Victorian Electrolysis Committee

Guideline for the Priority Assessment Matrix

Preface

Purpose

This guideline should be used by the Victorian Electrolysis Committee (**VEC**) to determine the timeframes associated with the completion of actions to mitigate stray current from traction systems. It can also be used to guide Energy Safe Victoria (**Energy Safe**) on timeframes for the completion of enforcement directions.

1. Part A – Priority Assessment Matrix

1.1. Preface

This Priority Assessment Matrix is to be used for the following reasons:

- To determine completion dates for recommended actions from Area Tests;
- To determine completion dates for reinstatement of faulty or out-of-service electrolysis mitigation equipment that cannot meet the agreed requirement of 1 month to reinstate due to some added complexity;
- For guidance to Energy Safe to determine timeframes for completion of **Enforcement actions.*

* *Enforceable actions* are those that are the *+responsibility of one party* that affect other parties' structures. Enforceable items exceeding the target date may be liable to enforcement action by Energy Safe.

+The responsible party is determined at the time the recommendations are made and are generally the party that is causing the stray current requiring mitigation.

1.2. Procedure

The procedure for assessing the potential impact of corrosion of buried metallic structures caused by electrolysis is:

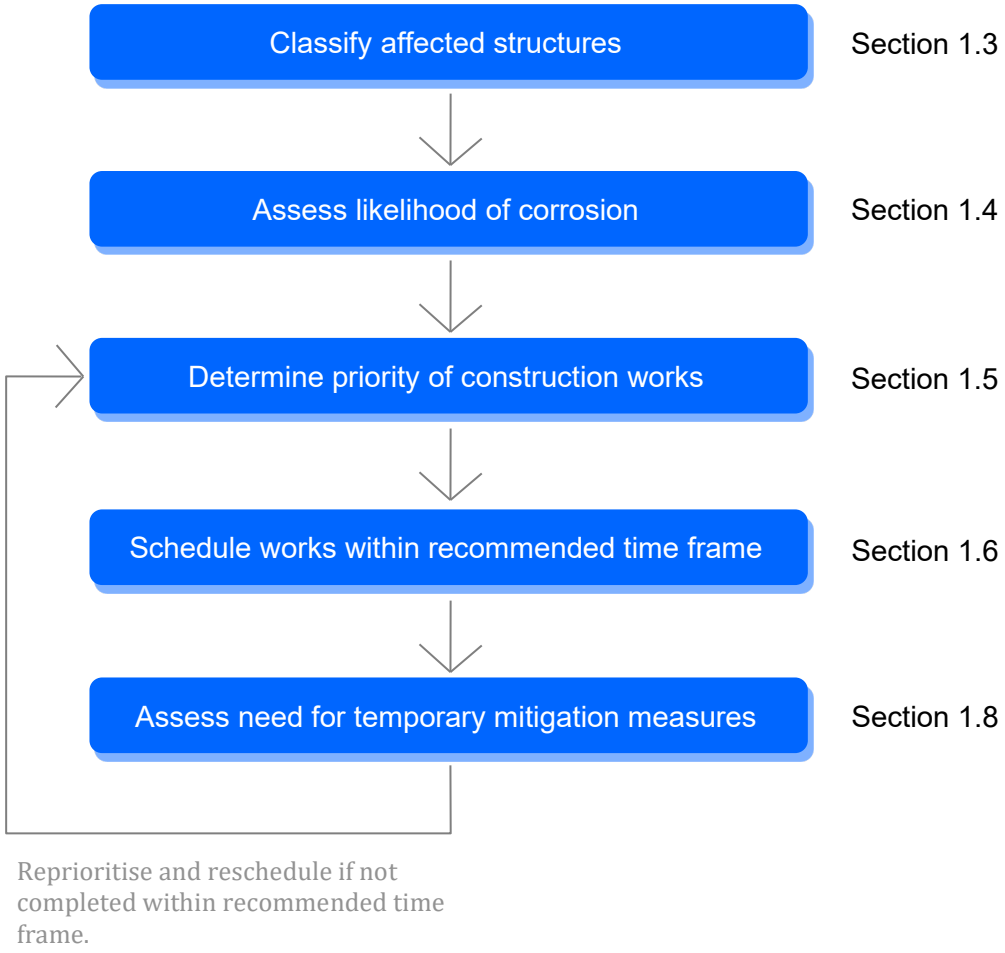

Figure A1 Priority Assessment process

1.3. Structure classification

Structure class	Description
Highly Critical	Oil and gas transmission pipelines, licenced pipelines, and other safety or environmentally critical structures
Critical	Gas distribution pipelines, trunk or transmission water pipelines, power cables, tower footings, and earthing systems
Non-critical	Water reticulation pipelines and telecommunications cables

1.4. Impact rating

Impact	Description
Highly Significant	Likely to result in corrosion in the short to medium term: • greater than 75% anodic to the soil line* for extended period.
Very Significant	Likely to result in corrosion in the medium term: • between 50% and 75% anodic to the soil line for extended period.
Significant	Likely to result in corrosion over a period of more than 6 months: • consistently between 10% and 49% anodic to the soil line.
Minor	Might result in corrosion over an extended period of time: • complies with AS2832.1; or • consistently below 10% or intermittently above 10% anodic to the soil line.

** Soil line is the potential of the structure to earth when the rail-to-earth voltage at the traction substation is zero and the mitigation system is isolated.*

1.5. Priority Assessment Matrix

The priority of construction works is assessed based on the types of structures affected (see Section 1.3) and the likelihood of corrosion (see Section 1.4).

	Structures [a]		
	Affects one (1) or more Highly Critical or two (2) or more Critical structures	Affects one (1) or more Critical or two (2) or more Non-critical structures	Affects not more than one (1) Non-critical structure
Impact [b]	**Priority**		
Highly Significant	High (H1)	Medium (M1)	Medium (M2)
Very Significant	Medium (M3)	Medium (M4)	Low (L1)
Significant	Medium (M5)	Low (L2)	Low (L3)
Minor	Low (L4)	Low (L5)	Low (L6)

a *See Section 1.3 for structure classifications.*
b *See Section 1.4 for impact ratings.*

Elevate priority of works that overrun the scheduled completion date

If works are not completed within the recommended time frame (see Section 1.6)

- elevate the priority to High (H1) and review the Design Construction & Maintenance (**DC&M**) schedule and
- implement temporary mitigation measures (see Section 1.8).

1.6. Construction time frame

Using the priority ratings in Section 1.5, schedule construction works to be completed within the following recommended time frames:

Priority[a]	Time Frame
High (H1)	Complete works within 3 months.
Medium (M1–M5)	Complete works within 6 months.
Low (L1–L6)	Complete works within 12 months.

a See Section 1.5 for priority ratings.

Faulty or Out-of-Service Electrolysis Mitigation equipment is required to be restored within 1 month of notification unless extraordinary complications exist, where agreement with all affected parties and Energy Safe is required for the above table to apply.

1.7. Thyristor Drainage Unit (TDU) installations

Due to the complexity of the design and construction required, TDU installations should be completed within 12 months, independent of the Priority Assessment Matrix outcome.

1.8. Requirement for temporary mitigation measures

Works not expected to be completed within recommended time frame

If at any time before or during construction, it is determined that the works cannot be completed within the recommended time frame:

- implement temporary mitigation measures to reduce the risk of corrosion during the construction period.

And, when works overrun the scheduled completion date,

- elevate the priority to High (H1) and review the DC&M Schedule.

Highly Critical structures are at risk

If Highly Critical structures are at risk,

- implement temporary mitigation measures without delay—before and during the construction period.

1.9. Examples

Case	Structure Class	Impact Rating	Priority	Time Frame
Licensed pipeline is greater than 75% anodic to the soil line for an extended period of time.	Highly Critical (1)	Highly Significant	High (H1)	3 months
One transmission gas pipeline is 65% anodic to the soil line for an extended period of time.	Highly Critical (1)	Very Significant	Medium (M3)	6 months
One trunk water pipeline is 50% anodic to the soil line for an extended period of time.	Critical (1)	Very Significant	Medium (M4)	6 months
One trunk water pipeline and one telecommunications cable are intermittently 25% anodic to the soil line.	Critical (1) Non-critical (1)	Minor	Low (L5)	12 months
One reticulation water pipeline is 80% anodic to the soil line for an extended period of time.	Non-critical (1)	Highly Significant	Medium (M2)	6 months
Originally given a Low (L6) priority, but not completed within the recommended 12-month time frame.	Non-critical (1)	Minor	High (H1)	3 months
One gas transmission pipeline is 25% anodic to the soil line for an extended period of time.	Highly Critical (1)	Significant	Medium (M5)	6 months