

EnergyAustralia Yallourn

BUSHFIRE MITIGATION PLAN 2015/2016

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Authorised by: Executive Manager, Yallourn

Date of Last Revision: May 2015

Version No: 6.0

Print Date: 14/10/2015

Ref: SHEMS11-SHE-P015-L01 - EnergyAustralia Yallourn Bushfire Mitigation Plan [REF-144347]
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VERSION HISTORY

Date	Author	Reason	
April 2011		Initial Issue	
September 2011		Changes as a result of advice from ESV	
July 2012		Changes made to accommodate the recommendations from an internal audit conducted in June 2012	
September 2012		Corporate Re-brand and minor formatting changes	
June 2013		Periodic Review	
May 2014		Periodic Review / To meet the new regulations, audit recommendations and broader scope	
May 2015		Periodic Review	
	April 2011 September 2011 July 2012 September 2012 June 2013 May 2014	April 2011 September 2011 July 2012 September 2012 June 2013 May 2014	

AMENDMENTS IN THIS VERSION

No.	Amendment Summary	Amended By
Version 6.0		
1.	Updated references	Otto Stumpf
2.	Added extra comments in clause 9.13 Contractors	Otto Stumpf

PURPOS	E & SCOPE	
WHAT	The objective of the Bushfire Mitigation Plan is to ensure that there are procedures and processes at the Yallourn site to mitigate against the spread of fire that initiates internally as well as the infiltration of external fires. The procedures also mitigate the initiation of bushfires from "at-risk" electrical lines and provide a controlled reduction in fire risk from the site assets.	
	The Bushfire Mitigation Plan must fully comply with the Electricity Safety (Bushfire Mitigation) Regulation. The Bushfire Mitigation Plan must be monitored and audited each year to identify any deficiencies in the plan. The plan must then be updated and formally submitted to EnergySafe Victoria (ESV) before the 1 July of each year.	
WHEN	This procedure is to be utilised when the Bushfire Mitigation Plan needs to be implemented, reviewed and updated.	
WHO	This procedure shall be followed by all responsible personnel who implement the Bushfire Mitigation Plan and the nominated responsible officer who audits the plan.	
WHY	This procedure has been developed to comply with the Electricity Safety (Bushfire Mitigation) Regulation and the requirements of the CFA and Dept of State, Development and Business Innovation. The Bushfire Mitigation Plan must be reviewed annually, updated and checked against the current Electricity Safety (Bushfire Mitigation) Regulation, then sent to ESV before 1 July to ensure compliance with the Regulation.	

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1 CONTACTS

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Position	Manager Mining EnergyAustralia Yallourn	
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Telephone		

Emergency Contact Number for Immediate Action	For all site emergencies dial: 3333 (internal) or 1800 04 3333 (mobile phone or external)
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2 DISTRIBUTION

Copies of this document have been issued to:

Energy Safe Victoria

Copies of Bushfire Mitigation Plan

A hard copy of the Yallourn Bushfire Mitigation plan is available at the EnergyAustralia Yallourn principal office; please contact the Officer Manager on telephone 5128 2960 for a current copy. Copies of the plan are available to the public for inspection. The EnergyAustralia Yallourn address is Eastern Road Yallourn Vic 3825.

All hard copies will be stamped as uncontrolled.

Electronic copies of the Yallourn Bushfire Mitigation plan can be found in the EnergyAustralia website:

www.energyaustralia.com.au/about-us/what-we-do/generation-assets/yallourn-power-station

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3 INTRODUCTION

EnergyAustralia Yallourn Pty Ltd is the private owner and operator of the Yallourn W Power Station and the adjacent Yallourn Mine which are located in the Latrobe Valley approximately 150 km's east of Melbourne. EnergyAustralia Yallourn's operations are located within the City of Latrobe; the Power Station, Mine and buffer zones cover some 5,500 hectares. Refer to figure 1 in the Appendix for the boundaries of EnergyAustralia Yallourn.

The Yallourn Mine is one of three large open cut brown coal mines in the Latrobe Valley in Victoria. Mining operations are based on the open cut mining method, using the slope mining method with dozers and feeder breakers to excavate and load sized coal onto conveyors. Overburden operations consist of both auxiliary earthmoving plant and a bucket wheel dredger to excavate the overburden overlying the coal. A series of conveyors are used to transport the overburden material to an internal dump located within a worked out section of the mine. Coal is transported by a series of conveyors to a 30,000 tonne raw coal bunker, which provides approximately 12 hours coal reserves for the Power Station. The Power Station and the mine operate 24 hours per day, 365 days per year. Yallourn seam coal has high moisture content (65-68%); low ash (1.5-3.0%) and low energy content (6-7 Mega joule/kg (NWSE)).

Mining operations are currently located within Maryvale Field of the Yallourn open cut mine. Coal mining commenced full operational in the Maryvale field from the start of 2015. Worked out sections of the mine are progressively rehabilitated in accordance with an approved Rehabilitation Master Plan, following mining and overburden dumping. This results in progressive shaping and stabilisation of overburden batters and dumps, coal floor coverage and some coal batter coverage. Routine maintenance programs manage the fuel loads in and around the mine areas.

Effective from the 5th September 2002, EnergyAustralia Yallourn established a Mine Alliance contract with Roche Thiess Linfox Joint Venture (RTL), for the management and operation of the mine. The Mine Alliance contract includes operations and maintenance activities in the mine. The RTL Joint Venture, now RTL Mining and Earthworks P/L, has developed and implemented a certified SHEQ system for the management of safety, health, environment and quality parameters for all those activities included within the scope of the Mine Alliance contract. The Bushfire Mitigation Plan forms part of EnergyAustralia Yallourn's certified SHE Management System.

EnergyAustralia Yallourn maintains a high standard of risk management whilst achieving its primary role of coal mining and electricity generation. It operates under certified standards for health, safety and environmental management.

The high inherent risks that bushfires pose to business assets, production, health, safety, and the environment has necessitated the implementation of numerous controls to mitigate the risk of bushfire. Furthermore, a well-trained response team along with fixed reticulated and mobile fire suppression systems provides the resources to control bushfires within the property boundary.

The fire hazard ratings system managed by the Country Fire Authority of Victoria has designated the Yallourn site as a hazardous bushfire risk area in relation to the overhead powerlines and associated legislation.

The bushfire mitigation plan has been developed and implemented to manage the risks to assets (including at risk electric lines) and personnel from bushfires and fires which may initiate within the site itself and those which may initiate externally and infiltrate the mine. EnergyAustralia Yallourn has plans showing the at-risk electric lines on the site and these are available to EnergySafe Victoria and other regulatory bodies upon request.

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4 BUSHFIRE MITIGATION POLICY

EnergyAustralia Yallourn, as a specified operator, is committed to managing the site to mitigate against the spread of fire that initiates internally as well as the infiltration of external fires. This includes a commitment to protect at-risk electrical lines in compliance with the Electricity Safety Act and associated Bushfire Mitigation Regulation. This will be achieved by the application of various techniques including:

- Periodic inspection
- Proactive operation and maintenance plans
- Monitoring of plant and surrounding environment
- Reporting of fires
- Quick response to the extinguishing of fires
- The provision of firefighting systems, and
- Assisting fire control agencies

5 DEFINITIONS

Bushfire is defined by CFA Victoria as: "A freely burning, uncontrolled and unplanned fire, which needs to be extinguished. It includes fires in woods or forest, mixtures of scrub, bush and grasslands; or plantation or nursery stock."

At-Risk electric line – means an electrical line (other than private electric line) that is above the surface of land and in a hazardous bushfire risk area.

Specified operator – means the operator of an at risk electric line but does not include a major electricity company (transmission or distribution)

6 OBJECTIVES OF THE PLAN

The objective of the Bushfire Mitigation Plan is to outline the controls identified in the EnergyAustralia system to reduce the risk of bushfire damage to assets (including at-risk electric lines) and personnel on the Yallourn site from bushfires which may commence within the site itself and those which may commence externally and infiltrate the mine.

This Bushfire Mitigation Plan provides an integrated set of procedures to lead a controlled reduction in fire risk to and from all site assets, through systems of asset inspection and management, fuel reduction, ignition source containment and fire control.

The specific objectives of the Plan are:

- To fully comply with the Electricity Safety Act and Electricity Safety (Bushfire Mitigation) Regulations
- To describe the processes and procedures for monitoring the implementation and effectiveness
 of the bushfire mitigation strategies and programs for the site.
- To maintain a program of asset inspections consistent with the assessed level of risk
- To operate and maintain the plant and facilities with controls to minimise the risk of initiation and/or spread of fire
- To manage vegetation fuel loads and asset clearances in a timely manner, for minimum fire risk, consistent with relevant standards and regulation
- Assess the performance of programs supporting this Plan and strive for continual improvement

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Whilst the effective application of this Plan does lead to reduced fire risk, there is still some residual risk. Consequently there is a need to manage fire response and this is managed under the strategic framework of the site Emergency Response Plan, document SHEMS12-SHE-L01, which states "All fires that have potential to spread beyond the initial point of ignition and all other incidents which may result in a threat to life, or EnergyAustralia Yallourn assets, or the environment are to be considered an emergency and must be immediately reported to applicable statutory combat agencies".

6.1 Non EnergyAustralia Overhead Lines

On the Yallourn site, there are overhead lines owned and managed by others, typically AusNet Services power lines. The AusNet Services power lines are located on easements on the site and are clearly marked on the site drawings. These lines are managed by AusNet Services and the management of these lines is included in their Bushfire Mitigation Plan; hence they are not included in the EnergyAustralia Yallourn Bushfire Mitigation Plan.

There are responsibilities for both EnergyAustralia and AusNet Services to manage the easements in accord with this Plan, the Electrical Safety (Electrical Line Clearance) Plans and with the Yallourn site lease agreement covering the line easements

7 SITE RESPONSIBILITIES

7.1 Manager Responsibilities

The Manager Mining is responsible to ensure that the Bushfire Mitigation plan is developed, managed and implemented for the Yallourn Mine.

The Mine Manager is responsible for the operation and maintenance of the Mine and the implementation of the fire service policy and code of practice and associated procedures to minimise the bushfire risk in the Mine.

The Estate Services Alliance Manager is responsible for maintaining emergency fire response capability for the site, the management of fuel reduction outside the Mine area, chairing the Wildfire Risk Committee and developing/implementing procedures applicable to Estate Services to minimise the bushfire risk.

The Mine Environment Engineer and the Senior Electrical Engineer Compliance are responsible for the preparation/update of the Bushfire Mitigation Plan for the Yallourn site.

7.2 Site Management Procedure for the BMP

The Station Operating Procedure SHEMS11-SHE-P015 ensures that the Bushfire Mitigation Plan is reviewed annually, updated and checked against the current regulation, then sent to ESV before 1 July to ensure compliance with the Regulation.

7.3 Site Map

The site plan shown in the appendix shows the overall area of the Yallourn site. The Mine is a dynamic operation and the overhead lines are re routed to meet the mining requirements. Single line drawings and layout drawings are continually updated to identify the overhead lines on site. The up to date drawings are available to Energy Safe Victoria upon request but not included as an attachment to this plan.

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PREVENTATIVE STRATEGIES 8

The preventative strategies to minimise the risk of the 'at-risk' electric lines and other plant starting fires at the Yallourn site are as follows:

- Management of the overhead reticulation lines by a comprehensive procedure
- Management of the vegetation by a fire mitigation procedure to implement a fuel reduction program prior to and during the fire season
- Manage all hot works on the site
- Manage the specific requirements of hot works on days of total fire bans
- Manage the firefighting equipment on site
- Maintain a process to ensure vehicles are suitably equipped and modified to enter a fuel rich
- Manage a process to detect, report and extinguish fires in or near the Yallourn site
- Maintain an emergency response procedure for the site
- Maintain and manage a reticulated water fire suppression system to provide a source of water to effectively extinguish fires
- Assist fire control agencies in the management and investigation of fires on site.
- Manage and maintain an effective communication system
- Use trained and competent personnel to implement the bushfire mitigation plan

Managers across the site have been allocated specific responsibilities to enact the above preventative strategies. A list of the relevant site procedures is tabled in section 9 References

The Bushfire Mitigation Plan includes fire hazard removal as well as the preparation of strategic fire breaks to ensure that the Power Station, Mine and other critical assets (eg. Protected native vegetation areas) are protected against bushfire that occur on or external to the EnergyAustralia Yallourn property.

LIST OF All WORKS

9.1 **Electrical Asset Management**

The Mine procedure YMA-OPS- PR-0374 - "Management of LV & HV Overhead Distribution System" documents and details the management of the site's high and low voltage overhead reticulation system. The document covers the design, maintenance and vegetation management methods for the site.

EnergyAustralia Yallourn maintains an Electrical Safety (Electrical Line Clearance) Plan (SHEMS11-SHE-L01) which provides an integrated set of procedures for the safe management of electrical line clearance and this plan links with the Bushfire Mitigation Plan.

The Mine Alliance maintains electrical assets by completing regular pole earth grid testing, thermographic surveys, vegetation inspection and clearance, visual pole inspection, regular testing of substation transformer and 3 yearly pole integrity testing using form YMA-OPS-FO-0339 - "Pole Inspection / New Pole / Pole Removal Data Sheet". The frequency of these tests, inspections and checks are defined in the procedure for the Management of LV & HV Overhead Distribution. Only personnel who possess the relevant competency can carry out the maintenance on or near electrical assets at Yallourn. Personnel who carry out work and inspections on or near at -risk electric lines will have completed the approved training and comply with site procedures.

All new overhead power line installations are designed to meet the site Electrical Safety Management Scheme and the regulator's installation standards.

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On days of high fire danger the switching of overhead power lines is minimised. Electrical operators pay particular attention to survey the area surrounding each pole switch for hot embers after switching has been completed.

On days of total fire ban all work on overhead power lines is postponed and emergency switching is carried out under Mine procedure YMA-OPS-PR-0129 - "Carrying out Hot Works on Days of Total Fire Ban".

In the event of a fire threatening the Yallourn site, the Site Emergency Response Plan is initiated.

All substations have fire detection and suppression monitoring systems. These are checked as part of a monthly routine by a competent contractor.

9.2 Wildfire Risk Mitigation during the Fire Danger Period

The Estate Service Team manages the Wildfire Risk Committee to coordinate the fuel reduction works across the site whilst the bushfire risk conditions exist. The Wildfire Risk Committee meets monthly, reviews the condition on site, monitors the implementation of the Bushfire Mitigation Plan and implements action to ensure that the EnergyAustralia Yallourn site is adequately protected against wildfire attack.

Fire hazard removal works include slashing, mulching, pruning and controlled fuel reduction burns. These works are assessed prior to each fire season, when a program is established and enacted. Regular inspections during progress of works are conducted to maintain hazard reduction priorities and report to management.

The EnergyAustralia Yallourn document SHEMS10-SHE-P001 - Removal of Vegetation on the EnergyAustralia Yallourn Site further details the methodology for the management of flora on site. This document also indicates whether flora is native or protected, and what measures should be taken with respect to fire risk and flora protection.

EnergyAustralia Yallourn has a lease with a professional grazing company over extensive perimeter lands as well as strategic areas within the Mine. The conditions of the lease require cooperation on grass fuel reduction for the annual fire season. A representative from the professional grazing company, Minto participates in the Wildfire Risk Committee meeting

9.3 **Hot Works**

All hot works on the site are managed according to specific procedures.

In the Mine, procedure YMA-OPS-PR-0343 - Hot Works Procedure, provides the methodology for the undertaking of hot works within the mine. Hot Work Permits are issued for all hot works carried out in The Issuing Authority advises personnel of all restrictions that may apply to hot works, including the non-issue of Hot Work Permits on high risk days. Restrictions are in place for the issuing of Hot Works Permits on days of total fire ban and internal fire alerts are controlled through this procedure.

The Power Station controls the instruction Hot Works SHEMS11-SHE-P500-I01 to manage all hot works on the Power Station site for general conditions and for days of total fire ban.

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9.4 Days of Total Fire Ban

The Standard Operating Procedure for Applying for CFA Permits and Internal Permits to Carry Out Hot Works on Days of Total Fire Ban SHEMS11-SHE-P001 defines the process for obtaining a total fire ban exemption for essential works.

Mine procedure YMA-OPS-PR-0129 - "Carrying out Hot Works on Days of Total Fire Ban", that must be followed if hot work needs to be done in the Mine on a total fire ban day. The procedure YMA-OPS-PR-0217 – "Control Centre Fire Alert" details the actions to be taken by the Control Centre when a Fire Alert is declared.

Additional resources are provided on site when the CFA declare a 'Day of extreme fire danger'

9.5 Investigations

An investigation will be initiated in the event of a fire involving Yallourn's at risk electrical lines. The investigation will use the site's investigation procedures to identify the cause of the fire and the actions required to reduce the risk of further occurrences of the incident. All fires originating from Yallourn's supply network will be reported to Energy Safe Victoria in accordance with the Electrical Safety Management Scheme.

9.6 Training and Competence

All personnel required to perform tasks detailed in this procedure are trained to the requirements defined in the site procedures, industry standard and legislation. The training of personnel is managed and recorded by training coordinators in the Mine and Power Station. All personnel carrying out work on site are fully site inducted. The induction process states the minimum requirements for carrying out work on site, the need to report fires and provide fire fighting assistance within their capabilities.

All electrical operators are trained to the relevant site's procedures and competent to perform the electrical switching. All personnel carrying out maintenance work on electrical assets in the Mine are trained and competent for this work.

Site procedure SHEMS11-SHE-P502-I03 – Authorisation to perform electrical work on site, defines the process to register all authorised electrical workers for the site and ensure the competency of electrical workers.

Relevant managers on site are trained on the Australasian Inter-Service Incident Management System (AIIMS) to ensure effective incident management on site,

9.7 External Agencies

The Emergency Response Plan defines the function and responsibilities of the incident management team and the interface with emergency services and external agencies. Reporting to external agencies is done in accordance with the EnergyAustralia document SHEMS15-SHE-P001-A02 - Quick Guide - Immediate Incident Reporting. Yallourn provides assistance to fire control authorities, as required, in the investigation of fires on site.

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9.8 Fire Management in the Mine

EnergyAustralia has developed a Mine Fire Service Policy & Code of Practice SHEMS11-MIN-01 that is based on the establishment of a system of fire protection in the mine to achieve the following principles:

- Protection of all personnel within the mine;
- Protection of all plant and equipment required for the maintenance of coal winning operations and minimising impacts on the ability of Yallourn to generate power:
- Protection of coal reserves; and,
- Minimising the impact on the surrounding environment.

Its purpose is to document the requirements for preventing or extinguishing any fire which may threaten the coal winning activities and the restoration of normal operating conditions as early as possible after a fire.

In the Yallourn open cut mine there is an abundant source of potential fire fuel which must be continually controlled. As directed by the Mine Fire Service Policy & Code of Practice, the Mine Fire Service section coordinates the effective establishment and maintenance of systems for fire protection in the Yallourn Open cut mine.

Different levels of protection are defined for various areas of the Mine based on the risk to the public, mine personnel, plant, equipment and coal reserves, and the consequences should a fire occur.

The necessarily large area of exposed coal requires an extensive water reticulation spray network as well as an adequate water supply. The measures laid down in the Code of Practice are those considered to provide the necessary level of protection with due regard to cost and operational requirements.

9.9 Fire Detection

Fire detection and alarms systems are used throughout the site. These systems provide early detection of fires and ensure that emergency services respond to the alarm. Alarms from the fire suppression and detection systems throughout the Yallourn site are monitored in the Control Room at the Fire Station.

The Emergency and Protective Services Team responds to all alarms and arrange for CFA back up where an actual fire is detected. Alarm systems are routinely tested for functionality and defects repaired promptly by Estate Services to the standard set in AS 1851-2012.

Mine procedure YMA-OPS-PR-0100 - Fire Procedure, details the actions required of all personnel working in the Yallourn Mine in relation to prevention, reporting and fighting of fires in or near the Mine.

9.10 Fire Extinguishers

Fire extinguishers are maintained and managed on site. In the Mine, procedure YMA-OPS-PR-0154 details the Mine Manager's responsibility to ensure adequate numbers and types of extinguishers are located and easily identified throughout the Mine.

9.11 Vehicle Modifications

Vehicles used in the Mine must be suitably equipped and modified to enter a fire risk environment. Vehicles are not permitted to enter the Mine unless they have been inspected using form YMA-OPS-FO-0309 - Vehicle Authorisation Inspection and are authorised to enter the Mine. All vehicles are inspected by a competent person before authorised for use on site.

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9.12 Reticulated Water Fire Suppression System

The fire service pipes, sprays and pumps system undergoes a structured maintenance program based on inspection. This includes;

- Routine inspections completed every 6 months
- Thorough inspections completed every 12 months

Actions from these inspections, and any other daily or weekly routines, are raised as work orders and given a priority ranking which determines when specific works must be completed,

9.13 Contractors

Contractors engaged in overhead line maintenance, installation, line clearance (both linesmen and vegetation control companies) must be licensed, trained and competent for the task. Contractors are monitored and audited in the conduct of these works.

All contractors are directly engaged by Energy Australia to maintain and install electrical assets

Vegetation control companies inspect overhead conductors on a twice yearly basis and clear any vegetation approaching the minimum distances. Should any vegetation breach the minimum distances or contact the conductors then the line is isolated and work is carried out under permit conditions. The minimum approach distance on site exceeds the regulations guidelines. i.e minimum approach distance to overhead lines is set as 5 meters.

10 MONITORING, AUDITING AND REPORTING

Prior to and during the fire danger period, the implementation of the Bushfire Mitigation Plan is monitored by the Wildfire Risk Committee.

The Bushfire Mitigation Plan is audited on an annual basis. The audit process is initiated in March of every year by a work order in the site's computerised maintenance management system (Maximo). The prevention maintenance plan MHVRP410E and job plan MHVR410E defines the objectives and specifics of the audit

The audit includes the following:

- Review the Electrical Safety (Electrical Line Clearance) Plan
- Monitor and audit the implementation of the Bushfire Mitigation Plan (this plan)
- Identify any deficiencies in the plan or the implementation
- Monitor and audit the effectiveness of inspections under the plan
- Propose improvements for the plan and the plan's implementation
- Ensure any necessary training for the performance of the plan has been carried out
- Monitor and audit the competence of persons assigned to carry out the inspections

The audit must address the issues identified in clause 6(n) of the Electricity Safety (Bushfire Mitigation) Regulation. Any deficiencies found within the monitoring and auditing process triggers an action, which will be remedied by establishing improvements to the plan.

The revised Bushfire Mitigation Plan is then approved by the Executive Manager, Yallourn and sent to Energy Safe Victoria before July each year.

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11 REFERENCES

Document ID	Document Title
REF-149100	SHEMS11-SHE-P015 - Management of the EnergyAustralia Yallourn Bushfire Mitigation Plan
REF-144276	SHEMS11-SHE-L01 - Electricity Safety (Electrical Line Clearance) Plan
REF-180598	SHEMS11-MIN-01 - Mine Fire Service Policy & Code of Practice
REF-138646	SHEMS11-SHE-P500-I01 - Hot Works (Power Station)
REF-140771	SHEMS10-SHE-P001 - Removal of Vegetation on the EnergyAustralia Yallourn Site
REF-123453	SHEMS12-SHE-L01 - Emergency Response Plan
REF-136372	SHEMS11-SHE-P001 - Applying for CFA Permits and Internal Permits to Carry Out Hot Works on Days of Total Fire Ban
REF-140777	SHEMS11-SHE-P502-I03 – Authorisation to Perform Electrical Work on Site
REF-140750	SHEMS11-SHE-P502-R01 - Register of Authorised Electrical Workers
REF-140752	YMA-OPS-PR-0374 - Management of LV & HV Overhead Distribution System
REF-137313	YMA-OPS-PR-0129 - Carrying Out Hot Works on Days of Total Fire Ban
REF-137126	YMA-OPS-PR-0100 - Fire Procedure
REF-138657	YMA-OPS-PR-0343 - Hot Works Procedure
REF-177675	YMA-OPS-PR-0217 - Control Centre Fire Alert
REF-136434	YMA-OPS-PR-0154 - Fire Precautions
REF-139285	YMA-OPS-FO-0309 - Vehicle Authorisation Inspection
REF-180605	YMA-OPS-FO-0339 - Pole Inspection / New Pole / Pole Removal Data Sheet
N/A	Electricity Safety Act 1998
N/A	Electricity Safety (Bushfire Mitigation) Regulations 2013

12 APPENDIX - Site Aerial Photograph



Figure 1: Aerial Photograph of the EnergyAustralia Yallourn Site - Property Boundary Highlighted in White

Version No: 6.0

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