



### SUMMARY OF KEY TOPICS

The following is a selection of key topics covered in this Newsletter and a brief description of the topic. Further detail is provided in the Newsletter.

#### EEA COMMITTEES PROVIDING SAFETY LEADERSHIP

Updates on the CEO Safety Leadership Group, SSPG, NCLW and AMG are provided. **(SEE SECTION 2)**

#### ESI SAFETY STRATEGY

The draft ESI Safety Strategy prepared by the EEA and being finalised with the ENA is provided for information. **(SEE SECTION 3.1)**

#### PRIORITY RISK AREAS

A project to identify the priority industry risk areas is underway. The priority risks identified will be compared with SM-EI and Guides coverage to ensure all are adequately addressed.

#### NEW AND REVISED GUIDES

The EEA has published one new and two revised Guides, being; **(SEE SECTION 4)**

- Safety in Design
- Guide for PFAS
- Guide for Work On Poles and Pole Structures

The revisions to the Guides relate to the introduction of the policy of being attached at all times where a free-fall may occur.

#### SAFETY WORKSHOP

A summary of some key presentations from the Safety Workshop are provided. **(SEE SECTION 5.1)**

#### PROPOSED SM-EI WORKSHOPS

Regional workshops are planned for March to cover a range of SM-EI related topics. **(SEE SECTION 5.2)**

#### AMENDED TO RULE 2.1008

SM-EI rule 2.1008 b. has been amended to remove the limitation on using MEWPs with two outriggers. **(SEE SECTION 8.2)**

#### OPERATING SEQUENCES

An article on the importance of operating sequences is contained in **SECTION 9.**

#### NEW CONCRETE POLES

A repeat of a 2008 article on purchasing new concrete poles to ensure they include an earthing ferrule connected to the reinforcing is contained in section 11 as this matter is still important.

#### MARKING DEFECTIVE POLES

An article encouraging the marking and/or notification of defective poles is contained in **SEE SECTION 12.**

#### MEWPS

An article on ensuring that MEWPs with two outriggers are used only within their design parameters is contained in **SECTION 13.**

#### LADDERS AND RECOGNISED STANDARDS

Guidance on the Standards for ladder manufacture recognised under SM-EI rule 2.1407 is contained in **SECTION 14.**

- ① TEST for Safety
- ② ISOLATE, Prove De-Energised & Earth HV equipment prior to work
- ③ IMPLEMENT or apply safe work practices to live LV work
- ④ ENSURE protection from Voltage Difference
- ⑤ DETERMINE poles or pole structures are safe to climb
- ⑥ ENSURE fall arrest or restraint

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**COMPLY WITH BASIC + ESTABLISHED INDUSTRY SAFETY RULES**

- |                                                          |                                                                  |
|----------------------------------------------------------|------------------------------------------------------------------|
| ① TEST for Safety                                        | ② ISOLATE, Prove De-Energised & Earth HV equipment prior to work |
| ③ IMPLEMENT or apply safe work practices to live LV work | ④ ENSURE protection from Voltage Difference                      |
| ⑤ DETERMINE poles or pole structures are safe to climb   | ⑥ ENSURE fall arrest or restraint                                |

**1. INTRODUCTION**

This Safety Rules Newsletter provides an update on safety topics and safety rules requirements, issues and interpretations. This and previous Newsletters are available on the EEA [website](#).

The Newsletter is a communication channel between the EEA and the industry practitioners who use the safety rules (SM-EI). All users of SM-EI should be provided with access to or a copy of this Newsletter.

Any questions, suggestions and points for consideration are always welcome and should be sent to [admin@eea.co.nz](mailto:admin@eea.co.nz).

A keyword index for this and previous Newsletters is available on the EEA website.

**2. EEA COMMITTEES PROVIDING SAFETY LEADERSHIP****2.1 INDUSTRY SAFETY LEADERS**

The EEA President and the Executive Director have continued their programme to meet with industry senior executives to discuss safety leadership. The meetings are to implement a decision of the EEA Board to facilitate and support the recognition of industry Safety Leaders, which will enable a collective focus on significantly improving safety performance across the industry (better than the WorkSafe targets) and provide a pan-industry strategy and framework to support the six Health and Safety at Work Act requirements of industry duty holders.

**2.2 SSPG**

The role and function of the SSPG was reviewed early in 2016. The “strategy and policy” function is to be provided via the industry Safety Leaders. The SSPG acronym has been retained, to stand for the Safety Standards and Procedures Group. A new terms of reference was developed for the SSPG and approved by the EEA Executive.

The SSPG has been operating under its new terms of reference for most of 2016, and has established industry representation for the group in accordance with the Terms of Reference. Key elements of the SSPG Terms of Reference and a list of members is on the [EEA website](#).

Tracey Campbell has resigned from the group due to leaving Unison Networks. The EEA and SSPG are grateful for Tracey’s contribution over the three and a half years of her involvement.

**One new member has joined the group, being;**

***Jared Wilson***

*Jared works for Downer as the Zero Harm Manager at Downer Power & Gas, based in Mount Maunganui, where he has been since 2013. Jared has previously worked for Fonterra and Carter Holt Harvey (CHH) in occupational health and safety leadership roles.*

All enquiries regarding safety and safety rules issues should be made to the EEA via [admin@eea.co.nz](mailto:admin@eea.co.nz).

**2.3 NATIONAL COMMITTEE ON LIVE WORK (NCLW)**

The role of the National Committee on Live Work (NCLW) is to be the authoritative industry body for discussion and resolution of national issues affecting live line work and live work on networks in the electricity supply industry.

The EEA *Guide for the Selection of Work Methods to Undertake High Voltage Overhead Line Work* has been consulted with industry and is currently being reviewed by WorkSafe. They have indicated they will provide comment early in the New Year. WorkSafe believes the document presented on live line work is a real step forward in terms of building a consensus on risk management in this activity and have indicated they will provide feedback on wording required to ensure that the guidance provides potential duty holders with the greatest opportunity to meet their regulatory obligations.

In light of the other live work projects the EEA has undertaken a further review of the draft Industry Practice Note on ECP 46 that sets out proposed improvement and amendments to ECP 46. The document is expected to be available early in 2017.

The Chair of the NCLW attended the ENA (Australia) National High Voltage Live Work Forum in Canberra in November 2016. There was strong interest in the work of the EEA/NCLW on work selection methodology and interest in a possible joint AS/NZS Standard on HV live line (that merged AS5805 and ECP46) and developing joint guidelines for live LV work. A forum discussion around live line audit outcomes identified issues with cover up work practices, awareness of step and touch potential risks and hand clearance on hot sticks (LL MAD).

#### 2.4 ASSET MANAGEMENT GROUP

The role of the Asset Management Group (AMG) is to work with the electricity supply industry to facilitate, coordinate and lead the enhancement of asset management planning, practices, knowledge and performance through self-regulation, recognised systems and sound engineering practice principles. A key objective of the AMG is to provide a working level forum delivering practical advice and guidance to improve industry understanding, support decision making, planning and the management of issues around asset management.

The Safety in Design Guide has been published ([SEE 4.1 BELOW](#)). Other work being overseen by the AMG includes:

- The next [Power System Earthing Course](#) is March 2017 in Wellington
- The Asset Life Cycle Analysis Group is to be restarted under new Terms of Reference with a new chair
- New work on sharing industry knowledge on Asset Health Indicators for conductors
- A RFP has been issued for a “MEN Earthing Systems - Transferred EPR Modelling and risk assessment project”. The study is to be commissioned as part of the review of the Power System Earthing Practice guide. The outcome from the study will be fed into advice on HV and LV earthing separation to reduce the risk of transferred EPR.
- The review of the “Metering Safety Best Practice Guide” has been progressing as planned. Updates include aligning the guide to the latest changes in regulation and removing some of the prescriptive auditing information that is no longer required.
- Guide for the Connection of Small-Scale Inverter Based Distributed Generation. The EEA will be making submissions to Energy Safety on the need to update the ESRs to reflect the most recent relevant standard (AS/NZS 4777:2015) to enable the uptake of inverter technology. The EEA is also making a submission to the Electricity Authority to suggest updating the electricity participation code to allow for the full implementation of the guide, i.e. requirements for inverter control modes to allow for congestion mitigation. It has been proposed that an interim version of the guide be released until these legislative issues are resolved.
- The AMG will shortly start work to develop a new guide for the management of Arc Flash risks, working closely with the Safety Standards and Procedures Group.

For further information on EEA asset management activities please contact Juliet Clendon at [juliet@eea.co.nz](mailto:juliet@eea.co.nz)

### 3. EEA SAFETY INITIATIVES

#### 3.1 ESI SAFETY STRATEGY

The EEA Executive has prepared and approved an Electricity Supply Industry Workplace Health and Safety Strategy 2017-2020 which is currently being finalised with the ENA. The current draft reads as follows:

##### VISION

“Our vision is to unite the electricity supply industry in a common goal to make our workplaces safer”

##### GOALS

The goal is to eliminate fatalities and significantly reduce severe accidents to electricity supply industry workers.

- ⇒ by 2017 – Zero fatalities and less than 25 severe accidents per annum
- ⇒ by 2020 – Zero fatalities and less than 5 severe accidents per annum

##### DELIVERY

The Electricity Supply Industry will reduce harm through:

- Focusing on significant hazard and risk areas including fatal, high impact low probability (HILP) and occupational health risks,

① TEST for Safety

② ISOLATE, Prove De-Energised & Earth HV equipment prior to work

③ IMPLEMENT or apply safe work practices to live LV work

④ ENSURE protection from Voltage Difference

⑤ DETERMINE poles or pole structures are safe to climb

⑥ ENSURE fall arrest or restraint

- Supporting our industry officers and PCBUs to exercise due diligence duties under the Health and Safety at Work Act 2015 and ensure, as far as is reasonably practicable, the health and safety of workers,
- Promoting engagement and participation from workers and engagement between PCBUs.
- Supporting standardisation, implementation and continuous improvement in the identification, assessment and management of industry health and safety hazards and risks
- Publishing and maintaining industry rules and guides.

The Electricity Supply Industry will support and facilitate the provision of:

- up to date knowledge of workplace health and safety matters;
- common understanding of industry hazards and risks;
- information on resources and processes to assist industry eliminate or minimise health and safety risks;
- timely sharing of information on incidents, hazards and risks;
- processes to assist PCBUs with compliance;
- common audit frameworks for verification.

### 3.2 SSPG WORK PLAN

The SSPG has begun discussions regarding their work plan for 2017 to 2020 that will be finalised at their first meeting in 2017. Issues for inclusion include:

- Regional workshops in March
- Developing the Arc Flash Guide
- Live LV: developing an ESI approach
- Developing the work on ESI Critical H&S Risks
- Work-Related health
- Lone working
- Non-visible breaks
- Guides: Finalise 'Supervision for Safety' and 'Safe Work with Cables'. Progress Guidance for working on trees near power lines. Review Guide for Transport for High Loads.

### 3.3 INDUSTRY PRIORITY RISK AREAS

In line with the EEA's role in supporting Directors, CEOs and other senior officers in the ESI to discharge their due diligence duties under the Health & Safety at Work Act, the EEA is developing a database of the priority H&S risks faced by the ESI. The purpose is to demonstrate that the industry has identified and understands its common safety critical "raw" risks (i.e. before controls are in place). It will also help to ensure that those risks are being adequately addressed at an industry level in key industry documents - the Safety Manual - Electricity Industry (SM-EI) and supporting EEA Guides; such that the residual risks are significantly reduced. The information will also assist in ensuring that the EEA guidance issued to date and in the future provides a common understanding of these risks and what may be considered as appropriate levels of control.

The EEA issued a survey on 26<sup>th</sup> September 2016 to members requesting that they rank their critical risk areas in order of priority for their organisation. The EEA has received 14 responses to date to the survey, and based on responses to date the "top ten" are:

1. "Electricity"
2. WAH
3. Driving
4. Asset Failure
5. Mobile Powered Plant
6. Falling objects
7. Traffic management
8. Hazardous materials
9. Confined spaces
10. Asbestos

(Note: the above terms are shorthand only – it is noted that some are listed as "hazards").

**Other risk areas identified**

- Manual Handling
- Lone working
- Fatigue
- Contractor management
- Operator complacency
- Overlapping PCBUs
- Stress
- Ergonomics

**Next actions**

- The "risk areas" will be expanded as actual "risks". In particular the very broad risk area "electricity" will be divided into specific risks e.g. live working, induction, arc flash, ineffective isolation etc. ,
- A gap analysis will be carried out with SM-EI and existing EEA Guides,
- Information on the critical controls for the identified risks will also be collated.

**3.4 BACK TO BASICS CAMPAIGN UPDATE**

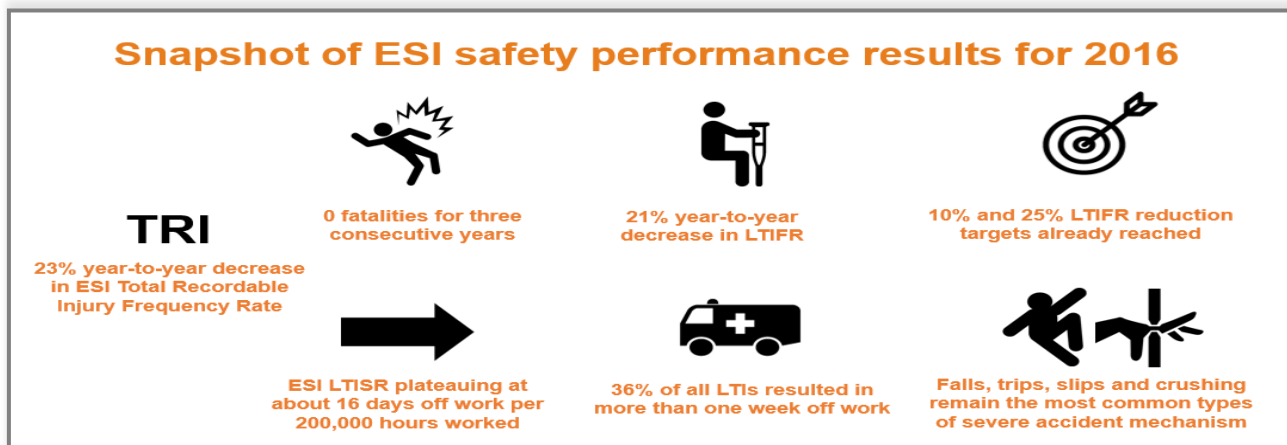
The 'non-negotiable safety requirements' adopted by the EEA are listed on the inside cover of the SM-EI books, being;

- Test for safety
- Isolate, prove de-energised and earth HV equipment prior to work
- Implement or apply safe work practices to live LV work
- Ensure protection from voltage difference
- Determine poles or pole structures are safe to climb
- Ensure fall arrest or restraint.

Resources are being developed to support this focus together with a communications plan.

**3.5 SAFETY PERFORMANCE INDICATORS REPORT**

The EEA has issued the ESI Safety Performance Indicators Report for 1<sup>st</sup> July 2015 to 30<sup>th</sup> June 2016. As with previous reports a copy was sent to all participating companies. A snapshot of industry performance is as follows:



### 3.6 PUBLIC SAFETY - ELECTRICAL ACCIDENTS REPORT 1998-2015

The EEA has issued the Public Safety—Electrical Accidents Report which is an analysis of notifiable electrical accidents to the public from 1998 to 2015. The full report can be viewed at [Public Safety Report 2016](#).

## 4. EEA TECHNICAL GUIDES AND ADVISORY BULLETINS

### 4.1 PUBLISHED GUIDES AND ADVISORY BULLETINS

EEA Guides convey principles and minimum accepted practices as a means of conformance to regulatory and SM-EI requirements. Employers are responsible for providing a comprehensive work management system that identifies and controls hazards, details safe work procedures, and that ensures employees are competent, equipped and adequately supervised to carry these out with safe outcomes. EEA Guides are suitable for information, as a training resource, and for the review or development of employer work procedures specific to the work management system. EEA Guides are not intended as specific work procedures in their own right, although in certain circumstances they may state that they may be used as a procedure. Published Guides are on the EEA [website](#).

### 4.2 DRAFT AND PROPOSED GUIDES—INCLUDING REVISIONS

#### Draft Guides

**Guide for Identification of and Work on Cables**—A draft of the Guide for Identification of and Work on Cables is currently being reviewed.

**Guide for Supervision for Safety**—The Guide for Supervision for Safety has been reviewed and is currently being considered by the SSPG. Publication for consultation is expected early in 2017.

**Guide for Live LV Work**—The Guide for Live LV Work has been reviewed and is now on hold pending resolution of all live work matters.

#### Proposed Guides

The EEA/SSPG identifies in its Strategic Plan and current work-plan the Guides and publications which are a priority for review or preparation (**SEE 3.2 ABOVE**).

### 4.3 RECENTLY RELEASED OR UPDATED GUIDES OR ADVISORY BULLETINS

One new Guide and two revised Guides have been published since the previous Newsletter, being the;

- Safety in Design Guide
- Guide for Use of Personal Fall-Arrest Systems
- Guide for Work on Poles and Pole Structures.

#### Safety in Design Guide

The EEA has published the Safety in Design Guide, available on the EEA website. The Guide has been developed by the EEA to assist businesses within the electricity supply industry in developing robust SiD processes that allow them to:

- Consistently provide designs that are safe to construct, operate, maintain and decommission;
- Document design decisions; and
- Continuously improve the safety of designs used within the industry.

The Guide aims to assist organisations in the development and implementation of SiD concepts across the entire asset life cycle, meaning the Guide will be of interest to anyone involved in designing, constructing, operating, maintaining or decommissioning electricity supply assets. This includes operational and maintenance workers, construction managers, project managers, safety professionals, executives, designers and engineers.

#### Guide for PFAS

The Guide for the Use of Personal Fall-Arrest Systems is to clarify issues relating to the use of personal fall arrest systems (PFAS) in the electricity supply industry. The Guide has previously been published in June 2001, January 2004, April 2008, April 2011 and August 2015 and is periodically updated to reflect changes in issued publications, e.g. Standards and/or publications from WorkSafe.

The Guide is a revision of the August 2015 issue and is published as an August 2016 issue. The amendments to the Guide are described in the Preface, and are associated with the implementation of the policy for attachment at all times when working at height.

Amendments to the PFAS Guide include;

- Attachment must now be used while climbing poles by pole steps
- New section 11 on the use of crane hooks as anchor points.

### Guide for Work on Poles and Pole Structures

The Guide to Work on Poles and Pole Structures provides guidance on the requirements for work on poles and pole structures, in particular pre-climb assessment and climbing attachment requirements. The Guide also includes a sample guide for pole top rescue.

A basic principle in the Guide is that work on any poles or pole structures can be carried out only where an assessment has determined that the pole or structure is actually safe to work on, including that it has satisfactory setting. For wood poles and wood structures in particular, the principle in the Guide is that such poles are to be considered and treated as structurally unsound until an assessment adequate for the purpose determines otherwise.

A review of the Guide to Work on Poles and Pole Structures was completed in August 2016. Changes between the 2015 version and the 2016 version of the Guide include the following:

- The Guide has been reviewed to incorporate a policy of attachment at all times when working on a pole, and through the Guide for Personal Fall-Arrest Systems to include guidance on the means by which attachment may be achieved.
- Climbing poles other than by ladder requires attachment at all times.
- New section 10 on acceptable means of working on top of top crossarms, including provision that working on top of a single wooden top crossarm is not permitted.
- Additional requirements for fiberglass poles, including provisions to take account of U Poles.
- Nailing and purpose built support devices recognized as a means for supporting deteriorated poles.

#### 4.4 ACCIDENT AND INCIDENT REPORTS

Reports of accidents and incidents are posted on the EEA website. Readers are reminded to check the EEA website periodically for [new reports](#) (access is EEA member only); 115 safety alerts from New Zealand have been posted to date for 2016, plus over 50 from the United Kingdom. Readers need to ensure they review the posted reports to identify any hazards that affect their assets or methods of working.

To be able to publish accident and incident reports the EEA needs to be notified, [via our reporting form](#), of their occurrence. Employers are encouraged to ensure that they are providing summary information to the EEA so that relevant information can be disseminated to industry. Employer identification is not published unless by agreement, and the EEA website limits access to the reports to [members only](#).

## 5. WORKSHOPS & COURSES

### 5.1 EEA SAFETY WORKSHOP

The [EEA Health and Safety Workshop](#) was held on 19<sup>th</sup> and 20<sup>th</sup> October at the Sudima Hotel in Christchurch.

There were many useful new insights for everyone who attended. Presenters from other countries and industries, and our own, from regulator, workforce health, drug issues and more, delivered addresses to a packed conference room over the two days.

The main workshop theme was Health and Safety at Work Act six months in – what's changed? Mark Gatland, CEO of Northpower and Chair of the ENA H&S Committee outlined how the new HSWA is challenging organisations to step up. Boards are being asked to drive through best practice and in his view our industry is ripe for a step change. Mark saw the EEA as a key industry partner in coordinating safety leadership across the industry, delivering and progressing improved safety performance on management of critical industry risks.

Chris Jones of WorkSafe reminded us that we deal in health as well as safety. While our immediate attention is drawn towards the latest incident, the Regulator's expectation is that the longer term wellbeing of our workforce is also addressed with a systematic, risk management approach. Chris appreciated that the EEA was progressing work on a proposed health strategy for the ESI and looked forward to collaborating with our industry in this area.



**COMPLY WITH BASIC + ESTABLISHED INDUSTRY SAFETY RULES**

- |                                                          |                                                                  |
|----------------------------------------------------------|------------------------------------------------------------------|
| ① TEST for Safety                                        | ② ISOLATE, Prove De-Energised & Earth HV equipment prior to work |
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Rachel Walker of Orion gave some insights into moving from behaviour based safety to empowerment. From policies and workarounds to one where safety is so embedded it is just part of the everyday job. “Think about how we cope with variability, because you will get it and we need to understand how this can be aligned to the right safety outcomes for our people,” she said.

The full tables also heard the latest on what to expect with a duty holder review. WorkSafe are looking for root cause analysis and an action plan following an incident. We were also treated to case studies from finalists to the EEA Health and Safety Awards, and EEA updates on Live Work, asset management and safety / incident data.

The panel session looked at new technologies; their increasing adoption by customers and what that means for safety of our workers and the public. Regulations and standards cannot always keep pace with technology change so industry has to be proactive in understanding how these technologies could impact in the workplace. The ‘Back to Basics’ rules provide a good starting point to for keeping our people safe.

The next workshop will be held in October 2017 and is likely to take place in Wellington. Details will be made available on the EEA website.

## 5.2 SM-EI WORKSHOPS

The EEA will facilitate a series of workshops in March 2017 to discuss and consult on key safety topics associated with SM-EI. The topics and programme for these workshops is still being developed and details will be published on the EEA website in the near future. There are likely to be up to 5 workshops being held - two on the south island and three on the north.

Topics that will feature in the workshops will include:

- Live LV work;
- Work at Height (WAH) – review of attachment at all times practices
- Lone working
- Non-visible breaks

## 5.3 ICAM TRAINING

The next **ICAM Lead Investigators** course will be held on 22<sup>nd</sup> to 23<sup>rd</sup> February at the Antarctic Centre in Christchurch. Booking details are available on the EEA [website](#).

**ICAM Champions** training courses are planned for March/April 2017. Dates are being finalised but venues will likely be Christchurch, Wellington and Auckland. These courses are for experienced ICAM investigators and have the following objectives:

- Create subject matter experts to promote safety improvement initiatives throughout the Company
- Create awareness of quality requirements for incident reports
- Provide skills to lead and promote the improvement of incident reports
- Increase individual understanding/application of the ICAM process.

Further details will be shortly available on the EEA website.

## 6. LEGISLATION AND REGULATORY UPDATE

### 6.1 HEALTH & SAFETY AT WORK ACT

Since the commencement of the Health and Safety at Work Act on April 4<sup>th</sup> this year there has been no amendments. WorkSafe has periodically introduced guidance material, which is available on the [WorkSafe website](#).

## 6.2 HSW REGULATIONS

A set of regulations under the Health and Safety at Work Act came into force on 4th April.

The proposed Health and Safety at Work (Hazardous Substances) Regulations which were consulted on early in 2016 are now expected to come into force in late 2017.

Further draft regulations are expected for consultation early in 2017.

## 6.3 IMPORTING ASBESTOS-CONTAINING PRODUCTS PROHIBITION

An Order in Council titled the Imports and Exports (Asbestos-containing Products) Prohibition Order 2016 came into force on the 1<sup>st</sup> October.

The importation of asbestos-containing products is now prohibited unless the importation is authorized by a permit, or it is imported solely for the purpose of export and is subject to the control of Customs (as defined in section 20 of the Customs and Excise Act 1996) at all times while it is in NZ.

An import permit must be obtained from the EPA before the importation of any asbestos-containing product. To apply for an import permit, the permit application form on the EPA website must be used.

## 7. GUIDES ISSUED BY REGULATORS AND OTHER PARTIES

### 7.1 ACOP FOR ASBESTOS

WorkSafe has published a new Approved Code of Practice for the [Management and Removal of Asbestos](#).

The 'Purpose' statement of the ACOP records that it sets out WorkSafe's expectations for carrying out work involving asbestos safely. It provides information on the following topics, among others:

- permitted types of work that involve asbestos
- airborne contamination standard for asbestos and trace levels
- identifying and managing asbestos and asbestos-containing material (ACM) in the workplace
- prohibited and restricted tools and equipment
- personal protective equipment and health monitoring
- training
- asbestos-related work
- asbestos removal work
- licensed asbestos assessors.

While the ACOP deals with asbestos removal, it also applies to those who manage or control workplaces, carry out asbestos related work, and to licensed asbestos assessors.

### 7.2 GPG FOR CONDUCTING ASBESTOS SURVEYS

WorkSafe has published a Good Practice Guide titled [Conducting Asbestos Surveys](#).

WorkSafe advises that the guidelines are for PCBUs conducting asbestos surveys, workers carrying out asbestos surveys and PCBUs that need to identify asbestos in a workplace.

The Guide highlights that;

- Under the Health and Safety at Work (Asbestos) Regulations 2016 there are a number of situations where the presence of asbestos and asbestos-containing material (ACM) in a workplace must be identified.
- One means of identifying asbestos and ACM is to have a survey carried out by an asbestos surveyor.
- An asbestos surveyor needs to have sufficient training, qualifications, knowledge, experience and ability to sample and identify asbestos, have sufficient knowledge of the tasks required and the risks the work will involve, demonstrate independence and use a quality management system.

### 7.3 GPG FOR EXCAVATION SAFETY

WorkSafe has published its [Good Practice Guidelines for Excavation Safety](#). WorkSafe advises that the Guide supersedes the ACOP for Excavation and Shafts for Foundations.

The Guide covers all excavation work except that for shafts for mining operations and for tunnelling operations. The Guide also recognises that some industries have guidelines that deal with specific problems in their working environments, such as in the electricity sector, and advises that those requirements need to be considered in addition to that in the Guide.

### 7.4 NATIONAL CODE OF PRACTICE FOR UTILITY OPERATORS' ACCESS TO TRANSPORT CORRIDORS

The amendments to the National Code of Practice for Utility Operators' Access to Transport Corridors have been approved by the Minister of Finance and notified in the Gazette. The amendments were effective from the 16<sup>th</sup> September and address a number of typographical and editorial errors that were identified after the substantive revision earlier in 2016.

## 8. SAFETY MANUAL-ELECTRICITY INDUSTRY (SM-EI)

### 8.1 SM-EI GENERAL

An electronic version of SM-EI is now available. Details can be found on the EEA [website](#).

### 8.2 SM-EI AMENDMENT

An [amendment](#) to SM-EI has been published as a result of the EEA receiving a number of enquiries regarding the safe use of Mobile Elevating Work Platforms (MEWPs) with two out-riggers with respect to the requirement in the current SM-EI safety rules that MEWPs shall:

- be designed for use without outriggers or have four outriggers (Rule 2.1008 b i third bullet point)

This requirement has been discussed in detail by the SSPG, and the SSPG decided that this bullet point should be deleted. It was recognised that the emphasis should be on pre-job planning and this would require selecting the right machine for the job irrespective of the number, if any, of out-riggers. **SEE SECTION 13** below for a discussion on this topic.

The amendment to SM-EI is that the text in rule 2.1008 b i. third bullet point is deleted.

### 8.3 INTERPRETATIONS AND CLARIFICATIONS

Two formal interpretations relating to SM-EI matters have been issued since the previous Newsletter—Formal interpretations are posted on the [EEA website](#). In addition, a number of requests for comment or guidance have been received and responded to. A summary of the interpretations, and the advice provided, is as follows;

#### Interpretations

##### Isolation of LV Direct Connected to Transformer

Inquiries were received from a network company requesting guidance on the applicable means of isolating LV which is directly connected to an HV/LV transformer, and the only isolation mechanism is HV fuses.

The SSPG determined that the applicable principles where the LV is directly connected to an HV/LV transformer and de-energised work is required to be carried out at any location on the LV are;

- The HV side must be isolated (unless the LV is cut under a live work procedure).
- Because an HV isolation is applied an access permit must be issued.
- The issue of an access permit requires the application of a set of temporary earths, or the closure of an installed earth switch, on the HV side as an issuer applied safety measure.
- Once an access permit is issued, recipient applied earths can be connected on the LV side as and where necessary.

The SSPG also advises that there can't be an access permit and minor works management system (work authority) on this equipment at the same time as it is one continuous system.

### Use of Multiphase Portable Earth With Separate Earth Lead

A network company has requested guidance on the application of SM-EI rules in Part 3 section 6 where the portable earth set is a three phase shorting set with separate earth lead. In particular rule 3.602k. requires that ‘multi-phase earths shall be connected together and to a common earth before being connected to the equipment’.

The SSPG has considered the requirement of SM-EI section 6 and its application to the use of multiphase portable earths with separate earth leads. The SSPG recognises that the use of this style of portable earth should be permissible under SM-EI without requiring full assembly at ground level, provided that the appropriate controls are in place.

The SSPG has assessed that the difference between SM-EI rule 3.602k as written and the way in which a multiphase portable earth with separate earth lead is fitted to the overhead conductor is only the time at which the portable earth comes together as an assembly, i.e. electrically there is no difference in the two, provided a specific sequence is followed.

The SSPG has determined that it is acceptable to use a three phase shorting set with separate earth lead and the applicable requirements are as follows. These requirements ensure that the sequence of application is electrically equivalent to the application of an assembled multiphase set of earths. In its next review SM-EI will be amended to reflect these requirements. When using a three phase shorting set with separate earth lead;

- Prove de-energised
- The earth lead must be the first lead connected at both tail and head and in the sequence provided by rule 3.602j.
- The multiphase lead is then connected to the conductor with the separate earth lead attached to it, then to the other two conductors in sequence.
- The employee must wear insulating gloves if required by rule 3.741 or 3.721.
- The operating stick must be rated for the line voltage, and be periodically inspected, tested and tagged in accordance with the EEA Guide to Portable Equipment for Work On or Near Conductors.

### Clarifications

#### Rule 2.1407 – Over-reaching on Ladders

Rule 2.1407 b.vii. advises that ‘when using any ladders ‘over-reaching shall not be attempted. An employee’s waist shall always remain within the confines of the stiles.’ A reader pointed out that there are many circumstances where line mechanics, for example, will secure themselves to a pole with a pole strap while standing on a ladder rung (with the ladder tied to the pole), and then work outside the confines of the ladder stiles, such as when working on a crossarm. The SSPG recognizes that there are circumstances where the employee is adequately secured to prevent a fall and advises that rule 2.1407 b.vii. should be interpreted to apply where the employee and/or ladder are not adequately secured and a risk of losing stability would exist.

#### Is a Reclose Blocks an Issuer Applied Safety Measure

A query was received regarding whether a Network Control applied reclose block on an upstream recloser/circuit breaker for vegetation work within the ‘close working zone’ constitutes the application of an ‘issuer applied safety measure’ as defined in the SM-EI. The SSPG confirmed that ‘issuer applied safety measures’ apply to permits only, and considered that a reclose block is a general safety measure used with a work management system rather than an ‘issuer-applied safety measure’ used with a permit.

#### Issuer Applied Earths

A query was received regarding why there is a difference between rule 3.501 a.i. (conditions for an Access Permit), and 3.511 c.i. (conditions for a Test Permit) with respect to the application of earths. In particular why the words ‘where practicable’ precede the access permit requirements for issuer applied earths, but not the test permit requirements.

The inclusion of the term ‘where practicable’ for access permits only was the result of the consultation process for the inclusion of mandatory issuer applied earths when permits are issued. It was decided to include a ‘where practicable’ provision for access permits but to make it always mandatory for test permits.

#### Use of HV Gloves

Rule 3.741 b.iii. requires employees to wear insulating gloves for putting on and taking off portable earths except where the employee is “adequately insulated”. ECP 46 provides information on what using insulated tools as a means of being adequately insulated means, i.e. use appropriate gloves or insulated sticks.

The SSPG confirmed that adequately insulated means the use of rated and tested insulating handles, gloves or equivalent and does not recognise a lesser requirement on the basis that the earth lead is connected.

**Guide to LV work – minimum forms of insulation with respect to secondary contact**

The SSPG confirmed there is a requirement to provide protection only against secondary points of contact for LV work. There is no requirement to provide two forms of insulation.

**Rule 3.601 Note 3**

Clarification was requested regarding work on transmission and distribution circuits where there are earth switches at the terminals, and rule 3.601 Note 3 requires these to be used as issuer applied safety measures, inferring that the switches cannot be maintained while the line is also being worked on.

**The SSPG advises:**

- Rule 3.111 provides guidance on the status of ‘Notes’ and explains that they are for the purpose of clarification and to avoid uncertainty etc.
- Relevant general earthing requirements include;
  - Rule 3.602 d. which requires earth switches to be the first earth applied
  - Rule 3.602 l.ii. which requires earths between all points of isolation and the worksite
  - Rules 3.501 a. and rule 3.511 c. which requires earths under rule 3.602 l.ii. to be issuer applied.
- Rule 3.601 Note 3 is consistent with the general principles of SM-EI relating to installed earth switches which is that they are operated by the issuer, hence that they would normally be issuer applied safety measures. However, where the earth switch is itself to be worked on, the earth switch would firstly be closed to enable the application of portable earths, then can be opened once those portable earths are in place provided the portable earths comply with rule 3.501 a.i. or 3.511 c. and are listed as issuer applied safety measures.
- While it is not stated in SM-EI the expectation would be that alternative portable earths applied would be connected to an installed earth mat rather than to a driven rod in order to achieve a similar low resistance to the use of an earth switch.
- The SSPG agrees that issuer applied safety measures may be altered under rule 3.501 c. However, as stated above the portable earths could be included as the issuer applied safety measures from the time the permit is issued.

**Rules 3.721 & 3.722**

A network company requested guidance on three matters relating to SM-EI rules 3.721 and 3.722. The questions and the corresponding SSPG clarification are as follows.

**Q1:** With respect to SM-EI rule 3.721 Work On or Near Live LV Overhead Conductors Section c. i., in the context of conductors, is the term ‘exposed metal’ limited to bare conductor?

**SSPG Response:** The term ‘conductor’ is defined in SM-EI to include bare conductor or conductor not insulated to full working voltage, and includes conductive parts. Rule 3.721 b. refers to conductive items such as binders, line taps etc which are ‘conductive parts’ within the meaning of conductor, and in the context of rule 3.721 b. would be uninsulated and therefore ‘exposed metal’. The SSPG considers that the ‘exposed metal’ referred to in rule 3.721 c.i. is therefore within the meaning of conductor, and refers to parts of the conductor.

**Q2:** Does rule 3.722 Temporary Earthing of LV Overhead Conductors Section b apply to all sections of rule 3.721 (as possibly interpreted by the first two sentences of 3.722 Section b)?

**SSPG Response:** Rule 3.722 b. can apply only to conductor which is disconnected or isolated. Rule 3.722 b. can therefore apply only to rule 3.721 c.i.

**Q3:** If rule 3.722 Section b does not apply to all sections of rule 3.721, does it apply to rule 3.721 Section c.ii.?

**SSPG Response:** Following on from the above advice, rule 3.722 b. does not apply to rule 3.721 c.ii.

**8.4 SM-EI REFERENCES UPDATE**

The following documents referred to in SM-EI have been updated, re-issued or revoked since SM-EI was published.

Publisher	Publication Code	Document Number	Title	SM-EI Rule Reference
Crane Association of New Zealand			Crane Safety Manual for Operators & Dogmen	2.1001, 2.1002, 2.1007
Electricity Engineers' Association			Guide for the Use of Personal Fall-arrest Systems	2.1209, 2.1307
			Guide for Work on Poles & Pole Structures	1.607, 2.1209
			Guide to Work on De-energised Distribution Overhead Lines	3.602, 3.710, 3.722
Responsible Care New Zealand	CoP	8.1	Preparation of Safety Data Sheets	2.701
Legislation			Abrasive Blasting Regulations - Revoked	2.1106
			Health and Safety at Work (Asbestos) Regulations 2016	2.702
New Zealand Mountain Safety Council	Leaflet		Hypothermia	2.1212
New Zealand Transport Agency			Truck Loading Code 2012	2.901
WorkSafe	ACOP		Approved Code of Practice for Safety & Health in Arboriculture 2012	2.1110
			A Guide to Safety in Tree Felling 2001 - Archived	2.1110
	GPG		Good Practice Guidelines for Excavation Safety 2016	2.1204
	ACOP		Approved Code of Practice for Safety in Excavation and Shafts for Foundations - Revoked	2.1204
			Guidelines for the Management and Removal of Asbestos - Revoked	2.702
	GPG		Good Practice Guidelines – Safe Use of Quad Bikes 2014	2.903
			Workplace Exposure Standards and Biological Exposure Indices 2016	2.709, 2.711, 2.801, 2.806, 2.812, Sect 7 Background
	ACOP		Approved Code of Practice for the Management and Removal of Asbestos 2016	2.702
			Interim Guidance for Work Involving Asbestos - Revoked	2.702
SiteSafe			Construction Safety Management Guide – Revoked	1.108, 3.108
Standards	AS/NZS	1336:2014	Eye and Face Protection - Guidelines	2.1302
	ASTM	F496-14	Standard Specification for In-service Care of Insulating Gloves and Sleeves	3.704
	ANSI/ISEA	Z89.1	American National Standard for Industrial Head Protection 2014	2.1303
Welding Technology Institute of Australia	Technical Note	7	Health and Safety in Welding 2013	2.1103

## 9. OPERATING SEQUENCES

The use of operating sequences, otherwise known as operating orders or switching sequences, is a long standing practice used to ensure the correct sequence of switching and earthing (where included) is followed to ensure a safe outcome. While SM-EI does not provide any specific guidance or requirements for operating sequences, the use of them is referred to in Appendix D (*Principles Applicable to Access and Test Permits*).

The essential sequence of operations is derived from SM-EI, i.e. all sources of energy shall be isolated before any earths are applied, installed earth switches (if fitted) shall be closed before portable earths are applied, conductors shall be proven de-energised before applying a portable earth etc.

Operating sequences are critical in the delivery of safety when operating HV equipment, including when preparing it for the issue of a permit. Some recent observations indicate that the necessary discipline required to be applied to the operating sequence process is slipping. The SSPG will be monitoring the operating sequence practices in the industry and providing reminders and promotions on the importance of this process.

## 10. ATTACHMENT WHEN WORKING AT HEIGHT

The ESI policy on attachment at all times when working at height where a fall may occur has been effective since April this year. The EEA would still like to receive details of solutions which have been identified in the implementation of this policy so that those solutions can be made available across the industry.

## 11. NEW CONCRETE POLES

Following the EEA research into the methods of earthing of concrete poles in order to establish an equipotential zone for employees working on the pole the EEA published advice on the criteria for new concrete poles to ensure that a means of bonding into the pole reinforcing would be available. The advice was published in the [September 2008](#) Safety Rules Newsletter as follows;

*The testing carried out on concrete poles during research on the establishment of equipotential zones clearly demonstrated the effectiveness of bonding the pole reinforcing into the equipotential zone, and without the ability to bond the reinforcing the pole must be considered partially conductive.*

*As a consequence the EEA recommended that all new concrete poles are manufactured with integral earthing, or an equipment earthing system. The requirement applies to pre-stressed poles as well as bulk reinforced poles. Details of the design method are to be arranged between the purchaser and the pole manufacturer. The EEA expects that all new concrete poles being manufactured include an earthing facility.*

Factors to be considered in the manufacture of new concrete poles include;

- Integral earths need to be able to carry a significant proportion of the fault current as the pole to earth resistance may be less than the driven spike to earth resistance.
- Preference should be given to using non-stressed conductors in pre-stressed poles.
- The effect of fault current passing through the reinforcing.
- Whether to fit only integral earthing or an equipment earthing system
- Number of connections, e.g. for ease of connection and for continuity testing.
- Height of connections from the ground (to prevent contact by the public)
- Consideration be given to the fitting of at least two ferrules connected to the reinforcing to enable continuity testing of the ferrule integrity to be undertaken.

## 12. MARKING OF DEFECTIVE POLES

The Electricity (Safety) Regulations or an asset owner's Safety Management System require that poles which cannot support structural design loads or are at risk of failure under normal structural loads must be marked. Once a pole is marked the necessary replacement action and response time is then determined by the asset owner in accordance with its systems.

**COMPLY WITH BASIC + ESTABLISHED INDUSTRY SAFETY RULES**

- |                                                          |                                                                  |
|----------------------------------------------------------|------------------------------------------------------------------|
| ① TEST for Safety                                        | ② ISOLATE, Prove De-Energised & Earth HV equipment prior to work |
| ③ IMPLEMENT or apply safe work practices to live LV work | ④ ENSURE protection from Voltage Difference                      |
| ⑤ DETERMINE poles or pole structures are safe to climb   | ⑥ ENSURE fall arrest or restraint                                |

Anyone who identifies a pole which may not meet design or structural load requirements should mark the pole if they have access to the asset owner’s pole marking system, and/or notify the asset owner that a pole may not meet design or structural load requirements. The asset owner can then further assess the pole and determine what action, if any, needs to be taken.

Marking or notification is to draw attention to the condition of the pole, particularly for Line Mechanics prior to any climbing, and to enable a detailed assessment to be scheduled and carried out.

**13. MEWPS WITH TWO OUTRIGGERS**

SMEI Rule 2.1008 b. has been revised to delete the requirement that MEWP’s must be designed for use without outriggers or have four outriggers. The adoption of the requirement to use four outriggers (where not designed for none) resulted from consideration of the Makara fatality and the limitations of the Telehandler with two outriggers used at that location.

The SSPG has been informed that there are two outrigger MEWPs being used in the ESI and more being introduced, and recognises that such equipment is safe within its design parameters. The decision to amend rule 2.1008 b. was made on the basis that the focus should be on using the MEWP within its design parameters. Where used in rough terrain circumstances with sloping ground it is unlikely that a two outrigger MEWP will be adequate as demonstrated at Makara, but where used on stable and essentially flat ground a two outrigger MEWP may be appropriate. Reader’s attention is drawn to a Safety Alert recently posted on the EEA website relating to an overturned tree-trimming MEWP with two outriggers and the causes and recommendations the Safety Alert contains.

It is essential that in all circumstances the operating instructions for the MEWP are followed, and the operators are trained in the use of the MEWP, including how to keep within its design parameters.

**14. PROCUREMENT OF LADDERS COMPLIANT WITH SM-EI**

There has been recent discussion within the ESI with regard to ladders and to the requirements of SM-EI rule 2.1407 b.i. which states that *‘All ladders, steps, trestles and working platforms shall comply with the relevant NZ Standard (e.g. AS/NZS 1892) or other accepted international Standard’*.

Recent research by the EEA has identified three suitable series of Standards which comply with the SM-EI rule, being AS/NZS 1892, ANSI A14.1 to A14.9 and BS EN 131. The EEA confirms that ladders used in the industry should be compliant with a Standard from one of the above series of Standards, including proof of compliance.

**15. CHRISTMAS GREETINGS**

The EEA and SSPG wish all readers a pleasant and safe Christmas.

**EEA SAFETY STRATEGY AND PROCEDURES GROUP (SSPG) | DECEMBER 2016**

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