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Project Name: Power Transformer and Shunt Reactors Contract

Project Address: Eskom Transmission Substations

Scope of the project: The assessment, design, detailed engineering, manufacture, testing at works, supply, delivery, removal of existing transformers, placement on foundation, installation, erection, testing, commissioning and storage of class 3a and 3b Power Transformers and Shunt Reactors for Eskom on an “as and when” required basis for a period of four (4) years with an option to extend by two (2) years.

Eskom Contract's Manager

Name: Themba Ntuli

Eskom's Senior Advisor Risk Management

Name: MA Thulare

Eskom's Procurement Manager

Name: Themba Ntuli


Eskom's Safety Officer

Name: MA Thulare

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1. Introduction

Eskom's responsibility and commitment is to ensure a safe working environment is in line with its Safety, Health, Environmental and Quality Policy, along with legislative obligations.

This SHE specification is Eskom the minimum requirements which are required to be met for the specific contract and for the duration of the contract period by contractors and where required, the delivery organisation.

The contractor is expected to develop a SHE plan which meets these requirements as well as all the relevant applicable legislation they conform to.

Eskom in no way assumes the contractor's legal responsibilities. The contractor is and remains accountable for the quality and the execution of his/her health and safety programme for his/her employees and appointed contractor employees.

This SHE specification reflects minimum requirements and should not be construed as all encompassing.

Note 1: All the requirements listed hereunder are in relation to the contract and do not supersede or replace any organizational SHE requirements.

Where requirements listed are already in place, then the organisational requirements must be taken cognisance of and listed in the respective SHE plans. If there are any additional Eskom and or legislative requirements listed in the SHE specification, then these must be addressed.

2. Supporting Clauses

2.1 Scope

This SHE specification lists the legislative and Eskom requirements and where applicable, any requirements pertaining to Local Authorities / Municipal by-laws / Environmental legislation that must be met by the contractor.


2.1.1 Purpose

This document will provide a standardised approach to the compilation of SHE specifications throughout Eskom for contracts, standards and NEC 3 contracts.

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2.1.2 Applicability

This SHE specification is applicable to any contracting organisation who intends tendering for the contract.

2.2 Normative/Informative References

Parties using this document shall apply the most recent edition of the documents listed in the following paragraphs.

2.2.1 Normative

- [1] Basic Conditions of Employment Act No 75 of 1997.
- [2] Occupational Health and Safety Act and Regulations No 85 of 1993.
- [3] National Environmental Management Act 107 of 1998.
- [4] National Road Traffic Act 93 of 1996.
- [5] 32-37 Eskom Substance Abuse Procedure.
- [6] 32-136 Contractor Health and Safety Requirements
- [7] 240-62196227 Life- saving Rules
- [8] 32-95 Environmental, Occupational Health and Safety Incident Management Procedure
- [9] 32-727 SHEQ Policy
- [10] 32- 418 Working at Heights Procedure
- [11] 240-62946386 Vehicle and Driver Safety Management Procedure
- [12] 32-520 Risk Assessment procedure
- [13] Plant Safety Regulations
- [14] Consolidated COVID-19 Directive Workplace Health & Safety_ Government Gazzette 43751_ GNR 1031_ 01 October 2020.


2.2.2 Informative

- [1] Tobacco Products Control Act 83 of 1993 (Updated 2011.05.19)
- [2] SANS 1186 Symbolic Safety Signs
- [3] Constitution of the Republic of South Africa No 108 of 1996
- [4] DMN 34-110 Operating A Vehicle Mounted Crane

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- [5] DMN 34-1981 Excavations
- [6] Consolidated COVID-19_Directive_ Workplace Health & Safety_ Government Gazette 43751_ GNR 1031_ 01 October 2020
- [7] TSP41-257 Specification Document for Phase V Shunt Capacitor and _ or Filter Bank Protection and Control Scheme
- [8] ESKASAA04 Standard for Electronic Protection and Fault Monitoring Equipment for Power Systems
- [9] TST41-627 Standard for Labelling of Secondary Plant Equipment
- [10] 240-146463418 Remote Online Monitoring of Unbalance Current in High Voltage Shunt Capacitor Banks - Phase V Schemes
- [11] 5 0.52-30328 Master Drawings for 5CB-5400 (Single Star H-Type Configuration) Scheme
- [12] 6 0.52-30326 Master Drawings for 5CB-5600 (Double Star Configuration) Scheme
- [13] 7 0.52-30789 Master Drawings for Dual Measurements Scheme.
- [14] 240-154354564 Transmission Work Instruction COVID-19 Protective Measures in the Operations and Maintenance Environment

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2.3 Definitions

Definition	Explanation
Appointed contractor	Means a contractor appointed by the principal contractor
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
Business unit (BU)	(32-296) means any defined unit within the Eskom environment, operating as a business under a particular cost-centre number. In the context of this document and in terms of health and safety, any reference to a BU includes a defined unit within any Eskom division and its subsidiaries
Client	(OHS Act) Eskom representative (Internal – Asset Owner), also referred to as the contract administrator/custodian or agent or project manager (as defined in the contract). He/she is the person responsible for ensuring that the works or services are executed in terms of the contract, as well as adherence to legislation pertaining to the contract.
Competent person	(OHS Act) 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)
Contractor	(OHS Act) means an employer as defined in section 1 of the Act who performs contracted work and includes principal contractors
Construction work	Any work in connection with <ul style="list-style-type: none"> a. the construction, erection, alteration, renovation, repair, demolition or dismantling of or addition to a 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.
Consultant	means a person providing professional advice
Controlled disclosure	controlled disclosure to external parties (either enforced by law or discretionary)
Coronavirus (COVID-19)	Coronaviruses is a large family of viruses that cause illness ranging from the common cold to more severe diseases like pneumonia, etc. Virus transmission occurs via coughs or sneezes from infected persons or touching contaminated surfaces.

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Definition	Explanation
Duty of care to the environment	(32-136) anybody who causes or has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing, or recurring. If such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, such person must minimise and rectify such pollution or degradation of the environment
Employee	(OHS Act) means, subject to the provisions of subsection (2), any person who is employed by or works for an employer and who receives or is entitled to receive any remuneration or who works under the direction or supervision of an employer or any other person
Employer	(OHS Act) means, subject to the provisions of subsection (2), any person who employs or provides work for any person and remunerates that person or expressly or tacitly undertakes to remunerate him/her, but excludes a TES (ex labour broker) as defined in section 1(1) of the Labour Relations Act 1956 (Act No. 28 of 1956)
Environment	(32-94) means: a. the land, water, and atmosphere of the earth; b. micro-organisms and plant and animal life; and c. any part or combination of (a) and (b) and the interrelationships among and between them, and the physical, chemical, aesthetic, and cultural properties and conditions of the foregoing that influence human health and well-being
Environmental Management plan	A detailed plan of action prepared to ensure that recommendations for enhancing or ensuring positive impacts and limiting or preventing negative environmental impacts are implemented during the life-cycle of a project. This Environmental Management Plan should preferably form part of Eskom's Environmental Management System
Eskom requirements	Eskom requirements flowing from directives, policies, standards, procedures, specifications, work instructions, guidelines, or manuals
Fall protection plan	(OHS Act) means a documented plan of all risks relating to working from an elevated position, considering the nature of work undertaken, and setting out the procedures and methods to be applied in order to eliminate the risk
Hazard	(OHS Act) means a source of, or exposure to, danger
Hazard identification	(OHS Act) 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
Health and safety file	(OHS Act) means a file or other record in permanent form, containing the information required in relation to the contract.
Health and safety plan	(OHS Act) means a document plan that addresses hazards identified and includes safe work procedures to mitigate, reduce, or control hazards identified

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Definition	Explanation
Health and safety specification	(OHS Act) means a document specification of all health and safety requirements pertaining to associated to a contract, so as to ensure the health and safety of persons.
Health and safety requirements	means comprehensive health and safety requirements for a contract, project, site, and scope of work. This specification is intended to ensure the health and safety of persons, both workers and the public, and the duty of care to the environment. The health and safety requirements must be specific to each contract, project, site, and scope of work
Lifesaving Rules	(240-62196227) a rule that, if not adhered to, has the potential to cause serious harm to people
Medical Certificate of fitness	(OHS Act) means a certificate valid for one year, issued by an occupational health practitioner, issued in terms of the regulations, whom shall be registered with the Health Professions Council of South Africa
Medical surveillance	(OHS Act) 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
Method statement	(OHS Act) means a written document detailing the key activities to be performed in order to reduce, as reasonably as practicable, the hazards identified in any risk assessment
Organisation	may be defined as a group of individuals (large of small) that is cooperating under the direction of executive leadership in accomplishment of certain common objects
Pre-job meetings	(34-227) means a meeting that is held prior to the commencement of the day's work and that is attended by all the relevant employees associated with the work task
Principal contractor	(In the text of this document) Means an employer, as defined in section 1 of the OHS Act, who intends to tender for or has signed a contract with Eskom for services rendered.
Provincial director	(OHS Act) means the provincial director as defined in Regulation 1 of the General Administrative Regulations under the Act
Responsible Manager	Is a Manager of a department, section or operating/business unit who has been appointed as part of the Eskom delegation of authority process with the aim to assist the applicable 16(2) assigned person in executing his/her duties in terms of the Occupational Health and Safety Act
Risk assessment	(OHS Act) 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.

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Definition	Explanation
Site	(34-228) means an Eskom department, unit, complex, building, specific project, work site, or the site where agents, clients, principal contractors, contractors, suppliers, vendors, and service providers provide a service to Eskom, directly or indirectly
Service provider	any private person or legal entity that provides any service(s) to Eskom for compensation
Subsidiary	(32-94) an enterprise controlled by another (called the parent) through the ownership of greater than 50% of its voting stock
Supplier	(32-1034) means a natural or legal person who renders a service and may include the following current or potential supplier vendor, contractor, consultant
Task	(34-227) a segment of work that requires a set of specific and distinct actions for its completion
Toolbox talks	(34-227) where the team leader, after conducting pre-task planning, shares all the tasks at hand and discusses task allocation, the identified risks, and the control measures with all his/her team members on site before commencing a specific task and documenting the agreed strategy. (This shall be done to ensure common understanding of the tasks, risks, and control measures required.)
The Act	(OHS Act) means the Occupational Health and Safety Act No. 85 of 1993, as amended, and the Regulations thereto
Visitor	any person visiting a workplace with the knowledge of, or under the supervision of, an employer.

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2.4 Abbreviations

Abbreviation	Description
AIA	Approved Inspection Authority
BU	Business Unit
CE	Chief Executive
CNC	(Eskom) Customer Network Centre
CR	Construction Regulations of the OHS Act
COID Act	Compensation for Occupational Injuries and Diseases Act
COVID-19	CORONAVIRUS (SARS-CoV-2)
DMR	Driven Machinery Regulations
DoL	Department of Labour (Inspection and Enforcement services – Provincial office)
EAP	Employee Assistance Program
EP	Emergency Preparedness
ERfW	Environmental Regulations for Workplaces
GAR	General Administrative Regulations
GSR	General Safety Regulations
HCS	Hazardous Chemical Substances
LDV	Light Delivery Vehicle
LoG	(COID) Letter of Good Standing
MSDS	Material Safety Data Sheets
NEMA	National Environmental Management Act
OHS Act	Occupational Health and Safety Act and Regulations, 85 of 1993
SACPCMP	South African Council for the Project & Construction Management Professions
SABS	South African Bureau Standard
SANS	South African National Standard

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2.6 Roles and Responsibilities

2.6.1 Commitment

Visible commitment is essential to providing a safe work environment. Managers, supervisors and employees at all levels must demonstrate their commitment by being proactively involved in the day to day operations, in particular the Occupational Health and Safety aspects of any project / contract. Legislation requires that each employee must take reasonable care of themselves and their fellow workers, from management level down to the lowest employee level.

2.6.2 Principal contractors and appointed contractors


Note 1: Most of the roles and responsibilities listed apply to both principal contractors and any appointed contractors. Where some of the listed do not apply to both, then the specific responsibilities will be listed and titled. The contractors shall:

1. Carry out all duties as listed in section 8, 9 and 10, the various other regulations that form part of the OHS Act and Regulation 7 of the Construction Regulations.
2. The principal contractor must notify the provincial director of the Department of Labour in writing of all construction work if it falls within the scope of Regulation 4 of the Construction Regulations (if this has not been arranged and or done by the client/agent);
3. Carry accountability and responsibility for the safety and health of their employees and their appointed contractors within their working area, as contemplated by section 37(2) of the OHS Act;
4. Shall keep a record of all employees including the appointed contractor employees, including date of induction, relevant skills and licenses and be able to produce this list at the request of the Eskom Project Manager.
5. Ensure that all their 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.
6. Ensure that the minimum legislative, regulatory and Eskom SHE requirements are complied with on all work sites.

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7. Give the Eskom project managers and line managers / responsible managers their full participation and cooperation.
8. Compile a SHE (health and safety) file where all relevant health and safety records must be kept for each work site.
9. The principal contractor must hand over a consolidated (to include any appointed contractors files) health and safety file to the Eskom project manager on completion of the project. This is to include all drawings, designs, lists of materials used and other applicable information about the completed project, as well as the list of appointed contractors, the agreement, and the type of work completed.
10. Contractors must hand over a consolidated (to include any appointed contractors files) health and safety file to the principal contractor on completion of the project. This is to include all drawings, designs, lists of materials used and other applicable information about the completed project, as well as the list of appointed contractors, the agreement, and the type of work completed.
11. The principal contractor must provide the project manager with a certified copy of his/her Compensation Commissioner's valid letter of good standing before the commencement of work and any future renewal letters obtained during the project for record-keeping purposes. The letter of good standing shall reflect the name of the contractor's company. Similarly, the principal contractor must provide the Eskom project manager with all the valid letters of good standing from their appointed contractors.
12. Contractors must provide the principal contractor with a certified copy of his/her Compensation Commissioner's valid letter of good standing before the commencement of work and any future renewal letters obtained during the project for record-keeping purposes. The letter of good standing shall reflect the name of the contractor's company.
13. Appoint competent staff to perform the project work and ensure that all employees are trained in the health and safety aspects relating to such work and that the employees understand the hazards associated with all other work being carried out on the project.
14. Ensure that all employees are conversant with all relevant work procedures and that they adhere to such procedures. Similarly (without removing the appointed contractors' responsibilities), ensure that their appointed contractors and their

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employees are conversant with all relevant work procedures and that they adhere to such procedures.

15. Co-ordinate the activities of all the appointed contractors in the interests of safety and health;
16. Ensure that potential contractors (whom they intend appointing) submitting tenders have made detailed provision for the cost of safety and health measures throughout the project.
17. Stop his /her employees and any appointed contractors if project work is not in accordance with the health and safety plan or if such work poses a threat to the health and safety of persons or a risk of degradation to the environment.
18. Take reasonable steps to ensure cooperation between all their appointed contractors.
19. Only appoint contractors to do work, if satisfied that the contractor has the necessary competencies and resources to perform the work safely.
20. Appoint full-time competent employees in writing to supervise the performance of all specified work throughout the contract period.

Note 2: No work may commence and or continue without the presence of the appointed project manager or project supervisor during performance of the contracted work.

21. Ensure that the supervisor or manager do not supervise work on any site other than the site for which such supervisor has been appointed for.

Note 3: In determining the number of appointed competent supervisors, the nature and scope of work being performed, shall be taken into consideration.


Note 4: If a sufficient number of competent employee(s) have been appointed to assist the construction supervisor, the construction supervisor may supervise more than one site.

22. Appoint a full or part time safety officer or construction safety officer (registered with SACPCMP) in writing.
23. Not victimise or dismiss employees, by virtue of the employees divulging health and safety information or suspecting such information has been divulged, in the interests of health and safety requirements;

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24. Follow a process of disciplinary action if any of their employees or their appointed contractor employees have transgressed any of the requirements of the health and safety specification, safety and health plans, site rules or any other requirements.
25. Ensure that all appropriate precautions are taken to protect persons (visitors, members of the public, and other contractors) present at work or in the vicinity of a construction site against all risks that may arise from such site.
26. Before the commencement of any work, conduct risk assessments which shall include public safety. This should be done by a competent person appointed in writing with a view to identify hazardous and potentially hazardous work operations.
27. Ensure that pre-task risk assessments are conducted and documented daily and prior to the starting of any new task, irrespective of whether it is a repetitive task or not.
28. Take prime responsibility for all aspects of environmental management associated with the project activity for which they are responsible.
29. Provide any appointed contractor who is making a bid or is appointed to perform work on Eskom's behalf, with the relevant sections of the documented Eskom's SHE Specification.
30. Principal contractors are required to approve appointed contractor's health and safety plans if they meet all the requirements.
31. Must ensure that an organisation medical surveillance programme for the duration of the contract is in place and maintained.
32. Prior to having pre-employment and periodic medicals fitness examinations conducted, person/man job specifications must be compiled and handed to the occupational health practitioner.
33. Ensure that pre-employment, periodic and exit medicals are carried out on their employees. Medical assessments must be conducted by a registered Occupational Health Practitioner. During the pre-employment medical, where employees will be required to work at heights, they will also be required to undergo the required employee physical and psychological fitness examinations.
34. Ensure, prior to the commencement of construction work, that all persons involved in the project work, as well as the appointed contractors, have received a health and

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safety induction training session. Similarly, ensure that all visitors to site undergo the site's induction training.

35. Ensure, prior to the commencement of construction work or contracted work, that all their employees involved in the project work, as well as the appointed contractors, have received task-specific training.

36. Issue risk-based personal protective equipment (PPE) as a measure of last resort to their employees, inspect such equipment regularly and ensure recipients of PPE are trained in the proper use, care and where necessary, the maintenance of PPE;

Note 5: should the principal contractor or his/her appointed contractors entertain visitors on site, they will be held responsible for the provision and wearing PPE.

37. Erect their own site huts, temporary buildings, storage areas, toilets, fencing, and any other structure as may be required. Any such structures shall be positioned and erected in compliance with any instructions from the Eskom project manager and the relevant site safety and fire prevention requirements;

38. On completion of the work remove all structures erected by them, and where required by law rehabilitate the environment.

39. Where performing work with the environment, ensure that minimal damage is done and that where an Environment Management Plan is in place, then adhere to the plan.

40. Respect the rights of land owners/lessors and the preservation of their registered activities;

41. Must have a substance abuse program which must be in line with the requirements of the OHS Act.

42. Ensure that no alcohol or other intoxicating substances are brought on to, or remains on the work sites.


Note 6: Eskom will not tolerate the presence of anyone who is or who appears to be under the influence of alcohol or any other intoxicating substance whilst performing work for them or on any work site.

43. Ensure that all equipment and tools used comply with OHS Act requirements with respect to condition, use, care, storage, maintenance, and the management of these;

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44. Ensure that all incidents are reported and investigated timeously by competent incident investigators.
45. Be involved in all of their appointed contractor's investigations.
46. Establish health and safety committees, hold such committee meetings on all sites, and ensure that appointed contractors participate in their health and safety meetings.
47. Chair their own health and safety committee meetings and record such meetings.
48. Appoint sufficient number of health and safety representatives in terms of legislative requirements and ensure that the appointed contractors appoint health and safety representatives for their work sites.
49. When appointing contractors, advise the project manager in writing timeously and obtain his/her approval prior to them commencing work.
50. Shall keep a record of all employees including the appointed contractor's employees, including date of induction, relevant skills and licenses and be able to produce this list at the request of the Eskom Project Manager.

2.6.3 Construction Managers/ Contract Managers


Note 1: No work may commence and or continue without the appointed supervisor or manager during the performance of the contracted work.

1. Not supervise construction work on any construction site other than the site they have been appointed to supervise;
2. Assist the contractor and/or the appointed safety officer in conducting site induction training for new staff and site visitors;
3. Instruct and train all employees under their control on any hazardous and related work procedures, before any work commences and thereafter, at such times as may be determined by a risk assessment;
4. Ensure that the minimum legislative and Eskom SHE requirements are complied with on all work sites;
5. Stop any construction work that is not in accordance with the safety and health plan or if such work poses a threat to the safety and health of persons or a risk of degradation to the environment;
6. Ensure that risk-based personal protective equipment (PPE) has been issued and employees wear/use the PPE as instructed.
7. Inspect such PPE on a regular basis and record the inspections;
8. Ensure that all incidents are reported to the client and are investigated.

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9. Be involved in all investigations that occur within their area of responsibility.
10. Carry out audits and or inspections on their contractors at least monthly and any appointed contractors on instructions of their contractor.
11. Ensure that employees under their control are conversant with all relevant work procedures and that they adhere to such procedures;
12. Before the commencement of any work, where possible, assist in the conducting of risk assessments and ensure that appropriate mitigating measures have been considered and implemented.;
13. Ensure that daily or pre-task risk assessments are conducted and documented daily and prior to the starting of any new task, irrespective of whether it is a repetitive task. Ensure that the team are involved in the abovementioned risk assessments;
14. Hold tool box talks at the start of each day/ task to discuss health and safety issues as well as confirming the requirements of the daily risk assessments;
15. Ensure that all appropriate precautions are taken to protect persons (visitors, members of the public, and other contractors) present at work or in the vicinity of a construction site against all risks that may arise from such site.
16. Ensure that no alcohol or other intoxicating substances are brought on to, or remains on, the premises / work sites and that no employee remains on site if he/she is under the influence. Furthermore, report such instances to contract management;
17. Ensure that all equipment and tools used on site comply with OHS Act requirements with respect to condition, use, care, storage, maintenance, and the management of these.
18. Ensure that they and their contractor managers give clear and unambiguous instructions for the project work, to the employees for whom they are responsible for.
19. Not victimise their employees by virtue of their employees divulging health and safety information or suspecting such information has been divulged, in the interests of health and safety requirements (reference – section 26 of the OHS Act).
20. Where any work is performed which involves the environment, ensure that minimal damage is done to the environment and that where an Environment Management Plan is in place, then the plan adhere to the plan.
21. Stop any employee or contractor from performing construction work which is not in accordance with the principal contractor's and or appointed contractors health and safety plan which poses a threat to the health and safety of persons.

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2.6.4 Contractor site supervisor or Contract Supervisor


Must:

1. Be competent to perform the required supervisory tasks;
2. Ensure their employees and all appointed contractors comply with the required statutory and Eskom project requirements;
3. Inspect all work done by the Contractors to ensure adherence to Eskom's standards and specifications
4. Conduct follow-up inspections to ensure findings are closed out and preventative action is in place.
5. Monitor contractors for adhere to statutory requirements and safety standards.
6. Monitor contractors overall SHE performance on site in order to achieve excellent results
7. Ensuring a Safe working environment is established and maintained by the contractor for the elimination of unsafe acts by all people whilst on the project site.
8. Discuss all SHE related problems with the relevant contractor management timeously in the first instance and thereafter the Eskom project manager in the second instance relating to procedure requirements, non-conformance's identified, corrective actions, audits and inspection schedules.
9. Ensuring that quality records are maintained in accordance with legislative and Eskom requirements;
10. Continual liaison between the principal contractor, appointed contractors and employees.
11. Ensures that employees and appointed contractors are aware of latest standards, procedures, work instructions and safety regulations issued by Eskom:
12. Conduct site Inspections for compliance to SHE requirements and compiles the relevant inspection reports.
13. Submit the observation reports to the relevant management.
14. Have meaningful participation in the project statutory health and safety committee meetings.
15. Participate in all appointed contractor incident investigations.
16. Participate in the principal contractors emergency preparedness planning.
17. Ensure that their own employees and those of any appointed contractor are competent to perform the tasks assigned.
18. Issue site instructions on behalf of the principal contractor where and when the appointed contractors deviate from safety requirements.
19. Assist the principal contractor with the handing over process, in particular the SHE file and relevant documentation.

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2.6.5 Employees


Must:

1. Be responsible for their own safety and health and that of their co-workers;
2. Co-operate with their employer to meet all of the employer's as well as legislative and Eskom requirements;
3. Familiarise themselves with their responsibilities during induction and awareness training sessions, some of which are:
 - a. familiarising themselves with their workplaces and safety and health procedures;
 - b. working in a manner that does not endanger them or cause harm to others;
 - c. ensuring that the work area is kept tidy;
 - d. reporting all incidents and near misses;
 - e. protecting fellow workers against injury by performing job observations;
 - f. reporting unsafe acts and unsafe conditions;
 - g. reporting any situation that may become dangerous; and
 - h. carrying out lawful orders and obeying safety and health rules;
4. Who become aware of any person disregarding a safety notice, instruction, or regulation, immediately report this to the person concerned. If the person persists, stop that person from working, and report the matter to contractor management and/or Eskom's project manager or supervisor immediately.
5. Not damage, alter, remove, render ineffective, or interfere with anything that has been provided for the protection of the site or for the health and safety of persons this includes any guarding of machinery or equipment.
6. Obey any safety signs and adhere to any site demarcation at all times.
7. When entering or leaving the site, do so via the official designated access/departure routes. Where reflective jackets/bibs are required to be worn, wear them.
8. Be subjected to any disciplinary action, if having transgressed any of the requirements of the health and safety site rules, Eskom requirements, company requirements, or legislative requirements.
9. Avoid any act that may endanger their own health and safety or that of fellow employees, members of the public, or visitors who may be affected by their acts and/or omissions at work.
10. Have the right to obtain proper information from their employer regarding health and safety risks and measures related to the work processes.
11. Use facilities placed at their disposal and not misuse anything provided for their own protection or that of others.
12. Have the right to remove themselves from danger when they have good reason to believe that there is an imminent and serious danger to their health and safety and have the duty to inform their supervisor immediately of such danger.
13. Report to their supervisor (in the first instance), the principal contractor (in the second instance), and/or the Eskom project manager, any substandard acts and/or

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conditions that have come to their attention and that have not been rectified or acted on by their contractor management timeously.

14. Have the right and the duty at any workplace to participate in ensuring healthy and safe working conditions, to the extent of their control, over the equipment and methods of work adopted.
15. Maintain the surrounding area of the work site in a neat and tidy condition.
16. Have meaningful participation in regular health and safety meetings.
17. Have the right to refuse to perform or continue to perform any task/job on the grounds of health, safety, and environmental concerns.
18. When given instructions, understand the instructions and be permitted to clarify those instructions.


2.6.6 Contractor Health and Safety officer

1. Promote a SHE culture within the organisations involved in the project / contract.
2. The contractor's safety and health officer shall assist in the control of all health and safety-related matters on the sites.
3. Be involved in the developing the project SHE plan and SHE policy.
4. Be in constant liaison and cooperate with Eskom's SHE professionals responsible for providing them with a health and safety service.
5. Ensure that this SHE specification is adhered to by his/her principal contractor and is submitted to any appointed contractors.
6. Conduct audits and inspections of all work sites for the duration of the project.
7. Be involved in the organisations incident investigations when required.
8. Participate in the organisation's statutory and non-statutory health and safety committees meetings.
9. Conduct organisational, site and visitor induction training.
10. Stop any employee or contractor from performing construction work which is not in accordance with the principal contractor's and or appointed contractors health and safety plan which poses a threat to the health and safety of persons.
11. Ensure that no alcohol or other intoxicating substances are brought on to, or remains on, the premises / work sites and that no employee remains on site if he/she is under the influence. Furthermore, report such instances to contract management.
12. Make themselves available and ensure co-operation of employees under their control to undergo breathalyser and drug testing while entering and/or being on any Eskom work site by Eskom.
13. Carry out audits and or inspections on their contractors at least monthly and any appointed contractors on instructions of their contractor;
14. Carry out frequent behaviour observations of employees under their control at least monthly and any appointed contractors on instructions of their contractor.

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2.5 Related/Supporting Documents

Eskom OHS Act section 37 (2) agreement to be signed at procurement during the signing of the NEC contract, it is the responsibility of the project manager to ensure that the 37(2) agreement is signed and a copy be kept in the contractor file at procurement.

3. Specification

3.1 Scope of work

Assessment, design, detailed engineering, manufacture, testing at works, supply, delivery, removal of existing transformers, placement on foundation, installation, erection, testing, commissioning and storage of class 1, 2 and 3 Power Transformers and Shunt Reactors for Eskom on an “as and when” required basis.

Transformer Installation and Commissioning:


COMPULSORY DOCUMENTATION REQUIREMENTS	S/P	ESK
Signed scope of work	X	
Production & Quality Plan (PQP)	X	
Health and safety plan (compliance with the OHS Act No. 83 of 1993)	X	
Environmental Management Plan (site and job specific)	X	
Handing over certificate	X	
Valid load test certificates for mobile cranes and rigging equipment	X	
Security clearance all staff	X	
Grid ORHVS authorization	X	
Transformer valve checklist and label system	X	

SITE / EQUIPMENT REQUIREMENTS	S/P	ESK
Personal Protective Equipment (PPE)	X	
Clean condition overalls & footwear	X	X
Tools, equipment, material and consumables	X	
Certified and tested rigging equipment	X	

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Mobile crane with valid crane load-test and operator certification	X	
High pressure cleaner capable of pumping its own water	X	
Running water 200 meters from transformer (no drinking water on site)		X
220 / 380V supply – Max 300 A (200 meters from transformer)		X
Ladders and scaffolding	X	
Dry air generator (Max - 70°C dew point), regulator, pipes and fittings – no dry-air cylinders shall be used unless individually tested dew-point measurements were performed	X	
Clean oil tankers to transport oil from site to site	X	
15 500 litres of topping-up inhibited virgin oil for transformers and OLTC's (Comply with 240-75661431 Rev 1)	X	
Transport of topping-up 15 000 litres to site	X	
Clean oil containers for on-site oil storage and processing – 7 off		X
Transport for 1 x oil containers	X	
Transport of 7 oil containers	X	
Mobile oil plant	X	
Blanking plates		X
Desiccant type dehumidifier with pipes and connection plates – min air flow-rate of 1000 m ³ /h (RH of below 10% at input temperature of 20°C at 100 kPa atmospheric pressure)	X	
Virgin oil for filling of transformers and OLTC's (Comply with 240-75661431 Rev 1)		X
Bushing crates for 400, 132, 22 kV and neutral bushings		X
2,5 mm damp-course (6 x layers)	X	
Air dew-point measuring device	X	X
Impact recorder	X	
Clean condition overalls and footwear	X	X
Dedicated clean aluminium ladders for internal inspection (2.4 and 3.2 m lengths)		X
Adequate lights for intrusive work and internal inspection	X	X
Abnormal transport for transformer		X
Heavy transport for parts		X
Pre-cast bund wall sections with stainless steel or hot dipped galvanised lifting lugs	X	
Dow Corning 888 concrete sealing agent (8 x 900 g tubes)	X	
Main tank and OLTC oil level gauges (220 mm) complying with 240-56356191 Rev 2.0	X	

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Main tank and OLTC breathers complying with 240-56062529 Rev 2.0	X	
2 x 80 mm Buchholz relays (2000 mm/sec) complying with 240-56063908 Rev 2.0	X	
Transformer bag leak detector complying with 240-56356202 Rev 2.0	X	
2 x Transformer PRD's complying with 240-56063871 Rev 2.0	X	
All oil sample labels shall comply with 240-56062720 Rev 2.0	X	
4 x new cooling fans (locally manufactured as per OEM drawing 3SA 120104)	X	
Auto shut-off valve replacement pipe section	X	
2 x rapid pressure rise relays complying to 240-56063867 Rev 2	X	
5 kA induction earths with clamps for HV, MV, LV and Neutral bushings	X	
3 x Aluminium diverter head covers with rupture discs	X	
3 x new OEM Viton seals for diverter head cover	X	
New O-rings and seals for all covers that are opened – no seal shall be re-used	X	
Hot-dipped galvanised steel surge arrester support with rubber protection sheeting for 22 kV surge arresters	X	
Hot-dipped galvanised steel surge arrester support bracket for 132 kV surge arresters	X	
3 x 22 kV station type surge arresters		X
3 x 132 kV non-load bearing surge arresters		X
3 x 400 kV CT's		X
50 x 3 mm flat copper for earthing of 22 kV surge arresters, 132 kV surge arresters, transformer main tank and neutral bushing	X	
Temporary bund areas for 7 x oil containers	X	
Air compressor with water trap and air duster	X	
OLTC bleed valves and seals		X
6 x new SD 718 PLP3 filter cartridges	X	
Transport for oil containers	X	
20 x stainless steel weld-on cleats and clamps for earthing straps	X	
26 mm covered conductor and clamps		X
HV insulation tape		X
Transportation of new auxiliary transformer	X	
Transportation of old auxiliary transformers	X	
New cables		X

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New cable glands (8 x 37 core cable and 12 x 7 core cable)	X	
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SOW - LOADING TRANSFORMER	S/P	ESK	H/P
Attend pre-site meeting	X	X	
Attend site induction training	X		
Conduct risk assessment	X		
Perform transformer and parts condition assessment and provide feedback to the Grid	X		X
Drain oil from transformer into clean oil tankers and transport to site – oil to be drained under positive dry-air pressure	X		
Transport 1 x oil container	X		
Off load oil container onto blocking to protect galvanised frame inside temporary bund area	X		
Pump oil from tankers into oil containers	X		
Replace silica gel in oil container breathers and fill oil bowls to correct level	X		
Fit dehumidifier to PRD or valve opening	X		
Install impact recorder on active part	X		
Evacuate transformer to 1 mBar – no vacuum holding time	X		
Pressurise transformer with dry-air (Max – 70°C dew-point) to 20 kPa	X		
Install impact recorder on tank	X		X
SFRA test (HV – N and LV per phase) all open circuit and unearthed and on tap that include complete winding	X		
Perform core insulation test (500 V for 1 minute)	X		
Move transformer from storage position to loading position	X		
Load transformer onto abnormal transport vehicle	X		
Transport transformer		X	
Load parts at Simmerpan onto trucks – remove crates if damaged	X		
Transport parts from Simmerpan to site – confirm storage position for parts with site staff		X	
Off-load parts at Grid site(s)			
Transport topping-up oil (15 000 litres) to site	X		
Place bushings into crates and load onto truck	X		
Transport HV, MV, LV and Neutral bushings inside wooden crates – ensure bushings are properly protected from dust and moisture		X	

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Off-load bushings at Grid site	X		
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SOW - OFF LOADING TRANSFORMER	S/P	ESK	H/P
Attend pre-site meeting	X	X	
Attend site induction training	X		
Take work permit, conduct risk assessment and complete workers register	X		
Inspect impact recorder	X	X	X
Seal all plinth expansion joints with Dow Corning 888 joint sealant	X		
Inspect transformer of obvious damage and defects		X	X
Confirm final position of transformer	X	X	X
SFRA test (HV – N and LV per phase) all open circuit and unearthed and on tap that include complete winding	X		
Perform core insulation test (500 V for 1 minute)	X		
Off-load transformer and suspend 400 mm high for base inspection	X		
Perform transformer base inspection and measurement of paint thickness		X	X
Perform transformer dew-point measurement – this will be the reference dew-point	X		X
Repair damaged paintwork under base – Comply with 240-56030674 Rev 1	X		
Keep transformer suspended to allow paint to cure completely	X		
Place 6 layers of 2.5 mm damp-course under transformer – overlapping or transposed	X		
Lower transformer into final position and trim off any exposed damp-course	X		
SFRA test (HV – N and LV per phase) all open circuit and unearthed and on tap that include complete winding	X		
Perform core insulation test (500 V for 1 minute)	X		
Connect transformer to earth mat (4 points for tank, 1 point for neutral bushing, 1 point for 132 kV surge arresters and 1 point for LV surge arresters)	X		

SOW - INSTALLATION OF TRANSFORMER	S/P	ESK	H/P
Start with oil processing	X		
Perform oil quality test on all oil containers before filling – Comply with 240-75661431 Rev 1	X		
Purge dehumidifier and connect to transformer PRD opening	X		

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Fit HV,MV, LV & N bushing turrets	X		
Perform bushing insulation (tan delta) test on all bushings before installation	X		
Install HV, MV, LV and Neutral bushings	X		X
Connect earth leads from HV, MV, LV and N bushing terminals to bottom flange	X		
Fit manifolds and radiators	X		
Open conservator side cover on ground level	X		
Inspect integrity of air-cell	X		X
Ensure bag-leak detector is installed 100 mm from top of conservator tank	X		X
Install 220 mm oil level gauge on main tank and ensure correct orientation and length of float arm – compliance with 240-56356191 Rev 2.0	X		
Install 220 mm oil level gauge on side cover of OLTC conservator tank – no cutting/drilling allowed on tank – compliance with 240-56356191 Rev 2.0	X		
Blank off original oil level gauge	X		
Fit all header pipes and conservator tank	X		
Confirm correct angles of all header pipes (main tank and OLTC) – actual measurements to be taken and results recorded		X	X
Fit new gaskets / “O” rings to all flanges and covers opened or closed on site	X		
Label routine oil sampling points – Comply with 240-56062720 Rev 2.0	X		X
Install conservator tank and bag leak detector bleed pipes to ground level and fit needle valves with tamper-proof covers	X		X
Install 2 x 80 mm Buchholz relays (2000 mm/sec) complying with 240-56063908 Rev 2.0	X		
Install transformer bag leak detector complying with 240-56356202 Rev 2.0 – pipe opening 100 mm from the top of the conservator tank	X		
Install 2 x transformer PRD’s complying with 240-56063871 Rev 2.0	X		
Install rapid pressure rise relays	X		
Remove auto shut-off valve and install pipe and flange – O-ring seals	X		
Remove auto shut-off valve cable and plug hole in marshalling kiosk	X		
Install 22 kV surge arrester brackets with rubber inlays – to be custom made	X		
Install 22 kV surge arresters	X		
Complete earthing connections from 22 kV surge arresters to earth mat	X		
Complete earthing connections from neutral bushing to earth mat	X		
Install removable bund sections and seal joints with Dow Corning 888 sealing agent	X		

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Install individual oil sample tubing and needle valves on OLTC	X		
Install new diverter bleeds nipples and flanges	X		
Connect all cabling on transformer – replace damaged cables	X		
Connect all cabling from transformer to marshalling kiosk – damaged cables to be replaced	X		
Connect all secondary wiring on transformer	X		
Remove existing mild steel diverter head covers and install new aluminium head covers with rupture discs	X		
Perform diverter synchronism – to be done by OLTC OEM certified supervisor	X		
Remove all Sergi valves and fittings and blank off – new seals to be fitted	X		
Remove all unnecessary valves and install blanking plates with new seals	X		
Remove vacuum connection elbow and install blanking plate with DIN 42-558 type bleed nipple	X		
Draw vacuum to 1 mBar on transformer	X		
Pressurise to 20 kPa with dry air – allow to stand for 24 hours for dew point measurement (no topping-up allowed)	X		
Perform dew-point measurement (max 0.8% surface moisture contamination)	X		
Perform internal inspection		X	X
Perform leakage test – Pressurise to 20 kPa with dry air and spray with soap	X		
Establish full vacuum and continue for 48 hours (perform leak rate test)	X		
Perform oil quality test on all oil containers before filling – Comply with 240-75661431 Rev 1	X		
Install transparent pipe to gauge oil level during filling	X		
Fill transformer under vacuum to correct level – to be filled just into conservator tank	X		
Break vacuum and fill to correct level – take care that oil level does not fall below Buchholz relay	X		
Fill OLTC to the correct level	X		
Filter diverter switch oil to ensure (dielectric > 70 kV and water < 10 ppm)	X		X
Do functional test on oil level indicators	X		
Pressurise air-cell and bleed conservator tank	X		X
Perform conservator bleeding procedure and ensure oil level is correct	X		X
Perform electrical test to ensure leak detector has not operated – this test shall be repeated before the contractor leave site	X		X
Perform oil quality test on main tank after filling – Comply with 240-75661431 Rev 1	X		X

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Perform dielectric and moisture test on OLTC oil after filling (dielectric > 70 kV and water < 10 ppm)	X		X
Run all cooling fans and pumps and ensure correct rotation direction	X		
Ensure all valves are in service position – complete valve checklist	X		X
Bleed transformer and OLTC	X		X
Perform operational testing on all protective devices on transformer – ensure signalling to marshalling kiosk	X		X
Perform commissioning testing on reactor – to be witnessed by Eskom Secondary Plant	X		X
Connect HV, MV, LV and Neutral jumpers	X		
Remove 2 x auxiliary transformers	X		
Transport 3 x auxiliary transformers from site to site and off-load	X		
Install new 315 kVA auxiliary transformer and complete cable connections	X		
Refit OLTF filter systems and install new filters	X		
Bleed and run filter systems	X		
Wash complete transformer with soap and high pressure water	X		
Touch-up paint work comply with 240-56030674 Rev 1	X		
Clean site and complete handing over certificate	X		X
Complete transformer / reactor work report	X		
Complete valve checklist and have site EA sign it off	X		X
Complete daily activity report	X		

OIL TREATMENT REQUIREMENTS	Hours
Establish stable vacuum	8
Vacuum leakage test (Max = 33 milli bar / second)	4
Vacuum holding time – dependant on dew-point results	48
Oil filling rate of transformer under vacuum (5000 litres / hour) – 111 573 litres	24
Hot oil circulation – vacuum pump switched on	48
Total	132

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COMMISSIONING TESTING – TO BE WITNESSED BY SECONDARY PLANT	S/P	ESK	H/P
Ringing out of control circuits	X		
Insulation testing of control circuits (2 kV for 1 minute applied between individual circuits and between individual circuits and earth)	X		
Core insulation test (500 V for 1 minute)	X		
Winding insulation tests (10 kV)	X		
Bushing insulation test (10 kV)	X		
SFRA test (HV – N and LV per phase) all open circuit and unearthed and on tap that include complete winding	X		
CT Mag-Curve, polarity, insulation and ratio tests	X		
Zero sequence impedance test	X		
Winding insulation test (5 kV)	X		
Static winding resistance test HV, MV and LV windings (40 A)	X		
Dynamic winding resistance test HV winding (40 A)	X		
Ratio test	X		
Additional testing as per OEM requirements	X		

SOW - TRANSFORMER BAY	S/P	ESK	H/P
Install 132 kV surge arrester bracket on top of radiator bank	X		
Install 132 kV non-load bearing surge arresters	X		
Complete earthing connections from 132 kV surge arresters to earth mat	X		
Install new jumpers and perform connection to 132 kV surge arresters	X		
Isolate and disconnect wiring from 400 kV CT's (Secondary Plant)		X	
Disconnect primary connections from 400 kV CT's			
Remove 400 kV CT's and transport to scrap yard	X		
Install new 400 kV CT's	X		
Tan delta test 400 kV CT's	X		X
Make up new jumpers and connect 400 kV CT's	X		
Install CT cabling	X		
Connect secondary wiring to CT's (Secondary Plant)	X		
Install new cables between marshalling kiosk and JB (4 x 37 core and 6 x 7 core)	X		

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Replace auxiliary transformer pedestal	X		
Install auxiliary transformer and do jumper connections	X		
Insulate complete 22 kV conductors	X		
Connect transformer to earth mat	X		
Install new cable between auxiliary transformer and TDB	X		
Repair broken door on TDB	X		

IMPORTANT REQUIREMENTS	S/P	ESK
A pre-work site meeting shall be held before any work starts	X	X
All holding points (H/P) shall be signed off by the Site Supervisor		X
All bushings shall be installed with tan delta test points facing the tank	X	
Dew-point results shall determine vacuum holding time	X	
Impact recorder results shall be made available within 2 days after final positioning	X	
New gaskets / seals shall to be fitted to all flanges opened or closed on site	X	
Humidity levels shall be recorded daily (no intrusive work to be carried out with relative humidity \geq 60%)	X	
Dehumidifier (RH shall be maintained below 10%) shall be used whenever intrusive work is carried out or covers are removed	X	
No intrusive work shall be performed before sunup and after sunset	X	
A maximum of one inspection cover shall be open at any time during assembly	X	
The time the active part is exposed to shall be kept to a minimum	X	
No intrusive work shall be allowed after internal inspection	X	
Transformer shall be evacuated and pressurised with dry-air during work stoppages (5 – 10 kPa)	X	
Daily activity report shall be filled in by Site Supervisor	X	
Manual with factory test results, installation and assembly drawings shall be delivered to site with the transformer	X	
Oil sampling and oil quality testing shall comply with Eskom Oil Specification 240-75661431 Rev 1	X	
No intrusive work shall be allowed without clean condition protective clothing	X	
Site toilet facilities may be used but shall be maintained in clean condition	X	
Site shall be maintained in a clean condition for the duration of the project	X	
All waste generated during the projects shall be removed from site and disposed of at a recognised	X	

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disposal site		
Cable armouring shall be earthed – compression glands not allowed on armoured cables	X	
Spare cores on cables shall not be cut, but earthed at one end and rolled and secured on the other	X	
No silver ¼" ball valves shall be allowed on Buchholz relays	X	
Oil sample pipe shall be from the top of the Buchholz relays – only Main 1 Buchholz sample valve shall be labelled as the routine oil sample point	X	
Bleed valve on the conservator tank and bag leak detector shall be routed to ground level and fitted with tamper-proof covers	X	
DC testing on the active part shall only be performed after completion of SFRA testing	X	
ISO tanks shall be placed on blocking to prevent damage to galvanised frame	X	
2" pipes, cam-lock fittings and couplings shall be used. Fittings on ISO tanks shall not be removed or altered.	X	
Filter plant shall be properly cleaned and flushed to prevent any possible cross contamination	X	
Tapchanger OEM certified supervisor shall perform the synchronism of the new diverter switch	X	
No painting of valves, protective devices, cables, cooling fans, tapchanger drive mechanism and diverter head covers.	X	
No changes to SOW shall be allowed without written consent from the document compiler	X	
Extreme care shall be taken during loading of the parts at Simmerpan as the crates has deteriorated and might break apart – no parts shall be damaged	X	
Parts shall be transported and handled without damaging it	X	
Composite bushings shall not be slinged or supported on the silicone body	X	
No parts or material shall be removed from site unless stipulated in this document or without permission of the Project Manager	X	
Contractor shall be responsible for providing own security services for safeguarding of staff and equipment	X	
Thread lubrication shall be applied to all terminal box cover fasteners	X	

LABOUR REQUIRED	DAYS
Qualified rigger – whenever rigging and lifting is done	As required
Transformer assembly and commissioning	22
Mobile oil plant	12

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Tapchanger OEM certified supervisor for diverter head cover replacement and final synchronism of tapchanger	3
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Transformer Internal Inspection:


COMPULSORY DOCUMENTATION REQUIREMENTS	S/P	ESK
Signed scope of work	X	
Production & Quality Plan (PQP)	X	
Relevant OEM work procedures	X	
Health and safety plan (compliance with the OHS Act No. 83 Of 1993)	X	
Environmental Management Plan (site and job specific)	X	
Transformer / Reactor work report (TRMREAAK6)	X	
Handing over certificate	X	
Daily activity report	X	
Valid load test certificates for mobile cranes and rigging equipment	X	
Security clearance all staff	X	
Grid ORHVS (Operating Regulations for High Voltage Systems) authorization	X	
Valve position checklist	X	

SITE / EQUIPMENT REQUIREMENTS	S/P	ESK
Personal Protective Equipment (PPE)	X	
Clean condition overalls & footwear	X	X
Tools, equipment, material and consumables	X	
Certified and tested rigging equipment	X	
Mobile crane with aerial basket and valid crane load-test and operator certification	X	
Bio-degradable water based de-greaser	X	
High pressure washer capable of pumping its own water	X	
Water for washing of transformer (no drinking water on site)		X
220 / 380V supply		X
Ladders	X	

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Scaffolding	X	
Dry air generator (Max – 70°C dew point), pipes and fittings – Dry-air cylinders can be used if they are individually tested and certified on site	X	
Clean oil containers for on-site oil storage and processing (6 x 22 000 litre)		X
Transportation of 5 empty oil containers from Stikland S/S to Philippi S/S	X	
Transportation of 1 empty oil container from Aurora S/S to Philippi S/S	X	
Crane and certified lifting gear for loading and off-loading of oil containers	X	
Temporary bund areas for oil containers	X	
Blanking plates	X	X
Desiccant type dehumidifier with ducting and connection plates – min air flow-rate of 1000 m ³ /h (RH of below 10% at input temperature of 20°C at 100 kPa atmospheric pressure)	X	
Air dew-point measuring device	X	
Compressor with water trap and air duster	X	
Vacuum pump with booster	X	
Clean oil containers for tap changer oil	X	

SOW – INTERNAL INSPECTION	S/P	ESK	H/P
Attend pre-site meeting	X	X	X
Collect oil container tanks and transport to site	X		
Place oil containers in temporary oil bund areas	X		
Complete site induction training	X		X
Take work permit, conduct risk assessment and complete workers register	X		X
Wash complete transformer with bio-degradable water based de-greaser and HP washer	X		
Take oil sample before draining and perform QA testing per Eskom Specification 240-75661431 Rev 1	X		
Drain oil from transformer into clean oil containers under positive dry-air pressure	X		
Operate both PRD's and ensure correct operation to control room	X	X	X
Drain oil from tapchanger into clean oil containers	X		
Purge dehumidifier and connect to PRD opening	X		
Remove inspection covers as required by HV Engineering	X		
Perform internal inspection on transformer – HV Engineering		X	X

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Compile investigation report and advise on corrective action – HV Engineering		X	X
Maintain inspection cover flanges	X		
Fit new gaskets and install inspection covers	X		
Replace valves stem seals with Teflon cord on 4 x 250 mm butterfly valves	X		
Evacuate transformer (draw vacuum to 1mBAR) – tapchanger equalised	X		
Pressurise transformer to 15 kPa with dry air – tapchanger equalised	X		
Perform leak inspection and repair leaks if required	X		
Clean site and complete handing over certificate	X		X
Complete transformer / reactor work report	X		

IMPORTANT REQUIREMENTS	S/P	ESK
A pre-work site meeting shall be held before any work starts – Site Supervisor shall attend this meeting	X	X
New gaskets / seals shall to be fitted to all flanges opened or closed on site	X	
Humidity levels shall be recorded daily (no intrusive work to be carried out with relative humidity ≥ 60%)	X	
Dehumidifier shall be used whenever intrusive work is carried out or covers are removed	X	
Transformer shall be pressurised with dry-air during work stoppages	X	
Oil quality testing shall comply with Eskom Oil Specification Comply with 240-75661431 Rev 1	X	
No intrusive work shall be allowed without clean condition protective clothing	X	
Site toilet facilities may be used but shall be maintained in clean condition	X	
Site shall be maintained in a clean condition for the duration of the project	X	
All waste generated during the projects shall be removed from site and disposed of at a recognised disposal site	X	
Daily activity report with minimum information as required by Appendix 1 shall be completed by the Contractor Site Supervisor	X	
HV Engineering shall provide report of findings and corrective action		X
Transformer shall be treated as a serviceable unit and all normal precautions shall apply	X	
Contractor shall be responsible for own security services for access control, staff safety and equipment safeguarding	X	
Allowance shall be made for long term on site oil storage – min 2 months	X	

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LABOUR REQUIRED	DAY(S)
Full Transformer Team	6
Qualified rigger	2

Transformer Removal & Scrapping:


COMPULSORY DOCUMENTATION REQUIREMENTS	S/P	ESK
Signed scope of work	X	
Production & Quality Plan (PQP)	X	
Health and safety plan (compliance with the OHS Act No. 83 of 1993)	X	
Environmental Management Plan (site and job specific)	X	
Handing over certificate	X	
Valid load test certificates for mobile cranes and rigging equipment	X	
Security clearance all staff	X	
Grid ORHVS authorization	X	

SITE / EQUIPMENT REQUIREMENTS	S/P	ESK
Personal Protective Equipment (PPE)	X	
Tools, equipment, material and consumables	X	
Certified and tested rigging equipment	X	
Mobile crane with aerial basket and valid crane load-test and operator certification	X	
Bio-degradable water based de-greaser	X	
High pressure washer capable of pumping its own water	X	
Water for washing of transformer (no drinking water on site)		X
220 / 380V supply		X
Ladders	X	
Scaffolding	X	
Inhibited virgin complying with 240-75661431 Rev 1 oil for flushing of ISO tanks – total of 1400 litres	X	
Abnormal transport for transformer – max loading height 800 mm		X

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Heavy transport for parts					X
Oil tankers for removal of oil from site – no drums or flow bins allowed					X
SOW	S/P	ESK	H/P		
Attend pre-site meeting	X	X	X		
Complete site induction training	X		X		
Take work permit, conduct risk assessment and complete workers register	X		X		
Drain oil from storage containers into scrap tankers – PCB content 1 ppm as per sample number	X				
Remove scrap oil from site	X				
Disconnect and remove on-line DGA system		X			
Flush oil containers with inhibited virgin oil until completely clean – scrap used oil	X				
Break down bund wall and remove building rubble from substation for disposal at an official disposal site	X				
Disconnect all electrical wiring from transformer (Secondary Plant)		X			
Disconnect and remove OLTC filter systems from transformer	X				
Place OLTC filter system next to fire wall for storage – blank pipes	X				
Remove all cooling fans and transport	X				
Remove HV bushings from transformer and scrap	X				
Remove R and W phase bushing turrets	X				
Remove B phase HV bushing turret – bushing connection to be inspected by HV Engineering	X		X		
Inspect HV bushing connection		X			
Remove MV bushings and turrets	X				
Remove LV and N bushings	X				
Remove conservator tank, tapchangers, radiators and pipework – no blanking plates required	X				
Disconnect wiring on 400 kV CT's (Secondary Plant)		X			
Remove radiator stand and 400 kV CT's	X				
Dismantle and remove transformer marshalling kiosk	X				
Move transformer across the road to the storage plinth	X				
Load transformer onto abnormal transport	X				
Transport transformer to scrap dealer premises		X			

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Dismantle entire active fire protection system and support frame	X		
Load parts onto heavy transport	X		
Transport parts to scrap dealer premises		X	
Off-off load parts at scrap dealer premises	X		
Transport transformer to scrap dealer premises		X	
Off load transformer at scrap dealer premises	X		
Clean plinth from all traces of damp course and wash with water based de-greaser and high pressure washer	X		
Load all tools and equipment	X		
Clear site	X		X


IMPORTANT REQUIREMENTS	S/P	ESK
A pre-work site meeting shall be held before any work starts – Site Supervisor shall attend this meeting	X	X
Site toilet facilities may be used but shall be maintained in clean condition	X	
Site shall be maintained in a clean condition for the duration of the project	X	
All waste generated during the projects shall be removed from site and disposed of at a recognised disposal site	X	
Contractor shall be responsible for own security services for access control, staff safety and equipment safeguarding	X	
At least 2 weeks notice shall be provided for HV Engineering to make arrangements for HV bushing connection	X	
Scrap dealer shall inform Eskom two weeks in advance for inspection by HV Engineering during the dismantling process of the transformer	X	

PARTS NOT TO BE SCRAPPED	S/P	ESK
OLTC filter systems	X	
Main and OLTC anti-condensation breathers	X	
All cooling fans	X	
Bag leak detector	X	
Main and OLTC oil level gauges	X	
All name and diagram plates	X	

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Cooling fan contactors and over-loads as required by site staff	X	
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TSP41-257 Specification Document for Phase V Shunt Capacitor and/or Filter

Bank Protection and Control Scheme – Eskom's requirements for the Shunt Capacitor and/or Filter Bank Protection and Control Scheme. The scheme as set out will be used on the Transmission system for voltages ranging from 88 kV to 400 kV and for capacitor banks ranging from reactive power of 36MVAR to 150MVAR.

ESKASAA04 Standard for Electronic Protection and Fault Monitoring Equipment for Power Systems

– This standard state the conditions of operation and Eskom's requirements concerning design, construction, components, materials, finishes and testing of electronic and microprocessor-based equipment for protection and fault monitoring systems, as well as certain requirements related to personnel safety. It covers only general requirements; specific requirements for particular equipment will be given in schedule A of an enquiry document or in other standards. This document is based on Specification CEGB-EES *General specification for electronic equipment*, and supersedes NWS 1819; *"Specification for Electronic Protection and Fault Monitoring Equipment for Power Systems"*.

TST41-627 Standard for Labelling of Secondary Plant Equipment – The standard specify the labelling requirements (type, size, paint, etc.) that should be used in all the secondary indoor and outdoor equipment in Eskom Transmission. The standard describes the materials, methods of engraving and fixing, and character sizes of equipment labels supplied for use on control panels, relay panels and other indoor and outdoor equipment.

240-146463418 Remote Online Monitoring of Unbalance Current in High Voltage Shunt Capacitor Banks - Phase V Schemes – Engineering Instruction (EI), provide a solution that enables remote indication of unbalance currents on high voltage shunt capacitor banks. The EI applies specifically to Phase V protection and control schemes supplied by Powertech IST.

The context of this EI is that currently, unbalance currents on the 5CB5500 and 5CB5600 schemes are measured and read locally from the transducer HMI displays mounted on the interface panel adjacent to the protection panel. Weekly visits to the substations are made to read off the unbalance currents for purposes of trending analysis. It is intended to augment the above local monitoring system by accessing the unbalance current within the GE UR C70 relay and transporting the analogue data to a remote master station.

5 0.52-30328 Master Drawings for 5CB-5400 (Single Star H-Type Configuration) Scheme.


6 0.52-30326 Master Drawings for 5CB-5600 (Double Star Configuration) Scheme.

7 0.52-30789 Master Drawings for Dual Measurements Scheme

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Manufacturing – The Cap Bank manufacturing activities shall be controlled using the Project Schedule, Manufacturing Quality Control Plans (Inspection and Test Plans for Cap Bank Protection), Manufacturing Specific Procedures and Check Sheets together with latest revision approved drawings and specifications.

Compliance to the approved specifications and drawings will be ensured by in process inspections and Factory Acceptance Testing in accordance with Project Procedures and Quality Control Plan's.

Inspections and testing shall be done using calibrated instruments at predefined inspection stages as per the Quality Control Plans (Inspection and Test Plans Inspection and Test Plans for Cap Bank Protection).

Records of these inspections shall be maintained as objective evidence of conformity to specified requirements as defined in the applicable Quality Control Plans (Inspection and Test Plans).

Transportation – Principal Contractor shall ensure safe transportation of these Shunt Capacitor Banks Protection and Control Schemes. Principal Contractor shall monitor the adherence to the Specifications, Statutory and Regulatory Requirements. Such as:

- National Road Traffic Act 93 Of 1996;
- OHS Act (Act No 85 of 1993);
- COVID-19 Directive: Consolidated Directions on Occupational Health and Safety Measures in Certain Workplaces – Published 1 October 2020, Government Gazette 43751, GNR 1031.

Site Shunt Capacitor Banks Protection and Control Schemes Installation Work –

Principal Contractor shall conduct the required pre-job planning to understand the critical operations involved during the works on site.

Therefore, proper coordination, use of latest revision approved drawings and specifications, and strict compliance to SHE requirements and approved Method Statements to be ensured, as per Principal Contractor's, applicable Document Control Procedure.

Principal Contractor shall issue all drawings, method statements and procedures as final approved documents before start of any related work.

The site activities shall be controlled using this Project Quality Plan, SHE Plan, Project Schedule, Quality Control Plans (Inspection and Test Plans), Project specific Procedures, Method Statements and Check Sheets together with latest revision approved drawings and specifications.


Familiarity and knowledge of latest revision approved specifications and drawings and strict adherence together with regular interaction, monitoring and process inspections shall ensure that work is executed to Contract requirements.

The Principal Contract Project Manager together with the team shall ensure that the work is executed in line with the relevant procedures, suitable equipment is used and the work monitored at various stages as required by the specifications and identified in the Quality Control Plans, Check Sheets and relevant procedures.

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Inspections and testing shall be done using calibrated instruments at predefined inspection stages as per the Quality Control Plans (Inspection and Test Plans). Records of these inspections shall be maintained as objective evidence of conformity to specified requirements as defined in the applicable Quality Control Plans (Inspection and Test Plans). Project requirements on planning, progress reporting, and site management shall be implemented in accordance with Eskom Project Manager's instructions. All Operation & Maintenance Manuals and Spare Parts Lists as required by Contract shall be submitted to the relevant Substation (ESKOM in advance of completion and hand over stage).

All work done will require compliance to OHS Act (Act No. 85 of 1993), Construction Regulations 2014, consolidated COVID-19 Directive on Health & Safety in the Workplace - GG 43751 - GNR 1031 – published 01 October 2020 and contractor project specific safe work procedures and method statements that must be approved by the relevant Eskom Project Manager, prior to commencement of works.

A copy of the scope of works must be retained by the contractor.

Note: The contractor who will be awarded this contract will be known as the "principal contractor" and any contractor appointed by the principal contractor will be known as the "appointed contractor."

3.2 Legal Compliance

3.2.1 Section 37(2) (Legal) Agreement

A section 37(2) agreement must be signed between Eskom and the principal contractor at the time of awarding the contract. The principal contractor must ensure that a section 37(2) agreement is compiled between the principal contractor and all their appointed contractors for the contract.

The original copy of the section 37(2) Agreement must be retained by the contractor and a copy retained by the responsible project manager.

A copy of all the agreements must form part of the respective contractor's SHE file.

3.2.2 Hazardous work by children (Child Labour)


The constitution of the Republic of South Africa, in the "Bill of Rights" is clear on the rights of children, especially when it comes to:

1. being protected from exploitative labour practices;

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2. not to be required or permitted to perform work or provide services that

i. are inappropriate for a person of that child's age; or

ii. place at risk the child's well-being, education, physical or mental health or spiritual, moral or social development;

and the Basic Conditions of Employment Act, Chapter six Section 43 "Prohibition of employment of children".

Before resorting to the use of child labour, due consideration must be given to the rights of the child in terms of the constitution. Where work is being performed which is not prohibited in terms of the constitution, then such work must be conducted in terms of the OHS Act "Regulations on Hazardous Work by Children in South Africa" with emphasis on paragraph 2 Purpose and Interpretation. Eskom does not condone the use of child labour and therefore all effort must be exercised and child labour should not be used.

3.2.3 OHS Act

The principal contractor and appointed contractors shall have an up to date copy of the OHS Act and regulations which will be available to all employees.

3.2.4 Legislative compliance

All contractors will comply with all the legislation pertaining to this contract being:


The principal contractor and all appointed contractors will comply with all the legislation pertaining to this project being:

- The Constitution of the Republic of South Africa (particularly Section 24 of the Bill of Rights).
- Occupational Health and Safety Act 1993 (Act 85 of 1993) and its Regulations.
- National Environmental Management Act 1998 (Act 107 of 1998).
- Environment Conservation Act 1989 (Act 73 of 1989).
- National Water Act 1998 (Act 36 of 1998).
- Civil and Building Work Act.
- National Road Traffic Act 93 of 1996.
- Compensation for Occupational Injuries and Diseases Act.

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- SANS Standards –Contractor shall use the relative standards applicable to the project.

3.3 Eskom Requirements

All contractors shall, before commencement of the project ensure that all their employees are familiar with the relevant Eskom SHE documentation that is applicable to contract services.

3.4 Construction Professional Registration

The principal contractor and all his/her 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 (which include Construction Safety Officers) are required to register as professionals with the SACPCMP.
- Construction Managers are required to register as professionals with the SACPCMP.
- Construction agents are required to register as a professional with the SACPCMP.

3.5 Notification of Construction Work

Unless otherwise contractually agreed upon, the principal contractor must notify the relevant provincial director of the Department of Labour of the intention of carrying out any construction work as defined in Construction Regulation 4 of the Act. The notification form of construction work is listed as an annexure to the construction regulations of the OHS Act. A copy of the notification letter sent to the DoL shall be forwarded to the Project Manager on the same day as sent to the DoL. A copy of the letter and their approval must be kept in the SHE file. When the DoL provide a letter of approval, a copy of the approval must be sent to the Eskom Project Manager and a copy filed in the SHE file.

3.6 SHE Policy


SHE policy is a statement of intent and a commitment by the organisation's CE and senior management in relation to the relevant SHE roles and responsibilities, the achievement of their strategic objectives, values of integrity, customer satisfaction, excellence, and innovation.

The principal contractor and all appointed contractors, if already not in place, will be required to compile an organisational SHE policy in line with their SHE responsibilities. The policy

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must be signed by the organisation's CE or the appointed assistant to the CE OHS Act Section 16(2). The policy must be displayed in a prominent place within the workplace. A copy of the policy must be filed in the contractor SHE files and attached as an annexure in the SHE Plan.

3.7 COID

The principal contractor and all his/her appointed contractors shall be registered with an appropriate employment compensation commissioner and have available a valid letter of good standing (LoG) from such commissioner. The obligation lies with the contractors to ensure that the LoG remain valid throughout the contract period. A copy of the LoG must be filed in the contractor SHE files.

3.8 Costing for SHE within the Project

The costing for SHE must be itemised based on the overall scope of the project (i.e.) Training, provision of PPE, safety equipment purchases etc.

3.9 Statutory Appointments


For the duration of the contract, the principal contractor and all appointed contractors shall appoint competent employees who will meet the requirements of the OHS Act. Where appointments are made, contractors shall ensure that the appointees have been suitably trained and or informed of their responsibilities before getting them to accept such appointment. The relevant statutory appointments shall be made in accordance with the requirements of the OHS Act which includes the requirement of a competent person being appointed in the relevant roles. The statutory appointments should include but not limited to the following:

- OHS Act Construction Regulation 8(1) - Construction Manager (Full time)
- OHS Act Construction Regulation 8(7) – Assistant Construction Supervisor
- OHS Act Construction Regulation 8(5) – Construction Health and Safety Officer
- OHS Act General Administrative Regulation 9(2) – Incident Investigator
- OHS Act Section 19 (3) - Health and Safety Committee Member
- OHS Act Section 19(6)(a) – Co-opted Health and Safety Committee member

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- OHS Act Hazardous Chemical Substances Regulation 3(3) Hazardous Chemical Substances Co-coordinator
- OHS Act, Section 17 – Health and Safety Representative.
- OHS Act General Machinery Regulation 2(1) – Supervision of Machinery
- OHS Act Construction Regulation 7(1)(V) Appointment of a Contractor (if appointing subcontractors)
- OHS Act Construction Regulation 9(1) - Person to Compile Risk Assessments
- OHS Act Construction Regulation 10(1) - Competent Person to Compile Fall Protection Plan
- OHS Act: Pressure Equipment Regulations 11 & 12 Portable Gas Container Inspector
- OHS Act: Construction Regulations 11(1) Person to Supervise Excavation Work
- OHS Act: Construction Regulations 16(1) Scaffolding Supervisor
- OHS Act: Construction Regulations 23(1)(d)(i) Construction Vehicle and Mobile Plant Operator
- OHS Act: Construction Regulations 24(c) Electrical Installations and Machinery on construction sites
- OHS Act: Construction Regulations 28(a) Stacking and Storage Supervisor on Construction sites
- OHS Act: Construction Regulations 29(h) Firefighting Equipment Inspector
- OHS Act General Safety Regulations 3(4) – First Aider/s


3.9.1 Non-statutory appointments

- Eskom requirement – Emergency Planning Co-coordinator
- Eskom requirement - Chairperson of Health and Safety Committee

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3.10 Eskom Life-saving Rules

1. Eskom views health and safety in high esteem and encourages that any organisation who performs work for Eskom in Eskom adopt the same view.
2. Five Life-saving rules have been developed that will apply to all Eskom Employees, agents, consultants, and **contractors**. Failure to adhere to these rules by any Eskom employee or employee of a Principal Contractor or appointed contractor will be considered a serious transgression. These rules are being implemented to prevent serious injury or death of any employee, labour broker or contractor working in any area within Eskom.
3. If any contractual work will be performed on any Eskom premises (including delivery of any product), then the rules **shall be obeyed** by any contractor and their employees.


The rules are:

RULE	DESCRIPTION OF RULE
Rule 1	OPEN, ISOLATE, TEST, EARTH, BOND, AND/OR INSULATE BEFORE TOUCH (That is plant, any plant operating above 1000 V)
Rule 2	HOOK UP AT HEIGHTS Working at height is defined as any work performed above a stable work surface or where a person puts himself/herself in a position where he/she exposes himself/herself to a fall from or into.
Rule 3	BUCKLE UP No person may drive any vehicle on Eskom business and/or on Eskom premises: Unless the driver and all passengers are wearing seat belts.
Rule 4	BE SOBER No person is allowed to be under the influence of intoxicating liquor or drugs while on duty
Rule 5	PERMIT TO WORK Where an authorisation limitation exists, no person shall work without the required permit to work.

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Eskom will take a stance of zero tolerance on these rules.

Non-compliance to a Life Saving rule will be considered serious misconduct and will lead to serious disciplinary action, which may include dismissal.

This is to ensure that **every person** who works on or visits an Eskom **returns home safely to his or her family.**


3.11 Substance Abuse

1. Alcohol and substance abuse poses a significant threat to any business, more so in industrial incidents and the driving of vehicles. Eskom is therefore, entitled to take reasonable steps to ensure that intoxicated persons are identified and prevented from entering Eskom.
2. General Safety Regulation 2A is clear on the legal stance regarding intoxication.
3. The alcohol and drug permissible level is 0%.
4. All contractors shall comply with Eskom's procedure 32-37 ("Substance Abuse Procedure"), taking in to account that this is an Eskom Life-saving Rule number 4: BE SOBER", this means anyone entering the Eskom will be subjected to ad hoc alcohol testing.
5. Contractors are encouraged to compile their own manual and to carry out regular alcohol testing of their own employees. The legislative alcohol level is deemed to be zero.
6. Test records must be treated as "Confidential" and filed in the employees' personal file.

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3.12 Contractor organisational Structure

3.12.1 Principal Contractor Organogram

The principal contractor must provide an organisational organogram related to this contract, depicting all the levels of responsibility from the CE down to the supervisors responsible for the contract. List the relevant positions held, names of appointees and legal appointments.

The principal contractor must ensure that all appointed contractors comply with this requirement. The principal contractor is responsible for keeping copies of all the organograms' as well as submitting them with the SHE plan. All organograms shall be updated timeously when appointments are changed.

This diagram must be kept up to date and filed in the project SHE files.

3.12.2 Appointed Contractor/s Organogram

1. Appointed contractors are required to compile their company organogram for the project, listing the reporting structure from their CE down to their project supervisors. The diagram must list the names, positions held and any appointments made.
2. This diagram must be kept up to date, a copy of which must be given to the principal contractor and a copy filed in the relevant project SHE files.
3. This diagram must be kept up to date and filed in the project SHE files.

3.13 Risk assessment (refer to 32-520)

It is a legal requirement in terms of Section 8 (2)(d) of the OHS Act for an employer to carry out risk assessments, to establish which risks and hazards are attached to the health and safety of persons due to any work which is performed, any article or substance which is, handled, stored, transported. A risk assessment is defined as an identification of the hazards present in an organisation and an estimate of the extent of the risks involved, taking into account whatever precautions are already being taken.


It is essentially a three stage process:

- identification of all hazards;
- evaluation of the risks;
- Measures to control the risks.

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Risk assessments are required to be maintained. This means that significant changes to a process or activity, or any new process or activity should be subjected to a risk assessment and that if new hazards come to light during the work process, then these should also be subjected to risk assessments. Risk assessments for long term processes should be periodically reviewed and updated. Method statements or written safe work procedures are an effective method as information and record of the way jobs / tasks must be performed. Daily or issue based or task specific or on the job risk assessments must be conducted at the place where work is to be performed/ conducted to allow managers and employees to assess any inherent risks that could have been overlooked during the initial risk assessment or any changes that might have occurred in a period of absence. For example if a job / task is extended over a day or halted due to inclement weather.

Guidelines for actual steps involved in a job/task specific risk assessment are:

- Each activity is listed;
- Specific hazards are identified and listed against each activity;
- The magnitude of each risk is rated as Low. Medium or High;
- All known documentary and supervisory controls are listed. For instance: What safe work procedures exist for ladders;
- The relevance, effectiveness and sufficiency of these controls are assessed;
- In the event of insufficient or deficient controls for the particular activity, steps to be taken to rectify this shall be recorded, and safe working procedures drawn up;
- Persons responsible for implementing and supervising the task shall be identified, nominated and duly assigned;
- Persons responsible for monitoring the task and carrying out the planned job observation must be nominated;
- Completed risk assessment shall be handed to the Eskom project manager representative for comment and approval.

The relevant section of the risk assessment shall be issued with a Transmittal Note to the Supervisor nominated as the responsible person; and the names of workmen who have received instruction on the work content and the sequence of the activities listed in the risk assessment shall be recorded, and their competence established. This instruction shall be done through an interpreter if required and recorded on the Pre-Job Brief (Daily Safe Task Instructions), with reference to applicable Risk Assessments.


3.14 Safe work procedures / method statements

Method statements / written safe work procedure are control measures used to prevent an incident from occurring during the execution of the project. A written safe work procedure/

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method statements provide guidance how to execute the task safely. A safe working procedure should be written when:-

- a. Designing a new job or task;
- b. Changing a job or task;
- c. Introducing new equipment or substances; and

The safe working procedure should identify:

- d. The supervisor for the task or job and the employees who will undertake the task;
- e. The tasks that are to be undertaken that pose risks;
- f. The equipment and substances that are used in these tasks;
- g. The control measures that have been built into these tasks;
- h. Any training or qualification needed to undertake the task;
- i. The personal protective equipment to be worn;
- j. Actions to be undertaken to address safety issues that may arise while undertaking the task.

3.15 Roof work (refer to 32- 418)

Where roof work is to be performed, a risk assessment must be carried out prior to climbing on to the roof to determine the hazards (stability, suitability strength etc.), consequences of climbing and control measures that are required.

3.16 Construction Sites


Note1:No area is to be stripped of vegetation to create firebreaks, to prevent or make fires. No open fires are allowed on site. The contractor must ensure that operations are in compliance with statutory requirements at all times.

1. The contractor must develop a fire safety procedure for the construction site prior to commencing work. The procedure must take into consideration the size of the site/s, the type of work performed and amount of combustible materials. Cognisance of OHS Act CR 29 must be made.
2. It must be developed in accordance with the hot work permit of the Eskom Plant Safety Regulations, Eskom 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.
3. A suitable fire warning system for alerting site personnel of fire shall be provided, and capable of being heard in all areas of the site.

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4. Appropriate portable extinguishers must be available on the construction site and in cases of hot work, be readily available at the location.
5. Storage of combustible and flammable liquid in the construction site is not permitted unless stored in approved flammable cabinets or outdoors away from the buildings.
6. Site Smoking Restrictions must be enforced. No open flames are permissible and where hot work is performed, the work areas must be cleared of any combustibles prior to commencement of work.

3.17 Fire Equipment and maintenance

1. All firefighting equipment's that have been provided shall:
 - a. Be clearly labelled
 - b. Conspicuously numbered
 - c. Entered in a register
 - d. Inspected monthly by a competent person
2. Tested and serviced at recommended intervals by an accredited supplier
3. Results entered in the register and signed by competent person.


3.18 Flammable and Combustible Liquids

1. Proposals to store fuel on site must have written approval from the Eskom Project Manager. The volumes of fuel allowed to be stored will depend on site conditions and Statutory Regulations.
2. A maximum storage of 40 litres of fuel is allowed to be stored. Anything greater than 40 litres to be stored in a flammable/combustible liquid store.
3. Adequate numbers of dry chemical fire extinguishers, each with a minimum capacity of 4.5 kg, shall be provided, installed and maintained.
4. All fuel storage areas must comply with the following requirements: -
 - a. Storage should be well clear of buildings.
 - b. Storage areas must be kept free from all combustible materials.
 - c. All Safety signs must be prominently displayed i.e.
 - Flammable Liquid.
 - No Smoking.
 - No open flames.
 - d. Adequate firefighting equipment must be available.

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5. Diesel tanks are to be installed in a bunded area; bunded area must be able to contain 110% of tank capacity.
6. Bunded area shall be of a concrete or steel construction and lined with a leak proof sealing material.
7. Bunded area shall have a drain valve.
8. No other material/equipment shall be stored in the bunded area.

3.18.1 Refuelling at the construction site

With the exception of construction vehicles and mobile equipment, before a machine is refuelled, the motor must be stopped. Refuelling shall take place at designated safe areas and appropriate warning signs installed. Suitable drip trays must be used to prevent spillage at the filling nozzle.


3.19 First Aid and Equipment

1. The requirements of the OHS Act GSR 3 must be observed.
2. First aid appointments must be made to meet the requirements, this includes construction sites. Appointees must be trained to level 2. It is good practice for all employees to be trained to at least level 1.
3. When appointing employees for work sites, cognisance must be taken into account the type of work performed, the distance teams are working apart and the terrain to be covered if an emergency should arise.
4. A list of emergency numbers must be displayed on the notice boards and made accessible for all employees.
5. Principal Contractor must ensure that his /her employees and appointed contractor employees are familiar with the emergency numbers.
6. Contractors shall have one first aid box for the first 5 persons and thereafter one for every 50 or team of workers on site or part thereof, taking into account the type of work performed and the distance between teams.
7. More first aid boxes shall be provided in accordance with the risk assessment. Boxes must be available and accessible for the immediate treatment of injured persons at the workplace.
8. For offices, signs indicating where the first aid box or boxes are kept as well as the name and contact details of the First Aider of such first aid box or boxes shall be erected.
9. The Principal Contractor and appointed contractor shall ensure that alternative arrangements be made for incidents occurring after working hours.

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3.19.1 Boxes and equipment

The following is a list of minimum contents of a 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 mouth pieces or similar devices.

A content check list must be available with all boxes and boxes shall be checked on a regular basis, kept clean and dust free.


3.20 SHE Communication Systems

Principal Contractor/s and their appointed contractors must develop a communication strategy outlining how they intend to communicate SHE issues to their staff, the mediums they will employ and how they will measure the effectiveness of their SHE communication. Below is a brief on how communication should take place. Where project meetings are

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conducted on site, SHE shall be included as a standing agenda point and minutes of these meetings shall be available on site at all times. Minutes of meeting must be compiled and filed in the relevant SHE files. All employees shall have access to these minutes. Attendance register shall be kept for all the health and safety meetings.


3.20.1 Statutory Health and Safety Committees

1. The principal contractor shall establish statutory health and safety committee in terms of Section 19 of the OHS Act, Act. Similarly, appointed contractors shall establish their own statutory health and safety committee.
2. All appointed contractors shall be members of the principal contractor's safety committee.
3. The Committee shall meet to discuss SHE issues concerning the current work being performed, training, upcoming work and SHE requirements, incidents and lessons learned specific SHE problems, safety performance, action plans and other relevant SHE issues. Listed below is a preferred agenda.
4. SHE representatives for a workplace shall be members of the relevant workplace safety committees (Refer to Section 19 (2) (a) of the OHS Act).
5. The number of persons nominated by employer must not be more than the Health and Safety Representatives on that specific statutory health and safety committee. (Refer to Section 19(2)(c) of the OHS Act)
6. A statutory health and safety committee meeting shall be held at least 3 monthly (where medium to high risk work is involved, more frequent if required), and all appointed members of the committee shall attend the meeting.
7. Statutory health and safety committees may make recommendations to the principal contractor and the project manager and the Inspector at DoL.
8. All health and safety committees shall discuss all projects related OHS Act Section 24 and 25 incidents and other notified serious incidents.
9. Health and safety committees shall follow up on incident investigation recommendations and shall keep record of all recommendations made by the committee.
10. Statutory health and safety committees may make recommendations for the revision of current standards, procedures and practices.
11. The principal contractor and appointed contractors shall ensure that statutory and non-statutory health and safety committees carry out their duties.
12. The chairperson of the health and safety committees shall be selected and appointed by the contractor. The appointed chairperson must be competent to chair meetings and be able to make informed decisions.

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3.20.2 Non-statutory health and safety committees

1. Where there are large worksites, then non-statutory sub-committee must be established within that worksite to assist with the communication of health and safety related matters between the statutory health and safety committee and the workplace.
2. The duties and responsibilities of the non- statutory health and safety committees will be the same as the statutory safety committee


3.20.3 Agenda

1. The following serves as the guideline for the SHE Committee meeting agenda.
 - List of agenda items:
 - Matters arising from previous minutes
 - Matters arising from Contractor's SHE meetings.
 - Audit results and feedback
 - Review Health and Safety Representative Inspection Reports
 - Review
 - Incident investigation reports
 - Non-Conformances
 - Announcements (near miss/injury/damage)
 - Follow up on recommendations made by the employer in incident investigation reports
 - Accident Prevention – Safety Promotion
 - Planned Job Observations
 - SHE Training
 - Protective clothing and equipment
 - Incident Announcements / Recall
 - Forthcoming High hazard activities.
 - Non-conformances.
 - Housekeeping.

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- Work permits.
- Work procedures.
- Hazardous materials / substances.
- Fire Prevention
- Occupational Hygiene Assessments, Health Risks and Actions
- Security
- Construction vehicles and mobile equipment
- Rules, Instructions
- Public Safety
- Environmental Management
- Emergency Preparedness
- Statistics report
- Closure


3.20.4 Minutes and action items for all health and safety committee meetings

1. Minutes and record of action items shall be kept of all health and safety committee meetings.
2. Action column with target dates and responsible person shall be clearly visible on the minutes and shall be completed during the meeting.
3. Statutory health and safety committee meeting minutes and record of action items shall be kept for the duration of the project or a minimum period of three years.
4. Non-statutory health and safety committee meeting minutes shall be kept for the duration of the project or a minimum period of 12 months.
5. All other meeting minutes where SHE is on the agenda, shall be kept for a minimum period of 12 months.
6. The original copy of the minutes and record of the action items must be signed by the chairperson.
7. The relevant project manager and principal contractor shall endorse the relevant minutes with his/her recommendations and return the minutes to the relevant contractors chairperson within 14 calendar days of the meeting.

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3.20.5 Tool box talks / Daily team talks / pre job meetings

1. A meeting must be held prior to the commencement of the day's work with all relevant personnel associated with the work task in attendance. The job, relevant procedures, associated hazards, safety measures, i.e. the task risk assessments shall be discussed. Each employee who attends the briefing shall sign an attendance list of that pre-job brief form undertaking that they have an understanding of the tasks, risks and control measures required.
2. Where possible, tool box talks can be included in the pre-job brief meetings. If this does not occur, then weekly tool box talks must be conducted. The toolbox talk topics will be based on SHE issues pertaining to the construction site and or the project. The topic contents shall be in writing. Attendance registers with the topic listed shall be kept.


3.21 SHE Training

1. The principal contractor, when making a bid for this project shall provide a breakdown list of the SHE training requirements and the costing of such requirements. Similarly, appointed contractor must provide the same requirements when bidding with the principal contractor.
2. The scope of training includes but is not limited to the type of work being performed and the relevant procedures. Additional to the requirements, will be that the principal contractor and appointed contractors must have the appropriate qualifications, certificates and employees should always be under competent supervision.
3. Where legislative and Eskom recommended appointments are made, the relevant training shall be given to those appointees prior to the acceptance of those appointments.
4. When there is an amendment to the Acts and/or to the regulations, SHE specification and SHE plan, all affected staff shall undergo the applicable refresher training.
5. Appropriate time must be set aside for training (induction and other) of all employees.
6. Records of all training and qualifications of all contractor employees must be kept on the SHE file.

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3.21.1 Induction training

1. The principal contractor shall ensure that all his / her employees, appointed contractors and their employees have undergone the Eskom Safety Contractor Management induction training prior to commencing work on site.
2. Attendance registers must be completed of any induction training given, which must indicate that they have received and understood the induction training.
3. Prior to attending the induction training, all employees must undergo a pre-employment medical examination and found fit for duty. A copy of the certificate of fitness must be kept in the SHE file on site for the duration of the project.
4. All employees and visitors on site shall carry the proof of induction training.

3.21.2 Site specific induction training

The principal contractor shall ensure that all his / her employees and appointed contractor employees undergo site specific work induction with regard to the approved project SHE plan, general hazards prevalent on the construction site, construction risk assessment, rules and regulations, and other related aspects. The induction training should also include identification of sensitive features such as wetlands/vlei areas, red data species, graves, etc.

3.21.3 Visitors to site induction

1. Visitors to the site shall be required to undergo and comply with the principal contractor's site-specific safety induction prior to being allowed access to site.
2. All visitors must remain in the care and custody of a person (host) who has been properly inducted. No visitors are permitted to undertake any work onsite, of any nature.
3. Visitors who have completed site induction must be provided with a record of proof of Induction training.


3.21.4 General training

The principal contractor will be required to ensure that before an employee commences work on the project, the respective supervisor informs the employee of his scope of authority, the hazards associated with work as well as the control measures to be taken. This will include man-job specifications, the discussion of any task procedures or hazardous operational procedures to be performed by the employee. The Principal Contractor is to ensure that the supervisor has satisfied himself that the employee understands the hazards associated with any work to be performed by conducting task/job observations.

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3.22 Contractor Site Establishment

1. Principal contractor's site facilities should be managed at all times.
2. Prior to establishing a project site, a site plan is required to be drawn listing position of all buildings, amenities, storage and stacking areas. The appropriate colour coding and demarcation of storage and stacking areas must be carried out.
3. Where, working in the field and material is stored at the work sites, then proper stacking and storage shall be carried out.
4. When compiling the site plan, cognisance must be taken to the establishment of the site camp, ablution facilities and dining area in relation to one another and away from stacking and storage areas.

3.22.1 Site roads

1. When planning, sufficient areas must be allocated for parking of construction vehicles and mobile equipment's as well as roadways for ease of manoeuvrability of these vehicles.
2. Sufficient width roads to be provided and adequate space is to be allowed for large vehicles traversing the sites.


3.22.2 Construction vehicle safety

1. It is the responsibility of the driver to ensure:
 - a. Their passengers wear seat belts whilst the vehicle is in motion.
 - b. Comply with all traffic road rules, safety, direction and speed signs.
 - c. Ensure that vehicle loads are properly secured prior to moving off.
 - d. Ensure that vehicles are not overloaded.
2. No drivers or operators may text, talk on cell phones or two way radios whilst driving, unless a hands free kit is used.
3. All drivers of construction vehicles are to have valid medical fitness certificates.
4. Each Project site that is enclosed by demarcation will have system/ process to manage vehicle access to site.
5. Contractor must maintain their vehicles in a roadworthy condition and a vehicle license must be valid at all times.
6. Drivers of light vehicles must avoid stopping or parking in the vicinity of machines. At least 30 (thirty) meters must be left clear between such a vehicle and such a machine

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7. Contractor vehicles can be subject to inspections by the Client/Agent's representative. Vehicles which are not roadworthy will not be permitted to be used on the project.
8. Drivers/operators shall be responsible for the travel-worthiness of all loads conveyed by them. Precautions shall be taken to secure all loads properly. Loads projecting from vehicles shall be securely loaded and 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.


3.23 Housekeeping and Order

1. All contractors shall maintain a high standard of housekeeping within their sites and vehicles for the duration of the project.
2. Prompt disposal of waste materials, scrap and rubbish is essential.
3. Materials/objects shall not be left unsecured in elevated areas –falling objects may cause serious injuries/fatalities.
4. Nails protruding through timber shall be bent over or removed so as not to cause injury.
5. All packaging material including boxes, pallets, crates, etc. to be removed from the work area immediately.
6. On completion of his / her work, the contractor is responsible for clearing his / her work area of all materials, scrap, temporary buildings and building bases to the satisfaction of the client/agent.
7. In cases where an inadequate standard of housekeeping has developed, compromising safety and cleanliness, anyone has the responsibility to bring it to the attention of the principal contractor in the first instance and the Eskom project/site manager in the second instance.
8. The Eskom Project/Site Manager has the right to instruct the principal contractor and appointed contractors to cease work 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 a stoppage. Failure to comply with this requirement will result into site cleaning by another cleaning contractor company at the cost of the principal contractor.
9. The principal contractor shall carry out regular safety/housekeeping inspections (at least weekly) to ensure maintenance of satisfactory standards. The principal contractor shall document the results of each inspection and shall maintain records for viewing.

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3.23.1 Stacking

1. Before stacking any material, the contractors or their employees must consult the contract manager for authorisation to use such an area for stacking purposes. This is to prevent haphazard arrangements.
2. Adequate care must be taken by the contractor to ensure that storage and stacking is carried out correctly and safely.
3. Correct shelf stacking must be carried out, heavy and bulky on the bottom, light and small on top.


3.24 Workplace Signage and Colour Coding

1. Symbolic safety signage shall be displayed where it is required by legislation.
2. All symbolic safety signage shall conform to the requirements of SANS standard 1186.
3. Signs shall be positioned to be seen from most positions within the work sites / areas.
4. All signage must be clear at all times and be replaced timeously when worn out.
5. Contractors establishing sites must erect a company sign at their site offices to reflect the name and contact details of the: Construction Supervisor; Health and Safety Manager/Practitioner; First Aider; Health and Safety Representative and Evacuation warden.
6. The location of every first aid box; fire extinguisher and emergency exit is to be clearly indicated by means of a sign.
7. When using, an explosive power tool the appropriate signage shall be erected, warning people of its use.
8. Contractors shall provide signage where work is conducted and where unauthorised entry is prohibited and/or where alerting and cautioning passers-by to be aware of potential dangers.
9. The meanings of the appropriate symbolic signage must be discussed during induction training and toolbox talks.
10. Where possible, within workshops, work areas and established premises, the appropriate sign indicating the meaning of symbolic safety signs must be displayed.

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3.25 Tools and Equipment

1. Contractors shall ensure that all tools and equipment are identified, safe to be used and is maintained in a good condition.
2. Contractors shall ensure that all tools and equipment are listed on an inventory list, be regularly inspected at least monthly or as required by legislation and risk assessments. The equipment should be numbered or tagged so that it can be properly monitored and inspected.
3. Where applicable, tools and equipment must have the necessary approved test or calibration documentation prior to being brought onto the project and the records shall form part of the SHE plan. Maintenance calibration shall be undertaken in terms of the manufacturer's requirements.
4. All fuel driven equipment must be properly maintained in accordance with the manufacturer's recommendations and legal requirements.
5. Eskom reserves the right to inspect tools or items of equipment brought to site by contractors for use on this project.
6. Should Eskom personnel find any item that 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 Eskom personnel shall advise the contractor in writing and the contractor shall forthwith remove the item from site and replace it with a safe and adequate substitute.

Note: In such cases, the contractor shall not be entitled to extra payments or extensions of time in respect of delay caused by Eskom's instructions.

7. Where defective tools and equipment's are identified, such tools and equipment shall be removed out of site immediately, locked away to prevent further use until such time as the tool or piece of equipment has been repaired.
8. Contractors shall ensure that the appropriate records are kept for all tools and equipment used on the project. Such tools and equipment's shall be subjected to regular inspections.


3.25.1 Hand tools

1. All hand tools (hammers, chisels, spanners, etc.) must be recorded on a register and inspected by the construction supervisor on a monthly basis as well as by users prior to use.
2. Tools with sharp points in tool boxes must be protected with a cover.
3. All files and similar tools must be fitted with handles.
4. No make shift tools are permissible on the project.

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3.26 Ladders

1. Ladders used shall conform to the requirements of GSR 13A and used in terms of GSR 6.
2. The appropriate head protection, with chin strap shall be worn by employees working from a ladder or with climbing irons.
3. The ladder wheels, brakes and platform must be in good condition.
4. All metal parts to be in good condition, no cracks.
5. Non-slip devices must be in good condition and no paint to be on wooden ladders
6. Climbing irons are permitted to be used in place of ladders on condition that the requirements of GSR 6 are not compromised and from an electrical point of view not damage any cabling. The working at heights risk assessment must indicate the use of climbing irons.
7. Employees using climbing irons shall be suitably trained in the use, care and maintenance of such climbing irons.
8. When using climbing irons, the appropriate rope grab fall prevention system shall be used.
9. The correct fall protection equipment shall be worn and used whilst climbing up, working from and climbing down ladders.
10. The appropriate head protection, with chin strap shall be worn by employees working from a ladder or with climbing irons.
11. A detailed inspection of all ladders shall be conducted monthly by a competent person and every time prior to climbing by employees using such ladders. The inspection check lists must be filed in the site SHE files.


3.27 Scaffolding

1. Scaffolding use shall conform to the requirements of CR 14, Eskom procedure 32-418 and used in terms of GSR 6.
2. The requirements for using a scaffold platform shall be determined by the work at heights risk assessment.
3. All scaffolding that will be used shall conform to the SANS standard 10085 and the requirements of CR 16 shall be carried out.
4. Scaffolding shall be erected and inspected by the competent personnel.
5. The appropriate training for scaffold users shall be conducted prior to climbing on to the scaffold.

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6. The correct fall protection equipment shall be worn and used whilst climbing up, working from and climbing down the scaffolds.
7. A detailed inspection of all scaffolding shall be conducted monthly by a competent person and every time prior to climbing by employees using such scaffolding. The inspection check lists must be filed in the site SHE files.

3.28 Auditing

3.28.1 Approval and compliance of principal contractor SHE plan

The Contractor's SHE Plan will be audited against compliance checklist so as to verify compliance to the requirements of the Eskom SHE specifications. Once there is compliance only then will the principal contractors SHE plan be approved by the project manager or an appointed Eskom contract custodian. The implementation of the SHE Plan shall be assessed / audited by Eskom personnel on a regular basis. This will include physical conditions evaluation.

3.28.2 Eskom SHE audits

Eskom shall evaluate all contractors' SHE performance on an ongoing basis against the legal, Eskom requirements, SHE specification and the contractors SHE plans.

Note: Eskom reserves the right to conduct unannounced audits on contractors

There will be monthly audits conducted by Eskom on the principal contractor/s and/or appointed contractors. These audits shall be attended by the contractor's site manager or his representative.

If there are any findings / non-compliance identified as serious in these audits, an activity will be stopped for that specific Principal Contractor and appointed contractor. Refer to section on "Work Stoppage" in this SHE Specification.


3.28.1 Contractor audits

Principal Contractors are required to conduct internal audits on both their employees and their appointed contractors on the implementation of their SHE Plan on a monthly basis or when the scope of work changes. A summary of the findings and the proposed corrective actions shall be submitted to Eskom project manager within one week after completion of the audit. Where appointed contractors are audited by the principal contractor a copy of the audit report shall be submitted to the appointed contractor within 7 days of the audit.

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3.29 Smoking

The national smoking policy must be observed and smoking is permitted in designated areas only (Eskom Smoking Procedure 32-36).

3.30 Cellular Phones

The national requirements regarding the use of cellular phones must be observed, in particular when driving and or operating mobile equipment and or machinery.

3.31 Occupational Health, Hygiene and Rehabilitation

All contractors are required to develop an Occupational Health, Hygiene and Rehabilitation program. The program is intended to ensure that the risks to health are identified and controlled.

3.31.1 Medicals

Note: Eskom will only accept medical surveillances conducted by an Occupational Health Practitioner who holds a qualification in occupational health.

1. Principal contractors must ensure that their employees and their appointed contractor employees have a medical surveillance program whereby their employees under go entry, periodic and exit medical fitness examinations.
2. In order for the appropriate medical examinations to be conducted, each employee must have a man job specification, which must indicate the description of work, list of hazards and potential occupational exposure limits, physical hazards and required physical attributes.
3. Medical fitness certificates shall be renewed annually for employees who are working on site. This shall be maintained until completion of the contract.
4. The Principal Contractor must ensure that his / her employees and appointed contractor employees have undergone pre-entry medical examination before starting work on the contract.
5. The principal contractor shall provide a documented process for managing those employees who are issued with a conditional certificate of fitness.


3.32 Working at Heights

3.32.1 General Requirements

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Wherever reasonably practicable, preference is given to the performance of work at ground level as opposed to the elevated position. Where work in an elevated position is necessary, preference is given to fall prevention measures such as, but not limited to, effective barricading and the use of work platforms. Persons may only work from a fall risk position if a site-specific fall protection plan is in place and correctly implemented and consists of the following:

1. All appointments for the fall protection plan developer and implementer are in place.
2. Baseline risk assessment, which is specific and incorporates the working at height risk assessment, as well as the site-specific risk assessment, has been completed for the work to be conducted.
3. Safe working procedure/task analysis and work instructions, approved by a competent person, are in place.
4. A fall rescue plan, along with necessary equipment and trained rescuers, is in place.
5. Appropriate training, as determined by the risk assessment, has been provided.
6. Appropriate height safety equipment and personal protective equipment have been issued to the individual.
7. There are equipment inspection procedures and up-to-date inspection records.
8. Individuals are medically fit to work at height, and records of this are kept.
9. A site-specific risk assessment is performed.

While work is in progress, adequate warning signs and/or barricades shall be used in all areas where there is a risk of persons being injured by materials or equipment falling from the work area. Barricades should be continuous and easily visible.

A drop zone shall be established with appropriate warning signs and barricading, warning personnel below of workers above and potential falling objects.


Every employer shall ensure that work at height is:

1. properly planned;
2. appropriately supervised; and
3. carried out in a manner that is, as far as is reasonably practicable, safe and that its planning includes the selection of work equipment.

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3.33 Risk Assessments

It is a legal requirement in terms of Section 8 (2)(d) of the OHS Act for an employer to carry out risk assessments, to establish which risks and hazards are attached to the health and safety of persons due to any work which is performed, any article or substance which is, handled, stored, transported. A risk assessment is defined as an identification of the hazards present in an organisation and an estimate of the extent of the risks involved, taking into account whatever precautions are already being taken. It is essentially a three stage process:

- identification of all hazards;
- evaluation of the risks;
- Measures to control the risks.

Risk assessments are required to be maintained. This means that significant changes to a process or activity, or any new process or activity should be subjected to a risk assessment and that if new hazards come to light during the work process, then these should also be subjected to risk assessments. Risk assessments for long term processes should be periodically reviewed and updated. Method statements or written safe work procedures are an effective method as information and record of the way jobs / tasks must be performed. Daily or issue based or task specific or on the job risk assessments must be conducted at the place where work is to be performed/ conducted to allow managers and employees to assess any inherent risks that could have been overlooked during the initial risk assessment or any changes that might have occurred in a period of absence. For example if a job / task is extended over a day or halted due to inclement weather.

3.34 Safe Work Procedures and Practices / Safe Operating

There must be written safe work procedures for all activities, the safe work procedures must be aligned with the risk assessments.


3.35 Personal Protective Equipment Requirements

1. The Principal contractor must provide a detailed programme that includes the issuing, maintenance and replacement of PPE for all his employees and appointed contractors on site.
2. All contractors shall comply with the requirements of GSR 2 of the OHS Act.
3. The risk based PPE matrix must be compiled detailing the types of PPE that is required to be issued to employees performing the respective tasks.

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4. Where there are unusual instances where particular activities require additional type of PPE, then a risk assessment must be conducted where such PPE requirements will be identified and the issuing be carried out.
5. All contractors shall ensure that their visitors wear and use the correct PPE whilst on worksites.
6. Where PPE is required and visitors are not in possession of, then it is the individual contractor's responsibility to provide the PPE.
7. All PPE purchased and used by all contractor employees including visitors must comply with the relevant SANS standards.
8. Where deemed as a requirement, then high visibility vests shall be worn.

3.36 Incident Investigation

All incidents shall be investigated in terms of OHS Act General Administrative Regulations 8 and 9, using Eskom Procedure 32-95 as a reference, and where injuries as contemplated in sections 24 and 25 have been sustained, be reported to the Department of Labour.

Contractors shall use the standard General Administrative Regulation Annexure 1 "Recording of an Incident" form for all incident investigation reports. The objective of incident investigation, should not only be a legal requirement, but should establish why and how the incident occurred and find out the real root cause of the incident and to decide on precautionary measures that are required to address the root cause to prevent any further recurrences of the same or similar incidents.

3.37 Emergency Management

The art of emergency preparedness and response is to minimise the effects of any emergency and to restore normal activities as soon as practical. The contractor must familiarise themselves with the Eskom emergency response plan and procedure. Periodic emergency drills must be undertaken to test the effectiveness of the plan. This must be recorded and provided on request.


3.38 Non-Conformance and Compliance

1. Any non-compliance to any health and safety requirement in this SHE specification is subject to discipline in terms of the Eskom Procurement and Supply Management Procedure.
2. Principal contractors are required to implement a non-conformance procedure (if not already in place) for issuing to contractors for transgressions. The procedure can

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include “quality” related non-conformance issues. Similarly, appointed contractors must implement a non-conformance procedure.

3. The procedure for the issuing and closing off of non-conformance reports shall be strictly adhered to.
4. Contractor project management must monitor the close out non-conformances issued, in not doing so; any recommendations made may not be implemented.
5. Where non-conformances are issued by Eskom then one of the close-out steps of the procedure will be for the offender to be called by the responsible project manager to explain the non-conformance issued and what plan is in place to prevent a recurrence of the non-conformance.
6. Should the contractor fail to provide adequate PPE to their employees for the tasks being performed and/or to visitors; failure to enforce the wearing of such PPE will be viewed as a transgression of the legislative and Eskom requirements.


3.39 SHE File

1. A SHE file means a file or other record in permanent form, containing the information about the safety and health management system during construction and all information relating to the post-construction phase after handover to the client, so that the client can maintain the works in a healthy and safe way.
2. All contractors are required to keep a SHE file on every project site. If there is more than one site per project, a file per site shall be kept at that site. Contractors may keep additional files at their head office as additional records. The SHE file shall be maintained by all the contractors on their construction sites and shall be available on request for audit and inspection purposes.
3. The SHE file shall consist of the requirements in terms of the project’s safety specification, the contractor’s safety and health plans.
4. The sequence of filing the documentation must be kept in the same sequence as listed in this SHE specification and the SHE plan.
5. Each record shall be separated by partitions to afford easy identification and access. Each partition must be labelled.
6. On completion of the construction work/project, the principal contractor must hand over a consolidated health and safety file to the project manager. The principal contractor must also hand over all drawings, designs, lists of materials used, and other applicable information about the completed structure, as well as the list of subcontractors, the agreement, and the type of work completed.
7. In case where the project is extended, should the documentation in the SHE files become cumbersome, the older documentation must be archived in boxes which

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shall be correctly labelled and be available for auditing purposes. The archived documentation must be handed over at the completion of the project.

3.40 Work Stoppage

1. Any person may stop any activity where an unsafe act or unsafe condition that poses or may pose an imminent threat to the safety and health of an individual or create a risk of degradation of the environment. This includes any unauthorised work or service performed by, or legally or contractually non-compliant acts or omissions by, any contractor contracted to work at that site.
2. Work stoppages that are initiated due to SHE concerns, non-compliance, or poor performance related to the contractor's works or services shall not warrant any financial compensation claim lodged against Eskom where the contractor has not met the requirements defined legally or contractually.
3. Where stoppages are carried out, the required non-conformance report shall be raised.
4. All work stoppages ideally should be investigated and documented by contract custodians.

3.41 Hours of Work

The requirements of the Basic Conditions of Employment Act, Chapter Two "Regulation of Working Time" must be adhered to. All contractors are required to maintain an accurate record of time worked by each employee.

3.41.1 Normal work

All work conducted on site shall fall within the legal requirements in accordance with the Basic Conditions of Employment Act. Contractors will notify their Eskom Supervisor or project manager of any work that needs to be performed after hours according to the agreed arrangements. (The application needs to be submitted timeously). Where applicable, the notification should include proof of application, for overtime, to the Department of Labour and /or the letter of approval from the Department of Labour.

3.41.2 Night work


When night work is to be performed; contractors shall provide sufficient lighting to enable the entire work site to be illuminated to a degree that employees will not work in dark (un-illuminated) or dimly lit areas. Care must be exercised as not to use few lights with high light intensives as this will cause night blindness.

If work is continuing from day light into night, at dusk, a tool box talk must be held where all employees will be advised of the hazards of night work and the extra precautions which

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require to be taken, i.e. poor housekeeping, stepping on uneven ground, stepping into holes etc.

3.41.3 Overtime

When overtime is required to be performed, the appointed contractors shall inform the principal contractor of such action. The principal contractor shall inform the Eskom project manager of such function. Contractors shall be aware of the effects of human fatigue and regulate overtime accordingly. The baseline risk assessment must be reviewed to include the management of overtime work.

3.42 Omissions from Safety and Health Requirements Specification

By drawing up this SHE specification Eskom has endeavoured to address the most critical aspects relating to SHE issues in order to assist the contractor to adequately provide for the health and safety of employees on site.

Should Eskom not have addressed all SHEQ aspects pertaining to the work that is tendered for, the contractor needs to include it in the SHE plan and inform Eskom of such issues when signing the contract.

3.43 Contract Sign-Off

On completion of the project, all appointed contractors shall close out their project documentation; SHE files and forward such to the principal contractor. The principal contractor shall likewise close out his/her project documentation and SHE files and forward such to the Eskom project manager.


4. Acceptance

Null.

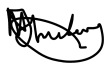
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5. Revisions

Date	Compiler	Remarks	Signature
March 2023	Mathula Thulare	This provides the initial SHE specification requirements that must be met by the relevant contractors who have been awarded a contract for the work to be performed for Eskom.	

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