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Project name

31291 (5E): SUPPLY AND DELIVERY OF REGENERATED MINERAL INSULATING OIL, ON-SITE REGENERATION OF MINERAL INSULATING OIL, ON SITE DRYING OF TRANSFORMER WINDINGS INSULATION USING LOW FREQUENCY HEATING AND PURIFICATION OF MINERAL INSULATING OIL DURING A THIRTY-SIX (36) MONTHS PERIOD ON AN AS REQUIRED BASIS.

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Project Baseline Risk Assessment

Introduction

The Electricity Unit has a legal and moral obligation to ensure the safety of its employees and any other persons who may be affected by its acts or omissions at the workplace. Invariably, workplace safety also has financial implications for the Unit, as additional avoidable costs negatively impact on the financial resources of the Unit.

Section 5(1) (a) of the Construction Regulations requires a baseline risk assessment for an intended construction work project. In so doing, the Unit and contractor is mandated with identifying hazards attached to construction work, and to implement measures to mitigate the risks, as far as is reasonably practicable.

In order to determine the extent of reasonableness, the following needs to be considered:

- severity of the outcome,
- likelihood of the occurrence of the identified risk,
- rate of exposure to the risk,
- potential seriousness of the harm to be guarded against,

The risk evaluation method requires risks to be ranked in terms of severity of outcome, frequency of occurrence, and probability of exposure to the risk.

The Electricity Unit is responsible for the distribution of electricity, including the construction of electrical infrastructure and/or maintenance of electrical equipment within its vast area of supply. Infrastructure to supply electricity is developed in accordance with best practices within the industry in order to ensure a safe and reliable supply to consumers across a broad voltage spectrum.

Handling insulating oil is potentially hazardous and should be planned to make sure that it is carried out safely and that all foreseeable risks have been taken into account and effectively controlled. Poor planning is one of the major causes of accidents arising from handling insulating oil. Whilst handling insulating oil, employees and contractors are exposed to a number of hazards and risks. This risk assessment aims to quantify and rank the hazards and risks which could be experienced when performing construction work, so that management is able to exercise their responsibility and duties in terms of Section 8 of the Occupational Health and Safety Act (85 of 1993).

Glossary of Terms

Severity (S):	extent of potential harm/loss/damage
Exposure (E):	percentage of a workforce exposed to a hazard/risk and/or duration of exposure
Frequency (F):	how often and/or how long persons may be affected within a defined time period
Hazard:	source of or exposure to danger
Raw risk:	risk without taking any mitigation or control into account, i.e. $S \times F \times E$
Residual risk:	risk that remains after considering the effectiveness of controls
Risk:	probability that an injury and/or damage will occur
Risk Assessment:	process of evaluating risks arising from hazards, taking into account adequacy of existing controls, and deciding whether or not the risk/s is acceptable

Objective

To provide a uniform methodology whereby risks are evaluated and ranked and record proof of the analysis of the risks associated with specific tasks.

Scope

The following should be considered:

- workplace
- all operational activities
- tasks being performed
- legal requirements

1. Severity, i.e. extent of potential harm/loss/damage	Value
Catastrophic	5
Serious	3
Negligible	1

2. Frequency, i.e. how often and/or how long persons may be affected within a defined time period	Value
Frequent	5
Occasional	3
Rarely	1

3. Exposure, i.e. percentage of a workforce exposed to a hazard/risk and/or duration of exposure	Value
Extensive	5
Significant	3
Negligible	1

4. Risk Classification	Values
Low risk	0 – 24
Moderate risk	25 - 74
High risk	75 - 125

Risk Assessment: Client Baseline Risk Assessment Activity: Construction Work (Oil regeneration and Purification) Task: General Construction - Site Conditions										Reviewed on: 27.02.2025 Compiled by: SHERQ Division Revision: 2		
Hazards	Associated Risk	Effect	Pure Risk before rating				Engineering Controls	Administrative Controls	PPE Controls	% Control	Residual Risk	Action Needed
			S	F	E	R						
Unauthorised access into a Substation	Injury to trespassers Possibility of theft Possibility of assault to employees	S	3	3	3	27	Adequately barricade restricted work areas with security	1) Restriction signage for all unauthorised persons 2) Ensure effective barricades/warning signs are displayed		0.8	5.4	Access control Security guard must be present to all substations at all times
Uneven terrain at substation yard	Slip, trips and falls	S	3	3	3	27		1) Employees conduct site Pre Task Risk Assessments (PTRA) 2) Employees attend Health and Safety induction	Employees are issued with steel toe capped footwear with ankle support	0.6	10.8	Employees are encouraged to be vigilant at all times and to be aware of underfoot conditions
Extreme weather conditions (WBGT index ≥ 30)	Heat stroke Heat stress	SH	3	1	3	9		1) Medical surveillance 2) PPE is issued to employees – floppy hats, sunblock, etc. 3) ERW 2(4)(a)-(v) procedure is applied		0.6	3.6	Relevant personnel encouraged to monitor extreme weather conditions and take precautions
Contaminated work site	Asbestos, HCS, Methane, hazardous waste, etc.	SHE	3	3	5	45	Adequate ventilation	1) Medical surveillance 2) Material Safety Data Sheets (MSDS) 3) PTRA 4) Employees are trained on HCS handling 5) Disposal of hazardous waste according to local regulations through licensed service provider	Employees issued with suitable PPE - eye protection, gloves, masks/respirators	0.8	9	1) Issue all employees with suitable PPE 2) Train employees on use thereof 3) Always wash hands post handling HCS 4) Only allow decanting in approved containers and clearly label to indicate the product inside the container
Presence of animals, insects and reptiles on site	Allergic reaction Animal bites Insect stings Rabies Fatality	SHE	5	1	3	15		1) Employees attend snake awareness presentation 2) Employees are trained on First Aid Level 1 by an Accredited Service Provider	Employees are issued with appropriate PPE and insect repellent	06	6	1) Employees are to be cautious when entering areas where it is suspected that there might be insects and pests 2) Employees to ensure they are fully clad in PPE

								3) Employees have emergency numbers readily available on site				3) Employees to be encouraged to attend Advanced First Aid training
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Risk Assessment: Client Baseline Risk Assessment Activity: Transporting And Delivery of Regenerated Mineral Insulating Oil Task: Operating Construction Vehicles- MEP/Crane Trucks/Trucks											Reviewed on: 27.02.2025 Compiled by: SHERQ Division Revision: 2	
Hazards	Associated Risk	Effect	Pure Risk before rating				Engineering Controls	Administrative Controls	PPE Controls	% Control	Residual Risk	Action Needed
			S	F	E	R						
Loss of control Overturning of vehicles Failure of lifting equipment Breaking of slings Crane truck boom breaking safety clearance Accidental dropping of Load	Injury Property damage Fatality	S	5	3	3	45	1) Roll over protection structure (ROPS) on all mobile plant 2) load placed at center of gravity 3)Crane truck load tested and mechanically maintained	1) All drivers and Riggers are assessed before being issued with vehicles and/or mobile plant to ensure they are competent to operate the correct class of construction vehicles. 2) Slings inspected periodically and color coded 3) Ensure vehicles are used only for the proper purpose 4) Guiding ropes used to control the suspended load. 5)SWL and wind speed to be observed during lifting operation	Hard hats and protective safety footwear with steel toe cap used during lifting operations	0.8	9	Employees must drive with caution and within the speed limit
Collisions with other vehicles, fixed objects or pedestrians	Injury Fatality Property damage Oil Spillages	SE	5	3	3	45	1) Suitable protective barriers for structures at risk. 2) Amber flashing beacons to be used.	1) Induction given on pedestrian's routes. 2) Traffic management plan in operation.	1)High visibility clothing worn by all construction workers	0.8	9	
Operating construction vehicles and/or mobile plant for extended periods	Whole body vibration Fatigue	H	3	1	1	3	1) Construction Vehicles and Mobile Plant or any other equipment is fitted	1) Procure equipment with lowest vibration levels	1) Employees are issued with the relevant PPE when they are handling or	0.8	0.6	1)Tool box talks to emphasize the importance of PPE usage

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							with anti-vibration technology	2) Minimise the time individuals use the equipment (e.g. job rotation) 3) Medical surveillance on all employees who utilize vibrating equipment 4) Employees are trained on General Safety Induction which incorporate use of construction vehicles/mobile plant	working with vibrating equipment			
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Risk Assessment: Client Baseline Risk Assessment Activity: Construction Work (Oil regeneration and Purification) Task: Manual Handling										Reviewed on: 27.02.2025 Compiled by: SHERQ Division Revision: 2		
Hazards	Associated Risk	Effect	Pure Risk before rating				Engineering Controls	Administrative Controls	PPE Controls	% Control	Residual Risk	Action Needed
			S	F	E	R						
Heavy lifting	Musculoskeletal disorders Work-related neck and upper limb disorders (WRULD) Carpal tunnel syndrome Tenosynovitis Tennis elbow	SH	3	3	3	27	1) Lifting equipment such as pallet jacks, crane trucks and overhead cranes are provided for use	1) PTRA 2) Employees are trained on the safe procedure for both manual and mechanical lifting 3) Assistants are made available to assist when lifting or moving heavy equipment 4) Trained Riggers are available to move heavy or irregular loads		0.8	5.4	1) Use lifting equipment when possible 2) Improve workplace layout to improve efficiency 3) Reduce the amount of twisting and stooping 4) Avoid lifting from floor level or above shoulder height, especially heavy loads 5) Avoid repetitive handling 6) Vary the work allowing one set of muscles to rest while another is used 7) Push a load rather than pull a load
Substandard ergonomic practices Heavy oil drums and equipment	Increased stress and strain to spine, back muscles and limbs Musco-skeletal injury Physical injury	SH	3	1	3	9	1) Lifting equipment such as crane trucks are provided for employees to use	1) Pre-Task Risk Assessments are undertaken before any work is done to identify possible hazards and risks 2) Employees are trained on the safe work procedure for moving loads	1) Employees issued with appropriate PPE	0.8	1.8	1) Use and availability of handling equipment to eliminate or reduce handling 2) Re-organization of work area 3) Instruction and training in safe handling techniques 4) Drum size should be reduced to the 100l size to make manual handling less risky

Manual handling / Ergonomics Working posture and position Tasks performed in one position for a long time Repetitive or frequent tasks performed in an uncomfortable position	Muscle strain Cumulative back injuries e.g. slipped disc (prolapsed inter vertebral disc) External injuries e.g. - cuts, bruises, abrasions and crush injuries Internal injuries e.g. muscle and ligament strains and tears, hernias	SH	3	1	3	9	1) Lifting equipment such as pallet jacks, crane trucks and overhead cranes are provided for employees to use	1) PTR 2) Employees are trained on the safe procedure for both manual and mechanical lifting 3) Assistants are made available to assist when lifting or moving heavy equipment 4) Trained Riggers are available to move heavy or irregular loads		0.8	1.8	1) Carry out work in a comfortable position with regular changes in position and posture 2) Try to improve workplace layout to improve efficiency 3) Position tools, controls, equipment and furniture to allow work to be done in a comfortable, upright position 4) Hold loads close to body 5) Carry out most work at waist level within easy reach
Load location and distances moved Long distance load movement Load positioning to awkward or specific location	Stress on muscles increases risk of injury External injuries e.g. cuts, bruises, abrasions and crush injuries Internal injuries e.g. muscle and ligament strains and tears, hernias Cumulative back injuries e.g. slipped disc (prolapsed inter vertebral disc)	S	3	3	3	27	1) Lifting equipment such as pallet jacks, crane trucks and overhead cranes are provided for employees to use	1) PTR 2) Employees are trained on the safe procedure for both manual and mechanical lifting 3) Assistants are made available to assist when lifting or moving heavy equipment 4) Trained Riggers are available to move heavy or irregular loads		0.8	5.4	1) Store loads at an approximate height in close proximity to where they will be used 2) Provide adequate space to facilitate ease of loading 3) Try to improve workplace layout to improve efficiency 4) Position tools, controls, equipment and furniture to allow work to be done in a comfortable, upright position 5) Hold loads close to body 6) Carry out most work at waist level within easy reach
Repetitive tasks performed for long periods, or at high speed, without a break	Muscle fatigue increases risk of injury External injuries e.g. cuts, bruises, abrasions and crush injuries Internal injuries e.g. muscle and ligament strains and tears, hernias Cumulative back injuries e.g. slipped disc (prolapsed inter vertebral disc)	SH	3	1	3	9	1) Lifting equipment such as pallet jacks, crane trucks and overhead cranes are provided for employees to use	1) Employees are trained on how to conduct a pre-task risk assessment 2) Employees are trained on the safe procedure for lifting and moving loads 3) Employees are provided with Assistants to assist when lifting or moving heavy equipment 4) Trained Riggers are available to move heavy or irregular loads		0.8	1.8	1) Perform a variety of work tasks during the day or take regular breaks 2) Try and improve workplace layout to improve efficiency 3) Position tools, controls, equipment and furniture to allow work to be done in a comfortable, upright position 4) Hold loads close to body 5) Carry out most work at waist level, within easy reach

Risk Assessment: Client Baseline Risk Assessment Activity: Construction Work (Oil regeneration and Purification) Task: Use of Tools											Reviewed on: 27.02.2025 Compiled by: SHERQ Division Revision: 2	
Hazards	Associated Risk	Effect	Pure Risk before rating				Engineering Controls	Administrative Controls	PPE Controls	% Control	Residual Risk	Action Needed
			S	F	E	R						
Portable electric equipment	Electric shock, cuts, splinters, abrasions, puncture injuries, impact, flying particles / objects	S	3	3	3	27	1) Portable earth leakage units are used when operating portable electric tools 2) Double insulated tools are used where not earthed	1) Employees trained on safe use of portable electric tools 2) All portable electric tools are inspected prior use and defects reported for replacement 3) All portable electric tools are kept in safe operating condition 4) Employees advised not to wear loose clothing, jewelry and loose hair as it may be entangled onto the moving parts of the machinery	1) Employees are issued with the appropriate PPE – gloves, eye protection, safety footwear, gloves	0.8	5.4	
Power Tools	Hand arm vibration White finger syndrome Puncture wounds Noise induced hearing loss	S	3	1	3	9	1) Regular maintenance of power tools to ensure vibration is reduced	1) Employees trained on the safe use of power tools 2) All power tools are inspected prior to use and any defects are reported to the supervisor for replacement 3) Job rotation and regular breaks to reduce time exposure to vibration 4) Medical surveillance for all employees exposed to vibration	1) Employees issued with the appropriate PPE - safety footwear, gloves, eye protection and hearing protection	0.8	1.8	

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Risk Assessment: Client Baseline Risk Assessment Activity: Construction Work (Oil regeneration and Purification) Task: Energised Sources											Reviewed on: 27.02.2025 Compiled by: SHERQ Division Revision: 2	
Hazards	Associated Risk	Effect	Pure Risk before rating				Engineering Controls	Administrative Controls	PPE Controls	% Control	Residual Risk	Action Needed
			S	F	E	R						
Overhead Power lines inside Substation Yard	Electric shock Electrocution Electrical fires Electrical arcing Electric burns	S	5	3	3	45	Remote switching is implemented when possible	1) Maintain safety clearance 2) PTR 2) Only Authorized Persons to undertake switching on substations 3) All employees to adhere to the OHM COP, Safety Rules and Operating Regulations when undertaking work on OHM 4) Work permit and competency cards 5) Long objects such as scaffolding and ladders are carried horizontally inside the substation yard	1) Employees issued with the appropriate PPE when working on OHM - safety footwear, gloves, rubber gloves for Electricians, arc rated Conti- suits, Arc flash suit for Authorized Persons	0.8	9	1) Never use conductive material near live mains
Substation work	Electric shock Electrocution Electrical fires Electrical arcing Electric burns	S	3	3	3	27		2) Only authorized persons to enter and undertake work in a substation 3) All employees to adhere to the Substation COP, Safety Rules and Operating Regulations when undertaking work in a substation	1) Employees are issued with the appropriate PPE- as prescribed in pictograms at all Substations	0.6	10.8	1) Contractor to have a specifically trained Person who passed eTE Safety Rules Course and competent to enter HV Substations

Risk Assessment: Client Baseline Risk Assessment Activity: Construction Work (Oil regeneration and Purification) Task: Fire Protection and Prevention											Reviewed on: 27.02.2025 Compiled by: SHERQ Division Revision: 2	
Hazards	Associated Risk	Effect	Pure Risk before rating				Engineering Controls	Administrative Controls	PPE Controls	% Control	Residual Risk	Action Needed
			S	F	E	R						
Arson	Burns Explosions Fire Smoke inhalation	S	5	3	3	45	1) Security presence to prevent trespassers from deliberately or accidentally starting a fire	1) Liaison with the local police where possible 2) Limit the number of combustibles on site 3) Properly stored flammable liquids, LPG and other combustible materials 4) Reducing potential fuel sources 5) Good housekeeping practices 6) Emergency request for assistance cards provided to employees 7) Employees trained on basic fire fighting	1) All employees are issued with arc rated PPE 2) Fire extinguishers and first aid kits are provided for all sites	0.8	9	
Poorly maintained electrical equipment such as switchgear, mini-sub, etc.	Burns Explosions Fire Smoke inhalation	S	5	3	3	45	1) Maintenance employees conduct regular maintenance to all electrical equipment	1) Work orders are generated for all electrical equipment that requires maintenance	1) All employees are issued with arc rated PPE 2) Fire extinguishers and first aid kits are provided for all sites	0.8	9	
Explosion due to damaged electrical cable	Burns Explosions Fire	S	5	1	3	15		1) DL's are used prior to trenching and digging proving trenches is implemented	1) All employees are issued with arc rated PPE 2) Fire extinguishers and first aid kits are provided for all sites	0.6	6	

Fire	Burns Release of toxic fumes Explosions Fatality Property damage	SE	3	1	1	3	1) Oil drums are stored indoors in cool areas below 30°C 2) No ignition sources inside or closer the oil 3) Oil drums/tank stored in secured areas with restricted access 4) There are suitable fire extinguishing measures in place	1) Pre-Task Risk Assessments are undertaken before any work is done to identify possible hazards and risks 2) Smoking is restricted in flammable stores 3) Prohibit smoking in close proximity to oil stores/drums/tank 4) Oil stores are certified and compliant with the relevant building codes	1) Employees are issued with the appropriate PPE	0.8	0.6	1) First aid boxes must be equipped with "burn shield" kits 2) Oil drums must be bonded and earthed 3) Oil drums must be collected from the field timeously and must not be left lying for prolonged periods in unsecured and undesignated storage areas 4) Oil storage area to be bunded to contain potential spill
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Risk Assessment: Client Baseline Risk Assessment Activity: Construction Work (Oil regeneration and Purification) Task: Hazardous Chemical Agents											Reviewed on: 27.02.2025 Compiled by: SHERQ Division Revision: 2	
Hazards	Associated Risk	Effect	Pure Risk before rating				Engineering Controls	Administrative Controls	PPE Controls	% Control	Residual Risk	Action Needed
			S	F	E	R						
HCA – Oil, Solids, dust, fibres, fumes, gases, mists, vapours, liquids, asbestos	Occupational Dermatitis Occupational Asthma Headaches Dizziness Nausea Unconsciousness, Silicosis Cancer Irritant	SH	3	3	3	27	1) Local exhaust ventilation, ducted extraction systems collection hoods to draw mists and vapours away from operator	1) Medical surveillance 2) Employees trained in the safe use and handling of all chemicals that they may be exposed to using the relevant MSDS 3) PTR	1) Employees are issued with the appropriate PPE - chemical cartridge respirators, face shield, solvent resistant gloves, boots, aprons	0.8	5.4	1) All employees must be formally trained to understand what precautions they are required to take to avoid being negatively affected 2) Wear a face shield to protect against splashes to face and eyes 3) Wear solvent resistant gloves, boots and aprons. 4) Work with chemical aerosols in a well-ventilated area 5) Store chemicals in tightly closed, original container in a dry, cool, well-ventilated area 6) Always wash hands before breaks and immediately after handling the product 7) Aerosol cans must not be exposed to direct sunlight or temperatures above 50°C 8) Keep away from sources of ignition
Chemical Hazards	Asphyxiation Fumes (CO2) Suffocation Methane Explosion Transformer oil Silica gel	SH	3	3	3	27		1)Medical surveillance 2) Employees are trained on MSDS and in the safe use and handling of HCA	1) Employees are issued with the appropriate PPE when working with chemicals in confined spaces	0.6	10.8	

Risk Assessment: Client Baseline Risk Assessment Activity: Construction Work (Oil regeneration and Purification) Task: Physical and Psychological Health Hazards										Reviewed on: 27.02.2025 Compiled by: SHERQ Division Revision: 2		
Hazards	Associated Risk	Effect	Pure Risk before rating				Engineering Controls	Administrative Controls	PPE Controls	% Control	Residual Risk	Action Needed
			S	F	E	R						
Noise	Noise induced hearing loss	SH	3	1	1	3	1) Equipment is fitted with exhaust mufflers to limit the noise generated by the machinery	1) Employees are required to undergo annual medicals and be deemed medically fit before being allowed to work with noise generating equipment 2) Baseline and Periodic Audiometric examinations conducted by Occupational Health Clinics	1) Employees are issued with the appropriate PPE - ear muffs, plugs	0.8	0.6	Employees must be encouraged to maintain a safe working distance from noise sources

Risk Assessment: Client Baseline Risk Assessment Activity: Construction Work (Oil regeneration and Purification) Task: Working at Height up to and above 5 meters											Reviewed on: 27.02.2025 Compiled by: SHERQ Division Revision: 2	
Hazards	Associated Risk	Effect	Pure Risk before rating				Engineering Controls	Administrative Controls	PPE Controls	% Control	Residual Risk	Action Needed
			S	F	E	R						
Fall arrest equipment	Suspension trauma Striking the ground, equipment or structures	SH	5	3	3	45		1) Employees are trained on the appropriate Height Safety courses – including rescue 2) Fall arrest equipment is inspected and maintained 3) Fall arrest equipment complies with international standards and best practices		0.6	18	1) Employees work under constant personal supervision when climbing and/or descending structures
Psychological and physical wellbeing Vertigo Blood Pressure Levels Blood Sugar Levels Hydration	Fainting Falls from height Fatality Fractures Lacerations Soft tissue injuries	SH	5	3	3	45		1) Employees are required to undergo annual medicals and be deemed medically fit before being allowed to work at height	Employees are issued with the appropriate PPE – harnesses, hard hats	0.6	18	1) Employees to report any medical conditions which may hamper their ability to work at height
Falling from height	Head injuries Contusion Fracture Soft tissue injuries Fatality	S	5	3	3	45	1) Scaffolds are erected with toe boards to ensure equipment is not accidentally kicked off the scaffold 2) Ladders are lashed on the bottom and top	1) Supervisors to ensure that a PTRR is completed and that risks are discussed 2) Areas under and around elevated working platforms are barricaded to keep persons out of this area 3) Ladders are inspected periodically	Employees are issued with the appropriate PPE for the task – steel toe cap footwear and hard hats	0.8	9	1) Employees to be cognizant of the possibility that items/equipment can fall from overhead gantries and apparatus 2) Employees are to ensure that they are fully clad in the appropriate PPE before entering/whilst they are within the confines of the substation 3) Personnel are to be clear of all areas directly under where work is being undertaken 4) Areas where overhead is being undertaken must be barricaded to restrict access into the danger area

Inclement weather High wind Precipitation High humidity Lightning Temperature	Falls from height Fatality Fractures Electric shock Lacerations Soft tissue injuries	S	5	3	3	45	1) Substations have lightning masts 2) Structures are earthed	1) PTR A	Employees are issued with the appropriate PPE for the tasks	0.8	9	1) Adherence to Fall protection training 2) Wet and inclement weather work needs to be defined
Unstable ground Low load bearing ground conditions Steeply sloped terrain	Scaffold/ working platform can fall over or collapse Injuries Fatalities Property damage	S	3	5	3	45	1) Scaffolds are supplied with base plates 2) Plates of adequate strength must be placed under the scaffold jacks to distribute the load 3) Adjustable scaffolding jacks are supplied with the scaffolds to ensure the scaffold is level	1) Employees have been trained on the safe erecting, use and dismantling of the scaffolds 2) Scaffolding components are inspected by an Appointed Competent Person weekly and before use	1) Employees are issued with the appropriate PPE to work with and on scaffolds	0.8	9	1) Employees to exercise caution when erecting scaffolding in hazardous terrain 2) A Competent or Specifically Trained Person is to scout the area to assess the ground conditions first before any scaffolding is erected and suitable steps must be taken to ensure that the scaffold is safe to use 3) All safe operating guidelines must be followed
Hoisting equipment up to the working level Over-exertion Poor ergonomics	Equipment falling from height Employees falling from height Overexertion when lifting equipment	S	5	3	3	45	1) Pulley block used to manoeuvre, manipulate and hoist equipment up to the working surface 2) Tag lines or guide ropes to be used	1) Employees trained on the appropriate technique for lifting equipment up to the working surface 2) Only employees who have attended the appropriate training courses are allowed to work at height	1) Employees are issued with the appropriate PPE in the form of gloves, leather boots, harnesses, steel toe cap footwear and hard hats	0.8	9	1) Employees are to utilize the appropriate PPE when working with or in the vicinity of equipment which is being hoisted 2) Area under the lift to be adequately barricaded/restricted
Damaged scaffolding components Incorrectly load rated scaffold	Scaffold can fall over or collapse Injuries Fatalities Property damage	S	3	5	3	45		1) Employees trained on the safe use of the scaffolding 2) Scaffolding components are inspected by an Appointed Competent Person weekly and before use 3) Scaffolding components are to be compliant with the requirements of SANS 10085 4) Scaffolds are to be purchased in complete sets of the same load rating	1) Employees are issued with the appropriate PPE to work with and on scaffolding	0.6	18	1) Employees to exercise caution when erecting scaffolding in hazardous terrain and to ensure that the bases of all scaffolding erections are level with the ground 2) Employees to be cautious and be cognizant of underfoot conditions 3) A Competent or Specifically Trained Person is to scout the area to assess the ground conditions first before any scaffolding is erected and suitable steps must be taken to ensure that the scaffold is safe to use

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												4) All safe operating guidelines must be followed
Climbing and working from a ladder	Contusions Cuts and lacerations Fractures Injuries Damage to ladder Fatality	S	5	3	3	45		1) All ladders inspected prior to use 2) Ladders secured and lashed at the top and bottom when in use 3) The top of the ladder rests on a secure surface 4) Ladder placed at the correct angle of inclination i.e. 1 is to 4 rule	1) Employees are issued with the appropriate PPE to work with and on a ladder	0.6	18	1) All persons working on or with ladders are trained on the rules of using ladder such as: - Not to overreach - Use three-point contact when climbing or descending ladders

Risk Assessment: Client Baseline Risk Assessment Activity: Construction Work (Oil regeneration and Purification) Task: Housekeeping and General Safeguarding										Reviewed on: 27.02.2025 Compiled by: SHERQ Division Revision: 2		
Hazards	Associated Risk	Effect	Pure Risk before rating				Engineering Controls	Administrative Controls	PPE Controls	% Control	Residual Risk	Action Needed
			S	F	E	R						
Substandard housekeeping: On site In vehicles	Slips, trips and falls Struck by falling objects Puncture wounds Contaminants/fluid spills	SE	3	3	3	27	1) Clearing of worksite (waste material/scrap)	1) PTR 2) Employees conduct visual safety and housekeeping inspections regularly	1) Employees are issued with the appropriate PPE – non-slip protective footwear	0.8	5.4	Employees/Contractors are to ensure: 1) Prompt and proper disposal of waste material/scrap 2) Protruding nails to be bent over or removed 3) Material required for use on site do not obstruct workplace access, egress and walkways 4) Toolbox talks emphasise the importance of housekeeping
Stacking and storage of: Equipment Material Tools Oil in storage tanks	Struck by falling objects Contusions Damage to material	S	3	3	1	9	1) Designated storage areas	1) Designated stacking and storage supervisor 2) Compliance with permissible stacking requirements (stack	1) Employees are issued with the appropriate PPE	0.8	1.8	1) Employees to keep storage areas neat and under control 2) Equipment, material and tools to be secured or

31291 (5E) : SUPPLY AND DELIVERY OF REGENERATED MINERAL INSULATING OIL, ON-SITE REGENERATION OF MINERAL INSULATING OIL, ON SITE DRYING OF TRANSFORMER WINDINGS INSULATION USING LOW FREQUENCY HEATING AND PURIFICATION OF MINERAL INSULATING OIL DURING A THIRTY-SIX (36) MONTHS PERIOD ON AN AS REQUIRED BASIS.

							height not exceed 3 times the base smaller dimension) 3) Employees/ Contractor conducts visual inspections				properly stored in toolboxes, shelves to prevent movement and flying around
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Risk Assessment: Client Baseline Risk Assessment Activity: Construction Work (Oil regeneration and Purification) Task: Regeneration of Mineral Insulating Oil											Reviewed on: 27.02.2025 Compiled by: SHERQ Division Revision: 2	
Hazards	Associated Risk	Effect	Pure Risk before rating				Engineering Controls	Administrative Controls	PPE Controls	% Control	Residual Risk	Action Needed
			S	F	E	R						
Prolonged exposure	Potential health effects: -eyes (irritation, stinging, tearing and redness) -skin (irritation, dermatitis/ oil blisters), -breathing (irritation of the nose and throat, irritation digestive tract, nausea and diarrhea) -aggravated disorder to people with pre-existing medical	H	3	1	3	9	1) Mechanical pumps are used to pump oil into and out of drums and electrical equipment	1) Pre-Task Risk Assessments are undertaken to identify possible hazards and risks 2) Baseline medicals are conducted to ensure employees are fit for work	1) Employees issued with the appropriate PPE 2) Employees are issued with soap to wash exposed limbs	0.8	1.8	1) Employees to be aware of the surroundings and the dangers associated with work undertaken 2) Employees are to ensure use of full PPE whenever exposed to insulating oil especially in confined enclosures or if exposure level is not known 3) Management to ensure all employees work in accordance with standard operating procedures (SOP) 4) Employees must be trained on the contents of the MSDS for oils to ensure they have the necessary information to use and handle the oil safely
Contamination Acidity/oxidation Moisture and airborne dust from atmosphere	Internal arcing Decomposition/ Premature failure of equipment	S	3	1	1	3	1) Oil drums are placed in upright position, bungs facing down and trapped to prevent tipping over/possible damages	1) Adherence to restricted duration of oil drums storage - 2 months undercover and 5 days if not undercover 2) Routine examination is undertaken to monitor the acidity of the oil	1) Employees issued with appropriate PPE	0.8	0.6	

							2) Oil drums are stored in an undercover and ventilated storeroom					
Accidental ingestion	Minor health complications - Irritation of the bowels/transient discomfort	H	1	1	1	1	1) Oil drums are sealed with bungs 2) Oil drums are emptied using pumps and not siphons	1) Pre-Task Risk Assessments are undertaken before any work is done to identify possible hazards and risks 2) Employees are trained on how to use and handle oil safely	1) Employees are issued with gloves 2) Employees are issued with soap to wash their hands after using oil	0.8	0.2	1) Employees must be trained on the contents of the MSDS for oils 2) Employees and First Aider must be made aware of what first aid measures to apply in the event of an emergency e.g. not to induce vomiting 3) Employees must be trained on the contents of the MSDS for oils to ensure they have the necessary information to use and handle the oil safely
Accidental Releases	Minor spills Slippery floors Slips and falls Ground pollution Water pollution	SE	3	1	1	3	1) Storage areas are bunded to contain any accidental spills 2) Spill kits are available to mop up minor spills 3) Substation transformer bays are bunded and have oil containment traps 4) Oil traps are built in at the reclamation workshop and these are cleaned by an approved contractor 5) Damaged equipment store has oil traps surrounding the area	1) Pre-Task Risk Assessments are undertaken before any work is done to identify possible hazards and risks 2) Employees are trained how to use and handle the oil spillages safely	1) Employees issued with the appropriate PPE	0.8	0.6	1) Oil traps must be cleaned regularly 2) Transformers which leak oil continually must be repaired to permanently stop oil leaks 3) Old and damaged equipment must be drained on site before being returned to the Electrical Workshop 4) Employees must be trained on the contents of the MSDS for oils to ensure they have the necessary information to use and handle the oil safely

Risk Assessment: Client Baseline Risk Assessment Activity: Construction Work (Oil regeneration and Purification) Task: Purification of used insulating oil on-site Insulation Using Low Frequency Heating										Reviewed on: 27.02.2025 Compiled by: SHERQ Division Revision: 2		
Hazards	Associated Risk	Effect	Pure Risk before rating				Engineering Controls	Administrative Controls	PPE Controls	% Control	Residual Risk	Action Needed
			S	F	E	R						
On site spillage	Ground and water pollution Slips, trips and falls	SE	3	1	3	9	1) Appropriate material is used to absorb spillages 2) Drip trays are used whilst decanting/pumping	1) Contractor to have or work with approved spillage management/chemical waste disposal company to handle serious spillages 2) Pre-Task Risk Assessments undertaken before any work is done to identify possible hazards and risks	1) Employees issued with the appropriate PPE	0.8	1.8	1) Peat (spill kits) to be readily available for use when oil is spilt. All teams using oil should have these kits readily available 2) Oil should be transported in specialised trailers which can contain the quantity of oil that is being transported. 3) All oil drums and receptacles must be securely strapped to prevent uncontrolled movement.