Defect Management Plan

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Dean Bailey	**MHHS-DEL466**	**1.2**
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1.1   Change Record

Date	Author(s)	Version	Change Detail
23/06/2022	Dominic Mooney / Adrian Samlal	0.1	Initial Draft for LDP peer review.
08/07/2022	Dominic Mooney	0.2	Document name and structure amended following a session with SRO (AA) to agree principles.
15/07/2022	Dominic Mooney	0.3	Updates following LDP review.
28/07/2022	Dominic Mooney	0.4	Updates following SRO (AA) review.
25/08/2022	Dominic Mooney	0.5	Updates following SRO formal review.
05/09/2022	Dominic Mooney	1.0	Baselined following SRO approval
18/04/2023	Dean Bailey	1.1	Sections 3.2, 5, 7 and 8 updated
23/05/2023	Dean Bailey	1.2	Baselined following SRO approval

1.2   Reviewers

Reviewer	Role
Nigel Hunt	LDP SI Test Manager
Adrian Ackroyd	SRO Function Programme Test Manager
Smitha Pichrikat	SRO Function Client Delivery Manager

1.3   References

Ref No.	Document/Link	Publisher	Published	Additional Information
REF-01	MHHS E2E Testing & Integration Strategy	SI Testing	29th April 2022	
REF-02	MHHS Change Control Approach	PMO	5th May 2022	
REF-03	MHHS Programme Governance Framework	PMO	22nd June 2022	

1.4   Terminology

Term	Description
Various	For terminology, see Programme Glossary on the MHHS portal: Programme Glossary (SharePoint.com)

2   Executive Summary

The Market-wide Half Hourly Settlement programme (MHHS) when completed will contribute to a more cost-effective electricity system, encouraging more flexible use of energy and helping consumers lower their bills. The responsibility for success is shared between all parties and stakeholders, with everyone working together to make sure the programme is delivered and to the highest possible quality.

Robust quality assurance for the necessary changes is required for this complex programme, not least during the industry testing stages where proactive and efficient management of defects will be crucial to the overall success of the programme objectives. This document provides definition of how defects are raised by MHHS Industry Test Participants and how these will be triaged, managed, and reported on, through a clear process to resolution. The approach and process adopted is intended to be familiar for those industry Test Participants involved in recent industry programmes.

3   Introduction
3.1   Document Purpose

The Defect Management plan describes the overall approach to managing defects within the industry testing phases of the MHHS Programme. The purpose of the Defect Management plan is to support the timely and efficient raising, triage, categorisation, and resolution of defects.

The Defect Management Plan describes:

- Defect assignment and process workflow;

- Defect status definitions and transition states;

- Defect types, classifications and definitions;

- Defect priorities, severities, and service level response times;

- Defect Management roles and responsibilities;

- Defect Management tools;

- Defect Management governance;

- Defect Management reporting; and

- Defect Management process for retest.

The process and mechanisms within this Defect Management plan fully supports the underlying principles described in [REF-01] MHHS E2E Testing & Integration Strategy.

This document is intended to be read by the following groups:

- MHHS Programme Parties engaged in MHHS programme design, build and industry testing activities

- SRO Function (SRO)

- Lead Delivery Partner (LDP)

  o   Core Programme Team (CPT)

  o   System Integration Team (SI)

  o   Programme Party Coordinator (PPC)

  o   Programme Management Office (PMO)

- Testing and Migration Advisory Group (TMAG)

- BSC Performance Assurance Board (PAB), including its Qualification team

- Independent Programme Assurance (IPA)

3.2   Reviews and Approvals

The Defect Management plan document will go through initial formal LDP review by the following team members:

- Nigel Hunt, LDP SI Test Manager

Upon completion of LDP review, any comments and feedback would be incorporated before going to the SRO team formal review by:

- Adrian Ackroyd, SRO Function Programme Test Manager
- Smitha Pichrikat, SRO Function Client Delivery Manager

Once comments and feedback have been incorporated, approval and sign off will be requested from:

- Smitha Pichrikat, SRO Function Client Delivery Manager

It is not intended that the document will be reviewed by any working groups or Programme Parties, however, it will be made available for information via the programme portal.

3.3   Change Forecast

The SI team will own this document and keep it up to date, with review and approval by MHHS programme governance as appropriate. Each new version supersedes the previous version in its entirety.

Updates to this document will follow the review and approval process outlined in section 3.2.

3.4   Summary of Changes

This is the first amended version following v1.0.

4   Scope
4.1   Participants

All Programme Parties involved in MHHS testing will be expected to comply with this Defect Management plan, including:

- Suppliers;
- Service providers;
- Agents;
- (I)DNOs;
- Central parties;
- Data Integration Platform service provider (responsible for the DIP);
- DCC (responsible for both Smart Metering and Central Switching Service);
- Elexon (responsible for Elexon Central Systems, which comprise Load Shaping Service, Market Data Service, Volume Allocation Service, Industry Standing Data Service and BSC Settlement Operations);
- Electralink (responsible for the Data Transfer Network – DTN);
- St Clements and C&C, together with the (I)DNOs (responsible for SMRS); and
- UMSOs (responsible for the UMSO services).

Each of the parties above are referred to as Test Participants throughout this document.

4.2   Test Phases

Participation in the MHHS Defect Management process is mandated for the following Test Phases in accordance with [REF-01] MHHS E2E Testing & Integration Strategy:

- Pre-Integration Testing (PIT) - for MHHS Emulators, Simulators, or Data Generation Tools only.
- System Integration Testing (SIT) including;
    - Component Integration Testing
    - Functional SIT
    - Non-functional SIT
    - Operational Testing
    - Migration Testing
- User Integration Testing (UIT) including;
    - Qualification
    - E2E Sandbox Testing

Note that any post-implementation (Go Live) issues, including those encountered during the Migration period, i.e. within the production environment, will be managed as incidents through Service Management processes and tooling.

4.3   Defect Definition

The MHHS programme defines a defect, in respect of any tests, as:

a) Anything that is preventing the execution of the tests; or

b) Once commenced or executed, the test has an unexpected or unexplained outcome or response.

A defect is raised in respect of any of the following:

- Failure in the way systems (or system components) operate (both functionally and non-functionally).
- Failure in the way systems have been integrated and/or communications between these systems.
- Failure in the performance of test emulators, simulators or data generators.
- Failure in relation to different Test environments.
- Failure in relation to the Test specifications, scripts, data or expected results.
- Documentation Issue.

5 Defect Management Process
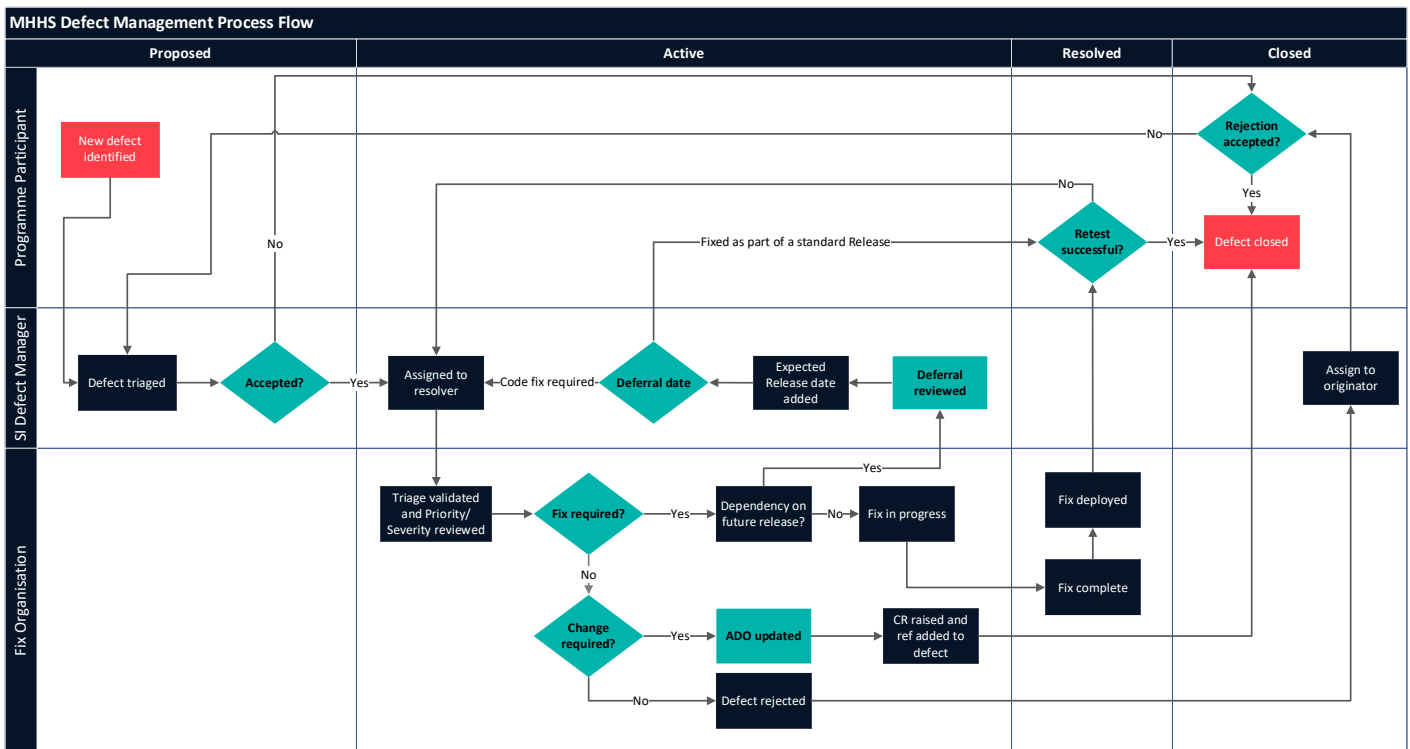
5.1 Defect Process Flow

Figure 1 - Defect Process Flow

5.1.1 Identification and Capture

At the time of execution, if system or application behaviour does not conform to the expected results of the Test Specification, this will result in a defect, which will be raised by the tester within the Test Participant Test Team responsible for testing that particular interface, system or application.

Defects related to environments will be raised in in the MHHS Test Management Tool (ADO) either by the SI Environment Manager or Test Participant Test Teams. Further details regarding the different scenarios are provided below:

- If the defect is identified in the Environment build and readiness stage (before test execution) this will be raised by the Test Participant Test or Environment Teams or the SI Environment Manager and assigned directly to the relevant Test Participant Environment team for resolution (they will be acting as Fix Organisation in this scenario).
- If the defect is identified in any of the test phases (or sub-stages), then this will be raised by the respective Test Participant Test Team and assigned to the SI Triage Team after which the process remains the same as any other defect which is defined in the Defect Management plan.

From this point, the process for managing Environment defects remains the same as for any other defect.

Any defects raised within PIT Testing against MHHS Emulators, Simulators, or Data Generation Tools are raised in ADO by the Test Participant Test Team and assigned to the SI Triage Team for an initial assessment.

Details of any new defect are captured in ADO and passed to the SI Triage Team for an initial assessment. The status of the defect is set to "**Proposed**".

5.1.2   Initial Assessment (Triage)

For any defects with the status "**Proposed**", the SI Triage Team will assess the defect to ensure enough information has been provided. The defect details will be validated along with the Severity and Priority assigned by the originator and categorised to one of the following three options:

1.   The defect will be classed as '**Rejected**' in the below circumstances:

- Incomplete information provided;

- Invalid defect; or

- Duplicate defect within same Test Participant Test Team.

The SI Triage Team will update the status of the defect to '**Closed**' and the closure reason field set to '**Rejected**'. Following a rejected defect, a rejection reason will be added. The defect will then be assigned back to the originator either for acceptance or rejection. If the originator does not accept the rejection, they may assign it back to the SI Triage Team with additional information for review.

2.   **Duplicate** – Defects raised will be classed as duplicated in the following two circumstances:

   a)   When two individual testers from the same Test Participant Test Team raise a similar defect, the second case will be classed as a duplicate. The SI Triage Team will change the status of the duplicate defect as '**Closed**', with the closure reason set to '**Rejected**' and rejection reason as ''**Duplicate within Test Participant'**. The defect will then be assigned back to the originator. If the originator does not accept the rejection, it will be assigned back to SI Triage Team with the status '**Proposed**' for review with more information provided.

   b)   When testers from a different Test Participant raise a similar defect, the second defect case will be classed as a duplicate. The SI Triage Team will change the status of the duplicate defect as '**Closed**', with the closure reason set to '**Rejected**' and rejection reason as ''**Duplicate (different Test Participant)**' and assign it back to the originator.

   Where a cluster of duplicate defects are raised, the priority of the parent defect will be reviewed. The SI Defect Manager will change the status of the duplicate defect to '**Resolved**' once the parent/linked defect is fixed and ready to retest.

3.   **Accepted** – If the SI Triage Team confirms that the raised defect is valid, then it will move to the investigate and accept stage which then falls into the relevant Fix Organisation queue to perform further investigation. The Fix Organisation is the organisation deemed by the SI Triage Team to be responsible for making the required changes to resolve the defect, be it code, configuration, design, script or environment changes. At this stage, the defect status will be changed from '**Proposed**' to '**Active**' by the SI Triage Team.

Upon assessment of the defect, the SI Triage Team may change the Severity and/or Priority of the defect if required (and inform the originator and relevant stakeholders).

If the SI Triage Team identifies the new defect as a potential change required, the SI Triage Team will update the comments in ADO and assign it to the Fix Organisation team to raise the change request. The 'Change required' field will be updated in ADO and once available, a change reference will be added to the defect. Where a change to a baselined MHHS Design product is required, the MHHS Change Control Approach [REF-02] must be followed.

5.1.3   Investigate and Accept

Once the defect is moved to the Fix Organisation queue, the Fix Organisation will investigate the defect in detail and acknowledge as one of the following:

- **Deferred** – If the Fix Organisation team accepts the defect and identifies it to be a candidate for deferral, then they will update the comments in ADO and assign back to the SI Defect Manager. A defect will only be deferred if it is either targeted at a later planned release, or a low severity/priority.

   o   If the deferral is accepted, the SI Defect Manager will set the Deferral status to '**Yes**' and the commentary will be updated with the targeted release date.

o The Release Manager role will agree a schedule of releases. Once the defect is fixed, it will follow the standard Defect Management process.

- **Rejected** – If the defect is rejected by the Fix Organisation, then they will change the defect status from '**Active**' to '**Closed**' with the closure and rejection reasons set and assign back to the SI Defect Manager. The SI Defect Manager will review and assign the defect to the originator, if the originator accepts the rejection, then the defect will remain closed by the originator, otherwise it will be assigned back to the SI Defect Manager for review with more information provided. The SI Defect Manager will review and assign back to the Fix Organisation for further review and action accordingly.

- **Change Request** – If the defect is deemed to be a change then the Fix Organisation team will initiate a change request, updating the defect comments with the change request details in ADO. The 'Change required' field will be updated and once available, the change reference will be added to the defect and the defect status will be changed from '**Active**' to '**Closed**' with the closure reason set to '**Change required**'. The change will be managed and monitored through MHHS Change Control process.

- **Blocked** – If the defect is identified to be blocked by an already existing defect by the Fix Organisation, then they will link to the dependent defect along with updated comments and assign it to the SI Defect Manager. Once the dependency defect is resolved then the SI Defect Manager will assign the blocked defect to the Originator for retest. If the defect is blocked by another defect which is closed due to a Change Request, then the blocked defect will be updated with the CR number, linked to the original defect and the SI Defect Manager will update the status of the defect from '**Active**' to '**Closed**'.

5.1.4   Identify Resolution

On the resolution of a defect, a root cause will be added by the fix organisation, for example Code, Configuration or Environment. This will be validated by the SI Defect Manager and may be used for reporting purposes.

5.1.5   Apply Fix

The Fix Organisation team will apply the fix and retest in their test environment. On successful retest, the Fix Organisation team will set the status of the defect to '**Resolved**' and assign it to the SI Defect Manager. The Fix Organisation must update the defect commentary with all relevant information to facilitate the Release Management process and the subsequent retest, including reference to the relevant Release Note. The timings and frequency of deployment of fixes will be specified in the relevant test phase test plan.

5.1.6   Retest / Verification

The SI Defect Manager will initiate the retest process and assign it to the relevant Test Team for retest and verification. If the retest is successful, then the relevant Test Team will change the status to '**Closed**' and set an appropriate closure reason and where not already completed, a defect root cause.

If the retest is failed, along with updated commentary, the relevant Test Team will change the status to '**Active**' and assign back to the SI Defect Manager. The SI Defect Manager will review the retest failed along with the evidence and assign back to the Fix Organisation team.

5.1.7   Closure

Once the fix has been retested and deemed successful, then the defect status will be set to '**Closed**' and closure reason set to '**Fixed**'. The defect is closed by the respective Test Team in ADO after providing sufficient evidence of retest.

The defect originator may choose to withdraw a defect. To achieve this, the status must be changed to '**Closed**' with a Closure reason of '**Withdrawn**'. The defect Originator should contact the SI Defect Manager via email (or phone if Severity 1 or 2) to allow the SI Defect Manager to manage any impact on other Test Participants.
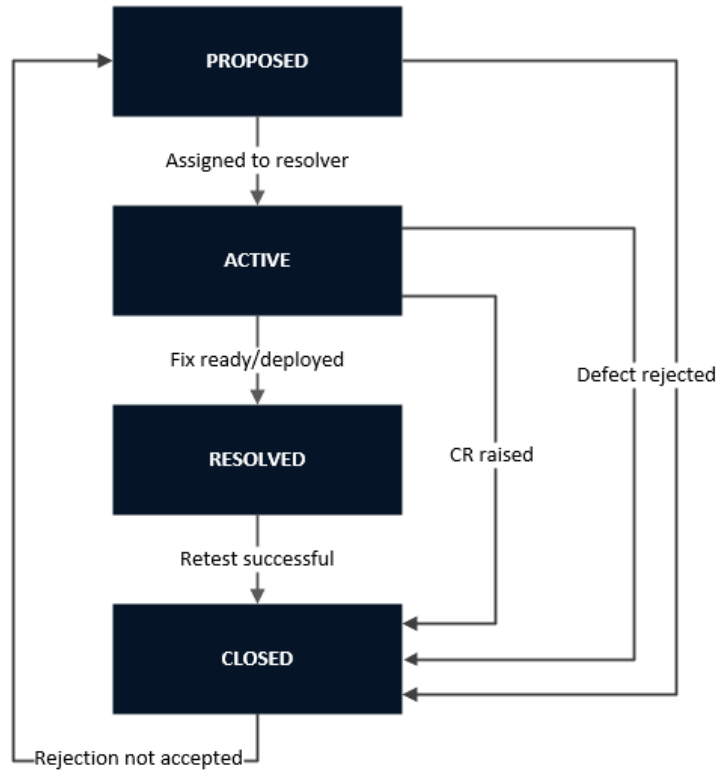
5.2 Defect Status Transition

Figure 2 - ADO State Transitions

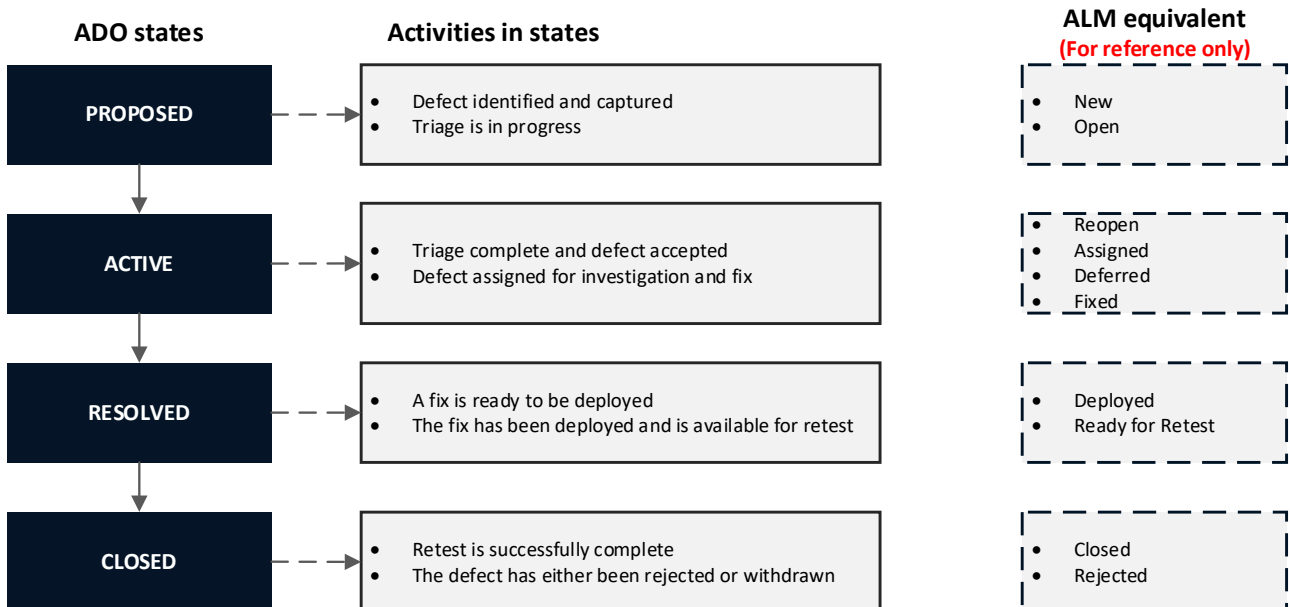## 5.3 ADO States and ALM Mapping

Figure 3 - ADO Mapping to ALM

5.4 Defect Classifications and Definitions

5.4.1 Defect Severity

Defects are assigned a severity based on their impact to the business. These are as follows.

Severity	Definition
S1 – Critical	A problem that indicates a complete shut-down of a process, nothing can proceed further • Has no workaround • Affects all users • Affects all system usage activities • Could cause significant loss of revenue • Will cause interruption of a major process
S2 – Major	A problem that is not easily recoverable without significant manual effort: • A workaround would involve a high level of additional user effort • Creates significant operational risk • Affects most users and most system usage activities • Data corruption (recoverable)
S4 – Minor	A problem with a business impact where: • A workaround would involve a moderate level of additional user effort • Creates moderate increase in level of operational risk • Affects significant number of users and system usage activities. Can be recovered from at a later stage without impacting Operational Efficiency
S5 – Low	A minor problem which: • A workaround would involve little additional user effort • Carries little operational risk • Affects a small number of users and small number of system usage activities • Does not impact functionality of the system or cause serious confusion to the user

Table 1 - Defect Severity Definitions

5.4.2 Defect Priority

The following priorities describe the urgency of a fix at time of submission and are in terms of how the test team is affected (i.e. a minor defect may still be of high priority if it blocks other tests from being run).

Priority	Definition
P1 – Critical	A problem has occurred that has rendered further testing impossible either at a functional or a team level
P2 – High	Unable to complete test but can continue other tests. Test thread to be completely re-tested
P3 – Medium	Able to complete the test but with significant non-compliance. May not require complete re-testing of the test thread
P4 – Low	Able to complete the test but with minor non-compliance. Will not require complete re-test of the test thread. Minor non-compliance is a defect which does not impact the functionality and which an explanation would temporarily resolve

Table 2 - Defect Priority Definitions

5.4.3 Closure Reasons

The final status of any defect will be '**Closed**'. The closure reasons shown in Table 3 - Defect Closure Category Definitions are used to qualify the nature of each closure:

Closure Category	Definition
Fixed	The defect is fixed by the Fix Organisation and retested/verified by the Test Participant Test team and assign to respective Test Participant Test Defect Manager for acceptance to Close.

Rejected	The defect is deemed not to be valid by the SI Triage Team or the assigned Fix Organisation and the respective Test team has concurred
Change Required	The defect is changed to Change Required along with the change request number and assign to the originator for review and acceptance to Close.
Withdrawn	The defect has been withdrawn by the raising Organisation.

Table 3 - Defect Closure Category Definitions

5.4.4   Rejection Reasons

A Defect, when rejected, will have a reason for rejection. The different Rejection Reasons shown in Table 4 - Rejection Reasons are as follows:

Rejection Reason	Definition
Additional information required	The new defect raised without enough information to proceed for triage will be rejected with this reject reason. A comment will be added to the defect highlighting the required information to be provided.
Agreement not to fix	Where all parties agree that it will not be fixed. *Note - issues that have been closed for this reason will be available to all parties to access via the programme portal during the life of the programme and will be handed over to the Service Management function for future reference during Production Incident triage.*
Cannot Reproduce	The defect that cannot be reproduced by the Fix Organisation will be rejected with this reject reason.
Duplicate within Test Participant	Two defects raised by the same Test Participant which are similar, the latest raised defect will be rejected as Duplicate.
Duplicate (different Test Participant)	Two defects raised by more than one Test Participant which are similar, the latest raised defect will be rejected.
Invalid Defect	The defect raised with an incorrect interpretation of test requirements, incorrect / invalid test execution or invalid test scenario will be rejected as Invalid Defect.
Duplicate within Test Participant	Two defects raised by the same Test Participant which are similar, the latest raised defect will be rejected as Duplicate.
Tester Error	The Defect occurred as a result of invalid action of the Test Team or an error in a test artefact.

Table 4 - Rejection Reasons

6   Defect Management Roles and Responsibilities
6.1   Roles and Responsibilities

The SI will lead the central Defect management. Table 5 - Roles and Responsibilities describes the roles of those participating in the MHHS Programme Defect Management process:

Role	Description
SI Defect Manager	• Leadership & communication of defect management process. • Point of Escalation. • Regular defect Status Reports. • Running defect Triage Panel and managing the audience.

	• Analysis of defects to assist in project decision-making activities.
	• Liaising upstream with senior stakeholders and downstream with Test Participant Test and Programme teams.
	• Single point of contact for any user level access management towards Defect Management Tool (ADO).
	• Involved in defect status calls / Triage meetings.
SI Triage Team	• Representation from SI Design, Test and Programme teams.
	• Review and analyse the newly raised defects (along with Severity and Priority of the Defect) by different Test Participant Test teams and drive relevant actions.
	• Change the assigned Priority and Severity if required as a part of triage assessment.
	• Involved in regular Defect Triage Meetings.
	• Involved in changing the status from 'New' to 'Open' if a newly raised defect is accepted by SI Triage Team.
Test Defect Manager (per Test Participant)	• Reviewing & managing the quality of the defect submitted by Tester (along with severity and -priority).
	• Involved in Defect Triage meetings on a regular basis.
	• Point of contact for the SI Defect Manager.
	• Driving retest of defects that have been delivered into the test environment.
	• Reviewing, accepting and closing defects that have been successfully retested in the test environment.
SI Environment Manager	• Responsible for raising any environment defect in ADO and liaising with relevant environment teams.
	• Ensuring environment stability during the Test window in conjunction with the relevant environment managers.
	• Managing & Tracking change in general across all environments.
	• Involved in Defect Triage meetings on a regular basis.
	• Ensuring that all required systems are connected & working as expected in the test environment prior to test execution.
SI Release Manager	• Checking Release Notes when patch is delivered to determine which defects can be set to retest.
	• Coordinating with the SI Defect & environment managers when required.
SI Data Manager	• Responsible for investigating and resolving test data defects, liaising with relevant data subject matter experts where necessary.
	• Involved in Defect Triage meetings on a regular basis.
	• Is assigned the ownership of data quality defects within the MHHS Defect Management process, referring these to the Data Working Group (See Section 8.6)
Tester (Test Participant)	• Submitting new defects.
	• Defect retest.
	• Involved in Defect Triage meetings on a regular basis wherever necessary.
	• Retesting fixed defects as per the release notes/info in the Test Management Tool (ADO).
Fix Organisation	• The Organisation responsible for making the required changes to resolve a defect.
	• Recreate the defect in their environment.
	• Validate the defect category (Severity and Priority).

	· Involved in defect Triage meetings on a regular basis wherever necessary.
	· Liaise with Tester/Test Defect Manager and SI Defect Manager when required, e.g. additional information/clarity around the topic in question.
	· Fix the defect.
	· Update the defect Root Cause field.
	· Retest the fixed defect in their environment.
Design Authority	· Provides design concurrence for the design activities under the MHHS solution.
	· Point of escalation for System Integrator for defects related to the design.
SRO	· Point of escalation for System Integrator.
	· Oversight of Defect Management process.
PAB / PAB Qualification Team	· Point of escalation for System Integrator during Qualification.
RECCo	· Point of escalation for System Integrator during Qualification.
SECAS	· Point of escalation for System Integrator during Qualification.

Table 5 - Roles and Responsibilities

7 Defect Management Tool

7.1 Defect Tracking Tool

ADO will be used as the Defect Management tool. This will be used to raise and manage Defects that have been identified during the different Test Phases. Defects raised in ADO will be referenced to failed test executions. The SI Defect Manager will grant level of access to ADO for respective Test Participant roles.

7.1.1 Raising a Defect

All defects must be raised from the Test Case being ran. This will ensure that the test steps are populated in the defect template correctly. The information provided when a defect is raised should be as concise as possible. It needs to be detailed enough so that anyone trying to reproduce the problem does not face issues. Upon allocation of the defect, the assignee is notified via email and the defect is specifically allocated to them within ADO. The following details as a minimum are to be entered while raising a defect in ADO:

- **Title** – enter a summary of the issue that is meaningful to someone reading only summaries in a list
- **Owner** – a new defect will always be assigned to the SI Defect Manager for triage
- **State** – the four main states that are defined for the Defect Management process, that describe a defects progression
- **Description** – enter a description of the Defect so that it is clear what is being addressed or requested. It should include the following information:
  - Pre-Requisites
  - Data (unless added as an attachment)
- **Test Steps** – steps to reproduce the issue found, including expected and actual results. This information will be taken from the Test Case being ran when the defect is raised
- **Defect Priority** – choose a Priority for the issue, based on the defined Priority levels
- **Defect Severity** – choose a Severity for the defect, based on the defined Severity levels
- **Test Phase** – choose the test phase e.g. PIT (Emulators, Simulators, or Data Generation Tools only), SIT (stage), UIT (stage)
- **System/Service** – user will be prompted to select from either Registration, Metering, Load Shape, LDSO, Data, or Central Settlement

- **Business Process** – (If applicable)

- **Environment** – enter information to help the assignee to understand the context of the issue, all relevant information about the environment in which the defect was found

- **Affects Build Version** – to be used to determine the build version the defect has been recorded against

- **Triage** – will be used by the SI Defect Manager to determine the status of triage

- **Change Required** – this will be used to determine whether a change is required, so the defect can be monitored prior to a change reference being created

- **Change Management Ref** – to be completed if a defect is closed as a change is required. This field will be used for traceability and future analysis

- **Central Party Organisation** – field used to record the Central Party organisation initiating release

- **Release Version** – used to record release version for a defect fix

- **Rejection Reason** – if a defect is rejected, this field is to be populated by using one of the pre-determined entries. This information will be passed back to the originator for review

- **Duplicate Defect ID** – if a defect is rejected as a duplicate, then this field will be used to record the ID of the associated defect

- **Deferred** – if a defect is deferred and the deferral has been accepted, this field will be set to 'Yes'. Alternatively it will be defaulted to 'No'

- **Expected Release Date** – this field will be used to record the expected dated a fix is to be released and updated alongside the deferred field

- **Closure Reason** – to be completed when a defect is closed to determine why the defect has been closed

- **Root Cause** – this will become a mandatory field when the defect is closed and the information collected will provide the programme with the ability for future defect analysis

- **Discussion** – to be used for commentary by all appropriate parties throughout the defect lifecycle

- **Linked Defect** – if the defect is duplicate or blocked, Triage Team or Test Team will use this field to link the parent Defect. (not mandatory)

- **Attachment** – attach any relevant documents for this defect (for example, log files, test data for a Defect)

Where a Defect requires attachments such as logs, Test Data and screenshots, these attachments must comply with GDPR and any other relevant security requirements.

A detailed Test Management Tool User Guide will be provided for users to facilitate the submission and management of any Defects in accordance with this Defect Management Plan.

7.2   ADO Administration

The ADO administration role will be handled by the SI Defect Manager. Below are the responsibilities of the SI Defect Manager as ADO Administrator:

- To set up new users for different Test Participants;

- To remove roll-off users from MHHS programme – Each Test Participant Test Manager from each different party are responsible to inform the SI Defect Manager if any person from the MHHS programme who has ADO access has been rolled-off;

- To produce the defect reports from ADO as defined for the different test phases and test types.

8   Defect Management Governance
8.1   PIT Phase

At PIT Exit for SIT participants, any open defects relating to systems in scope for SIT with potential impact on SIT will be identified in the PIT Completion Report and the Work Off Plan. These defects will be uploaded into ADO by the SI Defect Manager. This will allow an assessment of the potential impact of these Defects on planned SIT testing, and identification of similar or potentially duplicate defects during subsequent Test Phases.

The subsequent management of PIT defects will still be the responsibility of the SIT participant through their Defect Management processes and tooling. The SIT participant will communicate changes in defect status to the SI through ongoing provision of their updated Work Off Plan. PIT defects that have been created in ADO by the SI can then be updated accordingly.

8.2   Service Levels and Response Times

To facilitate the timely and efficient resolution of defects, target Service Levels (Response Times) are set, based on the following principles:

- Service Levels will be based on Severity and Priority of defects, whichever is higher.

- Defect Service Levels apply to Central Systems providers throughout SIT and UIT, and on a best endeavours basis for all other participants in SIT and UIT.

- Service Levels are measured as time between the raising of a defect and the closure of that Defect following a successful retest.

- The Service Level Management process will allow Fix Organisations to 'stop the clock' where delays to defect resolution are beyond their control. Service Providers may apply to the SI Defect Manager to 'stop the clock' on defect response time measurement, for example:

    o   Where the planned fix is required to be scheduled for release into the Test Environment;

    o   Where the defect is assigned to another Fix Organisation for investigation e.g. Design Authority; or

    o   Where an agreed workaround is applied to the Test Environment, allowing testing to progress while the Fix Organisation provides the full fix. A valid workaround must be agreed with the SI Defect Manager and the relevant industry parties and will enable the progression of testing i.e. no tests will need to be repeated following full delivery of the fix. In parallel, this will allow the full fix to be validated with relevant regression testing.

    o   Where the escalation process has been initiated.

- The SI Defect Manager will arbitrate on disputes relating to Service Levels.

Priority	Service Level
P1 – Critical	Patch release or formal release if possible (8 Business Hours)
P2 – High	Patch release or next release (3 Business Days)
P3 – Medium	Next release or subsequent release (5 Business Days)
P4 – Low	Before Production (10 Business Days)

Table 6 - Service Levels by Priority

8.3   Defect Status Meetings

The Defect Status Meetings will be chaired on a regular basis by the SI Defect Manager with all the required Test Participant Test Team representatives, Central Systems Fix Organisations along with SI Test Management, SI Test Assurance, SRO, or other appropriate parties may be invited on the discretion of SI Defect Manager. The SI Defect Manager will generate and share a defect Status Report (refer to section 9.2 **Error! Reference source not found.**) to all required participants prior to the meeting. The frequency of these meetings will be included in the relevant Test Phase Test Plan.

The focus of these meetings will be to review defect progression and ensure any blockers to test progress are in hand or have been escalated. The review of defect progression will initially be based on Priority/Severity; however, it may be necessary to change the review criteria to be scenario based or functional area depending upon the number of defects raised in a particular area. This will be included in the relevant Test Phase / stage Test Plan.

Prior to the Defect Status Meetings, the Fix Organisation teams should ensure that all Defects in their ownership are up to date with clear comments regarding investigations held to date and next steps. In all cases, whomever the defect is assigned to will be regarded as the owner for progressing the resolution of the defect.

8.4   Defect Triage Meetings

Regular Defect Triage Meetings will be held by the SI Triage Team to analyse defects that need clarification/input from different Test Participants. The SI Defect Manager will generate and share a Defect Triage Report (refer to section 9.2 **Error! Reference source not found.**) to relevant parties with an agenda of the defects to be triaged to drive relevant actions. The frequency of these meetings will be included in the relevant Test Phase / Stage Test Plan. Defect Triage Meetings will include:

- Ensure correct classification of defects;
- Ensure sufficient information has been collected;
- Ensure the correct Severity and Priority has been assigned; and
- Ensure that the defects are assigned to the correct Resolver group/Test Participant.

Representatives from the relevant Test Participant Test Teams, Fix Organisations, SI Test Management, SI Test Assurance, Design, SRO Function, and relevant technical/support teams will be expected to attend.
Ad-hoc calls will be conducted for Severity 1 and Severity 2 defects as appropriate.

8.5   Defect Escalation Process

The Defect Escalation process will trigger in the following circumstances:

- Test Participant / Fix Organisation response times are longer than target service levels;
- Failure to agree on the target Fix Organisation; or
- Failure to agree on the defect severity or priority.

The defect escalation process will be initiated either from Test Participants to the SI Defect Manager, or directly from the SI Defect Manager to the SRO Programme Test Manager or the SRO. **Error! Reference source not found.** below shows the defect escalation process and escalation levels.
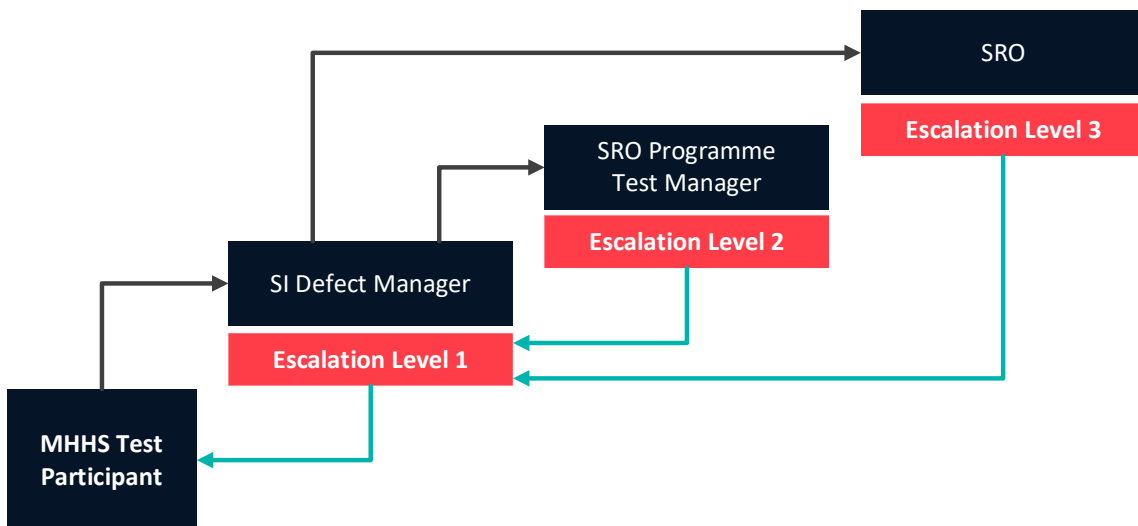

Figure 4 - Escalation Process for Test Participants

Error! Reference source not found.below provides more detail about the Defect Escalation process.

Escalation Levels	Involved Parties	Escalation Process	Resolution Process
Initiation (Trigger Point)	Test Participant / SI Defect Manager	The defect escalation will be initiated by either the PP to the SI Defect Manager, OR The defect escalation will be initiated by the SI Defect Manager to the SRO Programme Test Manager or SRO.	N/A
Escalation Level 1	SI Defect Manager	Firstly, an issue will be escalated to the SI Defect Manager by the Test Participant.	The SI Defect Manager will review the issue and provide the resolution. If the Test Participant is satisfied with the resolution provided by the SI Defect Manager, then the issue will be considered as resolved at this stage.
Escalation Level 2	SRO Programme Test Manager*	There are two paths of escalation at this level: a) Either the issue is escalated by the SI Defect Manager firstly with SRO Programme Test Manager, OR b) If the Test Participant is not satisfied with the resolution provided by the SI Defect Manager, then this will be escalated to the next level (Escalation Level 2) to SRO Programme Test Manager directly by the SI Defect Manager.	Once the issue is reviewed by the SRO Programme Test Manager, then relevant parties will provide the resolution to the SI Defect Manager. This will then be reviewed and if needed will be passed to the Test Participant for their review. If both parties are satisfied, then the issue will be considered as resolved at this stage.
Escalation Level 3	SRO*	There are two paths of escalation at this level: a) Either the issue is escalated by the SI Defect Manager firstly with the SRO directly, OR b) If the Test Participant is not satisfied with the resolution provided by the SI Defect Manager and SRO Programme Test Manager, then this will be escalated to the next level (Escalation Level 3) to the SRO directly by the SI Defect Manager.	Once the issue is reviewed by the SRO they will provide the resolution to the SI Defect Manager, then this will be reviewed and if needed will be passed to the Test Participant for their review. If both the parties are satisfied, then the issue will be considered as resolved at this stage. If either party is not satisfied with the resolution provided by the SRO then they need to have an ad-hoc meeting and decide upon the resolution which will be provided by that SRO at the overall Programme level.

Table 7 - Escalation Process for Test Participants

Note - that as per the MHHS Governance Framework [REF-003], where consensus cannot be reached the SRO will make the Programme decision based on the various views of the TMAG and taking into account any advice from the IPA.

*During Qualification defects will be escalated to the code bodies (BSCCo, RECCo, SECAS).

8.6   Data Quality Defects

Data Quality defects are defined as defects raised during MHHS Programme SIT or UIT phases but where the root cause of the defect relates to the production data used for testing.

Where a data quality defect is identified it will be assigned to the SI Data Manager for referral to the Data Working Group (DWG). This Working Group will manage the process for investigating and resolving production data issues.

Where necessary the DWG will escalate data quality defects to the Migration Working Group (MWG). On successful resolution of the data quality defect, the SI Data Manager will assign the defect to the SI Defect Manager for closure.

Where the original defect requires further investigation or re-work a new defect will be raised by the SI Defect Manager to manage the data quality issue and the two defects will be linked in ADO.

9 Defect Management Reporting

Defect Reporting will be done at each stage during the different Test Phases. It will allow key stakeholders to accurately monitor the number, Priority, and status of defects. Tracking of defects will be a key input into quality metrics captured by the SI during MHHS.

The SI Defect Manager will produce the detailed Defect Management Reports to be made available on a regular basis via the MHHS portal, serving as an input into status and escalation meetings. The frequency for generating the reports will depend on the test phase and will be specified in the test phase test plan.

The different Defect Management Reports that will be generated are detailed in the following sections.

9.1 List of Defects for Triage

The SI Defect Manager will generate a list of defects that need to be triaged and will include the following as a minimum:

- Defect ID
- Defect description
- Assigned to
- Severity
- Priority

9.2 Defect Status Reports

The SI Defect Manager will provide Defect Status Reports on a regular basis with the frequency for generating the report specified in the relevant test phase / stage plan and will include the following:

- Number and details of New Defects
- Number and details of Outstanding Defects with their status
- Number of Defects Closed
- Number of Defects Rejected
- Number and details of Defects Failed Retest
- Number and details of Defects Deferred
- Number and details of Open Defects by Priority
- Number and details of Open Defects by Severity
- Number and details of Open Defects by Test Participant
- Defect Age – Total time taken to resolve Defects by Severity and Priority
- Retest Defect Age – Total time taken to retest the resolved Defects
- Defect Leakage Analysis – Total number of Defects slipped in different test phases
- Defect Age – Total time taken to resolve Defects by Test Participant.

9.3 Outstanding Defects on Test Stage Completion for a Test Phase

On completion of a test stage for a Test phase, the SI Defect Manager will provide the consolidated Defect report for the test stage and will include:

- Number and details of New Defects
- Number and details of Outstanding Defects with their status
- Number of Defects Closed
- Number of Defects Rejected
- Number and details of Defects Failed Retest
- Number and details of Defects Deferred
- Number and details of Open Defects by Priority
- Number and details of Open Defects by Severity
- Number and details of Open Defects by Test Participants
- Number and details of Defects closed
- Total number of Defects outstanding by Severity
- Total number of Defects outstanding by Priority
- Defect Age – Total time taken to resolve Defects by Severity and Priority
- Retest Defect Age – Total time taken to retest the resolved Defects
- Defect Leakage Analysis – Total number of Defects slipped in different test phases
- Defect Age – Total time taken to resolve Defects by Test Participants.

9.4   Outstanding Defects on Test Phase Completion

On completion of a Test phase, the SI Defect Manager will provide the consolidated Defect report for the test phase and will include the following cycle-wise:

- Number of New Defects Raised

- Number of Defects Closed

- Number of Defects Rejected

- Number and details of Outstanding Defects with their status

- Number and details of Defects Deferred

- Number and details of Defects Failed Retest

- Number and details of Open Defects by Priority

- Number and details of Open Defects by Severity

- Number and details of Open Defects by Test Participants

- Number and details of Defects closed

- Total number of Defects outstanding by Severity

- Total number of Defects outstanding by Priority

- Defect Age – Total time taken to resolve Defects by Severity and Priority

- Retest Defect Age – Total time taken to retest the resolved Defects

- Defect Leakage Analysis – Total number of Defects slipped in different test phases

- Defect Age – Total time taken to resolve Defects by Test Participants