

Document No: SMI 106

Amendment No: 12

Substation Maintenance Instruction

Zone and Transmission Substation Accommodation

IMPORTANT DISCLAIMER

As the information contained in this publication is subject to change from time to time, Endeavour Energy gives no warranty that the information is correct or complete or is a definitive statement of procedures. Endeavour Energy reserves the right to vary the content of this publication as and when required. You should make independent inquiries to satisfy yourself as to correctness and currency of the content. Endeavour Energy expressly disclaims all and any liability to any persons whatsoever in respect of anything done or not done by any such person in reliance, whether in whole or in part, on this document.

Copyright © Endeavour Energy 2016

Substation Maintenance Instruction

ASSET STANDARDS & DESIGN

Document No	:	SMI 106
Amendment No	:	12
Approved By	:	GMAS
Approval Date	:	31/08/2016
Review Date	:	31/08/2019

SMI 106 ZONE AND TRANSMISSION SUBSTATION ACCOMMODATION

CONTENTS

1.0	PURPOSE.....	3
2.0	SCOPE	3
3.0	REFERENCES.....	3
4.0	ACTIONS.....	3
4.1	General	3
4.2	Inspection of Roof Access Systems	4
4.3	Routine maintenance schedules	4
5.0	AUTHORITIES AND RESPONSIBILITIES.....	8
6.0	DOCUMENT CONTROL	9

1.0 PURPOSE

To set out the broad maintenance requirements for accommodation of zone and transmission substations.

2.0 SCOPE

The scope of this instruction includes the maintenance of a wide-range of items within a zone or transmission substation, for example, control room buildings, gates/fences, bund walls, oil separators, deluge showers, security systems, fire alarms and lawns/gardens.

This instruction is to be read in conjunction with SMI 100 for transmission and zone substation equipment.

The scope does not include the maintenance requirements of the accommodation of distribution substations; these are covered in SMI 160.

3.0 REFERENCES

Internal

- Company Policy 4.0 - Environment
- Company Policy 9.9.1 - Network Asset Maintenance
- Company Procedure GPE 0060 - Environmental Incident Response And Management
- Company Procedure GSY0067 – Personal Protective Equipment
- Company Form FSY 0118 - Worksite Coordination/Hazard and Risk Assessment
- Branch Procedure WRG 0651 – Transmission/zone substations and switching stations inspections
- Network Management Plan December 2013 Review
- Substation Maintenance Instruction SMI 100 – Minimum requirements for maintenance of transmission and zone substation equipment
- Substation Maintenance Instruction SMI 124 – Maintenance data entry and defect prioritisation
- Substation Maintenance Instruction SMI 113 – Distribution and field transmission data asset structure and nameplate details
- Substation Maintenance Instruction SMI 119 – Transmission and zone substation data entry, asset structure and details

External

- *Electricity Supply Act*, 1995 (as amended)
- *Work Health and Safety Act 2011*(NSW)
- ENA National Electricity Network Safety Code (NENS 01-2008)
- AS4775:2007 Emergency eye wash and shower equipment
- AS/NZS 2845.1:2010 – Backflow prevention devices
- AS/NZS 3500.1:2015 – Plumbing and Drainage

4.0 ACTIONS

4.1 General

The routine maintenance required for the accommodation of zone and transmission substations comprises of an inspection and minor maintenance.

The inspection is to include the repair of simple defects and abnormalities that can be easily and safely rectified during the inspection, for example, gummy locks and hinges, and replacement of light globes, and fluorescent tubes.

4.2 Inspection of Roof Access Systems

The routine inspection of Roof Access Systems, including safety anchor points, in zone and transmission substations is to be undertaken annually by a person/s suitably trained in accordance with relevant WHS legislation. This person/s must hold the relevant training for working safely at heights not limited to but including RIIWHA204D – Work Safely at Heights in addition to any relevant manufacturer and/or supplier requirements for the relevant roof access equipment.

All defects and abnormalities found during routine maintenance are to be recorded in Ellipse.

4.3 Routine maintenance schedules

Routine maintenance
1.0 INSPECTION
1.1 General
General
Inspect condition and report any abnormalities.
Rubbish
Clean up any rubbish in and around substation.
Access
Check that clear access is available to the substation/switch room.
1.2 Building
<i>Deluge Showers (indoor, inspection and test)</i>
Check operation.
Check water tank/deluge shower tank levels.
Leave deluge shower valve in <i>ON</i> position
Update and attach compliance tag
<i>Building Interior</i>
Inspect general condition.
Inspect paintwork condition.
Inspect for rainwater leaks.
Inspect for apparent structural damage.
Sweep and mop floors to remove stains and debris.
Clean w/c and shower area, as required, and restock if necessary (paper and soap).
Dust ventilation openings if dirty.
Inspect condition of pressure relief panels and check movement if practical
Check gravity drainage or sump pump for correct operation.

Routine maintenance
Check forced ventilation operation.
Check air conditioning operation and clean or replace filters as necessary.
Check general lighting operation.
Replace lighting globes, tubes and/or starters.
Check security lighting operation.
Check security alarm operation.
Check fire alarm operation.
Check operation of emergency exit doors.
Check emergency DC exit sign lighting operation
Check emergency DC lighting operation.
Check furniture is in good condition and fit for purpose.
Building Exterior
Inspect general condition.
Inspect paintwork condition in accordance with SMI 105.
Inspect windows and doors for damage.
Inspect for apparent structural damage.
Inspect guttering/downpipes for leaks, disfigurement, corrosion.
1.3 Yard
Deluge Showers (outdoor, inspection and test)
Check operation.
Check water tank/deluge shower tank levels.
Leave deluge shower valve in ON position
Update and attach compliance tag
Eye Wash Stations
Check operation
Update and attach compliance tag
Bund Walls
Inspect for cracks or other defects.
Inspection and maintenance shall be carried out in accordance with SMI 115
Oil Separators
Inspection and maintenance shall be carried out in accordance with SMI 115
Gates and Fences
Inspect condition and report.
Inspect for signs of break-in/vandalism.
Inspect for damage to fence earthing.

Routine maintenance
<i>Foundations</i>
Inspect condition.
<i>Steelwork / Hardware</i>
Inspect condition, (for example, rusted steel, loose bolts) and report.
Where multiple stormwater treatment systems/septic/in-ground separators exist on a site, these should be labelled as per the stormwater drainage diagram
1.4 Other items
<i>Weed Control</i>
Inspect for excessive weeds.
<i>Pest Control (minor)</i>
Treat pests (for example, wasp's nests, spiders) in an appropriate manner where safe to do so, using household sprays.
<i>Trees and Vegetation</i>
Inspect for trees/vegetation within safe working clearances of live equipment for example, busbars, in accordance with MMI0013, sections 5.1.1, 5.3.2, 5.3.3 and 5.3.4.
Inspect for trees/vegetation that compromise access and safety clearances around padmount substations, cottage substations, and the like, and the condition of the security fence, for example overhanging trees, in accordance with MMI0013, sections 5.1.1, 5.3.2, 5.3.3 and 5.3.4.
Note: Increased clearances are required in designated bushfire prone areas.
<i>Traffic Barriers</i>
Inspect condition.
<i>Warning/Danger Signs/Labels</i>
Inspect condition.
<i>Locks</i>
Inspect condition.
Lubricate locks and hinges.
1.5 Gross Pollutant Traps / Stormwater Drains / On-site detention systems
Check the stormwater drainage diagram present within the Hazchem cylinder at the front gate. Contact the asset owner to arrange for a stormwater drainage diagram for the site
Inspect stormwater systems within site boundary and perimeter areas as per the stormwater drainage diagram. Report presence of debris (building waste, general rubbish and sediment) within these systems. If oil is evident within these systems, contact the relevant Environmental Business Partner for advice.
Where multiple stormwater treatment systems/septic/in-ground separators exist on a site, these should be labelled as per the stormwater drainage diagram.

Routine maintenance
1.7 Spill Kit
Check correct contents of spill kit are all present and in appropriate condition.
1.8 Roof access systems
Inspect anchor points, ladder access brackets, any fixed permanent ladders, horizontal and vertical fall arrest static lines and access lanyards as per manufacturer's instructions.
Inspect parent structure for any modifications or deterioration that may lead to loss of anchorage strength.
Inspect any changes to the roof or additions of new plant that may render the roof safety system incomplete.
If applicable, inspect all height safety PPE stores onsite.
2.0 MINOR OVERHAUL
2.1 Lawns and gardens
General
Check sprinkler operation, where applicable.
Lawns (internal and external)
Mow lawn and maintain edges to a neat and tidy condition. If applicable, during this lawn mowing activity a strip is to be mowed along the edges of slashed grass adjacent to a customer's residential property.
Trees and Vegetation
Trim or remove trees/vegetation to maintain safe working clearances from live equipment, for example busbars, in accordance with MMI0013, sections 5.1.1, 5.3.2, 5.3.3 and 5.3.4.
Trim or remove trees/vegetation to maintain the condition of the security fence, for example, in accordance with MMI0013, sections 5.1.1, 5.3.2, 5.3.3 and 5.3.4.
Gardens
Maintain gardens to a neat and tidy condition.
Grass Slashing (Large areas of grass not suitable for lawn mowing are to be slashed)
Slash to a tidy condition.
2.2 Building/yard
Building Exterior
Remove debris from guttering
Where applicable, service the lowering mechanism of switchyard lights as set out in the manufacturer's manual.

Routine maintenance
<i>Trees and Vegetation</i>
Trim or remove trees/vegetation to maintain the security of the building, in accordance with MMI0013, sections 5.1.1, 5.3.2, 5.3.3 and 5.3.4. Note: Increased clearances are required in designated bushfire prone areas.
<i>Weed Control (Excluding areas where entry is only permitted under access permit)</i>
Remove or treat weeds with non-residual spray.
<i>Pest Treatment</i>
Treat vermin and check for termites if applicable.
2.3 Building Interior Hygiene
Clean toilets, lunch room, showers and bathrooms to a hygienic standard
2.4 Gross Pollutant Traps / Stormwater Drains / On-site detention systems
If there is sustained evidence of oil and/or a significant amount debris (building waste, general rubbish and sediment) within these systems, clean out these systems by using an appropriately licensed liquid waste contractor in accordance with EMS 0007 (EMS 0007 – Waste Management will need to be included in the references section). As some of these systems are designated confined spaces, entry shall be managed in accordance with GSY 1090.
2.5 Lighting Tower Winding Mechanism
Service lighting tower winding mechanism.
2.6 Back flow prevention device
Maintain device as per AS/NZS 3500.1 consistent with Sydney Water's requirements for connected customers.

5.0 AUTHORITIES AND RESPONSIBILITIES

General Manager Asset Management has the authority and responsibility for approving this instruction.

Manager Asset Standards & Design has the delegated authority and responsibility for approving this document for minor changes and to make recommendations to the General Manager Asset Management for major changes.

Network Maintenance Manager must be responsible for analysing the inspection results to identify potential problems, and taking appropriate action.

Regional Transmission Manager/Distribution Project Manager is responsible for:
Overseeing that Endeavour Energy employees and/or contractors engaged to perform the work have appropriate qualifications.

- Identifying potential problems with equipment when inspection reports are received.

All Endeavour Energy employees and contractors are responsible for:

- Conducting themselves in a manner that meets the requirements of this instruction and SMI 100.
- Working in accordance with local and statutory requirements.
- Managing public safety so that it is not compromised.
- Working in accordance with Endeavour Energy's Electrical Safety Rules.

6.0 DOCUMENT CONTROL

Documentation Content Coordinator : Network Maintenance Manager

Documentation Distribution Coordinator : Branch Process Coordinator