

Safety Lines



ISSN 1171-9354

ENGINEERING SAFETY NEWSLETTER, OCCUPATIONAL SAFETY AND HEALTH SERVICE

No. 42,
June 1999

Pressure Equipment, Cranes and Passenger Ropeways Regulations Update

Engineering Safety are pleased to advise readers that after a long and challenging development period, the Health and Safety in Employment (Pressure Equipment, Cranes and Passenger Ropeways) Regulations 1999 are, at the date of writing this article, almost a reality.

June 24							<input checked="" type="checkbox"/>
S	M	T	W	T	F	S	
		1	2	3	4	5	
6	7	8	9	10	11	12	
13	14	15	16	17	18	19	
20	21	22	23	24	25	26	
27	28	29	30				

The Governor General signed the Order in Council making these regulations on 24 May 1999. This order will come into effect on 24 June 1999, twenty eight days after the date of its publication in the *Gazette*. From this day, the PECPR Regulations 1999 will be law.

Work commenced on the regulations prior to repeal of the Boiler, Lifts and Cranes Act in April 1993 and a first draft was circulated to industry for comment in December 1994. Since then, another fourteen issues of consultation draft have been prepared with this process finally ending in the 'Health and Safety in Employment (Pressure Equipment, Cranes and Passenger Ropeways) Regulations 1999.

These regulations place duties on equipment controllers, employees, designers, manufacturers and suppliers. Collectively, these groups are required by the regulations to 'take all practicable steps' to ensure that equipment is:

- Designed to be safe in use;
- Manufactured to a verified design;
- Operated safely;
- Maintained in a safe condition;
- Inspected periodically; and
- Not operated unless it has a current certificate of inspection issued by a recognised inspection body.

Equipment inspectors must keep in mind the basis on which a certificate of inspection will now be issued. Previously, under the Boiler, Lifts and Cranes Act 1950, a certificate of inspection was issued on the grounds that the equipment was safe at the date of inspection. Under the PECPR Regulations, equipment inspectors now recommend the issue of a certificate of inspection if they have reasonable grounds for believing the equipment is safe and will remain safe for the period of the certificate.



Also, equipment inspectors must inform manufacturers/ controllers of safety issues relating to the equipment they inspect and any action required to make such equipment safe. Controllers should ensure that they receive a report on the condition of their equipment along with the certificate of inspection. These reports, and other records for the equipment, should be kept by the controller.

The regulations are non-prescriptive on the technical requirements of compliance. Such matters will be covered by codes of practice and the recognition of relevant national and international standards. These will cover design, manufacture, operation, maintenance and inspection of equipment.

To this end, codes of practice for boilers and passenger ropeways have already been approved for use by industry. Working drafts of codes for pressure equipment and cranes are well advanced and will be available in the near future. Preparations have been made to *Gazette* various standards including:

- Standards listed in AS/NZS 1200 'Pressure equipment';
- Standards for passenger ropeways and cranes; and
- Standards for inspection of equipment.

When the PECPR Regulations come into force, various exemptions and recognitions, previously granted under the Health and Safety in Employment Act or Boiler, Lifts and Canes Act, will come under these new regulations. The transition to the PECPR regulations will be handled as follows:

Exemptions

Controllers of unattended and limited attendance boilers

Controllers intending to operate an unattended or limited attendance boiler who previously would have applied s.37(3) of the Boiler Lifts and Cranes Act, now need to notify Engineering Safety under Regulation 10(4) of the PECPR Regulations. Controllers holding an existing exemption to operate an unattended or limited attendance boiler under the Boiler Lifts and Cranes Act will be deemed to have given such notification.

Manufacturers

Manufacturers currently holding exemptions for equipment will receive a letter from Engineering Safety advising how these may be re validated under clause 6 of the PECPR Regulations.

Equipment

The various definitions in the regulations will invariably extend control to equipment to which application of the regulations in whole or part is not appropriate. To cover this situation, provision has been made for various equipment to be exempted under Regulation 6. Schedules of this equipment have been prepared and will be gazetted. Similarly, further exemptions for equipment will be prepared and gazetted as any need arises.

Recognitions

Inspection bodies

- Recognised independent and owner-user inspection bodies operating in New Zealand, under an ISO management system, will receive a letter from OSH setting out requirements for recognition under the PECPR Regulations. They will have six months in which to become accredited to EN 45004 and obtain recognition under Regulation 25(1).
- All recognised inspection bodies operating in New Zealand, currently accredited to EN 45004, will receive a letter from OSH setting out the arrangements for transition to recognition under the PECPR Regulations.
- All overseas inspection bodies which received recognition post-December 1994 will receive a letter from OSH setting out the arrangements for transition to recognition under the PECPR Regulations. All overseas inspection bodies which received recognition pre-December 1994 will receive a letter from OSH setting out requirements for recognition under the PECPR Regulations. They will have six months in which to reapply for recognition under Regulation 25(2).

Pressure equipment

Controllers of pressure equipment who currently have inspection and test plans or quality management systems recognised for the purpose of operating with extended inspection periods of AS/NZS 3788, will receive a letter from Engineering Safety revalidating their recognition in the terms of Regulation 22.

In concluding, Engineering Safety wishes to acknowledged that the development of the Regulations was made possible only by the input of manufacturers, inspection bodies, consultants and others who made submissions, reviewed drafts and gave advice. This has resulted in a regulatory framework for pressure equipment, cranes and passenger ropeways that is in keeping with the requirements of New Zealand industry,

reflects international practice and will be effective in maintaining safety standards.

Engineering Safety thanks all those organisations and persons who gave so much of their time to this work.

For more information contact:

Bryn George
Occupational Safety and Health Service
Department of Labour
PO Box 3705
Wellington
Phone (04) 915 4433
Fax (04) 915 4370
Email bryn.george@osh.dol.govt.nz

Copies of the Health and Safety in Employment (Pressure Equipment Cranes and Passenger Ropeways) Regulations 1999, Serial Number 1999/128, are available from Bennetts Bookshop. RRP \$3.95. Ed.

Australian Inspection Body

Engineering Safety is pleased to advise readers that C J Wallis Pty Ltd trading as AAI — All Areas Inspection, has been recognised by OSH as an overseas inspection body.

They have been assessed and accredited by NATA (National Association of Testing Authorities, Australia) to criteria including EN 45004, for 'in-service inspection' and 'fabrication inspection'.

Enquiries regarding inspections of equipment may be made to:

Mr Doug Wallis
AAI — All Areas Inspections
PO Box 6404
Baulkham Hills BC
New South Wales 2153
AUSTRALIA

OSH Trademark

Engineering Safety advises readers that the acronym 'OSH' is now a registered trademark.

This action has been taken because OSH has received many complaints and concerns from the public confused or misled by private companies and individuals using the name or giving the impression of OSH endorsement.

The worth of this trademark will depend on the effort OSH puts into its promotion and preserving its integrity.

This means that:

- OSH will be vigilant in following up instances where the trademark has been used incorrectly or without permission.
- The trademark 'OSH' will be promoted as the universally registered trademark symbol of the Occupational Safety and Health Service.

There are two issues for readers to consider when determining whether the term 'OSH' is being used correctly. These are:

1. Has the term 'OSH' been used to represent something other than the Department of Labour's Occupational Safety and Health Service?
2. Has the term 'OSH' been used in a way which implies a misleading reference to the Department of Labour's Occupational Safety and Health Service?

There is no problem when the name 'OSH' is used correctly to refer to the Department of Labour's Occupational Safety and Health Service or when using alternatives such as 'OS&H', 'OHS' or 'workplace health and safety'.

Where any breach of the trademark is detected then OSH may take legal action under the Fair Trading Act 1986 and the Flags, Emblems and Names Protection Act 1981.

Anyone with any queries or concerns about use of the 'OSH' term should contact:

Bob White
Occupational Safety and Health Service
Department of Labour
Phone (04) 915 4369 Fax (04) 915 4640

Bitumen Tank Explosion

Late last year a 100-tonne capacity bitumen tank exploded. This caused considerable damage to the tank and nearby buildings. Fortunately no one was injured; the explosion occurred outside of working hours at 2 am in the morning.

The tank was almost empty when it exploded. It is believed that a level switch failed to operate and switch off heating coils in the tank after a fall in level. This would have caused the product residue to overheat and build up a vapour which exploded on contacting an ignition source or, on reaching auto ignition temperature.

A key finding from the subsequent investigation was that other tanks in the facility had heating element sensors placed above the level cutoff switch for the tank heating coils. This would allow the sensor to lose contact with the product and feedback a low temperature to the heating coil temperature controller. Conditions would then be set up where the product could be overheated and an explosive vapour generated.

Management of the tanks in the facility at which the incident occurred has been modified to include the following:

- A person to be given specific responsibility for the tanks;
- A directive to be issued which requires tank heating coils to be manually shutdown when there is a known low product level;
- Temperature sensors to be relocated below the level at which the tank level cut off switch turns off the heating elements;
- Tank surveillance is to include regular functional checks on the tank level sensors and temperature controls; and
- A disaster management plan to be developed for dealing with major incidents.

Australian NDT Personnel Employed In New Zealand

Engineering Safety have had queries about the status of non-destructive testing (NDT) personnel from Australia working in New Zealand. These have generally been: 'Can Australian NDT personnel work in New Zealand, on equipment coming within the scope of the Pressure Equipment, Cranes and Passenger Ropeways Regulations and sign reports to inspection bodies'?

In answering these queries, Engineering Safety considered the effect of the Trans-Tasman Mutual Recognition Arrangement (TTMRA) and the requirements of the PECPR Regulations.

TTMRA

The TTMRA does not appear to cover NDT personnel because they do not need to be registered to legally work in New Zealand.

PECPR Regulations

The PECPR Regulations indirectly affect NDT personnel where:

- They are working on equipment coming within the scope of these regulations; and,
- The results of this work are to be reported to an inspection body.

Under the PECPR Regulations an inspection body must be accredited. Where an accredited inspection body subcontracts work it must, in order to meet the requirements of its registration, have this work performed by an accredited body (see note 1). Reports issued to the inspection body by its subcontractor, must be signed by an approved signatory and carry an IANZ or NATA endorsement (see note 2).

Australian NDT personnel working in New Zealand and providing the services noted above, must be employed by an accredited body. They could satisfy this requirement by either:

- Working as a signatory for an Australian accredited body which is subcontracting its services to a New Zealand accredited body. Reports generated by this subcontractor must be on the subcontractor's letterhead and carry the endorsement of the subcontractor's accreditation body; or
- Joining a New Zealand accredited body and becoming a signatory for that body.

It should be noted that a person's signatory status is specific to a particular accredited body. If any Australian NDT personnel join a New Zealand accredited body then their signatory status with an earlier employer can not be transferred to the new employer. They would need to be reassessed and demonstrate to the accrediting body that they had appropriate qualifications (see note 3), skills and experience.

Notes

1. There are some exceptions to this requirement for

an accredited body. These cover the subcontracting of specialist services for which there are no accredited providers. In such cases the inspection body must undertake whatever investigations are necessary to convince itself the service provider meets the requirements of accreditation, including technical competence and quality system elements.

2. IANZ and NATA have a mutual recognition agreement under which each recognises bodies accredited by the other.
3. The New Zealand accreditation body recognises CBIP qualifications, or their equivalent, as a prerequisite for signatory status.

Mobile Crane Slew Rings

This article on slew ring inspection was contributed by Martin Beddows of New Zealand Inspection Services Ltd. Auckland. It is based on a procedure recommended by a major crane manufacturer. Ed.

During the annual inspection of mobile cranes, the inspection of the slew ring is usually limited to an external inspection only. One way to determine the wear of a slew ring is to carry out the following procedure:

1. Place a dial test indicator under the outer race of the bearing.
2. Apply a minimum downward thrust to the outer race and note the reading on the dial indicator. Downward thrust can be applied by extending and lowering the boom to shift the weight to the front of the upper structure carrying the boom.
3. Apply a minimum upward thrust to the outer race and note the reading on the dial test indicator. Upward thrust can be applied by retracting and raising the boom to shift the weight to the rear of the upper structure carrying the boom.
4. The difference between the readings obtained in steps 2 and 3 is the internal clearance in the bearing. When the measured value exceeds the manufacturer's recommendation the slew ring should be replaced.

It is recommended that this procedure be repeated at several points around the slew ring and that deflection readings are recorded on the inspection certificate for future reference.

Farewell: John Buxton

John Buxton, Executive Officer with Engineering Safety, has retired after a twenty-three-year career in the Public Service. He had a detailed knowledge of the workings of Engineering Safety and his input into administrative functions will be sorely missed. John isn't sitting back and taking it easy. He is busy with house maintenance, writing family history, trout fishing and for relaxation, is planning a touring trip around part of Australia. We were all very sad to see John leave and we wish him a long and happy retirement.

AIES Membership Available to Kiwis

This article is from the Australasian Institute of Engineer Surveyors Inc. Ed.

The Australasian Institute of Engineer Surveyors (AIES) has recently changed its name from AIPEE to reflect the fact that it now numbers members from both Australia and New Zealand. It has also widened its horizons to the safety of equipment including boilers and pressure vessels, cranes, lifts, amusement devices and passenger ropeways.

"We publish a quarterly gazette with items of interest to the industry including: standards reports, safety alerts, technical articles, Government activity, etc. Contributions are always welcome, with the object of making the workplace safer (and the inspector's life a little easier)".

Design verifiers or equipment inspectors certificated at the senior level usually satisfy AIES criteria for full membership grade M. Qualifications and experience are also taken into account. Those people who may not possess all the above credentials but who have some technical competence in the area of hazardous equipment are usually eligible for admissions as associates. Membership may also be held by organisations under grade C.

For a complimentary copy of the gazette and membership details please contact AIES:

Australasian Institute of Engineer Surveyors Inc.
PO Box 1092
Lane Cove
NSW 1595
Australia

Swift Survey and Safety Lines Readership Survey Results 1999

This year we received 205 replies from readers who completed surveys evaluating Engineering Safety performance and *Safety Lines* newsletter. This is a 27% return and is a significant increase over last year. All respondents completed the *Safety Lines* survey and 122 completed the Engineering Safety survey.

Thanks to all of you who took the time to participate in this process, your input is important to us.

The majority of our clients appear to appreciate both Engineering Safety's efforts and *Safety Lines*. It is apparent from this latest survey response, that the perception of Engineering Safety's performance is similar to that established by earlier surveys.

In a departure from past practice this year's ratings were compared to "averaged" ratings from the five previous years. It is expected that "averaging" will provide a better basis for evaluation over the longer term. The results of this latest survey are shown on the attached chart "Engineering Safety's Performance".

Many respondents raised concerns about the delay in implementing the PECPR Regulations and we accept that this has caused uncertainty and problems for sectors of industry. However, as noted in the lead article, the regulations should be in force by the time this issue of *Safety Lines* is distributed. We hope this will make life easier for readers who have been hampered by their absence.

The *Safety Lines* survey results are shown on the chart. "*Safety Lines* Readership Survey". This was run last year for the first time and was extended this year to include several new traits for evaluation.

It appears from the survey results that broadening *Safety Lines*' mailing list, to include a more diverse group of readers, has resulted in a slight lessening of readers rating of the newsletter's relevance to their work. Also, a number of respondents suggested that *Safety Lines* should give increased coverage to general health and safety issues. While we acknowledge that *Safety Lines* deals with a fairly narrow range of engineering matters, it also contains information on safety matters outside its main interest of pressure equipment, cranes and passenger ropeways.

However, in spite of requests for more general coverage of safety issues, Engineering Safety believes

that it must continue to focus strongly on matters falling within the scope of the PECPR Regulations.

Readers wishing to get a broader coverage of occupational safety and health issues are referred to publications such as *Safeguard* and *Safeguard Update*. Subscriptions to *Safeguard* and *Safeguard Update* are available from:

Karla Roberts
Colour Workshop Ltd
Ph: 0800 922 911

It also appears from readers' comments that *Safety Lines*' reduced frequency of publication from bimonthly to quarterly has affected their perception of its value. Regrettably, publication frequency will not be increased in the foreseeable future; this is due to the same budgetary constraints that led to its reduction.

There have been a number of comments along the lines that *Safety Lines*' articles are "too light", "need to be clearer", contain "jargon and abbreviations" and their "analysis is a bit trivial". These were offset by other comments "information relevant and informative", "clear, concise and well presented", "keeps engineers informed of topics overlooked in industry".

In response to some of these comments, we need to point out that *Safety Lines*, being a newsletter, endeavours to be informative, brief and to the point, rather than analytical. Also, because our focus is on pressure equipment, cranes and passenger ropeways, the articles in *Safety Lines* will tend to reflect 'jargon', terms, words and definitions used in the PECPR Regulations.

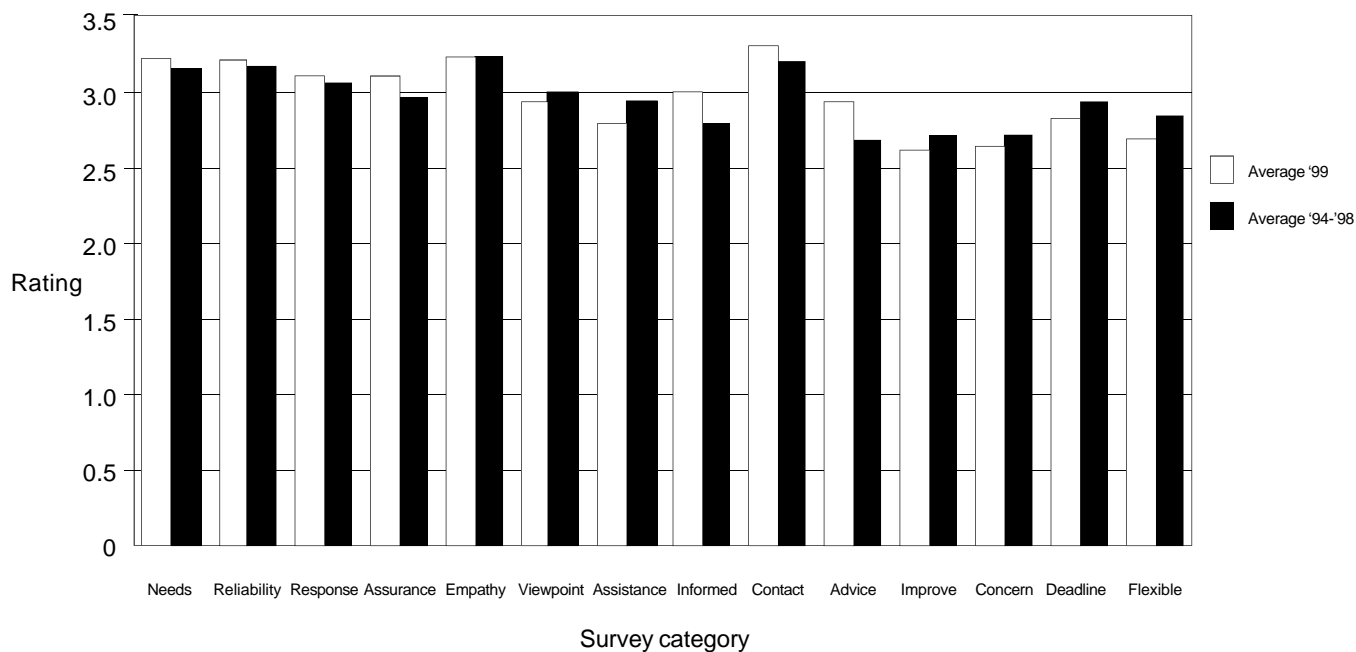
If readers have a deeper interest in any article, then we encourage them to take up the option of contacting Engineering Safety for more information. We welcome such interest and contact from readers.

Engineering Safety notes that readers would like to see more case studies and that they feel these "make the dangers real". We agree and would like to publish more of this type of article. We invite readers to send us details of their own experiences and case studies for inclusion in future issues of *Safety Lines*.

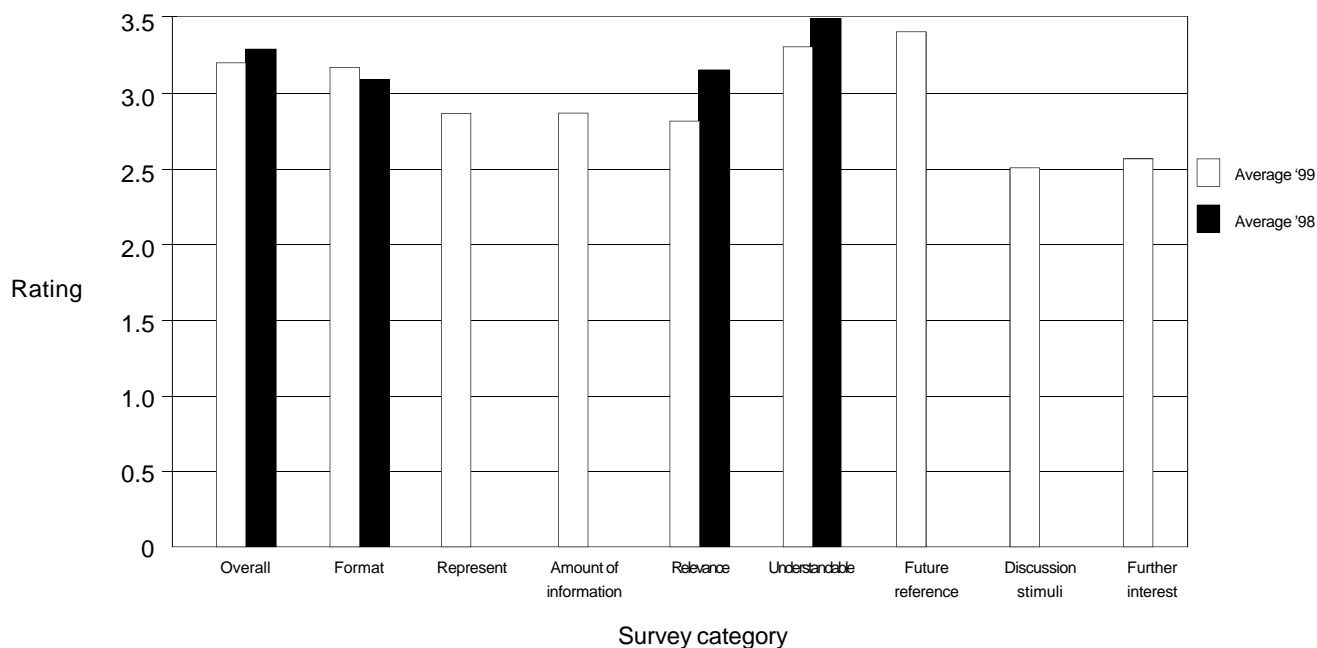
In conclusion, we thank again those readers who participated in our surveys.

Wherever possible, we will use readers' feedback to improve both our performance and the usefulness of *Safety Lines*.

Engineering Safety's Performance



Safety Lines Readership Survey



HERA Training Courses

HERA provided the following information on a training course and the update of their 1999 Training Programme. Ed.

Pressure Equipment Inspection

Content

The main topics of the course are:

- Competencies required for pressure equipment inspection.
- Materials and metallurgy for pressure equipment.
- Pressure equipment fabrication.
- Pressure equipment inspection.
- Welding technology.
- Deterioration and failures.
- Principles and types of corrosion.
- Inspector responsibilities.

- Inspection techniques.
- Non-destructive testing.
- Safety during inspection.
- Design considerations and calculations.
- Using AS/NZS 3788.
- Documentation and record keeping.

Aim

The course is aimed at persons involved with fabrication, maintenance or inspection of pressure equipment.

Course Level

The course is aimed at persons who want to improve their knowledge of pressure equipment inspection. It will suit persons with trade through to professional engineering background.

Purpose

To train persons in the inspection of boilers and pressure vessels and the application of AS/NZS 3788.

Outcomes

On completing the course, those attending should:

- Understand the purpose and basic essentials of inspection.
- Understand the different types of pressure equipment.
- Be familiar with the types, grades and classification of pressure equipment materials.
- Understand the inspection requirements during fabrication.
- Be able to recognise common causes of in-service deterioration.
- Understand the causes of corrosion.
- Understand the principles of NDT.
- Understand the principles of the common welding processes.
- Appreciate the need for safety during inspection.
- Understand basic metallurgy relevant to pressure equipment materials.
- Become familiar with AS/NZS 3788. Pressure equipment in-service inspection.
- Have an understanding of design.
- Keep better records and reports.

1999 Training Programme

Welding inspection	6 -10 September 15 - 19 November
Radiographic theory and interpretation of radiographs	20 - 24 September
Surface methods	2 - 5 August
Ultrasonic testing theory and Ultrasonic weld testing	4 - 8 October
Ultrasonic wall thickness	Next course 2000
Management appreciation in non-destructive testing	22 October
Coatings inspection	All year
Home study	
Introduction	
Block courses	19 - 20 August

For further information please contact:

Peter Hayward
HERA Training Centre
PO Box 76134
Manukau City
Phone (09) 262 2885 Fax (09) 262 2856

Safety Lines is a publication of the Engineering Safety Unit of the Occupational Safety and Health Service, Department of Labour, PO Box 3705, Wellington.

Editor: Peter Williamson

Phone: (04) 915 4461

Fax: (04) 915-4370

Email: peter.williamson@osh.dol.govt.nz

Articles in this newsletter may be freely reproduced, in full or in part, in other publications, as long as the source is acknowledged and the text is not edited. Back issues and additional copies of the current issue are available free of charge at the above address.

Contents

Pressure Equipment, Cranes and Passenger Ropeways Regulations Update	1
Australian Inspection Body	3
OSH Trademark	3
Bitumen Tank Explosion	4
Australian NDT Personnel Employed In New Zealand	4
Mobile Crane Slew Rings	5
Farewell: John Buxton	5
AIES Membership Available to Kiwis	5
<i>Swift</i> Survey and <i>Safety Lines</i> Readership Survey Results 1999	6
<i>Safety Lines</i> Readership Survey	7
HERA Training Courses	7