

EXPLO National Manual of Assets and Facilities Management Volume 7, Chapter 2

Developing Maintenance Procedure

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Developing Maintenance Procedure

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Developing Maintenance Procedure

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Developing Maintenance Procedure

1.0 PURPOSE

Successful maintenance planning of equipment relies on conducting maintenance at the right time to the right level such that the performance may be optimized, and equipment life may be maximized.

As part of maintenance management and Work Control processes, a Maintenance Procedure is designed to deliver all strategies of maintenance in a variety of contract arrangements. Maintenance Procedures are subject to various influences that potentially impede and redirect the maintenance work, with direct and indirect consequences. Maintenance Procedures are, therefore, critical to the success of maintenance contract, but are at risk of compromise to quality and effectiveness from numerous influences.

Implementing fit-for-purpose, business-specific System Operating Procedures (SOPs) offer customers the following benefits:

- Consistency in approach among operations personnel when executing critical operations
- The ability to define and link training to each procedure
- The ability to demonstrate compliance with latest technical standards and best practices
- A reduction in human error
- Up-skilling of newly inducted technicians to a level consistent with other experienced technicians
- Reduced reliance on the memory and competence level of individual technicians
- More robust auditing, root cause analysis, and reporting
- Ability to easily pinpoint errors and capture lessons learned within the continuous improvement process

The purpose of this document is to provide advice and methodology to understand how well the Maintenance Procedure is performing and how to correct, adjust, or improve the adoption of the procedure so as to be more compliant, consistent, and effective.

2.0 SCOPE

This procedure provides advice on when development is beneficial and necessary, what areas of the maintenance operation are likely exposed to weakness, how to approach and manage the development activity, and how to deliver the changes effectively.

The guidance presented herein resides in the context of a number of related documents within National Manual of Assets and Facilities Management (NMA & FM) Volume 7 – Work Control, most notably Performing Work. The guidance presented also identifies the connections and dependencies of Asset Management (AM), operations management, financial, and performance management, supply chain management, business reputation, and health and safety.

It is important to understand that improvements from the procedure development exercise may not be immediate. Simple failings can be fixed, and improvements can be immediately noticed, but more complex issues can take time to gain adoption, and observation of the results may be dependent on a reporting cycle such a monthly or quarterly index.

The examples contained within this document are applicable to all the strategies and delivery models of maintenance. Although, guidance herein is intended for application within a hard services Facilities Management (FM) environment, the principles can also be applied to the soft services environment.

3.0 DEFINITIONS

Term	Definition
Child Work Order (WO)	Work Order (WO) created from another Work Order (WO), 'Corrective Maintenance'
Client Representative	See Site Custodian. Interchangeable with Facilities Manager, Building Manager or similar representative of the building or contract owner
Conditional Fields	Fields within a Personal Digital Assistant (PDA) that must be provided with information before the PDA operator can progress to the next step



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Term	Definition
Confined Space	Areas considered to be of restricted spatial geometry or potentially toxic air quality with restricted access control
Development	The activity that responds to a need for change. Development is applied to an existing procedure
Development Matrix	A matrix of categories with specific entries used to structure and convey the development plan. A type of action plan
Fields	Required information box in a computerized system that may be a pull-down menu, free text, or format controlled
Maintenance Strategy	Refer to National Manual of Assets and Facilities Management (NMA & FM) Volume 6, Chapter 3: Types of Maintenance
On-Hold	A CMMS work status. Sometimes referred to as 'Pending'
Personal Digital Assistant (PDA)	An electronic device that connects the Work Management Center (WMC) and other approved users with the Technician
Permit to Work (PTW)	A control method for high risk and specialist, preapproved skills assessed work
Restricted High Place (RHP)	Location(s) on site designated as requiring additional access control for operational or safety reasons. Different from 'Working at Height' as working in RHP can mean working from a non-elevated surface
Single Point of Failure (SPOF)	Most commonly a skillset but also refers to resources such as vehicles or tools, and technology and systems such as cell phone dependency or an office printer
Site Custodian	Represents the client on site. May be a technical person or team or may be a non-technical 'Facilities Manager' type role. The Site Custodian has responsibility for liaising with other stakeholders to ensure that the client's interests are represented and protected
Skills Register	A register of persons held by a contractor or client that records who is considered competent to work on specific items of plant or system or locations with particular risks
Stakeholder	Person within the maintenance contract or external that has an input to or may experience an impact from an activity or action
Unplanned Work	Any piece of work that requires emergency or urgent response, or when a 'Quick Work' opportunity arises
Work Order (WO)	Formal uniquely identifiable documented instruction to work
Abbreviations	
AM	Asset Management
CIM	Continuous Improvement Model
CMMS	Computerized Maintenance Management System
FM	Facilities Management
KPI	Key Performance Indicator
NCLOM	National Committee for Legislation and Standardization of Operation and Maintenance
NMA&FM	National Manual of Assets and Facilities Management
OOH	Out of Hours
PCN	Procedure Change Notice
PDA	Personal Digital Assistant
PDCA	Plan-Do-Check-Act
PM	Planned Maintenance
PMT	Post Maintenance Testing. Refer to NMA & FM Volume 6 Chapter 27 for guidance on PMT
POWRA	Point of Work Risk Assessment
PRB	Procedure Review Board
PTW	Permit to Work
RAMS	Risk Assessments and Method Statements
RHP	Restricted High Place
SPOF	Single Point of Failure
UM	Unplanned Maintenance



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Term	Definition
UPS	Uninterruptible Power Supply
WMC	Work Management Center
WO	Work Order

Table 1: Definitions

4.0 REFERENCES

- National Committee for Legislation and Standardization of Operation and Maintenance (NCLOM 1/1435) – Project of Study of the Current Operation and Maintenance Works Status at Government Facilities, 31st January 2016
- National Manual of Assets and Facilities Management (NMA & FM) Volume 5, Chapter 3 – Procedure Development
- National Manual of Assets and Facilities Management (NMA & FM) Volume 6, Chapter 3 – Types of Maintenance
- National Manual of Assets and Facilities Management (NMA & FM) Volume 6, Chapter 27 – Post Maintenance Testing (PMT)
- National Manual of Assets and Facilities Management (NMA & FM) Volume 7 – Work Control
- National Manual of Assets and Facilities Management (NMA & FM) Volume 7, Chapter 2 – Maintenance Procedure Writers Guide (EOM-ZW0-GL-000002)
- National Manual of Assets and Facilities Management (NMA & FM) Volume 7, Chapter 2 – Performing Work (EOM-ZW0-PR-000007)

5.0 RESPONSIBILITIES

Key personnel involved in a Maintenance Procedure are given here:

Role	Description
Development Lead	Responsible for analyzing development need, proposing and implementing the improvement plan. Operationally a central member of staff, they may be the line manager of the Work Management Center (WMC) and technical teams
Work Management Center (WMC) team	Consists of help desk, scheduling and planning staff. Source of key information for decision making and development activities. Will have key responsibilities for implementation of any changes
Technician	Responsible for the contract compliant delivery of maintenance within the published procedures
Engineering Supervisor/Manager	Technical advisor and contributor to development. Operationally responsible for managing the delivery of contract and quality compliant maintenance. These are line managers to the Technicians and possibly the WMC
Maintenance Procedure Writer	Suitably skilled person responsible for writing the Maintenance Procedures
Quality/Compliance Manager	Responsible for managing the auditing of compliance with contract requirements including Maintenance Procedure

Table 2: Responsibilities



6.0 PROCESS

6.1 Maintenance Procedures

A Maintenance Procedure is a key document to ensure that maintenance is delivered in accordance with the maintenance strategy, contract requirements, and organization's standards and processes. Refer to NMA & FM Volume 7, Chapter 2 – Maintenance Procedure Writers Guide, for more information regarding the scope and purpose of a Maintenance Procedure.

In terms of the Work Control process, Maintenance Procedure are located at the center of NMA & FM Volume 7, Chapter 2 – Performing Work.

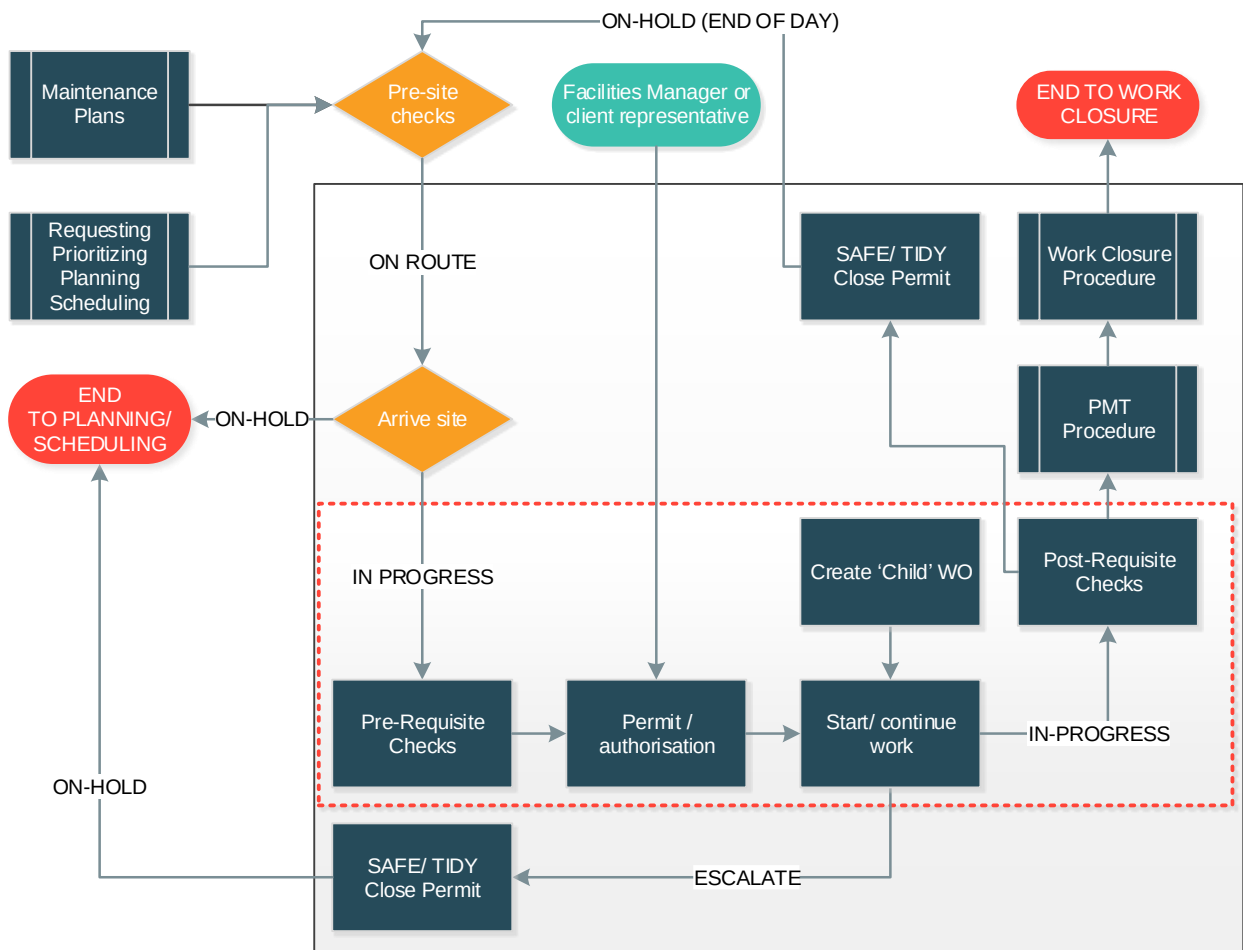


Figure 1: Maintenance Procedure within the Context of Performing Work Procedure

Above is a high-level flowchart (Figure 1) that shows the position of Maintenance Procedure within the wider Performing Work activity. The area within the large rectangle represents the Performing Work boundaries within which Maintenance Procedures operate. The area outside the large rectangle represents the Work Control procedure and supporting activities. The red rectangle outlines the core activity steps of the Maintenance Procedure. The Maintenance Procedure provides the detail of what the Technician does while carrying out all types of maintenance work. The Performing Work Procedure directs action with respect to permissions, decision making and escalation from the post-scheduling stage to Work Closeout.

Note the presence of various other Procedures in close relationship with the Maintenance Procedure. This means that Maintenance Procedures provide and receive information to and from other Stakeholders and Procedures for the successful delivery of maintenance within a contract compliant process.

The following list provides summary detail of the context, actions, and consideration directly affecting the Maintenance Procedure.



6.1.1 Work Control

- Planned and unplanned maintenance
- Planning and scheduling
- Resident and non-resident contractors
- Documentation
- Resources
- 24/7, out-of-Hours (OOH), day shift attendance
- Pre-site checks

6.1.2 Pre Requisite Checks

- Site entry and location availability
- Workspace is available, safe, clean, and clear
- Plant is isolated, operating, or prepared as agreed or expected
- Maintenance plan confirmed correct or acceptable

6.1.3 Authorization

- Access to specialist engineering assets
- Access to confined space and Restricted High Places (RHPs)
- Excavation for underground services
- Other access restricted areas

6.1.4 Work Activity

- Priority code check
- Work instructions
- 'Child' and other Work Orders (WOs)
- Decisions and escalations
- Deferred maintenance decisions
- Post Maintenance Testing (PMT) procedure

6.1.5 Post Requisite Checks

- Information recording including failure codes
- Work Closeout procedure including maintenance history and AM updates
- Customer satisfaction
- Gathering maintenance history

By complying fully with the Performing Work and Maintenance Procedures, the Technician provides essential information to the AM, financial management, and supply chain management processes and stakeholders. This requirement for information and the providence of that information are potential sources of failure impacting on or by the Maintenance Procedure.

6.2 Recognizing the Need for Change

Maintenance Procedures development adopts a Continuous Improvement Model (CIM) which provides an effective approach to recognize the need and implement changes. Refer to NMA & FM Volume 5, Chapter 3 – Procedure Development, for further guidance regarding development of procedures.

The conclusions of the National Committee for Legislation and Standardization of Operation and Maintenance (NCLOM) report highlighted the need for continuous improvement in maintenance operations. Refer to the full document as detailed in **Section 4**, as necessary.

It is preferable and beneficial to carry out periodic internal and external reviews of performance and compliance compared to reacting to the need for unplanned investigations.



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Need can be categorized as falling into one of the three categories:

- Planned periodic (internal and external)
- Urgent
- Unplanned investigative

Need is almost always highlighted by statistics. The statistics usually take the form of trends or thresholds. For example, if the Key Performance Indicator (KPI) has decreased for three consecutive months, then a clear trend is identified. If the number of sick days by an individual exceeds a threshold, further investigation may be required.

Why there is a 'need' for change, takes various forms. The need for change in the broadest sense may be for a number of reasons including:

- Efficiencies
- Productivity
- Cost
- Audit performance
- Human error

Other reasons include, but not limited to, technology limitations, legislation changes, organizational policies, and environmental compliance.

Being aware of the needs and opportunities for continuous improvement is the responsibility of all staff. Taking appropriate action to improve and facilitating a smooth transition to the new operating procedure is the responsibility of management, specifically the Development Lead.

As far as possible, only 'objective' observations shall be acted on. Feedback from the technical team that they are 'doing too much paperwork' shall be backed up by data recorded in the Computerized Maintenance Management System (CMMS) tracking Technician 'admin' time. Feedback that a particular client 'always asks for extra work to be done' shall be confirmed by WOs raised while the Technician is in attendance. The use of the CMMS converts subjective opinion to hard facts, which can then be used to measure the impact of changes.

'Subjective' feedback can provide accurate input if there are various sources reporting the same observation, but care must be taken that the observations are 'firsthand' and not 'repeats' of the opinion of one or two individuals. An example of subjective feedback that is potentially useful is the Customer Satisfaction scores recorded against work. Customer Satisfaction feedback may be a contractual delivery that a certain percentage of WOs are surveyed. There may be a lower threshold score that prompts a focused investigation.

Periodic audits of the completion of WOs and CMMS records is a not uncommon requirement of a maintenance contract operating under best practice. Internal audits are typically required by an organization, including maintenance contracts, as part of their quality assurance management. External periodic audits are designed to allow the client to check the quality and compliance of the maintenance contract. One method is that a sample of reactive jobs are selected periodically, typically monthly, and checked against a number of criteria.

An urgent review may focus on financial performance. If a contract is not making the predicted profit, questions might be asked about the amount of non-profitable time or low productivity. In this example, the correct use of the CMMS status covering 'travel' and 'admin' are key to successful change. Low productivity may be caused by return visits to site being more common than originally expected. Return visits to site may be caused by the WMC Help Desk not getting enough good quality information when receiving a work request resulting in the Technician having to visit site simply to find out what the problem is. It may be that Technicians are not collecting spares when it has been clearly identified that spares are needed, thereby wasting time travelling unnecessarily between the site and the storeroom or supplier.

An investigation into an accident may ask serious questions about the supervision and confidence that managers have on their workforce may be asked.

- Why was the Technician doing that when they were either not qualified or trained or did not have permission to work at that location or on that system?



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- Is any deviation from the stated correct procedure the fault of the Technicians or the managers?
- Have the Technicians been telling the managers of a problem with the procedure and the managers have been ignoring the problem or not documenting changes to working practices properly?

6.3 Developing Maintenance Procedures – Approach

This development activity will normally take place while the existing procedures are being used. It is not normally possible to stop the business operation while a review and re-plan is carried out. The well-established Plan-Do-Check-Act (PDCA) cycle is the recommended approach for the development activity. More detail on what these four steps may focus on is given here:

Plan

- Understand failings
- Identify improvement opportunities

Do

- Identify required changes
- Draft changes

Check

- Test the change
- Check consequences and perform Cost Benefit Analysis (CBA)

Act

- Approve Procedure Review Board (PRB)
- Launch

This PDCA cycle for developing Maintenance Procedures is a development activity initiated from within the larger Work Control process.

The 'Check' step of the Work Control development cycle identifies the need for development of the Maintenance Procedure. The 'act' step of the Work Control development cycle is the Maintenance Procedures development procedure.

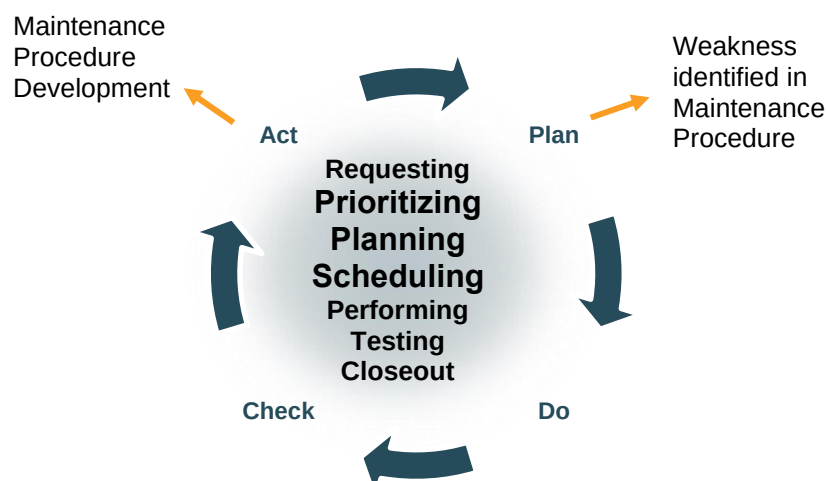


Figure 2: Procedure Development

It is recommended that the development activity is formally managed through a PRB or similar. This is to ensure that all stakeholders can review the issues, acknowledge contribution and proposed solutions, and understand the motivation and authorization in place for change. Submission of the findings and proposals



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by the Development Lead can be recorded in a matrix format, which is referred to in this document as the Development Matrix. A Development Matrix can take the form of a spread sheet.

Stakeholders in this procedure are all those with responsibilities, in addition to the following groups:

- Maintenance team
- Operations team
- Asset management team
- Performance, compliance and budget managers.
- Client side/site representatives

6.3.1 Plan

6.3.1.1 Understand Failings

Identification of failings may arise from planned periodic, urgent, or unplanned investigative development inputs.

Failings are likely to fall into one of the following three categories:

- **Documentary**
 - Duplication of inputting
 - Too much paperwork
 - No added value
- **Operational**
 - Individual's performance
 - Inductions and training
 - Resources
 - Support
 - Single Point of Failure (SPOFs)
 - Poor site awareness
 - Communication
- **Work practices**
 - Customer management
 - Poor oversight
 - Poor training
 - Lack of credibility

The above list contains examples of typical failings within the three categories. It may be that a periodic audit has confirmed that one or more teams are simply not following the published procedures and this needs to be corrected for commercial or compliance reasons. It may be that the Maintenance Procedures were originally drafted before several and significant changes to the working environment or contract has happened and the procedures were not updated subsequently.

Documentary

If inconsistencies are found in data, this may be the result of human error when entering the same information in more than one location. It may be that the technicians are filling in 'time' data more than once, the first time being on the WO, second for the client's records, the third being on their timesheet.

Operational

Data will allow the Development Lead to understand if one particular technician is slower at performing a routine task than all the other technicians. Training several technicians to be able to carry out certain work is an approach that strengthens resilience of delivery and also helps to identify the efficient workers because comparisons can be made. Are some Technicians working faster by somehow getting around following the procedure?



Work Practices

It may happen that there is ineffective auditing and compliance enforcement by the management and the technical workforce are 'doing their own thing'. It is not uncommon for staff to 'check' the boxes on forms declaring that they have completed a task when the reality is the task may not have been completed fully; this can occur for both the technical and non-technical teams.

6.3.1.2 Improvement Opportunities

Improvement opportunities describe failings that are likely predictable or, hopefully, have limited negative impact on the maintenance operation. Failing may be something that the maintenance contractor has decided to accept.

Single Point of Failure

For example, it is not uncommon to have SPOF, which is usually a skillset that only one Technician or Engineer has and is the cause of poor KPI performance when that person is not available to work or is needed at another location during a critical time for a particular WO. SPOFs can take the form of vehicles, printers, and cell phone dependency, and the frequency and impact of failures needs to be assessed.

No Added Value

If the WO requires the Technician to enter the odometer mileage readings on to the WO, and then into the CMMS, this will consume time of the technician and possibly of an administration assistant. If the information has not been used and the time consumed cannot be justified, then the requirement has to be questioned and removed. However, if odometer readings are a contract requirement, appropriate authorization to stop recording will need to be secured.

Maintenance Procedure Template

Maintenance organizations will have a Maintenance Procedure template for managing the information to and from the stakeholders, primarily the WMC, the caller, and the Technician. This document is sometimes incorrectly referred to as the 'WO', though the document should have a WO number assigned to it. The Maintenance Procedure template is designed to manage information essential for the delivery of planned and unplanned maintenance, including the details of the location, task details, schedule requirements, urgency, and fault details. This Maintenance Procedure can be paper based or in electronic form. Sometimes, there is a weakness in the design of the Maintenance Procedure template. Included in the **Attachment 1** is a template of Maintenance Procedure checklist, which shall be referred when developing the Maintenance Procedure. This checklist states what key minimum information shall be available, to whom, and in what situation. For electronic based templates, this minimum level of information shall be used for setting the 'conditional fields' in the CMMS.

6.3.2 Do

6.3.2.1 Identify Required Change

Once failings in the Maintenance Procedure have been identified, the next step is to understand what the desired outcome is. Once the difference between the actual and desired conditions has been identified and quantified, a plan can be drafted that will deliver improvement.

The consequences of the proposed changes might achieve improvement but not perfection and this may be considered acceptable. Few changes can guarantee perfection whilst often a score of 100% is not required and hence improvement is often an acceptable prediction from a proposal. This may be quantified as achieving a trend or a threshold. For example, Customer Satisfaction scores improve for three consecutive months, or the number of KPI 'red' scores is less than 5%.

Delivery of Maintenance Procedures is where many problems will appear and manifest themselves. The root cause is likely to be elsewhere, further back up the work process or external to the Technician team. Understanding the failings is the key first step in identifying the root cause, and in turn, the solution.

A review of customer management may identify a need to educate the client on the proper way to raise a Work Request, and not to use the Technician as a go-between. An assessment of cause may identify a



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resource failing as simple as lack of plant room keys, if doors are being found open or locks broken. There may be a need to attach clearer and correct signage on equipment, including circuit breakers, if an incident of mistaken identity has occurred. The need for manual transfer of information from one part of the CMMS to another could be removed by reconfiguration of the software, if an error has proven to be costly.

6.3.2.2 Draft Changes

Solutions can be summarized in the Development Matrix and considered by the stakeholders of the PRB. The proposal can include tentative support from stakeholders whose contribution and possible change to their working procedures has been identified and discussed.

Plugging the gap between how the procedure is performing or being complied and how the Development Lead needs it to operate will depend on the details of any problem or problems and where the maintenance contractor needs the procedure to be.

Changes that could go beyond the maintenance team may need to be approved through an organization's approval process. For example, changes to controlled and published documents such as flowcharts may be part of the recommended solution. Changes to the OOH telephone answering message may need 'corporate' approval.

Technology makes development of Maintenance Procedure easier. The use of Personal Digital Assistants (PDAs) forces the technical workforce to complete information in the correct sequence, on time, and more accurately than the paper based systems. A redesign of the conditional field may be required to ensure that certain steps are completed in the required manner and sequence.

6.3.3 Check

6.3.3.1 Test the Change

Consulting with the appropriate stakeholders and Subject Matter Experts (SME) is key to testing any change to a Maintenance Procedure. These people will help the Development Lead to think through the effectiveness and consequences of the proposed change. If several changes are being proposed affecting various aspects of the maintenance delivery, there may be interlinking impacts that the Development Lead has not recognized. For example:

- If improved inductions and training is one of the recommended actions, then is the budget in place and the training provider available in the required timescale?
- If changes to the CMMS are required, are the required resources available?
- Does the software license allow the number of resources and have the required skillset available?
- Is it possible to build a parallel procedural steps model in the CMMS so that the change can be tested before going live?

6.3.3.2 Check Consequences and Cost Benefit Analysis

The Maintenance Contractor may decide that it is cheaper to accept the penalty associated with a failing than resource the required solution, especially if the solution is expensive such as recruiting or training a person to close a SPOF cause. Longer term succession planning, where an organization drafts an outline plan on how the promotion or departure of certain staff is planned in advance, may solve human SPOF situations.

If information does need to be duplicated in more than one place and a proposal that this task be carried out by administration support, determination of how this solution looks in reality needs to be made. Is there spare administration capacity, or can a night shift person take on the task if they have spare time?

Where individual performance has been identified as the cause of the failings, the solutions could involve a senior person shadowing the Technician for a period of time, typically days, to train, check, and reinforce the correct way of working. If the failings are more widespread and imprecise, the solution may be for senior staff to carry out more unannounced site visits.



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Benefits that are difficult to identify or associate with a particular action include the departure of certain staff who bring down the standards and commitment of others. Increased supervision by managers may have the indirect result of encouraging certain people to leave the business.

6.3.4 Act

6.3.4.1 Approve

The design of the Development Matrix can include columns that allows it to act as an action plan tracker.

Once a proposed change has been approved by the necessary stakeholders, the organization will likely require compliance with their document change control procedures, utilizing a Procedure Change Notice (PCN) or similar.

6.3.4.2 Launch

Widely accepted advice on how to approach introduction or change to any organization is to introduce it with enthusiasm and explanation.

Providing the explanation can take several forms and deciding which methods to use is almost as important as the proposed changes.

- A singular meeting with the entire team
- An e-mail
- Notices left in plant rooms and offices
- Explain the changes to certain key individual's first
- Training sessions

Many documents and good practices recommend a review cycle as part of a continuous improvement requirement. Following the launch of a change or changes to Maintenance Procedures, it is recommended that the impact of the launch is monitored more frequently than the cycle recommended for the document review. This closer monitoring of the effects of a change launch is the key reason why Development Matrix shall also evolve to an action plan tracker.

Statements on the impact of procedure developments may be requested in other reports such as an internal Managers Report or an external Client Monthly Report.

7.0 ATTACHMENTS

1. EOM-ZW0-TP-000002 - Maintenance Procedure Template Checklist



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Attachment 1 – EOM-ZW0-TP-000002 – Maintenance Procedure Template Checklist

Maintenance Procedure Design Assessment List

Legend: WMC = Work Management Center action/provided, Tech = Technician action/provided, Client = Client action/provided, PM = Planned Maintenance, UM = Unplanned Maintenance, OOH = Out of Hours, Sub = Sub-contractor.

No.	Work Procedure Item	WMC	Tech	Client	PM	UM	OOH	Sub
GENERAL								
	WO Number provided?	☒	☒	☒	☒	☒	☒	☒
1	Parent/Child WO relationship specified?	☒	☒	☐	☒	☒	☐	☐
2	Date and time raised in CMMS?	☒	☒	☒	☒	☒	☒	☒
3	WO raised by (NAME) specified?	☒	☐	☐	☐	☐	☒	☒
4	Work Request caller (NAME) specified?	☒	☐	☒	☐	☒	☒	☒
5	Work Request caller contact number provided?	☒	☐	☒	☐	☒	☒	☒
6	Work Request caller location provided?	☒	☒	☒	☐	☒	☒	☒
7	Work Request call date and time provided?	☒	☐	☒	☐	☒	☒	☒
8	Skillset Level specified?	☒	☐	☐	☒	☐	☐	☒
9	Caller specified or site-specific access constraints or procedure specified?	☒	☒	☒	☒	☒	☒	☒
10	Maintenance type stated (PLANNED, UNPLANNED)?	☒	☐	☐	☒	☒	☒	☐
11	Risk Assessments and Method Statements (RAMS) required?	☒	☐	☐	☒	☐	☐	☒
12	Priority code specified?	☒	☐	☐	☐	☒	☒	☐
13	Failure Code specified?	☐	☒	☐	☐	☒	☒	☐
14	Asset Code specified?	☐	☒	☐	☒	☒	☐	☐
15	'Caller description' of location/system provided?	☒	☒	☒	☐	☒	☒	☒
16	Criticality of asset/system provided?	☒	☐	☒	☒	☒	☒	☐
17	Consumables/parts required?	☒	☐	☐	☒	☐	☐	☒
18	Consumables/parts available?	☒	☐	☐	☒	☐	☐	☒
19	Consumables/parts location specified?	☒	☐	☐	☐	☐	☐	☐
20	Consumable/parts collection authorization provided/confirmed?	☒	☒	☐	☐	☐	☐	☒
21	Consumable/parts stock control update required?	☒	☒	☐	☐	☐	☐	☒
22	Target Finish Date/time stated?	☒	☐	☐	☒	☒	☐	☐
23	Actual Finish Date/time stated?	☒	☐	☐	☒	☒	☐	☐
24	Previous Maintenance deferred?	☒	☒	☐	☒	☐	☐	☒
25	Previous deferred maintenance WO number provided?	☒	☒	☐	☒	☐	☐	☒
26	Previous deferred maintenance details provided?	☒	☒	☐	☒	☐	☐	☒
27	Previous deferred maintenance reason and comments specified?	☒	☒	☐	☒	☐	☐	☒
PRE-SITE								
28	WO details checked?	☒	☒	☐	☐	☐	☐	☒
29	WO details completed and corrected?	☒	☒	☐	☐	☐	☐	☒
30	Arrived on site (TIME) provided?	☒	☒	☐	☐	☐	☒	☒
31	Arrived at work location (TIME) provided?	☒	☒	☐	☐	☐	☒	☒
32	Departed work location (TIME) provided?	☒	☒	☐	☐	☐	☒	☒
33	Departed site (TIME) provided?	☒	☒	☐	☐	☐	☒	☒
PRE-REQUISITE								
34	Site access permission, request, and pass CHECKED?	☒	☒	☐	☐	☐	☐	☒
35	Maintenance history relevant?	☒	☐	☐	☒	☒	☐	☒
36	Maintenance history provided?	☒	☐	☐	☒	☒	☐	☒
37	Maintenance history reviewed?	☒	☒	☐	☐	☐	☐	☒
38	Work location is safe, clean, and clear?	☐	☒	☐	☒	☒	☒	☒
39	Work location is illuminated?	☐	☒	☐	☒	☒	☒	☒
40	Work location noise is acceptable?	☐	☒	☐	☒	☒	☒	☒
41	Work location dust levels are acceptable?	☐	☒	☐	☒	☒	☒	☒
42	Asset/system is isolated?	☒	☒	☒	☒	☐	☒	☒



Developing Maintenance Procedure

No.	Work Procedure Item	WMC	Tech	Client	PM	UM	OOH	Sub
43	Asset/system is operating?	☒	☒	☒	☒	☐	☒	☒
44	Asset/system is prepared?	☒	☒	☒	☒	☐	☐	☒
45	Asset/system is safe?	☒	☒	☒	☒	☒	☐	☒
46	Asset/system indicators are 'healthy'?	☒	☒	☒	☒	☒	☐	☒
47	Associated asset/systems assessed?	☒	☒	☐	☒	☐	☐	☒
48	Associated asset/systems acceptable?	☒	☒	☐	☒	☐	☐	☒
49	Associated asset/systems comment?	☒	☒	☐	☒	☐	☐	☒
50	Other work immediately adjacent?	☒	☒	☐	☒	☒	☒	☒
51	Adjacent work compromises safety?	☒	☒	☐	☒	☒	☒	☒
PERMITS and AUTHORIZATION								
52	Confined Space	☒	☒	☒	☐	☐	☒	☒
53	Restricted High Place (RHP)	☒	☒	☒	☐	☐	☒	☒
54	Restricted access – Electrical room	☒	☒	☒	☐	☐	☒	☒
55	Restricted access – Uninterruptible Power Supply (UPS)	☒	☒	☒	☐	☐	☒	☒
56	Restricted access – Generator room	☒	☒	☒	☐	☐	☒	☒
57	Restricted access – Pressurized system	☒	☒	☒	☐	☐	☒	☒
58	Restricted access – cleanliness	☒	☒	☒	☐	☐	☒	☒
59	Restricted access – sensitive information	☒	☒	☒	☐	☐	☒	☒
60	Restricted access – vulnerable people	☒	☒	☒	☐	☐	☒	☒
61	Restricted access – escort required	☒	☒	☒	☐	☐	☒	☒
62	Restricted access – excavation	☒	☒	☒	☐	☐	☒	☒
63	Skills Register restriction (client controlled)	☒	☒	☒	☒	☐	☒	☒
64	OOH Restricted Access	☒	☒	☒	☐	☐	☒	☒
65	CMMS status 'ON HOLD – Permit'	☒	☒	☒	☐	☐	☒	☒
WORK ACTIVITY								
66	Point of Work Risk Assessment completed?	☒	☒	☐	☒	☒	☒	☒
67	Prepared Work Activity instructions provided?	☒	☒	☐	☐	☐	☐	☐
68	Priority code checked?	☒	☒	☐	☐	☒	☒	☒
69	Priority code change justification provided?	☒	☒	☐	☐	☒	☒	☒
70	Child WO raised?	☒	☒	☐	☒	☒	☐	☒
71	Child WO number provided?	☒	☒	☐	☒	☒	☐	☒
72	Other WO raised?	☒	☒	☐	☒	☒	☐	☒
73	Other WO number or description provided?	☒	☒	☐	☒	☒	☐	☒
RECORDING AND COMMUNICATING INFORMATION								
74	Recorded values checked?	☒	☒	☐	☐	☐	☐	☒
75	Satisfactory/unsatisfactory?	☒	☒	☐	☒	☒	☐	☒
POST-REQUISITE								
76	Condition statement/score required?	☒	☒	☐	☒	☐	☐	☒
77	Asset quantity confirmed?	☒	☒	☐	☒	☐	☐	☐
78	Asset/system returned to operation?	☒	☒	☒	☒	☒	☒	☒
79	Disposal instruction required?	☒	☒	☐	☒	☐	☐	☒
80	Disposal instruction options/detail required?	☒	☒	☐	☒	☐	☐	☒
81	Work location cleanliness checked?	☒	☒	☐	☒	☐	☐	☒
82	Work location tidiness checked?	☒	☒	☐	☒	☐	☐	☒
83	PMT required?	☒	☒	☒	☐	☐	☐	☒
84	PMT requirements provided?	☒	☒	☒	☐	☐	☐	☒
85	PMT carried out?	☒	☒	☐	☐	☐	☐	☒
86	Customer signature required?	☒	☒	☒	☐	☒	☐	☒
87	Customer signature provided?	☒	☒	☒	☐	☒	☐	☒
88	CONDITIONAL FIELDS (for CMMS Help Desk and Technician PDAs only)	☒	☒	☒	☐	☒	☐	☒
DOCUMENT QUALITY								
89	Enough space for all inputs provided?	☒	☐	☐	☐	☐	☐	☐
90	Correct time and date format indicated?	☒	☐	☐	☐	☐	☐	☐
91	Multiple entry updates fields/spaces provided?	☒	☐	☐	☐	☐	☐	☐