

OHS Guidelines for Recycled Water



Purpose

VicRoads prepared Environmental Guidelines for Using Recycled Water for Road Activities in 2005 to assist VicRoads staff and contractors to understand the requirements for using recycled water and how to develop an Environmental Improvement Plan. The objective of this OHS Guidance Note is to support the Environmental Guidelines by specifically addressing the requirements of Sections 20 to 26 of the Occupational Health and Safety Act 2004.

The risk control measures recommended in this Guidance Note can be used to assist in:

- Completing the OHS information required in preparing Environmental Improvement Plans for the use of recycled water, and
- Preparing the use of recycled water components of Job Risk Assessments.

GUIDANCE FOR CONTROLLING OHS RISKS FOR SPECIFIC TASKS

- A1 On site delivery by water tanker
- A2 Pond storage of recycled water
- A3 Filling water tankers using standpipes
- A4 Dust suppression – water tanker
- A5 Dust suppression – tractor and trailer
- A6 Soil compaction
- A7 Hand testing of soils
- A8 High pressure water jetting to clean structures
- A9 Plant watering – fixed sprinkler
- A10 Plant watering – hand held sprinkler
- A11 Herbicide spraying
- A12 Concrete saw cutting
- A13 Truck washing
- A14 Cement stabilisation
- A15 Core sampling
- A16 Filling and emptying traffic control barriers
- A17 Cleaning bitumen storage tank
- A18 Cleaning bitumen tankers and bitumen sprays
- A19 Operation of water filled roller

A1 On site delivery by water tanker

DESCRIPTION

Recycled water is delivered on site by water tanker. The tanker is filled by the driver using a standpipe at the water source and then transported in a sealed tanker to the construction site. The water is then emptied from the tanker into a storage pond or dam using gravity feed.

PERSONNEL EXPOSED

The drivers of the water tankers are the only personnel exposed to the recycled water in performing this task under normal operating conditions.

Potential skin exposure from splashing. Potential for ingestion from poor hygiene practices.

FREQUENCY OF EXPOSURE

On average, 5 loads per day are carried. Potential exposure for the driver is 10 to 15 minutes while loading and unloading the water. For 5 loads per day, maximum time of direct contact is 2.5 hours per day.

Risk Control Guidance for on site delivery by water tanker

| Class | Plant Operators | Nearby Workers | Visitors | General Public |
|-------|---|--|--|--|
| A | Site induction Provision of Hygiene facilities. | Signage Site induction Provision of hygiene facilities. | Signage Site induction Provision of hygiene facilities. | Signage Site security to prevent unauthorised access. |
| B | Site induction Immunisation Work practices to minimise splashing water. Provision of hygiene facilities. | Signage Site induction Pond compound access restricted to tanker drivers only. Provision of hygiene facilities. | Signage Site induction Pond compound access restricted to tanker drivers only. Provision of hygiene facilities. | Signage Site security to prevent unauthorised access. |
| C | Site induction Immunisation Work practices to minimise splashing water. Work gloves and protective clothing. Provision of hygiene facilities. | Signage Immunisation Site induction Pond compound access restricted to tanker drivers only. Provision of hygiene facilities. | Signage Site induction Pond compound access restricted to tanker drivers only. Provision of hygiene facilities. | Signage Site security to prevent unauthorised access. |

A2 Pond storage of recycled water

DESCRIPTION

Pond compounds are fenced with restricted access to unauthorised personnel. Water is not handled directly in the ponds.

There is a potential hazard associated with algae growth (including blue green algae) if the recycled water is held in the ponds for extended periods.

PERSONNEL EXPOSED

Normally tanker drivers are the only personnel required to access the pond compound. On occasions it may be necessary for other personnel to enter the pond compound to clean up the area or to maintain pumps used to pump water to standpipes.

FREQUENCY OF EXPOSURE

Delivery tanker drivers may unload up to five tanker loads per day. On site tanker drivers may fill their tankers up to eight times per day. Neither group has any need to enter the pond itself.

Risk Control Guidance for pond storage of recycled water

| Class | Plant Operators | Nearby Workers | Visitors | General Public |
|-------|--|--|--|--|
| A | Signage Site induction Minimise storage times to prevent growth of algae in the ponds. Provision of Hygiene facilities. | Signage Site induction Restricted access to pond compound. | Signage Site induction Restricted access to pond compound. | Signage Site security to prevent unauthorised access. |
| B | Site induction Signage Minimise storage times to prevent growth of algae in the ponds. Provision of hygiene facilities. | Signage Site induction Restricted access to pond compound | Signage Site induction Restricted access to pond compound. | Signage Site security to prevent unauthorised access. |
| C | Signage Site induction Minimise storage times to prevent growth of algae in the ponds. Provision of hygiene facilities. | Signage Site induction Restricted access to pond compound. | Signage Site induction Restricted access to pond compound. | Signage Site security to prevent unauthorised access. |

A3 Filling water tankers using standpipes

DESCRIPTION

Recycled water is pumped from the storage pond to the tanker by the driver via a standpipe. The driver is required to enter the pond compound to start and turn off the standpipe pump only. Splashing associated with the filling of the tanker is minimised by having a flexible extension on the standpipe to allow the end of the hose to be inserted inside the tanker while the water is being pumped.

While the pumping is occurring, the driver stands clear of the vehicle and is able to observe the level of water in the tanker by an external level indicator. The driver turns off the standpipe pump before the tank overflows.

PERSONNEL EXPOSED

The tanker drivers are the only personnel exposed to the recycled water in performing this task under normal operating conditions. Potential skin exposure from splashing. Potential for ingestion from poor hygiene practices.

FREQUENCY OF EXPOSURE

On average, 15 fill ups per day are performed. Potential exposure for the driver is approximately 10 minutes while loading and unloading the water. For 15 loads per day, maximum time of direct contact is around 2.5 hours per day.

Risk Control Guidance for filling water tankers using standpipes

| Class | Plant Operators | Nearby Workers | Visitors | General Public |
|-------|---|--|--|--|
| A | Site induction Provision of hygiene facilities. | Signage Site induction Provision of hygiene facilities. | Signage Site induction Provision of hygiene facilities. | Signage Site security to prevent unauthorised access. |
| B | Site induction Immunisation Work practices to minimise splashing of water. Provision of hygiene facilities. | Signage Site induction Maintain required separation distance from tanker being filled. Provision of hygiene facilities. | Signage Site induction Maintain required separation distance from tanker being filled. Provision of hygiene facilities. | Signage Site security to prevent unauthorised access. |
| C | Site induction Immunisation Work practices to minimise splashing of water. Wear gloves and protective clothing. Wear face shield. Provision of hygiene facilities. | Signage Immunisation Site induction Maintain required separation distance from tanker being filled (50m). Provision of hygiene facilities. | Signage Site induction Maintain required separation distance from tanker being filled (100m) Provision of hygiene facilities. | Signage Site security to prevent unauthorised access. |

A4 Dust suppression – water tanker

DESCRIPTION

Water is sprayed from the water tankers by using one of the following methods:

- Pressure bar
- Dribble bar
- Jet spray, either to side or rear of tanker (water sprayed up to 20M in distance from the jets on the tanker)
- Hand spray.

Spray drift is highest when using jet sprays which project water for a distance of approximately 12M. Minimum drift occurs when using the dribble bar.

PERSONNEL EXPOSED

Tanker drivers.

Personnel working nearby.

Visitors in proximity of operating tankers or spray drift area.

Members of the general public in vehicles passing within the spray drift area, living or working within the spray drift area.

FREQUENCY OF EXPOSURE

Tanker drivers can be exposed for the full working shift.

Nearby workers will be exposed to aerosol from spray several times a day.

Visitors will be exposed to aerosol when they are in the vicinity of operating tankers

Motorists, Pedestrians will be exposed to aerosol when they pass in the vicinity of operating tankers.

Motorists, Pedestrians will be exposed to spray drift for the period they are passing within the spray drift area.

Residents and personnel working within the spray drift area will be exposed for the duration of the drift.

Risk Control Guidance for dust suppression using water tankers

| Class | Plant Operators | Nearby Workers | Visitors | General Public |
|-------|---|---|---|--|
| A | Site induction Provision of hygiene facilities. | Signage Site induction Provision of hygiene facilities. | Signage Site induction Provision of hygiene facilities. | Signage Site security to prevent unauthorised access. |
| B | Site induction Immunisation Work practices to minimise splashing of | Signage Site induction Maintain required separation distance from tanker when it is passing | Signage Site induction Maintain required separation distance from tanker when it is passing by (100m unless | Signage Site security to prevent unauthorised access. Tankers to be kept the required separation |

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|---|--|---|--|--|
| | <p>water.</p> <p>Air conditioned vehicles to allow driving with all cabin windows closed.</p> <p>Provision of hygiene facilities.</p> | <p>by (50m unless spray drift controlled) or wear face shield and respirator.</p> <p>Work practices to prevent puddles of water being formed.</p> <p>Provision of hygiene facilities.</p> | <p>spray drift controlled) or wear face shield and respirator.</p> <p>Work practices to prevent puddles of water being formed.</p> <p>Provision of hygiene facilities.</p> | <p>distance (50m unless spray shift controlled) from motorists and pedestrians.</p> |
| C | <p>Site induction</p> <p>Immunisation</p> <p>Work practices to minimise splashing of water.</p> <p>Air conditioned vehicles to allow driving with all cabin windows closed.</p> <p>Wear gloves and protective clothing.</p> <p>Wear face shield.</p> <p>Provision of hygiene facilities.</p> | <p>Signage</p> <p>Immunisation</p> <p>Site induction</p> <p>Maintain required separation distance from tanker when it is passing by (50m unless spray drift controlled) or wear face shield and respirator.</p> <p>Work practices to prevent puddles of water being formed.</p> <p>Provision of hygiene facilities.</p> | <p>Signage</p> <p>Site induction</p> <p>Maintain required separation distance from tanker when it is passing by (100m unless spray drift controlled) or wear face shield and respirator.</p> <p>Work practices to prevent puddles of water being formed.</p> <p>Provision of hygiene facilities.</p> | <p>Signage</p> <p>Site security to prevent unauthorised access.</p> <p>Tankers to be kept the required separation distance (100m unless spray shift controlled) from motorists and pedestrians</p> |

A5 Dust suppression – tractor and trailer

DESCRIPTION

Water is sprayed from the water tank towed by the tractor using a dribble bar or hand spray

PERSONNEL EXPOSED

Tractor drivers

Personnel working nearby

Visitors in proximity of operating spray or spray drift area

Members of the general public in vehicles passing within the spray drift area, living or working within the spray drift area.

FREQUENCY OF EXPOSURE

Tractor drivers can be exposed for the full working shift.

Nearby workers will be exposed to aerosol from spray several times a day.

Motorists, pedestrians will be exposed to aerosol when they pass in the vicinity of operating spray.

Residents and personnel working within the spray drift area will be exposed for the duration of the drift.

Risk Control Guidance for dust suppression using tractor and trailer

| Class | Plant Operators | Nearby Workers | Visitors | General Public |
|-------|--|--|--|---|
| A | Site induction Provision of hygiene facilities. | Signage Site induction Provision of hygiene facilities. | Signage Site induction Provision of hygiene facilities. | Signage Site security to prevent unauthorised access. |
| B | Site induction Immunisation Work practices to minimise splashing of water. Air conditioned vehicles to allow driving with all cabin windows closed. Provision of hygiene facilities. | Signage Site induction Maintain required separation distance from tanker when it is passing by (50m unless spray drift controlled) or wear face shield and respirator. Work practices to prevent puddles of water being formed. Provision of hygiene facilities. | Signage Site induction Maintain required separation distance from tanker when it is passing by (50m unless spray drift controlled) or wear face shield and respirator. Work practices to prevent puddles of water being formed. Provision of hygiene facilities. | Signage Site security to prevent unauthorised access. Tankers to be kept the required separation distance (50m unless spray shift controlled) from motorists and pedestrians. |
| C | Site induction Immunisation | Signage Immunisation | Signage Site induction | Signage Site security to prevent |

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|---|---|---|---|
| <p>Work practices to minimise splashing of water.</p> <p>Air conditioned cabins to allow driving with all windows closed.</p> <p>Wear gloves and protective clothing.</p> <p>Provision of hygiene facilities.</p> | <p>Site induction</p> <p>Maintain required separation distance from tanker when it is passing by (100m unless spray drift controlled) or wear face shield and respirator.</p> <p>Work practices to prevent puddles of water being formed.</p> <p>Provision of hygiene facilities.</p> | <p>Maintain required separation distance from tanker when it is passing by (100m unless spray drift controlled) or wear face shield and respirator.</p> <p>Work practices to prevent puddles of water being formed.</p> <p>Provision of hygiene facilities.</p> | <p>unauthorised access.</p> <p>Tankers to be kept the required separation distance (100m unless spray drift controlled) from motorists and pedestrians.</p> |
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A6 Soil Compaction

DESCRIPTION

Soil compaction is performed by rollers manned by the roller operators. There can be multiple rollers in operation at any site. Dust inhalation of soils wetted down with recycled water presents the major risk.

PERSONNEL EXPOSED

Plant operators, personnel working nearby and visitors on site may be exposed to dusts generated from contaminated soil previously wetted down with recycled water. Motorists, pedestrians and nearby residents may also be exposed if sufficient dust is generated during roller operation.

FREQUENCY OF EXPOSURE

Plant Operators are continuously exposed. Personnel working nearby and visitors in the vicinity of operating plant may be exposed to any dust generated as operating plant passes by.

Members of the public may be exposed for the period of roller operation if wind carries generated dust in their direction.

Risk Control Guidance for soil compaction

| Class | Plant Operators | Nearby Workers | Visitors | General Public |
|-------|---|--|---|---|
| A | <p>Site induction</p> <p>Provision of hygiene facilities.</p> | <p>Signage</p> <p>Site induction</p> <p>Provision of hygiene facilities.</p> | <p>Signage</p> <p>Site induction</p> <p>Provision of hygiene facilities.</p> | <p>Signage</p> <p>Site security to prevent unauthorised access.</p> |
| B | <p>Site induction</p> <p>Immunisation</p> <p>Work practices – wetting down soil to minimise</p> | <p>Signage</p> <p>Site induction</p> <p>Work practices – wetting down soil to minimise</p> | <p>Signage</p> <p>Site induction</p> <p>Work practices – wetting down soil to minimise dust</p> | <p>Signage</p> <p>Site security to prevent unauthorised access.</p> <p>Work practices – wetting</p> |

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|---|---|--|--|---|
| | dust generation. Provision of hygiene facilities. | dust generation. Provision of hygiene facilities. | generation. Provision of hygiene facilities. | down soil to minimise dust generation. |
| C | Site induction Immunisation Work practices – wetting down soil to minimise dust generation. Provision of hygiene facilities. | Signage Immunisation Work practices – wetting down soil to minimise dust generation. Provision of hygiene facilities. | Signage Site induction Work practices – wetting down soil to minimise dust generation. Provision of hygiene facilities. | Signage Site security to prevent unauthorised access. Work practices – wetting down soil to minimise dust generation. |

A7 Hand testing of soils

DESCRIPTION

To assess the soil for suitability for compacting, common practice is to pick up a sample of the soil and squeeze it with the fingers. Only small amounts of soil are sampled at any one time.

PERSONNEL EXPOSED

The person conducting the soil assessment is the only person exposed to the soil. As the soil is normally moist before testing, skin contact and accidental ingestion are the only likely means of exposure.

FREQUENCY OF EXPOSURE

This test is not performed for extended periods or by a large number of personnel.

Risk Control Guidance for hand testing of soils

| Class | Plant Operators | Nearby Workers | Visitors | General Public |
|-------|---|-----------------------|-----------------------|-----------------------|
| A | Site induction Provision of hygiene facilities. | No controls required. | No controls required. | No controls required. |
| B | Site induction Immunisation Wear gloves Provision of hygiene facilities. | No controls required. | No controls required. | No controls required. |
| C | Site induction Immunisation Wear gloves Provision of hygiene facilities. | No controls required. | No controls required. | No controls required. |

A8 High Pressure water jetting to clean structures

DESCRIPTION

Ultra – high pressure water jetting (to 2500 bar) is used to clean steel and concrete surfaces. This can be to remove epoxy bitumen or paint, or for surface retexturing of spray seals.

Lower pressure (up to 70 bar) water cleaning is also performed for surface retexturing of spray seals.

These procedures generate significant mist which can be inhaled by any person exposed to the spray drift. In addition spray operators can be exposed to skin contact with the water used when making contact with damp surfaces or leaking hose fittings.

PERSONNEL EXPOSED

Spray operators

Nearby workers

Site visitors

General public – pedestrians, motorists and local residents downwind of spray operation.

FREQUENCY OF EXPOSURE

Exposure can be for extended periods, up to a full shift if the job is big enough.

Risk Control Guidance for high pressure water jetting to clean structures

| Class | Plant Operators | Nearby Workers | Visitors | General Public |
|-------|--|---|---|---|
| A | Site induction Provision of hygiene facilities. | Signage Site induction Provision of hygiene facilities. | Signage Site induction Provision of hygiene facilities. | Signage Site security to prevent unauthorised access. |
| B | Site induction Immunisation Work practices to minimise splashing of water. Wear gloves, face shield and respirator. Provision of hygiene facilities. | Signage Site induction Maintain required separation distance from spray (50m) or wear face shield and respirator. Work upwind of spray where possible. Provision of hygiene facilities. | Signage Site induction Maintain required separation distance from spray (50m) or wear face shield and respirator. Work upwind of spray where possible. Provision of hygiene facilities. | Signage Site security to prevent unauthorised access. Work to be performed downwind of public access or public restricted to 50m from worksite. |
| C | Site induction Immunisation Work practices – wetting down soil to minimise | Signage Immunisation Work practices – wetting down soil to minimise | Signage Site induction Work practices – wetting down soil to minimise dust | Signage Site security to prevent unauthorised access. Work to be performed downwind of public access |

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|--|--|--|---|---|
| | dust generation. Provision of hygiene facilities. | dust generation. Provision of hygiene facilities. | generation. Provision of hygiene facilities. | or public restricted to 100m from worksite. |
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A9 Plant watering – fixed sprinkler

DESCRIPTION

Trees and lawns at depots are watered using fixed sprinkler systems. This watering is normally performed at night when the depot is not occupied.

PERSONNEL EXPOSED

No depot personnel are exposed as watering is performed at night.

Members of the public may be exposed if they are passing operating sprinklers or they make contact with puddles after watering has stopped.

FREQUENCY OF EXPOSURE

Exposure will be infrequent as watering is not performed on a regular basis.

Risk Control Guidance for plant watering using fixed sprinklers

| Class | Plant Operators | Nearby Workers | Visitors | General Public |
|-------|-----------------|----------------|----------------|--|
| A | Not applicable | Not applicable | Not applicable | Signage Site security to prevent unauthorised access. |
| B | Not applicable | Not applicable | Not applicable | Signage Site security to prevent unauthorised access. Restrict public access for 4 hours after watering. |
| C | Not applicable | Not applicable | Not applicable | Signage Site security to prevent unauthorised access. Restrict public access for 4 hours after watering. |

A10 Plant watering – hand held sprinkler

DESCRIPTION

Trees and shrubs at depots are watered using hand held hoses fitted with a spray head.

PERSONNEL EXPOSED

The person holding the hose and nearby depot personnel. Exposure could be by skin contact, inhalation or accidental ingestion.

Members of the public may be exposed if they are passing while the manual watering is being performed. Exposure could be by inhalation or contact with puddles formed after watering.

FREQUENCY OF EXPOSURE

Exposure will be infrequent as watering is not performed on a regular basis.

Risk Control Guidance for plant watering using a hand held sprinkler

| Class | Plant Operators | Nearby Workers | Visitors | General Public |
|-------|--|--|--|--|
| A | Site induction Provision of hygiene facilities. | Signage Site induction Provision of hygiene facilities. | Signage Site induction Provision of hygiene facilities. | Signage Site security to prevent unauthorised access. |
| B | Site induction Immunisation Work practices to minimise splashing of water. Wear gloves, face shield and respirator. Provision of hygiene facilities. | Signage Site induction Work practices to minimise splashing of water and to prevent puddles of water being formed. Provision of hygiene facilities. | Signage Site induction Work practices to minimise splashing of water and to prevent puddles of water being formed. Provision of hygiene facilities. | Signage Site security to prevent unauthorised access or conduct after hours watering. |
| C | Site induction Immunisation Work practices to minimise splashing of water. Wear gloves, face shield and respirator. Provision of hygiene facilities. | Signage Site induction Immunisation Work practices to minimise splashing of water and to prevent puddles of water being formed. Provision of hygiene facilities. | Signage Site induction Work practices to minimise splashing of water and to prevent puddles of water being formed. Provision of hygiene facilities. | Signage Site security to prevent unauthorised access or conduct after hours watering. |

A11 Herbicide spraying

DESCRIPTION

Roadside herbicide spraying is conducted by using a spray unit installed on the back of a truck or utility. The herbicide is sprayed with a lance. Spraying is conducted on the edge of roadways with passing motorists and pedestrian traffic.

The person performing the herbicide spraying already wears substantial PPE to control hazards associated with the herbicide used.

PERSONNEL EXPOSED

The person operating the spray unit – potentially exposed to splashing and aerosols.

Person driving the vehicle – potentially exposed to aerosols from spray drift.

Members of the public in the near vicinity – potentially exposed to aerosols from spray drift

FREQUENCY OF EXPOSURE

There are normally two persons exposed for periods of up to six hours per day, the vehicle driver and the person operating the lance.

Motorists will only have brief potential exposure period as they drive past.

Pedestrians may be exposed for a few minutes exposure as they walk past.

Risk Control Guidance for herbicide spraying

| Class | Plant Operators | Nearby Workers | Visitors | General Public |
|-------|---|--|----------------|--|
| A | Site induction Provision of hygiene facilities. | Signage Site induction Provision of hygiene facilities. | Not applicable | Signage Site security to prevent unauthorised access. |
| B | Site induction Immunisation Work practices to minimise splashing of water. Wear gloves, face shield and P2 respirator. Provision of hygiene facilities. | Signage Site induction Maintain required separation distance from spray (50m unless spray drift controlled) or wear face shield and P2 respirator. Work upwind of spray where possible. Provision of hygiene facilities. | Not applicable | Signage Site security to prevent unauthorised access. Work to be performed downwind of public access or public restricted to 50m unless spray drift controlled from work site. |
| C | Site induction Immunisation Work practices to minimise splashing of | Signage Site induction Immunisation | Not applicable | Signage Work to be performed downwind of public access or public restricted to 100m |

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| | <p>water.</p> <p>Wear gloves, face shield and respirator.</p> <p>Provision of hygiene facilities.</p> | <p>Work practices to minimise splashing of water and to prevent puddles of water being formed.</p> <p>Provision of hygiene facilities.</p> | | <p>unless spray drift controlled from work site.</p> |
|--|---|--|--|--|

A12 Concrete saw cutting

DESCRIPTION

Water is used for dust suppression when operating concrete cutting and demolition saws. This water is required to help minimise generation of hazardous concrete dust. Water is provided on site by filling a water tank (Furphy or equivalent) at the Depot and connecting this tank to the saw using normal hose fittings.

Saw operators are normally wearing PPE to control hazards associated with silica dusts while cutting concrete.

PERSONNEL EXPOSED

Normally there are 2 to 3 persons in crews performing this task. These persons are potentially exposed to splashing and spray drift when cutting is being performed. Potential exposure routes are skin and inhalation. There is generally some splash back of water during the cutting process.

Members of the public nearby may be exposed to aerosols generated during the concrete cutting.

FREQUENCY OF EXPOSURE

Depending upon the task being performed, exposure period to recycled water can be up to a full shift.

Risk Control Guidance for concrete saw cutting

| Class | Plant Operators | Nearby Workers | Visitors | General Public |
|-------|---|--|----------------|--|
| A | <p>Site induction</p> <p>Provision of hygiene facilities.</p> | <p>Signage</p> <p>Site induction</p> <p>Provision of hygiene facilities.</p> | Not applicable | Signage |
| B | <p>Site induction</p> <p>Immunisation</p> <p>Work practices to minimise splashing of water.</p> <p>Wear gloves, face shield and respirator.</p> <p>Provision of hygiene facilities.</p> | <p>Signage</p> <p>Site induction</p> <p>Maintain required separation distance from spray (50m unless spray drift controlled) or wear face shield and respirator.</p> <p>Provision of hygiene facilities.</p> | Not applicable | <p>Signage</p> <p>Maintain required separation distance from spray (50m unless spray drift controlled)</p> |

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| | | facilities. | | |
| C | Site induction Immunisation Work practices to minimise splashing of water. Wear gloves, face shield and respirator. Provision of hygiene facilities. | Signage Site induction Immunisation Maintain required separation distance from spray (100m unless spray drift controlled) or wear face shield and respirator. Provision of hygiene facilities. | Not applicable | Signage Maintain required separation distance from spray (50m unless spray drift controlled) |

NOTE:

In instances where water run off cannot be fully contained when performing this task, only reclaimed water that is very low in nutrient content (e.g. tank water and bore water) can be considered for use. Refer to the VicRoads Environmental Guidelines Using Recycled Water for Road Activities, 2006.

A13 Truck washing

DESCRIPTION

Trucks are washed (when permitted) by hosing down with high pressure water sprays which generate aerosols in a designated truck washing bay.

PERSONNEL EXPOSED

The person operating the high pressure water spray and any nearby personnel are potentially exposed.

The high pressure water spray operator is exposed to splashing and aerosols – potential skin contact, inhalation and accidental ingestion.

Personnel nearby are potentially exposed to spray drift.

Nearby residents are also potentially exposed to spray drift when downwind of the wash area.

FREQUENCY OF EXPOSURE

Person operating the high pressure water spray is potentially exposed for 10 minutes every day.

Risk Control Guidance for truck washing

| Class | Plant Operators | Nearby Workers | Visitors | General Public |
|-------|--|---|---|--|
| A | Site induction Provision of hygiene facilities. | Signage Site induction Provision of hygiene | Signage Site induction Provision of hygiene | Signage Site security to prevent unauthorised access. |

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| | | facilities. | facilities. | |
| B | <p>Site induction</p> <p>Immunisation</p> <p>Wear gloves, face shield and respirator.</p> <p>Provision of hygiene facilities.</p> | <p>Signage</p> <p>Site induction</p> <p>Immunisation</p> <p>Maintain required separation distance from spray (50m unless spray drift controlled) or wear face shield and respirator.</p> <p>Provision of hygiene facilities.</p> | <p>Signage</p> <p>Site induction</p> <p>Maintain required separation distance from spray (50m unless spray drift controlled) or wear face shield and respirator.</p> <p>Provision of hygiene facilities.</p> | <p>Signage</p> <p>Site security to prevent unauthorised access.</p> <p>Enclose wash area to prevent spray drift.</p> |
| C | <p>Site induction</p> <p>Immunisation</p> <p>Wear gloves, face shield and respirator.</p> <p>Provision of hygiene facilities.</p> | <p>Signage</p> <p>Site induction</p> <p>Immunisation</p> <p>Maintain required separation distance from spray (100m unless spray drift controlled) or wear face shield and respirator.</p> <p>Provision of hygiene facilities.</p> | <p>Signage</p> <p>Site induction</p> <p>Maintain required separation distance from spray (100m unless spray drift controlled) or wear face shield and respirator.</p> <p>Provision of hygiene facilities.</p> | <p>Signage</p> <p>Site security to prevent unauthorised access.</p> <p>Enclose wash area to prevent spray drift.</p> |

A14 Cement stabilisation

DESCRIPTION

Cement stabilisation is a procedure where crushed rock is placed in position, wet down with water and then cement is added and then allowed to set.

The water is normally hosed onto the crushed rock.

PERSONNEL EXPOSED

Persons operating the hose, personnel standing nearby and members of the public passing by the work area.

Persons operating the hose are exposed to potential splashing, accidental ingestion and inhalation of aerosols.

Persons standing nearby are potentially exposed to aerosols generated by water splashing on the crushed rock.

FREQUENCY OF EXPOSURE

Exposure varies according to the area requiring stabilisation, but could be several hours at a time. The task is not performed regularly.

Risk Control Guidance for cement stabilisation

| Class | Plant Operators | Nearby Workers | Visitors | General Public |
|-------|---|--|--|---|
| A | <p>Site induction</p> <p>Provision of hygiene facilities.</p> | <p>Signage</p> <p>Site induction</p> <p>Provision of hygiene facilities.</p> | <p>Signage</p> <p>Site induction</p> <p>Provision of hygiene facilities.</p> | <p>Signage</p> <p>Site security to prevent unauthorised access.</p> |
| B | <p>Site induction</p> <p>Immunisation</p> <p>Work practices to minimise splashing of water.</p> <p>Wear gloves, face shield and respirator.</p> <p>Provision of hygiene facilities.</p> | <p>Signage</p> <p>Site induction</p> <p>Work practices to minimise splashing of water.</p> <p>Wear face shield and respirator or keep 50m away from wetting down operations unless drift controlled.</p> <p>Provision of hygiene facilities.</p> | <p>Signage</p> <p>Site induction</p> <p>Work practices to minimise splashing of water.</p> <p>Keep visitors 50m from the wetting down operation unless spray drift controlled.</p> <p>Provision of hygiene facilities.</p> | <p>Signage</p> <p>Site security to prevent unauthorised access.</p> <p>Keep members of the public 50m away from the wetting down operation unless spray drift controlled.</p> |
| C | <p>Site induction</p> <p>Immunisation</p> <p>Work practices to minimise splashing of water.</p> <p>Wear gloves, face shield and respirator.</p> <p>Provision of hygiene facilities.</p> | <p>Signage</p> <p>Site induction</p> <p>Immunisation</p> <p>Work practices to minimise splashing of water.</p> <p>Wear respirator or face shield or keep 100m away from wetting down operation.</p> <p>Provision of hygiene facilities.</p> | <p>Signage</p> <p>Site induction</p> <p>Work practices to minimise splashing of water.</p> <p>Wear respirator or face shield or keep 100m away from wetting down operation.</p> <p>Provision of hygiene facilities.</p> | <p>Signage</p> <p>Site security to prevent unauthorised access.</p> <p>Keep members of the public 50m away from the wetting down operation unless spray drift controlled.</p> |

A15 Core sampling

Similar procedure and risks to Appendix A12, Concrete Saw Cutting

NOTE:

In instances where water run off cannot be fully contained when performing this task, only reclaimed water that is very low in nutrient content (e.g. tank water and bore water) can be considered for use. Refer to the VicRoads Environmental Guidelines Using Recycled Water for Road Activities, 2006.

A16 Filling and emptying plastic traffic control barriers

DESCRIPTION

Plastic traffic control barriers are placed in position while empty and then filled with water once in position to weigh them down and make them an effective traffic control barrier.

When the barriers are no longer required at this site the water is drained from them before they are removed. Please note there will be environmental considerations for the draining of recycled water from plastic traffic control barriers.

Water is supplied from water tanker when direct supply is not available.

PERSONNEL EXPOSED

Personnel performing the filling and emptying of the barriers are exposed to potential splashing while filling the barriers.

Aerosol generation while performing this task is likely to be minimal and can be eliminated with good work practices whereby hoses are inserted inside the plastic barriers during filling.

There is still some potential for splashing and accidental ingestion for personnel handling the hose.

With the draining of the plastic barriers, personnel on site and the public may come in contact with puddles formed presenting a skin and accidental ingestion risk.

FREQUENCY OF EXPOSURE

Exposure time varies considerable with the number of barriers to be filled and emptied. No definitive time was given.

Similarly, the frequency of filling and emptying varies with the task being performed. It may be every few days, or weeks apart.

Risk Control Guidance for filling and emptying traffic control barriers

| Class | Plant Operators | Nearby Workers | Visitors | General Public |
|-------|--|---|---|--|
| A | Site induction Provision of hygiene facilities. | Signage Site induction Provision of hygiene facilities. | Signage Site induction Provision of hygiene facilities. | Signage Site security to prevent unauthorised access. |

| | | | | |
|---|---|--|--|---|
| B | <p>Site induction</p> <p>Immunisation</p> <p>Work practices to minimise splashing of water.</p> <p>Provision of hygiene facilities.</p> | <p>Signage</p> <p>Site induction</p> <p>Provision of hygiene facilities.</p> | <p>Signage</p> <p>Site induction</p> <p>Provision of hygiene facilities.</p> | <p>Signage</p> <p>Maintain required separation (50m unless spray drift controlled) distance from barriers being filled or emptied (until puddles have dried up).</p> |
| C | <p>Site induction</p> <p>Immunisation</p> <p>Work practices to minimise splashing of water.</p> <p>Wear gloves and protective clothing.</p> <p>Provision of hygiene facilities.</p> | <p>Signage</p> <p>Site induction</p> <p>Immunisation</p> <p>Provision of hygiene facilities.</p> | <p>Signage</p> <p>Site induction</p> <p>Provision of hygiene facilities.</p> | <p>Signage</p> <p>Maintain required separation (100m unless spray drift controlled) distance from barriers being filled or emptied (until puddles have dried up).</p> |

A17 Cleaning bitumen storage tanks

DESCRIPTION

Bitumen storage tanks used for bulk storage at depots, and the tanks on bitumen tankers require cleaning on an infrequent basis.

The remaining bitumen inside the tank is softened by filling the tank with water to between 10 to 20% of its capacity. The tank is then heated to keep the water temperature above 90oC for a period of two days. The tank is then drained, allowed to cool so that personnel can enter the tank to clean out the remaining bitumen. The water drained from the tank is transported off site by tanker.

Confined space entry procedures apply to all tank entries.

The effects of extended heating of the water on microbiological contaminant concentration of this water are unknown as it cannot be assumed that the high temperatures will reduce the level of contaminants.

PERSONNEL EXPOSED

Personnel directly involved are the persons filling and draining the tank, the persons entering the tank, and the persons acting as support crew for the confined space entry.

Other personnel working nearby and site visitors can be kept clear of the vicinity of the tank while the work on the tank is being performed.

Security at depots where this work is being performed can be used to prevent unauthorised public access to the work area.

FREQUENCY OF EXPOSURE

Tanks are normally cleaned at 2 yearly intervals.

Risk Control Guidance for cleaning bitumen storage tanks

These controls are in addition to the control measures required for confined space entry and direct contact with bitumen.

| Class | Plant Operators | Nearby Workers | Visitors | General Public |
|-------|---|--|--|--|
| A | Site induction Immunisation Provision of hygiene facilities. Wear respirator | Signage Site induction Provision of hygiene facilities. | Signage Site induction Keep clear of work zone Provision of hygiene facilities. | Signage Site security to prevent unauthorised access. |
| B | Site induction Immunisation Work practices to minimise splashing of water. Provision of hygiene facilities. | Signage Site induction Wear respirator Provision of hygiene facilities. | Signage Site induction Keep clear of work zone Provision of hygiene facilities. | Signage Site security to prevent unauthorised access. |
| C | Site induction Immunisation Work practices to minimise splashing of water. Wear gloves and protective clothing. Wear face shield. Provision of hygiene facilities. | Signage Site induction Immunisation Wear respirator Provision of hygiene facilities. | Signage Site induction Keep clear of work zone Provision of hygiene facilities. | Signage Site security to prevent unauthorised access. |

For recommended control measures for filling of tank and draining tank refer to Appendix A3 Filling water tankers using standpipes.

A18 Cleaning bitumen tankers and bitumen sprays

DESCRIPTION

Bitumen tankers become covered in bitumen with use and when they return to the depot a high pressure gurney is used to clean the truck and the bitumen sprayers.

There are two methods that are used:

Mixing the water with detergent (hydrocarbon or citrus based) to remove the bitumen,

Using a steam cleaner (the preferred method).

PERSONNEL EXPOSED

The person cleaning the tanker is directly exposed to splashing, aerosols and potential accidental ingestion.

Personnel nearby are potentially exposed aerosols from the spray drift.

Nearby residents are also potentially exposed to spray drift from the high pressure cleaning.

FREQUENCY OF EXPOSURE

Cleaning is normally performed weekly and takes up to three hours to perform.

Risk Control Guidance for tankers and bitumen sprays

| Class | Plant Operators | Nearby Workers | Visitors | General Public |
|-------|---|--|---|---|
| A | Site induction Provision of hygiene facilities. | Signage Site induction Provision of hygiene facilities. | Signage Site induction Provision of hygiene facilities. | Signage Site security to prevent unauthorised access. |
| B | Site induction Immunisation Wear gloves, face shield and P2 respirator. Provision of hygiene facilities. | Signage Site induction Maintain required separation distance from spray (50m) or wear face shield and P2 respirator. Provision of hygiene facilities. | Signage Site induction Maintain required separation distance from spray (50m) or wear face shield and P2 respirator. Provision of hygiene facilities. | Signage Site security to prevent unauthorised access. Enclose wash area to prevent spray drift. |
| C | Site induction Immunisation Wear gloves, face shield and P2 respirator. Provision of hygiene facilities. | Signage Site induction Immunisation Maintain required separation distance from spray (100m) or wear face shield and P2 respirator. | Signage Site induction Maintain required separation distance from spray (100m) or wear face shield and P2 respirator. Provision of hygiene facilities. | Signage Site security to prevent unauthorised access. Enclose area to prevent spray drift. |

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|--|--|----------------------------------|--|--|
| | | Provision of hygiene facilities. | | |
|--|--|----------------------------------|--|--|

A19 Water filled roller

DESCRIPTION

Soil compaction is performed by rollers with water located inside the roller drum which feeds water out on to the road as it rolls along. There can be multiple rollers in operation at any site. There may be some splashing of water when filling the roller or when the roller is operating. The amount of splashing when roller is operating is minimal and personnel other than the operator should not be at significant risk if they keep the required distance from operating plant.

PERSONNEL EXPOSED

Plant operators, personnel working nearby and visitors nearby on site may be exposed to water when the roller is being filled or when it is operating on the road. Motorists, pedestrians and nearby residents may also be exposed if they are near the roller in operation.

FREQUENCY OF EXPOSURE

Plant Operators are continuously exposed. Personnel working nearby and visitors in the vicinity of operating plant may be exposed to water as operating plant passes by.

Members of the public may be exposed if they are near the roller in operation.

Risk Control Guidance for operation of water filled roller

| Class | Plant Operators | Nearby Workers | Visitors | General Public |
|-------|--|--|--|---|
| A | Site induction Provision of hygiene facilities. | Signage Site induction Provision of hygiene facilities. | Signage Site induction Provision of hygiene facilities. | Signage Site security to prevent unauthorised access. |
| B | Site induction Immunisation Wear face shields and gloves while refilling drum. Provision of hygiene facilities. | Signage Site induction Keep clear of operating roller. Provision of hygiene facilities. | Signage Site induction Keep clear of operating roller. Provision of hygiene facilities. | Signage Site security to prevent unauthorised access. Enclose wash area to prevent spray drift. |
| C | Site induction Immunisation Wear face shields and gloves while refilling | Signage Site induction Immunisation Keep clear of operating | Signage Site induction Keep clear of operating roller. | Signage Site security to prevent unauthorised access. Enclose area to prevent |

| | | | | |
|--|---|--|----------------------------------|--------------|
| | drum. Provision of hygiene facilities. | roller Provision of hygiene facilities. | Provision of hygiene facilities. | spray drift. |
|--|---|--|----------------------------------|--------------|