



EEA SAFETY RULES NEWSLETTER

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Safety Rules Newsletter Number 5

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1 Introduction

This Safety Rules Newsletter is the first for 2003 and is the fifth newsletter issued since the start of 2001. It provides an update on safety rules requirements, issues and interpretations, as well as an update on publications referred to in SR-EI and GSG-EI. This and previous newsletters are available on the EEA website (www.eea.co.nz).

The newsletter is a communication channel between the EEA and the industry practitioners. Any questions, suggestions and points for consideration are always welcome. Thank you for the comments received after the last newsletter.

2 Safety Strategy & Policy Group Happenings

All inquiries regarding safety should be made to the EEA (admin@eea.co.nz).

The key issues which the SS&P Group is addressing at this time, in addition to inquiries and interpretations of the rules, include:

- Development of the next issue of the safety rules, which are due for release in April 2004.
- Development of EEA Technical Guides.
- EnergySafe.
- Co-ordination with Australia, particularly the ESAA.
- Temporary earthing guidance.
- Principles for permit management.
- Fall prevention.
- Strategies for the development of an electricity supply industry safety council.
- Development of a safety statistics database.

3 EEA Technical Guides

3.1 Published Guides

The following guides have been published by the EEA and are available from the EEA website:

- Harness and Lanyard Purchasing
- Personal Fall Arrest Systems
- Climbing Steel Structures
- Reclosing of Feeder Circuit Breakers
- Supervision for Safety
- Use, Inspection and Testing of Low Voltage Electrical Appliances, Cords, and Protective Devices
- Transmission and Distribution Line Earthing (Q&A)
- Management of Blue Indicating Silica Gel

3.2 Draft Guides

At present there are no new draft guides on the website.

3.3 Guides under Review

(a) EEA Technical Guide on the 'Use of Personal Fall Arrest Systems'

This guide is being reviewed to take account of:

- The Electricity Amendment Regulations 2002.
- Case '*Department of Labour v Simac Limited and KB Electrics Limited*' (as described in December Newsletter).
- NZS 5811 : 1981 *Industrial Safety Belts and Harnesses Part 2 : Code of Practice for the Selection, Use and Maintenance of Safety Belts and Harnesses* is no longer recognised.

The revised version has been completed and will be on the EEA website in July.

(b) EEA Technical Guide on 'Climbing Electricity Transmission and Distribution Lattice Steel Structures in NZ'

When this guide was first published it was to be used for two years and then reviewed. The two years are nearly completed, and the SS&P Group has initiated a review of the Guide. Any comments should be sent to admin@eea.co.nz.

3.4 Proposed Guides

The EEA has a schedule of Technical Guides which will be prepared. Some of these will be to cover the topics in the Appendices of SR-EI so that the Appendices do not have to be included in the next version of SR-EI.

The following Guides will be, or are in the process of being, prepared:

- Prevention of public access to electricity network equipment
- Portable earthing
- Polarity checking
- Climbing in Switchyard Gantry Structures
- Climbing of Wood Poles (includes checking prior to climbing)
- Marking in Switchyards
- Safety management systems
- Electricity Safety Handbook for Emergency Personnel
- Line Mechanics Handbook
- Portable Equipment for HV

4 Line Mechanics Handbook

The next draft of the handbook has been completed and sent to the industry for final comments. Standards NZ are carrying out final editorial work such as photos, text, index etc, and the document will be completed by the end of July 2003.

If you require any further information on the Handbook, please do not hesitate to contact admin@eea.co.nz.

5 Safety Workshop

The EEA will hold another Safety Workshop in October, this time in Auckland. The dates are October the 9th and 10th. The venue and programme is yet to be advised. The workshop is an annual event, usually held in October. If you want to ensure you are notified of further details of this, and future, workshops send your details and requirements to the EEA at admin@eea.co.nz.

6 Liaison with the ESAA

6.1 Guides

Guides currently being prepared by the ESAA include:

- Guidelines for Safe Vegetation Management Work Near Power Lines
- Low Voltage Protection Guidelines
- Guide for Electrical Safety for Emergency Services Personnel
- Guide for the Prevention of Unauthorised Access to Electricity Networks
- Guide on "Use of Aircraft for Aerial Surveillance of Power Lines"
- Guide to Personal Protective Clothing and Equipment

6.2 ESAA H&S Conference

The 6th Biennial Occupational Health & Safety Conference of the ESAA was held in mid May, and attended by several from NZ.

Presentations included:

- Current H&S Issues in Queensland
- H&S Issues – Generators perspective, Industry perspective (2 papers)

- H&S Management in Practice
- PPE – ESAA Guidelines
- Fitness for work programmes
- Safe working with asbestos – NSW Initiatives
- Aerial surveillance guidelines
- Legionella and cooling water in power stations
- Coping with stress and pressure in the workplace

A mock court session was held to simulate an H&S prosecution.

7 Legislation Update

7.1 Electricity Regulations

An amendment to the Electricity Regulations 1997 was enacted in December last year, and came into force on the 1st January this year (except for some regulations which came into force on 1st April). The main reason for the amendment was to mandate AS/NZS 3000 for use on electrical installations. Amendments to various other regulations were made to make them more performance based in readiness for EnergySafe. Copies of the new regulations are available at www.ess.govt.nz/rules/rules_discussion.asp. A full explanation of the changes was included in the EEA Bulletin of 18/2/03.

The amendments also mandated many requirements of the 2001 version of ECP 34 for safe distances.

The overall purpose of the amendments is to:

- Update and simplify the principal regulations.
- Improve domestic and residential safety.
- Minimise compliance costs for industry and individuals.
- Align Australian and New Zealand wiring practices.

More specifically, the amendments:

- Revise the definitions of terms by adopting definitions used in joint Australian / New Zealand standards or definitions that are internationally recognised.
- Replace most Electrical Installation Codes of Practice with Standards (in particular, AS/NZS 3000 or its companion Standards), and in other cases adopt new or revised Electrical Codes of Practice and Standards.
- Introduce greater flexibility by replacing prescriptive technical requirements with safety principles and obligations, leaving industry to be guided by Codes, Standards or industry Safety Rules (*regulations 8, 11 to 14, 28, 30, 34 to 37, 39 to 50*).
- Improve safety by updating the responsibilities of persons connecting or reconnecting some installations (*regulation 19*), requiring the installation of residual current devices in certain situations (*regulation 31*), and prohibiting all “scraping earth” plugs and sockets from 1 January 2004 (*regulation 36*).
- Reduce compliance costs by recasting regulations relating to testing electrical appliances (*regulation 14*), certification (*regulation 14*), and inspection (*regulation 16*) to remove requirements that do not contribute to safety outcomes.

7.2 Health and Safety in Employment Amendment Act

The Health and Safety in Employment (HSE) Amendment Act was passed on Christmas Eve last year, and came into force on the 5th May this year.

The stated purpose of the Act was to make the principal Act more comprehensive, specifically in relation to:

- Confirming cover to persons who are mobile while at work;
- Providing protection to persons who are loaned or receiving on the job training or work experience;
- Confirming harm can be caused by work-related stress;
- Confirming that temporary conditions which can affect a person’s behaviour, such as drugs, alcohol and fatigue, may be hazardous;

- Requiring employers and employees to co-operate in good faith
- Providing more effective enforcement; and
- Prohibiting indemnification.

Other detailed advice on the Act (with the Amendment included) can be found at www.workinfo.govt.nz.

7.3 **EnergySafe**

After two years in abeyance, the EnergySafe Working Party met on 31 January 2003 to progress Government's decision on the new safety structure for the electricity industry. The meeting on 31 January was to consider a draft of the changes to the Electricity Act and Gas Act. The EEA has continued to work closely with the MED / OSH on this project.

There are three aspects for key ESI interest, being:

- HSE Act and competency controls. The key issue for the ESI is the removal of licensing and registration of electrical workers in the ESI once suitable competency controls are in place under the HSE Act.
- Electricity Act and SMS's for works. The requirements for safety management systems for works accessible to the public or that may place the public at risk need to be developed.
- Gasfitting at large industrial plants such as power stations.

As a result of the January meeting three working groups were established, which the EEA had representation on, being:

- Prescribed electrical work, to look at whether the definition of prescribed electrical work should exclude "works," given that "works" would no longer be covered by the EWRB.
- Large gas fired installations, to look at what was to replace the exemption under Section 57 (3) of the Plumbers, Gasfitters and Drainlayers Act from the requirement to use licensed workers. This exemption is used by the large gas fired power stations.
- Registration and licensing, including safety management systems and suitable competency controls, to look at the EWRB / PG&D Board wish to retain both registration and licensing of workers; the drafting instructions relating to Safety Management Systems (under the Electricity and Gas Acts) for public and product safety; and to consider the issue of suitable competency controls for the electricity supply industry under the HSE Act.

Issues relevant to the "works" side are that the union is questioning the need for any change to the existing licensing requirements under the Electricity Act and see statutory occupational licensing as desirable. The EWRB supports the Government decision to remove licensing from the supply sector but has concerns over the issue of "consumer works." The EEA strongly supports the removal of licensing within the electricity supply industry to be replaced by suitable competency controls being established by industry and recognised under the HSE Act. In relation to public and product safety of "works," the EEA continues to promote having Safety Management Systems with reporting requirements covered under the Electricity Act.

At this stage, much of the discussion is still at a policy level, however, the EEA will continue to address issues relating to industry developed suitable competency controls under the HSE Act and detailing the framework for a public/product safety management system under the Electricity Act.

The solutions proposed are expected to be reported back to the main group within a month. The legislation is expected to be introduced to Parliament later this year, with enactment scheduled for 1/4/04. The main focus of work in the near future is for the regulator to prepare drafting instructions.

For gasfitting the EnergySafe decision is that the Plumbers, Gasfitters and Drainlayers Act section 57(3) exemption from the requirement to use registered gasfitters, or an alternative, be revoked. This leaves an employer licence as the most viable option for large gas fired industrial premises. Several meetings have focussed on this issue, particularly regarding the role of the Plumbers, Gasfitters and Drainlayers Board (who would issue the licence). It has been agreed that where an organisation obtains an external certification, eg. ISO 9001, with gasfitting included in its scope, then an employer licence will be automatically issued. As is the case with electricity employer licences, the licence applies only to the employer, and cannot cover contractors. It is planned to

enter into discussions with the PG&D Board regarding their requirements for employer licences, which must be known before an audit is carried out.

8 Issues for Consultation

Issues identified in this section represent those which the SS&P Group are currently debating, and on which the Group would appreciate feedback from readers. These issues represent areas where change is probably required. Feedback can be provided via admin@eea.co.nz

8.1 Relative Accountability of Issuer and Recipient of Permits

The SS&P Group has had an issue identified to it regarding the relative responsibilities of issuers and recipients of permits. The issue relates to the issuing of the permit, not the management of it once it is issued.

(a) Current Requirements

SR-EI sections 4 and 5 cover the requirements for permits. For all permits there is an issuer and a recipient, who are also preferably, and most often, different persons.

Rule 405 is titled 'Agreeing on the Extent of Safety Measures Prior to Permit Issue', and states that:

'Prime responsibility for safety under a permit lies with the recipient who may require an issuer to take particular actions to ensure the safety of employees carrying out the work. During preparation for permit issue, the issuer and recipient shall agree on the safety measures to be applied for the issue of a permit.'

Rule 412 covers the 'Recipients Responsibility for Safety'. It was amended with the July 2000 edition of SR-EI to include a provision (b) under which in certain circumstances a recipient was not required to be a member of the workparty.

(b) Principles

The SS&P Group established its principles for workparty management in the Technical Guide on Supervision for Safety. This Guide focuses on the role of the recipient and their role as supervisor of the workparty.

The ESI has established the principle that prime responsibility for the permit lies with the recipient, which requires the recipient to:

- Know the equipment isolations required, and their physical location.
- Ensure the isolations applied are adequate and correct, ie actually check them.

When rule 412 b was introduced into the current edition of the rules, it was recognised that with the changes over recent years to universal use of contractors, there are fewer people who have sufficient plant knowledge to know the isolation requirements.

i *Concepts for Consideration*

The company which raised the issue uses contractors for all of its work. All permits are issued by operator competent persons.

In some instances they want to engage a contractor who does not have relevant plant knowledge of the equipment, and is therefore not able to fully comply with the requirements for a recipient.

The Group has debated this issue, and while there is strong support for the status quo, there is also a recognition that some change may be acceptable. Points made include:

- The issuer represents the equipment controller, and the recipient represents the workparty. The recipient is accountable for the safety of the workparty.

- Permit issue and receipt requires negotiation between the parties.
- The permit is an agreement between the person with operational control and the person who is to do the work.
- The key issue is how the person knows the boundaries of where they can work.
- There is an absolute need for a formal handover of control for each stage.
- Need to focus on situations where the issuer has more knowledge than the recipient.
- If the practice is safe it should be allowable.
- Communication is critical.
- There is a need to focus on the need by some to use specialist contractors who may not be permit familiar.
- The permit system is a management system.
- Principles agreed include:
 - There must be agreement between the 2 parties
 - The balance of responsibility should be flexible
 - Under a permit defined equipment is placed in a defined state for the period of the permit, and normal operational control is suspended.
 - The issuer agrees not to operate the equipment during the period when the permit is issued.
 - The recipient has access to the defined equipment under defined conditions.

Comment on this issue is requested, particularly where there are difficulties being experienced for the recipient to fulfil their accountabilities.

8.2 Principles for Permits

The SS&P Group has recently discussed the principles relating to permits, ie the principles upon which the rules on permits are written. The Group intends to document those principles, and would like feedback and comment on them. In particular the Group would like comment on the principles for verification of isolation.

The key principles are identified as:

- Isolate and tag
- Test
- Earth (and tag)
- Verification

Bullet points 1 to 3 are issuer functions, although for 'additional safety measures' are also recipient functions. Verification is, however, a recipient function, and is a principle that the recipient identifies the equipment, or part of it, which is to be worked on. Means of verification include identifying the location, marking, use of a VDD, etc.

Comment on the principles is requested, and particularly the requirements relating to verification.

8.3 Wire Reinforced Ladders

The SS&P Group has recently discussed whether to remove recognition of the use of wire reinforced ladders. Wire reinforced ladders are no longer manufactured, and the Group has identified a need to start phasing out their recognition.

There are probably only a small number of these ladders remaining, and they have been superseded by fibreglass and fibreglass reinforced ladders.

Comment is requested on any particular reason why wire reinforced ladders should remain recognized.

8.4 PPE in Live Switchyards

The ESAA have recently developed a draft guide for the Selection, Use and Maintenance of PPE for Electrical Hazards. The SS&P Group have considered the guide but are not about to endorse

it. The Guide does, however, require that insulating gloves, eye protection, head protection, and protective clothing are used in all outdoor situations where there is live electrical equipment, and in some indoor situations. The requirements apply for operating, maintenance and construction.

In NZ, except for the requirement to wear head protection in switchyards etc, the requirements for PPE are based on the work being carried out at the time, or the employer's own requirements.

The SS&P Group will monitor this trend towards the mandatory use of specific PPE when working in defined areas, irrespective of the actual work being carried out. The Group requests comments on development of this practice, and whether employers and asset owners already have in place mandatory requirements.

8.5 Fall Arrest Harnesses

The EEA publishes a technical guide '*Use of Personal Fall Arrest Systems*'. The guide identifies fall arrest systems and equipment which the EEA believes is acceptable for the ESI. Part of the development process of the guide is to monitor the development of fall arrest standards. Minimum standards are contained in the AS/NZS 1891 set of Standards. OSH also indicate from time to time what they believe to be acceptable, which is no less than AS/NZS 1891 and is sometimes a higher standard.

The EEA has previously indicated a move away from body belts, and has recognised lower body harnesses, which are also recognised in the present editions of the safety rules. The SS&P Group is now identifying a need to move to full body harnesses, with an integral body belt and optional attachment points. The reason for the move is to ensure that employees have available at all times an appropriate harness for all work circumstances, which will then enable them to select the appropriate attachment point.

The SS&P Group invites comment on the proposal to move to full body harnesses only, particularly on any transition provisions. Any changes will be contained, as appropriate, in the new edition of the safety rules, and in later versions of the guide on the '*Use of Personal Fall Arrest Systems*'. Developments in the EEA documents will also match developments in AS/NZS 1891.

9 EWP's

A review of the OSH Approved Code of Practice for Power-Operated Elevating Work Platforms is being undertaken by an industry association set up for this (The EWP Association of NZ), and they have held their inaugural meeting. A detailed review of the ACOP is necessary because some EWP's which have undergone the inspections required by the ACOP have subsequently been found to have hidden defects (particularly imported second-hand EWP's).

10 Incidents

Reports of incidents are posted on the EEA website. Reports include a number from Australia. Readers need to ensure they review the posted reports to identify any hazards that affect their assets or methods of working.

10.1 Haywards

The following description of the Haywards accident and recommendations are extracts from the ALSTOM report on the accident and from information available subsequent to the initial investigation.

At 0851 of the 5th March 2003 at Transpower's Haywards substation a serious accident occurred which resulted in serious harm to two employees. One died of his injuries within 24 hours, the other was hospitalised for several months.

The accident happened when the rear panel of an in-service newly livened 11kV circuit breaker (CB 2832) was removed and one of them reached inside it, resulting in electrical contact. The workers had immediately prior to the accident worked on another isolated circuit breaker (CB 2782), and were to work on the live circuit breaker involved in the accident (CB 2832) at a later time, once an Access Permit had been applied. The work involved the transfer of 11kV cables from CB 2782 to the one involved in the accident (CB 2832).

The investigation has found that:

- The two workers were clearly instructed on the work they were to do for the first part of the day, they were involved in the application of the isolations, were briefed on the equipment covered by the Access Permit, and had signed on to the Access Permit to allow that work to take place. A Tailgate session had been carried out.
- The work to be carried out on the live circuit breaker involved in the accident (CB 2832) which the workers entered required an Access Permit, which had not yet been issued, and according to a statement made by one other member of the work party, it is believed that the two workers were aware of this fact.
- All rear panels on the B Bus and some on the A Bus, except the two panels to be worked on during the day, were marked with red tape in a cross pattern on the morning of 5th March. The markers were for the purpose of identifying the panels which were not to be worked on that day. The marking carried out was to enhance safety and system integrity, and was not intended to over-ride the requirement for a permit.
- The reason why work was commenced on the CB involved in the accident without an appropriate permit, why the two workers moved to the circuit breaker (CB 2832), or why they removed the rear panel, is not known.
- The project was well planned, there were no pressures to make up or gain time, and the costs were as budgeted. There did not appear to be any personal issues.
- Training and supervision were found not to be issues.
- Selected extracts from the recommendations of the report highlight the following:
- The development of an industry wide system for marking electrical equipment, which has been constructed, installed or refurbished, at all points of entry when it is about to be livened for the first time. Such marking should remain in place until a workparty has completed its work. Any marking system established must be routinely and correctly used.
 - The development of an industry wide system to clearly identify metal clad switchgear covered by an Access Permit. This could be magnetic strips appropriately labelled and coloured.
 - The wearing of full body covering fire-resistant overalls should be a requirement for all staff and sub-contractors when working in live HV substation environments.
 - When a new control is put in place on a job (whether it is for safety or may be interpreted to apply to safety), the tailgate session should be reconvened and all persons signed on to the tailgate instructed on the added control.
 - Mandatory use of a VDD before work on conductors where an earth which relates to the conductor cannot be seen.

10.2 Transfield Live Line Accident

Transfield are contracted to undertake maintenance services for a network owner. As part of those services they were carrying out live line work to replace a defective air break switch (ABS) on a pole. An employee suffered serious burns to his face and torso when an 11kV flashover occurred.

The OSH investigation into the accident revealed the following breaches of section 6 of the HSE Act:

- (a) There was inadequate supervision on site which allowed a variation from the safe system of work, in particular:
 - Removal of gloves thus failing to ensure there were at all times two levels of insulation during live work.

- Insufficient cover up of live conductors and earthed metal to provide protection from body and equipment contact (one blanket had been cut in half thus reducing its overall effectiveness).
 - An operator climbed out of the EWP.
 - The LV lines were not covered and yet were within 300mm of the EWP bucket.
 - The earthing system on the EWP was substandard.
- (b) Procedures for carrying out the replacement of an ABS were available but not referred to.
- (c) Monitoring and audit systems were not effective. Variation from safe working procedures had occurred on numerous occasions in the past.

(The above information was taken from the 'Summary of Facts' provided by OSH).

10.3 Eastland Networks Ltd

The June 2002 Newsletter reported an incident which occurred on a distribution network where a line worker received an electric shock from LV lines during a repair operation. The poles in the rural area carried HV and LV. Re-livening was occurring progressively along the line following a vehicle accident. A ground mounted transformer was obscured from view (on the opposite side of the road and fed by cables) and it was not realised that the next section of livening would also liven the LV being worked on (It was assumed the cable observed led away from the LV rather than supplying it).

This accident has reinforced the need to carefully check the electrical connections between HV and LV, which cannot be assumed from field observations. Such connections must be checked with the assistance of line diagrams.

Guidance on whether LV overhead systems should be earthed before working on them is still being developed by the SS&P Group (refer to section 11).

10.4 Masterton Substation Electric Shock Incident

In May 2002, a maintenance switcher received an electric shock while attempting to open an earth switch in a 110 kV line bay. The switcher had found the earth switch too difficult to open from the ground position and had climbed on to the structure in order to move the handle with a foot action. It appears the switch opened and then closed again when the foot action was removed, at which time the switcher received an electric shock. It is likely that the switcher was holding on to the structure and the operating rod when this happened.

Site measurements of linkage resistance and modelling of the equivalent electrical circuit have demonstrated that it was possible that a transient capacitive discharge (the capacitive charge came from an adjacent in-service 110 kV line) occurred when the earth switch reclosed under its own weight after the switcher released his foot pressure on the handle. It was also found that the earth lead connection between the structure and the operating rod was ineffective due to a loose bolt, and this enabled the operating rod potential to rise above the structure potential.

The conclusions of the investigation into the above incident include:

- Had the switcher been standing on the operator earth mat to operate the switch in the recommended way, he would not have received an electric shock.
- If the earth bond had not been loose, the accident would not have happened.
- Due to the loose earth bond, a person standing anywhere on the ground and contacting the operating rod and structure at the same time could also have received an electric shock.
- There was no fault with the switch itself, or its design. The handle and operating rod must be bonded to the structure to ensure equipotential bonding is achieved and limit any transient hazardous voltages between them and the structure to safe limits.
- As a result of the investigation, Transpower's service specification has been modified to clarify that it is a requirement to inspect all above ground earth joints and bonds of earth switches and disconnectors as part of the monthly station inspection. In addition, a review programme is underway to check that the earth bonds of all earth switches and disconnectors have been installed correctly.

10.5 Energy Safety Service 'Summary of Reported Electrical and Gas Accidents'

The Energy Safety Service have recently released their 'Summary of Reported Electrical and Gas Accidents' for the period 1/1/01 to 31/12/01. The report is available from the Energy Safety Service or from their website www.ess.govt.nz.

11 Portable Earthing

The Portable Earthing Working Group is progressing with the preparation of a Guide on portable earthing on distribution system equipment. The group will specifically consider:

- the earthing of LV overhead lines
- review of Appendix B of SR-EI
- bonding of conductors to poles
- earthing terminology

12 Interpretations Issued

The Safety Strategy & Policy (SS&P) Group has issued the following interpretations since the last newsletter. These interpretations are issued to provide guidance in response to questions on a specific circumstance, and the interpretation is given for that circumstance. Application of the interpretation to a different circumstance may not be valid. (Note that interpretations may also be covered under separate specific topics).

The full interpretation is available on the EEA website, with the following being a description of the key elements of the interpretation.

12.1 Rule 703 and Minimum Approach Distances (MAD)

(a) Background

A network company has requested further clarification of the interpretation given in the December Newsletter regarding rule 703 and MAD. The issue is in regard to the installation of temporary earths on the load side of a DDO while the line side is live.

(b) Interpretation

- i. The interpretation issued by the SS&P Group in July 2002 titled 'Interpretation on Rule 703 and Minimum Approach Distances' covers the question raised, (the full interpretation is available on the EEA website), and earthing the bare load side wire at a position further than 300mm from the (live) contact on the DDO complies with the MAD requirements.
- ii. The July 2002 interpretation, and one issued in the June 2002 newsletter, confirm that the MAD requirements must be met. This does not permit a temporary earthing device to be brought within the MAD.
- iii. The SS&P Group interprets the requirements for MAD as applying to the nominal voltage of the circuit, not the phase voltage.

12.2 PFAS and Cherry-Pickers

(a) Background

An inquiry was received regarding the requirement for a personal fall-arrest system (PFAS) to be used in a cherry-picker when it is to be used at a height of less than 3 metres.

(b) Response

i Legislative

The Health and Safety in Employment Regulations 1995 (Regulation 21) require that where an employee may fall more than 3 metres means are provided to prevent the employee from falling, and the means are to be suitable for the purpose.

The Health and Safety in Employment Act also requires that hazards which could cause serious harm are managed. This includes situations where there is a possibility of serious harm occurring from a fall of less than 3 metres, in which case fall protection would be required.

ii *Documents*

Six documents provide advice on fall protection when using cherry-pickers. These are:

- Approved Code of Practice for Power Operated Elevating Work Platforms (OSH 1995).
- Guidelines for the Prevention of Falls (OSH publication April 2000).
- EEA Guide for the Operation and Maintenance of Elevating Work Platforms (1997).
- Safety Rules – Electricity Industry (April 2000).
- EEA Technical Guide on the Use of Personal Fall Arrest Systems (June 2001).
- EEA Safety Rules Newsletter December 2002 (Reference 10.2).

iii *Case History*

The Department of Labour prosecuted two employers in Christchurch in mid 2002 over the failure to use PFAS in an EWP. The EEA Safety Rules Newsletter, December 2002, summarised the case.

This case related to work carried out in excess of 3 metres above ground. During the case the issue of the requirements for less than 3 metres was raised, and it was agreed that there were no guidelines for under three metres. The OSH witness stated, however, that 'It was his opinion, however, that the full harness should be worn at all times regardless of the height' The OSH witness also stated that '[His] opinion was that a "significant hazard" would arise after the worker past three metres in height'. The Judge concluded that the three metre issue was not directly relevant to the case.

In this case it was also significant that the manufacturers recommendation as to safety equipment stated on a sign in the bucket "Full-body safety harness must be worn at all times."

What is also significant in this case is that the hazard from working in EWP's was identified as persons in the bucket being catapulted out due to equipment malfunction or due to being hit by a vehicle. (An additional hazard is from instability leading to toppling). Given these hazards, height is not the predominant hazard.

iv *EEA Position*

The EEA Technical Guide on the Use of Personal Fall Arrest Systems (available on the EEA website) best summarises the EEA position on the use of PFAS in mobile equipment such as a cherry-picker. The guide states that 'The EEA Safety Strategy and Policy Group believes that to ensure worker safety and compliance with OSH and relevant Standards, Guides and Codes PFAS must be used in EWP's'. This position has not changed since this was written.

The December Safety Rules Newsletter covered a review of this part of the Guide and confirmed that 'attachment must be used when working in an EWP, and preference must be given to a full fall arrest harness'. (The key issue being considered was whether a 'lower body harness' was acceptable for use in an EWP).

(c) *Conclusion*

The EEA Safety Strategy & Policy Group confirms that PFAS is required for work in an EWP for all circumstances, irrespective of height. This reflects the principal hazards of the effects of malfunction, being hit by a vehicle or toppling from instability.

The SS&P Group also recognises that once an EWP is being operated there is no specific limitation to how high it can be raised, and the three metre limit can easily be exceeded.

The SS&P Group also believes that the discipline of always wearing PFAS in an EWP is the only effective way of ensuring that PFAS is used when it needs to be.

13 Publications Referenced in SR-EI and GSG-EI

GSG-EI makes reference to over 70 external publications, and SR-EI makes reference to 25, most of which are the same as those in GSG-EI. From time to time these references are amended. Those references which have been amended will be identified in the next newsletter.

14 Asbestos

A Network company has brought the Group's attention to the likely existence of asbestos in old black switchboard backing panels. These were made of a pitch and asbestos mix, had a trade name of 'Syndanyo', and were manufactured between 1950 and 1970.

The Australian ESI has been working with their regulator on this issue over the past year, and they have provided links to information issued by the regulator. This information can be found at www.workcover.nsw.gov.au/html/asb_elect.asp.

Anyone working with switchboards which may comply with the above description should treat them as possibly containing asbestos, and follow appropriate work practices as outlined in the NSW procedures.

15 ECP 46

As covered in the December Newsletter, the EEA Guides on Live Work have been published as an Electrical Code of Practice (ECP), on the understanding that once the EnergySafe changes have been implemented the EEA will reconsider how live work will be managed under the HSE Act.

ECP 46 was published in March this year. Seminars to explain it were held throughout NZ in April.

16 Safety Statistics Project

The SS&P Group has agreed to a proposal that a safety statistics database be established for benchmarking and comparison purposes. At present the ESI is dependent on the regulator for information, and this is often old and not easy to correlate for ESI purposes. A working group is presently developing the tools and criteria for reporting.

17 Flame Retardant Overalls

The EEA received a request from OSH and the Energy Safety Service for comment on the use of flame retardant overalls in the ESI. The SS&P Group considered this issue and prepared an information style response, rather than a specific position.

Comment made included:

- There is no single standard in NZ for the selection of overalls. Two companies are following NFP 70 E as a Standard.
- Most are using 100% cotton.
- The draft ESAA *Guide for the Selection, Use and Maintenance of Personal Protective Equipment* contains relevant guidance, but is not to be adopted for use in NZ. The ESAA Guide recommends:
 - Material properties not inferior to 185 gsm 100% cotton drill
 - Overalls cover neck to wrist to ankle
 - Overalls comply with AS 2919 'Industrial Clothing'

(The Guide does not prescribe flame retardant characteristics)

- Factors for consideration for exposure to fault currents include:
 - Prospective fault current

- Fault duration
 - Distance from the arc
 - Conducting materials
 - Properties of the clothing fabric
-
- When considering heavier materials for increased protection, factors such as climate need to be considered, eg. heat stress.
 - Where extra protection is required the possibility of a jacket should be considered for the duration of the exposure
 - Flame retardant properties do not tend to last for the life of the garment.
 - Personal protective equipment must always be considered to be the last form of protection in the hierarchy of controls.
 - Generally the ESI in NZ is using 311 gsm 100% cotton with no metallic fastenings. Overalls should also be of the full cover type.
 - The group will monitor the development of new materials, such as Nomex, Ciba Pyrovatex, etc.

**EEA SAFETY STRATEGY AND POLICY GROUP
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