ERL MAINTENANCE SUPPORT SDN BHD

Co. Reg. No. 199901023674 (498574-T)

E-MAS

*Effective Railway Operations; Reliable System Maintenance*

**PROJECT & ENGINEERING DEPARTMENT**

# PROJECT & ENGINEERING MANAGEMENT PROCEDURE

Ref. No. E00.OMD.M10002.BT.1001.B

## Release

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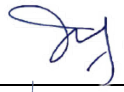
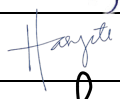
| **Acknowledged:** | Raefendy Ismail | Material Management | 05.08.2021 |  |
| **Checked:** | Haryati Khalil | CEO Office | 3.08.2021 |  |
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| | **Name** | **Dept.** | **Date** | **Signature** |

Amendments or additions to this procedure must be indicated with a vertical black line in the adjacent left margin.

## Change Record and Configuration Control

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| B | 2.8.2021 | Overall revision due to adding DWE function and updated to new template | Dzulfaqar |
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| **Issues To Consider** | **Checked** ***(Please mark X)*** | | | | **Remarks** |
| 1) Are there any negative impact? | YES | | NO | X | |
| 2) Will the integrity of QEMS be affected? | YES | | NO | X | |
| 3) Resources available? | YES | X | NO | | |
| 4) Allocation or relocation of responsibilities and authorities required? | YES | | NO | X | |

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## 1 Purpose

The purpose of this document is to provide an overview and guideline on the management of the Project & Engineering Department; to meet Department's and E-MAS's objective as per Quality and Environmental Manual[1], required by O&M Contract.

Where applicable or necessary, this procedure is to be read together with Company Procedure Manual[2].

## 2 Scope, Distribution & Access

This procedure applies to all Project & Engineering Department staff. The distribution and access shall be available to all PNE staff via the EDMS and through the E-MAS portal.

## 3 Reference, Abbreviations, and Definitions

Abbreviations used in this document are:

| | |
|---|---|
| * | Refer to the latest version |
| CAD | Computer-Aided Design |
| CAPEX | Capital Expenditure |
| DOE | Department of Environment |
| DWE | Depot and Workshop Equipment |
| EDMS | Electronic Document Management System |
| EMU | Electric Multiple Unit |
| ERC | Electronic Repair Centre |
| ERL-CRS System | Obligation towards O&M contract |
| ESD | Engineering and System Development |
| E-MAS | ERL Maintenance Support Sdn. Bhd. |
| FTC | Fixed Term Contract |
| He | Referred to both masculine or feminine genders |
| HoD | Head of Department or his mandate |
| HRD | Human Resource Department |
| JD | Job Description |
| IETS | Industrial Effluent Treatment System |
| ITS | Information and Technology System |
| MMT | Material Management Department |
| MTN | Maintenance Department |

| | |
|---|---|
| OCC | Operations Control Centre |
| OEM | Original Equipment Manufacturer |
| OMD | Head of Department, Project & Engineering |
| OMX | Head of Department, Rolling Stock & Engineering |
| O&M | Operation & Maintenance |
| PIC | Person in Charge |
| PNE | Project & Engineering |
| PO | Purchase Order |
| PR | Purchase Request |
| PRC | Procurement Department |
| QEMR | Quality and Environmental Management Representative |
| QEMS | Quality and Environmental Management System |
| RST | Rolling Stock Department |
| SAP | System Application Product |
| SDS | Safety Data Sheet |
| STP | Sewage Treatment Plant |
| SW | Scheduled Waste |
| ZRPO | Type of Work Order - Repair Order |
| ZSMO | Type of Work Order - Scheduled Maintenance |
| ZSTO | Type of Work Order - Standing Order |
| ZUMO | Type of Work Order - Unscheduled Maintenance |

Table 3.1 – Abbreviations table

## 4 Introduction to the PNE Department

PNE was established in November 2015 [OMG.STF.M11110.1015.A] to support the maintenance department in technical expertise and later undergone major restructuring in November 2017 [HAM.TBA.M11750.1016.A]. This department segregated into three groups listed below:

1) Engineering and System Development.
2) Electronics Repair Centre.
3) Depot and Workshop Equipment.

A temporary task force will be assembled, if necessary, to handle internal or external projects assigned to the PNE department.

### 4.1 Objectives

PNE was created with the following objectives:

1) Supporting the RST trains and DWE equipment reliability issue.
2) Carrying out current EMU train modernization and obsolete parts issues.
3) Conducting in-house repairing and reliability improvement on electronics boards.
4) Providing technical expertise for RST and DWE system development.
5) Handling external projects assigned by the Company.
6) Other engineering activities deem fit by MTN management.

### 4.2 Working Structure

Detailed PNE organization structure can be referred to the PNE Organization Structure [G00.OMD.M11110.BB.1001.*].

## 5 Engineering and System Development (ESD)

The dedicated role for ESD are as follow:

1) Supporting reliability issues for the train, equipment and other systems.
2) Carrying out current EMU train and DWE equipment modernization and solving parts obsolescence issues.
3) Providing technical expertise for research and development.
4) Other engineering activities deem fit by MTN management.

### 5.1 ESD Working Area

In general, a portion of the electronic workshop is allocated for ESD workstations. However, other areas in the ERL-CRS System can be utilized if deemed necessary.

### 5.2 ESD Activities

In general, ESD tasks are assumed as a project, with a finite start and ending period. ESD Team Leader shall supervise, monitor and control all project progress. Refer to the ESD Project Management Flow Chart [E00.OMD.M09000.CZ.1003.*].

A PIC is nominated to handle a particular project, responsible for planning, executing, monitor and close a project. He is also responsible for providing periodic report/update written notification to relevant parties.

ESD supervisor and his subordinates will be used as pooled manpower to perform all direct work, assisted by others such as PIC and secondment personnel from other departments (if necessary).

Any task assigned to ESD from other departments shall first be discussed with OMX and OMD. The following briefly explains the Project Managements handle within the ESD scope of work.

### 5.2.1 Initiating and Planning the Project

The PIC and his team are expected to derive the following examples for the planning phase, but not limited to:

1) Machine / Product Specification.
2) Spare Parts and Consumables.
3) Maintenance Plan (for entire lifespan).
4) Obsolescence Management (Refer Section 10.9).
5) Interfaces / Compatibility.
6) Construction and Installation Scope.
7) Testing and Commissioning.
8) Training Schedule and Training Materials.
9) Facilities and Equipment.
10) Shipment and Transportation Arrangement.
11) Direct and Overhead Manpower Allocation.
12) Insurance and Risk Management.
13) Certification and Regulatory Consultation.
14) Contingency, Risk and Backup Allocation.
15) Warranties and Defect Liabilities.
16) Taxes and Import Custom Code (HS Code).
17) Work Permit, Supplier Manpower Arrangement (Accommodation, etc.).

Project Checklist [E00.OMD.M09000.QZ.1001.*] is available to assist PIC in preparing the planning.

### 5.2.2 Executing the Project

The PIC shall issue a written notification (eg: memo or email) describing the task to all related parties. The notification should contain the following if applicable:

1) The person in charge and his contact number.
2) Affected area.
3) Scheduling for the task.
4) Brief details of the task.
5) Details of support required from the relevant department.

### 5.2.3 Monitoring and Controlling the Project

Periodic control and monitor shall be implemented and updated to relevant parties via a written medium, such as email, tabulation or presentation.

For generalizing various project milestone definitions, the following is a basic example of the critical patch sequences. The sequence can be added, arranged or skipped.

| Sequence | Critical Path Description |
|---|---|
| 1 | Defining specification and requirements, contract and tender negotiation |
| 2 | Budget approval (may be done earlier in CAPEX preparation) |
| 3 | PR Issuance and PO approval |
| 4 | Product/material manufacturing |
| 5 | Product/material delivery from origin and arrival on site |
| 6 | Site construction / Installation |
| 7 | Testing and Commissioning |
| 8 | Training |
| 9 | Closure and handing over |

Table 5.1 – Execution Stage Completion Percentage

The completion percentage is calculated based on the Number of Completed Tasks versus the Total Number of Task, as depicted in calculation A below:

Calculation A:

$$\left( \frac{\text{Number of tasks completed}}{\text{Total number of tasks}} \times 100\% \right) = \text{Completion Percentage \%}$$

### 5.2.4 Closure and Handing Over the Project

Depending on the task nature, either ECN or written notification shall be generated to summarize the task. The relevant document will be submitted to the beneficiary department for hand over the process. Once the handing over process is completed, the beneficiary department shall handle the matter at their discretion without any obligation from the PNE department.

## 6 Electronic Repair Centre (ERC)

ERC was transferred from the MTN department in November 2015 as part of the MTN Department restructuring. With the merger, it supersedes the previous document i.e. ERC Management Procedure[3].

The dedicated role for ERC is as follow:

1) Carry out troubleshooting and repair on electronics equipment.
2) Recondition and overhaul of electronic equipment.
3) Recommend modification or improvement of electronic equipment where possible.
4) Provide a Multimeter Verification service to all maintenance departments.
5) Other engineering activities deemed fit by PNE superior.

## 6.1 ERC Working Area

ERC operated in a room located inside the Electronics Workshop called ERC Room.

### 6.1.1 Access to ERC Room

ERC room access is controlled by the Card Access system. Only ERC members and PNE HoD, as described in the department organization chart, are given access to the ERC. The entrance door shall be locked after office hours or when it is not manned.

Other staff may enter and conduct their work under the supervision of ERC personnel. Any meeting and dealing with suppliers and vendors are advised not to be held in the ERC vicinity.

### 6.1.2 Safety Inside ERC Room

All personnel working within the ERC vicinity must practice safe working culture.

No work shall be conducted during the cleaning process by cleaners. The followings must be performed before cleaning works start:

1) Shut down and cool down all soldering equipment.
2) Shut down and disconnect all power supplies connected to the workpiece.
3) Protect the workpiece from contamination during the cleaner's cleaning work.
4) Practice other safety precautions to avoid hazards to the cleaners.
5) ERC personnel shall supervise the cleaning work thoroughly.

No food, drinks or smoking are allowed in the workstation area in the ERC vicinity.

## 6.2 ERC Activities

### 6.2.1 Troubleshooting and Repairing

Troubleshooting and repairing are the main activities in ERC. It involves identifying, removal of the faulty element and restoring the working condition of a defective unit.

### 6.2.2 Recondition and Overhauling

Recondition and overhauling are the process to prolong a working electronics unit's lifespan to maintain the operational value. It serves as a preventive measure to improve reliability, availability and reducing the system's operating cost.

### 6.2.3 Modification and Improvement

Modification and improvement are also being made to improve the performance and reliability of the working unit.

### 6.2.4 Multimeter Verification

ERC undertakes the multimeter verification process to verify the MTN departments' multimeters functionality.

## 6.3 ERC Repair Process and Limitation

Note: The term "end-user" in the following sentences refers to the defective unit's owner or person in charge of handling such matters.

The respective maintenance departments shall be responsible for categorizing units that could be repaired by ERC or sent to OEM due to safety-critical issues. The decision-making is at their discretion.

The following process is summarized in PNE-ERC Repair Process [E00.OMD.M01000.CZ.1024.*]. All acceptable unit types accepted by ERC are listed in the ERC weekly update. If an intended unit is bound to ERC repairing, it must be sent to MMT for further processing.

A new unit type proposed to be repaired by ERC must first require acceptance from ERC, by directly send a sample of the said unit to ERC for evaluation. The following elements generally used in evaluation but not limited to:

1) Spare parts availability.
2) Equipment and tools availability.
3) Knowledge and information availability.
4) Board and structure complexity.
5) Economical issue.

MMT will record all incoming and outgoing repairing items sent for ERC using ERC Gate Pass record described in section 10.5.1. MMT shall keep all the defective unit which queuing up for repairing and testing. A unique ERC number shall represent each defective unit log in the record.

ERC personnel will then collect the defective unit for rectification works. Once all ERC's internal process completes, they will send this unit back to MMT. MMT is responsible for informing the end-user to collect and test their repaired unit.

If a repaired unit tested failed, it might re-enter the defective unit movement cycle for another repair attempt. If no more ERC's repairing effort is available, the ERC superior shall inform both MMT and end-users regarding the status and advise them on further action. However, the final decision will be depending on the end-user.

# 7 Depot and Workshop Equipment (DWE)

DWE was transferred from the RST department in November 2017 as part of the MTN Department restructuring. The dedicated role for DWE are as follow:

1) Responsible for ensuring all the assigned workshop equipment and vehicles are well maintain and always in serviceable condition.
2) Ensure and demonstrate conformity to applicable legislation which applied to DWE scope on IETS, Spray Cabin & STP.

## 7.1 DWE Working Area

In general, the working area for DWE is limited within the Kompleks Rel Udara vicinity only.

## 7.2 DWE Activities

The daily DWE routine starts with the daily morning briefing and then continued with the work execution. The basic guideline is summarized in the DWE Daily Activities Flow Chart [E00.OMD.M09000.CZ.1004.*].

### 7.2.1 Scheduled Maintenance

Scheduled maintenance is carried out at the specified time interval recommended by the manuals supplied by OEM. Below is the maintenance scheme for the DWE:

1) Daily Inspection.
2) Weekly Inspection.
3) Bi-Weekly Inspection.
4) Monthly Inspection.
5) Quarterly Inspection.
6) Bi-Yearly Inspection.
7) Yearly Inspection.

All DWE scheduled maintenance activity, planning, and maintenance checklists are categorized and compiled in an excel file. The said document is kept in the PNE server folder. The type of work order is ZSMO and ZSTO.

### 7.2.2 Unscheduled and Corrective Maintenance

Unscheduled maintenance is corrective maintenance carried out when failures occur. The typical work order types are ZUMO and ZRPO.

All unscheduled and corrective activities shall be registered/recorded in a digital document and kept in the PNE server folder for future reference. The DWE supervisor is responsible for maintaining this matter.

## 7.3 Notification of Failure

There are two types of failure notification:

1) Maintenance Required Notification (MR)

   The notification of failures during scheduled maintenance, standby or additional inspections, and PNE (DWE) Department staff reported via SAP.

2) Service Failure Notification (SF)

   The notification of failures was found during the equipment's operation and reported by the operator or other parties through the OCC. The OCC will then create the SAP notification to notify the PNE (DWE) Department for further action.

## 8 Staff Handling

Each PNE member shall be reporting to the designated immediate superior as described in the PNE Organization Structure.

If the immediate superior is not available, he must report to the superior one tier above his immediate superior, eventually the HoD or his mandate.

HRD procedures shall be used as a basic guideline, the said procedures can be read and found through the E-MAS portal.

### 8.1 Working Area and Access for Contractors

Any new contractors working within the PNE working area shall be briefed regarding safety matters according to the SAS Safety Procedure[4]. Any newcomer shall be briefed before he is allowed to perform his duty.

## 9 Equipment and Tools

Each group in PNE will have its own set of equipment. They are responsible for taking care of the equipment assigned to them. For the shared tools and equipment, each group is responsible for their tools and equipment.

All personnel are required to maintaining tools safely and cleanly. Tools should be cleaned and kept in the storage provided.

### 9.1 Equipment Maintained by PNE-DWE

Refer to DWE Machinery / Equipment List [D00.OMD.M80000.BL.1001.*] for the list of equipment under DWE supervision.

### 9.2 Tools Records

Each group in PNE shall maintain their tool list, the supervisor/assignee shall be responsible for maintaining the list for their respective group and their team leaders shall verify the tool list. The mentioned list can be referred to the PNE Department Tools Distribution List [E00.OMD.M15510. RD.1001.*].

### 9.3 Equipment / Tools Sharing

Any PNE equipment movement shall obtain approval/consent from the supervisor/assignee (either in written or verbal) accordingly.

These are tools/equipment normally assigned by subgroups. All personnel of the subgroup are collectively responsible for the sharing tools/equipment. If the tools are missing, personnel of the subgroup are responsible for replacing the missing tools.

## 9.4 Damage Tools

Damaged tools shall be replaced accordingly. The replacement process is as follow:

1) The damaged tools must be tagged and returned to the supervisor/assignee to be repaired/replaced.
2) Scrap the damaged tool by initiating the scrapping process. Refer to Warehouse Operations Procedure[5] for the process and form.
3) Issue a One-off Purchase using ERL Purchase Requisition form to initiate the replacement process. Attached the Scrap Form to the issued PR.
4) The remaining processes shall be handled by respective departments accordingly.

The supervisor/assignee shall arrange for further action and arrange for spare/loan tools to be provided to the personnel as needed to carry out their maintenance activity.

Note: Refer to Tool Audit and Replacement Process flowchart [E00.OMD.M09000.CZ.1002.*] for the simplified flowchart.

## 9.5 Missing Tools

The supervisor/assignee will initiate necessary action (such tools audit) as needed for replacement of the missing tools. The owner of the tools is responsible for replacing the missing tool on his own. The replacement shall be on a one-to-one basis or equivalent with similar specification and quality imply.

## 9.6 Tools/Equipment Calibration

Measuring Instrument Validation Management Procedure[6] shall govern all calibration and other associated matters within the PNE department.

The following are the list of instruments owned by PNE which may require validation:

1) DWE Calibration Monitoring Records [D00.OMD.M12980.DC.1001.*].
2) ERC Calibration Monitoring Records [E00.OMD.M011411.DQ.1001.*].

ERC shall monitor and handle all multimeters verification owned by PNE.

The supervisor/assignee is responsible plan, monitor, manage and verify the calibration/verification activity for the instrument device. For safekeeping of original records/certificate, the document shall be kept and maintained by Document Controller. The copies document may be maintained within the department.

## 10 Record and Documentation Management

PNE utilizes four types of facilities listed in table 10.1 for record-keeping. The selection is based on necessity and practicability.

| Application / File Location | Access |
|---|---|
| SAP System | Supervisors and above |
| EDMS | All PNE Personnel |
| Designated Server for PNE digital storage | All PNE Personnel |
| Hardcopy Filing at a designated workstation | All PNE Personnel |

Table 10.1 – Record Access

### 10.1 SAP System

SAP is used for managing work orders, notifications for PNE's maintenance activities for the ERL-CRS system. The process guideline can be referring to the SAP Plant Maintenance Process Guide[7]. The SAP function location for PNE are as follow, supplement to the said Process Guide:

| PNE Sub Group | Main Function Location |
|---|---|
| PNE – Electronic Repair Center | 01000 |
| PNE – Engineering and System Development | 01200 |
| PNE – Project (for future usage) | 01600 |
| PNE – Depot and Workshop Equipment | 80000 |

Table 10.2 – SAP Function Location for PNE

### 10.2 Work Orders

In general, all PNE's maintenance activities for the ERL-CRS system shall be recorded into an appropriate work order via digital format.

Refer to Section 10.1 SAP System for managing Work Order using SAP System, and the Work Orders Creation and Closing flowchart [E00.OMD.M09000.CZ.1005.*] supplement to the said Process Guide.

The supervisor is responsible to close the work orders. They are also responsible to ensure the accuracy of data input into the work orders and required to justify (either in written or verbally) the unclosed work order when requested by management.

### 10.3 EDMS System

To standardize the EDMS structure for PNE, the following in table 10.3 is used as a guideline. However, other profiling is allowed depending on the situation or requirement.

The access for EDMS system is applied to all PNE's personnel, subjected to certain conditions, as stated in the Documentation Manual[7].

| Usage or Purpose | Document Profiling |
|---|---|
| General Company-wide, non-technical documents | G00.OMD.MYYYYY.AA.XXXX |
| ESD and ERC usage, specific inter-department reporting, technical documents | E00.OMD.MYYYYY.AA.XXXX |
| DWE usage, specific inter-department reporting, technical documents | DZZ.OMD.MYYYYY.AA.XXXX |

Table 10.3 – EDMS Document Profiling

Where:

MYYYYY – is the subject code for internal PNE function structure, refer to table 10.4 for details.
XXXX – is the automatic running number generated by EDMS.
AA – is the kind of document, selected from the EDMS option.
ZZ – is for DWE code of the location, D00 for general purpose.

| Function Structure | Subject Code |
|---|---|
| M01### | ERC internal usage |
| M02### | ESD internal usage |
| M03### | Internal Project (within ERL-CRS system, supporting another department) |
| M04### | External Project (beyond ERL-CRS system) |
| M05### ~ M08#### | Reserved for future usage |
| M09###, | PNE internal management usage |
| M10000, M10002 etc. | Companywide circulation |
| M8#### | DWE technical usage |

Table 10.4 – EDMS Subject Code and Function Structure

Where ### / #### is a numerical value for the specific function set by EDMS.

Another reference for EDMS structure can be referred to as the Documentation Manual[8].

## 10.4 Documentation Dedicated for ESD Team

ESD has a various document which listed in Documentation Traceability PNE, currently in PNE server folder. The following subsection is describing the general document used in ESD operation.

### 10.4.1 Technical Instruction and Procedures for ESD

The nature of ESD activities is to provide technical expertise to others. One of the ways of relaying such information is through Technical Instructions. The document is to ensure that the technical tasks are derived and being performed consistently. Technical instruction should declare the following elements whenever possible but not limited to:

1) Equipment and tools.
2) Measurement points, acceptable parameters range.
3) Steps and procedure for performing the works.
4) Drawing and diagrams.
5) Related and references document list.

### 10.4.2 Reports for ESD

The report is used to relay the progress or finding to the beneficiary department.

A report could be used as a reference if the assessment is required to be repeated in the future. Therefore, it is essential to include all relevant information to establish a consistent environment for said assessment.

The report should have the following if applicable:

1) The result of the assessment.
2) Calculation or simulation details.
3) Part list for all component or equipment involved.
4) Installation instruction.
5) Conclusion and recommendation.
6) References.

### 10.4.3 Calculation and Simulation

All calculations should derive the formula and put the reference when necessary.

All simulations should briefly derive the function of each functional element. No explanation is required for connectors, joints, piping and wiring except special characters other than connection purposes.

### 10.4.4 Drawings and Diagram for ESD

The CAD drawing template [E00.OMD.M02000.CZ.1001.*] is available for generic formality unless other forms are available or provided.

Wherever suit and applicable, use the appropriate pictorial diagram such as a line graph, block diagram etc; to facilitate further understanding of the information.

### 10.4.5 Part List and Bill of Materials

All items used for a project must be listed in the bill of materials. The information to be listed, such as:

1) Name of Components.
2) Designation / Location.
3) Part Numbers.
4) Manufacturer / Supplier.
5) Quantity.
6) Datasheet and etc.

In general, the list is kept in PNE server folders.

## 10.5 Documentation Dedicated for ERC Team

ERC has a various document which listed in Internal Documentation Matrix [E00.OMD.M01000.CZ.1001.*]. The following subsection is describing the general document used in ERC operation.

### 10.5.1 ERC Gate Pass

This document represented the recording of units handled by ERC. It is generated, kept and maintained by the MMT department.

### 10.5.2 ERC Repair Record

The person who performs the repairing, overhauling or modification must record their finding and other related matters. The recording is to ensure that information on said task can be retrieved in the future. This report shall be kept internally by ERC in the respective PNE server's folder. Below are some points that should be in the report but not limited to:

1) Unit description and serial number.
2) ERC Gate Pass number and work orders number.
3) Description of failures.
4) Description and explanation of findings during troubleshooting and repairing process.
5) Material and part consumed.

### 10.5.3 ERC Weekly Update

The ERC weekly update is used for data recording and monitoring the progress of the repairing process. This record shall be updated every week by ERC supervisor/assignee and kept internally in the respective PNE server's folder.

The record shall be uploaded to EDMS every twice a year with a new version on each upload. The ERC supervisor/assignee shall be responsible for maintaining this matter.

### 10.5.4 Technical Instruction for ERC

This type of document is used as guidelines for troubleshooting or repairing processes. It is recommended to generate technical instruction for high repairing occurrences by type so that the repeated process can be conducted uniformly. Technical instruction should declare the following elements whenever possible but not limited to:

1) Equipment and apparatus.
2) Test connection and points.
3) The acceptable minimum and maximum voltage or current value as each point.
4) Step and procedure for conducting the functional check.
5) Related and references document list.

Another method to define the troubleshooting or repairing process is via PinPoint Test Programs. This software-based operation is also treated as technical instruction. Only ERC members have access to these files, unless being authorized by ERC superiors.

### 10.5.5 Checklist for ERC

The checklist is the recording made based on guidelines defined by technical instruction. Repairing and overhauling checklist typically combined in repair reports while verification, self-test and inspection have their specific checklist. Below are some of the points usually contain in a checklist:

1) The person who performed the inspection and the supervisor/assignee who verified the work.
2) Date of the conducted test.
3) Failure details, findings and work performed.
4) Other related matters that deems essential.

All hardcopy checklist will be kept internally in the respective filing folder in the ERC room.

## 10.6 Documentation Dedicated for DWE Team

DWE has various documents, it is listed in Document Traceability PNE DWE General [D00.OMD.M09000.BL.1002.*]. The following subsection describes the comprehensive document used in DWE operation.

Note that the DWE documentation structure was inherited from its former department(s). The structure will remain as it is unless if there is any more recent version of such a document being made.

### 10.6.1 Equipment Manuals

Manuals are prescribed document that contains the information about the equipment or machinery.

### 10.6.2 Technical Instructions for DWE.

Technical instruction is to supplement the information in the event of the Equipment Manual is not present or may not be sufficient. This type of document is used as guidelines for maintenance, repairing, troubleshooting or calibration process. Technical instruction shall declare the following elements whenever possible but not limited to:

1) Equipment and apparatus.
2) Test connection and points.
3) Acceptable minimum and maximum parameter.
4) Step and procedure for conducting the work.
5) Related and references document list.

### 10.6.3 Online Environmental Report (OER)

All competent persons who are responsible for submitting the routine report to regulatory bodies shall fulfill the requirement accordingly as such:

1) Industrial Effluent Treatment System - 4 reports/Month.
2) Sewage Treatment Plant – 1 report /Month.
3) Spray Cabin Chimneys – Annually.

### 10.6.4 Checklist and Data Recordings

In addition to the SAP, several other methods have been established to monitor and record the scheduled maintenance activities.

Starting from 1st January 2019, all hardcopy checklists are replaced with the digital copy by stages, the original copy [D10.OMD.M80000.RN.1001.*] is placed in the PNE server folder for daily updating.

## 10.7 Hardcopy Documents

The minimum retention period for hardcopy documents are as follows:

| Type of documents | Retention Period |
|---|---|
| Manuals, Drawing and other relevant materials | As long as possible |
| Checklist | Three years |
| SDS and material datasheet | As long as the material or part is in use |
| Work Orders | As long as the document is in use |
| Other relevant documents | As long as the document is in use |

Table 10.5 – Hardcopy retention period

However, converting these documents to softcopy is highly encouraged.

## 10.8 Softcopy Documents

All softcopy documents are expected to be retained as long as possible. Two specific locations are to be utilized:

1) Designated digital storage facility server provided by ITS.
2) EDMS.

## 10.9 Obsolescence Management

PNE ESD shall govern the Obsolescence Management Procedure[9] on behalf of MTN Departments, which is limited to updating and amendment of the document.

### 10.9.1 Obsolescence Action

Generally, OEM will share the equipment lifetime info from the operating manual and action shall be taken for maintenance activities. For the equipment there is no technical design lifetime, PNE will conduct device/parts assessment for the equipment. Below are some of the points usually contain in the assessment:

1. Equipment failure rate (Breakdown the failure, such: mechanical, electrical and etc.)
2. Devices failure rate
3. Maintenance cost assessment
4. Forecasting
5. Visual inspection
6. Severity Risk

### 10.9.2 Obsolescence Recovery Plan

PNE will contact OEM for the recovery plan and advise for parts replacement. Also, Section 4 (including all its sub-sections) in Obsolescence Management Procedure[9] shall be referred to govern the situation.

## 11 Job Descriptions

The responsibility and function of every position are described in their respective Job Description. The JD is issued and signed by the personnel involved in new employment and promotion. The guideline in handling, distribution, and administration of the JD could be referred to Job Description Procedure[10].

The list for PNE Job Description List can be referred to document no. [G00.OMD.M10002.ZJ.1001.*].

### 11.1 Competent Persons

Competent Persons are appointed to ensure that the PNE activities that bind to local regulation are appropriately handled. Their responsibility is described in the Job Description as follows:

| No. | Competency Designation | Reference No. |
|---|---|---|
| 1 | Job Description for CePIETSO<br>Certified Environmental Professional in The Operation of Industrial Effluent Treatment System | G00.OMH.M11120.ZJ.1212.* |
| 2 | Job Description for CePSTPO<br>Certified Environmental Professional in Sewage Treatment Plant Operation | G00.OMH.M11120.ZJ.1188.* |
| 3 | Electrical Chargeman | Incorporated into dedicated Job Description |

Table 11.1 – Job Description for Competent Persons

## 12 Schedule Waste Management and Disposal

MMT is responsible to managed and handled all types of SW generated within the Company. All types of SW will be managed in accordance with the prescribed regulations imposed by the authorities. The detail on SW handling and management process can be referred to in Warehouse Operations Procedure[5].

### 12.1 SW Generated by ERC

Any SW generated during performing the maintenance activities need to be temporarily stored inside the allocated bin/container provided. Once the bin/container is full, together with the scrap form provided, the SW needs to be handed over to MMT for further process. However, it is advisable to ensure the SW collected inside the bin/container to be handed over to MMT on monthly basis.

### 12.2 SW Generated by Third Party

It is the responsibility of the third party or appointed contractor to managed and handle their own SW generated during engaging any projects with the Company.

However, should the third party or the appointed contractor does not have any capabilities to handle/manage the SW generated and it is agreed by both parties (the Company and appointed contractor), then the SW generated can be handed over to MMT for disposal process.

## 13 Spares and Consumables

All stock items (spares and consumables) needed in performing PNE's activity are kept and maintained by MMT. The inventory of these items is controlled by MMT which also includes the replenishment of the stock. Detail for the stock item's inventory management can be referred to in Warehouse Operations Procedure[5].

For any item required by PNE and that was not listed in the inventory, a Purchase Requisition will be raised to procure the required item. The detailed process for PR management can be referred to in Purchasing Procedure[11].

### 13.1 Material Supply for Projects

The project team is expected to have its inventory of supplies dedicated to the project they undertake. Cost for large projects shall be declared in an appropriate platform such as CAPEX. The procurement of any items required for the projects will be administered in accordance with the Purchasing Procedure[11].

## 14 Knowledge Management and Retention

The training courses are described in the PNE Training Calendar list, which is kept in PNE server folders. The training shall be conducted by the superior for that particular group.

### 14.1 Amendment to Procedures

Any amendment to the department management procedure shall be briefed to affected members.

### 14.2 Resignation of Key Personnel

In the event where a key PNE's personnel is resigning, retiring or permanently transferred to another department, the immediate superior is responsible for ensuring the handing over to others is done properly.

### 14.3 Knowledge Transfer Methodology

This section is applicable for knowledge transfer for the new staff / transferred staff / FTC period. The contents of such attachment are but not limited to:

1) Whereabouts of the documents, materials, and person in charge.
2) Procedure and process flow (if applicable).
3) Job-related safety awareness.
4) Specific knowledge and skills required for the job.

PNE members who are resigning, permanently transferred to other departments, or retiring are expected to return all Company properties under their responsibility back to their immediate superior as handing over the process.

### 14.4 Briefing and Training Attendance Record

All other briefing and training attendances shall be recorded using Training Confirmation & Verification Form. It is advised, PNE's shall have one digital copy of all training records kept on the PNE server folder. All training evidence shall be scanned and saved into a specific folder for internal records. HRD will keep the original form, as stated in the HRD Training Procedure[12] when necessary.

### 14.5 Training Dedicated for Projects

There is no dedicated training imposed for Project team members. However, they are expected to familiarize themselves with the procedures, system, regulation and other matters related to their working environment.

## 15 Quality and Environment Management

Any activity carries out in PNE within ERL-CRS System shall comply with the Quality and Environmental Manual[1].

### 15.1 Responsibilities

PNE HoD is responsible for:

1) Implement and maintain the QEMS and documentation structure within PNE.
2) Ensure that all procedures and work processes conform to the principles of the ISO Standard.
3) Ensure PNE QEMR has adequate time and resources to fulfill the obligations of QEMR.

PNE QEMR and listed competent persons are responsible for:

1) Ensure that PNE adheres to the requirements detailed in the Quality and Environmental Manual[1].
2) Keep all documented materials in check and properly kept.

Other personnel in PNE are responsible for:

1) Be aware of the general requirements of the QEMS.
2) Properly store all documentation and record.

### 15.2 Risk Management

All risks by PNE are defined through Risk Opportunity Review List (RORL) and kept the document in the PNE server folder.

## 16 DWE Machinery Failure and Emergency Reporting

For machinery and equipment breakdown reporting, the following reporting arrangement is to be followed:

| Day | Time | Contact Person |
|---|---|---|
| Monday to Friday | During office hours (08:30 to 17:30hrs) | PNE-DWE Supervisor: *12555<br>PNE-DWE Executive: *12431<br>PNE HoD: *12581 |
| | Non-office hours | RST Supervisors: 7730 |
| Saturday and Sunday | Entire day | RST Supervisors: 7730 |

Table 16.1 – Emergency respond contact persons

If DWE is not available to respond to Train Washing Plant (TWP) failures, for example, on Sunday or after office hours, RST shall provide assistance to reset the plant and release the train as described in TWP Reset Instruction [D13.OMD.M82111.BT.1001.*].
If the effort to release the train is unsuccessful, the stranded train shall remain on-site, and PNE will initiate a recovery attempt the soonest as possible.

## 17 Appendices

| No | Section | Description | Reference No. |
|---|---|---|---|
| 1 | 6.3 | Flowchart - ERC Repair Process | E00.OMD.M01000.CZ.1024.* |
| 2 | 9.4 | Flowchart - Tool Audit and Replacement Process | E00.OMD.M09000.CZ.1002.* |
| 3 | 5.2 | Flowchart - ESD Project Management | E00.OMD.M09000.CZ.1003.* |
| 4 | 7.2 | Flowchart - DWE Daily Activities | E00.OMD.M09000.CZ.1004.* |
| 5 | 10.2 | Flowchart - Work Orders Creation and Closing | E00.OMD.M09000.CZ.1005.* |

Table 17.1 – List of Appendices

## 18 Reference to Document Referred

| No | Document Name | Document Number | Document Type |
|---|---|---|---|
| 1 | Quality and Environmental Manual | G00.OMQ.M11421.AF.1009.* | Procedure |
| 2 | Company Procedure Manual Introduction and Index | G00.OMQ.M11150.CA.0004.* | Procedure |
| 3 | ERC Management Procedure | E00.OMN.M10002.BT.1001.* | Procedure |
| 4 | SAS Safety Procedure | G00.OMZ.M11451.NP.0006.* | Procedure |
| 5 | Warehouse Operations Procedure | G00.OML.M13500.CA.1001.* | Procedure |
| 6 | Measuring Instrument Validation Management Procedure | E00.OMD.M01000.BT.1001.* | Procedure |
| 7 | SAP Plant Maintenance Process Guide | G00.OMN.M11070.CZ.1001.* | Process Guide |
| 8 | Documentation Manual | G00.OMQ.M11160.BT.0001.* | Procedure |
| 9 | Obsolescence Management Procedure | G00.OMD.M12000.WO.1002.* | Procedure |
| 10 | Job Description Procedure | G00.OMH.M11720.ZP.0004.* | Procedure |
| 11 | Purchasing Procedure | G00.OMU.M10540.CD.0008.* | Procedure |
| 12 | HRD Training Procedure | G00.OMH.M10580.SD.0006.* | Procedure |

Table 18.1 – List of Reference to Document Referred