Worksite Safety Update

Promoting safety in road construction

No 103 January 2011

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Construction Safety Challenge 2011 – To Eliminate Plant Incidents on Road Construction Projects

Despite significant safety improvements by most road construction companies, and reported zero lost time injury statistics, there are still too many incidents involving Plant on road construction sites.

Plant Rollovers and underground services strikes both represent identified high risk construction works and the prevalence of these incidents demonstrates an urgent need for our industry to effectively and consistently improve the operation of plant in these areas. A recent fatality in New South Wales also reinforces the need for more effective controls to prevent pedestrian workers being run-over by plant - plant and pedestrians should be isolated from each other, wherever practical.

Plant rollovers and underground power and gas services strikes present the potential for serious injuries and even fatalities and need to be subject to more effective pro-active management before a fatality occurs.

For practical reasons administrative / behavioural controls are still required for much of this work and personnel involved at all levels must diligently apply and follow procedures. Where we rely on behavioural controls we must ensure the site culture supports this form of control and procedures must be taken seriously – no compromise must be accepted.

The challenge to our industry in 2011 and beyond is to prevent the recurrence of these incidents and to do this the objective must be for ZERO INCIDENTS in this area in future. This requires effective changes to the work process and behaviour, it will not happen otherwise.

Challenge 1: Zero Plant Rollovers

Plant Rollovers are still common despite many safety alerts and known causal factors on the subject. Some contractors in our industry do not seem to be learning the lessons from previous incidents and the alerts circulated to prevent future recurrences. Most incidents may be attributed to the operation of the machines beyond their stability limitations – so construction methods, type of machines and operator competency and experience on the machine they are operating are very important issues.

Rollers because of their high centre of gravity and relatively narrow width are the most common source of rollovers. If the ramp construction methodology does not take this into account and rollers are operated close to the edge without allowance for this factor then rollovers and the potential for serious injury are possible.

Rollover protection (ROP's) and the wearing of seat belts will certainly reduce if not eliminate injury (as demonstrated in our experience over the previous eight years), but it is obviously better not to have the incident at all, particularly where the ramp is high and the rollover / fall potential significant.

Operators must be competent and experienced in the machine they are operating and the type of work, and should not be expected to operate machines of which they are not competent and experienced in areas where rollover is possible. The arrangement of controls varies between machines and this can result in incorrect operation due to prior learning, not something recommended near the edge of a high abutment / ramp.

It is possible that some Roller Operators may not have any previous experience in ramp construction, the risks associated with this work (particularly working near the edge) and the recommended construction methods. Supervisors and Engineers may have no experience in ramp construction and the associated plant risks, particularly if they are new to the road construction industry.

Based on previous incidents the following information is provided to guide contractors and their plant operators in developing their required safe operating procedures for compaction roller operation:

Investigations conducted into previous incidents have shown that common contributing factors include:

1. The roller operating closer than 1 metre to the edge of the embankment
2. The roller quickly develops a lean toward the embankment due to collapse of soft poorly compacted soil close to the edge
3. The roller commences to slide down the embankment
4. The operator turns his machine away from the edge
5. The roller rolls over onto its side but could roll completely over and down the side of a steep embankment
6. The operator is usually inexperienced in this type of roller work
7. Compaction vibration rollers are usually involved.

The following reasons have been suggested by experienced operators and road construction engineers:

(a) Poor Supervision
(b) Inadequate direction / poor work methods
(c) Lack of understanding by operators of consequences
(d) Weak edges in underlying material due to: Insufficient detail given in ensuring batter is constructed full width including over width from ground level up, i.e., lack of survey control, poor compaction and / or inconsistent compaction, the practice of cutting wet material over the batter face and leaving it as un-compacted material on the batter face.
(e) The use of articulated rollers for compaction. Previously towed rollers and compactors were used and these were able to be reversed up to batter face.

Mechanism for Rollover:

(a) When the front roller drum begins to slip, an inexperienced operator's reflex action is to turn the drum of the roller sharply back onto the fill, which in turn articulates the roller with the wheels pointing towards the batters edge. As a consequence, if the machine is too close to the edge of the batter the outer wheel will drop over causing the roller to slip sideways.
(b) Inadequate sized rollers for the work that is to be undertaken.

Recommended Methods for Preventing Roll Over of Compaction Plant:

(a) Ensuring that all operators are competently trained in the operation of the specific roller and aware of the consequences as detailed above.
(b) Ensure close survey control in setting out of toe and in construction of batters.
(c) Ensure fill batters are constructed over width from bottom layer up and trimmed back to the design width.
(d) Ensure that any over wet material cut to the batter face is disposed of wide of the width of layer to be compacted and that the width of the layer being compacted is clearly distinguishable from the discarded material.
(e) Outside edges of formation layers to be sloped towards the centre of fills such that rollers lean inwards. Middle areas of fill can be topped up after edges are compacted. (Refer pictures on following pages).
(f) In confined areas such as fills at bridge abutments, keep outer edges of fill higher and roll at angle to the edge of fills (Refer picture on previous page). Rolling slowly to the edges of fill, stop machine and vibration if there is any sign of instability and reverse away.
(g) If batter widening is required, batters must be benched out from the bottom of the fill to suit the width of the machines then stepped into the existing embankment and maintain machine width until the desired height has been reached.
(h) Apply remote control compaction rollers in suitable areas to remove the operator risk.

Operators experienced in this type of work also recommend that windrows be constructed near the edges and that the rollers are operated so that they retain a slight lean towards the centre of the earthworks rather than roll with the machine in the vertical when near the edges. This approach will result in the roller leaning away from the edge of the embankment further reducing the likelihood the machine will roll over the edge and down the embankment.

Effective SWMS

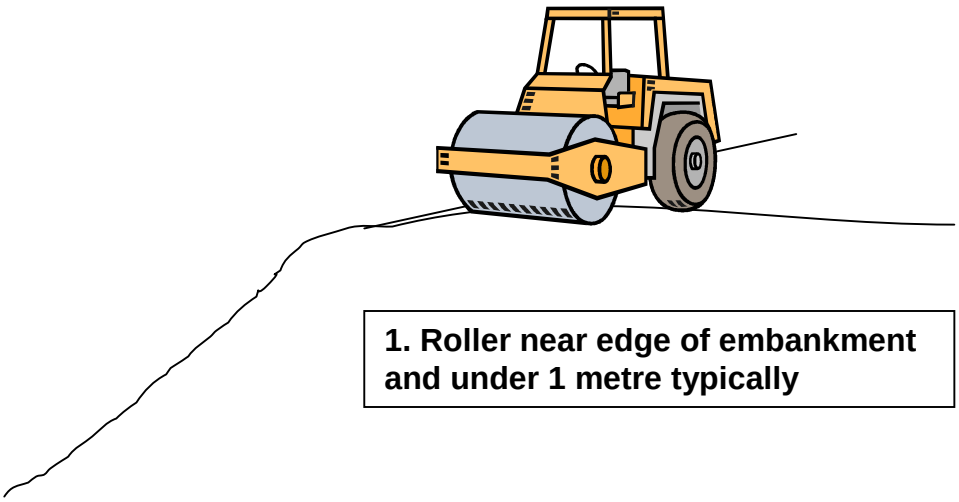
Contractors need to clearly identify the potential for rollers working near the edge of embankments to roll down the embankment as part of their documented Safe Work Method Statement (SWMS). The documented SWMS must include but is not limited to:

- An agreed method of construction which will control the risk of a roll-over taking into account the recommended methods for preventing roll-over of compaction plant. This must be conducted in consultation with plant operators.

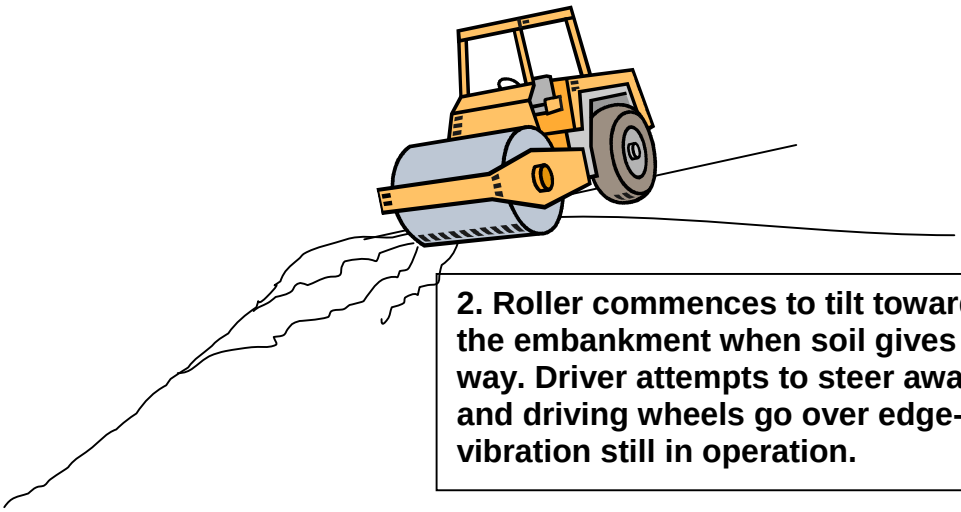
- How the operator will be restrained within the roller cabin and protected against ejection should the machine roll down the embankment. Significant injuries are possible if unrestrained even if the operator is not ejected from the cabin and crushed by the rolling plant.

This article has described roller work practices which have proven successful in past years to prevent such roll-overs and contractors are encouraged to consider in consultation with their roller operators or provide an equal or better solution.

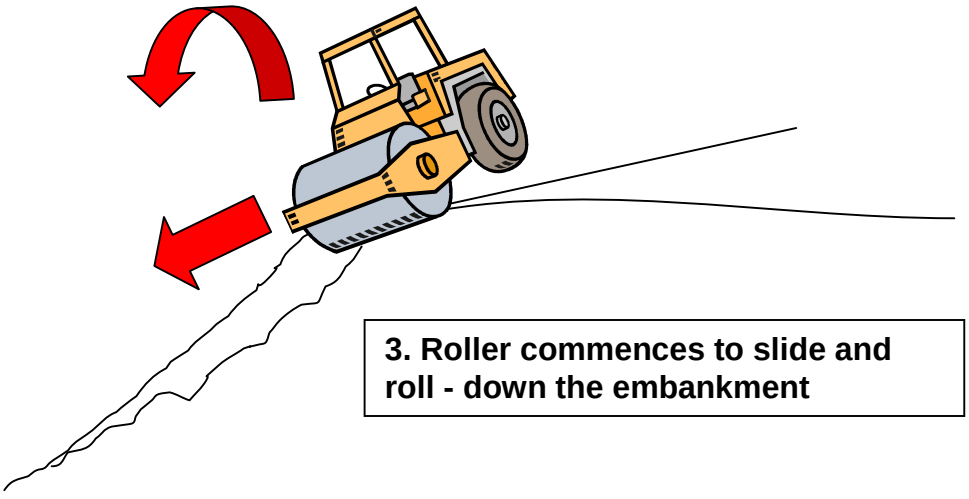
The earth compaction industry urgently requires a 'best practice' approach to compaction rolling to prevent serious injury. Alliance projects are excellent sources of innovation in our industry and it would be highly regarded if one were to take-up this challenge and provide an industry 'best practice' approach to this work including the necessary Safe Work Method Statement (SWMS) which could form the basis of an agreed Industry Standard for this work.



1. Roller near edge of embankment and under 1 metre typically

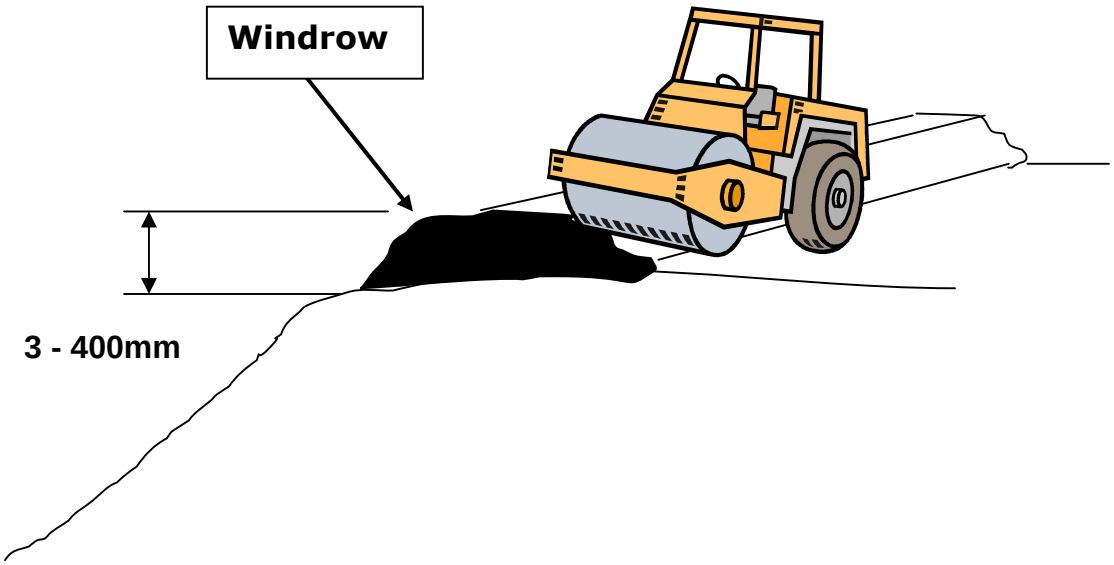


2. Roller commences to tilt towards the embankment when soil gives way. Driver attempts to steer away and driving wheels go over edge- vibration still in operation.



3. Roller commences to slide and roll - down the embankment

Are seat belts worn on your site?
In the event of a roll-over or crash a seat belt will prevent injury



Rolling with Windrow and Roller angled toward the centre of embankment

Where it is necessary to roll closer then 1 metre to the edge the rolling should be conducted at an angle of about 45 degrees. This ensures the bulk of the roller is on firm compacted soil and the drive wheels are able to retain traction.

Rolling at angle when close to edge

Dump Truck Rollovers

Material Sticking to Trays

Dump Trucks of all types are subject to potential roll-over if material sticks to one side of the trailer or tray when material is dumped. There is potential for a far more serious incident if the tray were to fall onto workers adjacent to the truck – all pedestrian personnel must be kept well away from dump trucks particularly when trays are elevated.

The most common contributing factor is that the ground in the area is rough and uneven and has not been properly prepared for such an operation. It may only require one wheel set to drop lower and the rollover will occur.

When the tray is elevated the trailers centre of gravity moves upward – if any of the load sticks high up in the tray than the potential for the trailer to rollover becomes even greater. All it requires is uneven ground conditions to tilt the trailer sideways and an overturning moment is produced sufficient to roll the trailer over.

The same mechanism of roll-over is presented to ordinary tip trucks and dump trucks (articulated or otherwise) as well as belly dumpers when moving.

Additional Care in Wet Ground Conditions

After a long period of drought conditions many plant operators have rolled their machines when the surfaces are wet from rain or too much dust suppression watering. Reduced speeds are necessary in these conditions.

Care Required in Turns and Reversing

Articulated Dump Truck rollovers have highlighted the need for this equipment to be driven within the manufacturers recommendations. Care needs to be taken in turns and reversing particularly when the wheels on one side of the tub (dumper trailer) are at a different height to those on the other side due to ground conditions.

Maintenance

Maintenance is generally well managed these days due to the principal contractor's procurement systems expectations. Fatalities in past years have resulted from this area with the prosecution of the trucking contractor on the western ring road project in 1991. This is not an area to be ignored and together with plant operator competency must always be a key element to plant management on a project.

The following is an example of poor maintenance reported where an effective plant safety inspection was not conducted by the plant operator and the poor plant maintenance could have resulted in a fatality:

A Tipper Truck when discharging its load of asphalt experienced a failure of the tipper body. This resulted in the tipper tray and load breaking free of the truck chassis and collapsing to the side of the truck narrowly missing a worker who was standing near that side of the truck.

Investigation found that:

- Loose bolts and cracking in welds and support rails were evident in the tipper body chassis connection that failed under tipping load conditions.
- An estimated one tonne of cold asphalt had stuck to the floor of the truck body subsequently contributing to the tip body slewing to the right side.

- The floor of the truck body had not been cleaned prior to loading preventing the hot asphalt discharging and placing extra loading at the top end
- There had been no slip agent applied to the tipper body prior to loading.
- The Plant Daily Check Sheet indicated the truck as roadworthy when the tyres were later deemed unroadworthy.
- Again no one should have been adjacent to the plant during this operation.

Challenge 2: Zero Underground Services Strikes

Service strikes are significantly less frequent now that best practice safe excavation procedures have been developed. However, because of the current need for administrative / behavioural controls only construction companies with an effective behavioural change program and culture to support administrative / behavioural controls are demonstrating the elimination or significant reduction in service strikes.

The risk of strikes also increases when plant operators are not experienced in road construction works (where most of the services are located) or competent / trained in the required WorkSafe Framework for Undertaking Work near Overhead and Underground Assets.

Service proving needs to be effective and it is unwise to assume that services are always laid in straight lines – underground obstructions may require deviation in their alignment.

Plant excavating too close to underground services are responsible for many recent service strikes. Work closer than 2 to 3 metres is within the NO GO ZONE.

The use of Plant to excavate closer than 2 to 3 metres distance away from an underground service is not permitted under the WorkSafe Framework, unless a safe system of work is in place and minimum approach distances then apply.

Prior to 2004 earth moving plant was frequently used to 'carefully' locate underground services. However, this practice frequently resulted in damage to the services. It is a dangerous practice near power and gas services anyway, and has not been permitted since 2004 under the WorkSafe agreed framework for excavating close to services.

Some Plant Operators appear to be unaware of these requirements, even though they must be competent in this area to work safely in the road environment - where most of the underground services are located. Have your plant operators received competency based training in this area?

In 2004 the WorkSafe *Framework for Works near Services* and the *Guide for Undertaking Work near Underground Assets* were introduced and require that only non-destructive excavation methods be used when proving the locations of services or when working close to services already identified and marked.

High Risk Construction Work
Additionally works near energised electrical services or near pressurised gas distribution mains or piping is classified as High Risk Construction Work under the *OHS Regulations 2007.* The regulations require hazard identification and control via hazard elimination or reduction (the hierarchy of hazard/safety controls) and documented Safe Work Method Statements (SWMS).

MINIMUM APPROACH DISTANCES APPLY

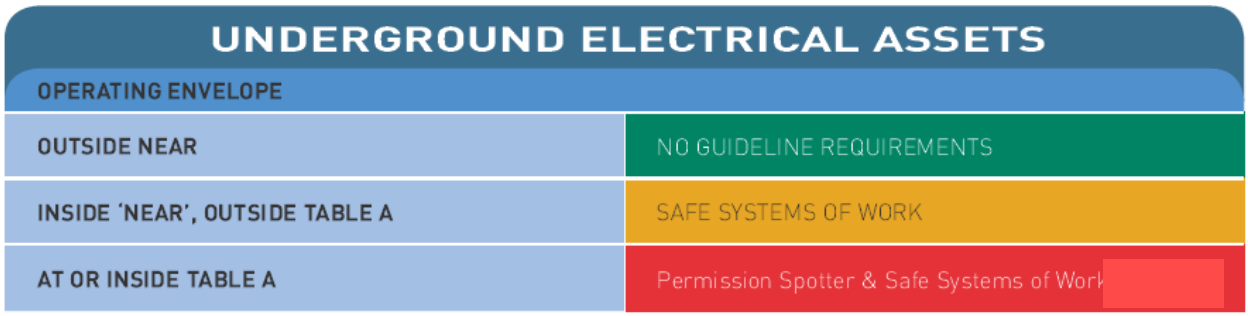
1. The WorkSafe Framework for Undertaking Work near Overhead and Underground Assets specify that a safe system of work (including competent trained operators and spotters) are required for work 'near' underground assets. 'Near' is defined as a distance of 3 metres from an asset registered under the Pipelines Act or an underground electrical cable with a voltage greater then 66 kV. For other underground services a distance of 2 metres applies.
2. Provided that a safe system of work including SWMS and competent trained operators are used, work can be conducted within the 2 – 3 metres No Go Zone, provided that the minimum approach distances in Table A below are not breached. Naturally the accurate location of the asset needs to be proved via a non-destructive means such as hydro excavation or electronic locater device NOT an earthmoving machine. And it should not be assumed that services are always laid straight – they often deviate because of obstructions.

TABLE A THE MINIMUM APPROACH CLEARANCES PERMISSABLE FOR EACH TYPE OF UNDERGROUND ASSET.

TYPES OF UNDERGROUND ASSETS (Note: The owners of assets registered with the Dial Before You Dig service and covered by this guide require an enquiry through this free service and the compliance with any directive issued with information regarding the asset).	Minimum clearances for individuals (A), and the operating envelope of plant and equipment (B) under the guidelines.(Refer to Table B)	Safety Controls required for the Deemed to Comply guideline provisions to take effect or where specific permission has been granted.
6. Assets listed under the Pipelines Act.	3000 mm	Must contact the Asset Owner for specific conditions
7. All electricity conductors greater than 66kV	3000 mm	Must contact the Asset Owner for specific conditions
8. All electricity conductors up to and including 66kV	300 mm (A), 500 mm (B)	See specific requirements in the underground guidelines
9. Telecommunications Cables	300 mm (A), 500 mm (B)	Must contact the Asset Owner for specific conditions
10. All gas pipelines other than 6 above	300 mm (A), 500 mm (B)	See specific requirements in the underground guidelines
11. Water, Drainage & Sewerage pipelines.	300 mm (A), 500 mm (B)	Must contact the Asset Owner for specific conditions

Note that some asset owners may have a requirement for greater clearances than articulated here, to ensure the integrity of their assets at a particular worksite. Any information pertaining to this additional requirement is expected to be provided with the response to an asset enquiry.

TABLE B (Colour Code)



UNDERGROUND ELECTRICAL ASSETS	
OPERATING ENVELOPE	
OUTSIDE NEAR	NO GUIDELINE REQUIREMENTS
INSIDE 'NEAR', OUTSIDE TABLE A	SAFE SYSTEMS OF WORK
AT OR INSIDE TABLE A	Permission Spotter & Safe Systems of Work

Outdoor Work in Hot Weather

Heat discomfort is not heat stress. It is the discomfort experienced by most people when it is hot - it is how we feel when it is hot. Most concerns that arise from working in heat are due to heat discomfort.

In many cases, although we feel considerable discomfort, the work conditions are such that we face no significant risk of succumbing to the serious health and safety problem of heat illness. However, working conditions that cause heat illness will also cause heat discomfort. Hot weather in Victoria presents two health and safety challenges for construction activities.

Preventing Heat Stress at Work

The first concern is the potential for heat stress at the higher temperatures. Preventing heat stress is made more difficult in Victoria due to the difficulty of the body's cooling system adapting or acclimatizing because we rarely have more than a few consecutive days of very hot weather in which the body can adjust to heat, consequently many workers may feel very uncomfortable in hot weather.

Personal risk factors such as lack of acclimatisation, poor physical fitness, obesity, age, pre-existing medical conditions, short-term disorders, minor illnesses, use of certain types of medication and other factors can significantly affect a person's ability to work in hot weather. Of these risk factors lack of acclimatisation and poor physical fitness are considered the most important.

If the body is creating or absorbing more heat than be shed through increasing blood flow to the skin more heat may be shed through perspiring and evaporation of the perspiration provided this can be achieved. At air temperatures over 35 degrees, when the air is close to skin temperature perspiring becomes the most effective cooling mechanism. However, if evaporation of perspiration is affected by high humidity, lack of airflow and type of clothing worn then the potential for the body to over heat and heat stress to occur

becomes more likely particularly if the personal risk factors described above are present – remember lack of acclimatization is a significant factor in Victoria..

It is important to note that although personal protective clothing protects us form other hazards, it can contribute to heat stress if the clothing compromises cooling and the body overheats.

Common sense needs to prevail in hot weather, high visibility shirts with adequate UV protection can replace shirts and vests in day light working hours, sun hats could replace safety helmets in areas where the activities do not present hazards requiring them. Employee consultation is required – does your workplace have a working in hot weather policy?

Heat Stress Control Plan

Best practice employers in our industry recognise their duty of care, have developed, and implemented safe systems of work in hot weather.

The controls implemented in consultation with the workers should follow the hierarchy of controls and could include (commencing with the most effective):

1. Eliminate the Heat Hazard (air-conditioning in plant, vehicles and site offices)
2. Engineering Controls (shield workers from radiant heat / direct sun, use machines to eliminate heavy manual work, etc)
3. Use Administrative Controls (work-rest cycles, work in cooler hours of the day, drinking water available, etc)

More guidance is available from WorkSafe Victoria at:

www.worksafe.vic.gov.au/wps/wcm/resources/file/ebd90b43a087fa8/worki

ngheat.pdf

A good summary of heat stress and its prevention is available from WorkSafe British

Columbia at: www.worksafebc.com/publications/health and safety/by

topic/assets/pdf/heat stress.pdf

UV Protection on Construction Sites

The need for sun protection has been emphasised in our industry for a number of years though some people still fail to understand the risk and the legal obligations imposed on their employer and themselves to prevent skin cancer in the workplace. The majority of

construction industry employers have developed and implemented safe working procedures for Ultra Violet (UV) protection to prevent skin cancer and sunburn.

An updated Guide for Employers and Pamphlet for Working Safely in the Sun has been produced and jointly endorsed by The Cancer Council Australia, WorkSafe Victoria and Cancer Council Victoria (SunSmart).

It is the responsibility of the employer to ensure, so far as reasonably practicable, that their employees wear clothing that covers as much skin as possible. Long pants and shirts with a collar and long sleeves provide the best sun protection.

These guidelines now reflect the current policies of most civil construction contractors. VicRoads requirements are consistent with the new guidelines in nominating long sleeved shirts and trousers for protection of outdoor workers in the Employee Safety Handbook.

On some sites, the principal contractors now require the wearing of safety glasses on site. Safety glasses which comply with AS / NZS 1337 still provide good UV protection but require tinted lenses for use outdoors because of the strong sun glare from soil and concrete on most construction sites..

The Guide produced for Employers by SunSmart is a very comprehensive resource and includes:

- The case for sun protection at work
- Facts about solar ultraviolet radiation
- Protecting your workers
- Health surveillance and skin cancer
- A sample sun protection policy for the workplace (if you do not already have one)

Comprehensive information about Solar UV Protection and the guidance material issued above may be obtained from:
http://www.sunsmart.com.au/resources.asp?Type=Workplace

UV radiation over time results in skin cancers that can result in death. Unfortunately, we can no longer ignore the facts and must protect our skin for our own safety. Our employer has a duty of care to ensure we are protected when working outdoors otherwise; they may be liable if work can be shown to be a contributing factor. Under the OHS Act, employees also have a duty to cooperate with their employer and wear the agreed (protective) clothing specified.

The globally recognised UV Index is provided these days in recognition of the risks. This information is provided via news services and the newspapers. A Guide to the UV Index is available from the SunSmart Web Site.

Even on days of heavy cloud cover, the UV rays penetrate and can burn with sufficient exposure. Some 25% of UV is reflected from grass, concrete, water so you still require sunscreen protection to exposed areas including the face, nose, ears and neck even if a

wide brim hat is worn. Sometimes people believe these burns to be the result of wind because they wear a hat.

Only 10 minutes skin exposure during the summer can result in skin burns between 10 am and 4 pm.

A SunSmart Workplace Program Kit and other resources are available free via the SunSmart web site or by calling: (03) 9635 5148.

Fire Prevention on Construction Sites during Days of Fire Danger & Total Fire Ban

Now that the hot weather is with us we must control against the fire hazard and it would be prudent to check construction activities for fire risks and compliance with current Fire Regulations. There have been changes to advice previously issued as a result of the 2009 Victorian Bushfires Royal Commission. Information may be found on the Country Fire Authority (CFA) Website at: www.cfa.vic.gov.au/

Construction plant and vehicles are sometimes operated close to dry grass and similar precautions are required as for tractors and grass cutting machinery. These precautions include fitting exhaust spark arrestors, carrying knapsack water sprays or an extinguisher charged with at least 9 litres of water where metal could strike stones and rocks and produce sparks near grass. Hot exhaust systems may also start a fire if they come into contact with dry grass.

A CFA "Can I or Can't I?" poster is appended to this Update. It is suggested that this poster should be displayed on your safety notice board.

Is your project office or site compound near grassland or timbered areas? If so there is potential for Bushfire and action should be taken to reduce fuel and construct a fire break where possible.

Do you have a Bush Fire Survival Plan should a fire develop in your area to evacuate staff before they are trapped and roads are dangerous to use? The same applies at home should you live in a bush fire prone area.

Fire Danger Ratings – an Explanation

Victoria has adopted the new nationally agreed Fire Danger Rating scale to help communities understand information about fire danger. This new scale recognises the significant increase in severe bushfire conditions over the past decade and the subsequent greater level of danger to the community, as experienced on Saturday 7 February 2009.

Fire Danger

Every day during the fire season, the Bureau of Meteorology (BoM) forecasts an outlook of the fire danger index (FDI) by considering elements of the predicted weather including temperature, relative humidity, wind speed, and dryness of vegetation. When determining the Fire Danger Rating, fire agencies, in consultation with the BoM, consider a range of other factors relating to that area and day.

These factors include:

- the length of time the fire danger index has been elevated
- extent of fire already in the landscape
- fuel and dryness
- Likelihood of weather events such as lightning and grass fuel conditions.

Fire Danger Rating (FDR)

A Fire Danger Rating is a prediction of fire behaviour, including how hard it would be to put out a fire once it starts. It provides information on:

- The sort of bushfire behaviour that could be experienced on that day
- The type of threat bushfires may pose to life and property on any day given the forecast weather conditions.

A poster explaining the Fire Danger Rating may be down loaded from:

http://www.cfa.vic.gov.au/firesafety/bushfire/documents/fire_danger_rating.pdf

Fire Danger Ratings will be a feature of weather forecasts and alert you to the actions you should take in preparation for and on the day. They will be published in newspapers, broadcast on radio, TV and on websites.

Bushfire Survival Plan

All people who work or live in a high bushfire risk area need to develop a Bushfire Survival Plan. A Bushfire Survival Plan is a well thought out plan about how you will prepare and respond to a fire in your area.

A plan should include a set of actions to address the risk and will require you to make a series of decisions about what you will do on a high fire risk day, or should a fire threaten your project or home.

You should develop a written plan that identifies all the actions they will undertake on high fire risk days as a part of your local emergency procedures. You are more likely to remember to do some of the things you have identified as being important if you write them down.

To develop your plan you need to consider all the issues about your level of risk, actions you will undertake to prepare yourself and your home for bushfire and what you will do on high fire risk days.

Even if your decision is to leave the area before fire threatens, you still need a well thought out plan.

Everyone's circumstances are different so it is important that you develop a plan that suits your workplace or household.

Make sure everyone knows what the plan is and know what roles and responsibilities they have. In addition, as circumstances change, it is important that you review your Bushfire Survival Plan before each summer fire season.

The first decision must be what trigger you will use to implement your plan. Ask yourself "On which days should we be ready to implement our plan?"

People should implement their plan each Total Fire Ban Day or on other high fire risk days when temperatures rise, the humidity is low and there are strong northerly winds.

Guidance material is available on the Country Fire Authority Web Site at: www.cfa.vic.gov.au/publications/homesafety.htm

A complete Fire Ready Kit may be downloaded from: http://www.cfa.vic.gov.au/firesafety/bushfire/firereadykit.htm

NOTE: In the workplace, the health and safety of employees must have priority

Worksite Site Safety Update is produced monthly by VicRoads Major Projects Division to communicate industry safety information and initiatives within VicRoads and to our contractors. It is also circulated via the WorkSafe Safety Soapbox to industry. The content reflects civil road construction and maintenance safety and includes works conducted on or beside operational roads. The editor may be contacted at: michael.rose@roads.vic.gov.au

CAN I OR CAN'T I?

Victoria is one of the most bushfire-prone regions in the world so we all need to be careful with fire, and things that can start fires, during the warmer months. This brochure details what you can and can't do during declared Fire Danger Periods and on days of Total Fire Ban. Fires in the open air are legally restricted when a Fire Danger Period is declared in a municipality by CFA. These restrictions are in place until 1 May unless revoked earlier. Department of Sustainability and Environment (DSE) fire restrictions are in force all year in State forests, National, State and Regional parks. Contact local DSE and Parks Victoria offices for advice on campfire restrictions. Total Fire Bans are declared by CFA on days when fires are likely to spread rapidly and be difficult to control.

Can I or can't I?	Fire Danger Period		Total Fire Ban	
Can I have a barbecue, light a campfire or light a fire for warmth or comfort?	YES	**But only if:** ■ The wind is not more than 10kph ■ The fire is lit in a **properly constructed fireplace** or trench at least 30cm deep ■ The fire is not within 7.5 metres of a log or stump ■ The ground and air space within 3 metres are clear of flammable material ■ The fire and fuel used are the minimum necessary for the purpose and do not occupy an area of more than 1 sq metre ■ A person is in attendance at all times while the fire is alight. Note that in accordance with the CFA Act, a "properly constructed fireplace" means a fireplace that is constructed of stone, metal, concrete or any other non-flammable material so as to contain the perimetre of the fire. A commercially produced barbecue would be considered a properly constructed fireplace.	YES YES NO	**Barbecues that are fixed appliances, fired by gas or electricity, and built into permanent structures of brick, stone or concrete provided that:** ■ The area 3 metres around the barbecue is cleared of flammable material ■ You have either a hose connected to water supply or a vessel with at least 10 litres of water ■ An adult is there at all times when the fire is alight. **Gas or electric fired portable barbecues provided that:** ■ The barbecue is located within 20 metres of your dwelling (portable places of residence such as mobile homes, caravans or tents are not dwellings in accordance with the CFA Act) ■ The area 3 metres around the barbecue is cleared of flammable material ■ You have either a hose connected to a water supply or a vessel with at least 10 litres of water ■ An adult is there at all times when the fire is alight. **Campfires, fires for warmth or personal comfort, and solid and liquid fuel barbecues and ovens are banned during TFBs.**
I am a caterer. **Can I** set up and light a fire to operate a barbecue or a spit at outdoor functions?	YES	**But only if:** ■ The wind is not more than 10kph ■ The fire is lit in a **properly constructed** fireplace or trench at least 30cm deep ■ The fire is not within 7.5 metres of a log or stump ■ The ground and air space within 3 metres are clear of flammable material ■ The fire and fuel used are the minimum required for the purpose and do not occupy an area of more than 1 sq metre ■ A person is in attendance at all times while the fire is alight. (A commercially produced barbecue or spit would be considered a properly constructed fireplace.)	YES	**But only if you have a written permit issued by CFA or MFB and you comply with the conditions of that permit.** Municipal Fire Prevention Officers cannot issue these permits. Permits are available to persons or community charitable organisations to allow them to light a fire to prepare meals for other people in the course of a business. These permits are issued by your local CFA Regional office or MFB Zone office.
Can I light a fire in the open air for burning off grass, stubble, weeds, undergrowth or other vegetation?	YES	**But only if:** ■ You have a written permit issued by the Municipal Fire Prevention Officer or by the CFA Regional office ■ You comply with the conditions of that permit ■ A person is in attendance at all times while the fire is alight. Many councils ban burning off on smog alert days.	NO	Fires in the open air for burning off grass, scrub, stubble or rubbish are banned during TFB. Any permits issued by Municipal Fire Prevention Officers are suspended for the duration of any TFB.
Can I drive a vehicle in places where the vehicle will be in contact with crops, grass, stubble, weeds, undergrowth or other vegetation?	YES	**But only if the vehicle is fitted with an efficient silencing device that takes all of the exhaust from the engine through the silencing device.** You should avoid driving vehicles through dry vegetation in hot and dry conditions, even if it is not a TFB, due to the risk posed by the hot exhaust system.	YES	**But only if the vehicle is fitted with an efficient silencing device that takes all of the exhaust from the engine through the silencing device.** This should be avoided wherever possible, due to the extreme fire danger posed by dry vegetation and very hot exhaust systems.

CAN I OR CAN'T I?

Can I or can't I?	Fire Danger Period		Total Fire Ban	
Can I use an incinerator?	YES	**Provided that:** ■ You check with council about any local laws that might prescribe conditions, restrict or prohibit incinerator use, (eg. bans on smog alert days, certain areas and days of the week) ■ The fire is effectively restricted within the incinerator ■ The air movement is 10kph or less ■ The area 3 metres around the incinerator is cleared of flammable material ■ A supply of water sufficient to extinguish the fire is available when the fire is burning ■ A person is in attendance at all times while the fire is alight.	NO	Incinerator use is banned during TFBs.
Can I carry out welding, grinding, soldering or gas cutting?	YES	**But only if:** ■ A fire-resistant shield or guard is in place to stop sparks, etc ■ An area at least 1.5 metres is cleared of flammable material or wetted down sufficiently to prevent the spread of fire ■ You have a water supply or water spray knapsack containing at least 9 litres of water ■ A person is in attendance at all time while the fire is alight ■ All cut offs and hot materials are placed in fire-proof receptacle.	NO YES	Activities such as welding, gas-cutting, soldering, grinding, charring, extracting honey and heating bitumen produce fire and heat and are prohibited during TFB. In some circumstances, CFA or MFB will issue a permit to community charitable organisations, statutory corporations, councils, industrial or trade operations or for public entertainment purposes to authorise such activities during TFB. These permits must come from CFA Regional offices or MFB Zone offices, and may not be issued by Municipal Fire Prevention Officers.
Can I use machinery with an internal combustion or heat engine, such as tractors, slashers, excavating or road making equipment within 9 metres of any crops, grass, stubble, weeds, undergrowth or other vegetation?	YES	**But only if machinery:** ■ Is free from faults and mechanical defects that could cause an outbreak of fire ■ Is fitted with an approved spark arrester ■ Carries fire suppression equipment comprising: – a knapsack spray pump, in working order, fully charged with water, with a capacity of not less than 9 litres; or – a water fire extinguisher, in working order, fully charged with water, with a capacity of not less than 9 litres ■ Tractors fitted with a turbocharger or an exhaust aspirated air cleaner do not require a spark arrestor.	YES	**As for the Fire Danger Period.** However, if possible, postpone this work, as the risk of starting fires is extremely high.
Can I use a chainsaw, plant or grass trimmer or lawn mower?	YES	**Chainsaws, plant or grass trimmers, or lawn mowers used in green vegetation without prescribed conditions.** Chainsaws, plant or grass trimmers or lawn mowers used in vegetation that is **not green**, must be: ■ Free from faults and mechanical defects that could cause an outbreak of fire ■ Fitted with an efficient spark arrester ■ Have an area of at least 3 metres around the machine cleared of flammable material ■ The operator of the machine must carry the following fire suppression equipment: – a knapsack spray pump, in working order, fully charged with water, with a capacity of not less than 9 litres; or – a water fire extinguisher, in working order, fully charged with water, with a capacity of not less than 9 litres.	YES	**As for the Fire Danger Period.** However, if possible, postpone this work, as the risk of starting fires is extremely high. Follow the precautions outlined for the Fire Danger Period and use extreme caution.