use. These inspections and proof of corrective action taken must be recorded and kept on site

Drilling machinery Regulations shall apply

3.29.2 Hand Tools and Pneumatic Tools

All hand tools (hammers, chisels, spanners, etc) must be inspected by the user prior to use. All pneumatic tools should be numbered, recorded and inspected at least monthly. The Equipment should be numbered or tagged and colour coded so that it can be properly monitored and inspected.

The Contractor shall ensure that any user of a pneumatic or electric breaker shall have their hands protected when operating near adjacent objects that could cause injury if the bit snags

Tools with sharp points in tool boxes must be protected with a cover. No make-shift tools on site

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All cold chisels used on site shall be fitted with a hand guard to prevent hand injuries in case of a miss with the hammer

Contractors shall ensure that mull points (points from jack hammers) are not used for preparing a hole for a wooden peg. The Contractor shall ensure that a device is used to prevent a person's hand from being on a post that is being driven by a hammer at the time of the hammer swing

When using the interlocking type of connection of an airline, connectors shall be secured with wire clips through holes provided to prevent accidental disconnection

Compressed air shall never be used for any purpose other than that for which it is provided
Compressed air should never be used to remove dust from clothing
Hoses shall be orderly and safely routed in order to prevent tripping hazards

All hoses exceeding ½ inch inside diameter shall have a safety device (excess flow check valve) at the source of supply or branch line to reduce pressure in case of hose failure or disengagement of a connection

The revolutions per minute measured shall be in accordance with the manufacturer specifications

All files and similar tools must be fitted with handles

All compressed air hoses used for powering construction tools shall be made from reinforced hoses and the connections must be crimped.

All Contractors shall have a user policy for use of craft knives. Knives shall not be carried in clothing pockets with an open blade. The Contractor shall ensure that the appropriate cut resistant PPE is worn by the user. Cut resistant material coverage should include the forearm of the non-knife holding hand unless other safety measures are taken

3.29.3 Portable Electric Tools

All powered tools shall be examined before use to ensure general serviceability and the presence of all applicable safety devices. The electric cord and electric components shall be given an especially thorough examination. All equipment shall be inspected and documented on a monthly basis at a minimum and colour coded to designate such inspection. Contractors are expected to follow the Project colour code programme unless approved by the Project Manager.

The Contractor shall ensure that where there is a risk of user injury, the Contractor selects electric drills fitted with safety devices which disengage power should the drill bit snag. Electrical tools shall be used only within their capability and shall be operated in accordance with the instructions of the manufacturer.

All tools shall be kept in good repair and shall be disconnected from the power source while repairs are being made. Electrical tools shall not be used where there is a hazard of flammable vapours, gases, or dusts. All electrical tools and cord sets shall be protected by earth leak protection devices

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This includes sets powered by small portable generators

Where reasonably practicable, the Contractor shall ensure that tools or processes that produce dust shall be fitted with dust extraction equipment. Contractors shall avoid dry sweeping of hard surfaces and use a light water spray to minimise dust generation

3.29.4 Explosive Powered Tools

Written permission to use these tools on site must be obtained from the Project Manager. Only certified, competent, appointed personnel (CR Reg.21) shall be allowed to operate explosive powered tools on site

Safety signs and barriers must be erected before explosive power tools are used. Screening shall be provided around the Project Site (or at other places, if any, as may be specified under the Contract as forming part of the Site)

Cartridges and explosive power tools shall be stored separately in a secured location where they are inaccessible to unauthorized persons. A valid permit must be obtained before commencement of work. Refer to the requirements of the CR 21 of the OHS Act

3.29.5 Record keeping

A register shall be used which indicate the name, number of the machine or tool and the number of guards

The register shall be kept in the safety file

3.29.5.1 Records

- 1) Check list for hand tools
- 2) Check list for air tools including records of the measurement of revolutions on grinders
- 3) Gas cylinder trolley checklist Register

3.30 Lifting Machines and Lifting Tackle

The Principal Contractor shall ensure that the use of lifting machines and tackles conform to the requirements of the OHS Act, the relevant SANS standards and Eskom Procedure 39-98 (Safe use of Lifting machines and lifting tackle), Critical Lift Procedure (200-170572). The Principal Contractor shall ensure that every lifting machine as listed in the National Code of Practice is operated by an operator specifically trained for a particular type of lifting machine and the operator shall be in possession of a valid Carry card and Operator Certificate. The user shall not require or permit any person to operate such a lifting machine unless the operator is in possession of a certificate of training, issued by a service provider registered by the Department of Labour and Transport

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Education Training Authority (TETA) The facilitator and the assessor must be registered with the TETA.

All lifting machine operators shall be qualified to operate a lifting machine. They must be in possession of a valid Code 14 License, a carry card and Operator certificate which states what the operator is allowed to operate. This applies to Subcontractors (such as crane vendors) as well.

The Principal Contractor should verify if all ropes, chains, hooks and other attaching devices, sheaves, brakes and safety devices forming an integral part of lifting machines have been thoroughly examined, as prescribed by the standard to which the lifting machine was manufactured. This must be carried out by a registered LMI (Lifting Machine Inspector), appointed by a registered Lifting Machine Entity who has knowledge of the erection and maintenance of the type of lifting machine involved at intervals not exceeding 6 months.

All the lifting machine and lifting tackle operators should be in possession of a valid medical certificate of fitness. Before using any lifting machines or tackle the operator should inspect it daily, refer to the requirements of the Driven Machinery Regulations 18 of the OHS Act 85 of 1993.

All lifting tackle should be recorded on a register, refer to the requirements of the Driven Machinery Regulations 18 of the OHS Act 85 of 1993 and Relevant SANS Standards. All hooks shall be fitted with a safety latch/catch, and be in a good operational condition. A lock out system should be implemented to ensure that only an operator that is competent can operate lifting machines and fork lifts.

All lifting tackle should be conspicuously and clearly marked with identification particulars and the maximum mass load which it is designed for. No person shall be moved or supported by means of a lifting machine unless such a machine is fitted with a Man Cage approved for that purpose by an inspector of the Department of Labour in the Province of Operation (Engineers design drawing to be included in paperwork). A risk assessment should be conducted prior to starting the task.

Account should be taken of wind speeds. Lifting machines are erected taking into account a safe distance from excavations, and with the erection of tower cranes, a tower crane application accompanied by a method statement, risk assessment and geotechnical study shall be given to the Project Manager for approval, a geotechnical study to be included in the tower crane application.

When working in close proximity to power lines, the Contractor must apply for a permit. Refer to Eskom Plant Safety Regulations and/or Operating Regulations for High Voltage Systems and Electrical Machinery Regulation 15 of the OHS Act. Every Employer shall ensure that the employee is adequately and comprehensively informed of the hazards when working in close proximity to overhead power lines and electrical installations. Account should be taken of the bearing capacity of the ground, on which the tower crane is to stand, and the tower crane should be erected at a distance from excavations. Rigging study should be conducted for all critical lifts.

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The Principal Contractor is required to verify the authenticity of crane operator training certificates and to verify that the training provider has the necessary statutory accreditation specific to the size of crane and attachment if applicable before authorizing an operator to commence lifting operations. Whenever making use of an external Contractor to do lifting work the Principal Contractor shall ensure that the operator is competent and the Principal Contractors are required to conduct audits to ensure that the contractor complies with all safety and legal requirements. All mobile cranes shall be inspected by the Project Manager before they are allowed onto the Project Site.

No person shall be permitted to ride the hook, sling, or load of any lifting equipment. The Contractor shall verify if the lifting machines have been examined at 6 month intervals and a performance test carried out by an accredited third party LMI at intervals not exceeding 12 months. Before using any lifting machines or tackle the operator shall inspect it and confirm if it is suitable for use.

A lift plan shall be required prior to all critical lifts. Critical lifts are defined as

- 1) any lift that utilizes more than one crane or hoisting device,
- 2) any lift that is over 20 tons,
- 3) any lift involving a crane suspended work platform,
- 4) any lift over critical operating and/or process equipment,
- 5) any lift that exceeds 85 percent of the crane's load chart

All lifting tackle shall be examined by a competent person prior to use and at intervals not exceeding 1 month. All lifting equipment and tackle shall be inspected and performance tested according to the requirements and to a frequency of the relevant SANS Standard by competent personnel. Should suitable competent personnel not be available, the Contractor shall engage a certified LMI to conduct these inspections at the required frequency.

All users of chain blocks and lever hoists will have specific proof of competency and authorised by the Contractor before utilising these items. All hooks shall be fitted with a safety latch/catch. All lifting tackle shall be conspicuously and clearly marked with identification particulars and the maximum mass load which it is designed for.

Lifting equipment shall not be loaded beyond its rated capacity.

Chain hoists or cable hoist and other such devices shall always be rigged for a straight pull. The chain hoist or cable for hoists or other such devices shall not be wrapped around a load and used in place of a sling unless specifically designed for that purpose.

All Personnel shall keep out from under suspended loads. Guide ropes to be used to prevent loads from swinging are required on all loads. Banksman or spotters shall be used to keep individuals from walking underneath suspended loads.

Operators of cranes, derricks, hoists, and other hoisting equipment shall exercise extreme caution when close to energized lines or equipment. The operator shall keep the

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equipment at least 3 meters away from all lines energized up to 50 kV and increase distance as required by the *Electrical Machinery Regulations*. All spreader beams shall be tagged with the rated capacity and an engineer's design drawing including proof of NDT Tests.

All cranes shall be equipped with a functioning travel limiting, anti-two blocking device. Cranes fitted with aftermarket radius load indicators (computers) shall seek the Eskom's LMI acceptance prior to mobilising the crane to site. In the event of such acceptance been given, the Employer LMI will require the instrument parameters to be verified by the instruments manufacture or their agent on site.

Softeners will be used to prevent damage to lifting accessories during lifting operations. Foam shall not be used as a softener under any circumstance. The Contractor is expected to perform all lifting activities in line with the requirements of all the relevant SANS codes, currently SANS 12480-1-3 (Tower Cranes) and SANS 19 Mobile Cranes and SANS 10375 Overhead Cranes SANS 500 Chain Blocks and Lever Hoists.

All man basket operations shall conform to SANS 12480-1 Annexure B and conform to the requirements of a critical lift. The Contractor shall seek permission to position a tower crane on site from the Project Manager. All tower crane concrete foundations shall be constructed as per design. All tower crane foundation formation levels shall have the compaction checked to ensure a minimum compaction level of 95% unless approved by the Contractor's geotechnical engineer. All concrete works shall be subject to the relevant Contractor's own QA checks. The tower crane rails or foundation shall be level checked and checked monthly throughout use to monitor for any movement.

In the event of a crane, lifting machine, or rigging failure the Contractor shall notify the Project Manager immediately and an onsite preliminary investigation is to take place. The Contractor shall ensure that all relevant parts of the failure are investigated by a specialist with the agreement of the Project Manager. The specialist shall produce a written report within 24 hours of completing all testing. The Contractor shall at their own cost enable the specialist to conduct non-destructive and destructive testing (if necessary) to allow all reasonable hypothesis to be investigated.

The Contractor shall comply with the requirements of Project procedures regarding crane management, crane coordination, and vehicle inspection.

Personnel travelling in a permanently installed passenger lifts with automatically closing doors, are not permitted to travel in the lift with their harness worn on their body. They must be carried in hand only.

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- 1) A risk assessment shall be conducted prior to commencing with the task to identify the risk involved and appropriate mitigation measures must be put in place, and a method statement shall accompany the risk assessment detailing the lifting or rigging procedure.
- 2) If it is the Principal Contractor's intention to use lifting machines on site, it should be indicated in the Principal Contractor's SHE plan as well as the inspection so that the Eskom responsible persons can conduct an inspection when equipment is brought onto site. If their intention is to use a Contractor they shall enter the name of the Contractor into the notification letter to the Department of Labour. When equipment is brought onto site it shall be inspected by the Project Manager as appointed according to SANS 12840-3 clause 4.1 and clause 5.9.
- 3) Guide ropes to be used to prevent loads from swinging (Manila ropes)
- 4) Only straight loads of up to 5 tons can be lifted by a person with basic rigging, depending on the complexity of the load. Should it be a tandem lift or critical lift or above 5 tons only a competent rigger will do such lifts. Should a lift become critical, a critical lift procedure, rigging study and risk assessments must be completed.
- 5) Note: employees with basic rigging banks man training are not allowed to be in control of any crane. Basic rigging does not include load calculations this employees with basic rigging cannot read load chart of the crane. Only competent rigger to be in control of loads involving cranes.
- 6) Hand signals will be displayed and visible on all cranes and the SANS 1029 standard must be used to ensure uniformity. All the crane operators, riggers shall be trained according to the SANS 1029.
- 7) Permits shall be issued by an authorised appointed person when conducting maintenance and inspections.
- 8) An illumination survey should be conducted prior to the start of work where lifting is performed at night.
- 9) Tower Cranes should be earthed in accordance with SANS12480.
- 10) All truck mounted cranes and stringing machines shall be fitted with Equal Potential Foot plates when working in close proximity of power lines. Truck mounted to be inspected by the Project Manager.

3.30.1 Record keeping

- 1) Service record books and test certificates of lifting machines and tackle should be kept in a file on site and to be handed over on Completion.
- 2) A copy of the Site and Task specific risk assessment should be kept in the safety file.
- 3) The Principal Contractor shall provide maintenance records of all Cranes (Mobile, Tower, Crawler and Overhead Gantry) to Project Manager before the equipment is allowed to operate on the site.
- 4) A certificate of approval for man cages and mobile working platforms shall be obtained from the Department of Labour Inspector.
- 5) Registers of all lifting machines and tackle on site must be available for inspection purposes.
- 6) Training certificates and valid certificates of fitness for operators of the equipment.

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- 7) Legal appointments for riggers, supervisors, crane co-ordinators and operators
- 8) The Principal Contractor shall provide an emergency rescue plan to Project Manager for all tower cranes and man-cages

3.31 Work at Elevated Positions

The Principal Contractor shall ensure that all work performed in a fall risk position shall conform to the requirements of the OHS Act, the relevant SANS 229994 standards and Eskom Procedure 32-418 (Working at Height Procedure).

The Contractor's Fall Protection Plan Developer shall be competent and hold unit SANS 229994 Fall Protection Plan Developer Training. The Contractor's fall protection Plan shall be submitted to the Project Manager for approval prior to starting working at height activities. The Project's Fall Protection Plan approval criteria are available from the Project Manager.

Fall protection is always required when Contractor's Personnel are exposed to a fall in excess of 2m or when required by additional rules. 100% fall protection is required whether the employee is climbing, traveling from Point A to Point B, connecting structural steel, or erecting scaffolds or other temporary platforms. No Contractor's Personnel or work operation is exempt from the 100% fall protection requirement.

When not protected by any other means of fall protection, such as safety nets or scaffold with proper guardrails, Contractor's Personnel shall use full body harnesses, shock absorbing lanyards with double locking snap hooks, and an adequate anchorage point (fall arrest equipment). To achieve 100% fall protection, Contractor's Personnel may need to use a double lanyard system and/or vertical or horizontal lifelines, retractable lifelines, or other such approved devices. Works such as slip form and steel erection will require the use of safety nets unless otherwise approved by the Project Manager. Working on elevated positions shall only be carried out under the supervision of a competent person. Whenever persons are required to work in an elevated position or there is any potential of falling either from or into, a fall protection plan and risk assessment (which includes fall prevention) shall be compiled, implemented and reviewed and every possible and practicable means shall be adopted to provide such persons with effective training and safeguards.

The Contractor shall stop all persons working in elevated positions during periods of inclement weather [e.g. high winds or if the possibility of lightning strikes is present] or prior to it beginning.

Safety belts are not allowed to be used as a means of fall arrest on Site. An appropriate full body safety harness with double shock absorbing lanyards shall be worn when working at an elevated position in excess of 2 meters, refer to SANS 50361 and Eskom Procedure 240-100979499 (Personal Protective Equipment for work at Heights specification). Contractors shall not allow users of fall protection equipment to sit on the double lanyard. The Contractor shall ensure that where work positioning is required, work positioning devices shall be used.

Fall arrest equipment shall be rigged so that Contractor's Personnel can neither free fall more than 2 meters nor contact any lower object. Anchorage points for fall arrest equipment shall be capable of supporting 2,300 kg per employee and be located above the employee's body harness attachment point.

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where practicable Anchorage points shall be independent of any anchorage being used to support or suspend scaffolds or other platforms.

When vertical lifelines are used, each Contractor's Personnel shall be protected by a separate lifeline The lifeline shall be properly weighted at the bottom and terminated to preclude a device such as a rope grab from falling off the line

Before each use, the Competent Person shall visually inspect all fall arrest equipment for cuts, cracks, tears or abrasions, undue stretching, overall deterioration, mildew, operational defects, heat damage, or acid or other corrosion Equipment showing any defect shall be withdrawn from service

Proper guardrails shall be installed on open sides of all walkways, runways and floors where the fall distance exceeds 2m.

All floor openings or floor holes shall be protected by guardrails or hole covers. If hole covers are used, they shall be strong enough to support at least two times the maximum intended load, secured against displacement, and properly labelled (floor hole cover) In the case of concrete floors, the Contractor must ensure that cast-in form work (tin sheet) remains in place until the hole is required by future operations This practice shall ensure that open holes are kept to a minimum

Contractor's Personnel operating aerial lifts shall wear a body harness and lanyard attached to the aerial lift. Contractor's Personnel shall not attach the lanyard to an independent structure When guardrails are used for fall protection, they shall consist of a top rail, intermediate rail, and toe-board The top rail shall have a vertical height of 900 mm – 1,000 mm, the mid-rail shall be at 450mm - 500 mm, and the toe-board 102 mm. Guardrail systems shall be capable of supporting a force of at least 100 kilograms If wire rope is used for top rails, it shall be flagged at no more than 2 meter intervals with high visibility material and must remain tight at all times Wire ropes used as horizontal life lines must be designed by a competent person Wire rope life lines will be fitted with a minimum of 3 clamps fitted as per the supplier's specification

Provision must be made to prevent objects and or material from falling from elevated areas and for the protection of persons working below. Where possible, working below persons working at height shall not be permitted. Equipment in elevated positions must be tied back to the structure. Loose items in elevated positions such as bolts and nuts shall be kept in bolt bags or similar robust containers and not in paper boxes. Where feasible, these bags or containers shall be secured to the structure to prevent them from falling to lower levels.

Contractors' Personnel are to ensure that all personnel are excluded from the area below personnel working at height The Contractor shall follow the requirements of the Project barricade procedure. When working at elevated heights, nets and/or other suitable material should be used to catch falling debris and sparks directly below where the task is being performed All fall protection equipment shall comply with Eskom Working at Heights Standard 32-418, SANS Standards and other recognised international standards

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All work undertaken when working at elevated positions shall be supported by a rescue plan. This shall be based on the provision services available on site and not sole reliance on the emergency services. The Contractor is to take note of all work carried out from a fall risk position and the procedures and methods used to address all the risks identified per location.

The Contractor shall verify that working at height training providers are providing relevant and adequate standard of training to workers who are expected to work at height. This responsibility applies to the Contractor and their Subcontractors. The Contractor shall permit the PM to observe training upon request.

A fall protection Plan will be compiled, implemented, reviewed, communicated to all employees working at heights and shall include but not limited to the following:

- 1) A site and task specific risk assessment covering all work at elevated heights shall be carried out and appropriate mitigation measures to be put in place and communicated to all relevant employees.
- 2) Appropriate training programme (according to the relevant SAQA NQF unit standards) of all employees working at height and records thereof.
- 3) Legal appointments.
- 4) The process of evaluation of the employees' medical fitness for each employee working at height.
- 5) The procedure addressing the inspection, testing and maintenance of all fall protection equipment, the withdrawal process of damaged PPE and up to date inspection records.
- 6) A rescue plan detailing the necessary procedure, personnel, and suitable equipment required to affect a rescue of a person in the event of a fall.
- 7) Emergency drills on all developed rescue plans shall be held at least once a year, under the supervision of a competent person.
- 8) Emergency preparedness procedures.

The *Principal Contractor* shall review their risk assessment and fall protection plan when changes are made to the design or construction that result in a change on the risk profile or when an incident occurs. Fall arrest/protection plan and equipment shall be implemented where fall prevention is not possible. Please refer to Eskom Fall arrester checklist (240-43921084). Contractor shall use it, as a minimum guideline. All fall protection equipment shall comply with SANS Standards, other recognised international standards and Eskom Procedure 240-100979499 (Personal Protective Equipment for work at Heights specification).

Provision must be made to prevent objects and/or material from falling from elevated areas and the protection of persons working below. A drop zone shall be established with barricading and necessary signs. The *Principal Contractor* will ensure that tool bags and lanyards are given to all employees when structures are installed to prevent falling objects.

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3.31.1 Working at height training

- 1) The Principal Contractor shall ensure that all their employees working at height must be competent in working at height including the rescue team that will be utilised during emergencies. Training provided for working at heights should be in accordance with the relevant unit standards. The contractor shall ensure that training providers who provide working at height training are approved Eskom training providers. The Contractor can obtain a list of current providers when required through the PM. Contractors may sponsor none approved Training providers who seek approval from Eskom. With prior written approval from the PM, personnel not trained by an approved training provider will be accepted under acceptable circumstances.
- 2) As a minimum, individuals who will be performing work at heights and are not responsible for rescues must undergo three days FAS training (Unit Standard 229998). And the rescuers must further undergo two days rescue training in accordance with unit standard 229995. The *Principal Contractor* or contractor must identify further trainings (e.g. Advanced rescue US229999) applicable to the employees work area.
- 3) Once these employees have successfully completed classroom theoretical and practical training provided by the training provider, each employee must undergo on the job training on every task which is going to take place when working at height. These people need to be declared competent and fit to perform each task.
- 4) The employee must work at least 40 hours with a mentor who has the knowledge and the experience (at least 1 year experience) to perform that specific task.
- 5) The employee must keep a logbook of his work for the 40 hours with a mentor. The logbook will be signed of each day of mentorship, by his mentor.
- 6) After completion of the 40 hours and the mentor is satisfied with the employee's progress, the Supervisor must conduct a planned task observation (PTO) on the employee. The Supervisor must indicate on the PTO that the employee is now fit to work on his own.
- 7) The logbook and the planned task observation must be kept on the employee's file for the duration of the project, to prove his competency.
- 8) A Contractor shall ensure that the designated person for the development of a fall protection plan undergoes appropriate training based on unit standard 229994.

3.32 Scaffolding

- 1) All scaffolding used shall comply with the OHS Act and Construction Regulations, SANS
- 2) 10085 and SANS 51004 (Aluminum and tower scaffold)
- 3) All scaffolding shall be inspected by a competent person on a daily basis as a minimum and also before use following weather conditions that could have made the scaffolding unsafe e.g. wind, rain which could make ground conditions unstable. Inspections shall be carried out on scaffolds that may be affected by adverse weather conditions.

Users of scaffolding shall carry out a visual inspection on a daily basis before use. If unsafe conditions are found or suspected, the scaffold shall be isolated until a thorough inspection has been made.

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A visual inspection shall be carried out at the end of the shift and if unsafe conditions are found or suspected the scaffold shall be isolated

An appropriate scaffolding tagging system shall be used to confirm the status of scaffolding for use or not to be used. The footing or anchorage points for scaffolds shall be sound, rigid, and capable of carrying the maximum intended load without settling or displacement. Unstable objects such as barrels, boxes, loose brick, or concrete blocks shall not be used to support scaffolds or planks.

Scaffolds that provide access to areas where personnel can fall into a hazard or from a height of greater than 2m shall install a gate at the access point of the hazard that is affixed with a warning sign stating that 100% tie off required past this point.

The Contractor must give preference to using scaffold stairs instead of ladders for all scaffolds. These scaffolds must be fitted with a kick plate at the bottom of each stair section. The kick plate shall be able to prevent a member of contractors' personnel slipping down the staircase and sliding between the floor and the mid-rail.

The erection, dismantling, alteration, or additions to scaffolding shall only be undertaken under the direct supervision of a competent scaffolding erector. Every part shall be fixed securely or placed to prevent accidental displacement. The scaffold shall, practically, be rigidly connected to the building or structure. Materials, including scaffold materials, shall not be dropped or thrown from heights, but shall be lowered to the ground. Safe work procedures to be developed and in place. Employees need to stand in the inside of scaffolding when handing down equipment. Safe barricaded drop zone to be created.

Scaffolding erectors' Training is specified in SANS 10085

All complex scaffolding and scaffolding higher than 3 meters must be built by a scaffold supplier.

When employees are working on a scaffold provided with trap doors it must be closed at all times to prevent a person from falling.

- 1) **A design and calculations** shall be done for all scaffolding in excess of 2 meter by an Engineer.

A Team leader shall be appointed in writing for the erecting and dismantling of all scaffolding. Only use steel boards on scaffolding when working in the open.

2) Materials – Tubing

Only metal tube and fitting or system scaffolding shall be used. Scaffold materials shall be stored in a manner that will prevent damage and permit easy access for use. Tubing shall be, nominally, 50 mm (2 inches) in diameter.

All tubing shall be free from cracks, surface flaws, laminations, excessive rust or any other defect which may be likely to affect its strength and shall be straight. Tube ends shall be straight cut.

Aluminium and steel tubing shall not be used in the same structure.

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Aluminium tubing shall not be used in areas where it may be exposed to materials, such as caustic liquids, seawater, wet cement, or damp lime, which adversely reacts with aluminium

3) Fittings

All fittings, (couplers, clamps, etc.) shall be of metal and shall be manufactured to a recognisable standard. Fittings shall be examined, prior to use, shall be free from defects and well lubricated

4) Scaffold Boards

Only approved steel non-slip scaffold boards will be used.

Boards shall not be twisted more than 12mm (1/2 inch) from end to end

Boards shall not be painted or treated in any way that would conceal any defects.

Warped boards shall not be used

Boards shall not be used for any other purpose other than scaffolds

5) Foundation

Scaffolds shall be erected on firm and level ground

Base boards, at least 230mm (9 inches) wide by 38mm (1 1/2 inches) thick, shall be used to spread the load on sand, asphalt, made up ground, wooden floors and any other slippery surface and shall extend under at least two standards (uprights)

Loose material, such as concrete, bricks, etc., shall not be used to support the scaffold

Each standard shall be fitted with a metal base plate, measuring 150mm (6 inches) by 150mm (6 inches), fitted with a central spigot to fit the inside of the tube.

Where a screw jack is used, to compensate for uneven ground, it shall not be extended more than two thirds of its thread length.

6) Standards

Standards shall be vertical

Joints in the standards shall be staggered, i.e. no joints in adjacent standards in the same lift.

The inner row of standards shall be erected as close to the structure as practical. To avoid protrusions from the structure, inner standards may be 410mm (16 inches) from the structure, provided that, where there is room to do so, the gap between the structure and the scaffold is closed, or guardrails and toe boards are fitted

7) Ledgers

Ledgers shall be horizontal and shall be secured to the standards with load bearing couplers

Ledgers shall run along the inner and outer row of standards.

Joints in ledgers shall be staggered, i.e. no joints in adjacent ledgers in the same bay

Joints in ledgers shall be with sleeve couplers.

Ledgers shall be spaced at 2 M (6 foot 6 inches) intervals.

8) Transoms

Transoms shall be fitted from ledger to ledger, be secured with load bearing couplers, as close to the standards as possible, but no more than 300mm (12 inches) from the standards.

Transoms shall be fitted adjacent to every standard, on top of the ledger and shall not be removed

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Where a working platform is required additional transom shall be installed.

Where used purely to support a working platform the transoms may be secured with non-load bearing couplers. These shall be not more than 1200 mm (4 foot) apart

9) Bracing

Longitudinal diagonal bracing shall be fitted across the entire height of the tower.

Diagonal bracing shall be fitted on the width of the scaffold at alternative lifts and internal bays

All bracing shall be fitted with load bearing couplers

10) Ties

Through Tie A tube passing through an opening in the structure and secured by tubes against the interior and exterior of the structure

Box Tie A series of tubes secured around part of the structure in such a way as that the part of the structure is completely enclosed.

Reveal Tie A tube attached to a reveal pin, a threaded tube with plates at either end, which is placed between opposing surfaces on the structure and tightened against those surfaces.

All ties shall be secured to either the standards or ledgers using load-bearing couplers. All ties shall be packed with timber to avoid damage to the structure

All ties shall be inserted every 8 m (26 foot) vertically and 9 m (29.5 foot horizontally)

Where reveal ties are used they shall not exceed 50% of the total number of ties and shall be evenly distributed across the scaffold with other types of ties

11) Working Platforms

All working platforms shall be fully boarded

Boards shall rest on at least three supports.

Each board shall overhang the supports at the end of the board by not less than 150 mm (6 inches) and by not more than 300 mm (12 inches).

Boards shall be laid flush, except where the platform is adjacent to the side of a cylindrical or spherical structure.

Boards shall be secured to prevent displacement

When materials are placed on a platform, or a higher platform is erected on it, sufficient space shall be left for men and materials to pass with ease

Platforms shall be free from any unnecessary materials

Platforms that become slippery shall be sanded, cleaned, or otherwise treated.

Inclines in boards shall not exceed 1 in 4 and shall be fitted with cleats at 300-mm (1-foot) intervals.

No platforms shall be less than 690 mm (27 inches) wide.

12) Guard-rails and Toe-boards

Guard-rails and toe-boards shall be provided to all open areas of the platform

The upper guard-rail shall be between 910 mm (36 inches) and 1140 mm (45 inches) from the top of the platform, mid-rails shall be installed midway between the top-rail and the platform.

Toe boards shall be a minimum of 150mm (6 inches) high. Where loose materials are stored on the platform the toe boards shall be increased to the height of the material or "brick guards" shall be installed

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13) Access

Access to scaffolds shall be via a ladder build inside the scaffold. Risk assessment evaluation to be done once an access ladder is installed. To identify if employees going up or down any possibility for them once they lose their foothold that they might fall to the outside of the scaffolding to different level Landings for ladders shall comply with the requirements for working platforms. Scaffolding access ladders should not to be higher than three metres. In an event that the scaffolding platform is higher than three meters, platform to be built for access not higher than three meters.

Free Standing Towers

14) General

Free-standing tower scaffold shall consist of four or more standards, connected by ledgers and transoms horizontal to the ledgers, forming a rectangular or square scaffold.

15) Ledgers and Transoms

The vertical spacing of the ledgers and transoms shall be 2m (6 foot 6 inches).

The lowest ledgers and transoms shall be as near to the base as is practical.

Transoms and ledgers shall be secured to the standards by load bearing couplers.

16) Bracing

All four elevations shall be fitted with sway bracing, to the full height of the tower.

Plan (horizontal) bracing shall be installed at the base, top, and every third lift.

Bracing shall be secured with load bearing couplers.

17) Ties

Tower scaffolds taller than 9.8 Metres (32 foot) high shall be tied into the structure.

Ties shall be as per independent tied scaffold.

Where it is not practical to tie the scaffold to the structure one of the following methods shall be used to ensure stability:

Guy wires, at approximately 45° tied near the top of the tower and adequately secured to the ground or a structure.

Bottom corners of the base shall be adequately anchored or weighted;

Outriggers shall be fitted to increase the base dimension.

18) Platform

Platforms shall comply with the requirements of independent tied scaffolds.

19) Access

Where sloping ladders may cause instability to the tower, vertical ladders may be used, with landings every 9 Metres (30 foot).

Ladders shall be secured as detailed in the section Ladders.

20) Limitations

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Tower scaffolds in excess of 12 Metres (40 foot) and/or with more than one working platform shall be specifically designed

21) Mobile Towers

General

The requirements for free standing towers shall apply to mobile towers, with the following exceptions

Base

Wheels or castors, with brakes that cannot be inadvertently released, not less than 127mm, shall be fitted to the standards using locking pins or dowels

Mobile tower shall only be used and moved on surfaces sufficiently firm and level to ensure stability

Mobile towers shall not be used on slopes

Moving

Mobile towers shall only be moved by exerting pressure at a height of no more than 1.4 Metres (4 feet 6 inches) from the base

Mobile towers shall not be towed by vehicles.

Men and materials shall be removed from the platform prior to the tower being moved.

Outriggers, if fitted, shall be raised prior to moving and lowered immediately the tower is in place

Wheel brakes shall be applied at all times when men are on the scaffold

Limitations

The height of the tower shall not exceed:

- 3.5 times the smallest base dimension if the tower is internal to a building;
- 3 times the smallest base dimension if the tower is external to a building,
- In both the above cases the tower shall not exceed 12 Metres (40 feet).
- Inspections
- All scaffolding shall be inspected by a competent person.

Prior to use;

Every seven days,

After any alteration or modification, and

After adverse weather condition that may have affected its strength or stability

Scaffolding Inspection Checklist - shall be completed after every inspection

Employees required to use a scaffold shall check the scaffold prior to use

All scaffolding shall be tagged GREEN to identify safe for use and RED for unsafe.

Any scaffold tagged with a Red tag shall not be used under any circumstances

All scaffolding used shall comply with the OHS Act and Regulations as well as SANS 10085 and SANS 51004 (Aluminium and tower scaffold)

Scaffolding erectors, team leaders, supervisors and scaffolding inspectors Training as specified in SANS 10085.

The Contractor must give preference to using scaffold stairs instead of ladders for all scaffolds

These scaffolds must be fitted with a kick plate at the bottom of each stair section. The kick plate

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shall be able to prevent a member of contractors' personnel slipping down the staircase and sliding between the floor and the mid-rail

An appropriate scaffolding tagging system shall be used to confirm the status of scaffolding for use or not to be used, the inspectors name and surname , signature, date and telephone number must be written on the tag

When employees are working on a scaffold provided with trap doors it must be closed to prevent a person from falling

Only use steel boards on scaffolding when working in the open

Temporary works structures must shall comply as contemplated in the health and safety act 85 of 1993 construction regulations 12

3.33 Ladders (Portable)

All ladders shall have an identification tag, logged in a ladder register, and inspected on a monthly basis by a competent person and by the user prior to use Damaged ladders shall be marked as "DAMAGED" and removed from Site (or at other places, if any, as may be specified under the Contract as forming part of the Site) and replaced with ones in good condition.

All ladders used for access shall be secured.

Contractor's Personnel ascending or descending a ladder with a fall exposure greater than 8 meters shall be protected by an approved cage, ladder climbing device, or by the use of a body harness, lanyard, or lifeline system When ascending or descending ladders, Contractor's Personnel shall maintain three points of contact at all times and shall face the ladder.

Portable metal ladders shall not be used in the vicinity of energized electrical circuits. Portable straight ladders shall not be used without non-skid bases The ladder shall be placed so that the distance between the bottom of the ladder and the supporting point is approximately 1/4 of the ladder length between supports

When dismounting from a ladder at an elevated position (as at a roof), the employee shall ensure that the ladder side rails extend at least 1 meter above the dismount position, or that grab bars are present

Contractor's Personnel shall wear a body harness and lanyard, and tie off to a secure anchor whenever both hands must be used for the job or whenever Contractor's Personnel are exposed to a fall in excess of 2 meters.

Step ladder legs shall be fully spread and the spreading bars locked in place. Step ladders shall not be used as straight ladders

All employees using ladders must be trained on the safe use of a ladder

All ladders shall conform to the relevant SANS standards or other recognised international standards. Prior to work being performed, an adequate risk assessment shall be conducted, and work shall be conducted in accordance with General Safety Regulation 6 and 13A and Construction Regulation 10 of the OHS Act

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3.34 Barricading (Guarding of Excavations, Trenches and Floor Openings)

The Contractor shall adhere to barricading legislation and standards Areas where a restriction or prevention of unauthorised persons accessing (e.g trenches, excavations, wall and floor openings, etc) is required will be provided with barricades and guards to prevent entry

All barricading shall be of the rigid type, unless otherwise approved by the Project Manager and secure in assembly, Contractors shall utilize warning signage that comply to the legislation

When using barricade tape, Contractors shall comply with the requirements of the legislation All openings and edges must be barricaded with solid barricading to withstand an impact of at least 200kg. Physical barriers and warning signage shall be provided to prevent persons falling into openings in floors, stairwells, staircases, open-sided buildings and any structure in the course of erection, where dangerous openings exist

In areas where the restriction or prevention of unauthorised persons/members of public/passers- by is required, barricading requirements shall be adhered to

Requirements for Barricading (if risk assessments require more stringent mitigation measures then those stringent measures shall apply) -

- 1) Name and contact details of person and Contractor Company that is responsible for the barricading shall be posted on the actual barricading.
- 2) Only solid (scaffolding or stand-alone etc) barricading and Orange "Snow Netting" will be allowed.
- 3) Balard container (containers filled with liquid) can be used as solid barricading (exempted for use inside power plant units)
- 4) Contractors must pre-plan the delivery of floor grating, stair treads, landings and handrails to ensure safe access and protection for persons working on structures

No danger tapes are allowed for barricading purposes

The Contractors barricading standard must accompany the SHE plan.

3.35 Permit to Work

Contractors must adhere to the approved Eskom Permit to Work System to control identified high risk activities including, but not limited to trench & excavation, hot work, confined space work, energized electrical work, etc.

Permit to work systems shall as a minimum include

- 1) distinct time frames;
- 2) have a start and finish time,
- 3) be authorized by a competent person,
- 4) identify the hazards and risks present and the control measures to be applied;

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- 5) provide the emergency arrangements to be applied;
- 6) require that a new permit is issued for each individual shift,
- 7) identify the task supervisor;
- 8) detail any specific skills or competencies required e.g. confined space training

Should working conditions change during the course of the operation of the permit to work, the work shall cease and the permit to work arrangements be reviewed to determine the appropriate course of action

There will be only one Permit to Work system (Eskom) on the construction site. The Contractor shall allow sufficient time in the schedule for their resource to do the Employer offered training and be authorised

If the type of work requires a permit, then contractors must be trained, competence assessed and authorised in writing to perform the duties of an authorised or responsible person as contemplated in the applicable Eskom regulations e.g.

- 1) Operating Regulations for High Voltage Systems
- 2) Plant Safety Regulations
- 3) Pulverised Fuel firing regulations
- 4) Hot work
- 5) Radiation
- 6) Confined space work
- 7) Excavation

Note: Once the plant is safety cleared a permit to work is required to do any work activities on the plant. Principal Contractors and sub - contractors must send employees (Supervisors) to the Responsible Person training course to enable them to take out permit to work

The Client will provide more details on the permit to work system for the specific work to be conducted by the Principal Contractor

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3.36 Radiography, Ultrasonic, Non-Destructive Testing (NDT)

Contractors carrying out radiography, ultrasonic or other non-destructive testing (NDT) on the site shall comply with the requirements of the relevant legislations, Codes of Practice and any specific Project Site (or at other places, if any, as may be specified under the Contract as forming part of the Site) procedures. In particular, they shall ensure that

- 1) No radio-active sources may be brought onto the Project Site (or at other places, if any, as may be specified under the Contract as forming part of the Site) without prior written consent of the Project Manager
- 2) Where a statutory appointment exists, they have appointed, in writing, a suitably
- 3) qualified and experienced Radiation Protection Officer to provide advice on the observance of the legislation and other relevant health and safety matters
- 4) All radiography areas shall be clearly identified by the erection of suitable barriers,
 - a. sirens, warning notices and / or flashing lights. This shall apply to permanent and temporary sites.
- 5) Vehicles transporting radio-active sources shall be clearly identified and kept locked
 - a. when unattended
- 6) Radiation operators must submit proof of certification before commencing work.
- 7) Radio-active sources shall be suitably and securely stored according to legal requirements and removed from the Project Site (and at other places, if any, as may be specified under the Contract as forming part of the Site) after use.
- 8) The Contractor must inform the Project Manager in writing of radiological activities including but not limited to
 - a. NDT testing using radiation.
 - b. Radiography work may only commence with a valid permit to work

In particular, the Contractor shall ensure that.

- 1) At least one day in advance the Project Manager will be notified so that arrangements with Kusile RPO can be done. The RPO will avail himself to inspect the radiation vehicles and sources. If the company do not comply with the requirements, access will not be granted. If they comply the RPO will grant them access.
- 2) The contractor take special care when radiation (density test) is done and ensure that people are informed and cleared from the area.
- 3) No radiation sources will be stored on site inside containers. It can only be stored if permission was granted by the RPO and suitable signs are erected and a suitable storage area has been identified. All employees need to be informed of the sources that will be stored on site and strict access to the area will be maintained.
- 4) All Contractors must be informed of X-ray activities
- 5) X-ray work may only commence with a valid permit to work

Refer to requirements in:

- 1) Eskom Standard: Radioactive sources for non-nuclear stations

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- 2) SANS code of practice 100228 "Code of Practice for the Identification and Classification of Dangerous Substances and Goods" Published by the South African Bureau of Standards

3.37 Trenching and Excavations

Prior to commencing work on any trench or excavation, the Contractor shall first submit a completed Excavation Permit to the Project Manager. The permit shall be submitted far enough in advance to allow the Project Manager to review the Contractor's submittal. After reviewing the information, the Project Manager shall sign the permit indicating that it has been approved and return a copy of it to the Contractor. The Contractor may commence work after receiving the signed permit. For all trenches or excavations over 7 meters deep, the Subcontractor must have the sloping, shoring, or shielding method reviewed by a Licensed Professional Engineer of discipline. The design must be submitted to the Project Manager as an attachment to the Excavation Permit.

The Contractor shall ensure that a full sketch is provided as part of the permit detailing the excavation and the location of underground services. It is unlikely that Project Manager issued construction drawing(s) even annotated will constitute a detailed sketch for the purpose of recording underground services.

The Contractor shall ensure that the requirements of the Employer's trenching and excavation procedure is complied with during activities. This will include the marking of the excavation boundaries, the location of all known services, performing a scan with a cable locator by a trained individual, and also performing a physical evidence survey.

The Contractor shall appoint a competent person to fill out the permit and monitor all trench and excavation work. Daily excavation inspections are also required to be performed and documented.

Adequate precautions shall be taken to prevent the collapse of excavations, as well as to prevent rocks and loose material falling onto workers. Sloping, shoring or shielding shall be provided for all excavations over 1.5 meters in depth. Angle of repose for project site shall not exceed 1:1 unless otherwise approved by a Licensed Professional Engineer of discipline and approved by the Project Manager.

The Contractor shall ensure that

All excavations shall be clearly demarcated and securely barricaded to prevent unauthorised access. Only solid barricading will be used at areas where a fall hazard is present. Solid barricading and / or hole covers shall be provided by the Contractor around all holes or openings to prevent any person being injured as a result of a fall. Danger tape may only be used as a pre-warning to make the solid barricading more visible and to prevent persons from coming too close to the danger area.

If an excavation or trench endangers the stability of buildings or walls, shoring, bracing, or underpinning will be provided by the Contractor with prior approval from the Project Manager. Excavations and trenches that are adjacent to backfilled excavations or trenches, or which are subject to vibrations from

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railroad traffic, road traffic, blasting or the operation of machinery (e.g., shovels, cranes, trucks), must be secured by a support system, shield system or other protective systems (i.e., sheet pile shoring, bracing)

No backfill material shall be allowed to be within 1 meter of the excavation edges. All excavations shall be on a register and inspected daily (documented) before work commences and after inclement weather (e.g., rainfall) by an appointed competent person. When declared safe work can recommence and the findings recorded in the register. If the excavation is not safe to use, remedial action shall be taken before the work site is re-opened.

Every six meters of an excavation shall have an escape ladder for access/egress and use in emergencies. Ensure that all precautionary measures as stipulated for confined spaces are determined.

No work shall commence in an excavation unless the excavation has been declared safe by the competent person.

The Contractor shall conduct a cable scan using a device that can detect cables and other services. The Contractor shall ensure that the operator of the scanner is adequately trained and competent to use the device to its full capabilities with and without the use of a signal generator.

A contractor shall ensure that all excavation work is done in accordance with the requirements of Construction Regulation 13 of the OHS Act.

- 1) Prior to commencing work on any excavation or trench, utility owners shall be contacted and advised of the proposed work and to determine the location of all underground installations, i.e., sewer, telephone, water, fuel, electrical, etc.
- 2) Overhead hazards shall be assessed and dealt with prior to commencement of work.
- 3) All excavations done by the Contractor are to be clearly demarcated and barricaded to prevent accidental access.
- 4) Barricading must be placed as close (500mm from the edge) as possible to the excavation.
- 5) Where it is impracticable to provide fixed guard railing, effective removable barriers shall be provided at all unguarded openings in guard railing or floors, and shall be maintained in position at all times until the hazard no longer exists.
- 6) Warning signs and flashing warning lights at night shall be displayed in suitable positions to warn any persons approaching the area of the location and extent of any excavation.
- 7) No material shall be placed within 3m of the excavation edges.
- 8) Project Manager to review the said register on a pre-determined frequency not exceeding seven (7) days.
- 9) There shall be a supervisor present at all times while work is being performed in an excavation.
- 10) No work shall commence in an excavation unless the excavation has been declared safe in writing by the appointed competent person.

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3.38 Working near Public Roads

Contractor's Personnel required to work on or near public roadways shall wear clean high visibility vests as a minimum at all times. They shall be protected by red cones or flags during daylight and by red or amber flashing lamps at night. Work areas must be adequately barricaded so as to prevent unauthorized access.

Road works e.g. excavations, barricaded areas, shall be protected by red cones or flags during daylight and by red or amber flashing lamps at night. Road traffic warning signs shall be placed well ahead of the work area alerting of road workers ahead. All personnel conducting construction works on public roads or live site roads shall conform to South African Road Traffic Signs Manual and National Road Traffic Act (93 of 1996).

3.39 Confined Space Entry Procedure

Confined Space Definition: A confined space is a tank, vessel, silo, vault, pit, open topped space more than 1.2 m deep, pipeline, duct, sewer, or tunnel that meets the following criteria.

- 1) Limited means of access or egress, and
- 2) Not designed for continuous employee occupancy, and
- 3) Having one or more of the following characteristics:
- 4) Less than 20.0 percent or more than 23.5 percent oxygen
- 5) Flammable/combustible/explosive atmospheres present or capable of being generated or entering into an area.
- 6) Toxic atmospheres present or capable of being generated or entering into an area
- 7) Areas not protected against entry of water, gas, sand, gravel, ore, grain, coal, biologicals, radiation, corrosive chemicals, or any other substance which could possibly trap, suffocate, or harm a person.
- 8) Poor ventilation
- 9) Restricted entry for rescue purposes.

All Contractors shall develop their own confined space procedure for construction activities. The Contractor shall ensure that the confined space procedure includes provision for training, atmosphere monitoring and execution of permits. Each Contractor shall ensure that no personnel enter a confined space before a competent person has assessed the space and has developed a specific entry procedure and risk assessment.

Entry into a confined space with an unsafe atmosphere shall be avoided if at all possible. Only Contractor's Personnel who have been properly trained on the hazards associated with confined space work shall be allowed to enter a confined space. All persons acting as attendant or confined space assessor shall also be fully trained.

Before entering a confined space, Contractor's Personnel shall obtain a Confined Space Entry Permit.

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Before entering a confined space, Contractor's Personnel shall test all levels of the confined space for the presence of flammable or toxic gases and vapours or an oxygen deficient atmosphere. This atmosphere check shall be conducted remotely where practicable for a suitable period of time

If flammable or toxic gases or vapours are detected or if an oxygen deficiency is found, forced ventilation shall be used to maintain oxygen at a safe level and to prevent a hazardous concentration of flammable or toxic gases and vapours

Contractors shall ensure that an adequate number of suitable gas monitors are available to continuously monitor the confined space during entry. Before entering the confined space, all persons shall be given a briefing as to the precautions that must be taken.

Before Contractor's Personnel are allowed to enter a confined space, all electrical and mechanical energy sources that could affect the Contractor's Personnel working in the space shall be physically rendered inoperative, locked out, and tagged. If required, the space shall be drained, vented, and cleaned

Contractor shall fill out the permit in full, post a copy of the form in a conspicuous location at the entrance to the confined space, and retain a copy for their records. If there is more than one entrance to the confined space, all entrances shall be posted with a copy of the permit

When the work in the confined space is completed, the person authorizing entry into the confined space shall verify that all persons have exited the confined space and that it is safe to remove the permit. The authorizing person shall then sign, date, and write in the time the permit was removed.

Contractor shall retain all issued permits for their records. While work is being performed in the confined space, a person with basic first aid training shall be immediately available to render emergency assistance if there is reason to believe that a hazard may exist in the space or if a hazard exists

Contractor's Personnel required to enter a confined space with an unsafe atmosphere shall be equipped with a fresh air breathing apparatus, body harness, and attended lifeline

Electric welding, gas welding, cutting, or any other hot work shall not be performed on the interior or exterior, or near the openings of any confined space which may contain flammable or explosive gases or vapours until the space has been properly cleared

Compressed gas bottles shall not be taken into a confined space. Safe access to the confined space shall be maintained at all times. If possible, all cords, hoses, leads, etc., shall be routed through an entrance other than the employee access into the confined space. Refer to requirements in the Eskom Plant Safety Regulations and as per General Safety Regulations 5 of the OHS Act

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3.40 Steel Erection

This section applies to both permanent steel and Contractor owned structures

The Contractor shall provide site-specific steel erection plan to the Project Manager before steel erection activities begin. This plan must be prepared by a qualified person and shall address the following, at a minimum:

- 1) Working at Elevation procedures for the erection process
- 2) Training of workers involved with the steel erection process
- 3) *Erection sequence.*
- 4) Crane selection and placement
- 5) Crane inspection program
- 6) Rigging inspection program.
- 7) Site preparation requirements (e.g , adequate access roads, means and methods for pedestrian and vehicular control, site drainage, soil compaction and stability)
- 8) Overhead protection/routing of lifts.
- 9) Critical lift procedures
- 10) *Procedures for steel erection activities (e g., bracing/guying, connections, decking, roofing, siding, grating, etc.).*
- 11) Falling object protection procedures.
- 12) Perimeter fall protection planning and turnover.

Steel erection activities may not start until Project Manager formally notifies the Contractor in writing that steel erection activities may commence. Fall protection is required 100 percent of the time for all steel erection activities when Contractor's Personnel are exposed to a fall in excess of 2m or when *required by additional rules*

Cranes involved in steel erection activities shall be inspected prior to each shift by a competent person. The crane operator shall have the authority to stop work operations that are unsafe.

All loads shall be rigged by a qualified rigger

A qualified rigger shall inspect the rigging equipment prior to each shift

No employee shall work directly below a suspended load except for Contractor's

Personnel engaged in the initial connection of the steel or Contractor's Personnel necessary for the hooking and unhooking of the load

Bundle packaging and strapping shall not be used for hoisting unless specifically designed for that purpose.

Uninstalled metal decking shall be secured against displacement. Roof and floor hole openings shall be decked over or protected. Openings created within in-situ concrete suspended slabs formed with permanent soffit shutter such as q-decking, the q-decking shall remain in place until the opening is required for machinery or similar installation, unless authorised by the Project Manager.

All columns shall be anchored by a minimum of four anchor bolts

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Anchor bolts shall not be repaired, replaced, or field modified without the approval of the Project Manager of record. If an employee notices damaged anchor rods, he/she shall immediately notify his/her supervisor.

No construction loads shall be placed on steel joists until all bridging is installed and all joist bearing ends are attached. All steel members shall be secured by a minimum of two bolts per connection prior to un-hooking steel member from crane. Purlins and girts shall not be used as anchorage points for fall arrest systems unless written approval is obtained from a qualified person.

3.41 Severe Weather

The Contractor shall conduct operations in a manner that do not put personnel at risk from weather and weather related injury.

The Contractor shall have plans in place that cover the following:

- 1) Lightning
- 2) Heavy rain
- 3) Stability of sheeting during periods of high wind
- 4) The protection of cranes and other similar plant during high winds

All Contractors should subscribe to a source of warning for inclement weather and have means to monitor the distance of a lightning storm.

3.42 Contractors Site Facilities

Contractor and their sub-contractors shall provide facilities that from a humane perspective have a sense of management care. Site facilities should include facilities that provide shelter in times of heavy rain and lightning storms and be conducive for extended toolbox talks.

Contractor's facilities should comply with relevant regulations and SANS standards, currently SANS 10400 standards A to XA.

Refer to Employer Policies and Procedures - Project site facilities and services for more details.

Site facilities shall be established and maintained by the Contractor or be maintained as agreed with the Project Manager and/or in accordance with the contractual agreement. The facilities include, but are not limited to the following (OHS Act Construction Regulation 30) and

- 1) Temporary Facility Layout Plan
- 2) Sheltered eating facilities
- 3) Change rooms
- 4) Ablution facilities (sufficient)
- 5) Site Sheds, Offices and Amenities
- 6) Lay down and Storage

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- 7) Temporary Site Services
- 8) Waste Storage Facilities & Receptacles
- 9) Designated smoking areas

The Principal Contractor must develop their site establishment procedure and this must be in line with the EMP's, Environmental Authorisations and other permits and licenses.

3.42.1 Site logistics and layout

The Enquiry Drawings included with the tender documentation indicate

- Access points to the site
- Areas for construction of the project works

3.42.2 Fence lines

The Principal Contractor shall give details of the way he intends to set up the site, the location of his site offices, the lay down area and the way he will control ingress and egress to and from the site and also the control of the site traffic. In particular, traffic and pedestrian routes within the site shall be identified, subsequently marked out on the ground and kept free from obstruction at all times.

Possible locations for the Employer and the Principal Contractor's site establishment are detailed in the Works Information document.

3.42.3 Notice boards/Name boards

The Principal Contractor shall supply and erect name boards as per SANS 1200 AB: 3.1 at all his office sites and work areas.

3.42.4 Water Supply for Construction Purposes

The Principal Contractor shall arrange water supply connections required. The Employer will not be liable for any delays arising from any interruption of the water supply or for any inadequacies in the supply. The Principal Contractor shall make his own arrangements for distribution of the water supplies from the terminal point. The Principal Contractor shall adhere to all conditions as per the Project EMP's and other environmental requirements.

3.42.5 Temporary Facility Layout Plan

The Contractor shall submit a detailed site layout plan for acceptance by the Project Manager after consultation with the Construction Health and Safety Agent/SHE Manager, Employer Environmental Manager, the Kusile Power Station Environmental Manager and the Independent Environmental Control Officer.

Note: No site establishment shall take place prior to approval of the plan for temporary site camps and laydown/stockpile areas.

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3.42.6 Sheltered dining rooms and eating facilities

The Contractor shall provide and maintain adequate dining room facilities appropriate to the workforce size and work duration, that conform with the requirements of the OHS Act, Construction Regulations, Facilities Regulations and the Hazardous Chemical Substances Regulations.

Furthermore, the Contractor shall provide, to the acceptance of the Project Manager, sheltered eating areas for use by the contractor employees. The maintenance and cleaning of eating areas shall be the responsibility of the Contractor. All costs involved are deemed to be included in the tender price.

Eating areas shall provide adequate shelter and shall be ventilated and lighted. Tables and backed seating shall be provided. Suitable receptacles with lids for depositing waste shall be provided at convenient points inside and outside the eating areas.

The dining room facility, and all electrical appliances utilized for the purpose of boiling water and or heating food, shall be kept in a state of good repair and hygienically clean.

3.42.7 Change rooms & Shower facilities

Where required, the Contractor shall provide and maintain adequate and suitable changing and washing facilities appropriate to the workforce size and work duration, that conform with the requirements of all applicable legislation. The Contractor shall ensure that separate changing facilities are provided for both genders.

3.42.8 Ablution facilities

Where required, the Contractor shall provide and maintain adequate and suitable sanitized portable ablution facilities appropriate to the workforce size and work duration that conforms to the requirements of all applicable legislation. Separate ablution facilities shall be provided for both genders. These portable ablution facilities will be kept tidy and hygienic during the duration of the Project.

Where the Contractor makes use of existing facilities provided by the Kusile PS, the Contractor shall ensure that his or her employees support the aim of keeping these facilities clean and hygienic.

3.42.9 Site Sheds, Offices and Amenities

The Contractor is responsible for suitable offices, parking area, eating facilities etc. for their employees. The Contractor will ensure that reverse parking is executed on Kusile site as well as on the ash dump area.

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3.42.10 Lay down and Storage

The Contractor shall include in its temporary facilities plan, a detailed plan for all lay-down areas required for storage of materials, chemicals, equipment and machinery

The Contractor shall provide and maintain adequate and suitable storage facilities appropriate to the scale of the project and work duration, that conform to the requirements of the OHS Act, Construction Regulations, Regulation 28, and as approved by the Project Manager

Note: No establishment of laydown and storage areas and facilities shall take place prior to approval of the contractor site layout plan by the Department of Environmental Affairs (DEA) and the Department of Water and Sanitation (DWS) has been received in writing

3.42.11 Temporary Site Services

No employee will be allowed to erect living accommodation on site.

The Principal Contractor must develop their site establishment procedure and this must be in line with the EMP, environmental authorisations and other permits and licenses.

3.42.12 Existing Services

The Contractor shall give prior notice in writing to the Project Manager of his intention to begin excavation work in any area. The Project Manager will then arrange to have the approximate location of all known buried cables and or other existing services indicated to the Contractor and, where practical, marked on the ground before excavation commences. All movement and removal of existing buried services will, if necessary, be carried out by the Contractor.

The Contractor shall immediately inform the Project Manager of any existing services uncovered during the work. Prior to any excavation work, a scan shall be done by the Contractor to determine the location of any hidden services underground. Where possible, air driven shovels are to be used for any excavation work. The Contractor may only make use of manual labour as a last resort.

Note: The Contractor shall be responsible to obtain all permits to work for excavations to be dug, powerline crossings, hot work to be conducted, from the Project Manager, prior to commencing with excavation work. The Principal Contractor will give a copy of all applications to the Project Manager.

3.43 Installation and Maintenance of Temporary Construction Electrical Supply, Lighting, and Equipment

The Contractor shall ensure that all temporary electrical supply, lights and equipment are installed and used in accordance with the OHS Act, Electrical Installation Regulations, relevant South African National Standards and by-laws, Regulations of the OEM and supplier concerned, including the PSR and ORHVS regulations. Attention shall be given to the positioning of such equipment in order to minimize pollution caused by noise and fumes

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3.44 Omissions of this SHE Specification

By drawing up these SHE requirements Eskom has endeavoured to address the most critical aspects relating to SHE issues in order to assist the contractor in adequately addressing the health and safety management of persons on site

Should Eskom not have addressed all aspects pertaining to the work that is tendered for, the contractor needs to ensure that all applicable SHE requirements are identified and included in their management system.

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4. Acceptance

This document has been seen and accepted by:

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5. Revisions

Date	Rev.	Compiler	Remarks
April 2021	1	M Tshidavhu	New Construction project

6. Development Team

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