

Title: **WORKING WITH PETROL
DRILLING MACHINE**

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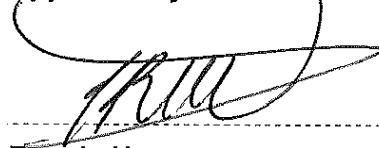
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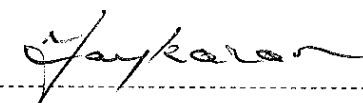
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1. Introduction

This task manual was compiled to conform or align with NRS 082, NRS 090, NRS 090-1-1 and OHSA requirements in ensuring that the equipment in Eskom Distribution network are maintained, the risks and hazards associated with task are minimized or mitigated.

This task manual was compiled from the analysis that was done on critical tasks that are being performed when maintaining network equipment in order to identify risks and hazards associated so that they could be addressed or remedied.

This document states the procedure for WORKING WITH PETROL DRILLING MACHINE thereby ensuring that work is performed safely and risks and hazards are minimised.



Figure 1: Drilling Machine examples

2. Supporting Clauses

2.1 Scope

2.1.1 Purpose

The purpose of this document is to provide persons performing WORKING WITH PETROL DRILLING MACHINE with a step by step description of how to do the task, including the most critical hazards and technical specifications associated with the task.

2.1.2 Applicability

This Task manual is applicable to persons performing WORKING WITH PETROL DRILLING MACHINE in Eskom Holdings (Pty) Limited, it's divisions or Eskom wholly owned subsidiaries. This document shall apply throughout Eskom Holdings Limited Divisions.

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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] ISO 9001, Quality Management Systems.
- [2] OHSAct: Occupation Health and Safety Act 85 of 1993 and Regulations;
- [3] 240-62196227 Life-saving rules
- [4] 240-114967625: Rev 0, Operating Regulations for High Voltage systems;
- [5] 240-120054284: Rev 0, Personal Protective Equipment Standard;
- [6] 240-86100853: Rev. 1, Standard for Barricading Prohibited Area and Live Chamber;
- [7] DPC_34-380: Rev 0, Identifying, Analysing, Documenting and Observing Dangerous/Hazardous tasks;
- [8] DPC_34-227: Rev 0, Pre-task planning and feedback process;
- [9] 240-56062752: Rev 0, Medium-Voltage Miniature Substations For Systems With Nominal Voltages Of 11 kV And 22 kV;
- [10] 240-125124036 Rev 1, Care, Use, Inspection And Maintenance Of Conductive And Non-Conductive Ladders;
- [11] 240-8657650: Rev 1, Risk of trip assessment.
- [12] 240-78692652: Rev 0, The Procedure for Use and Maintenance of Portable Earthing Gear;
- [13] 240-69125290: Rev 0, Standard for the Use of Equipotential Earth footplates;
- [14] 240-70175091: Rev 0, The Use Care Maintenance and Testing of High Voltage Operating Sticks;
- [15] DST_34-1131: Rev 0, Distribution Standard On Fall Arrest Systems;
- [16] DISSCABA2: Rev 2, Specification for a Fall Arrest System;
- [17] DST_34-334 (240-70822772)“ Distribution specification part 11: maintenance inspection and supplemental treatment of treated wood utility Poles;
- [18] 240-82744675: Rev 1, Procedure for refusal to work on the grounds of health, safety and environmental concerns;
- [19] EPC_32-418: Rev 0, Working AT Heights;
- [20] DMN_34-1402; Rev 0, Fall Arrest System;
- [21] Specific operating local instruction / procedure; and
- [22] Manufacturer’s manual.

2.2.2 Informative

- [23] DPC_34-04: Rev 0, Procedure For The Preparation And Administration Of Distribution Standards;
- [24] DST_34-1710: Rev. 0, Provision and use of Personal protective equipment;
- [25] EPC_32-727: Rev. 0, Safety, Health Environmental & Quality (SHEQ) policy;
- [26] 240-86100853: Rev. 0, Standard For Barricading Prohibited Area And Live Chamber;

[27] 240-70172585: Rev 0, Vegetation Management and Maintenance Within Eskom Land, Servitudes and Rights of Way; and

[28] DGL_34-190: Rev 0, Access to Farms (includes Strategy on dealing with game farms).

2.3 Definitions

2.3.1 General

All definitions in 240-114967625 ORHVS and OHSAct 85 of 1993 including the following are applicable:

Definition	Description
Authorised person	means a person, whether an employee or another person, who has been authorised in terms of these regulations
Authorized	A person who is trained and has been proven competent to carry out rotten pole replacement in terms of this standard. This authorization shall be in writing.
Dangerous/hazardous task	A specific element of work, which has produced and/or which possesses the potential to produce major loss or harm to people, assets, processes/production and/or the environment when performed properly.
Directive	A document which sets out a management objective, the appropriate policy if deemed necessary, as well as the functional accountability for activities to achieve that objective and the interface between functions affected by, or responsible for the execution of, such activities.
Responsible person	means a person, who has been authorised to be responsible for ensuring that the work on the apparatus covered by work permit can be, carried out with safety and within the terms of these regulations
Risk Assessment	This process involves the combined functions of hazards identification, risk analysis, risk evaluation, determining the risk control strategy/s and the identification of the risk control measures that will be implemented during the task execution.
Rotten Wooden Pole/unsound pole	A pole that has been rejected after assessment and that shall be replaced. An unsound pole is a class 4 pole or a class 3 pole that will not be stubbed by the region (refer to DST_34-334 for classification of poles).
Task Analysis	The systematic examination of all dangerous/hazardous tasks (work) in order to identify and quantify all the potential and existing inherent hazards that employees are exposed to while the tasks are being executed.
Note: Only persons who have satisfied the designated person on terms of the Occupational Health and Safety Act (Act 85 of 1993) (General Machinery Regulation 2(1)) that their knowledge is adequate to perform specific duties on specified plant and that their knowledge of these regulations is sufficient may be authorised.	

2.3.2 Disclosure Classification

Controlled disclosure: controlled disclosure to external parties (either enforced by law, or discretionary).

2.4 Abbreviations

Abbreviation	Description
CDP	Career Development Programme
CNC	Customer Network Centre
CO	Construction Official
GMR	General Machinery Regulation
JB	Junction Boxes
ORHVS	Operating regulations for high voltage systems
OTS	Officer Technical Support
PCO	Principal Construction Official
PML	Pedestal Mounted Ladder
PPE	Personal Protective Equipment
PTO	Principal Technical Officer
SCO	Senior Construction Official
SSTCNC	Senior Supervisor Technical Customer Network Centre.
STO	Senior Technical Officer
TCIF	Technology Change Information Forum
TO	Technical Officer
TSU	Technical Services Unit
WCO	Works-Coordinator

2.5 Roles and responsibilities

2.5.1 Plant Managers shall be responsible for:

- a) Ensuring that equipment job plans are available and issued for specific maintenance.
- b) Ensuring that the maintenance feedback information that is available in the maintenance management system is analysed.

2.5.2 Zone Manager shall be responsible for:

- a) Ensuring that staff carrying out maintenance tasks is trained, competent and authorized to perform maintenance on the specific equipment.
- b) Ensuring that instructions are implemented and adhered to and equipment is maintained in accordance to relevant work instructions.
- c) Ensuring that the maintenance feedback information / data is captured and recorded into the system for future maintenance planning.

2.6 Process for monitoring

Document number	Document title
240-45920887	Process Control Manual (PCM) for Manage Maintenance Base.
DPC_34-04	Procedure For Management Of Technical Documents For SCOT.

2.7 Related/supporting documents

This document (240-129143859) supersedes DMN 34_2119.

3. Requirements

3.1 Pre-job Planning

Note 1: Ensure that personnel is trained and competent to perform the task allocated to them and they are familiar with the area or environment: Lack of knowledge (area, environment, equipment) will lead to damage to equipment and injuries to staff.

Note 2: Confirm the validity of all the required authorisations of people that will be involved in the task.

Note 3: Job pressure – During planning it must be ensured that all parts of work are allocated time correctly to avoid unnecessary job pressures.

Note 4: Ensure that appropriate PPE and safety equipment are identified and inspected.

Note 5: Conduct a pre-use inspection on all equipment and tools before they are used and ensure that they are serviceable and of good standards.

Note 6: Items / material / substances which can contaminate the environment during maintenance must be identified – i.e Fuel.

Note 7: Ensure that communication is available at the work site.

Note 8: Ensure that the Vehicle is adequately equipped (fire extinguisher, first aid box, tools and equipment, etc).

a) Assessment to determine the scope of work and the resources that would be required:

- People;
- Equipment;
- PPE;
- Tools; and
- Material / Spares

Note 9: If you lack knowledge of the area, environment, equipment, etc special care should be taken when performing the pre-task planning

b) Determine the cause of loss, upgrade / down grade, cable fault etc

c) Plan work and resources required for the task

d) If the task has to be performed near Live Apparatus / In close proximity work, safe clearances shall be accordance with ORHVS (240-114967625), safe working clearances as per 240-69125290, 240-78692652 and NRS 060:2005.

e) Ensure all necessary documentation are completed / processed (check lists).

f) When transporting fuel and petrol driven machines ensure that the containers are secured onto the load body to prevent spilling.

3.1.1 Materials

Not applicable.

3.1.2 Tools and Equipment

- a) Standard tool set
- b) Petrol Drilling Machine.

3.1.3 Personal Protective Equipment

All personal protective equipment shall be in accordance with DST_34-1710 and the additional requirements from the on-site assessment of the equipment installation arc flash energy rating. All PPE listed below shall be approved for operating and comply to the identified arc flash energy rating.

Note: The drilling machine noise is believed to be higher (reported to 97.5dB) than the norm (85dB), just ensure that the ear protection being used has noise reduction of 15dB.

- a) Overall;
- b) Hard hat;
- c) Safety boots
- d) Face shield; and
- e) Gloves

3.2 Work Execution

3.2.1 Risk Assessment

Note 1: ensure that light/lighting is sufficient before the commencement of work.

Note 2: ensure that task analysis of HV operating, Work With/On Extension/Single Ladders and Operating a vehicle mounted crane with a bucket are also applicable.

Note 3: Ensure proper communication ability – language, instructions, signals, etc.

- a) Ensure that all members of staff are included when performing risk assessment.
- b) Conduct an on-site risk assessment prior to commencement of work and continuous during the task execution by:

Note 4: When doing an on-site risk assessment and executing the task the following hazards must be addressed:

- identify the existing hazards/risks,
- treating, transferring, tolerating or terminating the identified risks.
- ensuring that all workers acknowledge identified risks and hazards by signing risk assessment form / worker's register.
- Do not take short cuts to save time
- Ensure that poor visibility due to insufficient light/lighting are addressed during the task execution
- Maintain proper communication – language, instructions, signals, etc
- Ensure that appropriate PPE and safety equipment as identified is worn/used during execution of the task after inspection.

3.2.2 Inspection

- a) Check chuck not to be loose or damaged.
- b) Check handle grips not to be loose, for damage and cracks.
- c) Check for severe grease or oil (separate oil is required) leaks.

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- d) Ensure that the correct fuel (two stroke) is used and that the tank is free off holes, cracks or any damage that will lead to fuel leak.
- e) Check the starting cord for damages.
- f) Ensure that the pistol grip and the trigger are functional.
- g) Check the drill bit to be free off damage.
- h) Check if the drill machine is not giving off or exhausting excessive smoke.
- i) Ensure that the drill machine is off and check the Silencer for damages.
- j) Check / ensure that the noise level not to be above the allowable level (85dB).

3.2.3 Operating Petrol Drill Machine

Note 1: The drilling machine noise is believed to be higher (reported to 97.5dB) than the norm (85dB), just ensure that the ear protection being used has noise reduction of 15dB.

Note 2: The drilling machine and the equipment necessary for the task shall be inspected before transporting to worksite

- a) Remove the fire extinguisher from the vehicle and place it as close to the work site as possible but it should not obstruct the operator's working position.
- b) Off-load the drilling machine, spare fuel and accessories from the load body.
- c) Check that the drill bit is the correct size to fit the machine.
- d) Fill the machine tank with fuel / oil.
- e) Ensure that only a pre- mixed fuel is used - as for all 2 stroke machines and the ratio needs to be strictly as prescribed by Manufacturer.

Note 3: Refer to manufacturers operating manual.

Note 4: Ensure that there is enough room to work and that NO obstruction or bystanders are in a way.

- f) Insert the drill bit into the drilling machine chuck and ensure that it is well secured.
- g) Open the fuel valve (where applicable).
- h) Select on / off switch to ON position.
- i) Close the choke.
- j) Depress throttle lever to full speed position and pull the starter handle, straight backwards.
- k) When the engine starts, open the choke.
- l) Check that the choke is open and pull the starting handle

Note 5: Do not operate the throttle until the machine is idling.

3.2.4 Task Procedure

Note 1: If cranes with man-bucket/cradle are used in conjunction with this task all the controls as identified in the analysis of operating a vehicle mounted crane with a bucket attached is applicable.

Note 2: Where a permit and workers register must be taken out and signed ensure that the apparatus hand over or permission has been given before commencing with work preparation.

Note 3: When work is performed from the ladder ensure that FAS and the step ladder standard or Task manual or task Analysis procedure is adhered to.

Note 4: No loose or hanging clothing is allowed or will be used when using rotating machines.

- a) Identify or mark the position to Drill a hole at.

Note 5: The operator must take precautions when using a petrol drill as any gripping by the drill bit can result in his/her arms being twisted.

- b) Take a balanced stand, securely lift the drill machine and drill the hole.
- c) Ensure that the drilling machine is held / supported properly with both hands.

Note 6: While drilling ensure that the machine / drilling bit is always perpendicular / square to the surface being drilled and it is not resting on the lower surface of the hole, this will reduce the possibility of the bit gripping on the sides or inside the hole (see figure 2).



Figure 2: Drilling Machine examples

- d) Regularly slightly slide the drill bit in and out direction to ensure that the shavings are removed from the hole.
- e) When finished drilling, clean the shaving from the hole and remove and lower the machine.

3.2.5 Stop the machine:

Note 1: Petroleum fumes may develop if products are not stored in a safe, well ventilated, shady area

- a) Close fuel line valve.
- b) Allow the machine to run dry.
- c) Select the on / off switch to OFF position.
- d) Allow the machine to cool down
- e) Remove drill bit

Note 2: Ensure that the hot machine is free standing while cooling down

3.2.6 Task Wrap Up

- a) Remove all personnel, equipment and redundant material from site
- b) Complete and submit required documentation

Note: Clean work area at the completion of the job – because leaving off-cuts and material may result in injuries to the public/livestock and damage to the image of Eskom

4. Related/Supporting Documents

4.1 Related Documents

- a) Critical task analysis (TA-55-06) and
- b) Manufacturer's manual.

4.2 Forms and Records

The completed report shall be returned to the Work Management Centre together with the work order via Work co-ordinator.

The completed reports / forms must be returned to respective departments for record keeping.

- a) Works order
- b) Operating Instruction form / Workers register / Permit
- c) Risk Assessment

5. Authorization

This document has been seen and accepted by:

Name and surname	Designation
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6. Revisions

This revision of 240-129143859 cancels and replaces all revisions of 34-2119.

Date	Rev	Compiler	Remarks
March 2018	1	DM Ntombela	Change to new Document Number 240-129143859 And reformatted the template.
June 2010	0	P Pretorius & DM Ntombela	Document approved as DMN_34-2119

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The following people were involved in the development of this document:

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8. Acknowledgements

Not applicable.

Annex A – Task Observation
(Normative)

	FORM TITLE	OBSERVATION FORM		
	FORM NUMBER	240-129143859	REV DATE	April 2022
	DOCUMENT TITLE	WORKING WITH PETROL DRILLING MACHINE		

1.	OBSERVER'S PARTICULARS								
	Task observer's name: _____				Task observed: WORKING WITH PETROL DRILLING MACHINE				
	Section / department: _____				Location: _____				
	Occupation: _____				Is there a procedure / task manual for this task? YES <input type="checkbox"/> NO <input type="checkbox"/>				
	Date: _____				Task Manual ref. __ 240-129143859 _____				
	Time with task: _____				Work order no.: _____				
2.	REASON FOR OBSERVATION								
	Planned: <input type="checkbox"/>		Follow-up: <input type="checkbox"/>						
	Name of employee being observed: _____								
3.	TASK OBSERVATION								
	Did employee adhere to the procedure/practice requirements?								
		Yes	No	N/A		Yes	No	N/A	
	Preplanning carried out correctly				5. Use of correct PPE				
	Emergency contacts numbers Obtained				6. Ensure that the panel / equipment to be commissioned is isolated and earthed in accordance with 240-129143859				

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Tools equipment:				7. Carry out the task as per task manual (240-129143859)			
Used correctly							
In good and safe condition							
Test instrument calibrated							
Toolbox Talk:							
Task manuals used							
Complete Worker's register							
Risk Assessment been done							
Valid work permits available							
Could observed practices / conditions lead to:							
Injury:				Illness (fumes, gas, etc.)			
Risk of getting caught by				Costs (delays)			
Risk of striking against/get struck by				Poor quality (non-conformance)			
Risk of fall from same level							
Risk of fall from different level							
Risk of slip, trips and falls							
Risk of electrocution							
4.	NON COMPLIANCE PRACTICE OBSERVATION						
	Yes	No	N/A		Yes	No	N/A
1. Working at unsafe speed				7.Failure to warn			
2. Using unsafe equipment				8. Taking chances			
3. Using equipment unsafely				9. Failure to identify hazards			
4. Unsafe loading, placing & lifting				10.Failure to secure lock-out			

	5. Taking unsafe position				11. Safety signs ignored			
	6. Safety rules ignored							
NOTE: ALL OBSERVED CLASS HAZARDS SHALL REQUIRE IMMEDIATE INTERVENTION								
5.	OBSERVED DEVIATIONS / NON-CONFORMANCES							
6.	RISK BEHAVIOURS							
7.	PROPOSED CONTROLS							
	Compile a procedure for this task				Issue a standing instruction			
	Revise present procedure				Change work methods			
	Retraining of employees				Professional referral			
	Engineering revision				Coaching			
8.	ANALYSIS							
	IAC – inadequate capability		ABU – abuse or misuse / equip / drugs or alcohol		MAIN – inadequate maintenance			
	KNO – lack of knowledge		NAT – natural factors		EQU – inadequate equipment			
	SKI – lack of skill		LEA – inadequate leadership		STA – inadequate work / train Standards			
	STR – stress		ENG – inadequate engineering		WEA – wear & tear			
	MOT – improper motivation		PUR – inadequate purchasing		CON – inadequate control			

9.	DISCUSSION BETWEEN SUPERVISOR/OBSERVER AND EMPLOYEE	
	1. EMPLOYEE EXPLANATION FOR RISK BEHAVIOUR:	
	2. AGREEMENT TO CHANGE AT RISK BEHAVIOUR:	
10.	FOLLOW-UP ACTIONS	WHEN / WHO

Person being Observed signature: _____ Date: _____
Signature (Task Observer): _____ Date: _____
Signature Chairperson Safety Committee: _____ Date: _____
(if deviations were found)