



Health & Safety

HAZARD ANALYSIS MANUAL

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HAZARDS MANAGEMENT

The nature of **our** work is such that work sites and inherent conditions prevailing with each site are many and varied. Each new work site will require individual assessment as to impacting hazards before any physical work commences and the appropriate preventative measures taken.

On routine repetitive works, all Hazards applicable and the appropriate preventative measures will be incorporated in the Standard Operating Procedures.

Where **Unicus** engages Sub-contractors on our own job sites, all sub-contractors will conform to the Companies Policies and Standards and where necessary will be given training to ensure Site Safety and Hazards Standards are maintained. This manual has been written to cover any sites that Unicus employees and/or our sub-contractors will and may meet.

The type of all hazards encountered can be classified as "significant" or "minor". It is the "significant" hazards that may cause harm as follows: -

1. **'Serious Harm'** - This includes death and many occupational illnesses and injuries that could be sustained in any of our places of work.
2. **'Harm'** - The severity of which may depend on how often or how long a person is exposed to the hazard.
3. **'Harm'** - that cannot be detected without a significant time of exposure. This will include hazards that cause latency diseases - e.g. asbestosis.

A hazard register listing "Significant Hazards" has been prepared and forms part of this manual. Various processes and conditions of work sites have been included, e.g. workshops equipment, equipment and machine tools, driving vehicles, adverse site conditions.

All known hazards have been identified for these activities and all factors, (physical, chemical, biological and ergonomic) affecting health and safety are covered.

The Health & Safety in Employment Act requires that all significant hazards be eliminated wherever possible or, alternatively, isolated or minimised. As these hazards cannot be eliminated this register deals with control measures to isolate and/or minimise them. Employees are encouraged to offer suggested improvements and additions to the register.

The HASE legislation charges employers with the responsibility for training, managing and/or supervising staff at work by: -

- Ensuring that every employee has the knowledge, experience, and qualification for the work on hand, or that a person who has been trained and has the knowledge and experience to safely carry out this work supervises them.
- Every employee is adequately trained in the safe use of all plant, equipment, machine tools, hand tools, processes and site environments and are also trained on all aspects of the safety equipment and protective clothing that the employee may be required to use.

To achieve compliance with these requirements, **Unicus** has a training programme for: -

1. The induction of new employees
2. Hazards and how to deal with them
3. Safe use of all necessary plant, hand and machine tools, and equipment.
4. Emergency procedures
5. A reporting system of all accidents, near misses, new hazard measures and upgrading of existing hazard measures.

SAFETY INSTRUCTION FOR NEW AND EXISTING STAFF

New employees will be assessed and then led through an induction course that will include the issue as required of all personal safety equipment and overalls. The section of Health & Safety within **Unicus** will be a major component.

Unicus regards health and safety as a critical part of the overall satisfactory performance of its operation with the responsibility shared equally between Management and all Employees.

Unicus' policy is to ensure that all reasonable steps are taken to prevent personal injury, damage to property and to protect everyone from potential hazards in as far as they are exposed to **Unicus** activities and functions.

Unicus' responsibility to Employees will extend to:

1. Providing and maintaining all necessary safety equipment and protective clothing, complete with instruction and training on the correct application and usage of.
2. Providing our employees with working conditions that are safe and healthy.
3. Providing our employees with training, instruction, and advice that will enable them to perform their work in a safe and efficient manner. In particular, this will include the familiarisation with **Unicus Hazard Register** and specific training on plant, equipment, machine and hand tools processes, biological and chemical hazards.
4. Maintaining a constant and continued interest in all health and safety issues relevant to all **Unicus** functions by consulting and involving employees through their feed back reporting.

SAFETY INSTRUCTION FOR NEW AND EXISTING STAFF (cont'd)

Unicus Employees have an equal responsibility to:

- Comply with correct usage of all necessary safety equipment and personal protective clothing and work safely and efficiently employing all standard operation procedures and practices as set out in this hazard register.
- Comply with all **Unicus** procedures and rules for maintaining healthy and safe working environments and job sites.
- Report all incidents that may or so lead to personal injury and/or property damage.
- Assist in all investigations of near misses and accidents.
- Maintain a positive attitude to both their own and fellow work mates health and safety, and ensuring that they are fit and able to perform their duties at all times.
- Newly identified hazards are to be reported to the management team **Unicus** for investigation and inclusion into the Hazard Register

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DRIVING VEHICLES

GENERAL

Getting to the various job sites from the depot invariably involves travelling/driving in a Unicus vehicle. Our vehicles are clearly marked with our logo and are thus advertisements for our organisation. It is important that they are driven sensibly and courteously - within the road code at all times. Our insurance excess is currently \$500. Accidents are expensive as well as a waste of time. Defensive driving will improve our accident record.

HAZARDS

1. Other vehicles on the road being driven irresponsibly
2. Wet weather - slippery roads - loss of control
3. Pedestrians and cyclists
4. Faulty vehicle
5. Parking

RECOMMENDED PROCEDURES

1 Other vehicles

- a) Drive defensively - i.e. anticipate accidents before they occur and take remedial action
- b) Concentrate on your driving at all times
- c) Before making a manoeuvre indicate your intentions clearly. (3 seconds minimum)
- d) Know and follow the road code
- e) Don't be provoked by other "stropky" drivers

2 Wet Weather

- a) Slow Down!!!
- b) Keep your distance from the vehicle in front. (2-second rule)
- c) In foggy or murky conditions - turn the headlights on

3 Pedestrians and cyclists

- a) Slow down around schools and kindergartens, especially during school hours
- b) Give cyclists a wide berth
- c) Be aware of the width of your vehicle, including wing mirrors and overhanging materials.

DRIVING VEHICLES (Cont)

4 Faulty vehicles

- (a) Take the daily vehicle check seriously
- (b) If something is obviously wrong - inform the Plant/Vehicle Supervisor or your Supervisor as soon as possible
- (c) Visually check the WOF and registration to make sure they are up to date

5 Parking

- (a) When working on the road park your vehicle to protect the job site
- (b) In built up areas where parking is not available - parking on the footpath is permissible providing there is still adequate room for the pedestrians
- (c) Make provision for pedestrians to safely pass your work site.

6 Reporting

- (a) Complete check sheet
- (b) Advise Plant/Vehicle Supervisor of all panel damage and minor repairs (broken lights, etc.)
- (c) Complete accident forms when necessary
- (d) Check that Road User Licence has sufficient mileage. Report if a further licence is required.

NB: YOU, as the driver, are responsible for all traffic infringements.

DRIVING VEHICLES - CHECK SHEET

- 1. Drive defensively**
- 2. Slow down and keep your distance in wet weather**
- 3. Take extra care near schools and kindergartens**
- 4. Check that your vehicle is road worthy (COF, Registration, WOF)**
- 5. Follow the road code**

REVERSING

GENERAL

Reversing is a common driving activity, yet one that has a high incidence of accidents. The field of vision when reversing is considerably limited - and extra care is needed. Use someone to direct you with clear signals in tight and confined areas.

HAZARDS

- 1 Collision with low obstacles, power poles and similar, "hidden" in blind spots.
- 2 Pedestrians.
- 3 Other vehicles.

RECOMMENDED PROCEDURES

1 Low obstacles

- (a) The passenger in the vehicle shall get out and check for obstacles before the reversing manoeuvre takes place, and guide the driver as the vehicle is reversed
- (b) Make sure that the rear vision and wing mirrors are correctly aligned and/or clean.
- (c) Make sure all tools and materials are well stored and will not catch obstacles during reversing
- (d) Is reversing alarm operating?
- (e) Are reversing lights operating?
- (f) Is reversing camera operating (*if fitted*)?

2. Pedestrians

- (a) Check for and wait until pedestrians are well clear of the reversing area. Use rear cameras (if fitted) and mirrors to confirm.

3. Other vehicles

- (a) Wait until other vehicles are clear of the area - don't try and get in first. Use rear cameras (if fitted) and mirrors to confirm.
- (b) Be familiar with the turning circle range of the vehicle you are driving (especially overhanging rear trays.)

REVERSING - CHECK SHEET

- 1 Report if reversing alarm, camera or lights are not working**
- 2 Passenger to get out and check for obstacles**
- 3 Align all mirrors and keep them clean.**
- 4 Remove all tools from reversing areas**
- 5 Wait until pedestrians or other vehicles are clear**

TOWING TRAILERS

GENERAL

Our vehicles regularly tow trailers carrying small plant, and occasionally various construction materials etc. The road code specifically covers towing and these regulations should be followed at all times.

HAZARDS

- 1 Trailer becoming disconnected while driving
- 2 Reversing
- 3 Turning - especially with wide trailers
- 4 Losing the load off the trailer
- 5 Braking

RECOMMENDED PROCEDURES

1 Trailer becoming disconnected

- (a) Check tow ball and connection fittings, including safety chain, light sockets and lights
- (b) Use the safety chain at all times
- (c) Don't attempt to carry too heavy a load and ensure that the load is properly balanced.
- (d) Take particular care when negotiating through confined spaces -especially with a wide trailer

2 Reversing

- (a) Passenger to guide driver
- (b) Supervisors to check if their staff have reversing experience with trailers
- (c) Endeavour to keep the trailer in visual contact throughout the entire reversing manoeuvre

3 Turning

- (a) Take an extra wide track around corners, especially where the trailer is wider and/or longer than the towing vehicle.

4 Losing the load

- (a) Ensure that the load is properly secured with ratchet tie downs, ropes, chains, etc and not tied down over parts that flex and bend, eg Bonnets, mudguards
- (b) Drive at a reduced speed, especially when cornering.

5 Braking

Unbraked trailers will transfer a higher braking requirement to the prime mover. Anticipate braking requirements earlier and be well prepared for the unexpected. Slow down earlier for intersections, etc.

TOWING TRAILERS - CHECK SHEET

- 1 Check all towing fittings on both truck and trailer**
- 2 Use the safety chain at all times**
- 3 Slow down and take particular care in turning and in negotiating confined spaces**
- 4 Passenger to guide the driver**
- 5 Ensure that your load is secure on the trailer**
- 6 Slow down earlier.**

LOADING, UNLOADING AND CRANAGE

GENERAL

Loading plant and materials on and off trucks is an activity that the majority of our work force may be involved in. Hiab, overhead and mobile cranes are used for specialist work or heavier loads. Damage to trucks, loaded plant buildings, property and breakable materials can be minimised by using good loading techniques.

HAZARDS

- 1 Overloading.
- 2 Restrictive areas.
- 3 Damage to the vehicle or property.
- 4 Physical injury.
- 5 Operating the Hiab.
- 6 Overhead services.
- 7 Communication.

RECOMMENDED PROCEDURES

- 1 **Overloading**
All lifting tackle should be rated to the load to be lifted. Do not use tackle that is not rated and the capabilities not known.
- 2 **Restrictive areas**
Allow adequate space when parking for loading and unloading purposes - especially plant with the need for ramps, etc.
- 3 **Damage to vehicles on property**
 - (a) Use the correct ramps
 - (b) Ensure mower blades are stationary before moving onto a trailer
 - (c) Secure the load
- 4 **Lifting Techniques - Manual**
 - (a) Avoid putting strain on your back. Bend your knees and keep your back straight
 - (b) If the load is too heavy - don't struggle with it, get somebody else to help
- 5 **Hiab**
 - (a) Always use outrigger supports
 - (b) Users must be formally trained in the method of operation

LOADING AND UNLOADING AND CRANAGE - cont'd

6 Overhead Services

- (a) Check for overhead wires, especially telephone lines that are usually lower than power lines

7 Communication

- (a) Inform the crane operator what is clearly required.
- (b) One person only to direct and convey all crantage manoeuvres to the operator.
- (c) If confusion arises at any time, stop the operation and discuss with crane operator.
- (d) Use only internationally recognised crane directing hand signals or radio one-to-one contact.

LOADING AND UNLOADING AND CRANAGE - CHECK SHEET

- 1 Don't overload your vehicle**
- 2 Ensure the load is secure and not over width or length**
- 3 Allow adequate space for loading and unloading**
- 4 Use the correct ramps**
- 5 Adopt good lifting techniques**
- 6 Hiab operators must be trained**
- 7 Check for overhead wires**
- 8 Communicate clearly with operators of Hiab's and cranes.**

CHAINS, STROPS AND ROPES

GENERAL

Chains, strops and ropes can be used both to secure loads on trucks and trailers and as lifting tackle. Both of these activities are potentially hazardous, and so it is important that they are used correctly.

HAZARDS

- 1 Faulty equipment
- 2 Using incorrect lifting procedures
- 3 Danger from breakages

RECOMMENDED PROCEDURES

- 1 **Faulty equipment**
 - (a) Visually check and report to your Supervisor on all equipment with signs of wear and tear
 - (b) Use the correct equipment, i.e. Ropes for drums, chains for large plant items. Follow MOT (marine and industrial inspection) code of practice
- 2 **Using incorrect procedures**
 - (a) Become familiar with MOT (marine and industrial inspection) code of practice
 - (b) If using excavators for lifting - ensure that the operator is experienced and that the machine can cope with the loads
- 3 **Breakages**
 - (a) Always stand in a safe place during lifting activities

CHAINS, STROPS AND ROPES - CHECK SHEET

- 1 Check for wear and tear**
- 2 Use the correct gear for application**
- 3 Become familiar with MOT (marine and industrial) code of practice**
- 4 Always stand in a safe place during lifting activities**

MANUAL HANDLING

GENERAL

Carrying, lifting and loading by hand are common practices in virtually all Unicus activities. Materials and small plant are usually shifted around by hand.

HAZARDS

- 1 Personal injury
- 2 Injury to a third party or damage to property

RECOMMENDED PROCEDURES

1 Personal injury

- (a) Use correct lifting techniques, i.e. bending your knees and keeping the back straight
- (b) Always wear safety footwear
- (c) Get help if the load is too heavy or awkward

2 Injury to third party or property

- (a) Check that there are no pedestrians or bystanders close by before lifting or unloading
- (b) Don't throw materials off trucks - take time and unload safely

MANUAL HANDLING - CHECK SHEET

- 1 Use correct lifting techniques**
- 2 Wear safety footwear**
- 3 Get help if necessary**
- 4 Check for pedestrians or bystanders**
- 5 Don't throw tools or materials off trucks**

WORKING IN SEWAGE

GENERAL

Attending pump station, sanitary sewers, manhole and sewer line repairs, all could involve working in raw sewage. This cannot be avoided so correct precautions must be taken.

HAZARD

- 1 Health
- 2 Environmental

RECOMMENDED PROCEDURES

- 1 **Health**
 - (a) All pump station and sanitary sewer workers are recommended to have Hepatitis B shots
 - (b) Wear the correct gear, gloves, gumboots and wet weather gear. They should be thoroughly washed and cleaned at the end of the job
 - (c) Personal hygiene is very important - scrub hands especially under nails, and shower after contact with sewage
- 2 **Environmental**
 - (a) Clear up overflow properly - hose off, use disinfectant and lime
 - (b) On private property - ask the residents if they want lime spread around or not
 - (c) If watercourses are contaminated - flush the sides - inform all relevant local authorities.

WORKING IN SEWERAGE - CHECK SHEET

- 1 Have you had a Hepatitis B shot?**
- 2 Wear protective gear - gloves, gumboots, and wet weather gear**
- 3 Wash thoroughly and shower**
- 4 Ask residents before applying lime**

MANHOLE - PUMP STATION GASES

GENERAL

Hydrogen Sulphide, Methane and Carbon Dioxide are three gases that are produced as a result of the bacterial breakdown of sewage. Hydrogen sulphide is heavier than air and extremely toxic. Carbon dioxide is also heavier than air and is dangerous in that in sufficient quantities it can displace oxygen. Methane is lighter than air and explosive at particular concentrations. Other hazards whilst working in the chamber are falling objects and cramped conditions.

HAZARDS

- 1 Health hazard from inhalation of toxic gas
- 2 Explosive capacity
- 3 Contracting bacterial infections
- 4 Falling objects
- 5 Working in confined spaces
- 6 Working alone

RECOMMENDED PROCEDURES

- 1 **Inhalation of toxic gas**
 - (a) Before entering any sewer manholes greater than 1.5m deep, secure the services of the local authority to test air quality with gas detectors.
 - (b) Where gas is detected, lids on the manhole under investigation and adjacent manholes should be lifted, and left at least 10 minutes in order to ventilate the line and manhole. The gas detector should then be used again. The manhole not be entered if dangerous levels of gas are still indicated
- 2 **Explosive capacity**
 - (a) Use the gas detector to ascertain the methane level. Levels over 6% are dangerous and could form an explosive mixture with air.
 - (b) Ventilate the manhole as discussed in 1(a) and retest
 - (c) No smoking or welding when gas levels are high
- 3 **Contracting Infections**
 - (a) Inform staff that when they first work in pump station wells various "bugs" that their bodies have yet to become used to will probably affect them.

MANHOLE - PUMP STATION GASES - cont'd

4 **Falling objects**

- (a) Wear hardhat at all times
- (b) Lower tools etc. in a bucket
- (c) Keep loose equipment away from edge of chamber

5 **Working in a confined space**

Follow rules for working in confined space

6 **Entry to Pump Station**

Never enter a pump station on your own. Always have a safety watch to look after you while you are in there.

MANHOLE - PUMP STATION GASES - CHECK SHEET

- 1 Use gas detector to check for methane, hydrogen sulphide and oxygen levels**
- 2 Ventilate the manhole where gas is present and retest**
- 3 No smoking**
- 4 Wear hard hats**
- 5 Follow rules for working in confined space**
- 6 Make sure you have a safety watch.**

WORKING IN EXCAVATIONS OVER 1.5m DEEP

GENERAL

Excavations of 1.5m deep can occur in sanitary/storm sewer construction and occasionally in water supply work. Often the depth of the pipe to be located is not known, and excavations can inadvertently go deeper than 1.5m as a result. Once trench depths get to shoulder level, then they should be measured and safety requirements taken as indicated below. All excavations deeper than 1.5m constitute a notifiable work, and O.S.H. must be informed. The nominated safety supervisor must be on site at all times for excavation greater than 1.5m.

HAZARDS

- 1 Cave in resulting in injuries to workmen
- 2 Damage to property and roads
- 3 Danger of falling tools and equipment
- 4 Damage to underground services
- 5 Excavations below adjacent building foundations

RECOMMENDED PROCEDURE

1 Cave in

- (a) Follow instructions of the Safety Supervisor and abide by the OSH Code of Practice for excavation
- (b) Ensure that adequate shoring equipment is available (including shields) and is used
- (c) If possible employ benching techniques
- (d) Barrier off the areas at least the depth of the trench so that heavy vehicles are kept at a safe distance
- (e) Take care in the placement of excavated material, placed at the edge of the excavation, its weight can cause a collapse
- (f) Beware in completing sewer connections that have already been dug by a contractor - are they notifiable depths - has O.S.H been informed?

2 Damage to property

- (a) Where work takes place on private property, or access to private property is affected, owners or residents must be notified of any precautions they may need to take - and how long the work will take
- (b) Temporary crossings must be adequate (steel plate or temporary backfilling) to cope with the weight and size of vehicles travelling over them
- (c) Reinstatement practices must leave the affected property or crossing as close to the original condition as possible

WORKING IN EXCAVATIONS OVER 1.5m DEEP (Cont)

3 Danger of falling tools and equipment

- (a) Wear the correct safety gear, hard hats and safety boots
- (b) Sturdy ladders shall be used for entering existing trenches
- (c) Workmen in the trench should be clear of any material or plant that is being lifted by crane or excavator

4 Damage to underground services

- (a) Ensure that plans for the location of all underground services in the area to be excavated are obtained and used. If in doubt call the relevant service authority
- (b) Hand dig in order to locate services
- (c) If a service pipe/cable is damaged - call the service authority promptly

5 Excavations adjacent to building and foundations

- (a) Never excavate below the level of a footing unless specific safety precautions are used
- (b) Extra care is needed so that machinery or excavators do not damage buildings

WORKING IN EXCAVATIONS OVER 1.5m DEEP - CHECK SHEET

- 1 Ensure the job has been notified, and that the safety supervisor is on site - follow his instructions**
- 2 All shoring to be in accordance with O.S.H. code of practice**
- 3 Barrier off trenched area to protect pedestrians and keep heavy traffic at a safe distance**
- 4 Do not place excavated material on the top edge of the trench**
- 5 Inform affected residents about job**
- 6 Wear hard hat and safety boots**
- 7 Check for underground services**

WORKING IN A CONFINED SPACE

GENERAL

A confined space is defined as "any chamber, tank, pipe or space" in which a worker may be required to go or work and in which certain specific hazards are present which may be likely to endanger the health of a worker. Entry into manholes, hoppers, silo's, large diameter pipes and small pump stations would all come into this category.

HAZARDS

- 1 Presence of flammable or toxic vapours
- 2 Insufficient amount of oxygen in the air
- 3 Working in darkness
- 4 Restrictive movements - are likely to cause accidents
- 5 Difficulty in giving assistance to/removing injured person

RECOMMENDED PROCEDURES

- 1 **Presence of flammable or toxic vapours**
 - (a) Use gas detector to check on levels of hydrogen sulphide and methane in the confined space atmosphere
 - (b) Ventilate using fans if necessary and recheck the gas readings. Repeat until they reach acceptable levels
 - (c) No smoking, welding or open flames in the vicinity of the manhole. Wear gumboots or safety boots
- 2 **Insufficient amount of oxygen**
 - (a) Check the level of oxygen in the atmosphere of the confined space. In normal air the proportion of oxygen is 21%. The minimum oxygen content at which air is still considered safe to breathe is 16%.
 - (b) Ventilate and recheck the oxygen level. Repeat until acceptable oxygen levels are revealed
- 3 **Working in darkness**

Follow "working in the dark" precautions
- 4 **Restrictive movements**
 - (a) Make sure you have the right tools for the right job
 - (b) At least **2** other able persons should be on standby to lift out their companion if necessary. They should stay close to the manhole/chamber opening, keeping in continuous voice contact

WORKING IN A CONFINED SPACE - cont'd

- (c) The worker entering the confined space of manhole must wear a safety harness with a safety line attached
 - (d) If the work is particularly arduous or protracted, then the worker should be rested regularly
- 5 Do not go into a confined space to rescue an incapacitated work mate unless you are secure and safe, ie have a safety harness, have support, have breathing apparatus if this is necessary.

WORKING IN CONFINED SPACE - CHECK SHEET

- 1 Use gas detector to check for methane, hydrogen sulphide and oxygen levels**
- 2 Ventilate the manhole before entering**
- 3 Two standby persons must be standing by and the worker entering the confined space must wear a safety harness with a safety rope attached**

WORKING OVER 2m HIGH

GENERAL

Building repairs and painting, window cleaning, arboring, high dusting, mechanical servicing and installation are typical examples of work at this height.

HAZARDS

- 1 Falling - causing injury
- 2 Using tools
- 3 Operating in a cherry picker
- 4 Scaffolding

RECOMMENDED PROCEDURES

1 Falling

- (a) When climbing trees or working higher than 2 metres use a full body harness and safety rope
- (b) Never work alone - always have a safety watch at ground level
- (c) Wear overalls
- (d) If on a ladder - ensure that it is secure and tied off

2 Using tools

- (a) Chain saws should be started on the ground and hauled up by rope
- (b) Secure materials and tools so they are not able to fall on others below.

3 Cherry picker

- (a) Check for overhead wires
- (b) Check load capacity and don't exceed
- (c) Appropriate signs and cones on the road if necessary
- (d) If operating from the bucket - be familiar with the controls

4 Scaffolding

- (a) **Fixed**
Ensure that it has been erected, inspected, and certified by qualified people and the site stability is maintained.
- (b) **Moveable**
Ensure that the site is stable and that the scaffolding wheels are correctly checked or braked so that the rig will not run away. Ensure that it has been erected, inspected, and certified by qualified people
- (c) Become familiar with the OSH recommended practices for scaffolding erection and site use.

WORKING OVER 2m HIGH - CHECK SHEET

- 1 Use a full body harness and safety rope when climbing trees or working at a height of 2 metres or higher**
- 2 Never work alone**
- 3 All tools to be hauled up by rope - start chainsaw first**
- 4 Check for overhead wires**
- 5 Don't overload cherry picker**
- 6 Protect against falling tools or materials.**
- 7 Become familiar with OSH scaffolding practices.**

WORKING IN WATER

GENERAL

Working in open drains and waterways.

HAZARD

- 1 Getting into deep water
- 2 Sharp tools (hand or mechanical)
- 3 Working in sun light
- 4 Cuts and abrasions
- 5 Bees and wasps
- 6 Chemical / Biological contaminants

RECOMMENDED PROCEDURES

- (a) Never work alone
- (b) Always wear appropriate gear, ie. waders
- (c) Use pest removal/controllers
- (d) Chain saws are only to be used by trained/certificated persons
- (e) Wear slouch hats

WORKING ON THE ROAD

GENERAL

Working on roads is most likely to occur when attending to road signs, bollards, crossing barriers and a multitude of Streets furniture.

HAZARDS

- 1 Traffic - collision or accident
- 2 Endangering pedestrians and vehicular traffic

RECOMMENDED PROCEDURES

1 Traffic

- (a) A Traffic Management Plan Transit NZ Code Of Practice for Temporary Traffic Management must be submitted for local authority or Transit approval prior to any works commencing and must include any EED's that relate to the works. All work carried out must be within the limits of the TMP.
- (b) Wear Transit compliant safety vests at all times
- (c) Vehicles to have amber operating beacons and safety signs
- (d) If for any reason a road has to be closed to vehicular traffic and a detour used – a separate Traffic Management Plan Transit NZ Code Of Practice for Temporary Traffic Management must be submitted to the local authority for approval, and the traffic department of the police must be informed
- (d) If traffic is reduced to a single lane - Stop/Go paddle signs must be used
- (e) Park your vehicle to protect the work site from oncoming traffic. Leave at least a 3m gap between the work site and the vehicle
- (f) On narrow streets or areas where normal parking is impossible it is permissible to park partly on the footpath providing there is adequate room left for pedestrians. If pedestrians are forced to walk around the truck onto the roadway then a coned off thoroughfare must be provided for them
- (g) For night work see the relevant hazard register sheet

2 Endangering pedestrians and vehicular traffic

- (a) Any excavation or work should have a barrier erected around it
- (b) If the excavation is left overnight - barrier off with barricades and fencing - use flashing lights
- (c) Plan the work if possible to coincide with off peak traffic times

WORKING ON THE ROAD - CHECK SHEET

- 1 Set up plant, pilot vehicles, warning signs, cones, etc as per the approved Traffic Management Plan**
- 2 Give adequate warning of Hazard to travelling public**
- 3 Wear a Transit approved safety vest**
- 4 Advise police if road is to be temporarily closed**
- 5 For single lane traffic use Stop/Go paddle signs**
- 6 Park the vehicle to protect the job site**
- 7 Parking on the footpath is permissible providing pedestrians have a clean thoroughfare**
- 8 Barricade and fence off all excavations - use flashing lights at night**
- 9 Plan the work for off peak traffic flows**

WORKING IN THE DARK

GENERAL

Most Unicus work is carried out during daylight hours. However, night work does occur during call outs and for specific tasks such as sweeping and cleaning maintenance, and a number of night-time precautions are equally valid in these situations.

HAZARDS

- 1 Unseen obstacles - poor visibility
- 2 Danger from passing vehicles

RECOMMENDED PROCEDURES

- 1 **On the job lighting**
 - (a) On static planned jobs floodlights and generators are to be organised from one of the hire centres
 - (b) In addition to the above, hand-held torches shall be used as and where necessary.
 - (c) It should be ensured that where excavators are needed they are equipped with suitable lights that work to further illuminate the job site
- 2 **Protective and Warning Measures**
 - (a) Transit approved reflective jackets must be worn at all times
 - (b) On static jobs - signs, amber flashing lights and reflective cones shall be set out as per Transit NZ Code Of Practice for Temporary Traffic Management
 - (c) Trucks shall be parked with their hazard and beacon lights flashing at least 3m from the work site in the direction of oncoming traffic.
 - (d) Where reinstatement is not complete, any excavation or other work must be fenced or barricaded off and warning flashing lights installed
 - (e) All trailers, including those carrying hired plant, shall be equipped with lights meeting warrant of fitness standards
 - (f) All vehicles including small items of plant such as pavement sweepers must have their beacon lights flashing while engaged in their working activities.

WORKING IN THE DARK - cont'd

3 General Safety

If, in the opinion of the worker attending a call out, the job is too large for him to cope with or too hazardous, then extra staff shall be called in for support and safety.

EXAMPLES

- Work inside manholes or wet wells
- On roads with high traffic volumes
- Steep banks and retaining walls where there is a danger of falling
- Depth excavation over 1.5m
- Loose or unstable ground
- Work in remote areas such as in bush areas
- Strong water flows where there is danger of being swept away

WORKING IN THE DARK - CHECK SHEET

- 1 Flood lights**
- 2 Torch**
- 3 Wear reflective jacket**
- 4 Signs and reflective cones for road work**
- 5 Park your vehicle 3m from work site, in the direction of on coming traffic**
- 6 Activate hazard and beacon lights**
- 7 Barricade/fence off unsafe areas - install flashing lights**
- 8 Call for assistance when needed**

WORKING IN BAD WEATHER

GENERAL

Unicus work staff are occasionally asked to work in bad weather conditions and it is necessary to perform in these adverse conditions safely.

HAZARDS

- 1 Poor visibility.
- 2 Slippery and muddy surfaces increase the risk of accidents
- 3 Danger of being swept away in large pipelines or open water courses
- 4 Colder temperatures - exposure from windy conditions
- 5 Danger of falling debris, trees and branches along with broken power lines

RECOMMENDED PROCEDURES

- 1 **Poor visibility**
 - (a) Take extra care in dealing with traffic - make sure they can see you
 - (b) Follow work in the dark procedures as necessary
- 2 **Slippery and muddy surfaces**
 - (a) Keep gear and boots as free of mud as practicable
 - (b) Keep work site as clean as possible - safer for you and the general public
- 3 **Danger of being swept away**
 - (a) Use harness and ropes in dangerous situations where work is in close proximity to high and swift flows
 - (b) Ensure other workers are standing by to help
- 4 **Cold temperatures - windy conditions**
 - (a) Ensure that adequate and effective wet-weather gear is worn.
 - (b) Check for signs blown down - secure all loose equipment of trucks
- 5 **Danger of falling debris - trees etc**
 - (a) Check for power wires before lopping off branches or cutting down trees
 - (b) Treat every fallen wire as "alive" - call local Electricity authority

WORKING IN BAD WEATHER - cont'd

GENERAL SAFETY

In severe conditions, the public may have to be assisted or even evacuated from their homes and Unicus would willingly become part of the Civil Defence effort to give assistance if and where required.

WORKING IN BAD WEATHER - CHECK SHEET

- 1 Make sure traffic can see you**
- 2 Adopt working in the dark procedures**
- 3 Keep gear and work site as clean as possible**
- 4 Have harness and rope available**
- 5 Put all wet weather gear on**
- 6 Secure all loose equipment**
- 7 Beware of fallen power wires - call the local Electricity authority.**
- 8 Check for power wires before lopping branches**
- 9 Call for assistance if needed**

WORKING WITH SOLVENTS / PAINTS / EPOXIES

GENERAL

These products are used in conjunction with the jointing of plastics, graffiti removal, painting, sealants, and adhesives. In some situations, because of the nature of the work, they are used in confined spaces where the health hazard is increased.

HAZARDS

- 1 Inhalation of fumes
- 2 Danger with eye and skin contact
- 3 Inflammable

RECOMMENDED PROCEDURES

- 1 **Inhalation of fumes**
 - (a) Know the product - read the manufacturer's recommendations and follow them
 - (b) Wear respirators and goggles - spare filters should be readily available
 - (c) Where possible, all gluing should be done in the open
- 2 **Danger with skin and eye contact**
 - (a) Wear goggles and gloves
 - (b) If mixing materials, use stable containers and the correct ratios
- 3 **Inflammable**
 - (a) Keep away from naked flames
 - (b) Do not smoke
- 4 **Additional Safety**
 - (a) If in doubt - ask.
 - (b) Always refer to the technical data sheet.

WORKING WITH SOLVENTS/PAINTS/EPOXIES - CHECK SHEET

- 1 Read and obey manufacturers instructions**
- 2 Wear respirators and goggles - spare filters**
- 3 Keep away from naked flame**
- 4 Do not smoke**
- 5 If in doubt - ask!!**

WORKING WITH BITUMEN PRODUCTS

GENERAL

Bitumen products, hot mix, and emulsion are used in roadway and footpath repairs and Re instatements. Hot mix is purchased and stored/used from specialist trucks. Plant mix is occasionally held in the store. Emulsion is stored on the specialist hot mix trucks. Unicus' role occasionally involves repairs and re-instatement, which necessitates the handling of these products. This section is relevant to any sub-contractor who may be undertaking this work on our behalf.

HAZARDS

- 1 Storage and transport - spillage and contamination
2. Fire and explosion

RECOMMENDED PROCEDURES

- 1 Storage and transport
 - (a) Emulsion should be carried on the hot mix truck in its holding tank
 - (b) Use gloves and overalls
 - (c) When working on the road - make sure that the appropriate signs are placed in the correct position
 - (d) Use kerosene for cleaning up
 - (e) Do not mix anionic and cat ionic emulsions, they form into a very "gluggy" mess
 - (f) Use sand on road or footpath spillage
 - (g) Be cautious when heating to remove sludges - area must be well ventilated of vapours.
 - (h) Be careful with all solvents for removing tar-like deposits - see solvents, paints and epoxies sections.
 - (i) If working with hot tar sprayers - water can cause 'volcanic eruptions' of the hot tar, endangering everyone in the near vicinity.

WORKING WITH BITUMEN PRODUCTS - CHECK SHEET

- 1 Use the right truck for transporting bitumen products**
- 2 Wear gloves and overalls**
- 3 Ensure correct signage**
- 4 Use kerosene for clean-up**
- 5 Use sand for road spillage**
- 6 Be 'explosion conscious' at all times.**

WORKING WITH ASBESTOS

GENERAL

Although there is no new asbestos related material being used, contact with it may come through handling repairs to existing A.C. water mains and sewer pipes, high dusting old buildings, and general cleaning of older sites. Materials containing asbestos present a health hazard only if they produce asbestos dust that is inhaled. Smoking while working with asbestos significantly increases the health risk. Be aware of existing building materials that are unmarked. Any suspect materials should be reported and cleared before any physical work is carried out.

HAZARDS

- 1 Inhalation of asbestos dust

RECOMMENDED PROCEDURES

- 1 Never use any kind of saw to cut A.C. pipe. Use pipe cutters (chain and wheel type)
- 2 Dampen with water the area surrounding the proposed cut
- 3 Cuttings (A.C.) should be collected, placed in a plastic bag/labelled, placed in bin at Depot and stored for appropriate disposal
- 4 Only vacuum systems with approved HEPA filters are to be used when collecting dust.

HANDLING FUELS

Unicus employees come into contact with fuels frequently every working day and, as a result, require a high level of safe working and storage practices.

HAZARDS

- 1 Danger of fire - explosion
- 2 Minor spillage - roads and footpaths
- 3 Call out to major spillage at service stations, roundabouts etc
- 4 Transportation and storage
- 5 Inhalation of fumes
- 6 Heat build up due to sunlight

RECOMMENDED PROCEDURES

- 1 **Danger of fire - explosion**
 - (a) When handling fuel - no smoking!!!
 - (b) Keep fuel away from naked flames or hot surfaces
 - (c) Fuel containers become pressurised when hot from sunlight

- 2 **Minor spillage**
 - (a) Take care when mixing fuel or filling plant. Use correct equipment - funnels, etc
 - (b) Avoid filling plant over footpaths and carriageways
 - (c) Cover any spillage with sand or sawdust

- 3 **Major spillage**
 - (a) Ensure that NZ Fire Service, Police, Dangerous Goods Inspector and Civil Defence officer have been notified
 - (b) Assist the above as required
 - (c) Provide materials for cordoning off the spill - barricades, temporary fencing, etc.
 - (d) Provide supplies of sand/sawdust

- 4 **Transportation and storage**
 - (a) Use the correct containers - metal or red plastic - when carrying petrol for small plant
 - (b) Place in a stable position. Containers of fuel should not be carried in the cab of vehicles. Check for security if vehicle is left unattended
 - (c) Store fuel clear of doorways or exits. (In case of fire in shed / caravan)
 - (d) Maximum allowable quantity is 20l
 - (e) Do not use non-approved containers.

HANDLING FUELS - cont'd

4. (f) Keep a fire extinguisher near by and know how to use it.

5 Inhalation of fumes

- (a) Avoid handling fuel in confined spaces

HANDLING FUELS - CHECK SHEET

- 1 No smoking**
- 2 Use correct equipment**
- 3 Cover spillage with sand or sawdust**
- 4 Call Police - NZ Fire Service - to major incidents where public safety is involved**
- 5 Use the correct containers**
- 6 Do not carry fuel in the cab of your vehicle**
- 7 Avoid handling fuel in confined spaces**

OPERATING MECHANICAL PLANT

GENERAL

The variety of mechanical plant used by Unicus and our sub-contractors may range from excavators and loaders through to road sweepers, power scrubbers, mowers, rollers and compactors. All of these need to be driver/handled correctly otherwise they can be a significant danger to both our staff and the general public.

HAZARDS

- 1 Overbalancing
- 2 Overhead wires - underground services
- 3 Vehicles/Onlookers
- 4 Equipment failure
- 5 Noise

RECOMMENDED PROCEDURES

- 1 **Overbalancing**
 - (a) Be aware of load and radius limits
 - (b) Check for unstable ground
 - (c) Ensure that the operator has the correct licence

- 2 **Overhead wires - underground services**
 - (a) Ensure that copies of all service plans are on site - local Electricity authority, Natural Gas authority, Telecom, and local Council services
 - (b) Use locaters - train users
 - (c) Hand dig to locate buried services
 - (d) Contact local Electricity authority if you need to operate a machine within 4m of overhead wires
 - (e) If in doubt call the relevant authority for assistance

- 3 **Vehicles/Onlookers**
 - (a) Warn sightseers/children to keep a safe distance well out of range of the machine's swing or operating area
 - (b) Store all attachments - buckets, etc, out of the public's way
 - (b) Ensure safety beacons are working and signage is visible

- 4 **Equipment failure**
 - (a) Visually check all hydraulic lines, hoses, etc before starting
 - (b) Report any malfunction or damage to the plant Supervisor
 - (c) Ensure new employees are fully trained in how the machine works

- 5 **Noise**
 - (a) Wear ear defenders if working outside an enclosed cab
 - (b) Ensure plant complies with local noise ordinances

OPERATING MECHANICAL PLANT - CHECK SHEET

- 1 When lifting with or operating excavators, check for unstable ground and do not overload**
- 2 Obtain plans for all underground services and locate by hand before using excavators**
- 3 Warn onlookers to keep a safe distance. Make sure beacons and warning indicators are working**
- 4 Check machinery before using and report any defects**
- 5 Wear ear defenders if working outside an enclosed cab**

***NB** Specific hazard analysis and abatement can be found in our Task Analysis Worksheets and Standard Operating Procedures. Ask your supervisor for the relevant documents.*

OPERATING FROM A DINGHY

GENERAL

There may be a requirement to use a small craft, such as a dingy, on some lake, waterway, beach or foreshore from time to time.

HAZARD

1. Capsizing
2. Transport and launching

RECOMMENDED PROCEDURES

- 1 **Capsizing**
 - (a) Wear a life jacket
 - (b) Don't overload the boat - 3.5m dinghy no more than 4 men
 - (c) Take care with movement in the boat - keep it balanced
 - (d) Never venture out offshore in rough or stormy weather
- 2 **Transport and launching**
 - (a) Tie securely onto the tray of the transporting truck with a ratchet tie down
 - (b) Take care with loading, unloading and launching not to damage the boat
- 3 **Treatment Plant**
 - (a) Wear protective gloves if taking samples

OPERATING FROM A DINGHY - CHECK SHEET

- 1 Wear a life jacket**
- 2 Don't overload**
- 3 Ensure the dinghy is well secured during transportation.**
- 4 Take care with launching and loading**

BENCH TOOLS

GENERAL

Our Depot carries the typical range of workshop tools and machinery of most cleaning maintenance contracting firms

HAZARDS

- 1 Machines set up incorrectly
- 2 Lack of good housekeeping
- 3 Carelessness
- 4 Visitors - non workshop staff walking through Depot workshop
- 5 Fire danger
- 6 Loose fitting clothes - long hair

RECOMMENDED PROCEDURES

- 1 **Machine set-up**
 - (a) Grinder guards must be aligned to the stone correctly and the stone redressed when necessary
 - (b) Guards in general must not be moved or tampered with
 - (c) Ensure all start up/shut down procedures are carried out. These are fixed to each machine.
- 2 **Good housekeeping**
 - (a) Walkways should be well defined, i.e. painted lines indicating limits, and kept clear
 - (b) Milling material, swarf and other rubbish should be cleaned up as soon as the job is complete
 - (c) Ensure there is good ventilation and lighting for the job being undertaken
- 3 **Carelessness**
 - (a) Renew consumable items when necessary
 - (b) Use recommended workshop practices
 - (c) Be aware of others in the workshop
- 4 **Visitors**
 - (a) Erect signs discouraging visitors from using the workshops as thoroughfares

BENCH TOOLS - cont'd

5 Fire danger

- (a) Each of the workshops is equipped with a dry powder multi-purpose and a CO2 (carbon dioxide) extinguisher. All workshop staff should be familiar with their location and operation
- (b) Flammable materials should be stored in an adequately protected area
- (c) Welding areas should be clear of all flammable material

6 Loose fitting clothes - long hair

- (a) All staff working in workshops should wear close fitting overalls, safety shoes/boots and a belt if necessary.
- (b) Ensure that any long hair is tucked up and worn under a hat

BENCH TOOLS - CHECK SHEET

- 1 Ensure that the machine is set up properly and that all standard start up/shutdown procedures are carried out.**
- 2 Keep walkways clear and well defined**
- 3 Discourage visitors from walking through the workshop**
- 4 Know the location of the fire extinguishers and how to operate them**
- 5 Store flammable material safely**
- 6 Wear overalls and safety footwear**

HAND HELD PLANT/TOOLS

GENERAL

Hand held plant/tools are used in two main areas of work - workshop and in the field. The former include hand hacksaws, snips, hand shears, jig saw, hole saws, angle grinders, drills, compressed air tools, electric tools and personal socket set, wrenches, ring spanners, pliers, etc.

HAZARDS

- 1 Inexperience - personal safety
- 2 Noise
- 3 Dust and flying fragments
- 4 Public and property safety
- 5 Electrical faults - electrocution

RECOMMENDED PROCEDURES

- 1 **Inexperience**
 - (a) All staff using this type of gear must be familiar with its operation. Supervisors need to check on this especially with new staff
 - (b) Run training courses for each item of plant including instruction on correct operation and maintenance. These courses would be mandatory for all new staff
 - (c) Staff need to be responsible and mature in the operation of the machinery
 - (d) Use the right tool or appliance for the right job. Don't make do or remove guards etc in order to get the job done
 - (e) Ensure that set spanners, ring spanners and sockets are right fit to any bolt/nut to guard against accidental slippage.
 - (f) Do not over stress tools by adding a length of pipe to handles.
 - (g) Keep tools in sound working condition and regularly clean them, removing slippery grease and oil deposits from handles.

HAND HELD PLANT/TOOLS (cont)

2 Noise

(a) Wear ear defenders (operator and his mate if necessary). The appropriate grade of defenders shall be worn for respective activities:

- Workshops Grade 5
- Chain saws Grade 5
- Pneumatic Drill Grade 3
- Lawn mower Grade 2

N.B. Never use a lower grade muff on a high grade task.

3 Dust and flying fragments

- (a) Wear the right gear - goggles or face shields, overalls and safety shoes, breathing mask.
- (b) Be aware of what may be in the "line of fire", i.e. pedestrians, fellow co-workers, property, vehicle body work, children, washing on the line, and adjust the operation of the equipment to compensate
- (c) Clean up any loose fragments when the job is finished
- (d) Remove any potential fire risk materials from the work area before grinding.

4 Public & Property Safety

- (a) Use protective screening where practical to shield and protect fellow workers, public, and property, which are likely to be damaged.
- (b) If working on or above the road ensure that the correct signs are displayed
- (c) Keep an eye out for pedestrians, if necessary stop what you are doing in order to let them past.
- (d) If working adjacent to private property, inform the owners what you are doing and how long you are likely to take

HAND HELD PLANT/TOOLS (cont)

5 Electrical faults

- (a) Check leads and connections
- (b) Watch where you are cutting - ensure the power lead is out of the way or protected
- (c) Use a power guard - only one appliance on each outlet
- (d) Ensure any wandering lead is kept well clear of site puddles and very damp locations; elevate leads where possible.
- (e) Do not leave live leads unattended and protect these against vehicular traffic damage.

HAND HELD PLANT/TOOLS - CHECK SHEET

- 1 Wear face protection, overalls and safety shoes and ear defenders**
- 2 Watch out for pedestrians - be prepared to stop work**
- 3 Equipment only to be used by trained staff**
- 4 Don't use the tool for a job it's not designed for**
- 5 Inform residents what you are doing**
- 6 Check leads and connections. Always use a power guard**

WELDING - GENERAL

GENERAL

A variety of welding processes are performed in Unicus workshops and may be performed in the field. These may be electric arc, oxyacetylene, mig, tig, carbon arc cutting. The OSH Department publication "Welding Safety" and NZIG literature cover this topic well and the following points draw heavily from it.

HAZARDS

- 1 Fumes and vapours
- 2 Eye hazard - welders flash
- 3 Fires
- 4 Danger from explosion
- 5 Burns
- 6 Electric shock
7. Noise
8. Flying waste

RECOMMENDED PROCEDURES

- 1 **Fumes and vapours**
 - (a) Ensure there is adequate ventilation around the job.
 - (b) Power ventilate areas that have little or no ventilation.
 - (c) Use the personal filtered air supply on galvanised and similar toxic fume work.
- 2 **Eye hazard**
 - (a) Always use a suitable arc shield, helmet or hand shield for all welding and tacking. Ensure this has the correct grade of lens and the shield is in sound condition, having no "light leaks".
 - (b) Wear approved safety spectacles with side shields, goggles or a visor when chipping or grinding
 - (c) Ensure that adequate welding screens are erected where practicable
 - (d) Be aware of onlookers, bystanders and helpers and protect them against harm.

WELDING - GENERAL - cont'd

3 Fires

- (a) There should be no flammable liquids, waste or material in the welding area
- (b) Never wear plastic or other overalls having a high nylon or synthetic content.
- (c) Be familiar with the location and operation of fire extinguishers
- (d) Where there is any risk of fire keep an extinguisher nearby the welding site and enlist a responsible person to employ the extinguisher immediately should fire break out.
- (e) Be especially aware of fire risk when welding in buildings.

4 Explosions

- (a) Check that hoses and connections are leak proof
- (b) Only use equipment in good condition and fit flashback arresters
- (c) Do not weld in any situation where combustible gases or fumes are present until the area has been ventilated of these. Test where necessary (see Manholes and Pump Station Gases, page 20)

5 Burns

- (a) Wear protective clothing including overalls and gloves
- (b) Never point a torch towards another person
- (c) Know where the nearest water supply is - for treatment of burns
- (d) Mark "hot" completed work where there is a risk to others.

6 Electric shock

- (a) Check the insulation of all cables regularly

7. Noise

- (a) Where the welding process generates loud noise, wear grade five ear protectors.

7. Flying waste

- (a) Ensure that all flying waste will not cause fires and damage to property. Protective shielding of property will prevent costly damage.

WELDING -CHECK SHEET

- 1 Ensure there is adequate ventilation**
- 2 Wear the correct gear - overall, helmets, safety glasses, gloves, and safety footwear**
- 3 Ensure there is no flammable material in the welding area**
- 4 Check hoses and connections for leaks**
- 5. Mark completed work "Hot"**
- 6. Check all electrical cables regularly**
- 7. Wear ear defenders on noisy work**

BURST PIPES AND FITTINGS

GENERAL

This type of incident would normally only occur on water mains and pumping station rising mains. However, situations involving burst gas mains could also arise, as could damage to internal building services.

HAZARDS

- 1 Discharge of raw sewage presents a health hazard to workmen and the community at large
- 2 Damage to local authority and/or private property - water main blow outs
- 3 Danger to road users and pedestrians, and building occupants.
- 4 Gas explosion

RECOMMENDED PROCEDURES

- 1 **Discharge of raw sewerage**
 - (a) Get the system shut down ie. switch off pump station, isolate water leak with valves, contact the local Natural Gas authority. where ruptured gas lines are involved. Shut down building services.
 - (b) Sign off any contaminated areas, and inform local residents of the health hazard
 - (c) Wear gumboots, wet weather gear and gloves. Clean off thoroughly after use and discard the gloves
 - (d) Ask local residents whether or not they want lime (disinfectant) used on their property
- 2 **Damage to Council/Private property**
 - (a) Install warning signs on roads and footpaths and inform any resident whose property is damaged or threatened. (Especially business areas where water supply is critical)
 - (b) Check the extent of the spillage or overflow. (Sewage overflows into natural water courses can have major repercussions)
 - (c) If a sewage rising main bursts - inform DAMBU
 - (d) Make a decision when the reinstatement is going to be due. Minimise public inconvenience.

BURST PIPES AND FITTINGS - cont'd

- (e) Inform other utilities, ie. Telecom, local Electricity authority. or Natural Gas authority if the integrity of their services are threatened

3 Danger to road users/pedestrians

- (a) Install warning signs on the road and barricade off dangerous areas. Clear disaster zone of building, shut down services, minimise building and property damage, engage commercial cleaner and start clean up as soon as possible before long term staining takes place.

4 Gas Explosion

- (a) No smoking
- (b) Make site secure and wait for the gas company to arrive. Render assistance if necessary

BURST PIPES AND FITTINGS -CHECK SHEET

- 1 Shut down the system**
- 2 Call local Natural Gas authority if necessary**
- 3 Sign off contaminated areas**
- 4 Inform local residents**
- 5 Wear wet weather gear and gloves**
- 6 Install warning signs on roads and footpaths. Isolate, minimise and start clean up of affected portion of building immediately.**
- 7 Inform other utilities if necessary**

OVERHEAD & UNDERGROUND SERVICES

GENERAL

Excavations to repair or upgrade local authority services will in many cases necessitate exposing or working in close proximity to other buried utilities, i.e. gas, power, telephone and water. The use of excavators, Hiabs and cranes can endanger overhead services.

HAZARDS

- 1 Electric shock - explosion
- 2 Inconvenience to the public and business community
- 3 Expense of repair
- 4 Danger to work mates and the public
- 5 Inconvenience to service authority
- 6 Contamination and health hazard

RECOMMENDED PROCEDURES

- 1 **Electric shock - explosion**
 - (a) Always check for overhead wires before using excavators or cranes. If machines need to go closer than 4m to overhead cables, a permit is required from the local Electricity authority.
 - (b) Always get and **USE** plans for underground services before excavating from:
 - local Electricity authority.
 - Telecom
 - local Natural Gas authority
 - Water Supply - local authority
 - Sewer - local authority
 - Storm water - local authority
 - (c) Hand dig to locate services - use bulb ended probes
 - (d) If in doubt - contact the relevant service authority
- 2 **Inconvenience to the public and business community**
 - (a) If damage does occur or the supply is interrupted, notify the business community - and private homes affected
- 3 **Expense**
 - (a) These types of repairs are extremely expensive and preventable.

OVERHEAD & UNDERGROUND SERVICES (Cont)

4 Danger to work mates and the public

- (a) In the event of a breakage, seal off the areas from pedestrian and vehicular traffic. In some cases the traffic may need to be diverted

5 Inconvenience to Service Authority

- (a) Inform the relevant service authority and give accurate details of location, time and the nature of the damage
- (b) Keep personnel on site until service authority personnel arrive
- (c) Be prepared to assist if required
- (d) Sort out who will be responsible for the reinstatement

6 Contamination and health hazard (sewer breaks)

- (a) Attempt to reduce area of contamination or spillage
- (b) Cordon off the area until it is cleaned up
- (c) If a rising main - shut down the pump station
- (d) Use the right gear and clothes, gloves, gumboots, wet weather gear, overalls
- (e) Wash hands and shower afterwards

OVERHEAD & UNDERGROUND SERVICES - CHECK SHEET

- 1 Check for overhead wires before using excavators or cranes**
- 2 Obtain and use plans for all underground services**
- 3 Hand dig to locate services**
- 4 Call service authority if in doubt**
- 5 If damage does occur, notify service authority, businesses and residents affected**
- 6 Seal off the affected area from traffic and pedestrians**
- 7 Be prepared to help service authority**
- 8 Limit area of sewage contamination and clean up**

CHEMICAL SPRAYING

GENERAL

Unicus staff and sub-contractors may be required to use chemical spraying equipment for vegetation control, or the cleaning of stainless steel surfaces inside factories. Only appropriately licensed operators may be commercially engaged in chemical vegetation control. Only fully trained Unicus operators are to be engaged in the chemical cleaning of stainless steel.

HAZARDS

- 1 Windy conditions – weed spraying
- 2 Inhalation of toxic fumes - spillage on hands/clothes
- 3 Agitated members of the public
- 4 Negligence in care of equipment
- 5 Mechanical repairs

RECOMMENDED PROCEDURES

- 1 **Windy conditions :**
 - (a) Be aware of Council or local authority policy on spraying
 - (b) No spraying allowed where the wind velocity at the point of spray is 5 knots or above
 - (c) Be sensitive to the locality you are spraying in
- 2 **Inhalation and spillage**
 - (a) Wear a respirator and wet weather gear or disposable spray overalls when using toxic sprays.
 - (b) Use gloves when mixing and using sprays
 - (c) Be aware of pedestrians or factory personnel passing close by
 - (b) Where possible (in a factory environment), isolate the area to be cleaned using caution tape and barriers.
- 3 **Dealing with members of the public or factory staff**
 - (a) When weed spraying in built up areas - have a copy of the non-spraying register on hand - and use it
 - (b) Don't retaliate or get into a confrontational situation. Pack up and leave if necessary, and report the incident to your supervisor
- 4 **Care of equipment**
 - (a) Always thoroughly wash out spraying equipment at the end of the day. Check for leaks in the equipment and remedy.
- 5 **Mechanical repairs**
 - (a) Always wash equipment thoroughly, internally and externally when presenting for servicing or repair.
 - (b) Always wear a respirator, disposable gloves and safety glasses when dismantling.

CHEMICAL SPRAYING - CHECK SHEET

- 1 No weed spraying where wind velocity is greater than 5 knots**
- 2 When using toxic sprays, use respirators, approved rubber gloves, and wet weather gear**
- 3 If spraying in a factory environment, isolate areas to be cleaned using caution tape, barriers and safety signs.**
- 4 Always consult the No Spray register**
- 5 Don't argue with members of the public or factory staff**
- 6 Always wash equipment thoroughly at the end of the day and when presenting for repair or servicing.**
- 7 When repairing, protect yourself against splashes, residues and fumes.**

NOISE

GENERAL

Noise accompanies virtually every activity where machines or machinery are used. In Unicus work typical examples are - sweepers, chainsaws, mowers, compressors, generators, compactors, workshop, manual work etc. Noise can also be associated with particular work sites.

HAZARDS

- 1 Damage to hearing
- 2 Annoyance to the general public

RECOMMENDED PROCEDURES

1 Damage to hearing

- (a) The appropriate grade of ear defenders shall be worn for respective activities, i.e.:

Workshops	-	Grade 5
Chainsaw	-	Grade 5
Pneumatic drill	-	Grade 3
Lawn mower	-	Grade 2

2 Annoyance to the public

- (a) On static sites inform local residents (the property where you are working and those either side) what you are doing, that there will be some noise, and how long the job is likely to take
- (b) Check the equipment. Mufflers and exhaust pipes should be in good condition

NOISE - CHECK SHEET

- 1 Wear appropriate ear muffs**
- 2 Inform local residents**
- 3 Check equipment - good mufflers - exhaust pipes**

DUST

GENERAL

Dust can occur when cutting concrete or pipes, road and footpath sweeping, mowing in dry, barren areas, and on metal roads and shoulders. Trade dust is generated from skill saws, sand blasting, cleaning brake drums, floor sweeping, equipment cleaning, building or system filter removal and cleaning, wood and vehicle body sandings.

HAZARDS

- 1 Poor visibility
- 2 Inhalation of dust
- 3 Asbestos - see asbestos guide
- 4 Silica dusts

RECOMMENDED PROCEDURES

- 1 **Poor visibility**
 - (a) Where possible dampen dusty areas with water - especially where members of the public could be affected
 - (b) Wear goggles or safety glasses and safety jackets
- 2 **Inhalation**
 - (a) Respirators should be used in confined places (eg. concrete cutting inside manholes) and when sweeping roads with a power broom prior to sealing and all building services and workshop dusts.
- 3 **Asbestos**

See asbestos guide

DUST - CHECK SHEET

- 1 Dampen down dusty areas**
- 2 Wear eye protection and safety jackets**
- 3 Use respirators**
- 4 Refer to asbestos check sheet**

WORKING WITH PHOTOCOPY MACHINES

GENERAL

All management, supervisory and office staff use the photocopying machine from time to time.

HAZARDS

- 1 **Physical**
 - (a) Exposure to ultraviolet radiation and bright visible light causing eye irritation or damage
 - (b) Inhalation of and skin contact with toner
- 2 **Chemical**
 - (eg) Exposure to ozone - an irritant and dangerous gas

No biological, psychological or ergonomic hazards.

RECOMMENDED PROCEDURES

- 1 When copying always keep the lid lowered
- 2 Take extra care when handling toner refills - follow manufacturer's instructions
- 3 Photocopier must be regularly maintained and serviced
- 4 Photocopy machines should be located at least 4m from any workstation

CONTROL MEASURES

- 1 Locate photocopiers in a separate room if possible
- 2 Where this is not possible - photocopying machines should be at least four metres from any workstation
- 3 Keep the lid lowered when using the photocopier
- 4 Follow machine instructions when adding toner

WORKING WITH PHOTOCOPY MACHINES - CHECK SHEET

- 1 Keep the copier lid lowered when copying**
- 2 Follow manufacturer's instructions when loading toner**
- 3 Ensure the machine is regularly serviced**

WORKING IN THE SUN

GENERAL

Some of Unicus work activities occur outside in the open air. Those staff will be exposed to the sun's radiation for considerable periods of time and could suffer a variety of skin damages and disorders.

HAZARDS

- 1 **Physical**
 - (a) Sunburn
 - (b) Heat stroke - dehydration
 - (c) Melanoma

RECOMMENDED PROCEDURES

- 1 **Sunburn**
 - (a) Wear wide-brimmed slouch hats when working outside
 - (b) Apply protective sunblock cream to the exposed areas of the body - particularly the face and arms - "slip, slop, slap".
 - (c) Overalls or T-shirts and trousers/shorts should be worn at all times
- 2 **Heat Stroke - Dehydration**
 - (a) Wear a slouch hat
 - (b) Use your common sense in wearing overalls or shorts and T-shirts
 - (c) If you are sweating a lot - keep up your fluid intake
- 3 **Melanomas**
 - (a) Keep skin exposure to the sun to a minimum - especially if fair-skinned
 - (b) Protect exposed skin with sun block
 - (c) Get any freckles or moles that grows or changes colour checked by a doctor
- 4 **Control Measures**
 - (a) Wear wide brimmed slouch hats
 - (b) Apply sun block cream to exposed areas of the face, arms and legs
 - (c) Any freckle or mole that grows or changes colour should checked with your own doctor

WORKING IN THE SUN - CHECK SHEET

- 1 Wear a slouch hat**
- 2 Use sun block cream on exposed skin areas**
- 3 Get a doctor to check any mole or freckle that changes colour or size**

WORKING WITH VDUs - KEYBOARDS

GENERAL

Some of Unicus staff use VDUs and keyboards regularly and for extended periods of time. Heaviest uses would be data input and accounts payable/inventory positions.

HAZARDS

- 1 **Ergonomics**
 - (a) Occurrence of OOS (RSI) through bad work habits, poor work station set up and use of un-ergonomic furniture

- 2 **Physical**
 - (a) Emission of electromagnetic waves from monitors. To date there is no evidence of long or short-term health risks for operators due to radiation, but further studies are under way to confirm this

RECOMMENDED PROCEDURES

- 1 Ensure that workstations are correctly set up using ergonomically designed furniture

- 2 Training in OOS prevention is to be given to all frequent users. This includes:
 - (a) Work breaks - 10 minutes per hour
 - (b) Micro pause technique - 5-10 second relaxation every minutes
 - (c) Recognition of OOS symptoms - excessive muscle fatigue, soreness of stiffness, swelling, tingling in hands, wrists and forearms, muscle weakness

- 3 Work should be structured to provide time away from the keyboard throughout the day. As well as meal breaks, at least 10 minutes per hour should be spent in clerical or other non-keyboard work

- 4 **Control Measures**
 - (a) High use workstations (used more than 2 hours per day) should be set up to ergonomic standards
 - (b) Train all operators in OOS recognition and prevention.

WORKING WITH VDUs - CHECK SHEET

- 1 Take regular micro pauses**
- 2 Organise workflow to avoid long keyboard spells**
- 3 Ensure workstation set up is ergonomically correct and comfortable**

POWER HACKSAW AND COLD ROTARY SAW

GENERAL

Cutting metal with these two types of machines is a relatively straightforward task. However, some care should be taken to prevent injury to the operator.

HAZARDS

1. Eye hazard
2. Cuts, personal protection
3. Waste material

RECOMMENDED PROCEDURES

1. Always wear protective safety spectacles
2. Always wear protective gloves when handling metal with sharp edges. Ensure safety boots are worn.
3. Keep machine and work area clear of waste. With the cold saw, frequently clear all shavings from underfoot.

POWER HACKSAW & COLD ROTARY SAW - CHECK SHEET

- 1 Wear safety glasses**
- 2 Use protective gloves and safety boots.**
- 3 Maintain tidy housekeeping practices**

PEDESTAL AND BENCH WHEEL GRINDERS

GENERAL

Pedestal and bench grinders are frequently used. It is important that we leave these in a fit and safe state for the next person after completing the job in hand.

HAZARDS

1. Eye hazard - flying waste
2. Cuts/burns to the hand
3. Noise
4. Dangerous stone conditions and incorrect tool post setting

RECOMMENDED PROCEDURES

1. Always wear eye protection when grinding, safety spectacles, or full-face shield.
2. Protect hands with gloves from cuts and burns. "Cool out" ground areas where necessary to control heat buildup in the work piece.
3. Some grinding tasks generate loud noise. In these situations always wear earmuffs. (Grade 5).
4. From time to time stones become loaded, misshapen and continually wear down. Dress and true the stone/s to maintain a clean wheel face and adjust the tool post/s close to stone faces

PEDESTAL AND BENCH WHEEL GRINDERS - CHECK SHEET

- 1 Wear eye protection**
- 2 Wear gloves and "cool out" hot area.**
- 3 Wear ear defenders on "noisy" grinding work.**
- 4 Maintain stones in clean and true order. Keep tool posts adjusted on stones wear.**

REEL GRINDERS

GENERAL

There are two types of reel grinders - semi automated and manual push/pull. While both perform a similar function, individually the operations are conducted differently. On no account are untrained persons to operate either of these machines.

HAZARDS

1. Cuts and personal safety.
2. Flying waste
3. Stone condition
4. Incorrect machine operation

RECOMMENDED PROCEDURES

1. (a) Always wear protective safety spectacles or full face shield when grinding.
(b) Wear protective gloves when handling sharp reels and bottom blades.
2. Flying waste is applicable to the open grinder. Ensure that the work area is barriered off to prevent possible bystanders being endangered. Stop the operation if necessary and respectfully move bystanders away if the danger exists.
3. Ensure that all grindstones are sound and are maintained in a keen sharp state.
4. (a) Do not use either machine unless you have been specifically trained.
(b) Never operate with guards removed.
(c) Be familiar with the start-up and shutdown procedures and the recommended procedures listed in the machine manual.

REEL GRINDERS - CHECK SHEET

- 1 Always wear protective equipment**

- 2 Guard against and control flying waste safely**

- 3 Ensure stones are in good order**

- 4 (a) Only trained personnel to use machines**
(b) Follow recommended operational procedures of machine manual and startup/shutdown.

TOOL POST GRINDER

GENERAL

This is usually used in conjunction with work mounted in one of the machine shop lathes

HAZARDS

1. Personal safety.
2. Flying waste
3. Wheel condition
4. Guards

RECOMMENDED PROCEDURES

1. Always wear eye protection, safety spectacles, or full-face shield.
2. Where possible protect lathe beds and slides from ingress of flying waste and grindings. Where possible cover up areas that should be protected. Clean up these areas regularly.
3. Ensure that the stone is sound and dressed as required against dulling.
4.
 - (a) Never operate with any guard removed.
 - (b) Ensure guards are secure.
 - (c) Ensure machine is secure to lathe mounting.
 - (d) Ensure electric cord is safely routed where it cannot be damaged by any part of the operation.

TOOL POST GRINDER - CHECK SHEET

- 1 Never operate without the appropriate safety apparel being worn.**

- 2 Protect the lathe surfaces and clean regularly.**

- 3 Ensure sound and sharp grindstone.**

- 4**
 - (a) Ensure guards are in place and secure.**

 - (b) Ensure grinder secure to lathe.**

 - (c) Take care with the route of the electric cord.**

SOLDERING

GENERAL

Unicus staff use predominantly two types of soldering methods: Resin flux core and stick liquid flux.

HAZARDS

1. Fumes
2. Chemical burns, personal and property
3. Heat burns, personal and property

RECOMMENDED PROCEDURES

1.
 - (a) Always work in a well-ventilated environment.
 - (b) Soldering in an environment where fumes will be inhaled wear a mask.
2.
 - (a) Avoid spillage of liquid flux (acid) on to your person and property.
 - (b) Rinse all spillage with ample clean fresh tap water until all chemical effects are neutralised.
 - (c) Wear safety glasses to prevent splashes to eyes.
 - (d) Recap flux bottles when task is finished and store safely.
 - (e) Replace any flux container should it become defective and leak.
3.
 - (a) Protect yourself and property from all possible soldering iron heat burns.

SOLDERING - CHECK SHEET

- 1 Work in ventilated area or wear a mask against fume inhalation.**
- 2 Wear safety spectacles.**
- 3 Avoid spillage, rinse out with copious fresh clean water.**
- 4 Recap bottles, store safely, replace damaged bottles.**
- 5 Take care to prevent burns to your person and property.**

MACHINE TOOLS, LATHES, DRILL PRESSES, MILLING MACHINES

GENERAL

Only fully trained and competent personnel are to use these items of equipment. These are precision items of equipment and every care to be taken to maintain the integrity and accuracy. Carelessness or incompetence can result in "Significant Harm".

HAZARDS

1. Eye protection
2. Personal injury
3. Work security
4. Rotating machinery
5. Flying waste/waste in the work area

RECOMMENDED PROCEDURES

1. (a) Always wear safety spectacles.
(b) Ensure bystanders and assistants are also wearing eye protection.
(c) Stop operation and respectfully move bystanders at risk clear from job site danger zone.
2. (a) Ensure that overalls are in good order, no loose rag end that could catch in rotating work and pull you in.
(b) Ensure that all work pieces are firmly gripped by check jaws, machine vice jaws, are bolted/clamped securely to work tables or face plates.
(c) Ensure that loose items are well clear of rotating machinery and work. If inadvertently knocked into the work zone these can fly, causing injury and damage to the machinery.
(d) Always remove chuck keys from chucks.

**MACHINE TOOLS, LATHES, DRILL PRESSES, MILLING MACHINES
- CONTINUED**

3. (a) Where possible prevent flying waste from spraying wildly about the work area.
- (b) Remove regularly waste from the work area, particularly from underfoot.
- (c) Take care when handling ribbon and all other sharp waste. Use a "waste hook" where possible and always wear protective gloves if you have to handle this with your hands.
- (d) Maintain tidy housekeeping practices at all times about the machine tool work areas.

MACHINE TOOLS, LATHES, DRILL PRESSES, MILLING MACHINES

CHECK SHEET

- 1 Always wear eye spectacles and ensure others near you do likewise.**
- 2 Ensure no loose fold or ragged overalls are worn near rotating machinery.**
- 3 Ensure all work is firmly gripped or bolted/clamped down.**
- 4 Keep work area clear of loose items.**
- 5 Remove chuck keys from chucks.**
- 6 Control flying waste.**
- 7 Maintain a high standard of housekeeping in the work area.**
- 8 Take extra care when handling wastes and prevent cuts and gashes occurring.**

WATER BLASTING (cont)

3 High pressure water and flying debris

- (a) Wear the right gear - goggles or face shields, overalls and safety shoes.
- (b) Be aware of what may be in the "line of fire", ie. pedestrians, fellow co-workers, property, vehicle body work, children, washing on the line, and adjust the operation of the equipment to compensate
- (c) Always 'load' the system with the high pressure nozzle disconnected from the gun in-case the trigger locks on.

4 Burns & Scalds – Hot Water Blasting

- (a) When Hot water blasting, always make sure that pressure is purged from the HP hose by holding the trigger open for at least three seconds before undoing high-pressure fittings.
- (b) Include the use heavy-duty waterproof gloves while changing guns, nozzles or undoing high-pressure couplings, as they will all be hot.
- (c) Before uncoupling the HP hose from the burner unit, turn the burner unit off and run cold water through the complete system until the HP hose, guns and HP fittings are cold to the touch

5 Public & Property Safety

- (a) Use protective screening where practical to shield and protect fellow workers, public and property, which are likely to be damaged.
- (b) If working on or above the road ensure that the correct signs are displayed
- (c) Keep an eye out for pedestrians, if necessary stop what you are doing in order to let them past.
- (d) If working adjacent to private property, inform the owners what you are doing and how long you are likely to take

6 Electrical faults

- (a) Isolate any external leads and connections from the power main; where possible elevate all power leads so that they are well clear of site puddles and very damp locations – BEFORE commencing work.
- (b) Watch where you are working - **DO NOT** clean around the power main or power lines.

WATER BLASTING - CHECK SHEET

- 1 Wear face protection, overalls, safety shoes and ear defenders. If using hot water also wear heavy-duty waterproof gloves.**
- 2 Watch out for pedestrians - be prepared to stop work**
- 3 Equipment only to be used by trained staff**
- 4 Always 'load' the system with the high-pressure nozzle disconnected from the gun**
- 5 Make sure pressure is purged from the system before undoing HP fittings**
- 6 Inform residents what you are doing**
- 7 Isolate potential electrical hazards. Never clean around the power main or power lines**