MAINTENANCE STANDARD GUIDELINE	BASE METALS	VALE

TITLE	VALE #	PAGE
PLANT MAINTENANCE **Set Service Strategy** **Asset Integrity Functionality in SAP**	**MGUID-12007**	**1 of 9**
	LAST REVISION **2017-01-06**	REV **01**

Training Code (If applicable):	**Document Owner:** Name: Denis Deschamps Position: Business Process Specialist Department: Base Metals

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1.0   PURPOSE

The purpose of this document is to outline the Asset Integrity functionality as it relates to SAP.

Asset Integrity defines the strategy for delivering the maximum safe, cost effective life of an asset that deteriorates slowly over a long period of time (i.e. decades). It is focused on infrastructure and major equipment that through accumulated stresses of environment, operations and maintenance deteriorate to the point where failure is possible, or changes in technology may render equipment obsolete and un-maintainable.

The further that deterioration in asset condition is allowed to progress, the more limited the reconditioning options are and the more the ultimate repair costs escalate. For some assets there is a point of deterioration after which repair is no longer practical and the only options left are to replace it completely or else to dramatically change, curtail or even cease operations.

It is for these assets that a specialized subset of setting the service strategy must exist as defined by the integrity maintenance plan. This integrity maintenance plan will contain the threat information as defined in AMF Set Service Strategy, along with the required inspection frequency, duration, resources and inspection content.

2.0   SCOPE

This document pertains to the following SAP functions, as they relate to Asset Integrity:
- Asset Integrity Maintenance Plans
- Notifications related to Asset Integrity inspections
- Notifications related to Asset Integrity corrective actions
- Work Approval
- Reporting from SAP
- Reporting using Business Objects

2.1.   EXCEPTIONS

None

3.0   REFERENCES

The following references were used in the development of this document or are related to it. They shall be used in their most recent revision.

Cheat Sheets available on the Base Metals Maintenance SharePoint Site:
- Maintenance Plans – Create Asset Integrity Single Cycle Calendar Plan – IP41
- Maintenance Plans – Modify Asset Integrity Single Cycle Calendar Plan – IP02

4.0   DEFINITIONS

- **Asset Integrity** – defines the strategy for delivering the maximum safe, cost effective life of an asset that deteriorates slowly over a long period of time (i.e. decades). It is focused on infrastructure and major equipment that through accumulated stresses of environment, operations and maintenance deteriorate to the point where failure is possible, or changes in technology may render equipment obsolete and un-maintainable.

- **Maintenance Plan** – description of the maintenance and inspection tasks to be performed on maintenance objects, describing the dates and scope of the tasks.

- **Notification** – a work request identifying a Problem and the recommended Actions.

- **Task List** – a template containing the detailed steps required to perform a function.

- **Work Order** – a commitment to perform requested work, including all details required to perform that work.

- **Planner Group** – a SAP field used to group Asset Integrity Notifications and Work Orders based on OPEX, CAPEX, Period Costs and Decommissioning work.

6.0   MAINTENANCE PLANS

An enhancement tab is available on the Maintenance Item of the Maintenance Plan to capture the Asset Integrity threat profile information and to perform the required threat calculations for the asset. The fields available are:

- Threat Type
- Failure Mode
- Safety Characteristic
- Environment Characteristic
- Planned Production Loss
- Direct Repair Cost
- Vale Revenue Loss
- Regulatory Compliance
- Social Impact
- Year the Corrective Action is Planned
- Estimated Year of Consequence – Earliest (10% Probability)
- Estimated Year of Consequence – (90% Probability)
- End of Facility Life (year)
- Required Control Implementation Time (in months)

The values populated in these fields are used to calculate the Threat Ratings:

- HSE Threat Rating
- Plant Business Threat Rating
- Division Business Threat Rating

And other associated indicators such as:

- Urgency of Control Actions
- Likelihood of threat during facility life

Asset Integrity Maintenance Plans are created following the process defined in the Maintenance Divisional Support training documentation, with the addition of populating the Customer Enhancement item tab (and the threat ratings calculated) as well as using a special Maintenance Plan Sort Field (8xxx Asset Integrity) to group the Asset Integrity plans for scheduling purposes.

7.0   NOTIFICATIONS

Notifications are requests for work to be performed, and may be the result of an observation or a previous inspection. When a Notification is related to Asset Integrity, the Planner Group field is used to group them together, both to identify that it is related to Asset Integrity, but also to categorize the type of work required. Four Planner Groups have been created for each plant:

- AI1 – Asset Integrity for OPEX
- AI2 – Asset Integrity for CAPEX
- AI3 – Asset Integrity for Period Costs
- AI4 – Asset Integrity for Decommissioning

Asset Integrity Notifications are created following the process defined in the Notification Foundation training course. The Planning Plant identified on the Notification (which gets copied to the Work Order) should reflect the plant to which the equipment belongs, so the Plant can more easily schedule the work.

8.0   WORK APPROVAL

Work flow approval for integrity related control actions follows the same approval hierarchy as regular notifications and work orders.

9.0   REPORTING

9.1.   REPORTING FROM SAP

Detailed reports for Asset Integrity maintenance plans are available in the following standard SAP transactions:

        IP16 – Display Maintenance Plan
        IP18 – Display Maintenance Item
        IP19 – Maintenance Scheduling overview
        IP24 – Scheduling Overview list form

A list of Asset Integrity maintenance plans can be found by filtering on the Maintenance plan sort field (e.g. *ASSET INTEGRITY).

9.2.   REPORTING FROM BUSINESS OBJECTS

In the Business Objects environment, report P2D-M-020-SAP-Asset Integrity Maintenance Plans-v1.0-BM is available to provide details of the Enhancement tab Assessment Data, Threat Characteristics and Threat Rating fields.

11.0 APPENDICES

APPENDIX A: Revision Notes and Approvals

11.1. APPENDIX A: REVISION NOTES AND APPROVALS

Revision notes describe: what was changed, and if applicable, why it was changed, and the plan to implement the change, including whether changes are retroactive. **Note:** The revision notes are a summary of the changes and may not necessarily be a complete list.

Rev	Revision Notes	Reviewed by	Approved by	Issue Date
1	New Base Metals guideline outlining functionality available in SAP for Asset Integrity. The new standard has low risk or no new hazards identified as addressed by the reviewer and approver.	DD	HL	2017-01-06

Approval sign off on Dec. 21, 2016