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2016 Bushfire Mitigation (Line Condition) and Electric Line Clearance (Clearance to Code) Audits

ESV Reference

BFM – CM4200
ELC - CM4206

Audit Report: AusNet Services. (Distribution)

17th October 2016 to 25th October 2016

Version	Date	Change	Author	Reviewed	Approved
1.0	19/1/17	Initial Draft submitted to ESV			
1.1	30/1/17	General updates per ESV feedback			
Final	26/2/17	Minor updates following presentation to AusNet 17/2/17			

Audit Report Details:

Client:	Energy Safe Victoria (ESV)
Auditee Network:	AusNet Services – Distribution (ANS)
Audit No:	MEC BFM & ELC Audits – EOI 2016
Regulation:	Electricity Safety (Bushfire Mitigation) Regulations 2013 Electricity Safety (Electric Line Clearance) Regulations 2015
Audit Topics	MEC Line Condition MEC Electric Line Clearance
Audit Date	17th – 25th October (Field Audits) 26th October – 16th November (Desktop Review)
Audit Team	: ERP Senior Technical and Audit Consultant : ERP Field Auditor (BFM) : ERP Field Auditor (ELC)
Sites Visited	Various Sites across AusNet Services Electrical Distribution network. Selected sites from following feeders: - BDL44 (Bairnsdale) - SLE31 (Sale) - MOE31 (Moe) - FGY34 (Ferntree Gully) - WN2 (Wangaratta) - MSD1 (Mansfield)

Signatories			
Title	**Name**	**Signature**	**Date**
Lead Auditor			26/02/2017
ERP Operations Manager			26/02/2017
Project Director			26/02/2017

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This report is confidential and distribution is limited to the auditor, the auditee and Energy Safe Victoria.

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1. Executive Summary

This report presents findings and recommendations for the 2016 Bushfire Mitigation (Line Condition) and Electric Line Clearance (Clearance to Code) Audits conducted by Electrical Resource Providers on AusNet Services (Distribution) on behalf of Energy Safe Victoria.

The scope of the 2016 Bushfire Mitigation and Electric Line Clearance Audits was limited to:

- A general desktop review of relevant elements of the nominated MECs Bushfire Mitigation Plan (BFMP) and Electric Line Clearance Management Plan (ELCMP); and
- Field auditing of a number of sites selected by ESV against the requirements of the Electricity Safety (Bushfire Mitigation) Regulations 2013 and Electricity Safety (Electric Line Clearance) Regulations 2015, in particular asset condition and clearance to code.

A desktop review of AusNet's Bushfire Mitigation Plan, ELCMP and BFM and ELC sample database information was conducted by [redacted] of ERP in October 2016 and field based audits were conducted by [redacted] (BFM) and [redacted] (ELC) of ERP in conjunction with AusNet representatives between the 17th and 25th of October 2016.

Desktop Review – Key Findings:

- The desktop review of BFM and ELC reference documents provided at the time of audit found AusNet to have detailed and comprehensive management procedures in place to complement both its Bushfire Mitigation and Electric Line Clearance Management Plans.
- Database extracts for both BFM and ELC provided sufficient information for field auditors to validate recorded information against in-field asset assessments.

Field Audit – Asset Condition:

- Field audits were carried out on 134 poles across the AusNet network. 119 of which were contained within the database sample provide and a further 15 poles were chosen at random.
- The field auditor validated the information recorded for each of the 119 poles from the database extract as accurate and confirmed 15 randomly selected assets to be in good condition.
- The field audit identified [redacted] HBRA sites missing LV spreaders and [redacted] unserviceable poles beyond their scheduled replacement dates (AusNet indicated recent planned works to complete these pole replacements was cancelled due to emergency storm response works). AusNet have been made aware of these findings and recommendations for follow-up have been provided in the recommendations below.
- Minor maintenance items were recorded at three sites visited.
- The field audit validated works had been completed at [redacted] sites in line with the previously recorded maintenance items and required rectification works.
- Positive feedback was received from the field auditor in relation to observations conducted on four active asset inspectors.

Field Audit – Clearance to Code:

- Field audits were carried out on 192 spans across the AusNet network.
- The field auditor noted [redacted] spans containing noncompliant vegetation. AusNet was assessed as responsible for [redacted] noncompliant spans both relating to light vegetation contacting insulated services.
- [redacted] council noncompliant spans were identified in areas previously assessed in November 2015. 2016 annual assessments are due for both areas (FGY34, WN2) and it is expected these will trigger further consultation with the relevant councils.

- Excluding spans with noncompliant vegetation minor differences between the latest span code data and the field auditor's assessment were recorded at [redacted] sites. As the spans were assessed as either "720" or "CC" it is expected these will be monitored during normal assessment cycles..
- The field audit results indicate for the spans audited AusNet responsible vegetation is well managed and with clearance spaces being maintained.
- Database information provided appears to be maintained to a high level in terms of accuracy and currency.
- Positive feedback in relation to the knowledge, competence and high level of role ownership demonstrated by AusNet representatives observed and consulted during the field audit process.

The audit recorded the following conclusions and recommendations:

Audit Criteria and Grading:

Compliant		Noncompliant	
Minor Noncompliance		Opportunity for Improvement	

BFM Audit Recommendations:

• **Physical state of the assets** - In general the audit found that AusNet assets audited were in a condition reflective of the data provided at the time of audit with defect items accurately recorded and coded for action as required. - [redacted] HBRA sites were observed LV spreaders. It is recommended that AusNet rectify these sites as per its maintenance policies and investigate why these items weren't recorded during their recent inspection cycle with findings, including any identified corrective actions, to be communicated to ESV. ***(Request for Further Information)*** - [redacted] unserviceable poles were identified beyond their due date for replacement (based on dates within the database provided). It is recommended that AusNet provide further information to ESV confirming the status of the poles overdue for replacement and the management processes in place to monitor poles overdue for replacement. ***(Request for Further Information)*** - It is recommended that AusNet continue to monitor the condition of its assets via its current inspection cycles and practices as the audit outcome indicates that the database information in general provides a consistent representation of assets in the field. ***(Observation)***	
• **MEC's knowledge about the state of the system** - The audit concluded that systems and processes in place provide AusNet with reliable knowledge of the state of their system and the assets audited. - The audit has made no recommendations.	
• **Compliance with current BFM plan** - The audit found that AusNet was managing its inspection cycles and asset inspection processes as per its current BFM plan. - The audit found [redacted] unserviceable poles overdue for replacement and AusNet have provided a response indicating these are being monitored and managed via internal processes including its Bushfire Mitigation Index. - The audit observed that maintenance priority coding within the BFMP and AIM had a slightly different prefix (PT) to the definitions provided with the database information (P). Also code "900" is listed as "912" in the current AIM. It is expected these will be reviewed when the documents are next edited. ***(Observation)*** - The audit recommends that AusNet continue to manage and monitor defect and maintenance items per its current procedures and processes to ensure ongoing compliance with its BFMP. ***(Observation)***	

ELC Audit Recommendations:

• **The accuracy of inspection data and work recommendations** - AusNet's database information was in general validated as accurate, easy to follow and contained information consistent with the requirements of AusNet's ELCMP. - The field auditor recorded that in his opinion, and taking into account his observations at the time of the audit, the previously recorded Inspection Code for the spans he observed was accurate in relation to AusNet responsible vegetation. - An opportunity for improvement was identified for AusNet to consider reviewing the current definition for code PT180 within document VEM 20-03 (refer Section 3.2.1 of this report) – current wording appears to be ambiguous. ***(For Consideration)*** - The audit recommends that AusNet continue to utilise and develop its ELC procedures to ensure annual inspection programs are completed efficiently and vegetation database management is maintained to a high level of currency and accuracy. ***(Observation)***	
• **Vegetation clearance standards and compliance with the Code of Practice for electric line clearance** - Information within the database indicated AusNet was well advanced in its pre-summer HBRA inspection program. - The field auditor commented AusNet managed vegetation in the areas audited was generally maintained to a high standard with clearance spaces being maintained. - spans containing non-code compliant vegetation were recorded. - AusNet was assessed as responsible for two overhead services where vegetation was assessed as within the clearance space. Both were in LBRA zones. - spans were identified containing non-code compliant council vegetation. - private service cable was identified in HBRA with hard contact from a private tree (property owner responsible for clearing). - The audit noted areas with noncompliant ORP vegetation (FGY34 and WN2) were due for annual inspection post the date the field audit was conducted. - It is recommended that AusNet ensure ORP noncompliant vegetation is managed per its ELCMP expectations and notification processes to ensure the ongoing security of its network assets and ensure appropriate escalation processes are in place in instances where ORP vegetation is not cleared in a timely or effective manner. ***(Observation)***	
• **Vegetation management data reflects the status of field observations made at the time of the audit.** - spans were audited where there was a difference between the current recorded span code and that recorded by the field auditor. - recorded discrepancies related to ORP vegetation and not recorded AusNet span codes. It is noted that these areas were due for annual inspection post the completion of the field audit. - The remaining span code discrepancies related to codes "720" and "CC" and it is expected these spans will be monitored via normal assessment cycles. - The audit recommends that AusNet continue to utilise and develop its ELC procedures to ensure annual inspection programs are completed efficiently and vegetation database management is maintained to a high level of currency and accuracy. ***(Observation)***	

Full descriptions of key findings and recommendations are found in Section 3 and 4 of this report.

2. Audit Description

2.1 Context

Energy Safe Victoria (ESV) is responsible for the safety and technical regulation of electricity, gas and pipelines in Victoria. The role and functions of ESV are specified by the Energy Safe Victoria Act 2005.

An element of this responsibility is to regularly audit compliance of the Victorian Major Electricity Companies (MECs) to the various regulatory requirements. This particular audit focusses on compliance with the Electricity Safety (Bushfire Mitigation) Regulations 2013 and Electricity Safety (Electric Line Clearance) Regulations 2015.

2.2 Scope

The scope of the 2016 Bushfire Mitigation and Electric Line Clearance Audits is limited to:

- A desktop review of relevant elements of the nominated MECs Bushfire Mitigation Plan (BFMP) and Electric Line Clearance Management Plan (ELCMP); and
- Field auditing of a number of sites selected by ESV against the requirements of the Electricity Safety (Bushfire Mitigation) Regulations 2013 and Electricity Safety (Electric Line Clearance) Regulations 2015.
- The BFM audit will focus on:
    - The physical state of the assets;
    - The MEC's knowledge about the state of the system; and
    - The MEC's compliance with their current BFM plan.
- The ELC audit will focus on:
    - The accuracy of inspection data and work recommendations;
    - Vegetation clearance standards and compliance with the Code of Practice for electric line clearance; and
    - Vegetation management data reflects the status of field observations made at the time of the audit.

This particular audit report relates to the AusNet Services (AusNet) distribution network.

The key elements of the audit include:

- A desktop review of BFMP and ELCMP and associated data;
- Confirm asset and span inspections were completed as per the MEC plans;
- Validate the priority rating of both maintenance and line clearance items observed;
- Confirm that maintenance and/ or cutting activities were completed as per priority timeframes and work order expectations; and
- Validate the level of competency and understanding of field operatives engaged in BFM and ELC assessment and inspection activities.

2.3 Duration

Field auditing of the AusNet Services distribution network was conducted between 17th October 2016 and 25th October 2016. A total of 5 days field auditing of both BFM and ELC activities was completed.

Desktop review and analysis of field audit data in relation to the AusNet Services distribution network was conducted between 26th October 2016 and 16th November 2016.

This process included the submission of an interim summary report to ESV on 27th October 2016 and a follow-up report on 7th November 2016.

2.4 Methodology

The audit of AusNet (Distribution) compliance in relation to the Electricity Safety (Bushfire Mitigation) Regulations 2013 and Electricity Safety (Electric Line Clearance) Regulations 2015 was undertaken in accordance with the following methodology:

- Desktop review of AusNet Services BFMP and ELCMP and associated samples of asset inspection and electric line clearance database extracts;
- Field site audits across the AusNet Services distribution network accompanied by nominated AusNet distribution representatives;
- Field observations conducted on active asset and vegetation inspectors:
- Submission of an interim audit summary report; and
- Detailed review of 2016 field audit data and compilation of audit report.

2.5 Audit Criteria and Grading

The following audit criteria and grading's have been applied to the outcomes and recommendations of the field audit data and comparison to the BFMP and ELCMP as submitted by AusNet Services:

- **Compliant (C):** The audit found evidence of compliance with the applicable process or procedure and the process or procedure meet statutory and business requirements.
- **Noncompliance (NC):** A noncompliance is an action (or lack thereof) that could directly lead to an adverse impact relating to the reliability of electricity infrastructure or safety.
- **Minor Noncompliance (MNC):** A minor noncompliance is an action (or lack thereof) that could indirectly lead to an adverse impact relating to the reliability of electricity infrastructure or safety.
- **Opportunity for Improvement (OFI):** These findings do not indicate noncompliance and so do not require corrective action. They are offered as potentially beneficial feedback and an opportunity to improve performance.

2.6 Limitations

The purpose of this report and the associated services performed by ERP, is to provide an audit of AusNet Services (Distribution) compliance with their submitted BFMP and ELCMP and the associated regulations as described within the above scope in accordance with the Terms and Conditions as described in ESVs document titled "Perform Audits of Major Electricity Companies Bushfire Mitigation (Asset Condition) and Electric Line Clearance (Clearance to Code)" reference: MEC BFM & ELC Audits – EOI 2016.

Field site auditing was limited to observations of a sample of sites from packages as determined by ESV, by undertaking physical observations. Additional information was obtained from AusNet Services (Distribution) responsible officers and via conducting field observations on active asset and line clearance inspectors.

It is noted that reporting of asset related defects on poles or spans outside the sites audited was outside of the scope of this audit although arrangements were made with AusNet Services (Distribution) should any of these issues be observed.

3. Audit Report

3.1 Bushfire Mitigation (Asset Condition)

As a requirement of the Electricity Safety Act 1998 AusNet Services is required to submit, for approval by ESV, a Bushfire Mitigation Plan (5-yearly). The bushfire mitigation plan, in part, describes the procedures in plan to manage the requirements as set out in the Electricity Safety (Bushfire Mitigation) Regulations 2013. At the date of the audit it was noted that the version of the plan provided for reference was version "Draft 22" of document BFM 10-01.

Section 9.1 of the BFMP describes the monitoring process used by AusNet to monitor at risk assets (i.e. assets located in HBRA). An extract of Section 9.1 is provided below:

"The scheduling of works for 'at risk[1]' assets, which includes scheduled asset inspections and vegetation assessments, are monitored through the Bushfire Mitigation Index (BMI). The target during the declared fire season is for the completion of all works within the respective time based prioritisation schedule. Completion of scheduled works within the prioritised dates ensures the BMI produces a zero index. A zero index means that no works are outstanding beyond their scheduled dates."

The BFMP contains a table listing the activities monitored through the BMI and the timeframes for completion of identified works.

The following provides an overview of the key aspects of AusNet Services BFMP as they relate to the specific requirements of the BFM audit scope.

3.1.1 BFM Inspection Cycles and Priority Coding

AusNet Services BFMP describes pole inspection cycles with Section 10.1.

HBRA assets are subject to a 60 month inspection cycle comprising of two specific inspection processes offset by a period of 30 months:

- Cycle 1 – Ground Based Test & Inspection; and
- Cycle 2 – Aerial Based Inspection Cycle.

These cycles ensure assets in HBRA are inspected at intervals of less than 37 months as required by the regulations.

LBRA assets have traditionally been inspected in cycles according to the pole material i.e. timber poles (63 months) and concrete (123 months). The AusNet BFMP acknowledges the requirements to ensure LBRA assets are inspected at intervals not exceeding 61 months and the BFMP references a transition plan and ESV exemption covering this requirement.

ERP was provided with a copy of AusNet Services "Asset Inspection Manual" (30-4111, 13/10/2014) which provided both summaries of maintenance codes allocated by asset inspectors and the corresponding action required (AIM, Section2.1.1). The AIM also contains a detailed description of each asset type and the relevant maintenance coding and priorities (AIM, Section 11.1).

The AIM was utilised by the field auditor to validate information contained within the AusNet database extract provided and also any further observations made by the inspector during the field audits.

[1] 'at risk' = Assets located in hazardous bushfire risk areas.

3.1.2 Training and Competency of Asset Inspectors

AusNet's BFMP and Asset Inspection Manual describe the training and competency requirements for personnel required to undertake inspection of assets on their network. In relation to asset inspectors the following qualifications are listed:

- 22109VIC - Certificate II in Asset Inspection (up to 30th June 2015); and
- UET20612 - Certificate II in ESI – Asset Inspection (after 30th June 2015).

This is consistent with the Training Approval Statement issued by ESV on 20th May 2015.

3.1.3 BFM Database Extract (Desktop Review)

ESV provided ERP with a sample of AusNet Services BFM Database inclusive of 247 randomly selected sites across 6 feeders. The selected sites for detailed assessment were located on both roadside easements and within private property. The feeders audited were across AusNet's east, central and northern regions necessitating a significant amount of travel.

Figure 1 below provides a summary of the database information provided by ESV and the field audit sequence as completed across the AusNet Services territory.

FEEDER	No. POLES – AUDIT SAMPLE	Audit Order	ZSS
BDL44	71	**1**	**Bairnsdale**
SLE31	23	**2**	**Sale**
MOE31	45	**3**	**Moe**
FGY34	19	**4**	**Ferntree Gully**
WN2	59	**5**	**Wangaratta**
MSD1	30	**6**	**Mansfield**
Total	**247**		

Figure12 – Summary of AusNet Vegetation Management Database for Audit Purposes

A further 15 poles were audited at random (BDL – 8, SLE – 3, MOE – 4) outside the poles selected. The field auditor looked at these poles on the basis they were not included in the selection of assets that had defects previously reported and validated the poles had no outstanding defects or issues to report.

The following summary (Figure 2) provides an overview of findings relating to the desktop review of the sample of AusNet Services Vegetation Management database as provided by ESV.

Desktop Audit Results – Audit Sample Profile	Total	%
HBRA poles within sample	238	96%
LBRA poles within sample	9	4%
Total poles within sample	**247**	**100.0%**
HBRA poles (defects) allocated current priority code *(see notes below)*	238	100.0%
LBRA poles (defects) allocated current database code	9	100.0%
Total poles (defects) allocated a current priority code	**247**	**100.0%**

Figure 2: AusNet Services Vegetation Management Database Information Summary

The database sample contained 238 HBRA poles and 9 LBRA poles. The 247 poles within the ESV provided data had had defects reported at their most recent inspection. The database provided by AusNet contained the following definitions for the priority coding allocated within the database extract (Figure 3):

Code	Priority text	Target Completion
1	P1	1 DAY
2	P2	2 DAYS
3	P7	7 DAYS
4	P30	30 DAYS
5	P90	90 DAYS
6	P180	180 DAYS
7	P365	365 DAYS
8	P900	900 DAYS
9	P6Y	6 YEARS

Figure 3: AusNet Services Asset Maintenance Priority Codes

Each of the maintenance items audited within the database extract was allocated one of these codes. It was noted that the priority codes currently described within the BFMP and AIM have a prefix "PT" not "P" and a number of these codes aren't defined within the AIM version provided for the audit (e.g. P2, P7, P900, P6Y).

The field audit was conducted aligned to these priority codes and action completion timeframes.

All poles audited within the AusNet distribution area had been recently inspected i.e. between May and September 2016.

In summary the information contained within the database extract provided was generally easy to follow and contained sufficient information in relation to pole details, location, maintenance items and priorities.

3.1.4 Overview Field Audit and Sites Inspected:

Field Audits commenced in Bairnsdale on Monday 17th October 2016 and concluded in the Wangaratta / Mansfield area on Tuesday 25th October 2016. A total of 5 field auditing days were undertaken during this period. The Field Auditor was accompanied by (Technical Assessment Team Leader, Select Solutions) for the duration of the audit.

It was noted that the AusNet representative also provided electronic confirmation of previously recorded asset information via a hand-held PDA device which was utilised during the audit to further validate asset related information and location.

The field audits were undertaken as a non-invasive visual inspection of poles from ground level using typical asset inspection equipment and techniques, including a pole mounted camera to validate pole top asset and crossarm assessment details as required.

Figure 4 provides a summary of the poles attended and inspected during the field audit phase. A total of 119 poles were audited as part of the field audit process representing 48.2% of the audit sample provided. The field audit concentrated on validating pole information, previously recorded maintenance and defect items and recording additional items not contained within the database extract provided. During the field component of the audit a significant amount of travel was involved, including between selected poles. The poles audited were located on both private and public land and spread across the feeders selected for audit.

FEEDER	No. POLES – AUDIT SAMPLE	No. POLES – Detailed Inspection	Audit Order	ZSS
BDL44	71	12	**1**	**Bairnsdale**
SLE31	23	12	**2**	**Sale**
MOE31	45	26	**3**	**Moe**
FGY34	19	15	**4**	**Ferntree Gully**
WN2	59	30	**6**	**Wangaratta**
MSD1	30	24	**5**	**Mansfield**
Total	**247**	**119**		

Figure 4 – Summary of AusNet Vegetation Management Database for Audit Purposes

All poles audited were in HBRA with the exception of 5 poles on SLE31 (Sale) which were zoned LBRA.

In addition to the 119 poles audited as part of the database extract provided the field auditor assessed a further 15 poles chosen randomly in the Bairnsdale, Sale and Moe areas. The auditor reported in

each case that the poles randomly audited were in good condition and that no obvious defects were present.

Of the sites attended in the field the information was generally verified as accurately recorded in the sample BFM Database across the categories of inspection assessment, priority listing and inspection date data. The auditor also confirmed the most recent inspection date by checking the pole inspection label at each site. Comments within the database provided also reflected the works required to rectify the main maintenance items identified and recorded.

The following is a summary of the field auditor's assessment of the data recorded for the 119 poles audited from the extract of the database provided by ESV:

- The audit findings validated maintenance items and priority ratings recorded within the database for each of the poles audited.
- The audit verified that works had been completed at 15 sites as per the findings of the previous asset inspection cycle and works on 3 poles were progressing on the day of the audit (WN2).
- sites were identified with missing LV spreaders (FGY34 x 1, WN2 x 1).
- U/S poles, coded P90, (MOE31 x 4, MSD1 x 1) were noted as being overdue for replacement. of the poles had previously recorded inspection dates in late May 2016 whilst the remaining were inspected in July 2016.
- additional minor maintenance items were recorded by the field auditor and relate to a cut-away/ missing L/A lead (MOE31), a chipped LV insulator and a chipped HV bushing insulator (FGY34).

A further 15 poles were randomly selected by the field auditor and visually inspected. As these poles were not included within the audit data set it was assumed that no maintenance items had been recorded against them at their previous inspection. The auditor verified that there was no obvious maintenance items outstanding on the additional poles audited.

The following table (Figure 5) provides details of the additional items recorded or noted by the field auditor as requiring monitoring or follow-up during the recent field audit:

Cammo #	Feeder	Date Insp.	Date Audited	Additional Item or Field Audit Note	Comments
2208108	MOE31 (HBRA)	27/5/16	18/10/16		
2208113	MOE31 (HBRA)	27/5/16	18/10/16		
2208544	MOE31 (HBRA)	8/8/16	18/10/16		
2210406	MOE31 (HBRA)	18/7/16	18/10/16		
2210407	MOE31 (HBRA)	18/7/16	18/10/16		

1216503	FGY34 (HBRA)	3/8/16	19/10/16	[redacted]	[redacted]
1216513	FGY34 (HBRA)	9/8/16	19/10/16	[redacted]	[redacted]
1216544	FGY34 (HBRA)	9/8/2016	19/10/16	[redacted]	[redacted]
5106625	WN2 (HBRA)	21/6/16	25/10/16	[redacted]	[redacted]
3914408	MSD1 (HBRA)	13/7/16	25/10/16	[redacted]	[redacted]

Figure 5: Additional Items and Notes Recorded by Field Auditor

Complete field audit records and photographs are attached as Appendix 3 to this report.

3.1.5 Active Asset Inspector Observations and Findings:

The field auditor observed a number of active asset inspectors undertaking inspection works as part of the recent field audit. The following asset inspectors were observed by the field auditor:

- [redacted] (Buln Buln x 3 sites)
- [redacted] (Berwick x 3 sites)
- [redacted] (Rutherglen)
- [redacted] (Rutherglen)

In the auditors opinion each of the asset inspectors observed was very knowledgeable about the requirements of the Asset Inspection role, demonstrated a great work ethic and took pride in the work that they did. The auditor reported that the asset inspectors observed completed all tasks required at the assets being inspected, identified and recorded relevant information and had all relevant equipment to complete the tasks observed.

The field auditor reported no concerns in this area of the audit process.

A copy of the checklist used by the field auditor to undertake the Asset Inspector observations is attached in Appendix 5.

3.1.6 Summary of BFM Audit

BFM Field Audit Findings by Feeder:

Feeder	Summary of Findings
BDL44 Bairnsdale	[redacted]
SLE31 Sale	[redacted]

MOE31 Moe	[redacted]
FGY34 Ferntree Gully	[redacted]
WN2 Wangaratta	[redacted]
MSD1 Mansfield	[redacted]

Figure 5 above provides details of each of the additional items recorded. The main items of concern being [redacted] low voltage HBRA spans with missing LV spreaders. These items have been reported to AusNet and are expected to be rectified in line with their maintenance policies and BFM plan. It is recommended that AusNet provide feedback to ESV regarding their review of the sites missing LV spreaders and details of any corrective actions initiated.

An observation regarding the status of [redacted] unserviceable poles was recorded by the field auditor i.e. the poles appear to be past their due replacement date. AusNet have provided confirmation that they are aware of the poles beyond their due date for replacement – primarily due to recent work cancellations due to a significant emergency storm event (refer AusNet response received 28/10/16). It is expected these assets will be managed by normal AusNet maintenance and BFM procedures. It is recommended that AusNet provide further information to ESV confirming the status of the poles overdue for replacement and the management processes in place to monitor poles overdue for replacement.

Observations completed on four active asset inspectors were extremely positive. Each inspector demonstrated sound asset inspection techniques and completed the observed works as required. The

field auditor also noted the efficiency and diligence of the asset inspectors and the pride they took in completing their works to a high standard.

In general the field audit findings indicate that records and information relating to the general state of the assets audited accurately reflects their condition. The information contained within the database extract provided, including asset details, recorded defects and maintenance priorities, was validated at each site audited with only isolated instances of additional items being recorded.

The audit concludes, that for the assets audited, AusNet is managing its asset inspection and maintenance programs as per its BFMP and in line with the requirements of its AIM manual. Isolated instances of additional maintenance items were observed and have been forwarded to AusNet for appraisal and action as required. It was noted that there were some inconsistencies between the priority coding descriptions within the AIM and BFMP which should be addressed to ensure consistency across AusNet documentation.

3.2 Electric Line Clearance (Clearance to Code)

As a requirement of the Electricity Safety (Electric Line Clearance) Regulations 2015 [Clause 9. Management Plans] AusNet Services submitted its *"Vegetation Management Plan"* to ESV for review in March 2016. At the date of the audit it was noted that the version of the plan referenced was dated 10th March 2016, Version 22.

At the time of the audit AusNet Services engaged the services of Select Solutions as their Vegetation Management Company (VMC).

The following provides an overview of the key aspects of AusNet Services ELCMP as they relate to the specific requirements of the ELC audit scope.

3.2.1 ELC Activity Cycles and Priority Coding

AusNet Services ELCMP indicates that both HBRA and LBRA spans are assessed at least annually. Shorter inspection cycles are implemented if anticipated re-growth determines there is a likelihood of vegetation becoming noncompliant between assessment periods. (ELCMP, Section 4.2.2).

AusNet Services maintains clearance spaces surrounding distribution powerlines through cutting and pruning cycles with varying intervals according to location and anticipated regrowth rates. The maintenance intervals (ELCMP, Section 4.4) have the following ranges:

- HBRA – 6 months to 3 years, and
- LBRA – 6 months to 2 years.

AusNet also describe bushfire preparedness auditing programs (pre and during declared fire seasons) in procedure BFM 21-85.

AusNet describes assessment codes in its document titled VEM 20-03 "Assessment Procedures". Assessment codes are described as "Action Codes", "Non-Action Codes" and "ORP Action Codes".

The following description of code PT180 may require review as the way it currently reads is that there **is** a threat to assets from vegetation.

*The definitions of the PT180 assessment code are such that there is little or no risk that vegetation will **not** pose a threat to AusNet Services' assets within the next 180 days but will require clearing to maintain code clearance.*

3.2.2 Training and Competency of ELC Assessors:

AusNet's ELCMP (Section 11.2) describes the training and competency requirements for vegetation assessors, in particular the qualification "Certificate II ESI – Powerline Vegetation Control (UET20312)".

3.2.3 Vegetation Database Extract (Desktop Review)

ESV provided ERP with a sample of AusNet Services Vegetation Management Database including 373 randomly selected spans across 6 feeders. The selected spans for detailed assessment were located on both roadside easements and within private property. The feeders audited were across AusNet's east, central and northern regions necessitating a significant amount of travel.

ERP, in consultation with the field auditor, added a further 69 spans to the original ESV selected spans for the Mansfield area.

Figure 6 below provides a summary of database information provided by ESV and the field audit sequence as completed across the AusNet Services territory.

FEEDER	No. SPANS – AUDIT SAMPLE	Audit Order	ZSS
BDL4	49	**1**	**Bairnsdale**
SLE31	51	**2**	**Sale**
MOE31	69	**3**	**Moe**
FGY34	70	**4**	**Ferntree Gully**
WN2	51	**5**	**Wangaratta**
MSD1	83	**6**	**Mansfield**
Total	**373**		

Figure 6 – Summary of AusNet Vegetation Management Database for Audit Purposes

The following summary (Figure 7) provides an overview of findings relating to the desktop review of the sample of AusNet Services Vegetation Management database as provided by ESV.

Desktop Audit Results – Audit Sample Profile	Total	%
HBRA spans within sample	246	66%
LBRA Spans within sample	127	34%
Total spans within sample	**373**	**100%**
HBRA spans – undeclared	244	65%
HBRA spans - declared	2	0%
LBRA spans – undeclared	55	15%
LBRA spans – declared	72	20%
Total spans within sample – declaration status	**373**	**100%**
HBRA spans allocated current database code	246	100%
LBRA spans allocated current database code	127	100%
Total spans allocated a current database assessment code	**373**	**100%**
HBRA spans within ELCMP inspection guidelines	246	100%
LBRA spans within ELCMP inspection guidelines	127	100%
Total spans within ELCMP inspection guidelines	**373**	**100%**

Figure 7: AusNet Services Vegetation Management Database Information Summary

The data audited indicated that 100% of the spans contained within the sample had an inspection date recorded within the previous 12 month period aligning with the requirements of Clause 4.4 of AusNet Services "Vegetation Management Plan" in relation to inspection cycles.

127 LBRA spans had a previous inspection date of November/ December 2015 and it is expected, as per AusNet inspection cycles (ELCMP 4.2.2), the spans would be due for an annual assessment. It was noted that 28 of these spans have records indicating they had been cut during 2016.

In summary the information contained in the sample database was easy to follow, contained sufficient detail to identify spans, inspection, cutting and database coding and outstanding works.

Span codes within the database are allocated a prefix of either "PT" (indicating the code priority) or "C" (indicating the span has been cut to the particular code). Assessment codes are also segregated into "Action Codes" and "Non-Action Codes" indicating whether re-assessment or cutting activity is required or whether the span is expected to remain compliant until the next assessment cycle.

It should be noted that the database information audited was provided to ERP on 27th September 2016 with the field audit being conducted between the 17th and 25th October 2016 and therefore the following field audit observations in some cases may not be reflective of the current AusNet master vegetation management database if records contained within the sample have been recently updated.

3.2.4 Overview of Field Audit and Sites Inspected

Field Audits commenced in Bairnsdale on Monday 17th October 2016 and concluded in the Wangaratta area on Tuesday 25th October 2016. A total of 5 field auditing days were undertaken during this period. The Field Auditor was accompanied by (Field Officer, Select Solutions) for audit sequence 1 to 3 and (Field Officer, Select Solutions) for audit sequence 4. During audits at Wangaratta and Mansfield the auditor as accompanied by (Field Officer, Select Solutions) for audit sequence 5 and 6. (Field Officer, Select Solutions) joined the audit for sequence 5.

Figure 8 provides a summary of the spans attended and inspected during the field audit phase. A total of 192 spans were attended as part of the field audit process representing 51.5% of the audit sample provided. Compliance and span coding data was captured for these spans.

The field auditor reported that due to significant ground water in some areas covered access to spans was by foot only.

FEEDER	No. SPANS – AUDIT SAMPLE	No. SPANS – Detailed Inspection	Audit Sequence	ZSS
BDL4	49	11	**1**	**Bairnsdale**
SLE31	51	35	**2**	**Sale**
MOE31	69	25	**3**	**Moe**
FGY34	70	43	**4**	**Ferntree Gully**
WN2	51	34	**5**	**Wangaratta**
MSD1	83	44	**6**	**Mansfield**
Total	**373**	**192**		

Figure 8: AusNet Services Spans Attended During Field Audit Cycle

Figure 9 provides an overview of the Fire Area and Declared status for the spans audited within the field.

Spans Audited in the Field	# Spans	%
HBRA		
Undeclared	116	62%
Declared	2	0%
LBRA		
Undeclared	15	8%
Declared	59	30%
Total	**192**	**100.0%**

Figure 9: AusNet Services Spans Audited by Fire Area

The field audit objective was to assess clearance to code via a detailed line clearance inspection across a wide geographic area. The field audit achieved the objective gathering data from a sample of spans from each feeder within the sample database.

Of the sites attended in the field of the information was generally verified as accurately recorded in the sample Vegetation Management Database across the audit categories of inspection, cut and span compliance information.

The field auditor recorded that in his opinion, and taking into account his observations at the time of the audit, the previously recorded Inspection Code for the spans he observed was accurate in relation to AusNet responsible vegetation. Comments contained within the database extract also confirmed identification of ORP vegetation requiring management.

[redacted] spans were audited where there was a difference between the current span code within the database and that recorded by the field auditor.

- [redacted] of these spans refer to the coding given to non-code compliant spans. These spans are discussed further in Section 3.2.5.
- [redacted] spans with a latest span code of "720" were assessed by the field auditor as "CC".
- [redacted] spans coded as "CC" were assessed as "720" by the field auditor indicating there was potentially vegetation present that would require monitoring during future inspection cycles.
- [redacted] spans currently coded as "365" were assessed as "720" by the field auditor.

In relation to Current Span Code discrepancies the field audit results indicate very few spans where there was an obvious discrepancy between the recorded inspection data and the field observation and assessment undertaken by the field auditor. Excluding the spans identified with non-code compliant vegetation there are no immediate concerns with the remaining spans audited.

The audit evidence indicates that inspection and data recording processes provide an effective basis for determining vegetation management compliance requirements with few inconsistencies recorded.

3.2.5 Current Code Compliance Assessment

The current code compliance assessment of each of the spans audited provides a summary of the Field Auditors ground observation of the current vegetation clearance against the requirements of the Code of Practice "Minimum Clearance Space" required taking into account the area Fire Rating, voltage, expected re-growth, conductor / asset type and span distances.

The field auditor also assessed whether the responsibility for managing vegetation within the audited span was AusNet Services, a local council or other responsible person.

The field auditor observed [redacted] spans as containing noncompliant vegetation (one span had both DB and council vegetation identified). Responsibility for trees identified within the [redacted] spans was assessed as:

- DB Responsibility – vegetation in [redacted] spans
- Council Responsibility – vegetation in [redacted] spans
- ORP Responsibility – vegetation in [redacted] span

Comments contained within the AusNet vegetation management database extract identified the assessed ORP noncompliant trees. The [redacted] spans assessed as containing noncompliant vegetation (DB responsible) related to crossover services in LBRA zones.

Figure 10 provides a summary of the audit findings in relation to current span compliance.

Spans audited in the field	Audited	Noncompliant Spans	%	Noncompliant Span - DB Responsible	Noncompliant Span - ORP
HBRA					
Undeclared	116	[redacted]	[redacted]	-	[redacted]
Declared	2	[redacted]	[redacted]	-	-
LBRA					
Undeclared	15	[redacted]	[redacted]	[redacted]	-
Declared	59	[redacted]	[redacted]	[redacted]	[redacted]
Total	**192**	[redacted]	[redacted]	[redacted]	[redacted]

Figure 10: AusNet Services Field Audit Span Compliance Assessment Summary

The following table (Figure 11) provides a summary of the observed non-code compliant spans. Photographs of the non-code compliant spans identified are attached in Appendix 4.

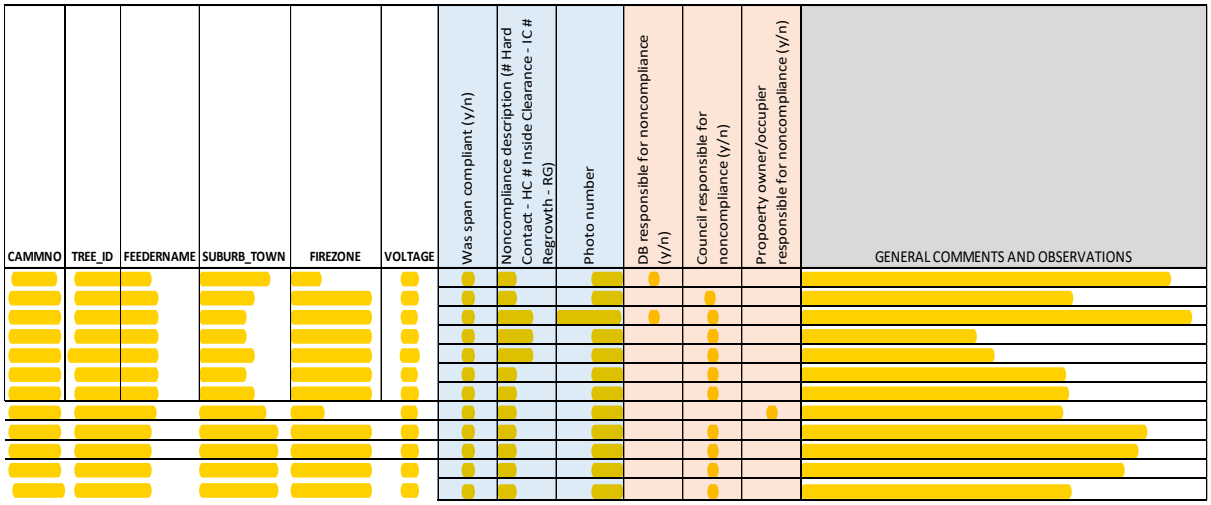


Figure 11: Non-code Compliant Spans – AusNet Distribution

Note: *A summary of the DB non-code compliant spans was forwarded to AusNet via ESV on 7th November 2016 as part of the Interim Audit Summary Report.*

118 spans audited had a previous cut date recorded. Although some of the dates ranged back to 2004 there were only [redacted] spans containing noncompliant AusNet vegetation – both related to crossover service cables. [redacted] spans had latest cut dates recorded between 2014 and 2016 and contained only [redacted] noncompliant crossover service. For the sample audited this result indicates that cutting and maintenance cycles are in general delivering positive results relating to span compliance.

The field auditor's observations supported by an analysis of the audit data indicate that the processes AusNet have in place to manage ELC are in general effective in managing clearance to code requirements. Isolated instances of non-code compliant spans were identified within the sample audited however this finding did not reflect a systemic issue in the management of electric line clearance.

The field auditor did comment that whilst AusNet managed trees observed during the audit appear to be well maintained there was evidence of council managed trees in LBRA Declared areas that required attention. The [redacted]

In relation to noncompliant ORP spans identified on feeders [redacted] and [redacted] it is noted that these spans were coming due for their annual inspection and it is expected AusNet will validate and manage the audit findings per their internal ELC processes. Previously recorded assessment dates for these spans was November 2015.

3.2.6 Active Vegetation Assessor Observations

The field auditor was accompanied on the audit by various Select Solutions Vegetation Assessment experts (Field Officers). During the course of the audits the field auditor took the opportunity to observe each of the Select Solutions representatives conduct span assessments.

During the audit the following experienced vegetation assessment personal (Field Officers) were observed by the field auditor:

- [redacted](Gippsland)
- [redacted](Ferntree Gully)
- [redacted](Northern Area)
- [redacted](Northern Area)

In the auditors opinion each of the assessors observed were very knowledgeable with the requirements of the Vegetation Assessment role, demonstrated a great work ethic and took pride in the work that they did. The field auditor also made comment that each of the Field Officers showed a genuine concern for the work they were undertaking and recognised the critical role they played.

The field auditor reported no concerns in this area of the audit process.

A copy of the checklist used by the field auditor to undertake the Asset Inspector observations is attached in Appendix 5.

3.2.7 Summary of ELC Audit

ELC Field Audit Findings per Feeder:

Feeder	Summary of Findings
BDL4 Bairnsdale	[redacted]
SLE31 Sale	[redacted]
MOE31 Moe	[redacted]
FGY34 Ferntree Gully	[redacted]

Feeder	Summary of Findings
WN2 Wangaratta	[redacted]
MSD1 Mansfield	[redacted]

The field audit observed [redacted] spans where vegetation was within the clearance space that require follow-up action. [redacted] LBRA spans contained crossover services that were assessed as the responsibility of AusNet.

[redacted] Declared spans were observed where vegetation was noncompliant and the responsibility of local councils. Each of these spans had "ORP" comments recorded within the database supplied by AusNet indicating they had been previously recorded. [redacted] of the trees have been coded as "P1" by the field auditor as they have progressed through the LV conductors.

Whilst only a small sample was audited the presence of council trees within the clearance space, and in some cases growing through overhead LV conductors, presents an potential risk to the security of supply and the effected AusNet assets. AusNet has processes in place to notify and follow-up ORPs in relation to identified ELC code compliance issues however the field evidence collected from both the FGY34 and WN2 feeder audits suggests these processes may not always be achieving the desired outcomes in terms of vegetation clearance. The audit noted that both council areas were due for annual auditing and it expected AusNet will assess and manage correspondence with the relevant councils per its internal ELC procedures.

[redacted] span was identified with private vegetation contacting a service cable. This span has been recorded within the AusNet system and may require follow-up.

There were isolated instances where the auditors span code assessment differed from the latest recorded span code. Excluding spans containing noncompliant vegetation [redacted] spans were recoded as either "720" or "CC" by the field auditor. It is expected these spans would be monitored via cyclic assessment programs.

Observations conducted on Select Solutions Field Officers responsible for the assessment of vegetation on the AusNet network were extremely positive with the auditor very complimentary of both the skill and attitude of the individuals observed.

The audit observations support the conclusion that AusNet Services is managing its line clearance as per the requirements of its ELCMP. The observations of the field auditor and analysis of the data provided indicated that AusNet are progressing well with pre-summer auditing of HBRA spans and there was clear evidence in the audited areas of both good pruning practices and well maintained vegetation clearance spaces.

4. Audit Findings and Recommendations

4.1 BFM Audit Recommendations

- **Physical state of the assets**
  - In general the audit found that AusNet assets audited were in a condition reflective of the data provided at the time of audit with defect items accurately recorded and coded for action as required.
  - sites were observed where there were missing LV spreaders. It is recommended that AusNet rectify these sites as per its maintenance policies and investigate why these items weren't recorded during their recent inspection cycle.
  - unserviceable poles were identified beyond their initial due date for replacement. It is recommended that AusNet provide further information to ESV confirming the status of the poles overdue for replacement and the management processes in place to monitor poles overdue for replacement.
  - It is recommended that AusNet continue to monitor the condition of its assets via its current inspection cycles and practices as the audit outcome indicates that the database information in general reflected the condition of assets in the field.
- **MEC's knowledge about the state of the system**
  - The field audit validated the site location information and previously recorded defects and required actions recorded for each of the poles inspected.
  - The audit concluded that systems and processes in place provide AusNet with reliable knowledge of the state of their system and the assets audited.
  - The audit has made no recommendations.
- **Compliance with current BFM plan**
  - The audit found that AusNet was managing its inspection cycles and asset inspection processes as per its current BFM plan.
  - The audit found unserviceable poles overdue for replacement and AusNet have provided a response indicating these are being monitored and managed via internal processes including its Bushfire Mitigation Index.
  - The audit observed that maintenance priority coding within the BFMP and AIM had a slightly different prefix (PT) to the definitions provided with the database information (P). It is expected these will be reviewed when the documents are next edited.
  - The audit recommends that AusNet continue to manage and monitor defect and maintenance items per its current procedures and processes to ensure ongoing compliance with its BFMP.

4.2 ELC Audit Recommendations:

- **The accuracy of inspection data and work recommendations**
  - AusNet's database information was in general validated as accurate, easy to follow and contained information consistent with the requirements of AusNet's ELCMP.
  - The field auditor recorded that in his opinion, and taking into account his observations at the time of the audit, the previously recorded Inspection Code for the spans he observed was accurate in relation to AusNet responsible vegetation.
  - Comments contained within the database extract also confirmed identification of ORP vegetation requiring management.
  - The audit recommends that AusNet continue to utilise and develop its ELC procedures to ensure annual inspection programs are completed efficiently and vegetation database management is maintained to its high levels of currency and accuracy.
  - An opportunity for improvement was identified for AusNet to consider reviewing the current definition for code PT180 within document VEM 20-03 (refer Section 3.2.1 of this report) –

current wording appears to be ambiguous e.g. "*The definitions of the PT180 assessment code are such that there is little or no risk that vegetation will **not** pose a threat to AusNet Services' assets within the next 180 days but will require clearing to maintain code clearance*."

- **Vegetation clearance standards and compliance with the Code of Practice for electric line clearance**
  - Information within the database indicated AusNet was well advanced in its pre-summer HBRA inspection program.
  - The field auditor made comment that AusNet managed vegetation in the areas audited was generally maintained to a high standard with clearance spaces being maintained.
  - Positive observations were conducted on each of the Select Solutions Field Officers assisting the auditor.
  - spans containing non-code compliant vegetation were recorded.
  - AusNet was assessed as responsible for two overhead services where vegetation was assessed as within the clearance space. Both were in LBRA.
  - spans were identified containing non-code compliant council vegetation.
  - private service cable was identified in HBRA with hard contact from a private tree.
  - The audit noted that areas identified with noncompliant council responsible vegetation (FGY34 and WN2) were due for annual inspection post the date the field audit was conducted.
  - It is recommended that AusNet ensure ORP noncompliant vegetation is managed per its ELCMP expectations and notification processes to ensure the ongoing security of its network assets and to ensure appropriate escalation processes are in place in instances where ORP vegetation is not cleared in a timely or effective manner.
- **Vegetation management data reflects the status of field observations made at the time of the audit.**
  - spans were audited where there was a difference between the current span code and that recorded by the field auditor.
  - recorded discrepancies related to ORP vegetation and not recorded AusNet span codes. It is noted that these areas (Ferntree Gully and Wangaratta) were due for annual inspection post the completion of the field audit.
  - The remaining recoded spans were assessed as either code "720" and "CC" and it is expected these spans will be effectively managed via ongoing inspection and assessment cycles.
  - The audit recommends that AusNet continue to utilise and develop its ELC procedures to ensure annual inspection programs are completed efficiently and vegetation database management is maintained to its high levels of currency and accuracy.

5. Acknowledgement

Electrical Resource Providers would like to thank the AusNet Distribution Representatives who have assisted throughout this audit process by providing information, advice and their time to assist in a productive and co-operative manner.

Particular thanks is forwarded to the following AusNet employees and representatives:

- [redacted] (for assisting with each day with the BFM field audits).
- [redacted] (for assisting with each day with the ELC field audits).
- [redacted] (for assisting with audit preparations, follow-up and ensuring the required resources were available for the field audit to be efficiently executed).

Appendices

Appendix 1 – Document Register

Appendix 2 – AusNet Services Audit Plan

Appendix 3 – AusNet Services BFM Database (Field Audit Notes) (Separate Attachment)

Appendix 4 – AusNet Services ELC Database (Field Audit Notes) (Separate Attachment)

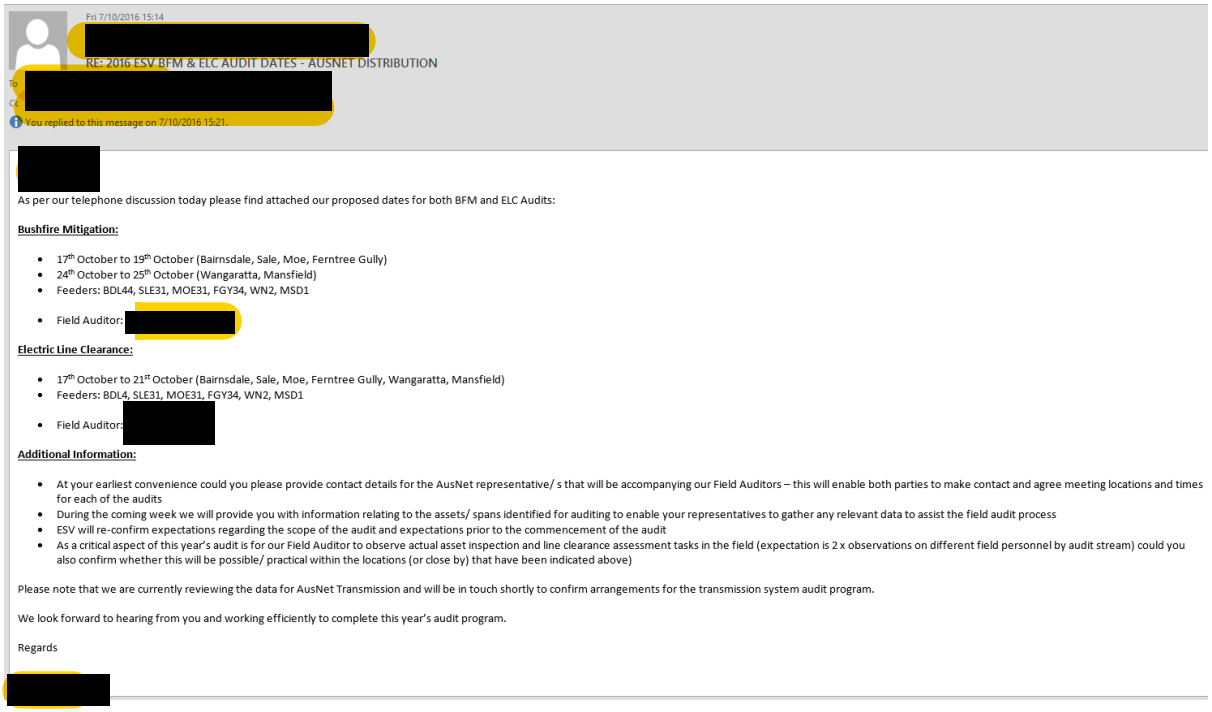
Appendix 5 – Sample Asset Inspection and Vegetation Assessor Audit Checklist

Appendix 1 - Document Register

The following key documents were collected, examined and / or reviewed during the audit:

Document Description	Document Source	Date Sourced
Invitation for expression of interest – PERFORM AUDITS OF MAJOR ELECTRICITY COMPANIES BUSHFIRE MITIGATION (ASSET CONDITION) AND ELECTRIC LINE CLEARANCE (CLEARANCE TO CODE)	[redacted]	5th August 2016
Electricity Safety (Electric Line Clearance) Regulations 2015 Version: 28th June 2015	www.esv.vic.gov.au	1st September 2016
Electricity Safety (Bushfire Mitigation) Regulations 2013 Version: 1st May 2016	www.esv.vic.gov.au	1st September 2016
2016 Safety Performance Report on Victorian Electricity Networks Version: 30 September 2016	www.esv.vic.gov.au	1st November 2016
Various AusNet Reference Documents, including: - Bushfire Mitigation Plan - ELCMP - Asset Inspection Manual - Various operational procedures	[redacted]	5th October 2016
Extract of AusNet Vegetation Management Database Version: ESV Modified	[redacted]	27th September 2016
Extract of AusNet Asset Management Database Version: ESV Modified	[redacted]	22nd September 2016
Interim Reports submitted to ESV: - Version 1 (28th October 2016) - Version 2 (7th November 2016) - Version 3 (4th December 2016)	[redacted]	Initial – 28th October 2016

Appendix 2 – AusNet Services Audit Plan



Fri 7/10/2016 15:14

[redacted]

RE: 2016 ESV BFM & ELC AUDIT DATES - AUSNET DISTRIBUTION

To [redacted]

Cc

You replied to this message on 7/10/2016 15:21.

[redacted]

As per our telephone discussion today please find attached our proposed dates for both BFM and ELC Audits:

Bushfire Mitigation:

- 17th October to 19th October (Bairnsdale, Sale, Moe, Ferntree Gully)
- 24th October to 25th October (Wangaratta, Mansfield)
- Feeders: BDL44, SLE31, MOE31, FGY34, WN2, MSD1
- Field Auditor: [redacted]

Electric Line Clearance:

- 17th October to 21st October (Bairnsdale, Sale, Moe, Ferntree Gully, Wangaratta, Mansfield)
- Feeders: BDL4, SLE31, MOE31, FGY34, WN2, MSD1
- Field Auditor: [redacted]

Additional Information:

- At your earliest convenience could you please provide contact details for the AusNet representative/ s that will be accompanying our Field Auditors – this will enable both parties to make contact and agree meeting locations and times for each of the audits
- During the coming week we will provide you with information relating to the assets/ spans identified for auditing to enable your representatives to gather any relevant data to assist the field audit process
- ESV will re-confirm expectations regarding the scope of the audit and expectations prior to the commencement of the audit
- As a critical aspect of this year's audit is for our Field Auditor to observe actual asset inspection and line clearance assessment tasks in the field (expectation is 2 x observations on different field personnel by audit stream) could you also confirm whether this will be possible/ practical within the locations (or close by) that have been indicated above)

Please note that we are currently reviewing the data for AusNet Transmission and will be in touch shortly to confirm arrangements for the transmission system audit program.

We look forward to hearing from you and working efficiently to complete this year's audit program.

Regards

[redacted]

Note: following consultation with AusNet the Audits were conducted in two phases:

- 17th October to 19th October
- 24th October to 25th October

Appendix 3 – AusNet BFM Database & Photos (Field Audit Notes) (Separate Attachment)

Appendix 4 – AusNet ELC Database & Photos (Field Audit Notes) (Separate Attachment)

Appendix 5 – Sample Asset Inspection and Vegetation Assessor Audit Checklist

ASSET INSPECTION QUALITY AUDIT CHECKLIST
2016 ESV ASSET INSPECTION PROGRAM

Date:	Time:	Location:
DB:		
LIS/ Pole Reference:		Auditors:

Asset Inspection Compliance		Compliance				Action / Comments
		N/A	Yes	Corr. Act.	Non Conf	
1	Is species of pole recorded?	☐	☐	☐	☐	
2	Is disc year recorded?	☐	☐	☐	☐	
3	Is location description correct?	☐	☐	☐	☐	
4	Is LIS number fitted?	☐	☐	☐	☐	
5	Is pole disc data recorded?	☐	☐	☐	☐	
6	Are important structures recorded?	☐	☐	☐	☐	
7	Are surge diverters recorded?	☐	☐	☐	☐	
8	Are HV fuses recorded?	☐	☐	☐	☐	
9	Are voltages recorded?	☐	☐	☐	☐	
10	Are other users recorded?	☐	☐	☐	☐	
11	Is staking information recorded?	☐	☐	☐	☐	
12	Is inspection tag dated/ fitted?	☐	☐	☐	☐	
13	Has 300mm excavation been undertaken?	☐	☐	☐	☐	
14	Has a pole top inspection been undertaken using stabilised binoculars and telescopic camera?	☐	☐	☐	☐	
15	Has sounding been undertaken? (to be completed from 2m above ground line into excavation)	☐	☐	☐	☐	
16	Has below ground inspection been undertaken? (If pole has signs of decay all deteriorated material should be removed to see extend of decay)	☐	☐	☐	☐	
17	Is there an inspection hole?	☐	☐	☐	☐	
18	Has a 12mm inspection hole been drilled?	☐	☐	☐	☐	
19	Has back fill been completed?	☐	☐	☐	☐	
20	Has wood preservation been completed?	☐	☐	☐	☐	
21	Have private lines been inspected?	☐	☐	☐	☐	
22	Agree with Inspector on maintenance found?	☐	☐	☐	☐	
23	Are appropriate manuals and reference information available onsite?	☐	☐	☐	☐	
24	Other?	☐	☐	☐	☐	

Work Quality		Compliance				Action / Comments
		N/A	Yes	Corr. Act.	Non Conf	
25	Has correct amount of pole preserver been used?	☐	☐	☐	☐	
26	Have plugs been fitted?	☐	☐	☐	☐	
27	Has bio-guard been fitted correctly?	☐	☐	☐	☐	
28	Was work site clean and tidy?	☐	☐	☐	☐	

Page 1 of 2

Document No.: [illegible]
Revision: 1
Review Date: 29/09/2016

General Comments:

Work Party Members & Qualifications (Verified Onsite)		
Asset Inspection Personnel		**Qualifications/ Authorities**

Definitions:	
N/A	Not Applicable.
Yes	The item was found to be compliant (correct).
Corr. Act.	Corrective Action, corrective action was required to be taken at the time of the Field Inspection.
Non Conf.	Non Conformance - does not meet the minimum standard.

Photo's (attach photographs of site inspected)

ELECTRIC LINE CLEARANCE INSPECTION QUALITY AUDIT CHECKLIST
2016 ESV ELECTRIC LINE CLEARANCE PROGRAM

Date:	Time:	Location:
DB:		
LIS/ Pole Reference:		Auditors:

Electric Line Clearance Assessment Compliance		Compliance				Action / Comments
		N/A	Yes	Corr. Act.	Non Conf	
1	Is correct location verified?	☐	☐	☐	☐	
2	Is location description correct?	☐	☐	☐	☐	
3	Is LIS/ Pole number fitted?	☐	☐	☐	☐	
4	Is correct voltage/ s recorded?	☐	☐	☐	☐	
5	Are DB spans identified?	☐	☐	☐	☐	
6	Are Council spans identified?	☐	☐	☐	☐	
7	Are PELs identified?	☐	☐	☐	☐	
8	Has all vegetation within the effected span (including customer services) been identified and recorded?					
9	Is vegetation type correctly identified?	☐	☐	☐	☐	
10	Is the assessed vegetation code correct?	☐	☐	☐	☐	
11	Agree with Assessor on inspection findings?	☐	☐	☐	☐	
12	Are appropriate manuals and reference information available onsite?	☐	☐	☐	☐	
13	Have any general pole or asset defects been identified and recorded?					
14	Other?	☐	☐	☐	☐	

Work Quality		Compliance				Action / Comments
		N/A	Yes	Corr. Act.	Non Conf	
15	Has the clearance between vegetation and electric lines been validated?	☐	☐	☐	☐	
16	Has all required information been recorded?	☐	☐	☐	☐	
17	Have appropriate customer notifications been carried out?	☐	☐	☐	☐	

General Comments:

Document No.: [illegible]
Revision: 1
Review Due: 29/09/2016

Work Party Members & Qualifications (Verified Onsite)		
Assessment Personnel		**Qualifications/ Authorities**

Definitions:	
N/A	Not Applicable.
Yes	The item was found to be compliant (correct).
Corr. Act.	Corrective Action, corrective action was required to be taken at the time of the Field Inspection.
Non Conf.	Non Conformance - does not meet the minimum standard.

Photo's (attach photographs of site inspected)