Bushfire Mitigation Plan 2022-2023

Documented Information			
Document Number	AU-3008-OPS-PHA-EL-PLN-00001	**Version Number**	2
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Document Owner	Yuriy Odarenko	**Controlled Document (Y or N)**	Y
Document Approver	Cesar Salvatierra		

Table of Contents

1. Purpose

The purpose of this plan is to prepare and comply with the requirements to the *Electricity Safety (Bushfire Mitigation) Regulation 2013.* This plan sets out the vision and actions in order to meet this regulation and is to be reviewed annually and submitted to the ESV prior to the 30th of June each year.

2. Definitions

For the purposes of this document, the following terms and definitions apply:

Term	Definition/Abbreviations
Authorised Person	A person with sufficient technical knowledge or experience and authorised by the HV Authority to perform tasks that ascertain to the HV plant under their letter of authorisation
CFA	Country Fire Authority
DFDP	A period of time in which the CFA declare to be a fire danger period undersection 4 of the Country Fire Authority Act 1958
ESV	Energy Safe Victoria

3. Document approval

:

Name / Originator	Title	Description	Date	Signature
Yuriy Odarenko	Senior Operations Engineer	Author	19/10/22	
Adrian Ciccocioppo	Production Manager	Reviewer	19-10/22	
Cesar Salvatierra	Executive Manager Operations	Authoriser	20/10/22	

Applicable Sites

Portland Wind Farm

The land on which the three stages of Portland Wind Farm are established consists of a combination of grassed pastures and sand dune scrub and is used where possible for low density sheep and cattle grazing. There are trees within the boundaries of the wind farm however there are none in close proximity of the turbines or substations and all overhead lines are kept clear according to Electricity Safety (Electric Line Clearance) Regulations 2020.

The farms associated overhead lines are located on both road reserve and public/private lands. The vegetation along the overhead lines is a mix of trees shrubs and low-lying grasses.

Pacific Hydro recognises that there are multiple electrical assets, not solely electric lines, located at the Portland Wind Farm where fire could originate from, including;

- The wind turbine nacelle,
- The (kiosk) Integrated Grid Connection Transformer and Switchgear adjacent to each wind turbine,
- The Cape Bridgewater (CBW), Cape Nelson North (CNN) and the Cape Nelson South (CNS) substations,
- The P3C and Cape Sir William Grant (CSWG) substations adjacent to the Alcoa Portland Aluminium Switchyard, and
- The 45km of (some single and double circuit) overhead line between the P3C, CBW, CNN, CNS and CSWG substations.

Challicum Hills Wind Farm

The land on which Challicum Hills Wind Farm and its associated overhead line is established consists of grassed pastures and is used predominantly for low density sheep and cattle grazing. There are trees within the boundaries of the wind farm however there are none in close proximity of the turbines or substations and all overhead lines are kept clear according to Electricity Safety (Electric Line Clearance) Regulations 2020.

Pacific Hydro recognises that there are multiple electrical assets, not solely electric lines, located at the Challicum Hills Wind Farm where fire could originate from, including;

- The wind turbine nacelle,
- The Integrated Grid Connection Transformer and Switchgear inside each wind turbine,
- The Challicum Hills Wind Farm (CHWF) Main Substation,
- The Buangor (BGR) Switchyard, and
- The 5km of dual circuit 66kV overhead line between the CHWF Substation and BGR Switchyard.

Crowlands Wind Farm

The overhead lines pass through private land, leased by Pacific Hydro, predominantly used for low density grazing, cropping and includes a combination of ground cover (grasses) and various maturity tree species including native Eucalyptus (Red Stringybark, Yellow Box, River Red-gum, Blue Gum, etc). There are also areas directly adjacent to the line used for cropping.

Pacific Hydro recognises that there are multiple electrical assets, not solely electric lines, located at the Crowlands Wind Farm where fire could originate from, including;

- The wind turbine nacelle,
- The (kiosk) Integrated Grid Connection Transformer and Switchgear adjacent to each wind turbine,
- The Crowlands substations,
- The 15km of internal overhead lines between Substation and turbine clusters.

At-Risk Electric Lines

Portland Electric Lines

There is approximately 45km's of 66kV overhead line that runs between the CBW, CNN and CNS substations to the P3C substation at Cape Sir William Grant whose performance and compliance is helped with the implementation of both this plan and the Electric Line Clearance Management Plan. The overhead line assets are a combination of Pacific Hydro owned wood poles and shared Powercor owned wood poles, Steel Cross Arms, 66kV Insulators, Bare overhead conductor, Optical Fibre Cable and Ground Stays. Worley Power Services Pty Ltd has been engaged as the main Operations and Maintenance provider for the Wind Farm, including the electric line assets.

Challicum Hills Electric Lines

There is approximately 5km's of 66kV overhead line connecting the CHWF Main Substation to the Buangor Switchyard and is strictly managed by the Electric Line Clearance Management Plan. Worley Power Services Pty Ltd has been engaged as the main Operations and Maintenance provider for the Wind Farm, including the electric line assets.

Crowlands Electric Lines

The internal overhead electric lines owned by Pacific Hydro are located immediately to the north of the 220kV Crowlands terminal station. They consist of steel pole, single and double circuit lines with a combined approximately length of 15 km and require vegetation management processes to maintain the clearance space around them. Worley Power Services Pty Ltd has been engaged as the main Operations and Maintenance provider for the Wind Farm, including the electric line assets.

Electricity Safety (Bushfire Mitigation) Regulations 2013)

Regulation 6 - Prescribed particulars for the bushfire mitigation plans – specified operators

(a) The name, address, and telephone number of the specified operator:

Mr. Cesar Salvatierra

Executive Manager, Operations

Energy Pacific (Vic) Pty Ltd

ABN 18 063 543 984

Level 13, 700 Collins Street

Docklands, Victoria, 3008

Phone: (03) 8621 6000

(b) The person responsible for the preparation of this plan (Challicum Hills Wind Farm) is:

Mr. Yuriy Odarenko

Senior Operations Engineer

Pacific Hydro Pty Ltd

ABN 31 057 279 508

Level 13, 700 Collins Street

Docklands, Victoria, 3008

Phone: (03) 8621 6000

The person responsible for the preparation of this plan (Crowlands Wind Farm) is:

Mr. Yuriy Odarenko

Senior Operations Engineer

Pacific Hydro Pty Ltd

ABN 31 057 279 508

Level 13, 700 Collins Street

Docklands, Victoria, 3008

Phone: (03) 8621 6000

The person responsible for the preparation of this plan (Portland Wind Farm) is:

Mr. Yuriy Odarenko

Senior Operations Engineer

Pacific Hydro Pty Ltd

ABN 31 057 279 508

Level 13, 700 Collins Street

Docklands, Victoria, 3008

Phone: (03) 8621 6000

(c) The person responsible for carrying out the plan (Challicum Hills Wind Farm) is:

Mr. Shaun Harrison

Wind Fleet Contract Manager

Pacific Hydro Pty Ltd

ABN 31 057 279 508

Level 13, 700 Collins Street

Docklands, Victoria, 3008

Phone: (03) 8621 6000

Mobile: 0400 535 152

AND

Mr. Paul Masterton

Onshore Renewables Manager

Worley Power Services Pty Ltd

ABN 50 112 723 181

178 Normanby Road

Southbank VIC 3006

Phone: 0437 537 597

The person responsible for carrying out the plan (Crowlands Wind Farm) is:

Mr. Shaun Harrison

Wind Fleet Contract Manager

Pacific Hydro Pty Ltd

ABN 31 057 279 508

Level 13, 700 Collins Street

Docklands, Victoria, 3008

Phone: (03) 8621 6000

Mobile: 0400 535 152

AND

Mr. Paul Masterton

Onshore Renewables Manager

Worley Power Services Pty Ltd

ABN 50 112 723 181

178 Normanby Road

Southbank VIC 3006

Phone: 0437 537 597

The person responsible for carrying out the plan (Portland Wind Farm) is:

Mr. Shaun Harrison

Wind Fleet Contract Manager

Pacific Hydro Pty Ltd

ABN 31 057 279 508

Level 13, 700 Collins Street

Docklands, Victoria, 3008

Phone: (03) 8621 6000

Mobile: 0400 535 152

AND

Mr. Paul Masterton

Onshore Renewables Manager

Worley Power Services Pty Ltd

ABN 50 112 723 181

178 Normanby Road

Southbank VIC 3006

Phone: 0437 537 597

(d) In case of an emergency contact should be made with:

In first instance to

Worley Control Room

0400 317 129

or

Mr. Adrian Ciccocioppo

Production Manager

Pacific Hydro Pty Ltd

ABN 31 057 279 508

Level 13, 700 Collins Street

Docklands, Victoria, 3008

Phone: (03) 8621 6000

Mobile: 0438 093 517

or

Powercor Control Room 1800 061 204

(e) Policy

To mitigate as far as practicable the risk of fire starting from those at-risk assets that Pacific Hydro own.

(f) Objective/s

This Plan in conjunction with the sites Electric Line Clearance Management Plan has been developed with the main objective to;

- identify possible ignition sources that could cause fire, and
- mitigate/reduce the likelihood and consequences of these through the implementation of effective preventative measures.

The plan is also intended to fulfil the Legislative and Regulatory requirements of the;

- Electricity Safety Act 1998, and
- Electricity Safety (Bushfire Mitigation) Regulations 2020 (Version 004).

(g) Maps/ Description

The following table summarises the assets to which this plan applies

Line (feeder) denomination	Voltage (kV)	Number of spans	Length (m)	Insulated Conductor(Y/N)	If insulated, type of insulated conductor	Number of pole	Pole material	Year of construction
P3C to CBW	66	401	29700	N	N/A	1-399	Wood Class II H5 CCA treated Blackbutt/Spotted Gum 12kN	2008
CNS to CNN	66	81	6081	N	N/A	1-81	Wood Class II H5 CCA treated Blackbutt/Spotted Gum 12kN	2009
CHWF to BGR	66	41	4926	N	N/A	1-41	Wood Class II H5 CCA treated Black Butt 12kN(2 Concrete)	2003
CRW fdr 1	33	13	2587	N	N/A	1-13	Galvanised Steel (600g/m^2) Class II Grade 250 plates and 300 for sections	2019
CRW fdr 2	33	7	2132	N	N/A	14-17	Galvanised Steel (600g/m^2) Class II Grade 250 plates and 300 for sections	2019
CRW fdr 3	33	1	242	N	N/A	22-23	Galvanised Steel (600g/m^2) Class II Grade 250 plates and 300 for sections	2019
CRW fdr 4	33	20	5180	N	N/A	23-43	Galvanised Steel (600g/m^2) Class II Grade 250	2019

							plates and 300 for sections	

Where the following is

P3C: Portland 3 Capes Substation

CBW: Cape Bridgewater Substation

CNN: Cape Nelson North Substation

CNS: Cape Nelson South Substation

CHWF: Challicum Hills Windfarm

BGR: Buangor Substation

CRW Fdr: Crowlands 33kV feeder

Refer to Appendices for the following maps of the land and location of at-risk electric lines

- Portland Wind Farm Overhead Line – Site Layout
- Cape Bridgewater Site Layout showing the location of the electric lines, CBW substation and the wind turbines
- Cape Nelson South Site Layout showing the location of the electric lines, CNS substation and the wind turbines
- Cape Nelson North Site Layout showing the location of the electric lines, CNN substation and the wind turbines
- Cape Sir William Grant Site Layout showing the location of the electric lines, CSWG substation and the wind turbines
- Challicum Hills Wind Farm Overhead Line – Site Layout (HBRA Classified)
- Crowlands Wind Farm showing the location of electric lines and poles - Site Layout (HBRA)

(h & i) Preventative Strategies

In line with this plans objectives, the strategies adopted for the prevention of fire ignition from overhead lines are detailed in this section.

- Scheduled 36 month Electric Line inspection The reports stemming from these inspections identify, code and prioritise defect/s and their rectification timings (refer to example report

Appendix I and Figure 1 below).

Condition of the assessed Item	Priority allocation
The item is assessed to pose an immediate supply reliability, fire or public safety risk	Priority 1
The item is assessed as not an immediate supply reliability, fire or public risk, however is likely to become one within 42days to 2 years	Priority 42

The item is assessed as not an immediate supply reliability, fire or public risk, however is likely to become one within 2 years to 3 years	Priority 2
This item is not a priority 1, 42 or 2 but may require attention before the next inspection (>36 months or 3 years)	Priority 3

Figure 1 Asset Defect Priority Rating and Rectification Timings

Note: all time periods mentioned in the table are based on calendar days.

There can be 2-3 week delay between inspection and provision of report and associated recommendations.

If an asset is identified by as part of the inspection with deteriorating defects, however;

- they have not exceeded the criteria under sections (f) to (j) to trigger replacement, and/or
- the inspector expects that deterioration will cause the pole to have a 'limited life (L)' or to become 'unserviceable (U)', during the following scheduled inspection interval then an increased inspection/testing interval can either be;

  specified as part of the scheduled inspection (and associated report), or

  requested of the electric line specialised service provider by the responsible person for carrying out this plan,

to track further deterioration.

The priority that is assigned to a 'serviceable (S)', 'limited life' or 'unserviceable' pole is independent the assignment and should be linked back to the Inspectors assessment of the risk of failure within the timeframes referred to in Figure 1.

Any increased inspection interval will be calculated using previous deterioration information/rates, if available, from previous inspection results. If no historical deterioration information/rates are available, then the increased interval will default to annual.

- The Pacific Hydro Electric Line Management Clearance Plan details the annual vegetation inspection and clearance works for the overhead lines/spans. The reports stemming from these inspections identify, code and prioritise any applicable clearance work required around the electric lines. The rectification work and timing is programmed according to the codes/priorities stipulated in the reports (refer to example report Appendix H and Figures 2, 3 & 4). The following table outlines the different inspection/reporting codes and definitions.
- For asset inspection and assessment, Pacific Hydro Asset inspection manual will be used. This manual contains information about electrical assets and the standard for observation and or tests in order to identify and assess the condition.

  ** Energised assets include Conductors, Fuses, Switches, Hybrid U/G structures, Cable Head structures and overhead transformers. Excludes Guy Wires, Aerial Earths, Light Pole without conductor, Ground Kiosks, Poles.
- Visual Patrol of Electric Lines for defects and potential failure points,

- Thermographic Patrols as required. This is an unplanned/non-routine task which will be largely dependent on the person responsible for carrying out the plan and if they deem necessary to carry out this action based on fault event logs and known Electric Line condition,
- Insulator washing as required. This is an unplanned/non-routine task which is dependent on the local conditions and subsequent impact of these on sections of the overhead lines, and
- the auto reclose functionality is currently suppressed on the power lines and the lines are inspected prior to re-energising after faults.

Worley are currently contracted as the 'specialised service provider' to perform the scheduled 36 month electric line inspection to procedures in Pacific hydro Asset Inspection Manual (at risk overhead lines) with the document number AU-100-OPS-MAN-00002 and annual electric line vegetation inspection with any subsequent vegetation cutting/removal to be conducted prior to 1st December or the Declared Fire Danger Period (DFDP), http://www.cfa.vic.gov.au/warnings-restrictions/fire-restrictions-map/).

(j) and (k) Qualifications, Experience and Competency of persons

Personnel completing asset inspection and clearance works will hold current qualifications and experience approved by ESV. This at a minimum shall be UET20621 – Certificate II in Asset Inspection and testing or equivalent for Asset inspectors. Further this, personnel carrying out inspections will be inducted into the Asset inspection manual (AU-100-OPS-MAN-00002) prior to performing the task.

. Prior to the works starting one of the representatives responsible for carrying out this plan may be on site at the commencement of the inspections to observe/conduct appropriate inductions which may include such a request for records.

If any worker associated with the Electric Lines and tasks covered under this plan are found to be performing works without required training/qualifications/experience or outside of their capabilities or the prescribed documentation they are supposed to be working under then work will be immediately stopped and the associated personnel removed from the site.

Note: For other persons, referring to 6(k) of the Electricity Safety (Bushfire Mitigation) regulation will be required to meet the above or be under the control of an Authorised Person.

(l) Operation and Maintenance Plans

This section outline the plans during certain event/periods.

- **In the event of fire**

In the event of fire which prevents the safe operation of the HV overhead line, the line will be de-energised to minimise further ignition sources.

In such an event PHA should coordinate with the CFA and Local Council to provide support in matters relating to operation of the wind generation site that contain at risk electric lines referenced in this document where the fire is in the area but presents minimal or no risk to the safe operation of the overhead line, the overhead line will continue to operate with the auto reclose suppressed.

- **During a Total Fire Ban (TFB)**

During a time of total fire ban the associated overhead lines will operate in accordance with normal operating practices (auto reclose suppressed) and the prohibition of hot work permits on the at risk electric lines.

- **During the Fire Danger Period**

The Wind Farm will be operated in accordance with normal operating practices (auto reclose suppressed) during the DFDP.

(m) Investigations, analysis and methodology

Electrical events/faults, if they influence risk of fire ignition from the sites at-risk electric lines or not, are recorded and reported using Pacific Hydro's 'Electrical Event Report' (Appendix J) form which if considered to be a 'serious electrical event' are reported separately to ESV and/or WorkSafe Victoria.

For faults/incidents/defects requiring further internal investigation the 'Defect Reporting Procedure' and associated electronic form (Appendix K&L) is utilised. This process may also instigate a Root Cause Analysis Report (Appendix M) if either;

- the Defect risk rating is extreme/high, and/or
- there have been multiple events of an identical/similar nature (common/systemic defect or fault), and/or
- a request is made from higher levels within the business.

This process helps to ensure that events/faults are properly reported, investigated and actions taken to reduce their likelihood of re-occurring.

Note

Where assets are in are share arrangement with the network provider, reporting will be performed by a single party and will be the responsibility of the owner of the particular pole.

The major events that were sources for ignitions are presented on Table 1 which are all previous fire starts resulting from Pacific Hydro assets (current and historical).

Table 1 - The major events that were sources for ignitions

Type of Event	Year of Event	Event Frequency, Years/event	Action to mitigate risk of fire ignition from electric lines at risk
Conductor coming in contact with the wooden type poles	2019	10	Pole vibration sensors were introduced forthe investigation of root cource analisys. Mitigations and preventative actions are being implemented to reduce the risk of such event.
Conductor coming in contact with the wooden type poles	2020	6.5	Investigation to this matter continue. Mitigations and preventative actions are being implemented to reduce the risk of such event. One such proposed method could be the introduction of mechanical vibrational dampeners on the electric line where increased wear is observed.

(n) Processes and Procedures

There are a number of processes and procedures adopted/relied upon to manage this plan including:

- Monitoring the implementation of the plan is performed predominantly through the following method;
  - the use and management of the computerised maintenance management system (CMMS) which records any required scheduled or unscheduled works including, but not limited to, the preventative works listed under section (h & i) of this plan. The specific measure is the closure of maintenance work orders related to bushfire mitigation and line vegetation works which have a due date, or are required to be done, prior to the 1st December or before the DFDP each year, whichever is earlier.

    This measure is referred to as the Bushfire Index and is calculated as follows:

    Bushfire Index = $Number\ of\ outstanding\ works \div Total\ works\ required$

    Works include all routine Electric Line maintenance and vegetation clearance scheduled and remedial works.

    The current **'outstanding works'** include:

    PORTLAND WIND FARM

    - There are no outstanding/overdue works for this site

    CHALLICUM HILLS WIND FARM

    - There are no outstanding/overdue works for this site

    CROWLANDS WIND FARM

    - There are no outstanding/overdue works for this site

    The **'works required'** include:

    PORTLAND WIND FARM

    - Line Vegetation assessment
    - Line Vegetation cutting/clearing
    - 36 month Electric Line Inspection (next due: Nov 2022)

    CHALLICUM HILLS WIND FARM

    - Line Vegetation assessment
    - Line Vegetation cutting/clearing
    - 36 month Electric Line Inspection (next due: Sept 2023)

    CROWLANDS WIND FARM

    - Line Vegetation assessment

- Line Vegetation cutting/clearing
- 36 month Electric Line Inspection (next due: Dec 2023)

Therefore:

Bushfire Index = 0 ÷ 9 = 0.00

Note that the performance/progress of all site maintenance tasks, including the above where applicable, is monitored and reported on monthly by the Australian Operations Department.

Other performance measures which will be collated and reviewed annually prior to the resubmission of this plan to ESV include;

Key Performance Indicator (KPI)	Target	Result (previous year)
Number of electrical events/faults that have occurred on the relevant Electric Lines with the cause identified to be directly related to their condition and/or compliance with the Regulations.	0	0
Annual Number of Fire Starts.	0	0
Number of Stakeholder complaints/correspondence received in relation to the relevant Electric Lines as measured through Pacific Hydro's Communication and External Affairs department and the associated enquires line (1800 010 648) and email address (enquires@pacifichydro.com.au).	0	0
Lost Time Injuries (LTI's) or Medical Treatment Injuries (MTI's) with the cause identified to be directly related to the Electric Lines.	0	0
Future ELCMP submitted by 30th June each year	0	0
Financial Penalties (Penalty Units) received.	0	0

- Auditing the implementation of the plan is largely done in two ways;
  - as part of the annual review process prior to resubmission of this plan to ESV, as well as
  - an audit prior to the DFDP will be undertaken by a representative responsible for carrying out this plan which includes;

    a. that the qualifications and experience of personnel performing any scheduled inspection and/or clearance works adheres to both ESV's and this plans requirements,

    b. associated report/s have been submitted to the persons responsible for carrying out this plan,

c. all inspection/s, report/s and subsequent recommendations from have been conducted in line with the scope/timing of recommendations and to the quality of this plan and the applicable Acts, Regulations, Codes and Standards (as further explained under section (vi). **Note that this task may be conducted by an independent third party where requested by the persons responsible for carrying out this plan**. Additional inspections may take place throughout the year if in alignment with other scheduled/unscheduled line tasks (eg, insulator washing, event/fault inspections etc) , and

d. the inspections and recommendations/works from the report, if any, have an appropriate task/s entered into the CMMS and those task/s have been closed out following completion or the works.

If either of items a, b, or c in above list are believed to have not occurred then a representative responsible for carrying out this plan is to immediately contact the electric line specialised service provider of the reports and request the required information

If either of the remaining items in above list have not occurred then the representative responsible for carrying out this plan is to immediately perform the required work or contact their manager and request support to perform the work.

Person/s responsible for carrying out this plan may also take the opportunity to perform audits outside the above timeframe.

- Identification of any deficiencies in the plan or the plan's implementation can be done via;
  - the annual review process of this plan prior to resubmission to ESV,
  - Person/s carrying out this plan to provide feedback to their manager and/or the person/s responsible for the preparation of this plan when a deficiency is found. This will generally take the form of email correspondence,
  - Pacific Hydro's employee observation/conversation program which requires each employee and Full time Operations and Maintenance contractor to make 12 observations annually , which takes the form of electronic submissions, and/or
  - Review of site/asset risk registers.
- A change, or changes, to the plan and the plan's implementation if any deficiencies are identified under subparagraph (iii) are performed during the annual review of this plan prior to resubmission to ESV. If there are more critical changes required to important information, including but not limited to, contact details or applicable procedures/policies these will be performed as soon as possible and resubmitted to ESV. The updated plans will then be reloaded onto the webpages listed in the plan.

  The annual review of this plan is performed by the person/s responsible for preparing the plan in conjunction with the other people listed under sections (a-d). As well as incorporating any of the above changes the reviews intension is to, but is not limited to, re-aligning the plan to any updated Legislation, Regulations or Codes, industry practices and Electric Line configurations/locations.
- Monitor the effectiveness of inspections under the plan will be performed through the annual review of the performance measures listed under (n)(i) by the person/s responsible for preparing the plan.

- Auditing the effectiveness of any inspections carried out under the plan is performed through conducting a ground based visual audit following the completion of the 36 month Electric Line Inspection works. This will be performed by either;
  - Personnel who have;
    - Knowledge of applicable Acts, Regulations and Codes associated with this plan,
    - Knowledge of this plan and its auditing obligations,
    - Knowledge of , and are familiar with, the Electric Lines subject to the audit

  or,

  - an independent third party.

  The scope of the visual audit will cover a minimum of 10% of the Electric Lines previously inspected and take the form of a marked-up version of the inspection report. If any significant inaccuracies are noted then the audit scope will be expanded to include 100% of the Electric Lines. These inaccuracies will then be reported back to the electric line specialised service provider.

  Person/s responsible for carrying out this plan will also take the opportunity to perform audits outside the above timeframe if other scheduled/unscheduled line works are expected and resourcing is available.

  Performance of the electric line specialised service provider can be reviewed/audited through Pacific Hydro's procedure PHA.HSE.09.014 Contractor Performance Evaluation (Appendix N).

(o) Pacific Hydro Policy on Assistance Provided to Fire Control Authorities

Pacific Hydro will allow access to and assist fire control authorities in the investigation of fires at or near the relevant Electric Lines.

Regulation 13 Exemptions Provided by the ESV

Under the regulation, the ESV may in writing provide exemption to the Electricity Safety (Bushfire Mitigation) Regulation for a specified operator or major electricity company.

Currently, Pacific Hydro Australia has not been granted any exemptions.

Section 83BA (3) (a) of the Act - Plan available for inspection

The latest ESV approved Bushfire Mitigation Plan is available for inspection on the responsible person's website at either of:

Challicum Hills Wind Farm

Cape Nelson North/Sir William Grant Wind Farm

Cape Bridgewater Wind Farm

Cape Nelson South Wind Farm

Crowlands Wind Farm

Any superseded versions of the plan located at the above websites will be overwritten by the Pacific Hydro person responsible for preparing the plan once an updated version of the document has been approved/accepted by ESV.

A hardcopy of the ESV approved/accepted Bushfire Mitigation Plan mentioned above is available for inspection at the responsible person's office, during normal business hours, located at;

Yuriy Odarenko

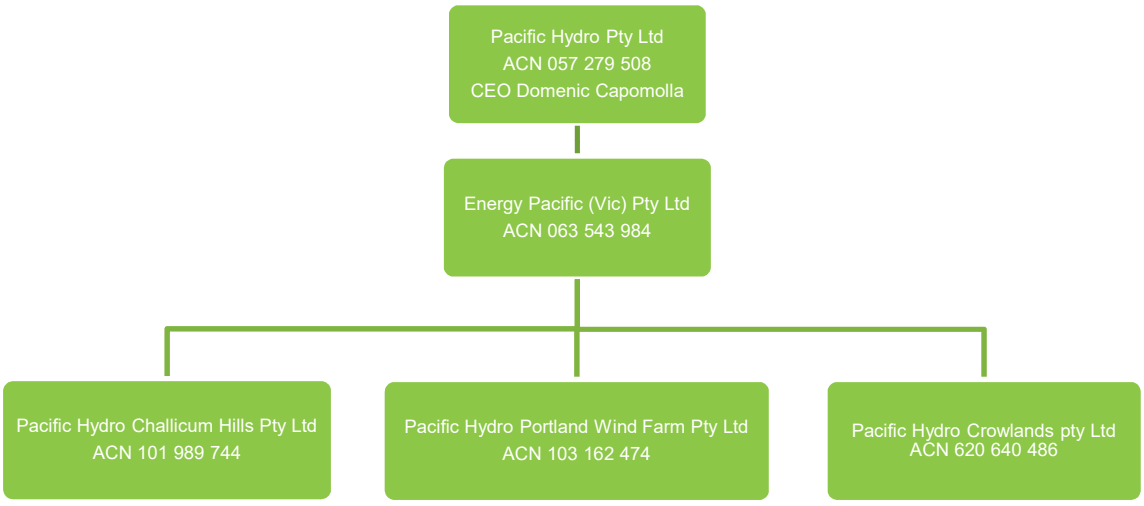
Level 13, 700 Collins Street

Docklands, Victoria, 3008

Any hardcopy superseded versions of the plan will be destroyed by the person responsible for preparing the plan.

Corporate Structure

Pacific Hydro Pty Ltd is a parent company of a group of subsidiary companies which own and operate renewable generation assets including powerlines. For the purpose of the Bushfire Mitigation Plan the below chart specify the relationship between the relevant corporate entities:



Other References and Supporting Documents

The table below lists all the documents that have been referenced within the plan:

Document Number	Document Title
AU-100-OPS-MAN-00002	Asset inspection manual for at risk electric line

4. Document History

The following table lists the changes made to this document:

Version	Date	Amended by	Comments
0	*24/05/2022*	*Daniel Choi* *Senior Operations Engineer*	*Replaces legacy document PHA. OPS.08.006*
1	*16/09/2022*	*Yuriy Odarenko* *Senior Operations Engineer*	*Clarifications for Regulation 6*
2	*19/10/2022*	*Yuriy Odarenko* *Senior Operations Engineer*	*Corporate Structure clarification*

5. Appendices

(A) Portland Wind Farm Overhead Line – Site Layout (Lines) (HBRA Classified)

(B) Cape Bridgewater Site Layout showing the location of the electric lines and poles (HBRA Classified)

(C) Cape Nelson South Site Layout showing the location of the electric lines and poles (HBRA Classified)

(D) Cape Nelson North Site Layout showing the location of the electric lines and poles (HBRA Classified)

(E) Cape Sir William Grant Site Layout showing the location of the electric lines and poles (HBRA Classified)

(F) Challicum Hills Wind Farm Overhead Line – Site Layout (HBRA Classified)

(G) Crowlands Wind Farm showing the location of electric lines and poles - Site Layout (HBRA)

(H) Example Vegetation Inspection Report

(I) Example Asset Inspection Report

(J) PHA.OPS.09.036.1 Electrical Event Report

(K) PHA.OPS.09.002 Defect Reporting Procedure

(L) Defect Reporting Form

(M) PHA.OPS.09.010 Root Cause Analysis Report

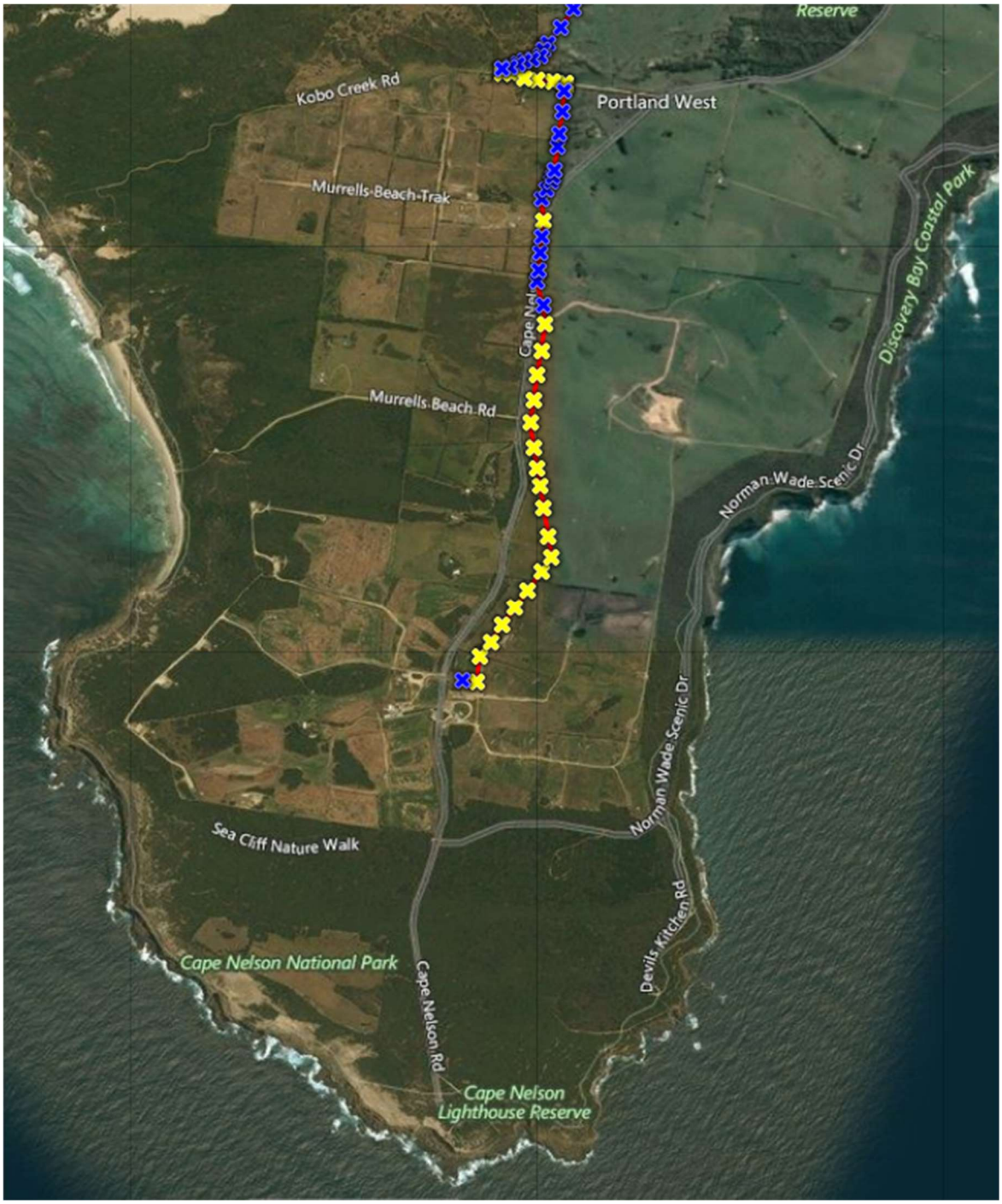
(N) PHA.HSE.09.014 Contractor Performance Evaluation

A. Portland Wind Farm Overhead Line – Site Layout (HBRA Classified)

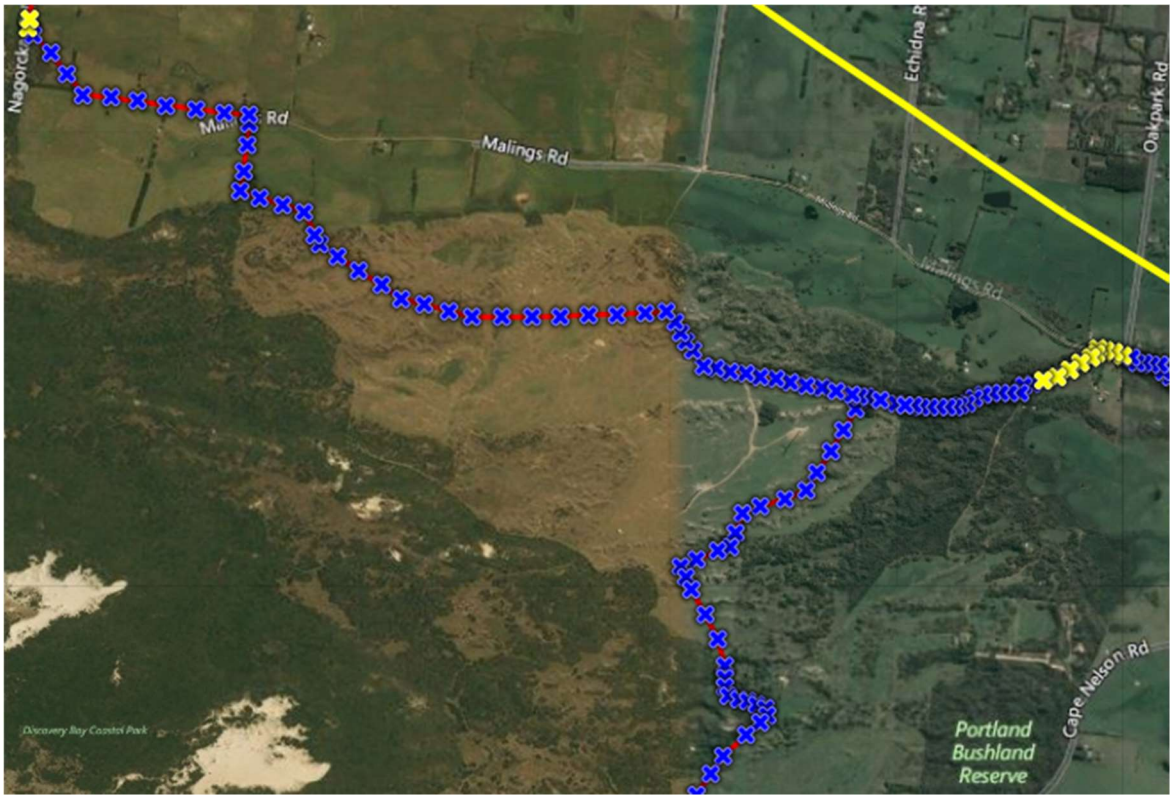
Key	Description
	Wind turbine generator
	Overhead power line
	Overhead power line Challicum Hills and Crowlands
	Underground cable
	Poles owned by Pacific Hydro
	Poles owned and maintained by DNSP (Powercor)

B. Cape Bridgewater Site Layout showing the location of the electric lines and poles (HBRA Classified)

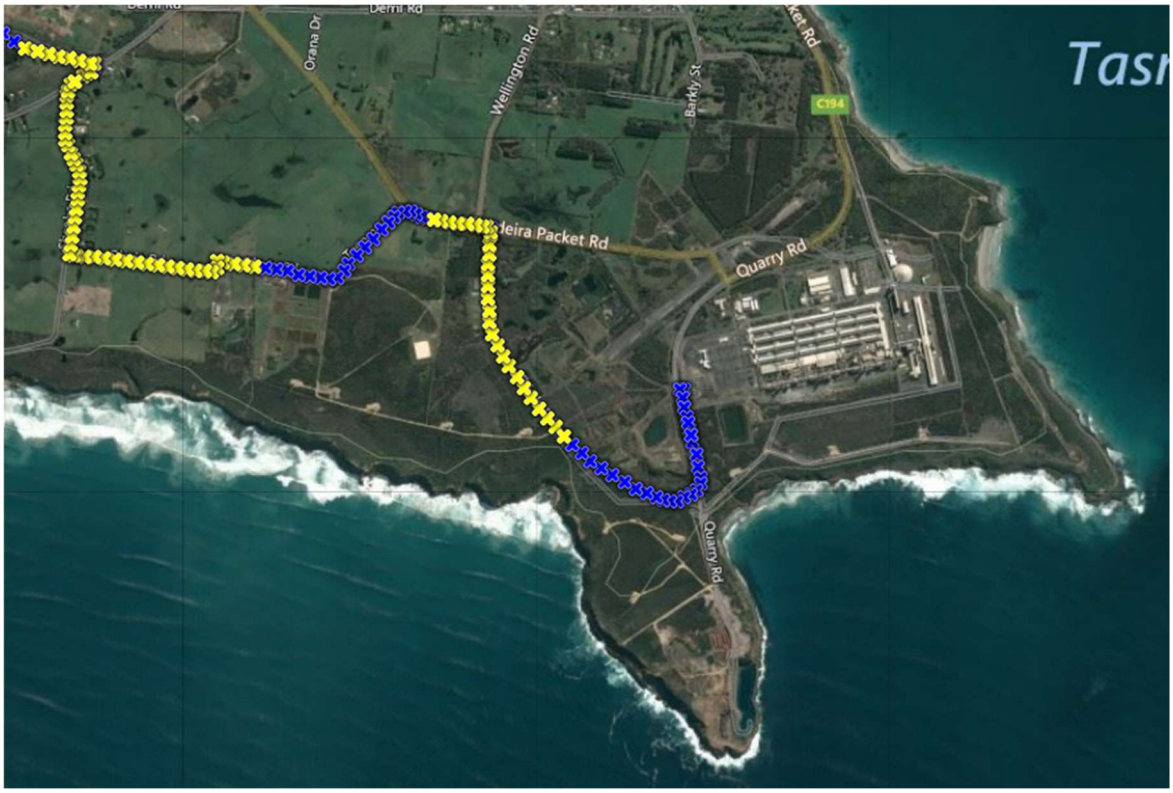
C. Cape Nelson South Site Layout showing the location of the electric lines and poles (HBRA Classified)



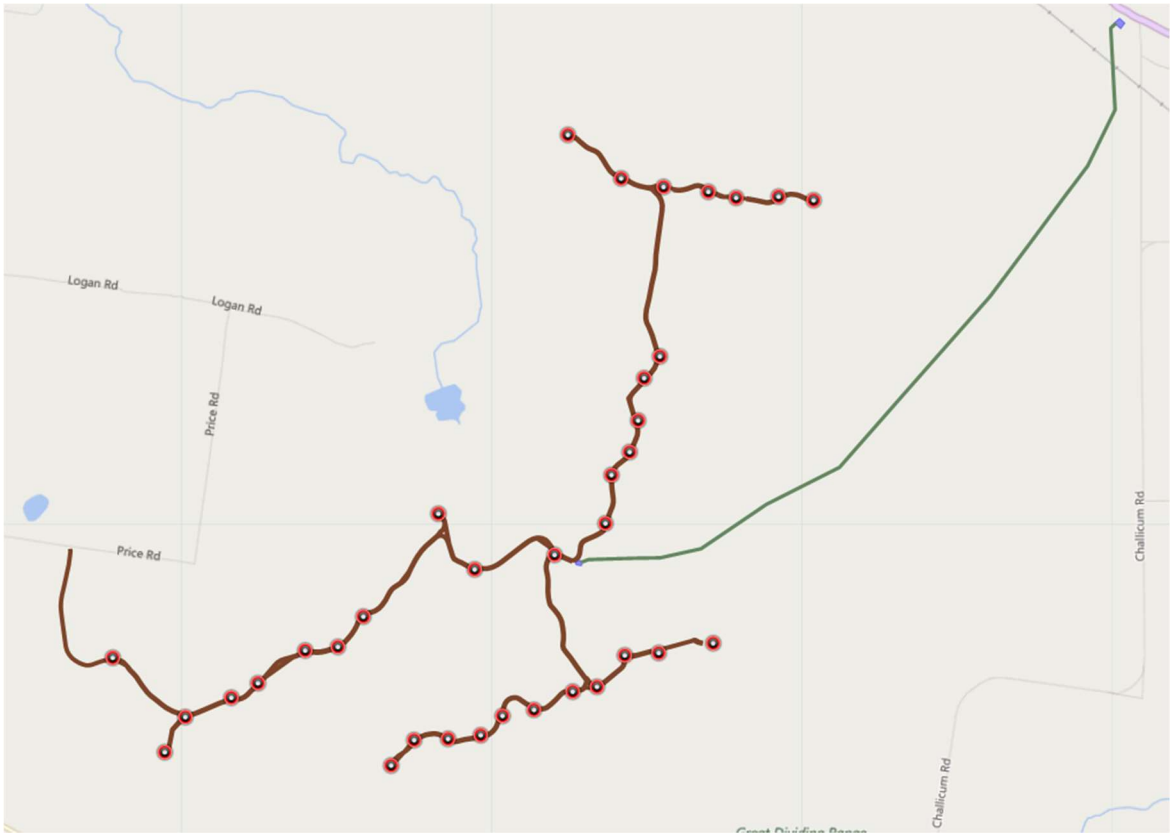
D. Cape Nelson North Site Layout showing the location of the electric lines and poles (HBRA Classified)



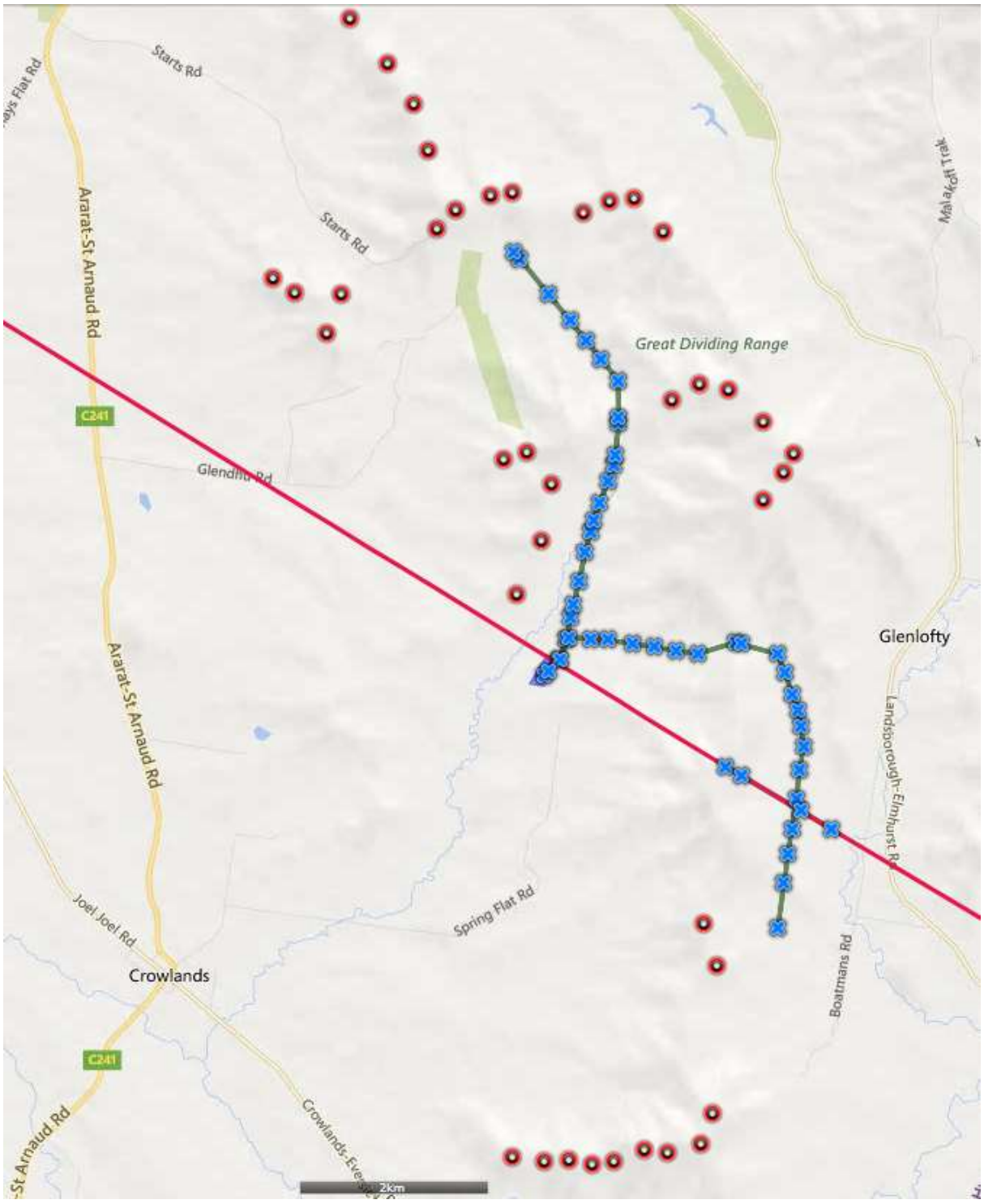
E. Cape Sir William Grant Site Layout showing the location of the electric lines and poles (HBRA Classified)



F. Challicum Hills Wind Farm Overhead Line – Site Layout (HBRA Classified)



Appendix G. Crowlands Wind Farm Overhead Line – Site Layout (HBRA Classified)



Appendix H.

Example Vegetation Inspection Report

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powercor
network services

UTILITY TREES

PLWF 66KV Powerline Vegetation Inspection October 2019

Treespan Pty Ltd: Trading as Utility Trees
ABN 63 604 604 293
ACN 604 604 293
38 Holcombe Road Glenlyon
P.O. Box 1014 Wendouree Village 3355 Vic.

Prepared for: Laura Baker
Powercor Network Services
Report prepared by: Rod Sewell
rsewell@utilitytrees.com.au
0448 476 499

DISCLAIMER

This information paper is provided to Powercor Network Services by Utility Trees on a confidential basis and is provided to the recipient strictly on the understanding that its contents will be kept confidential and will not be disclosed to any other party without Utility Trees prior permission in writing. In accepting the proposal, the recipient acknowledges that Utility Trees will suffer consequential loss or damage if the confidential information is disclosed whether directly or indirectly or used in any way by the recipient without the consent of Utility Trees.

Due to the nature of trees and the practical limitations in accurately assessing the structural integrity of all parts of a tree it is not possible to make a completely comprehensive assessment of the condition of a tree. The recommendations in this report are based on visual assessments and external indicators and there is also some degree of subjectivity. This report is intended to be used as a tool to assist in the risk management of trees growing in the vicinity of infrastructure. It should be noted that any tree near any structure or property or person(s) poses a risk.

To this extent, neither Utility Trees nor any of its employees or directors or advisers gives any warranty as to the reliability or accuracy of the information nor accepts any responsibility arising in any other way (including by reason of negligence) for errors or omissions herein nor accepts liability for any loss or damage suffered by any person or any other persons placing any reliance on, acting on the basis of, the contents hereof. No party shall be entitled to raise any claim or suit of action on the basis of the contents of this report.

Scope

Utility Trees have been contracted by Powercor to complete an inspection of the PLWF 66KV Overhead Powerlines at the Portland Windfarms P3C- CBW and Cape Nelson South tee off line servicing the Cape Bridgewater and Cape Nelson Wind Farms.

Inspection includes an assessment of each span with a projection of when the vegetation is likely to enter the clearance space. Identify any tree that may need clearing to ensure compliance with the Electricity Safety (Electric Line Clearance) Regulations 2015 is maintained until the next inspection in 2020.

Trees within the vicinity of the Powerlines will be assessed to identify any (Hazard) trees or parts of the trees that are likely to fail and enter the clearance space.

The details of any vegetation identified as likely to enter the clearance space will be reported with cutting details and recommendations to ensure the compliance is maintained.

The report contains the location details of each span and the year the vegetation is likely to grow within the clearance space. Details of trees that need to be cleared including Tree Species, Description of Work, a photograph, Clearance space required and the actual clearance.

. Code	Description
2019	Foliage Predicted to grow into Clearance Space 2019

2020	Foliage Predicted to grow into Clearance Space 2020
2021	Foliage Predicted to grow into Clearance Space 2021
VS	Foliage Predicted to grow into Clearance Space 2021 to 2023
NVS	Non-Vegetated Span
OF	Foliage Contacting Optic Fibre

Findings

Summary

The 66kV lines were inspected on the 11th October 2019. All spans were inspected, and the codes have been updated to reflect their status. The data for these lines is within Appendix 1 and Appendix 2.

There are 13 spans that require clearing to ensure compliance is maintained throughout the upcoming 2019/20 fire season. There are 17 locations where the trees are encroaching on the communications cable and it is recommended that these be cleared to avoid damage to the communications cable, details are listed in the tables below

Code	Pole No
2019	54
2019	205 (Climb)
2020	5A
2020	8
2020	102
2020	103
2020	104
2020	118
2020	119
2020	120
2020	160
2020	209
2020	210

Optic Fibre	Pole No
Contact	38
Contact	67
Contact	69
Contact	70
Contact	73
Contact	74
Contact	76

Contact	77
Contact	78
Contact	132
Contact	160
Contact	235
Contact	246
Contact	289A
Contact	290
Contact	291
Contact	299

Location 1 Pole 38 Melaleuca

Location 2 Pole 54 Pine

Pole 69/70 Melaleuca

Location 3 Pole 67 Eucalyptus

Location 4 Pole 74 Eucalyptus

Location 5 Pole 73 Eucalyptus

Location 6 Pole 78 Eucalyptus

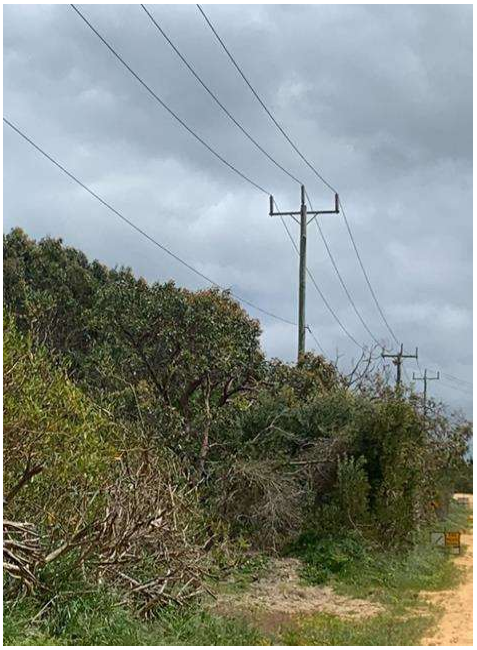
Location 7 Pole 289 A Eucalyptus

Location 8 Pole 132 Ash

Location 9 Pole 205 Eucalyptus

Location 10 Pole 235 Eucalyptus

Location 11 Pole 290 Eucalyptus



Location 12 Pole 291 Eucalyptus

Location 13Pole 290 Eucalyptus

Location 14 Pole 299 She oak

Appendix 1

2018 Portland P3C - CBW

Pole No.	2015 Code
1	NVS
2	NVS
3	NVS
4	2022
5	2022
5A	2020
6	VS
6A	2021
7	VS
8	2020
9	VS
10	VS
11	NVS
12	NVS
13	NVS
14	NVS
15	VS
16	VS
17	VS
18	VS
19	NVS
20	NVS
21	NVS
22	NVS
23	NVS
24	NVS
25	NVS
26	NVS
27	NVS
28	NVS
29	NVS
30	NVS
31	NVS
32	NVS

Pole No.	2015 Code
43	NVS
44	VS
45	NVS
46	VS
47	NVS
48	NVS
49	NVS
50	NVS
51	NVS
52	NVS
53	VS
54	2019
55	VS
56	VS
57	NVS
58	VS
59	VS
60	2021
61	NVS
62	NVS
63	NVS
64	NVS
65	VS
66	VS
67	2019(O/F)
68	VS
69	2019(O/F)
70	2019(O/F)
71	VS
72	VS
73	2019(O/F)
74	2019(O/F)
75	VS
76	2019(O/F)

Pole No.	2015 Code
87	NVS
88	NVS
89	NVS
90	NVS
91	NVS
92	NVS
93	NVS
94	NVS
95	VS
96	VS
97	NVS
98	NVS
99	NVS
100	NVS
101	NVS
102	2020
103	2020
104	2020
105	NVS
106	VS
107	VS
108	NVS
108A	NVS
109	VS
110	VS
111	VS
112	VS
113	VS
113A	VS
114	VS
115	VS
116	NVS
116A	VS
117	NVS

Pole No.	2015 Code
126	NVS
127	2020
128	NVS
129	NVS
130	NVS
131	NVS
132	2019(O/F)
133	VS
134	NVS
135	NVS
136	NVS
137	NVS
138	NVS
139	VS
140	NVS
141	NVS
142	VS
143	NVS
144	NVS
145	2022
146	2021
147	2021
148	NVS
148A	NVS
149	NVS
149A	NVS
150	NVS
150A	VS
151	VS
151A	VS
152	2021
152A	VS
153	2022
153A	2022

33	NVS
34	NVS
35	NVS
36	NVS
37	NVS
38	2019(O/F
39	VS
40	NVS
41	NVS
42	NVS

77	2019(O/F)
78	2019(O/F)
79	VS
80	NVS
81	NVS
82	NVS
83	NVS
84	NVS
85	VS
86	NVS

117A	VS
118	2020
119	2020
119E	NVS
120	2020
121	NVS
122	NVS
123	NVS
124	NVS
125	NVS

154	2022
154A	NVS
155	NVS
155A	NVS
156	VS
156A	2021
157	2021
158	2022
159	2022
160	2020

Appendix 1 cont.

Pole No.	2015 Code
161	2022
162	VS
163	NVS
164	NVS
165	NVS
166	VS
167	NVS
168	NVS
168A	NVS
169	NVS
169A	NVS
170	NVS
171	NVS
172	NVS
172A	NVS
173	NVS
174	NVS
175	NVS
176	NVS
177	NVS
178	NVS
179	NVS
180	NVS
181	NVS
182	NVS
183	NVS

Pole No.	2015 Code
202	NVS
202A	NVS
203	NVS
204	NVS
205	2019CLIMB
206	NVS
207	VS
208	NVS
209	2020
210	2020
211	VS
212	NVS
213	NVS
214	NVS
215	NVS
216	NVS
217	NVS
218	NVS
219	NVS
220	VS
221	VS
222	NVS
223	VS
224	NVS
225	VS
226	NVS

Pole No.	2015 Code
245	VS
246	2021O/F)
247	VS
248	VS
249	VS
250	NVS
251	VS
252	VS
253	VS
254	VS
255	NVS
256	VS
257	VS
258	VS
259	NVS
260	VS
261	VS
262	VS
263	VS
264	VS
265	NVS
266	VS
267	NVS
268	NVS
269	VS
270	NVS

Pole No.	2015 Code
289	NVS
289A	2019(O/F)
290	2019(O/F)
291	2019(O/F)
292	NVS
292A	NVS
293	NVS
294	VS
295	NVS
296	NVS
297	NVS
298	VS
299	2019(O/F)
300	2021
301	VS
302	NVS
303	NVS
304	NVS
305	NVS
306	NVS
307	NVS
308	NVS
309	NVS
310	NVS
311	NVS
312	NVS

184	NVS
185	NVS
186	NVS
187	NVS
188	NVS
189	NVS
190	NVS
191	NVS
192	NVS
193	NVS
194	NVS
195	NVS
196	NVS
197	NVS
198	NVS
199	NVS
200	NVS
201	NVS

227	2021
228	2021
229	2021
230	NVS
231	VS
232	NVS
233	NVS
234	VS
235	2019 (OF)
236	VS
237	VS
238	VS
239	VS
240	VS
241	VS
242	VS
243	VS
244	VS

271	VS
272	NVS
273	VS
274	NVS
275	NVS
276	NVS
277	NVS
278	NVS
279	NVS
280	NVS
281	NVS
282	NVS
283	VS
284	VS
285	VS
286	NVS
287	NVS
288	NVS

313	NVS
314	NVS
315	NVS
316	NVS
317	NVS
318	VS
319	2022
320	VS
321	VS
322	NVS
323	NVS
324	NVS
325	NVS
326	NVS
327	NVS
328	2021
329	NVS
330	NVS

Appendix 1 cont.

Pole No.	2015 Code
331	NVS
332	NVS
333	NVS
334	NVS
335	NVS
336	NVS
337	NVS
338	NVS
339	NVS
340	NVS
341	NVS
342	NVS
343	NVS
344	NVS
345	NVS
346	NVS
347	NVS
348	NVS
349	NVS
350	NVS
351	NVS
352	NVS
353	NVS
354	NVS
355	NVS
356	VS
357	NVS
358	NVS
359	NVS
360	NVS
361	NVS
362	NVS
363	NVS
364	NVS
365	NVS
366	NVS
367	NVS

Pole No.	2015 Code
375	NVS
376	NVS
377	NVS
378	2021
379	2021
380	VS
381	VS
382	2021
383	VS
384	NVS
384A	NVS
385	NVS
386	NVS
387	NVS
388	NVS
389	NVS
390	NVS
391	NVS
392	NVS
393	NVS
394	NVS
395	NVS
396	VS
397	NVS
398	NVS

368	NVS
369	NVS
370	NVS
371	NVS
372	NVS
373	NVS
374	NVS

Appendix 2

2018 Portland Cape Nelson South

Pole No.	2015 Code
1A	NVS
1B	NVS
2	NVS
3	NVS
4	NVS
5	NVS
6	NVS
7	NVS
8	NVS
9	NVS
10	VS
11	NVS
12	NVS
13	NVS
14	NVS
15	NVS
16	NVS
17	vs
18	NVS
19	NVS
20	NVS
21	NVS
22	NVS
23	NVS
24	NVS
25	NVS
26	NVS
27	NVS
28	NVS
29	VS

Pole No.	2015 Code
35	NVS
36	NVS
37	NVS
38	NVS
39	NVS
40	NVS
41	NVS
42	NVS
43	VS
44	NVS
45	NVS
46	NVS
47	NVS
48	NVS
49	NVS
50	NVS
51	NVS
52	NVS
53	NVS
54	NVS
55	NVS
56	NVS
57	NVS
58	NVS
59	VS
60	NVS
61	NVS
62	VS
63	NVS
64	NVS

Pole No.	2015 Code
70	NVS
71	NVS
72	NVS
73	NVS
74	NVS
75	vs
76	NVS
77	NVS
78	NVS
79	2021
80	2021
81	NVS

30	NVS
31	NVS
32	NVS
33	NVS
34	NVS

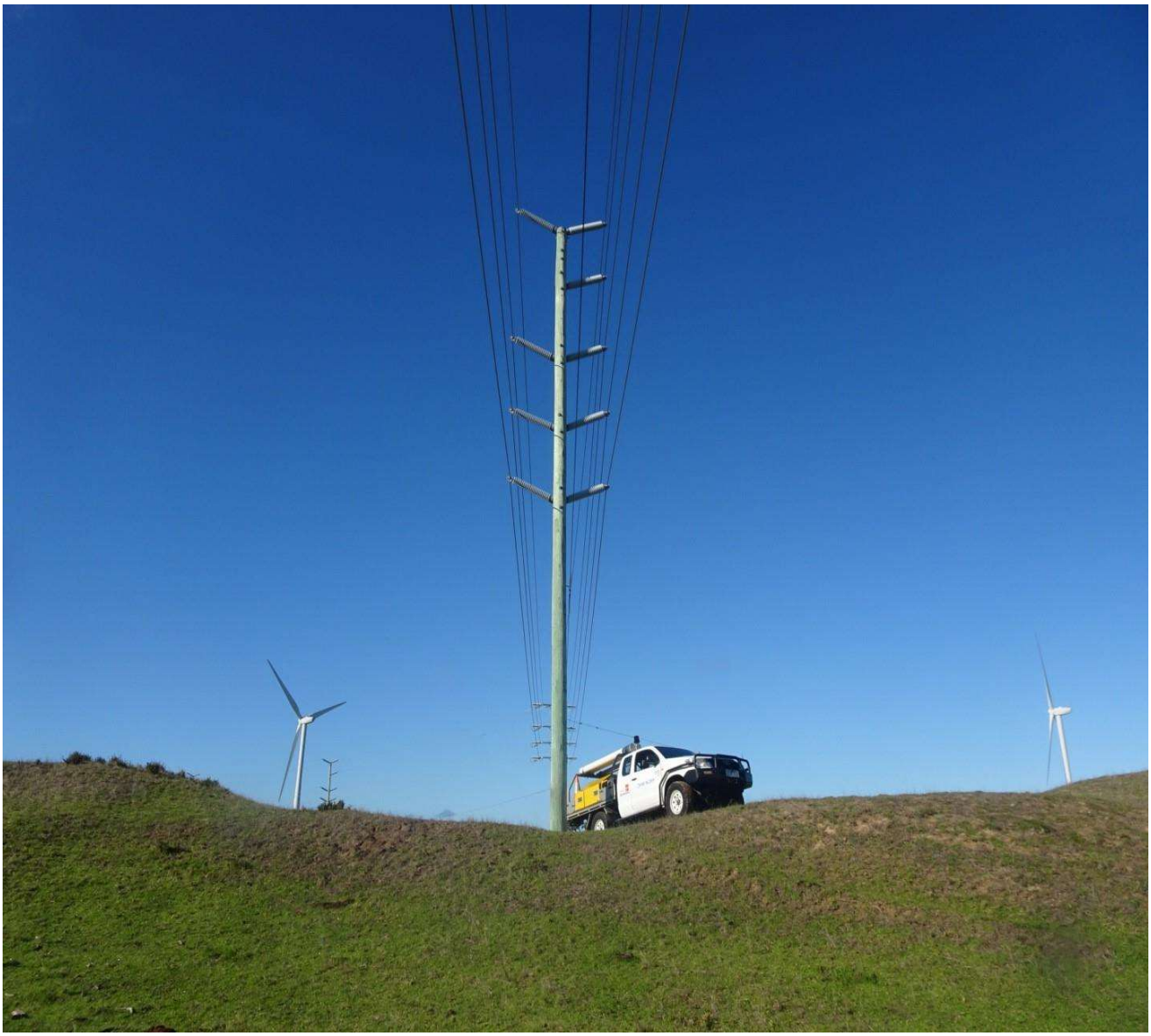
65	NVS
66	NVS
67	NVS
68	NVS
69	NVS

Appendix I.

Example Asset Inspection Report

Pacific Hydro
Portland
INSPECTION REPORT

DATE: 19/05/2020 – 03/06/2020



Contents

Contents

1. Introduction

Beon has requested Omexom to perform an asset inspection on the Pacific Hydro 66kV transmission line poles that are part of the Pacific Hydro P3C Windfarm Network at Portland. The inspection was conducted between the 18th of May 2020 and the 3rd of June 2020 by Omexom Asset Inspector Joseph Clarke.

Inspection Scope : Cyclic above ground Inspection (HBRA)

- Above ground inspection of 317 x 66kV Pac Hydro poles without Powercor assets on them.
- Above ground inspection of 206 Dual Asset poles. Pole top Pacific Hydro Assets only will be inspected.
- If during the inspection a Powercor asset was observed as having a high priority maintenance item, then under Duty of Care we would notify Powercor.
- Above ground and below ground inspection If any existing limited life poles are identified (identified by the marking on the poles or by client supplied data)

The inspection was conducted on a total of five hundred and fourteen (514) assets and the details are provided in the attachment A . High Resolution photos are provided in a separate USB drive.

2. Assessment Details

During the assessment, five hundred and thirteen (513) structures were classified as serviceable while one (1) structure (LIS : 998523 Pole# 316) was classified as unserviceable. The following pages provide the details of the findings on all structures that had maintenance items noted. Photo reference numbers are also provided.

Priority Classification:

1. **"P1 - urgent safety risk 24 hours"**
2. **"P42 Defect rectification within 42 days"**
3. **"P2 Defect rectification within 3 months advised"**
4. **"P3 Observation only"**

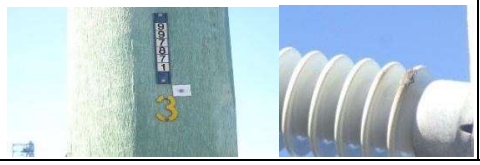
3. Pole top Inspection Details

3.1 Unserviceable Poles

IS/Pole #: 998523 / 316 Reference: Ref 306-309	Observation	Priority
	Hardware pulling through splits beyond 2m >>U/S not suit to stake<<	P2, Medium. Replacement of pole required

3.2 Serviceable Poles

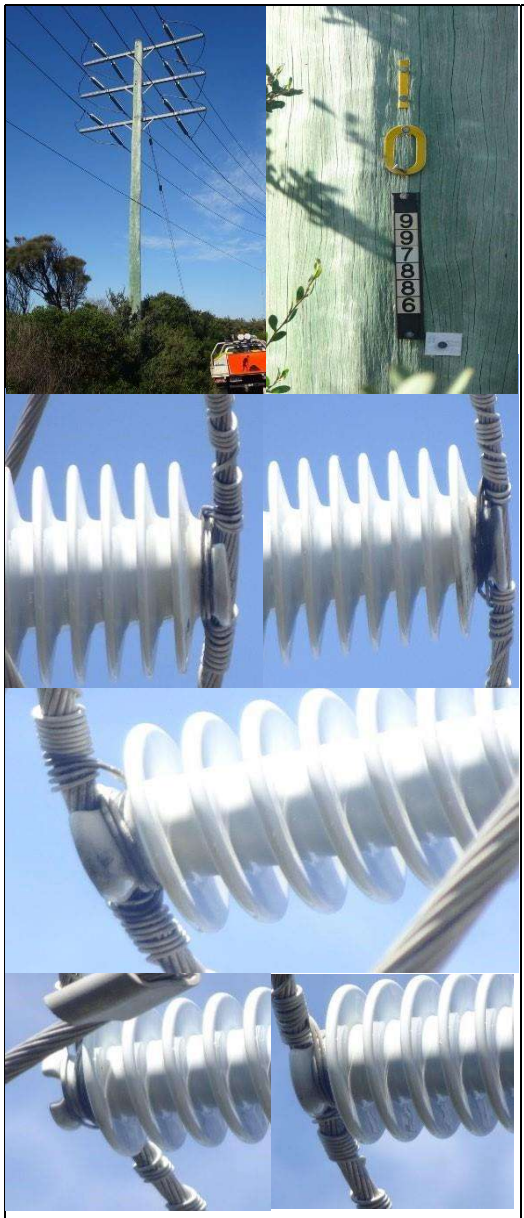
LIS/Pole #: 997865 / 2 Reference: Ref 1-5	Observation	Priority
	P3 corroded tie pole insulator. Xarm 1+3 P2 loose nut West side	Low

LIS/Pole #: 997871 / 3 Reference: Ref 6-7	Observation	Priority
	P42 punctured insulator without evidence of flashover East side centre phase	High

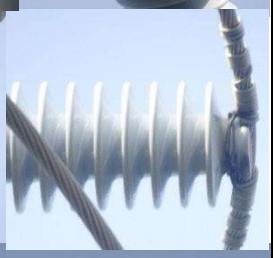
LIS/Pole #: 997879 / 6 Reference: Ref 8 -10	Observation	Priority
 	P3 corroded tie Xarm 3 west side	Low

LIS/Pole #: 737362 / 6A Reference: Ref 11-12	Observation	Priority
 	P2 missing kingbolt nut xarm 1 - corrosion	Medium

LIS/Pole #: 997883 / 7 Reference: Ref 13-14	Observation	Priority
 	Minor split at top of pole. No issue yet. Incorrect installation	N/A
LIS/Pole #: 997886 / 10 Reference: Ref 15-21	Observation	Priority

	P3 corroded tie xarm 1 east + west xarm 2 east + west xarm 3 east	Low

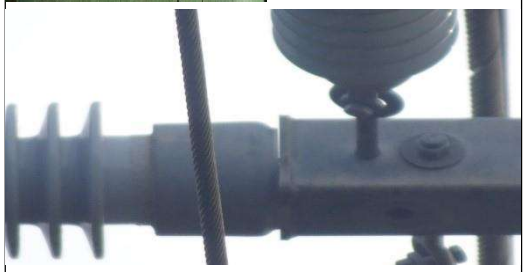
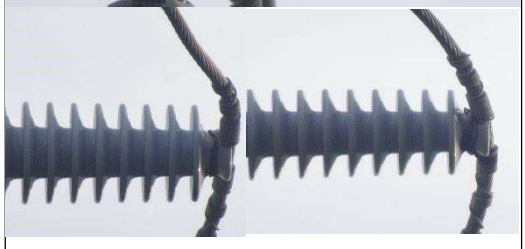
LIS/Pole #: 997894 /18 Reference: Ref 22-31	Observation	Priority

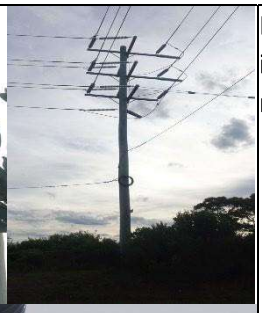
         	P3 corroded tie xarm1 south + north xarm 2 south xarm3 south + north P2 partially secured W clip north east centre phase P2 loose nut xarm1 south xarm2 south + north	P3 Low P2 medium

LIS/Pole #: 997912 / 30 Reference: Ref 32-34	Observation	Priority

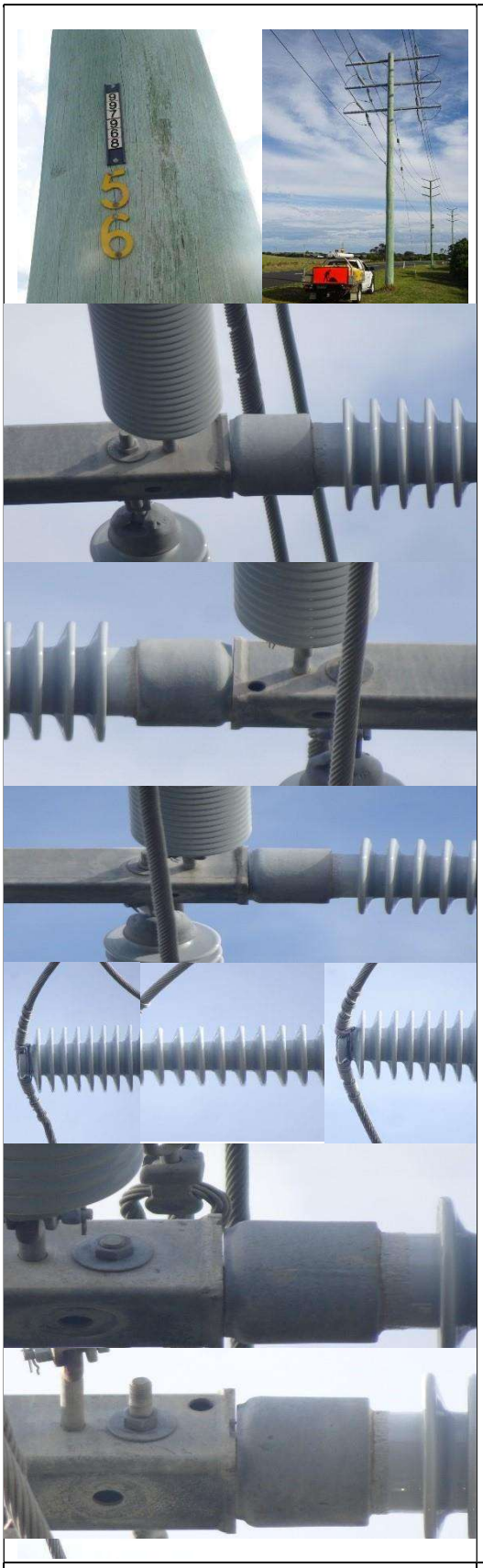
	P3 loose insulator nut xarm 3 east side	Low

LIS/Pole #: 997936 / 46 Reference: Ref 35-42	Observation	Priority

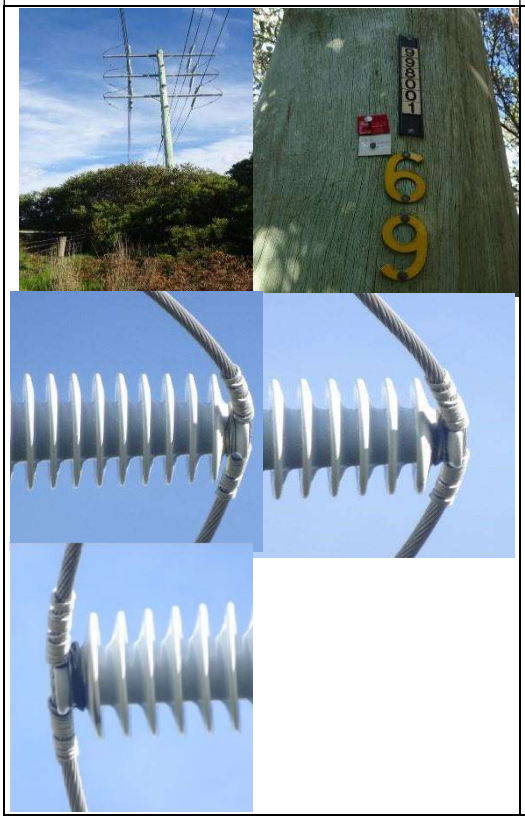
      	P3 corroded tie xarm1 east + west xarm3 west P2 loose insulator nuts xarm1 east xarm3 east + west	P3 low P2 medium
LIS/Pole #: 997954 / 48 Reference: Ref 43-48	Observation	Priority

     	P3 corroded tie xarm2 north P2 loose insulator nut xarm1 east xarm3 east xarm4 north	P3 low P2 medium

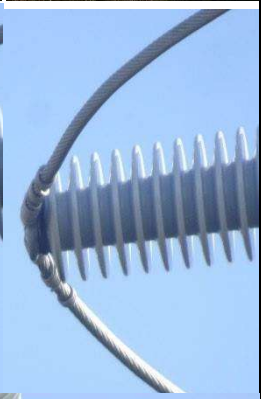
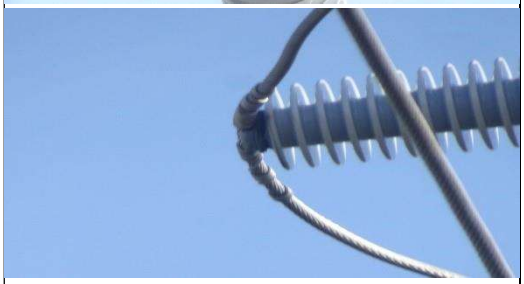
LIS/Pole #: 997968 / 56 Reference: Ref 49 -59	Observation	Priority

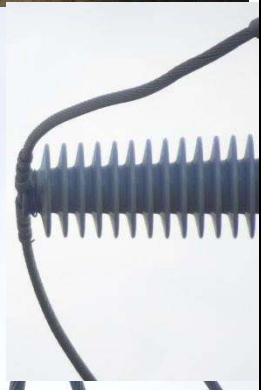
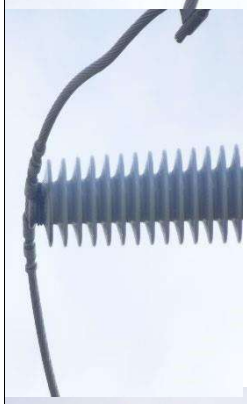
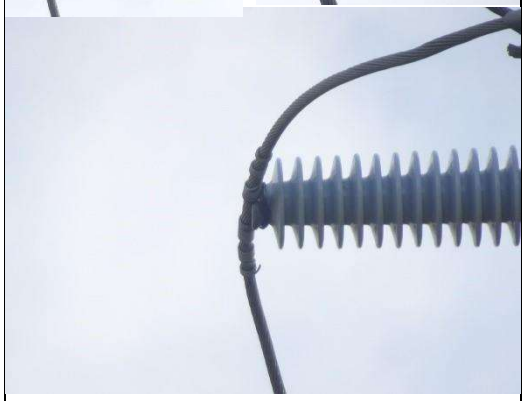
	P3 corroded tie xarm1 south xarm2 south xarm3 north + south P2 loose insulator nut xarm1 south xarm2 north xarm3 north + south	P3 low P2 medium
LIS/Pole #: 997990 / 64 Reference: Ref 60-64	Observation	Priority

	P3 corroded tie xarm1 east xarm2 east P2 loose insulator nut xarm1 east	P3 low P2 medium

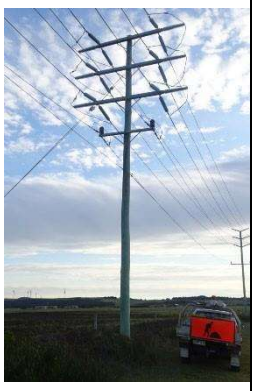
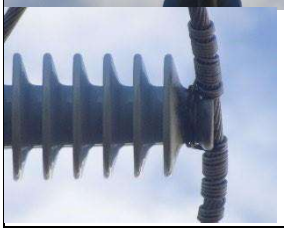
LIS/Pole #: 998001 / 69 Reference: Ref 65-69	Observation	Priority
	P3 corroded tie xarm2 east + west xarm3 west side	Low

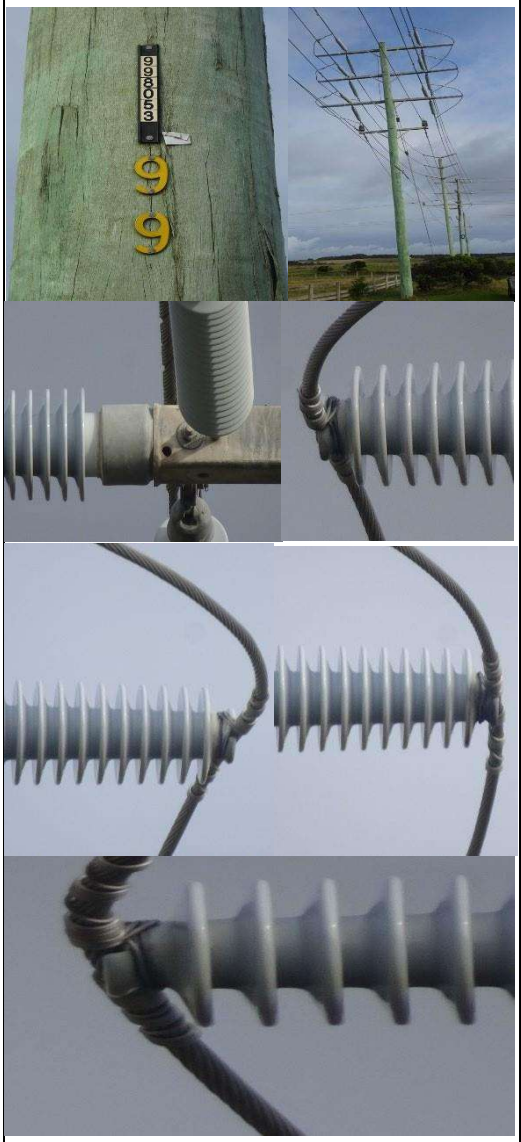
LIS/Pole #: 998009 / 73 Reference: Ref 70-76	Observation	Priority

      	P3 corroded tie xarm1 south xarm2 south xarm1 south p2 loose insulator nut xarm1 north xarm3 north	P3 low P2 medium

LIS/Pole #: 998919 / 82 Reference: Ref 77-83	Observation	Priority
      	P3 corroded tie xarm1 south + north xarm2 south xarm3 south + north	Low

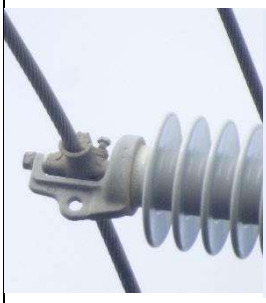
LIS/Pole #: 998020 / 83 Reference: Ref 84-87	Observation	Priority
   	P3 corroded tie xarm2 east xarm4 east	Low

LIS/Pole #: 998032 / 86 Reference: Ref 88-93	Observation	Priority
     	P3 corroded tie xarm3 south xarm1 north xarm2 north P2 loose insulator nut xarm1 south	P3 low P2 medium

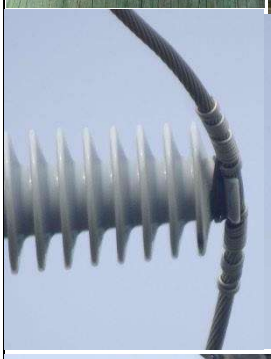
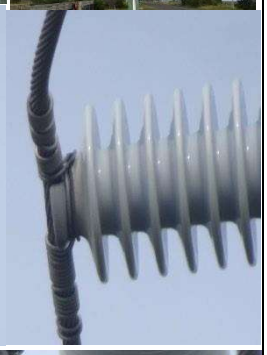
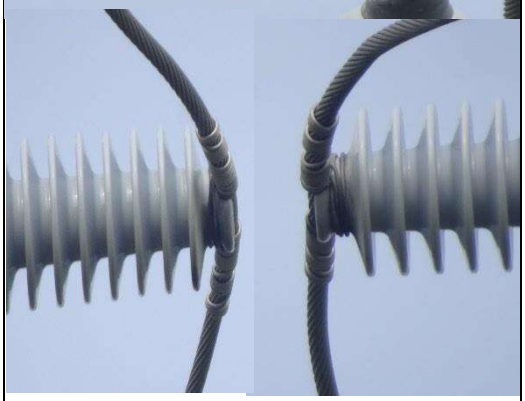
LIS/Pole #: 998053 / 99 Reference: Ref 94-100	Observation	Priority
	P3 corroded tie xarm1 north xarm2 north + south xarm3 south P2 loose insulator nut xarm3 south	P3 low P2 medium

LIS/Pole #: 998065 / 101 Reference: Ref 101-103	Observation	Priority

  	P3 corroded tie xarm3 west	Low

LIS/Pole #: 998085 / 105 Reference: Ref 104-107	Observation	Priority
   	P3 loose Clamp bolt xarm2 east xarm3 east	P3

LIS/Pole #: 998087 / 107 Reference: Ref 108-115	Observation	Priority

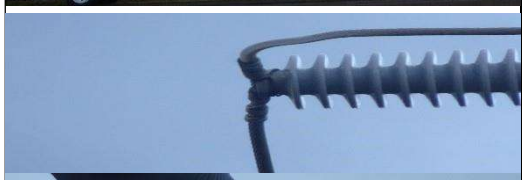
      	P3 corroded tie xarm1 west xarm2 east xarm3 east + west P2 loose insulator nut xarm1 east xarm2 east	P3 low P2 medium

LIS/Pole #: 998089 / 108 Reference: Ref 116-117	Observation	Priority

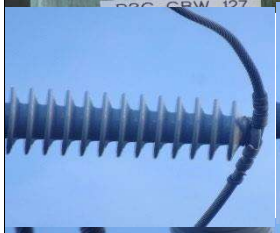
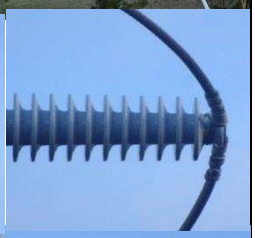
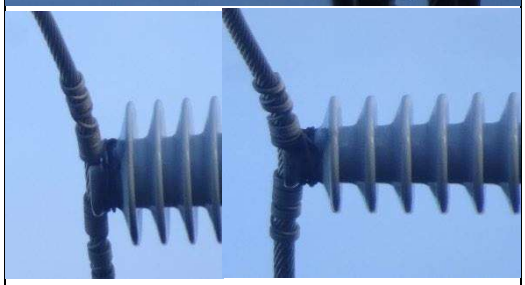
 	P3 5 degree lean with pole mounted plant	Low

LIS/Pole #: 997866 / X2AGL Reference: Ref 118-119	Observation	Priority
 	P3 unused asset	Low

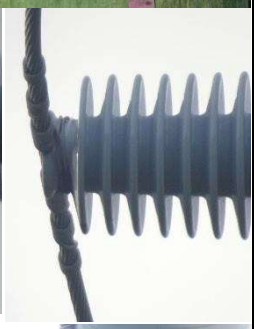
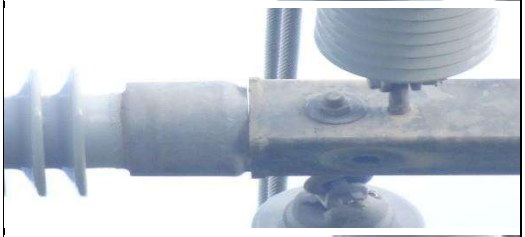
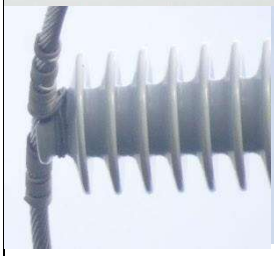
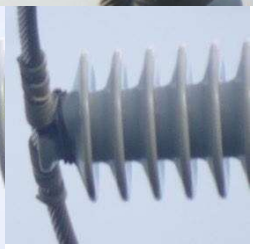
LIS/Pole #: 998131 / 122 Reference: Ref 120-127	Observation	Priority

      	P3 corroded tie xarm1 north P2 loose insulator nut xarm1 south xarm2 north + south xa north P2 loose stay cable	P3 low P2 medium

LIS/Pole #: 998137 / 127 Reference: Ref 128-137	Observation	Priority

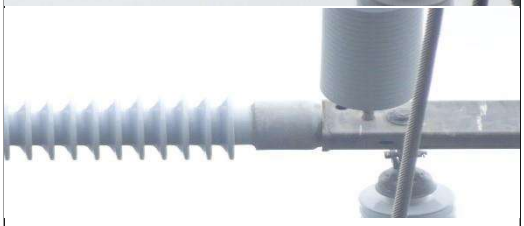
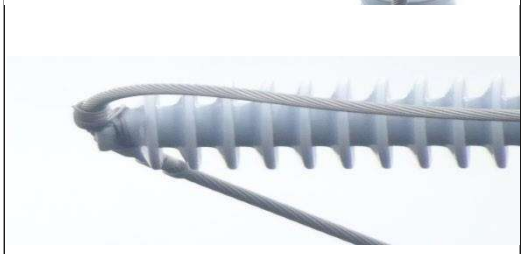
        	P3 corroded tie xarm1 north + south xarm2 north + south P2 loose insulator nut xarm1 north + south xarm2 south xarm3 south	P3 low P2 medium

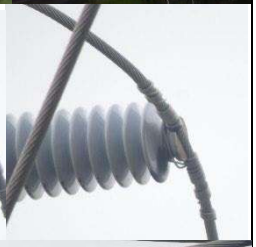
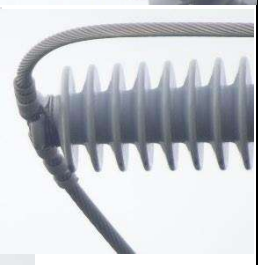
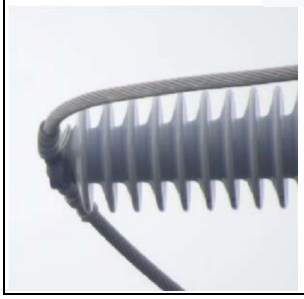
LIS/Pole #: 998148 / 130 Reference: Ref 138-147	Observation	Priority

         	P3 corroded tie xarm1 north + south xarm2 south xarm3 north P2 loose insulator nut xarm1 south xarm2 north + south xarm3 south	P3 low P2 medium

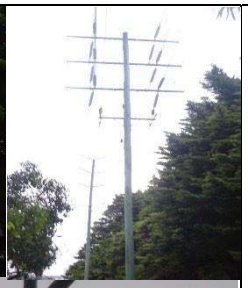
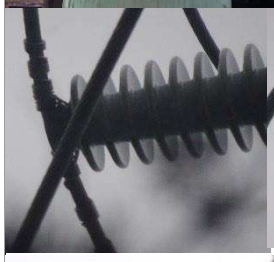
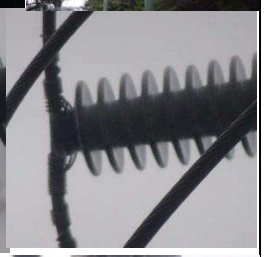
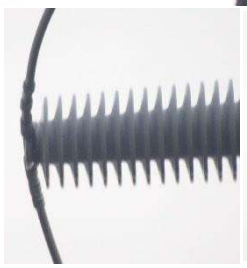
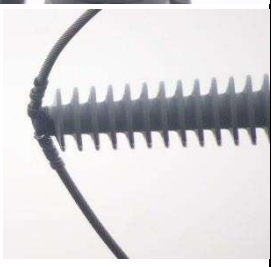
LIS/Pole #: 724774/ 138 Reference: Ref 148-150	Observation	Priority
  	P3 loose insulator bolt xarm3 north P2 11degree lean >> elsewhere <<	P3 low P2 medium

LIS/Pole #: 724797 / 147 Reference: Ref 151-155	Observation	Priority

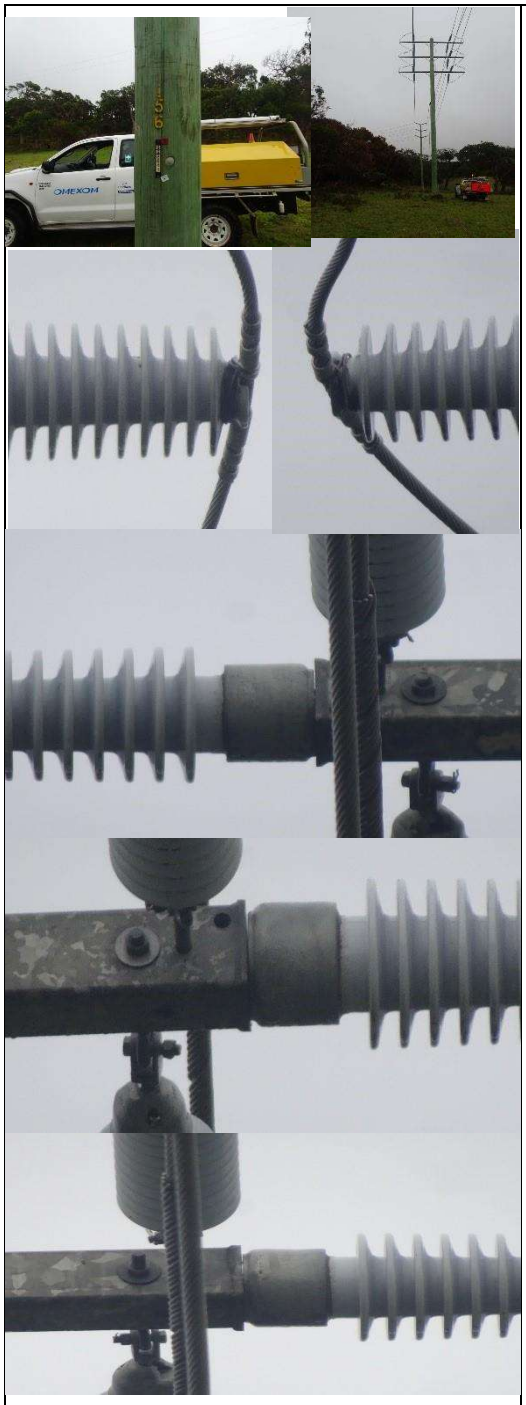
    	P3 corroded tie xarm3 south P2 loose insulator nut xarm1 south xarm2 south	P3 low P2 medium
LIS/Pole #: 724810 / 152A Reference: Ref 156-164	Observation	Priority

        	P3 corroded tie xarm1 north + south xarm2 north xarm3 north + south P2 loose insulator nut xarm1 xarm2 north	P3 low P2 medium

LIS/Pole #: 724835 / 153A Reference: Ref 165-171	Observation	Priority

      	P3 corroded tie xarm1 north + south xarm2 north + south P2 loose insulator nut xarm1 south	P3 low P2 medium

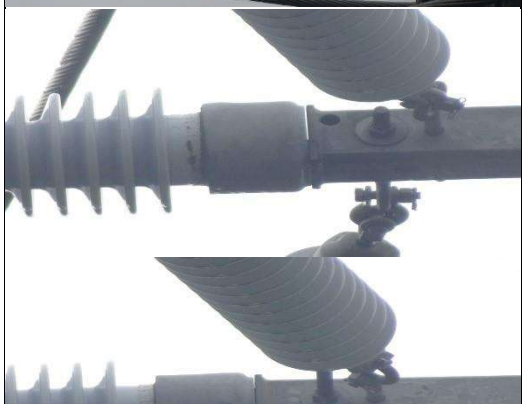
LIS/Pole #: 998641 / 156 Reference: Ref 172-178	Observation	Priority

	P3 corroded tie xarm1 north + south xarm2 north + south P2 loose insulator nut xarm1 south	P3 low P2 medium

LIS/Pole #: 998646 / 160 Reference: Ref 179-184	Observation	Priority

     	P3 loose insulator bolt xarm3 south P2 loose insulator bolt xarm2 north + south xarm3 north	P3 low P2 medium

LIS/Pole #: 998651 / 165 Reference: Ref 185-191	Observation	Priority

      	P3 corroded tie xarm2 north P2 loose insulator nut xarm1 south + north xarm2 north + south	P3 low P2 medium

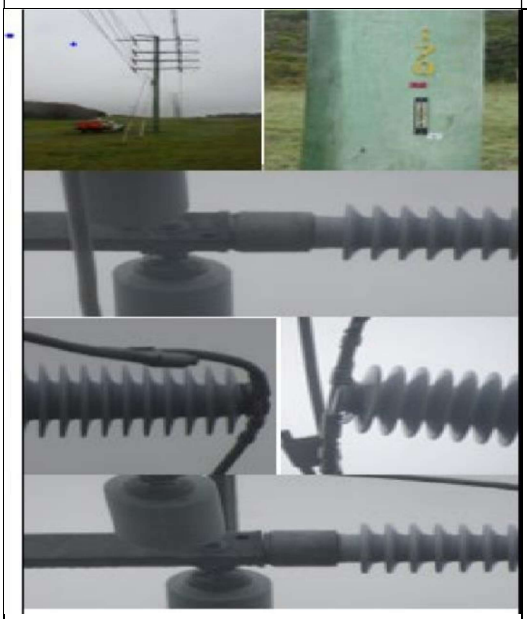
LIS/Pole #: 998652 / 166 Reference: Ref 192-197	Observation	Priority

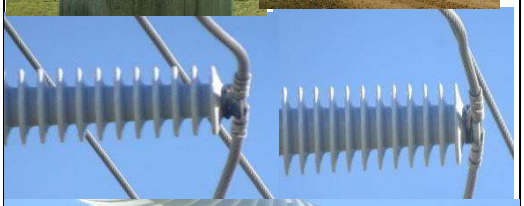
	P2 missing insulator bolt xarm1 north + south xarm2 south xarm3 south	Medium

LIS/Pole #: 724840 / 168A Reference: Ref 198-201	Observation	Priority
	P3 loose kingbolt xarm3 + xarm4	Low

LIS/Pole #: 998655 / 169 Reference: Ref 202-205	Observation	Priority

   	P3 missing pole cap P3 loose kingbolt xarm4	Low

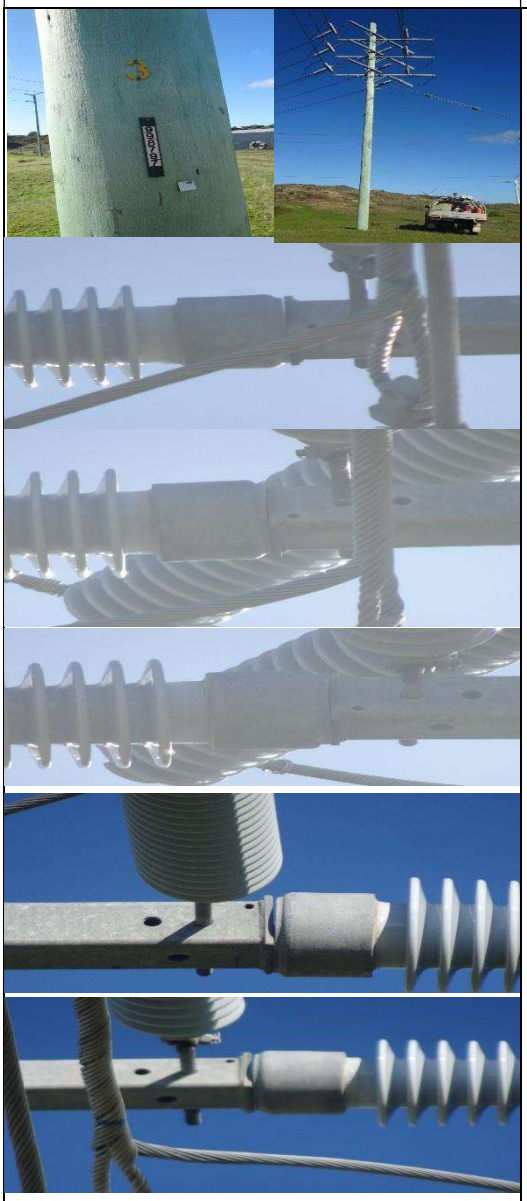
LIS/Pole #: 998656 / 170 Reference: Ref 206-211	Observation	Priority
	P3 corroded tie xarm3 north xarm4 north P2 loose insulator nut xarm1 north xarm4 north	P3 low P2 medium

LIS/Pole #: 998669 / 183 Reference: Ref 212-217	Observation	Priority
    	P3 corroded tie xarm2 north xarm3 north xarm4 north P2 loose insulator nut xarm2 north	P3 low P2 medium

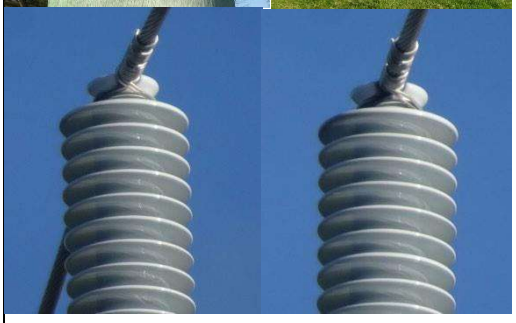
LIS/Pole #: 998687 / 184 Reference: Ref 218-220	Observation	Priority
  	P3 loose clamp bolts xarm2 south	Low

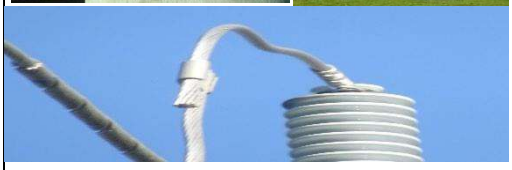
LIS/Pole #: 998697 / 187 Reference: Ref 221-223	Observation	Priority

	P3 corroded tie xarm4 west	Low

LIS/Pole #: 998797 / 3 Reference: Ref 224-230	Observation	Priority
	P2 loose insulator nut xarm1 north xarm2 north xarm3 north xarm5 north xarm6 north	Medium

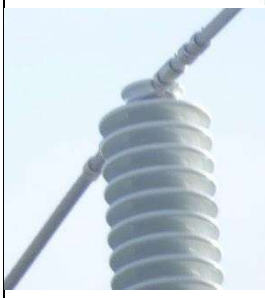
LIS/Pole #: 998712/ 200 Reference: Ref 231-233	Observation	Priority
  	P3 corroded tie xarm1 south	Low

LIS/Pole #: 998725 / 209 Reference: Ref 234-237	Observation	Priority
  	P3 corroded tie xarm1 east + pole insulator	Low

LIS/Pole #: 998727 /210 Reference: Ref 238-240	Observation	Priority
  	P3 corroded tie xarm1 west	Low

LIS/Pole #: 998739 / 217 Reference: Ref 241-243	Observation	Priority
  	Split at top of pole. No issue yet just for records. Incorrect installation	N/A

LIS/Pole #: 998742 / 219 Reference: Ref 244-247	Observation	Priority

   	P3 corroded tie xarm1 south + pole insulator	Low

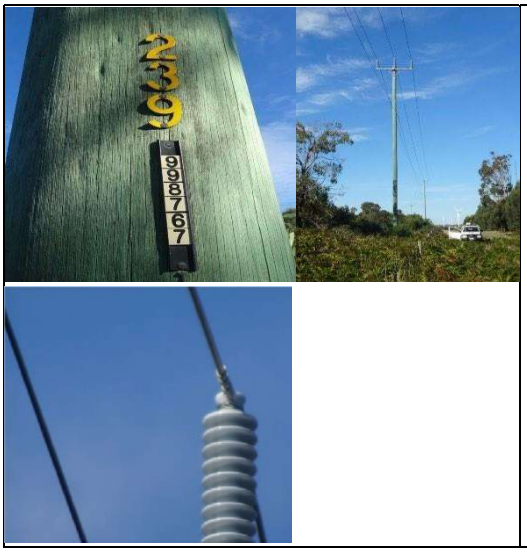
LIS/Pole #: 998743 / 220 Reference: Ref 248-250	Observation	Priority
  	P3 corroded tie xarm1 north	Low

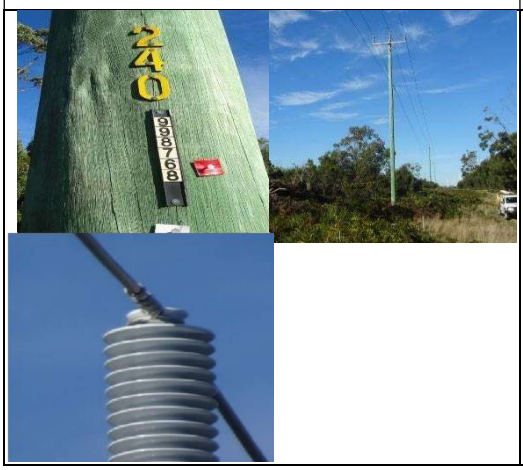
LIS/Pole #: 998744/ 221 Reference: Ref 251-254	Observation	Priority

	P3 corroded tie	Low

LIS/Pole #: 998754 / 229 Reference: Ref 255-257	Observation	Priority
	P3 corroded tie xarm1 north	Low

LIS/Pole #: 998767 / 239 Reference: Ref 258-260	Observation	Priority

	P3 corroded tie xarm1 north	Low

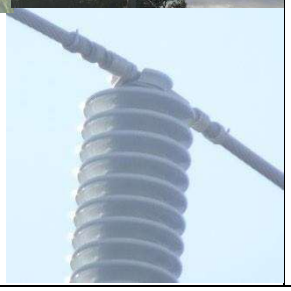
LIS/Pole #: 998768 / 240 Reference: Ref 261-263	Observation	Priority
	P3 corroded tie xarm1 north	Low

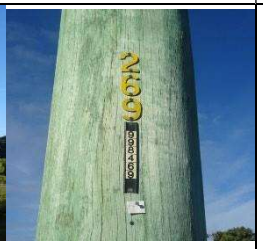
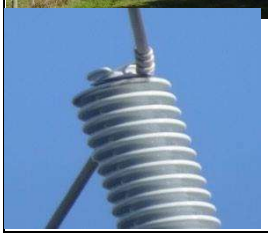
LIS/Pole #: 998778 / 248 Reference: Ref 264-265	Observation	Priority
	Split at top of pole due to incorrect installation - no defect just for records	

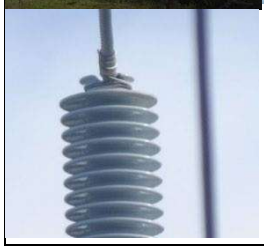
LIS/Pole #: 998785 / 254 Reference: Ref 266-266A	Observation	Priority
 	Split at top of pole due to incorrect installation - no defect just for records	N/A

LIS/Pole #: 998790 / 258 Reference: Ref 267-269	Observation	Priority
  	P3 corroded tie xarm1 north	Low

LIS/Pole #: 998462 / 262 Reference: Ref 270-272	Observation	Priority

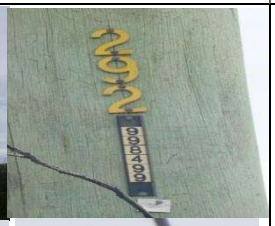
  	P3 corroded tie pole insulator	Low

LIS/Pole #: 998469 / 269 Reference: Ref 273-275	Observation	Priority
  	P3 corroded tie pole insulator	Low

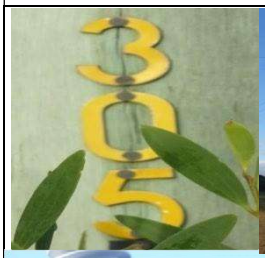
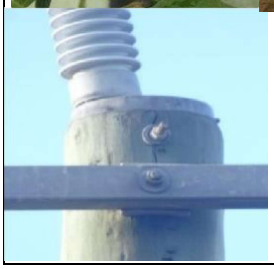
LIS/Pole #: 998484 / 279 Reference: Ref 276-278	Observation	Priority
  	P3 corroded tie pole insulator	Low

LIS/Pole #: 998496 / 289A Reference: Ref 279-283	Observation	Priority
    	P3 corroded tie xarm1 north + south + pole insulator	Low

LIS/Pole #: 998498 / 291 Reference: Ref 284-286	Observation	Priority

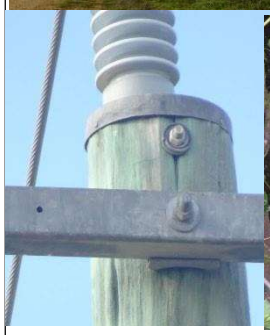
  	P3 corroded tie xarm1 south	Low
LIS/Pole #: 998499 / 292 Reference: Ref 287-290	Observation	Priority
   	P3 corroded tie xarm1 south + pole	Low

LIS/Pole #: 732286 / 292A Reference: Ref 291-293	Observation	Priority
  	P3 corroded tie xarm1 north + pole insulator	Low

LIS/Pole #: 998512 / 305 Reference: Ref 294-296	Observation	Priority
  	Split at top of pole due to incorrect installation - no defect just for records	

LIS/Pole #: 998517 / 310 Reference: Ref 297-299	Observation	Priority
  	P2 corroded tie xarm1 north *extremley thin	Medium

LIS/Pole #: 998520 / 313 Reference: Ref 300-302	Observation	Priority
  	P3 corroded tie xarm1 north	Low

LIS/Pole #: 998521 / 314 Reference: Ref 303-305	Observation	Priority
   	Split at top of pole due to incorrect installation - no defect just for records	N/A
LIS/Pole #: 998529 / 320 Reference: Ref 310-312	Observation	Priority
  	P3 corroded tie pole insulator	Low

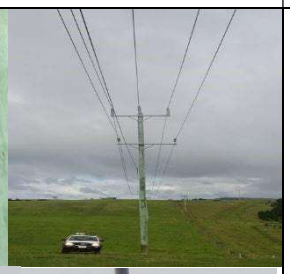
LIS/Pole #: 998530 / 321 Reference: Ref 313-315	Observation	Priority

	P3 corroded tie xarm1 east	N/A

LIS/Pole #: 998531 / 322 Reference: Ref 316-319	Observation	Priority
	P3 corroded tie xarm1 east + west+ pole insulator	Low

LIS/Pole #: 998533 / 324 Reference: Ref 320-322	Observation	Priority
	Split at top of pole due to incorrect installation - no defect just for records	N/A

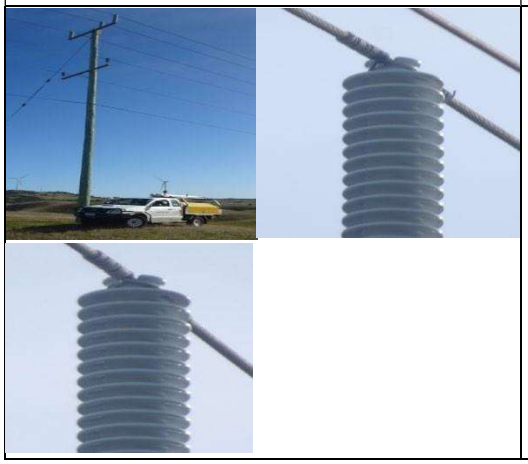
LIS/Pole #: 998536 / 327 Reference: Ref 323-325	Observation	Priority
  	P3 corroded tie xarm1 north	Low

LIS/Pole #: 998568 / 330 Reference: Ref 326-329	Observation	Priority
   	P3 corroded tie xarm1 east + pole insulator	Low

LIS/Pole #: 998587 / 345 Reference: Ref 330-333	Observation	Priority

	P3 corroded tie xarm1 west + east	Low

LIS/Pole #: 998604 / 353 Reference: Ref 334-336	Observation	Priority
	P3 corroded tie xarm1 west	Low

LIS/Pole #: 998613 / 354 Reference: Ref 337-339	Observation	Priority
	P3 corroded tie xarm1 west + pole	Low

LIS/Pole #: 724863 / 372 Reference: Ref 340-343	Observation	Priority

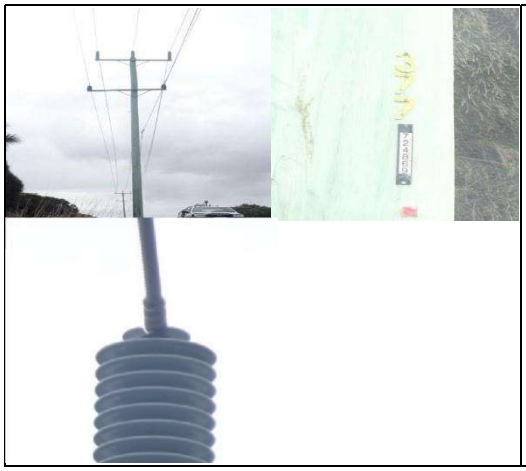
	P3 corroded tie xarm1 west + east	Low

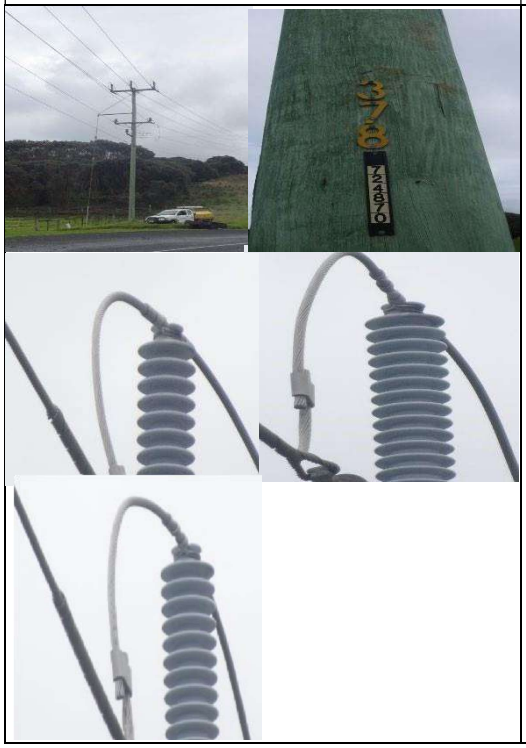
LIS/Pole #: 724864 / 373 Reference: Ref 344-347	Observation	Priority
	P3 corroded tie xarm1 east	Low

LIS/Pole #: 724865 / 374 Reference: Ref 348-351	Observation	Priority
	P3 corroded tie xarm1 west + east + pole	Low

LIS/Pole #: 724866 / 375 Reference: Ref 352-354	Observation	Priority
	Split at top of pole due to incorrect installation - no defect just for records	N/A

LIS/Pole #: 724869 / 377 Reference: Ref 355-357	Observation	Priority

	P3 corroded tie xarm1 west	Low

LIS/Pole #: 724870 / 378 Reference: Ref 358-362	Observation	Priority
	P3 corroded tie xarm1 west + east + pole	Low

LIS/Pole #: 724877 / 384 Reference: Ref 363-365	Observation	Priority

  	P3 corroded tie xarm1 south	Low

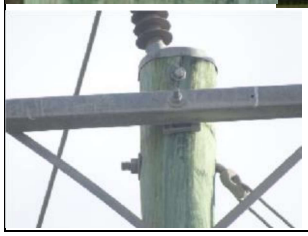
LIS/Pole #: 724893 / 395 Reference: Ref 366-369	Observation	Priority
   	P3 corroded tie xarm1 X2	Low

LIS/Pole #: 724896 / 398 Reference: Ref 370-372	Observation	Priority

	P3 corroded tie xarm2	Low

LIS/Pole #: 745396 / 2 Reference: Ref 373-376	Observation	Priority
	Split at top of pole due to incorrect installation - if it is to open up anymore pole will need to be replaced. I would suggest regular inspections	

LIS/Pole #: 745403/ 9 Reference: Ref 377-380	Observation	Priority
	Split at top of pole due to incorrect installation - if it is to open up anymore pole will need to be replaced. I would suggest regular inspections	N/A

LIS/Pole #: 745432 / 26 Reference: Ref 381-383	Observation	Priority
  	Split at top of pole due to incorrect installation - no defect just for records	N/A

LIS/Pole #: 745444 / 37 Reference: Ref 384-386	Observation	Priority
  	P3 corroded tie to the pole	Low

LIS/Pole #: 745451 / 43 Reference: Ref 387-389	Observation	Priority

  	P2 loose insulator nut xarm1 south	Medium
LIS/Pole #: 745455 / 47 Reference: Ref 390-393	Observation	Priority
   	P3 corroded tie xarm1 east + pole	Low
LIS/Pole #: 745486 / 64 Reference: Ref 394-397	Observation	Priority
   	P3 corroded tie xarm1 north + south	Low

LIS/Pole #: 745488 / 65 Reference: Ref 398-402	Observation	Priority
	P3 corroded tie xarm1 north + south + pole	Low

LIS/Pole #: 784940 / 72 Reference: Ref 403-406	Observation	Priority
	P3 corroded tie xarm1 north + pole	Low

LIS/Pole #: 745498 / 73 Reference: Ref 407-409	Observation	Priority

  	Split at top of pole due to incorrect installation - no defect just for records	N/A

4. Summary:

In general, all assets are in very good condition. No critical defects requiring immediate rectification works were identified. Numerous observations were made as listed above and in the provided spreadsheet.

5. Attachments:

1. Attachment A : Line Inspection Report sheet
2. High Resolution Photos (Sent separately in USB)

Appendix J.

PHA.OPS.09.036.1 Electrical Event Report

Pacific Hydro logo (small)

Electrical Event Report

Report Number

Report Status

PHA.OPS.09.001 Electrical Event Report Procedure

Note: Faults that have the potential to cause injury or property damage are also to be reported on form HSE 012.002.2

Serious Electrical Incidents

Any faults that are deemed to be "serious electrical incidents" must as soon as practicable be reported to Energy Safe Victoria.

- an electrical worker who becomes aware of a serious electrical incident relating to work carried out by that worker;
- an operator of a high voltage electrical installation who becomes aware of any serious electrical incident occurring within that electrical installation
- an operator of a complex electrical installation who becomes aware of any serious electrical incident occurring within that complex electrical installation

Reporting Procedure to Energy Safe Victoria

As soon as it is safe to do so, contact Energy Safe by telephone on Telephone: (03) 9203 9700. This should occur within 4 (four) hours of the incident. The person who reported the incident to Energy Safe Victoria then must submit a written report of the incident to Energy Safe Victoria within 20 business days of the incident.

Short Description *

Reported By * Daniel Choi

Notification Date * 6/10/2020

Site Name * Please select a value...

Serious Electrical Event? * No

Event Number Auto Generated

Event Date & Time * 12 AM 00

Weather at time of event

Brief Description of Fault *

Supporting Attachments

Suspected Cause of Fault

Event Location / Type

Impact of Event - (operations / equipment)

Name / Location / No of CBs Open

Production Relay/s Operated / Triggered

Tripping Relay Indications

Attachments

Data Downloaded: Yes

Data Location

Externals Contacts

Power Restored: 12 AM 00

Duration: hours

	Date	Who	Description
Immediate Actions			
Future Actions			

Is Further Root Cause Required: No

SAVE | SAVE AND SEND UPDATES | CANCEL

Appendix K.

PHA.OPS.09.002 Defect Reporting Procedure

PacificHydro

Australian Operation Procedure

DEFECT REPORTING PROCEDURE

PHA.OPS.09.002

12 February 2020

Pacific Hydro Pty Ltd ABN 31 057 279 508
Level 13, 700 Collins Street Docklands Victoria 3008 Australia | Telephone +61 3 8621 6000 | pacifichydro.com

Table of Contents

Disclaimer

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Document Control

Name / Originator	Description	Date	Signature
Duncan Alexander	Author	12.02.2020	
Hongtao Cao	Reviewer	12.02.2020	
Cesar Salvatierra	Approver	12.02.2020	

Controlled Document (Y or N)	N	**Revision No**	4
Document Status	Approved	**Links to Related Documents**	Link
Next Review Date	12.02.2021	**Document Location**	Nexo PHA Operations
PH Standard Element(s) and/or Sub-element(s)	Standard Element	**Document Type**	Procedure

Revision History

Issue	Release Date	Comments
Initial Issued	01.10.2016	
2	18.10.2018	
3	3.12.2019	Major Updates to reflect updated NFDA
4	02.2020	Minor updates following improvements to Nintex Forms/Workflows. Format updates.

1. Introduction

This procedure outlines the process to be followed when defects (or non-conformances) are found in Assets/systems (hardware or software) which are intended to continue operation.

Management of operational defects is important to ensure safe operation of the Assets and can support prevention of future similar/systemic defects.

Defects can vary in the Risk that they present to the safe operation of the Assets and hence the wider business. To help evaluate this risk we refer to the Risk Matrix in Appendix 1 which forms part of the board approved Enterprise Wide Risk Management Framework. It is important to be familiar with, and refer to, Pacific Hydro's Risk Matrix when considering raising a Defect Report to help establish the Risk Rating the Defect poses to Pacific Hydro's business. The rationale around management of Defects/Risk associated with Defects is:

- The Higher the Risk Rating the Higher the level of Review/Approval required;
- The Risk is managed by those best placed to do so.

Examples of defects include: damage to mechanical equipment such as towers, blades, drive train components and hydraulics, damage to electrical equipment such as sensors, transformers, cabling, switchgear, etc. Minor defects such as paint scratches, minor corrosion of ancillary plant, leaks, etc. should not rate as a risk (on the assumption they are picked up early) and hence should be raised as a Task on the Computerised Maintenance Management System (CMMS), with the aim to be rectified in the earliest convenient time possible if needed.

2. Scope

The purpose of this procedure is to define the defect concept across PHA Operations, including clear guidelines to report them and to manage them in alignment with the Enterprise Risk Management Framework of PH Australia, and the Non-Financial Delegation of Authority Procedure (NFDA).

3. Definitions

Term	Definition/Abbreviations
Asset	A piece of fixed or mobile equipment of value
Defect	A defect is any fault in the design, function or qualitative characteristic of an item in operation which differs from the specification, the drawing or recognised standard of good workmanship for that item other than that classified as 'fair wear and tear' within manufacturer's limits and that effects operational functionality or performance.
EWRMF	Enterprise Wide Risk Management Framework
Significant Defects	Defects with a risk rating of High or Extreme according to PH EWRMF
Non-Significant Defects	Defects with a risk rating of Low or Medium according to PH EWRMF

Failure	A Failure is a substandard condition of a component or asset that causes the plant to breakdown or trip. Immediate repair is needed to restore the plant to

Term	Definition/Abbreviations
	operation
NFDA	Non-Financial Delegation of Authority
LCM	Lifecycle Cost Model
CMMS	Computerized Maintenance Management System
PHA	Pacific Hydro Australia

4. References

PHA.OPS.07.005 Delegation of Authority – Non Financial

PHA.OPS.09.005 Maintenance Management Procedure

Defect Reporting Workflow (Visio)

Major Component Failure spreadsheet

Defect Reporting Form and Workflow Instructions Location

of Defect Reporting Form (Annex C)

https://pacifichydro.sharepoint.com/ausops

Links to the Defect Reporting Form are located at:

- Operations Dashboard under the 'Forms' field);
- Operation and Maintenance Portals http://nexo.pacifichydro.com.au/sites/ausops/Pages/RMS-Operations-and-MaintenancePortal.aspx

5. Approvals Required to Operate Assets under Defects

As soon as a defect is identified on site in any of the assets within the PHA operating fleet, a thorough risk assessment should be conducted to thoroughly review the risk rating of the defect (Annex A). Based on this risk review, a definition of "Significant" or "Non-Significant" event should then be allocated to the defect to facilitate its review in accordance to the current NFDA of PHA. Depending if the defect can be defined as "Significant" or "Non-Significant", and also depending if the underlying asset impacted by the defect is Critical or Not Critical (NFDA Annex 1.1), different approvals levels will be required to operate the asset under the respective defect. Supervisors and Regional Managers are responsible for ensuring that the proper approval levels have been used when continue operating assets in the presence of high risk defects.

6. Defect Reporting Procedure

The basic steps in the Pacific Hydro initiated Defect Reporting process are shown below. It is structured to ensure a staged approval process which is graphically represented in Appendix B.

1- Raise a Defect Reporting Form

Initiator should refer to the Risk Matrix , to determine if the proposed Defect risk rating is Low and hence does NOT require a Defect Report to be raised.

Ensure the Defect Reporting Form is completed with as much information including any action/s that have been undertaken to date to minimise potential Rejection from subsequent reviewers Recommendations from the originator on future action/s should also be included.

2- Supervisor (Regional Services Manager) Review

Assess impacts, actions and the current unit status. Any additional supervisor actions/comments to be included.

Supervisor to review Risk Rating, the need for a Root Cause Analysis and approve.

Refer to NFDA procedure as to who can endorse/approve a change.

3- Engineer (Senior Asset Engineer) Review

As per their respective discipline's defect actions and future actions should be reviewed for soundness against engineering principles. Further support maybe sought through Subject Matter Experts (SME's) before rejecting/endorsing. The need for a Root Cause Analysis (RCA) should also be done.

Note that under the *Professional Engineers Registration Act 2019* that from July 2021 this engineering review stage may be defined under the definition of *"professional engineering services"* in which case it can only be performed by a registered professional engineer within their registered *"area of engineering"*.

Refer to NFDA procedure as to who can endorse/approve a change.

4- Asset Manager (AM) and/or Production Manager (PM) Review

Subject to the Defect 'Classification' and if it is impacting a 'Critical' Asset this step will either require the Production Manager to provide 'Backup' or 'Joint' endorsement/approval.

Refer to NFDA procedure as to who can endorse/approve a change.

5- Executive Manager, Engineering Services (EMES) Review

Subject to the Defect being classified as both

1. Critical, and
2. Significant (Extreme and High 'Post' Risk ONLY) this step will be directed

to the EMES for review.

Refer to NFDA procedure as to who can endorse/approve a change.

6- Executive Manager, Operations (EMO) Review

Subject to the Defect continuing to be classified as both

1. Critical, and
2. Significant (Extreme and High 'Post' Risk ONLY) this step will be directed

to the EMO for review.

Refer to NFDA procedure as to who can endorse/approve a change.

7- Director of Generation (DG) Review

12 February 2020

Subject to the Defect continuing to be classified as both

1. Critical, and
2. Significant (Extreme and High 'Post' Risk ONLY), and
3. The Risk Consequence is rated as 'Catastrophic', this step will be directed to the DG for review.

Refer to NFDA procedure as to who can endorse/approve a change.

8- Corporate Office and Chief Executive Officer (CEO) Review Subject to the Defect continuing to be classified as both

1. Critical, and
2. Significant (Extreme and High 'Post' Risk ONLY), and
3. The Risk Consequence is rated as 'Catastrophic', the defect information will be directed to the Corporate Office/CEO for review.

Refer to NFDA procedure as to who can endorse/approve a change.

9- Initiated

Once the Defect form has made it through the review stages it can be commenced.
Note that this review process may not cover all site/task specific documentation such as SWMS/JSA's, Permits, Instructions etc which may still need to be reviewed prior to the task.

10- Completed

Defect status is to be reviewed through scheduled meetings and remain active until all follow-on actions are completed and the defect is resolved.

The Defect form can then be edited to 'Mark As Completed'.

Appendix A – Risk Matrix

Table 1: Risk Likelihood Ratings

Rating	Criteria
Frequent	Is expected to occur in most circumstances Risk has more than 75% chance of occurring Will occur within the next 6 months
Likely	Will probably occur in most circumstances Risk has 50-74% chance of occurring Will occur within 18 months
Possible	Might occur at some time Risk has 25-49% chance of occurring Will occur within 36 months
Unlikely	Could occur at some time Risk has less than 25% chance of occurring Will occur within 54 months
Rare	May occur only in exceptional circumstances Not likely to occur within next 5 years

DEFECT REPORTING PROCEDURE
12 February 2020

Table 2: Risk Consequence Ratings

Rating	Financial Impact	Operations	Development Construction	Legal Compliance	Reputation	Environment Community	Health & Safety
Catastrophic	▪ Negative Financial Impact is: **EBITDA: > $20M** **and/or** **EV: > $200M**	▪ Significant reduction in group operations output: **> 30% pa** ▪ Serious damage to asset/s: **> 6 months loss of service**	▪ Significant development / construction delays: **> 12 months**	▪ Significant litigation or breach of regulation with damages / costs: **> $10M** ▪ Jailing of Director or Officer ▪ Court or Regulator imposed fine: **> $1M** ▪ Class action	▪ Significant / irreparable damage to Pacific Hydro reputation ▪ Requires PHPL Board attention ▪ Loss of Social Licence to Operate and ability to extend existing project lifecycle	▪ Significant environmental damage or long term impact resulting in costs: **> $10M** ▪ Significant breach of regulation with imposed fine: **> $1M** ▪ Significant breach leading to intrusive / restrictive regulation or moratorium ▪ Community outrage and/or significant media outcry with national / international coverage	▪ Fatality ▪ Lost time injury (LTI) resulting in permanent disability
Major	▪ Negative Financial Impact is: **EBITDA: $10M - $20M** **and/or** **EV: $100M - $200M**	▪ Major reduction in group operations output: **15% - 30% pa** ▪ Major damage to asset/s: **1 - 6 months loss of service**	▪ Major development / construction delays: **6 - 12 months**	▪ Major litigation or breach of regulation with damages / costs: **$2M - $10M** ▪ Court or Regulator imposed fine: **$0.5M - $1M**	▪ Major damage to Pacific Hydro reputation ▪ Requires CEO & CFO attention ▪ Social Licence to Operate under threat impacting ability to extend project lifecycle	▪ Major environmental damage or long term impact resulting in costs: **$2M - $10M** ▪ Major breach of regulation with imposed fine: **$0.5M - $1M** ▪ High-profile community concerns and/or heightened media attention ▪ Increased calls for more intrusive regulation	▪ Lost time injury (LTI) resulting in inability to work for > 30 days
Moderate	▪ Negative Financial Impact is: **EBITDA: $2M - $10M** **and/or** **EV: $20M - $100M**	▪ Moderate reduction in group operations output: **3% - 15% pa** ▪ Damage to asset/s with no loss of service ▪ Fines and penalties by regulators	▪ Moderate development / construction delays: **3 - 6 months** ▪ Fines and penalties by regulators and/or contractors	▪ Moderate litigation or breach of regulation with damages / costs: **$0.5M - $2M** ▪ Court or Regulator imposed fine: **$0.1M - $0.5M**	▪ Moderate damage to Pacific Hydro reputation ▪ Requires GM attention	▪ Moderate environmental damage or long term impact resulting in costs: **$0.5M - $2M** ▪ Moderate breach of regulation with imposed fine: **$0.1M - $0.5M** ▪ Medium term community impact that attracts local and national media attention	▪ Lost time injury (LTI) resulting in inability to work for 1 - 30 days
Minor	▪ Negative Financial Impact is: **EBITDA: $1M - $2M** **and/or** **EV: $5M - $20M**	▪ Minor reduction in group operations output: **1% - 3% pa** ▪ Censure by regulators	▪ Minor development / construction delays: **1-3 months** ▪ Censure by regulators	▪ Minor litigation or breach of regulation with damages / costs: **< $0.5M** ▪ Court or Regulator imposed fine: **< $0.1M**	▪ Minor damage to Pacific Hydro reputation ▪ Requires EM attention	▪ Minor environmental damage or long term impact resulting in costs: **< $0.5M** ▪ Minor breach of regulation with imposed fine: **< $0.1M** ▪ Local community complaints that attracts local media attention	▪ Medical treatment injury (MTI) or first aid treatment injury
Insignificant	▪ Negative Financial Impact is: **EBITDA: < $1M** **and/or** **EV: < $5M**	▪ Negligible group operational impact ▪ No loss of service ▪ Normal repairs to asset/s	▪ Negligible development / construction impact	▪ Negligible (immaterial) legal issues, non-compliances and breaches of regulation / contracts	▪ Negligible impact ▪ Reputation intact	▪ No lasting detrimental effect on the environment ▪ Negligible community impact - short term inconvenience	▪ No injury ▪ No review required

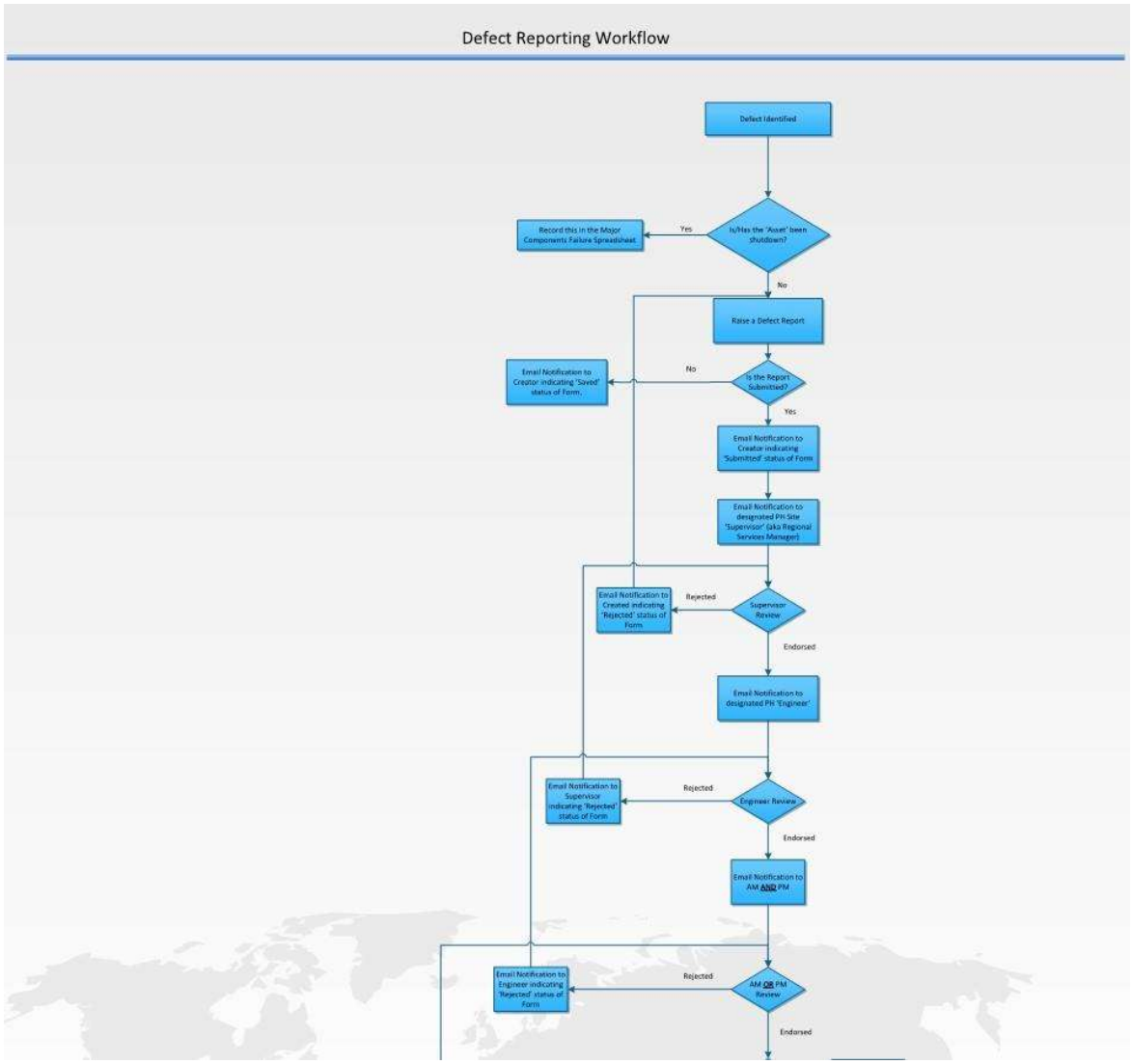
Figure 1: Risk Assessment Matrix

Consequence / Likelihood	Catastrophic	Major	Moderate	Minor	Insignificant
Frequent	Extreme 25.00	Extreme 24.00	Extreme 22.00	High 19.00	Medium 11.00
Likely	Extreme 23.00	Extreme 21.00	High 18.00	High 15.00	Medium 10.00
Possible	Extreme 20.00	High 17.00	High 14.00	Medium 9.00	Low 5.00
Unlikely	High 16.00	High 13.00	Medium 8.00	Low 4.00	Low 3.00
Rare	High 12.00	Medium 7.00	Medium 6.00	Low 2.00	Low 1.00

An example of determining the Level of Risk is provided below:

Risk	Likelihood	Consequence	Level of Risk
Risk 1	Frequent	Major	***Extreme***
Risk 2	Likely	Moderate	***High***
Risk 3	Possible	Minor	***Medium***
Risk 4	Unlikely	Insignificant	***Low***

Appendix B – Defect Reporting Workflow



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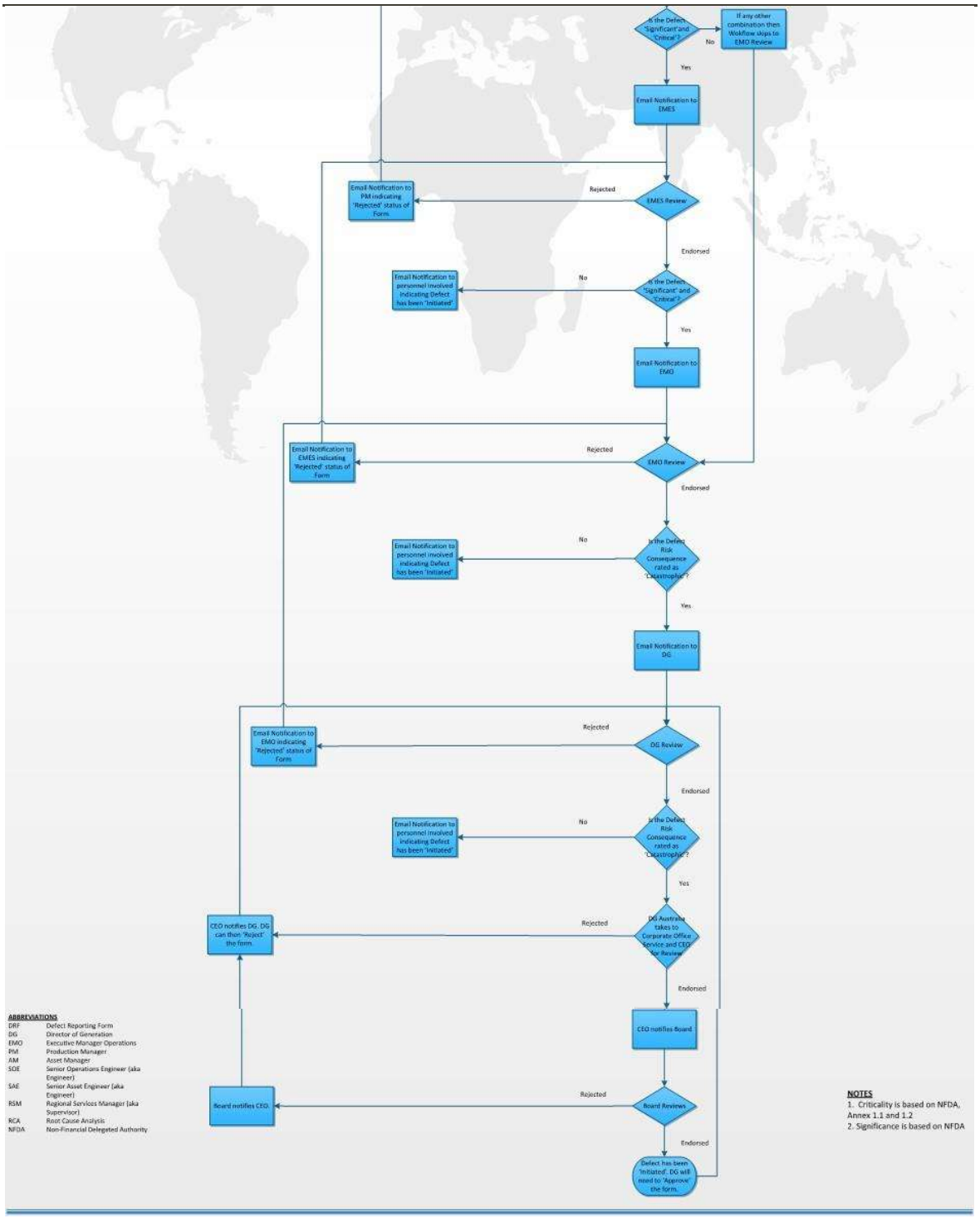
Is the Defect 'Significant' and 'Critical'?
No
If any other combination then Workflow skips to EMO Review
Yes
Email Notification to EMES
Email Notification to PM indicating 'Rejected' status of Form
Rejected
EMES Review
Endorsed
Email Notification to personnel involved indicating Defect has been 'Initiated'.
No
Is the Defect 'Significant' and 'Critical'?
Yes
Email Notification to EMO
Email Notification to EMES indicating 'Rejected' status of Form
Rejected
EMO Review
Endorsed
Email Notification to personnel involved indicating Defect has been 'Initiated'.
No
Is the Defect Risk Consequence rated as 'Catastrophic'?
Yes
Email Notification to DG
Email Notification to EMO indicating 'Rejected' status of Form
Rejected
DG Review
Endorsed
Email Notification to personnel involved indicating Defect has been 'Initiated'.
No
Is the Defect Risk Consequence rated as 'Catastrophic'?
Yes
CEO notifies DG. DG can then 'Reject' the form
Rejected
DG Australia takes to Corporate Office Service and CEO for Review
Endorsed
CEO notifies Board
Board notifies CEO
Rejected
Board Reviews
Endorsed
Defect has been 'Initiated'. DG will need to 'Approve' the form.
ABBREVIATIONS
DRF Defect Reporting Form
DG Director of Generation
EMO Executive Manager Operations
PM Production Manager
AM Asset Manager
SOE Senior Operations Engineer (aka Engineer)
SAE Senior Asset Engineer (aka Engineer)
RSM Regional Services Manager (aka Supervisor)
RCA Root Cause Analysis
NFDA Non-Financial Delegated Authority
NOTES
1. Criticality is based on NFDA, Annex 1.1 and 1.2
2. Significance is based on NFDA

Appendix L.

Defect Reporting Form

Defect Reporting Form

Request Number

Request Status New

Defect Reporting Procedure PHA.OPS.09.002

Defect Details | Attachments | Actions | Reviewer Notes | History | Print View

Short Description (max 100 chars)

Site * | Unit Number * | Part Number | Event Date * | Report Date *

Please select a value... | 1, 2, 3, 4 | | | 6/10/2020

Current Unit Status * ○ Temporarily Operating ● Shutdown **Operate until:**

Current Status Comments

Asset ☐ Other

Consequence Pre * Please select a value... Likelihood Pre * Please select a value...

Consequence Post * Please select a value... Likelihood Post * Please select a value...

Consequence Type * Health and Safety, Environment and Community, Financial, Operations — Critical

Consequence Description

Show Risk Matrix ☐

	Pre/Inherent	Post/Residual	Significant?
Risk Rating			No

Risk Rating Change (Justification)

Classification

☐ Mechanical
☐ Electrical
☐ Software
☐ Procedure
☐ Control
☐ Other

Cause

☐ Design
☐ Manufacture
☐ Inadequate Maintenance
☐ Environment
☐ Human Factors
☐ Operational
☐ Fatigue
☐ Corrosion
☐ Installation
☐ End of Life
☐ Other

Warranty Defect Please select a value...

Observed Defect Frequency Please select a value...

Full Description

Computerised Maintenance Management System (CMMS) Task Number

Root Cause Analysis | Employment Type | Name | ETA of RCA

Please select a value...

Est Rectification Man Hours

Est Rectification Downtime Hours

SAVE | SAVE AND SUBMIT | CANCEL

Appendix M.

PHA.OPS.09.010 Root Cause Analysis Report

Root Cause Analysis (RCA)

Site:	**Unit No:**	**Report Date:**	**CMMS Task #:**(If applicable)

Defect Report Request Number (eg, DRF_01_01_2020_12_00_00_PM):(if applicable)

Observed Problem Frequency: (To be checked against all previous RCA's and Defect Reports)

☐ First time ☐ 2-5 ☐ 5-10 ☐ 10-15 ☐ 15-25

Brief Description of Event/Problem: (If part of Defect Report then refer to Defect Report Form)

- ……
- ……

Impact/s on People, Environment, Business:

- ……
- ……

Root Cause Summary: (include RCA methodology used)

Action/s to take: (If any)	**Name:**	**Date:**
• ……	……	……
• ……	……	……
• ……	……	……

Analysis Members:

……

Analysis Lead Member:

Name: ..... Signature..... Date: .....