Purpose:

The purpose of this Maintenance Work Management Procedure is to define how maintenance work is identified, approved, planned, scheduled, controlled, and executed to maintain assets in safe operating condition, extend their reliable lifespan, or return them to safe operation following a failure.

Applicable To:

- Maintenance Manager
- Maintenance General Supervisors
- Operations General Supervisor
- Maintenance Supervisors
- Site Services Supervisors
- Maintenance Planners
- Maintenance Engineers
- Tradespeople
- Operators
- Warehouse Workers
- Any other employee who has authority to issue a work request

Procedure:

1. Maintenance Work Management

Maintenance work is managed using a Computerized Maintenance Management System (CMMS). Corrective maintenance work is identified using Work Requests. Preventative Maintenance (PM) work, Predictive Maintenance (PdM) work, Inspections, and other compliance driven recurring maintenance activities are managed using the scheduled PM functionality within the CMMS. Maintenance work is planned, scheduled, executed, and recorded using Work Orders. All employees are given access to the CMMS with appropriate permissions to perform their job duties. The Maintenance Planner is the CMMS subject matter expert (SME) and administrator.

Maintenance work is executed by qualified tradespeople, apprentices, operators, or laborers under the direct supervision of qualified and competent supervisors. Maintenance work is planned and scheduled by maintenance planners. Maintenance work is validated by maintenance supervisors as a default or by the appropriate SME as determined during the planning process.

2. Maintenance Work Identification

Any employee can identify potential corrective maintenance work. Potential maintenance work is documented and reported into the CMMS using the Work Request function. A work request is the starting points of the Asset Maintenance Workflow for corrective and breakdown maintenance that is depicted in Figure 1 - Asset Maintenance Flowchart. Work requests are the basis for identifying all maintenance work except for preventative and predictive maintenance tasks.

The identification of PMs, PdMs, risk-based inspections, and regulatory driven recurring maintenance activities is defined by the asset specific maintenance plan that is developed by the maintenance planner, maintenance engineer, and approved by the Maintenance General Supervisor. The creation of asset specific maintenance plans is described in the Asset Maintenance System Procedure.

3. Work Review, Approval, and Prioritization

Work requests are assigned a priority when they are created using the definitions provided in Table 1 - Maintenance Work Priority Definitions. Priority 1 work requests are routed directly to the Operations General Supervisor for approval following the Critical Maintenance Work Instruction, WRE-MAN-700-01. Priority 2 and 3 work requests are reviewed and approved or denied and assigned a priority during a daily Plan Do Review (PDR) Meeting which is described in WRE-MAN-700-02. In the PDR meeting, work requests are reviewed to remove duplicate or already reported issues, the work necessary to resolve the reported issue is defined, and the work request is approved, and priority is confirmed by the Operations General Supervisor and Maintenance General Supervisor.

Table 1 - Maintenance Work Priority Definitions

Priority	Name	Time Frame	Description
1	Critical	Work breaks into the current days published schedule, starts immediately and is done around-the-clock until complete.	Work on critical equipment that has already failed. Production losses have occurred or safety, environmental, or health risks cannot be managed without repair of this equipment.
2	Urgent	Work breaks into the current weeks published schedule and starts the following day or thereafter.	Equipment is in operation, is in an unstable condition, and no standby equipment available. Required Production is still maintained. Operation parameters above specification. Increased risk of equipment failure if not addressed. Safety, Environment, Health and Risks can be

			managed.
3	Planned	As scheduled. Does not interrupt daily or weekly schedules.	Routine work including preventative maintenance, inspections, non-critical corrective maintenance, project work, etc.
4	Unassigned	To be determined.	Work without a priority assigned yet.

Approval of work requests is completed and documented in the CMMS. When a work request is approved the requester is notified that it has been approved. If a work request is cancelled the original work requestor is notified that the work request has been cancelled and provided with an explanation as to why it was cancelled. When a work request is approved, a work order is created that is linked to the work request and the work request is completed and saved as a record of the work identification and approval. The work order is assigned the same priority as the work request and then used to plan, schedule, execute, and document the maintenance work.

4. Work Planning

All regular (priority 2 and priority 3) maintenance work is planned by the maintenance planner using work orders in the CMMS by following the Maintenance Planning Work Instruction, WRE-MAN-700-03. The maintenance plan is developed to a level of detail that is sufficient to ensure safe and consistent execution of maintenance work, while considering the complexity of the work to be executed and the skill and experience of the personnel assigned the work. At a minimum, all work orders include:

- a description of the work to be performed,
- work instructions,
- trades/crafts required,
- estimated duration,
- outage requirements,
- parts and materials,
- tools and maintenance equipment (cranes, lifts, hoists etc.)

Optional information contained on work orders includes:

- safety procedures or work instruction,
- technical information (drawings, manuals, specifications),
- commissioning or inspection requirements.

The detailed maintenance planning process is described in WRE-MAN-700-03

Work Type

The maintenance planner tags work orders in the CMMS with a work type to distinguish between different categories of work, origins or work, and planning requirements, as well as to facilitate KPI and other maintenance effectiveness evaluations. Maintenance types include:

- Preventative
- Predictive
- Corrective
- Investigation (No Planning Required)
- PM/PdM Originated
- Capital Project
- Management of Change (MOC) Initiated

Outage Requirements

All work orders are tagged with outage requirement tags to facilitate planning and scheduling. Outage requirements tags are defined in Table 2 - Maintenance Work Outage Requirements. Defining outage requirements is the responsibility of the maintenance planner in consultation with the operations general supervisor.

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Table 2 - Maintenance Work Outage Requirements

Outage Requirements Tag	Description
Online	Work can be completed without any production interruption or outage.
Bypass	Work requires equipment to be bypassed but does not require a production interruption or outage.
Plant Outage	Work requires a plant-wide outage and should be scheduled for execution during a single-day planned outage.
Turnaround	Work requires an extended plant outage and should be scheduled for execution during an annual turnaround.

Trades/Crafts

All work orders are tagged to identify which trades or crafts are required to complete the planned work. Composite crews can be used to complete maintenance work that requires multiple trades or to provide supplemental labour to journeypersons of one trade with journeypersons of another trade when practical or necessary. Contractor maintenance work is tagged as its own trade/craft using the same tagging system. The following trade tags are available in the CMMS.

- Carpenter
- Electrician
- Instrumentation Technician
- Mechanic
- HD Mechanic
- Refrigeration Mechanic
- Pipefitter
- Site Services Operator
- Process Operator
- Mechanical & Piping Contractor
- E&I Contractor
- Civil Contractor

Management of Change

As maintenance work planning progresses and the job plan is defined it is continually assessed by the maintenance planner to determine if the threshold for implementing change management, as defined in the Change Management Procedure, WRE-QUA-111. When this threshold is met, change management is implemented and the change management procedure and its supporting work instructions are used. For changes managed and executed on by the maintenance department, an MOC work order is created in the CMMS. Approval for physical or technical MOCs executed by the maintenance department are completed following the change management procedure.

Work Orders Requiring Technical Support

Work Orders that require engineering, geoscience, radiation, safety, or environmental support are assigned to the Maintenance Engineer in the CMMS. The Maintenance Engineer is responsible for consulting with the necessary subject matter experts (SMEs) to develop the technical deliverables required to support maintenance planning. A project is initiated, when warranted by complexity, cost, or

risk. All engineering or design efforts are undertaken in accordance with the Engineering Design Control Plan and its supporting work instructions. Once the technical deliverables are finalized, the work order is assigned back to the maintenance planner to complete planning activities.

Work Order Statuses

Work orders are assigned one of the following statuses in the CMMS by the maintenance planner to assist with scheduling, and backlog management.

The following give a brief explanation for each status:

Waiting for Planning: Work order has been created from a work request and approved but is waiting for a maintenance planner to start planning.

In Planning: Actively being processed by a maintenance planner who is developing job steps, identifying required parts, tools, skills, work instruction, estimating labor hours, and determining safety requirements

Waiting for Parts: Planning is complete, but materials or parts required for the job are not currently available; the work order remains in this status until all necessary components are received and verified.

Ready to Schedule: All planning elements are complete, all parts are available and kitted as required, and the work order is ready to be assigned a specific execution date during the maintenance scheduling process.

Scheduled: Work order has been assigned a specific date for execution.

Released: after weekly scheduling meeting, final approval given to be in the next week weekly schedule.

Started: Physical work has begun in the field; crew is actively working on the task.

Reported: Work execution is done, feedback from technicians about job is entered in the CMMS. This include cause of failure and a report of what is been done, consumed material, detail of the trade and time that worked on job, tools and facilities used.

Completed: maintenance supervisor changes the status of reported job to completed when maintenance supervisor verified that work activities, testing, permit closures, and documentation have been done properly; equipment has been returned to operations with proper signoff. Work order feedback is entered into the CMMS properly.

Cancelled: Work order has been terminated before completion due to changes in equipment status, operational priorities, or determination that work is no longer required; includes proper documentation of cancellation reason.

On Hold: Work has been temporarily suspended due to operational constraints, emergent higher priority work, additional planning needs, or resource limitations; retains position in backlog with documented justification for the delay.

Materials and Parts

It is the responsibility of the maintenance planner to determine the necessary materials and parts to complete the work that is planned on the work order. Materials and parts are acquired, verified, and kitted following the Maintenance Materials and Parts Work Instruction, WRE-MAN-700-04.

5. Work Scheduling

The maintenance planner is responsible for scheduling all priority 2 and 3 work. Priority 1 work orders are routed directly to the maintenance supervisor for execution following the Critical Maintenance Work Instruction, WRE-MAN-700-01.

Priority 2 work orders (urgent work orders) are scheduled as soon as they are ready to execute and displace other work on the current published work schedule as required. It is the joint responsibility of the maintenance general supervisor, the operations general supervisor, and the maintenance planner to determine which work order(s) to displace to make room for priority 1 or priority 2 work if it is required. Displaced work orders are re-scheduled during the next scheduling cycle.

Priority 3 work orders (planned work orders, including PM and PdM work orders) are scheduled when they are ready to execute and by considering outage requirements, priority, and availability of resources. The maintenance planner creates a draft schedule for the following week which is reviewed and approved during a weekly scheduling meeting, which follows the Weekly Scheduling Meeting Work Instruction, WRE-MAN-700-05. This meeting is attended by:

- maintenance planner,
- maintenance supervisors,
- maintenance general supervisor,
- operations supervisor,
- operations general supervisor,
- site services supervisor,
- wellfield lead,
- maintenance engineer,
- safety technician,
- environment technician and radiation technician as required.

The final schedule is jointly approved by the maintenance general supervisor and operations general supervisor. Once approved, the schedule is published and the work orders in that scheduled are assigned to the respective supervisors. The maintenance planner is also responsible for PM scheduling using this scheduling process. Maintenance planner, maintenance general supervisor and operations general supervisor are responsible for backlog management according to WRE-MAN-700-06. The scheduling of turnaround work is completed outside of this regular weekly scheduling process, according to the Turnaround Management Procedure.

6. Work Execution

Work Permit

The work permit process for maintenance activities follows work permit procedure. When a work permit is required, it is completed during a daily coordination meeting held between maintenance supervisors, operations supervisors, and maintenance planners at the end of the previous day—ensuring work scheduled for the following day can be executed while coordinating activities required of the operations team to prepare equipment, assets, or areas for maintenance. Critical activities requiring permits include radiological work, confined space entry, hot work, electrical work, excavation, critical lifts, control of hazardous energy procedures, and non-routine maintenance—each evaluated based on risk level by qualified safety, maintenance, and operations specialists. The final sign-off to start the job occurs on the morning of execution day by the operations group to confirm operational conditions remain suitable from the day before. Prior to commencing work, the maintenance supervisor ensures all team members attend a pre-job briefing, while operators and maintenance technicians prepare the work area with appropriate isolation. Upon completion, the maintenance team performs cleanup, and decontamination if needed, and the maintenance supervisor complete formal permit closure.

Maintenance Supervisors

Maintenance supervisors are responsible for reviewing the scheduled work orders to confirm that planning is completed, and they are safe to execute before they are assigned for execution. They assign work orders to maintenance workers and ensure that the workers are trained, competent, and qualified to perform the work being assigned. The maintenance supervisor is responsible for monitoring maintenance work being performed and for verifying that the relevant safe work practices (including work permits), work instructions, and work plans are being followed.

Tradespeople and Maintenance Workers

Maintenance Workers perform maintenance work on plant, wellfield, airstrip, camp and other equipment of the site under the supervision of the maintenance supervisors. Maintenance workers only perform work that is described on a planned work orders and assigned to them by a maintenance supervisor.

They are responsible for:

- evaluating field conditions to ensure it is safe to proceed with the planned work,
- completing field level hazard assessment prior to starting work when required,
- retrieving maintenance parts and materials identified on the work order,
- reviewing and understand the job plans,
- following the job plan identified on the work order,
- cleanup of the job site including removal of waste materials and return of extra parts, and
- tracking progress and filling in the work order in CMMS including required data entry.

Coordination of Maintenance Work

Coordination of maintenance works occurs during a daily coordination meeting held between the maintenance supervisors, operations supervisor, and maintenance planners at the end of each day. The objective of this meeting is to ensure that the work scheduled for the following day can be executed, and to coordinate activities required of the operations team to prepare the equipment, assets, or areas for maintenance work to occur.

7. Work Completion

Upon completion of the planned work, including testing or validation, the tradesperson ensures all instructions on the work order are marked as complete, fills out the completion notes, and reassigns the work order to their maintenance supervisor for final verification. The supervisor verifies that the work is completed and that the piece of equipment is safe to be put back into operation and turns the equipment over to the operations department. The supervisor also completes the work permits and passes the work permit to operations team for acceptance and closure.

Any deficiencies or follow-up work is to be noted in the completion notes and the supervisor creates a new work request for that work, noting that it is follow-up work from the work order being completed.

8. Backup Plan for Maintenance Work Management

If the CMMS is unavailable due to issues such as internet or network connection problems, planned CCMS maintenance, or any other reason, a manual system will be used. This involves paper work requests, work orders, and a spreadsheet to manage maintenance tasks until the CMMS is operational again. Subsequently, the manual records will be loaded into the CMMS. This process will be done according to the Maintenance Work Management Backup work instruction, WRE-MAN-700-07.

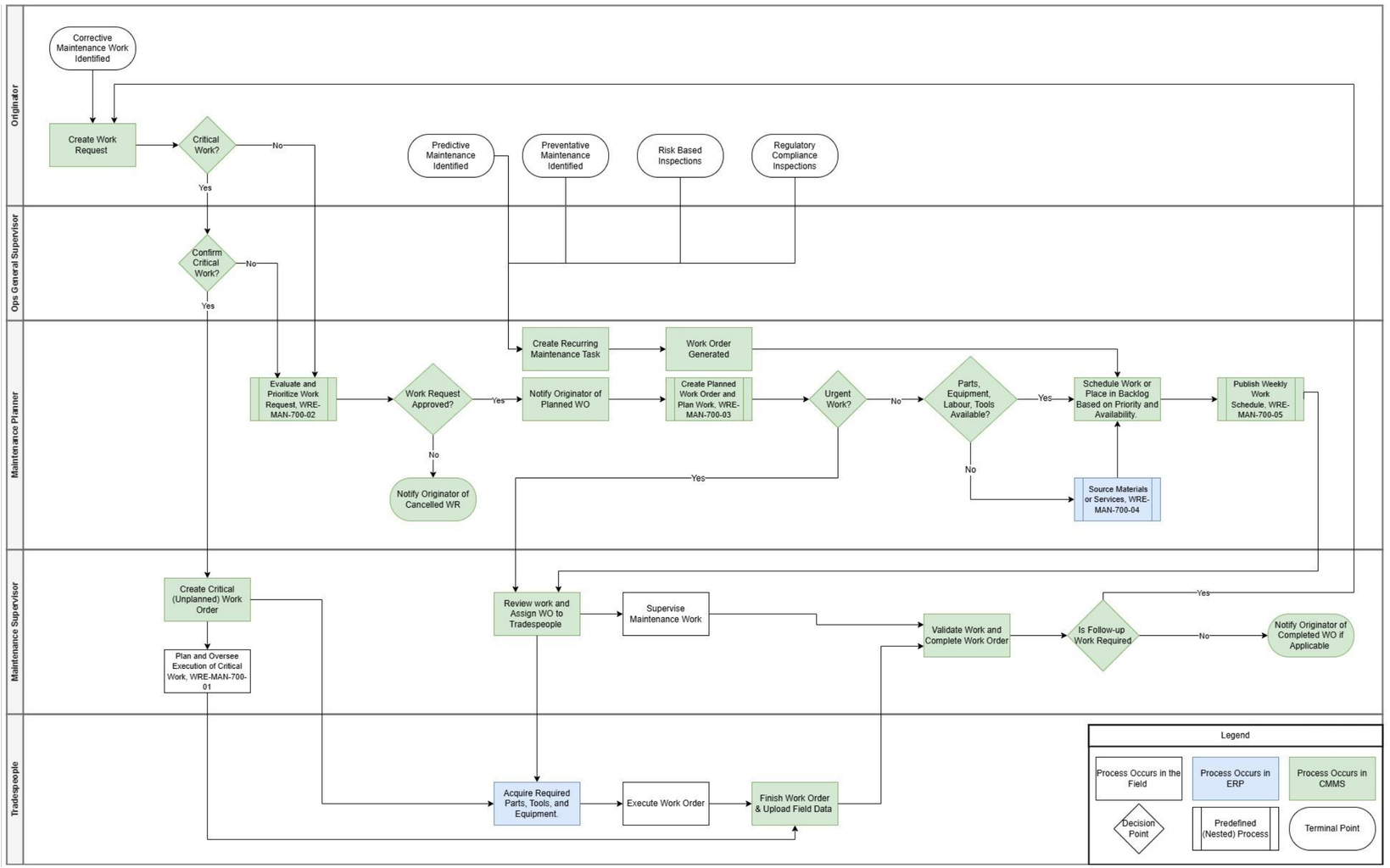

Figure 1 - Maintenance Work Management Flowchart

Records:

Record Name	Retention Time	Location
Work Orders	Indefinite	CMMS Database
Work Requests	Indefinite	CMMS Database
Asset Master Data	Indefinite	CCMS Database
Asset History	Indefinite	CCMS Database

References:

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