Public Works
NSW Water Solutions

# TUMBARUMBA SEWERAGE SCHEME

# POLLUTION INCIDENT RESPONSE MANAGEMENT PLAN

August 2016

Snowy Valleys Council

*A division of the Department of Finance & Services*

Document Control

| Version | Author | Reviewer | Approved for Issue | |
|---|---|---|---|---|
| | | | Name | Date |
| Draft v1 | G. Dong | L. Greentree | K. Fernando | 04.12.2012 |
| Final | G. Dong | L. Greentree | K. Fernando | 11.12.2012 |
| Draft | B Douglas | R Mitchell | R Mitchell | |
| Final | B Douglas | L. Pandey | R Mitchell | August 2016 |
| Update | L.Pandey | | | 21/09/2017 |
| Update | E.Greig | E.Greig | | 13/11/2018 |
| Update | L.Pandey | L.Pandey | | 30/07/2019 |
| Update | Lpandey | Q Adams | Q Adams | 3/09/2020 |
| Update | Lpandey | Q Adams | Q Adams | 5/10/2021 |
| Update | Lpandey | Q Adams | Q Adams | 31//10/2022 |
| Update | Lpandey | Q Adams | Q Adams | 8/12/2022 |
| Update | Lpandey | Q Adams | Q Adams | 19/04/2023 |
| Update | Lpandey | Q Adams | Q Adams | 30/06/2023 |
| Update | Lpandey | Q Adams | Q Adams | 20/05/2024 |

**POLLUTION INCIDENT RESPONSE MANAGEMENT PLAN (PIRMP)**

**LICENCE NUMBER: 448**

Approved by: Quentin Adams

Position/Title: Manager Utilities & Waste Business  Signature: 

Date: 20/05/2024

PURPOSE:

Snowy Valleys Council holds an Environment Protection Licence with the NSW Environment Protection Authority (EPA) for Tumbarumba Wastewater Treatment Plant. As per the Protection of the Environment Operations Act 1997 (the POEO Act), the holder of an Environment Protection Licence must prepare, keep, test and implement a pollution incident response management plan (PIRMP) that complies with Part 5.7A of the POEO Act in relation to the activity to which the licence relates.

If a pollution incident occurs in the course of an activity so that material harm to the environment (within the meaning of section 147 of the POEO Act) is caused or threatened, the person carrying out the activity must immediately implement this plan in relation to the activity required by Part 5.7A of the POEO Act.

The objectives of the plan are to:

- communicate in a timely manner and with sufficient detail about a pollution incident to relevant authorities and people outside the facilities who may be affected by the impacts of the pollution incident;
- minimise and control the risk of any pollution incident occurring at the facilities by requiring identification of risks and the development of planned actions to minimise and manage those risks; and
- ensure that the plan is properly implemented by trained staff, identifying persons responsible for implementing it, and ensuring that the plan is regularly tested for accuracy, currency and suitability.

A copy of this plan will be kept at the licensed premises, or where the activity takes place in the case of mobile plant licences and be made available on request by an authorised EPA officer and to any person who is responsible for implementing this plan.

Parts of the plan will also be made available on Council's publicly accessible website http://www.snowyvalleys.nsw.gov.au

This management plan is to be continually updated and reviewed by Laxmi Pandey, Water/Wastewater Engineer, Snowy Valleys Council.

# Foreword

This Pollution Incident Response Management Plan (PIRMP) for the Tumbarumba Sewerage Scheme is a document that has been developed for Snowy Valleys Council (SVC) use in the operation and management of incidents at the Tumbarumba Sewage Treatment Plant (STP) and its sewerage collection system. The purpose of this plan is to ensure that, where possible, pollution incidents are avoided but if they do occur they are managed appropriately to minimise the effects on the environment and to human health.

This PIRMP addresses the requirements under the *Protection of the Environment Legislation Amendment Act* (POELAA) 2011.

The objectives of the plan are to:

- communicate in a timely manner and with sufficient detail about a pollution incident to relevant authorities and people outside the facilities who may be affected by the impacts of the pollution incident;
- minimise and control the risk of any pollution incident occurring at the facilities by requiring identification of risks and the development of planned actions to minimise and manage those risks; and
- ensure that the plan is properly implemented by trained staff, identifying persons responsible for implementing it, and ensuring that the plan is regularly tested for accuracy, currency and suitability.

A copy of this plan will be kept at the licensed premises and be made available on request by an authorised EPA officer and to any person who is responsible for implementing this plan.

Parts of the plan will also be made available on Council's publicly accessible website http://www.snowyvalleys.nsw.gov.au

This management plan is to be continually updated and reviewed by Laxmi Pandey, Water & Wastewater Engineer, Snowy Valleys Council.

INTENTIONAL BLANK PAGE

# Contents

## Figures



## Tables

# Abbreviations

| Abbreviation | Description |
|---|---|
| % | Percent |
| ABS | Australian Bureau of Statistics |
| ADWF | average dry weather flow |
| Ave. | Average |
| $BOD_5$ | (5 day) biochemical oxygen demand |
| d | day |
| DFS | (NSW) Department of Finance and Services |
| EP | equivalent person or equivalent population |
| EPL | Environment Protection Licence |
| g | grams |
| hr | hours |
| IDEA | Intermittent Decanted Extended Aeration |
| kg | kilogram |
| kg/d | kilogram per day |
| kg/h | kilogram per hour |
| kL | Kilolitres |
| kL/d | kilolitres per day |
| L | Litre |
| L/EP/d | litres per EP per day |
| L/s | litres per second |
| m | metres |
| max. | maximum |
| mg/L | milligrams per litre |
| min. | minimum |
| mins | minutes |
| mL | millilitre |
| mm | millimetres |
| MSDS | material safety data sheet |
| N | Nitrogen |
| NATA | National Association of Testing Authority (Australia) |
| $NH_3$ | ammonia |
| $NH_3$-N | ammonia nitrogen |
| $NO_x$ | nitrites and nitrates (oxidised nitrogen) |
| NSW EPA | New South Wales Environment Protection Agency |
| O&G | oil and grease |
| Ortho-P | orthophosphates |
| pH | unit of measure of hydrogen ion activity in solutions |
| PIRMP | Pollution Incident Response Management Plan |
| POELAA | Protection of Environment Legislation Amendment Act |
| POEO | Pollution of Environment Operations (Act) |
| PPE | personal protective equipment |
| SPS | sewage pumping station |
| SCADA | Supervisory Control and Data Acquisition System |
| SS | suspended solids |
| STP | sewage treatment plant |
| TN | total nitrogen |
| TP | total phosphorus |
| TSS | total suspended solids |

# 1 Introduction

Tumbarumba is situated on the western side of the Snowy Mountains in New South Wales. The township of Tumbarumba is located about 480 km southwest of Sydney. The 2011 Censes has Tumbarumba with a population of approximately 1,457 people.

Tumbarumba is in the Snowy Valleys Council Local Government Area. Snowy Valleys Council owns, operates and manages the Tumbarumba Sewerage Scheme that comprises three sewage pumping stations that transfer sewage from three minor catchment areas to the conventional gravity sewer system that services most of the town and a sewage treatment plant (STP) that was constructed in 1015/16.

## 1.1 Sewage Treatment Plant and Collection System

The Tumbarumba sewage collection system comprises the following:

- Three (3) sewage transfer pump stations; Hyne Mill SPS, Snow View Estate SPS, and Chaffey Close SPS, and
- Associated rising mains.

The Tumbarumba STP was replaced with a modern STP in 2015/16 and comprises the following treatment/process units:

- an inlet work comprises of an inlet lift pumping station, mechanical spiral sieve screening, grit removal system and flume for flow measurement equipment ;
- an intermittently decanted extended aeration (IDEA) tank;
- two sludge storage tanks, a mixer and a pump station;
- a containerised sludge dewatering machine;
- a balance tank with duty and standby pumps and a high level overflow;
- a UV disinfection system;
- an onsite reuse system;
- a concrete lined storm detention pond;
- an amenities building
- an electrical and a blower room; and
- associated site services, i.e. water supply, drainage, lighting and roadworks.

Sewage is pumped to the main Tumbarumba gravity sewer system via the three sewage pumping stations, and then flows to the STP inlet lift pump station by gravity. The sewage is lifted by the inlet lift pump station to the inlet works for preliminary treatment (screening and degritting) then it is transferred by gravity to the IDEA for secondary treatment. The decanted effluent from the IDEA is conveyed to the balance tank then pumped through the UV disinfection system. Final effluent from the UV system is discharged to Tumbarumba Creek by gravity. High storm inflows are diverted to the lined storm detention pond via the overflow in the inlet lift pump station or from the overflow chamber located at the outlet chamber of the inlet works, and later pumped back to the inlet works in dry weather conditions via the wastewater pump station.

The layout of the treatment facilities at the existing STP site is depicted in ***Figure 1.1***.

**Figures 1.1** and **1.2** indicate the locations of receiving waters relative to the STP and the pumping stations.

The STP and its collection system operate under Environmental Protection Licence (EPL) No. 448 granted by the NSW Environment Protection Authority (EPA). The licence is renewed annually.

## 1.2 Scope of the PIRMP

The scope of the plan is as follows:

- Description and likelihood of hazards;
- Pre-emptive actions to be taken;
- Inventory of pollutants;
- Safety equipment;
- Contact details;
- Guidance for communicating with neighbours and the local community;
- Minimising harm to persons on the premises;
- Maps showing the location of scheme components;
- Guidance on the actions to be taken during or immediately after a pollution incident; and
- A record for staff and for staff training.

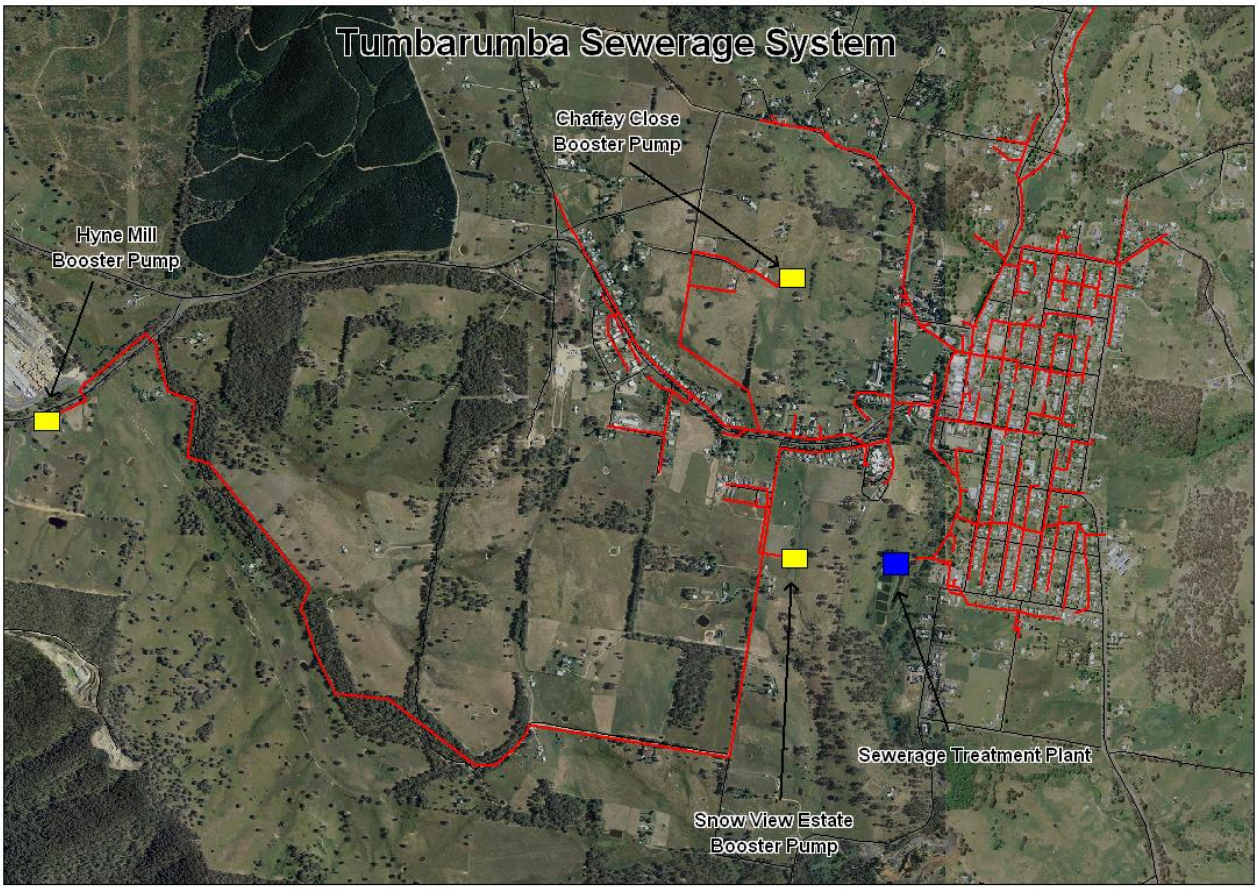
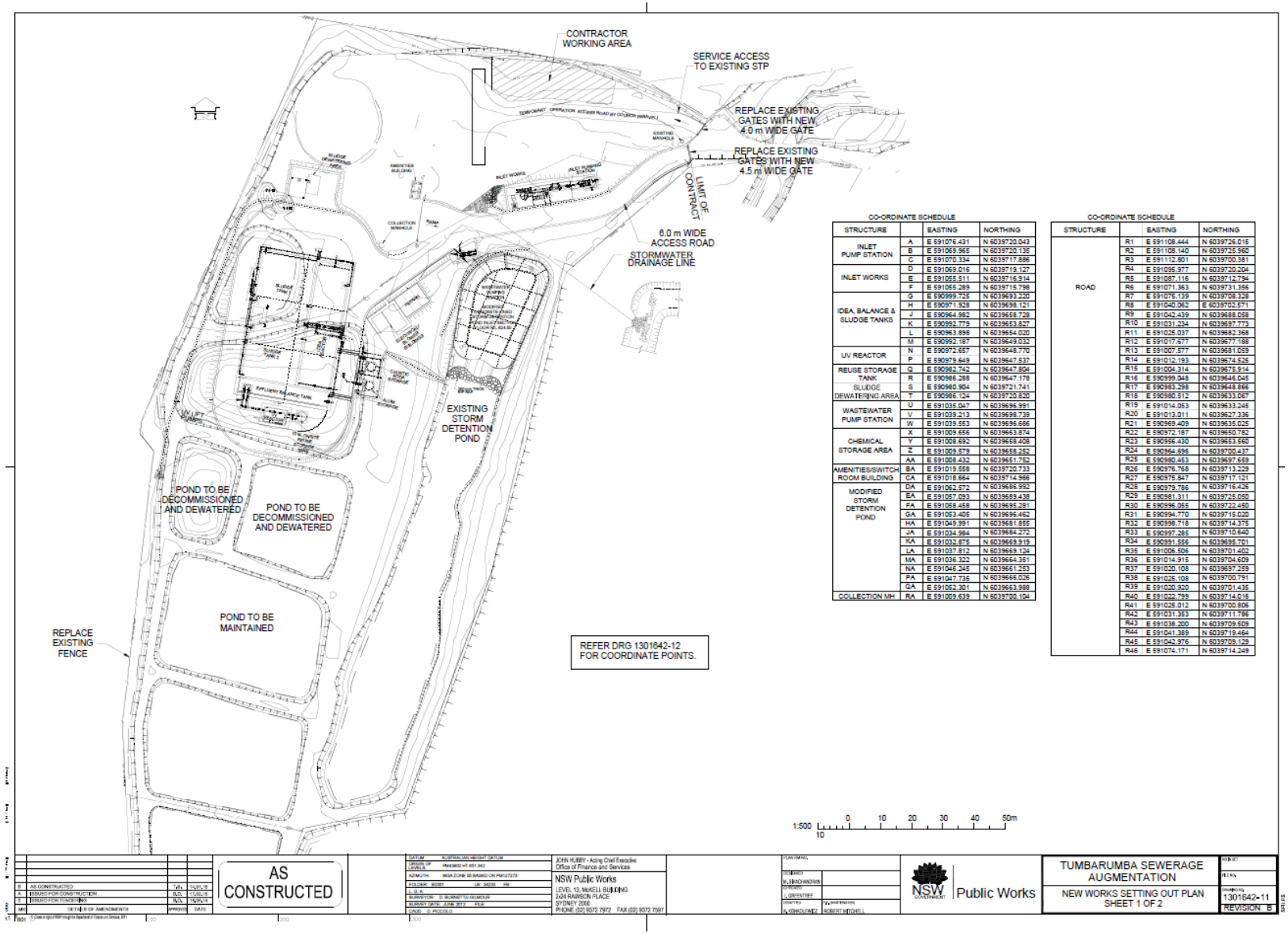



**Figure 1.1 Tumbarumba Sewerage System**

## Figure 1.2 Tumbarumba STP




CO-ORDINATE SCHEDULE

| STRUCTURE | | EASTING | NORTHING |
|---|---|---|---|
| INLET PUMP STATION | A | E 591076.431 | N 6039720.043 |
| | B | E 591069.965 | N 6039720.135 |
| | C | E 591070.334 | N 6039717.886 |
| INLET WORKS | D | E 591069.016 | N 6039719.127 |
| | E | E 591055.511 | N 6039716.914 |
| | F | E 591056.289 | N 6039715.798 |
| IDEA, BALANCE & SLUDGE TANKS | G | E 590999.725 | N 6039693.220 |
| | H | E 590971.928 | N 6039698.121 |
| | J | E 590964.982 | N 6039658.728 |
| | K | E 590992.779 | N 6039653.827 |
| | L | E 590963.898 | N 6039654.020 |
| | M | E 590992.187 | N 6039649.032 |
| UV REACTOR | N | E 590972.667 | N 6039648.770 |
| | P | E 590979.649 | N 6039647.537 |
| REUSE STORAGE TANK | Q | E 590982.742 | N 6039647.804 |
| | R | E 590986.288 | N 6039647.178 |
| SLUDGE DEWATERING AREA | S | E 590980.904 | N 6039721.741 |
| | T | E 590986.124 | N 6039720.820 |
| WASTEWATER PUMP STATION | U | E 591035.047 | N 6039696.991 |
| | V | E 591039.213 | N 6039698.739 |
| | W | E 591039.553 | N 6039696.666 |
| CHEMICAL STORAGE AREA | X | E 591009.656 | N 6039663.874 |
| | Y | E 591008.692 | N 6039658.428 |
| | Z | E 591009.579 | N 6039658.252 |
| | AA | E 591008.432 | N 6039651.752 |
| AMENITIES/SWITCH ROOM BUILDING | BA | E 591019.558 | N 6039720.733 |
| | CA | E 591018.664 | N 6039714.966 |
| MODIFIED STORM DETENTION POND | DA | E 591062.572 | N 6039686.992 |
| | EA | E 591057.093 | N 6039689.438 |
| | FA | E 591058.458 | N 6039695.281 |
| | GA | E 591053.405 | N 6039696.462 |
| | HA | E 591049.991 | N 6039681.855 |
| | JA | E 591034.984 | N 6039684.272 |
| | KA | E 591032.875 | N 6039693.919 |
| | LA | E 591037.812 | N 6039669.124 |
| | MA | E 591036.322 | N 6039664.351 |
| | NA | E 591046.345 | N 6039661.253 |
| | PA | E 591047.735 | N 6039666.026 |
| | QA | E 591052.301 | N 6039663.988 |
| COLLECTION MH | RA | E 591009.639 | N 6039700.194 |

CO-ORDINATE SCHEDULE

| STRUCTURE | | EASTING | NORTHING |
|---|---|---|---|
| ROAD | R1 | E 591108.444 | N 6039726.015 |
| | R2 | E 591108.140 | N 6039725.960 |
| | R3 | E 591112.801 | N 6039700.381 |
| | R4 | E 591095.977 | N 6039720.204 |
| | R5 | E 591087.116 | N 6039712.794 |
| | R6 | E 591071.363 | N 6039731.356 |
| | R7 | E 591075.139 | N 6039708.328 |
| | R8 | E 591040.062 | E 6039702.571 |
| | R9 | E 591042.439 | N 6039688.058 |
| | R10 | E 591031.234 | N 6039697.773 |
| | R11 | E 591025.037 | N 6039682.368 |
| | R12 | E 591017.677 | N 6039677.188 |
| | R13 | E 591007.577 | N 6039681.059 |
| | R14 | E 591012.193 | N 6039674.525 |
| | R15 | E 591004.314 | N 6039675.914 |
| | R16 | E 590999.048 | N 6039646.045 |
| | R17 | E 590983.298 | N 6039648.866 |
| | R18 | E 590980.512 | N 6039633.067 |
| | R19 | E 591014.053 | N 6039633.245 |
| | R20 | E 591013.011 | N 6039627.336 |
| | R21 | E 590969.409 | N 6039635.025 |
| | R22 | E 590972.187 | N 6039650.782 |
| | R23 | E 590956.430 | N 6039653.560 |
| | R24 | E 590964.696 | N 6039700.437 |
| | R25 | E 590980.453 | N 6039697.659 |
| | R26 | E 590976.768 | N 6039713.229 |
| | R27 | E 590975.847 | N 6039717.121 |
| | R28 | E 590979.786 | N 6039716.436 |
| | R29 | E 590981.311 | N 6039725.060 |
| | R30 | E 590996.055 | N 6039722.460 |
| | R31 | E 590994.770 | N 6039715.020 |
| | R32 | E 590998.718 | N 6039714.375 |
| | R33 | E 590997.285 | N 6039710.640 |
| | R34 | E 590991.556 | N 6039695.701 |
| | R35 | E 591006.506 | N 6039701.402 |
| | R36 | E 591014.915 | N 6039704.609 |
| | R37 | E 591020.108 | N 6039697.259 |
| | R38 | E 591025.108 | N 6039700.791 |
| | R39 | E 591020.920 | N 6039701.435 |
| | R40 | E 591022.798 | N 6039714.016 |
| | R41 | E 591025.012 | N 6039700.806 |
| | R42 | E 591031.353 | N 6039711.786 |
| | R43 | E 591038.200 | N 6039709.609 |
| | R44 | E 591041.389 | N 6039719.464 |
| | R45 | E 591042.976 | N 6039709.129 |
| | R46 | E 591074.171 | N 6039714.249 |

# 2 Context of the Assessment

## 2.1 Background

A new provision under the *Protection of the Environment Legislation Amendment Act* (POELAA) 2011 is the requirement to prepare, keep, test and implement a pollution incident response management plan for each environmental protection licence that Council holds.

The objectives of these plans are to:

- communicate in a timely manner and with sufficient detail about a pollution incident to relevant authorities and people outside the facilities who may be affected by the impacts of the pollution incident
- minimise and control the risk of any pollution incident occurring at the facilities by requiring identification of risks and the development of planned actions to minimise and manage those risks; and
- ensure that the plan is properly implemented by trained staff, identifying persons responsible for implementing it, and ensuring that the plan is regularly tested for accuracy, currency and suitability.

The NSW EPA defines a 'pollution incident' as follows;

***"pollution incident means an incident or set of circumstances during or as a consequence of which there is or is likely to be a leak, spill or other escape or deposit of a substance, as a result of which pollution has occurred, is occurring or is likely to occur. It includes an incident or set of circumstances in which a substance has been placed or disposed of on premises, but it does not include an incident or set of circumstances involving only the emission of any noise".***

A pollution incident is required to be notified if there is a risk of 'material harm to the environment', which is defined in section 147 of the POEO Act as:

***(a) harm to the environment is material if:***

***(i) it involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial, or***

***(ii) it results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding $10,000 (or such other amount as is prescribed by the regulations), and***

***(b) loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment.***

Industry is now required to report pollution incidents *immediately* to the EPA, NSW Health, Fire and Rescue NSW, WorkCover NSW and the local council. 'Immediately' has its ordinary dictionary meaning of promptly and without delay. These strengthened provisions will ensure that pollution incidents are reported directly to the relevant response agencies so they will have direct access to the information they need to manage and deal with the incident in as fast a time as is practical.

SVC has EPL 448 for the Tumbarumba STP and its collection system.

This is a revised PIRMP as the STP has been replaced and the SPS fitted with a telemetry system.

## 2.2 Council Commitment

Tumbarumba Shire Council is committed to protecting the health of the public, the environment and its workers. This commitment has been formalised and is contained in SVC's Management Plan for 2011 – 2012, and a Local Environment plan 2010 (Snowy Valleys Council is still operating with the former Tumbarumba Shire Council and Tumut Shire Council LEPs).

The Local Government Act contains a Charter for Local Government which describes the approach to supplying services and activities. It charges local government with a number of responsibilities including but not limited to the following:

- to provide directly or on behalf of other levels of government, after due consultation, adequate, equitable and appropriate services and facilities for the community and to ensure that those services and facilities are managed efficiently and effectively
- to exercise community leadership
- to properly manage, develop, protect, restore, enhance and conserve the environment of the area for which it is responsible, in a manner that is consistent with and promotes the principles of ecologically sustainable development
- to bear in mind that it is the custodian and trustee of public assets and to effectively account for and manage the assets for which it is responsible
- to engage in long-term strategic planning on behalf of the local community
- to keep the local community and the State government (and through it, the wider community) informed about its activities
- to ensure that, in the exercise of its regulatory functions, it acts consistently and without bias, particularly where an activity of the Council is affected.

Relevant Council objectives and strategies with respect to its sewerage and environmentally related operations, as stated in its Management Plan are summarised, in **Table 2.1**, (refer to Management Plan for detailed objectives and strategies)

Council also has a Local Environment Plan 2010 to setup planning strategies to protect environment sustainably.

The aims of Local Environment Plan 2010 are:

- to make local environmental planning provisions for land in Tumbarumba in accordance with the relevant standard environmental planning instrument under section 33A of the Act.
- to develop local planning controls that manage human settlement, rural activities and the natural environment in a manner that contributes to the unique quality of Tumbarumba,
- to encourage development that supports the long term economic viability of the local community,
- to ensure development is undertaken in a manner that mitigates impacts on the natural environment,
- to encourage development that promotes positive social outcomes for the local community.

**Table 2.1: Summary of SVC's Sewerage and Environmentally Related Objectives and Strategies**

| Outcomes | Strategies |
|---|---|
| An efficient, reliable and environmentally responsible sewerage service. | • Prioritise construction and maintenance works and draft an Asset Replacement Program.<br>• Strategically plan the delivery of services to the developing and unserviced areas<br>• Monitor program delivery in terms of time and budgetary constraints through a risk management approach.<br>• Develop and monitor preventative maintenance schedule for all major pumps and other critical infrastructure<br>• Undertake Stormwater Infiltration reduction program of inspections and works.<br>• Review liquid trade waste policy<br>• Provide new service connection promptly and within procedure guidelines |
| Effective prevention and control of fire emergencies, in conjunction with the Rural Fire Services. | • Respond promptly to prevent loss of life and to minimise the potential for damage to stock, property and structures in the event of emergencies.<br>• Ensure emergency services personnel have a workable disaster management plan (DISPLAN) and they work in close cooperation with State Forests, National Parks and private land-holders in the management of bushfires or other disasters.<br>• Maintain equipment in accordance with standards of fire cover and resources provided by Rural Fire Services.<br>• Foster the recruitment, training and development of volunteers.<br>• Improve signage in rural areas to enable the identification of properties or locations for rapid response in emergencies.<br>• Encourage responsible fire risk management practices. |
| SVC's capacity to respond to natural and other emergencies and disasters is maintained and improved. | • Support and attend LEMC meetings. |
| The health and safety of our community is protected. | • Process applications for on-site sewage systems<br>• Undertake regular inspections of on-site sewage systems |
| High standards of stream health and biodiversity within Tumbarumba Shire. | • Investigate pollution of water courses and biodiversity within Tumbarumba Shire. |
| Pollution of the Environment Operations Act 1997 is enforced. | • Investigate noise, air and water pollution and environmental |

## 2.3 Regulatory and Formal Requirements

The regulatory and formal requirements applicable to the Tumbarumba Sewerage Scheme are shown in **Table 2.2**. These legislative and licensing requirements and guidelines are to be met to ensure the protection of environmental and public health and to satisfy work health and safety (WHS) requirements. This management plan addresses how these requirements are to be met.

**Table 2.2: Formal and Regulatory Requirements**

| Parameter | Instrument | Administered by |
|---|---|---|
| **Overall Scheme Operation** | Water Management Act 2000 | NSW EPA |
| | Local Government Act 1993 | DPIE Water |
| **Public Health** | Environment Operations Act 2011 | NSW EPA, NSW Health |
| **Environmental Health** | Section 55 Protection of the Environment Operations Act 2011 Environment Protection Licence No. 448 | NSW EPA |
| **Work Health and Safety (WHS)** | Work Health and Safety Act 2011 (WHS Act) and the WHS Regulations. | WorkCover Authority of NSW |
| **Plumbing** | All pipe work associated with transport sewage to the STP is to be installed in accordance with AS/NZS 3500 (Plumbing and Drainage Code: Standards Australia 1996-2003) | Snowy Valley Council |

## 2.4 NSW EPA Licence.

Tumbarumba STP is covered by Environment Protection Licence (EPL) No.448.

The licence restricts the effluent discharge from the plant to the following limits:

- Biological Oxygen Demand (BOD) – 10 mg/L (90%ile) and 20 mg/L (100%ile)
- Total Suspended Solids (TSS) – 15 mg/L (90%ile) and 30 mg/L (100%ile)
- Total Nitrogen (TN) – 10 mg/L (90%ile) and 20 mg/L (100%ile)
- Total Phosphorus (TP) – 0.3 mg/L (90%ile) and 0.6 mg/L (100%ile)
- Oil and Grease (O&G) – 2 mg/L (90%ile) and 5 mg/L (100%ile)
- pH – 6.5 – 8.5
- Volume – 1100kL/day
- Treated effluent from the UV system is released into Tumbarumba Creek (see **Figure 1.2)** with the discharged water quality required to comply with above water quality requirements.

# 3 Assessment of the Risks

A desk top risk assessment was undertaken in June 2016 and reviewed by Council's water and sewerage operator at Tumbarumba. The objective of the assessment is to:

- identify the hazards,
- identify hazardous events
- assessment of the likelihood of the event and other factors that may increase the likelihood
- assess the impacts
- assess the overall risk.

Shown in **Table 3.1**, **Table 3.2** and **Table 3.3** are the likelihood, impact and risk criteria used in the assessment. **Table 3.4** is detailed risk assessment for STP and SPSs.

**Table 3.1: Definitions of Likelihood**

| Level | Likelihood | Description |
|---|---|---|
| A | Almost certain | - The event is expected to occur often ( several times per year) |
| B | Likely | - The event will probably occur often (once every 1-3 years) |
| C | Possible | - The event might occur at some time (once every 3 to 10 years) |
| D | Unlikely | - The event could occur at some time (once every 20 years) |
| E | Rare | - The event may occur only in exceptional circumstances (once every 100 years) |

**Table 3.2: Definitions of Impact**

| Level | Classification | Description |
|---|---|---|
| 1 | Insignificant | The overflow is extremely unlikely to drain to a local sensitive environment* and:<br>- Where the overflow reaches waters, the volume of sewage likely to enter the waterways is insignificant with regard to the volume and flow of receiving waters, or<br>- Where the overflow reaches land, it is likely to be contained in an area with little chance of public exposure within the maximum response time** |
| 2 | Minor | The overflow is unlikely to drain to a local sensitive environment* and:<br>- Where the overflow reaches waters, the volume of sewage likely to enter the waterways may be significant with regard to the volume and flow of receiving waters, or<br>- Where the overflow reaches land, it is likely to be contained in an area where the public exposure is minimal given the maximum response time** |
| 3 | Moderate | The overflow is likely to drain to a local sensitive environment* and:<br>- Where the overflow reaches waters, the volume of sewage likely to enter the waterways is significant with regard to the volume and flow of receiving waters, or<br>- Where the overflow reaches land, it may travel to an area where public exposure is low within the maximum response time** |
| 4 | Major | The overflow is likely to drain to a local sensitive environment* and:<br>- Where the overflow reaches waters, the volume of sewage likely to enter the waterway is high with regard to the volume and flow of receiving waters, or<br>- Where the overflow reaches land, the public exposure risk is likely given the maximum response time** |
| 5 | Catastrophic | The overflow is likely to drain to a local sensitive environment* and:<br>- Where the overflow reaches waters, the volume of sewage likely to enter the waterways is high with regard to the volume and flow of receiving waters, or<br>- Where the overflow discharges to land, the public exposure risk is high given the maximum response time** |

*A sensitive environment includes: a drinking water catchment or domestic groundwater source, or shellfish growing area, or protected water bodies, ecological communities or conservation areas defined by legal an non-legal instruments, such as local environment plans (LEPs), State Environmental Planning Policies (SEPPs), national parks, and class P or class S waters, or waterways used for primary contact recreation, or a recreational area or other area with high public exposure or associated health risk.

**Maximum response time should be based on the length of time taken for the licensee to detect the overflow, or for the overflow to be reported, and the time taken for the licensee to attend the site and secure against public contact

**Table 3.3: Risk Analysis Criteria**

| **Likelihood** | **Impacts** | | | | |
|---|---|---|---|---|---|
| | Insignificant **1** | Minor 2 | Moderate **3** | Major **4** | Catastrophic **5** |
| Almost Certain – **A** | Low | Moderate | High | Very High | Very High |
| Likely – **B** | Low | Moderate | High | Very High | Very High |
| Possible – **C** | Low | Moderate | Moderate | High | Very High |
| Unlikely – **D** | Low | Low | Moderate | High | Very High |
| Rare – **E** | Low | Low | Low | Moderate | High |

## Table 3.4: STP and SPS Risk Register

| | Contaminant | Description of the Hazardous Event | Human Health (Public Health) | Environmental Risks | Likelihood<br>Almost certain - several times p.a<br>Likely - once every 1 - 3 years<br>Possible - once every 3 - 10 years<br>Unlikely - once every 20 years<br>Rare- once every 100 years | Events or Circumstances that would exacerbate or increase likelihood | Impact<br>Insignificant<br>Minor<br>Moderate<br>Major | Assessed Risk<br>Low<br>Moderate<br>High<br>Very High | Pre-emptive Actions<br>(Existing Controls)<br>In addition to operator training, SWMSs |
|---|---|---|---|---|---|---|---|---|---|
| **STP** | | | | | | | | | |
| 1 | **Effluent** | **Septage upsets process** | | ✓ | Rare | • Illegal dumping of septage into sewer lines.<br>• Septage to lagoons. | Minor | Low | • Gravity reticulation system.<br>• Robust IDEA treatment process. |
| 2 | **Effluent** | **Stormwater inflow to STP causing overflow** | ✓ | ✓ | Unlikely | Inlet works of the STP built above flooding zone | Minor | Low | • Drainage and flood impact was taken into account in the design of the new STP. |
| 3 | **Effluent** | **Poor quality – sabotage of plant** | ✓ | ✓ | Rare | Flooding event | Minor | Low | • Plant has security and SCADA/telemetry. |
| 4 | **Effluent** | **Poor quality – extended power failure** | ✓ | ✓ | Possible | Flooding event | Minor | Moderate | • Gravity reticulation system.<br>• Bypass to SDP.<br>• Ability to bring in and connect emergency generator. |
| 5 | **Effluent** | **Equipment failure** | ✓ | ✓ | Possible | Equipment malfunction | Minor | Low | • Bypass to SDP.<br>• Setup equipment maintenance schedule.<br>• Duty and standby equipment<br>• Telemetry monitoring |
| 6 | **Raw sewage** | **Untreated sewage overflows to Creek** | ✓ | ✓ | Unlikely | • Flooding event<br>• Inlet lift standby pumps offline | Moderate | Moderate | • Bypass to SDP |

| | Contaminant | Description of the Hazardous Event | Human Health (Public Health) | Environmental Risks | Likelihood<br>Almost certain - several times p.a<br>Likely - once every 1 - 3 years<br>Possible - once every 3 - 10 years<br>Unlikely - once every 20 years<br>Rare- once every 100 years | Events or Circumstances that would exacerbate or increase likelihood | Impact<br>Insignificant<br>Minor<br>Moderate<br>Major | Assessed Risk<br>Low<br>Moderate<br>High<br>Very High | Pre-emptive Actions<br>(Existing Controls)<br>In addition to operator training, SWMSs |
|---|---|---|---|---|---|---|---|---|---|
| 7 | **Raw sewage** | **Untreated sewage overflows to Creek – extended power failure** | ✓ | ✓ | Unlikely | Wet weather event | Minor | Low | • Bypass to SDP<br>• Gravity reticulation system.<br>• Ability to bring in and connect emergency generator.<br>• Reliable power supply. |
| **SPSs: HYNE MILL SPS, SNOW VIEW ESTATE SPS, and CHAFFEY CLOSE SPS.** | | | | | | | | | |
| 8 | **Raw sewage** | **Untreated sewage overflows to Creek – pump failure** | ✓ | ✓ | Unlikely | Wet weather event | Minor | Low | • Gravity reticulation system.<br>• Standby pump installed.<br>• Daily check and maintenance.<br>• Telemetry and alarm system.<br>• Sufficient sewage detention volume. |
| 9 | **Raw sewage** | **Untreated sewage overflows to Creek – electrical failure** | ✓ | ✓ | Unlikely | Wet weather event | Minor | Low | • Gravity reticulation system.<br>• Daily check and maintenance.<br>• Telemetry and alarm system<br>• Sufficient sewage detention volume. |
| 10 | **Raw sewage** | **Untreated sewage overflows to Creek – flooding of SPS** | ✓ | ✓ | Unlikely | Wet weather event | Minor | Low | • Gravity reticulation system.<br>• Daily check and maintenance.<br>• Telemetry and alarm system.<br>• Sufficient sewage detention. |
| **Gravity Reticulation System** | | | | | | | | | |
| 11 | **Raw sewage** | **Untreated sewage overflow due to blockage of pipelines** | ✓ | ✓ | Possible | Wet weather event | Minor | Low | • Neighbours call Council.<br>• SVC has an emergency response procedure. Short |

| | Contaminant | Description of the Hazardous Event | Human Health (Public Health) | Environmental Risks | Likelihood<br>Almost certain - several times p.a<br>Likely - once every 1 - 3 years<br>Possible - once every 3 - 10 years<br>Unlikely - once every 20 years<br>Rare- once every 100 years | Events or Circumstances that would exacerbate or increase likelihood | Impact<br>Insignificant<br>Minor<br>Moderate<br>Major | Assessed Risk<br>Low<br>Moderate<br>High<br>Very High | Pre-emptive Actions<br>(Existing Controls)<br>In addition to operator training, SWMSs |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | response time likely.<br>• Pump station having storage capacity. |
| 12 | **Raw sewage** | **Untreated sewage overflow to Creek due to broken pipeline crossing of Creek or near creek** | ✓ | ✓ | Unlikely | Damaged by flooding event or vehicle | Moderate | Moderate | • EPA is informed when flooding occurs |
| 13 | **Raw sewage** | **Upstream surcharge** | ✓ | ✓ | Unlikely | • Pipe blockage<br>• Excavation works | Moderate | Moderate | • Utilise Dial before you dig<br>• Leakage can easily be detected.<br>• In-store portable emergency pump for bypass/ diversion. |
| **Rising Mains** | | | | | | | | | |
| 13 | **Sewage** | **Pipe break** | ✓ | ✓ | Rare | • Earthquake/ Ground movement<br>• Excavation works | Moderate | Low | • Pumps can be turned off whilst repairs are undertaken.<br>• Storage in upstream pump station(s). |

# 4 Preventative Actions to be Undertaken

## 4.1 General

The preventative actions or measures to manage and minimise the risk to human health and the environment involve a multiple barrier approach. The multiple barriers, in order of preference, are as follows;

- Elimination
- Substitution
- Isolation
- Engineering means
- Administrative
- Personal Protection Equipment (PPE)

These are readily broken down to the following classification of management strategies:

- Appropriate design of the facilities
- Appropriate operation and monitoring and
- Appropriate education and training

The identified current preventative actions are shown in this section. Photos of the existing measures are shown in **Figures 4.1 to 4.7**.

## 4.2 Collection System

Collection system overflows can principally occur from five main causes. These are:

- Power/mechanical failure at pumping stations
- Reticulation system blockage/leakage
- Rising main breakage (leaks or major failure),
- Breakdown of pump units, and
- Excessive inflows.

### 4.2.1 Pipelines

*Overall the Tumbarumba reticulation system is in good condition, has sufficient capacity and the number of overflows or incidents per kilometre of pipeline per year would be considered low by industry standards. SVC uses water jetting equipment to clear blockages in reticulation mains, which occur infrequently. The main cause is tree root intrusions but can also be due to foreign objects lodging in the pipelines.*

There have been no recorded overflow events from the reticulation system in the recent past.

Potential for breaks in sewage pipeline exists during flooding events, the floating debris in flood water may expose and damage sewage pipelines particularly at the Tumbarumba Creek crossing (**Figure 4.1**). Damage caused by machinery/ trucks due to lack of protective barricades in some areas (**Figure 4.2**), may result in sewage discharging into Creek.

**Figure 4.1 Sewage Pipeline Across Creek**

**Figure 4.2 Exposed Sewage Pipeline without Barricade**

### 4.2.2 Pumping Stations

The likelihood of overflows from SPSs can be minimised by the provision of the following;

- Adequate pumping capacity;
- Reliable power supply;
- Notification of abnormal conditions or failures through the telemetry system;
- Service response time to address abnormal operating conditions such as power failure, pump failure etc. within the detention time provided in the pumping station before overflow occurs;
- Availability of standby pumps (to handle pump failure), and/or portable generators (to handle power supply/electrical failure);
- Implementation of an effective emergency plan/operational procedures for attending to failures and breakdowns within the system. There is an alarm system in place (**Figure 4.3**).

The polyethylene (PE) discharge pipe located above ground outside of existing fence at HYNE MILL SPS can be easily cut/ damaged by machinery and people by accident. Reconstruction of fence or burying this pipeline is required (**Figure 4.4**).


**Figure 4.3 Alarm Light at HYNE MILL Pump Station**

**Figure 4.4 HYNE MILL Pump Station**

**Figure 4.5 HYNE MILL Pump Station**

**Figure 4.6 CHAFFEY CLOSE Pump Station**

**Figure 4.7 SNOW VIEW ESTATE Pump Station**

### 4.2.3 Pumping and Storage Capacity

HYNE MILL SPS (**Figure 4.5**) has a 17 $m^3$ pump well to accommodate two pumps (duty/ standby) with a capacity of 1.5 L/s each. The detention time for this pumping station cannot be calculated due to lack of inflow data. However, there are no records of overflowing of this pumping station. Therefore, the pump station appears to have a sufficient storage volume to store the sewage during a power or pump failure.

CHAFFEY CLOSE SPS (**Figure 4.6**) has a 3 $m^3$ pump well to accommodate two pumps (duty/ standby) with capacity of 0.1 L/s each. The detention time for this pumping station cannot be calculated due to lack of inflow data. However, there are no records of overflowing of this pumping station. Therefore, the pump station appears to have a sufficient storage volume to store the sewage during a power or pump failure.

SNOW VIEW ESTATE SPS (**Figure 4.7**) has a 19 $m^3$ pump well to accommodate two pumps (duty/ standby) with a capacity of 3.6 L/s each. The detention time for this pumping station cannot be calculated due to lack of inflow data. However, there are no records of overflowing of this pumping station. Therefore, the pump station appears to have a sufficient storage volume to store the sewage during a power or pump failure.

### 4.2.4 Telemetry System

The SPS are all connected via the telemetry system. Failures will trigger an alert via telemetry to the on call operator.

### 4.2.5 Reliable Power Supply

Council has reported that Tumbarumba has a reliable power supply. Generally power outages in the Tumbarumba area are not common. Power failures of extended duration are possible but are usually planned outages.

### 4.2.6 Provision of Emergency Storage

A sewerage system must have sufficient capacity to store sewage, which continues to flow from the catchment during extended mechanical breakdowns or electrical failures. Three pump stations have sufficient storage to store sewage during a short to medium length power or pump failure.

### 4.2.7 Alarm System

Each pumping station is equipped with an alarm light, if the alarm light is flashing, neighbours generally inform Council directly. A pump fault will trigger an alert via telemetry to the on call operator.

### 4.2.8 Response Times to Abnormal Operating Conditions

Response times are expected to be short based on Council's emergency response time guideline. The average response time is less than 4 hours within working hours and 8 hours outside working hours. If the issue is more serious the response will be less than 4 hours.

### 4.2.9 Stand-by Pumps

All three SPSs are equipped with automatic duty and standby pumps. When the duty pump is failure, the standby pump will start automatically and an alarm light installed on the top of the switchboard will be flashing continuously until the alarm is reset by an Operator. A pump fault will trigger an alert via telemetry to the on call operator.

## 4.3 Sewage Treatment Plant (STP)

Tumbarumba STP is a modern 2,500 EP capacity treatment plant. The plant is a based on the IDEA process and treats sewage to a tertiary level. The process consists of the following facilities:

- an inlet work comprises of an inlet lift pumping station, mechanical spiral sieve screening, grit removal system and flume for flow measurement equipment ;
- an intermittently decanted extended aeration (IDEA) tank;
- two sludge storage tanks, a mixer and a pump station;
- a containerised sludge dewatering machine;
- a balance tank with duty and standby pumps and a high level overflow;
- a UV disinfection system;
- an onsite reuse system;
- a storm detention pond (holding pond 1.2 days ADWF);
- an amenities building
- an electrical and a blower room; and
- associated site services, i.e. water supply, drainage, lighting and roadworks.

All flows gravitate to the inlet works lift pump station. Flows to 7xAWDF are lifted to the inlet works and treated by the IDEA and disinfected. Flows > 7xADWF are directed to the storm detention pond.

Equipment failure may occur at the STP, however there are contingencies included;

- Inlet lift pump failure – when pumps fail the raw sewage cannot be pumped into the inlet works and treatment process. Raw sewage will gravitate to the SDP. Detained sewage will be pumped back to the inlet works after pumps are repaired. Three pumps are provided.
- Inlet works screen - a bar screen will provide screening if the spiral sieve fails.
- Inlet works grit removal system – grit will still be removed for a period of time if failure occurs.
- Aeration system – Duty and standby blowers are provided. The diffusers have a large number of heads.
- Decanter – Should the flexible membrane fail then this will require the SDP to be used. Mechanical failure would result in the decanter being parked and operating as a fixed overflow.
- Balance tank pumps – There is a duty and standby pump arrangement and a high level overflow to the storm pond.
- UV system – Failure would result in un-disinfected effluent directed to the SDP via the balance tank overflow.

Site power failure will affect treatment with flows being directed to the SDP. A generator can be brought to site and connected to the main switchboard during extended power failures.

There is a telemetry system provided at the plant. The Operator lives locally to the STP and follows the “STP Routine Operations and Maintenance Work Schedule from Monday to Sunday” to maintain all equipment used in the plant. The process units of the STP are illustrated by **Figures 4.8** to **4.17.**

**Figure 4.8 Inlet Works Lift PS**

**Figure 4.9 Inlet Works**

**Figure 4.10 IDEA**

**Figure 4.11 Balance Tank**

**Figure 4.12 UV System**

**Figure 4.13 Storm Detention Pond**

**Figure 4.14 Decanter Machinery**

**Figure 4.15 Onsite Reuse Pumps**


**Figure 4.16 Dewatering Machine**

**Figure 4.16 Chemical Dosing Facility**

**Figure 4.17 IDEA and Sludge Tank (right side)**

### 4.3.1 Dry Weather

Generally, unless exceptional circumstances occur, such as malfunction of multiple systems due to mechanical/ electrical failure or blockages, overflows at the STP in dry weather flow conditions are extremely unlikely.

### 4.3.2 Wet Weather

The STP has capacity to treat to 7xAWDF. Flows > 7xADWF will be directed to the lined storm pond, 805 kL capacity. Once this pond is full it will overflow to an adjacent unlined pond then to the environment.

## 4.4 Sewage Treatment Plant Chemical Spills

The Tumbarumba STP only uses Alum and Caustic soda and a small amount of chlorine which is added manually for disinfection of the reuse system.

The alum is stored in a 20 kL tank and the caustic in a 12 kL tank. Both have bunds (110 % volume stored) to contain any spills. When chemicals are being loaded there is a road bund to contain any spills.

Polymer is stored within the dewatering machine container which is within the drained dewatering area. Any spills will be contained.

Chlorine tablets – small quantities, spills are not an issue.

# 5 Inventory of Pollutants and MSDS

## 5.1 Inventory of Stored Chemicals

The following chemicals are stored on the site:

Aluminium Sulphate – 20 kL

Caustic Soda – 12 kL

Liquid polymer – 1 kL

### 5.1.1 Chemical Usage

The STP uses Alum for flocculation of phosphorus and caustic soda for pH correction. Alum usage is 50 L/hr and caustic is 22 L/hr.

## 5.2 Other Pollutants – Sewage and Effluent

The other potential pollutants are:

- Sewage (within the collection system and at head of the STP) – The collection system transfers raw sewage to the STP. SPS are filter with telemetry to warn of failures. All raw sewage is processed by the STP in the dry weather conditions. Wet weather flows 3.35xADWF to 7xADWF are partially treated. Flows > 7xADW are bypassed to the SDP and then returned to the works for treatment. SDP Inflow > 805 kL is released to the land and then Tumbarumba Creek.
- Effluent – produced at the STP. 100% of the treated effluent is released to Tumbarumba Creek with a small portion being used onsite.
- Sludge produced at the STP – Waste activated sludge (WAS) is pumped from the IDEA to the sludge storage tanks for stabilization. After sludge stabilization (6 months off line storage), sludge is pumped to the sludge dewatering machine (volute dehydrator) for dewatering. The dried sludge materials are used on site currently but will in the future be taken away and disposed of at Council's landfill site. The dewatering building and hardstand are drained to the wastewater pump station.
- Grit and screenings – collected and buried onsite at present but in the future disposed of at the landfill site.

**Table 5.1: Pollutant List – Sewage And Effluent**

| Parameter | Average* Raw Sewage (mg/L) | Effluent (100 percentile) |
|---|---|---|
| Biochemical oxygen demand ($BOD_5$) | 287.3 | <20 mg/L |
| Suspended solids (SS) | 379.7 | <30 mg/L |
| Total nitrogen (TN) | 33.0 | 20 mg/L |
| Ammonia | 26.3 | Not monitored |
| Total phosphorus (TP) | 7.8 | 0.6 mg/L |
| Oil and grease (O&G) | 13.5 | <10 mg/L |
| pH | 7.0 | 6.5 - 8.5 |

Note *: average figures are calculated based on samples testing results from 1/05/2012 to 4/05/2012, from 25/09/2012 to 28/09/2012 and from 8/10/2012 to 9/10/2012.

**MSDSs** for the Alum and Caustic Soda are attached and a copy kept at the amenities building.

# 6 Safety Equipment

Safety equipment or other devices that are onsite will minimise the risks to human health or the environment and contain or control a pollution incident. These will include any personal protective equipment (PPE), material safety data sheets (MSDS), monitoring devices and spill containment equipment.

## 6.1 List of On-site PPE Equipment

The following PPE safety equipment is provided onsite:

**Table 6.1: List of PPE**

| Personal Protective Equipment | Location | Location |
|---|---|---|
| Hearing protection | STP | STP and Operator's Vehicle |
| Protective gloves | STP | STP and Operator's Vehicle |
| Dust mask | STP | STP and Operator's Vehicle |
| Safety glasses | STP | STP and Operator's Vehicle |
| Safety apron | STP | STP and Operator's Vehicle |

## 6.2 Telemetry Monitoring

The following sites are monitored via a telemetry system.

- Tumbarumba Sewage Treatment Plant.
- Hyne Sewage Pump Station.
- Snow View Sewage Pump Station.
- Chaffey Close Sewage Pump Station.

The following is monitored at the SPS:

- RTU battery volts low.
- RTU battery fault.
- Main power failed.
- Wet well high level alarm regulator - S71.
- Pump 1 running.
- Pump 1 failed.
- Pump 2 running.
- Pump 2 failed.
- Intrusion alarm.

## 6.3 STP SCADA and Telemetry Monitoring

SCADA and telemetry systems are installed at the STP. The SCADA system has a series of alarms which covers all the main systems in the STP as described below.

The plant is designed, wherever practical, to operate automatically through programmable logic controllers (PLCs) that are fully integrated with a plant supervisory control and data acquisition (SCADA) system.

Power failure will not affect any PLC settings that must be retained during power failure. This includes all Operator adjustable settings and selections. All drives and ancillary control equipment will be controlled via the PLC system and be interfaced to the plant SCADA system. The PLCs will be capable of operating independently of the SCADA system. Failure of the SCADA system or disconnection of the SCADA system will not affect the normal automatic operation of the plant.

The systems will contain control logic to:

- provide start/stop, lower/raise or open/close functions in automatic operation, i.e. when the drive selector switch is in the "Auto" position on its switchgear control assembly (SCA or switchboard);
- provide an Operator adjustable time delay for detection devices fitted to equipment, as required;
- provide control switching points from signals generated by level sensing, pressure sensing, dissolved oxygen probes, pH probes and flow monitoring equipment.

All motors will have fault signals generated by the PLC. The motor run input from each drive will be compared with the run request of the PLC. Motors will be regarded as faulty if they do not run after a prescribed time setting, when requested by the PLC to run.

Any fault generated will be flashed on the SCADA screen. The faulty status of the equipment will be displayed on the appropriate screen of the Operator interface panel. The fault will be acknowledged by the Operator by clicking the alarm acknowledge button on the SCADA screen. The faulty equipment will be inhibited from further starting until the fault signal from the PLC and the fault on the equipment has been removed and the fault reset by pressing the fault reset button on the control panel (or clicking the appropriate reset block on the SCADA screen).

Alarms are connected to the plant telemetry system to allow remote monitoring of the plant and instantaneous notification of plant faults/alarms to the plant manager and operations staff.

# 7 Roles, Responsibilities and Contact Details

## 7.1 Stakeholder Responsibilities and Engagement

Council has committed to operating its STP and collection system in a responsible manner. Effective stakeholder engagement is necessary to fulfil this commitment. **Table 7.1** presents the stakeholders involved in the operation of the STP and collection system, sets out their roles, the communication expected to occur to achieve safe operation of the plant and collection system. Further information on the operation of the system and communication protocols is addressed later in this plan.

**Table 7.1: Stakeholder Responsibilities and Engagement**

| Stakeholder | Responsibility |
|---|---|
| **Snowy Valleys Council, Manager Utilities & Waste Business** | • Overall scheme operation/ responsibility<br>• Management of operations staff, reporting issues regarding operation, maintenance and compliance to Council, resolving site issues. |
| **NSW Health** | Public health risk assessment and issues |
| **NSW EPA** | • Issuer of EPL<br>• Policing of licence compliance |
| **DPE Water** | • Assist Council with process treatment issues<br>• Monitor compliance with licence<br>• Plant inspections |
| **NSW WorkCover** | Work Health and Safety (WHS) issues |
| **Community of Tumbarumba** | Advice where required during incidents |
| **Police /Fire brigade/HAZMAT/ Ambulance/ SES** | Response to emergencies (e.g. spills, injuries and accidents. |

## 7.2 List of Contact Details

The contact details of the stakeholders are listed below in **Table 7.2**.

**Table 7.2: Stakeholder Contact Details**

| Organisation | Position / Contact Person | Contact Details |
|---|---|---|
| Snowy Valleys Council | Council contact number | (02) 6948 9100<br>0427 470 555 (After Hours)<br>1800 069 280 (free call) |
| | Council during business hours | (02) 6948 9100 |
| | Operators/ On call Tumbarumba | 0409 914 417 |
| | David Sam<br>Coordinator Utilities - Works | 0436 279 959 (mobile)<br>02 6941 2430 (office) |
| | Greg Edward<br>Engineer Water and Wastewater | 0437 951 365 (mobile)<br>02 6941 2526 (office) |
| | Quentin Adams<br>Manager Utilities & Waste Business | 0417 645 862 (mobile)<br>02 6941 2589 (office) |
| | Steven Pinnuck<br>Interim General Manager | 0429 310 205 (mobile)<br>02 6941 2567 (office) |
| | Director Infrastructure & Works | 0409 815 603 (mobile)<br>02 6941 2402 (office) |
| | Council's Risk Management Officer | 0436 014 129 (mobile)<br>(02) 6941 2513 (office) |
| | Coordinator People & Culture (HR) | 0437 620 028 (mobile)<br>02 6941 2574 (office) |
| | Environmental Health Officer | 0429 314 050 (mobile)<br>02 6941 2532 (office) |
| | Coordinator Safety & Systems | 0427 814 411 (mobile)<br>(02) 6941 2410(office) |
| NSW EPA | Pollution Hot Line | 131 555 |
| NSW Health | Public Health Unit Murrumbidgee and Southern | 0428 693 374 (mobile)<br>(02) 6933 9120 or 02 5943 2044 (office) |
| NSW Department of Primary Industries | Fisheries Conservation Manager Albury | 0484 907 343 (mobile)<br>(02) 6042 4213 |
| DPIE Water | Mark Bradshaw<br>Regional Inspector | 0427 324 893 (mobile)<br>(02) 6024 8854 (office) |
| Emergency Services | Police, Fire Brigade, Ambulance, Hazmat, SES | 000 |

## 7.3 Council Procedures for Contacting Staff to Respond to a Possible Incident

The telemetry system will alert the on call operator of an alarm being triggered at an SPS or at the STP.

The general public would report alarms to SVC or STP Operators when an SPS alarm light is flashing. Operator will attend to an alarm and report to the Engineer Water and Wastewater.

Any blockages reported within the sewage collection system are attended to by the Operators. They are generally cleared with Jet Cleaner. All works are undertaken to comply with the relevant Safe Work Method Statement(s). Appropriate action report forms are to be completed once the work is completed.

# 8 Communicating with Stakeholders, Neighbours and the Community

To determine the appropriate communication strategy for an incident, it needs to be categorised. Once it is categorised the prescribed communication strategy can be deployed.

## 8.1 Pollution Incident Management.

### 8.1.1 Sewerage Incident Notification Protocol

Pollution incidents are currently managed via Council's "Sewer Incident Notification Protocol" and a "Sewer Spills or Overflows" checklist which are in place for its sewage transport and treatment systems at Tumbarumba.

The objective of the protocol is to ensure that all relevant organisations and members of any affected communities are notified of overflows and sewage treatment bypasses. It is important to note that the notification protocol does not allow for members of the community to be notified of every bypass and/or overflow event. Community members will only be notified if the incident is considered to be "significant risk to public health". The risk to public health will be determined following consultation with NSW Health representative by Council's Engineer Water and Wastewater. Stakeholders will be notified if the incident is likely to cause material harm to the environment.

The triggers for notification are:

- Discharge from the STP of raw sewage or partially treated effluent from the STP which may pose as a public health risk; or
- An observed or reported overflow from the reticulation system, SPS or STP which may pose as a public health risk; or
- when material harm to the environment is caused or threatened.

### 8.1.2 Significant Public Health Risk Events

Examples of events that are considered to be of "significant risk to public health" when an overflow or bypass has occurred:

- in a public park or sporting field where significant usage for recreational activities is being undertaken;
- inside the grounds of or in close proximity to a school or a child care centre; and/or
- at the treatment plant where disinfection has been compromised of bypass of the secondary treatment process has occurred with subsequent discharge of untreated/partially treated wastewater to receiving waters.

If a public health risk is assessed, Council will:

- initiate a water quality sampling and testing program to be undertake by qualified and independent personnel to monitor and manage any public health threat related to the event; and
- erect signs and barricades as required.

### 8.1.3 Information to be Collected

Information to be collected in the event of an overflow or bypass from the reticulation system, at a sewage pumping station or a sewage treatment plant will include but not be limited to:

- The location of the overflow/bypass and a description of the receiving environment;
- Date, estimated start time and duration of event;
- Volume of overflow/bypass;
- Classification of overflow/bypass due to dry (eg. power and mechanical equipment failure) and/or wet (ie. due to heavy rainfall) weather ;
- Probable cause of the overflow/bypass;
- Actions taken to stop overflow/bypass from occurring;
- Clean up activities undertaken; and
- Mitigating actions to prevent overflow/bypass from recurring.

### 8.1.4 Event Notification

Information provided to the Community will generally be sufficient to reduce public health risks to an acceptable level.

The need and extent of notification of overflows/bypasses will be assessed on a case by case basis as follows:

- The SVC Director Infrastructure & Works, Environmental Health Officer, Manager Utilities & Waste Business and Engineer Water & Wastewater will determine whether the Community or neighbours have the potential to be affected and how they will be notified.
- The SVC Director Infrastructure & Works, Environmental Health Officer, Manager Utilities & Waste Business and Engineer Water & Wastewater will determine whether material harm to the environment has been caused or threatened.

Event notification will consist of (in order):

- Ringing NSW EPA's Pollution Line of 131555.
- NSW Health (02) 6933 9120
- WorkCover Authority 131050
- Fire and Rescue NSW - 1300729579

## 8.2 Investigation of Incidents and Emergencies

Following any incident or emergency situation, including any “near misses”, an investigation will be undertaken and all involved staff should be debriefed, to discuss performance and address any issues or concerns.

The investigation will consider factors such as:

- What was the initiating cause of the problem?
- How was the problem first identified or recognised?
- What were the most critical actions required?
- What communication problems arose and how were they addressed?
- What were the immediate and longer term consequences?
- How well did the protocol function?

Water Directorate Incident Reporting Form can be downloaded from www.waterdirectorate.asn.au

## 8.3 Neighbours to be Notified

The list of neighbours to be notified is shown in Table 8.1. The list provides information of locations of potential overflow occurrence, contact name, contact phone numbers and properties address.

SVC Director Infrastructure & Works, Environmental Health Officer, Manager Utilities & Waste Business and Engineer Water & Wastewater will determine whether the Community or neighbours have the potential to be affected and how they will be notified.

**Table 8.1: List of Neighbours to be Notified**

| Property Name | Contact Person | Contact Details | Property Address | Comments |
|---|---|---|---|---|
| KIRRAKOOLA | RICHARD CHARLES | 02 69484413 | TOOMA 2642 | |
| COONARA | WALTER PATON HOLDINGS PTY LTD | 02 69484480 | TOOMA NSW 2642 | |
| BREAKAWAY | DENNIS PATRICK | 02 69488627 | MT GARLAND RD TOOMA NSW 2642 | |
| KOOLMUNDOOLA | ELSIE AGNES | 02 69484408 | TOOMA NSW 2642 | |
| CARNARVON | DAVID DUNCAN | 02 69484467 | JUNCTION PARKTOOMA 2642 | |
| THREE STAGS INN | ROGER CHARLES | | 9 POSSUM ROADTOOMA NSW 2642 | |
| MC CALLUM | MARGARET NOEL | 02 69484483 | TOOMA NSW 2642 | |
| TOOMA TEAROOMS & POSSUM REST | KINGSLEY | 08 9417 7718 | 19 POSSUM POINT ROADTOOMA | |

# 9 Minimising Harm to Persons on the Premises

## 9.1 Attendance Register

There is an attendance register at the STP. All visitors have to be signed in and be with Council staff.

## 9.2 Site Induction

Visitors are inducted by the STP Operator prior to getting access to treatment areas of the site.

## 9.3 Evacuation Procedure

The evacuation procedure is depicted on a plan displayed in the amenities building/site office.

## 9.4 Emergency Assembly Point

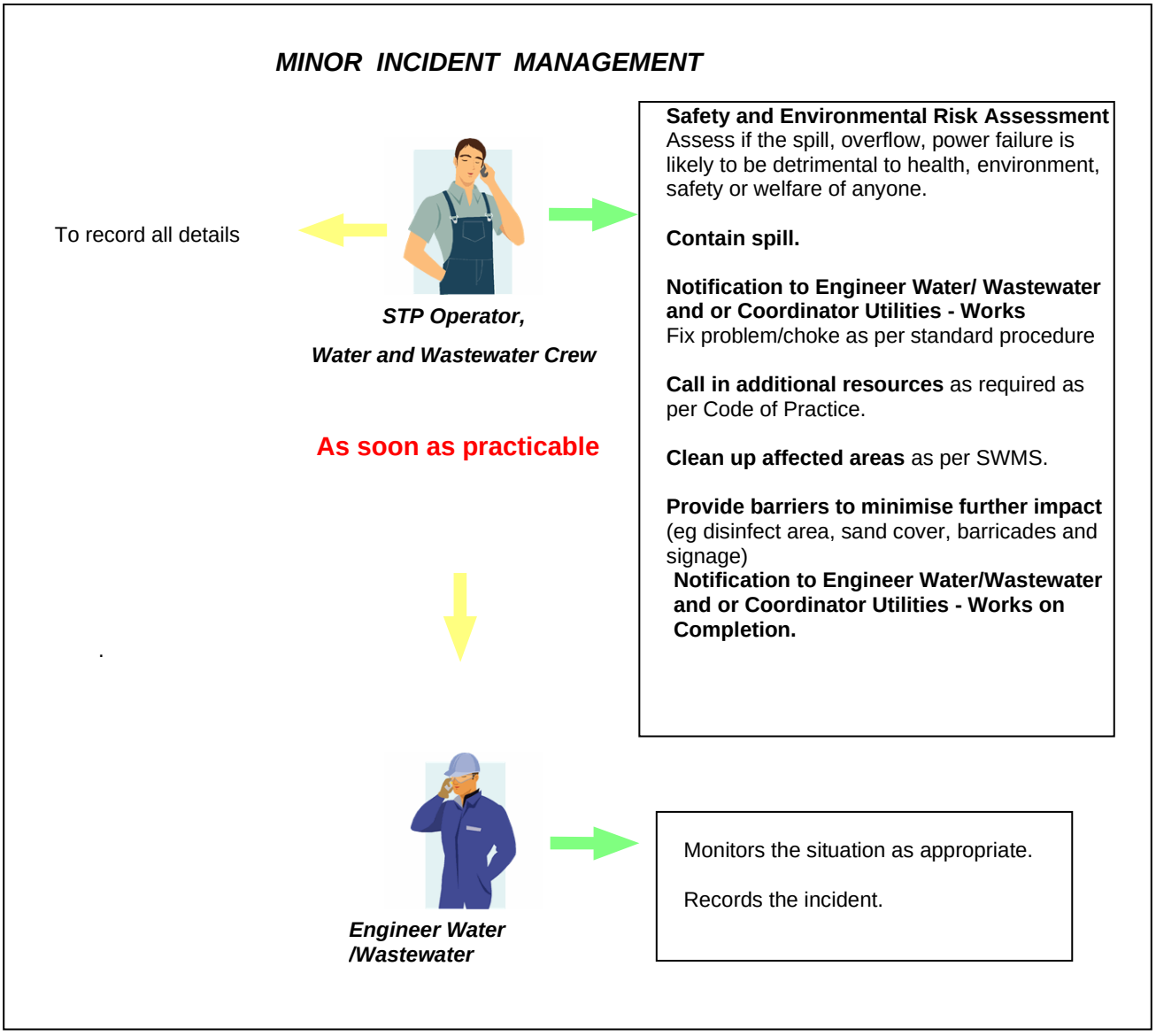
The emergency assembly point is at the front gate near the entrance to the STP.

# 10 Actions to be Undertaken During or Immediately After a Pollution Incident

## 10.1 Minor Incident Action Plan

The action plan for minor incidents is shown in **Figure 10.1:**

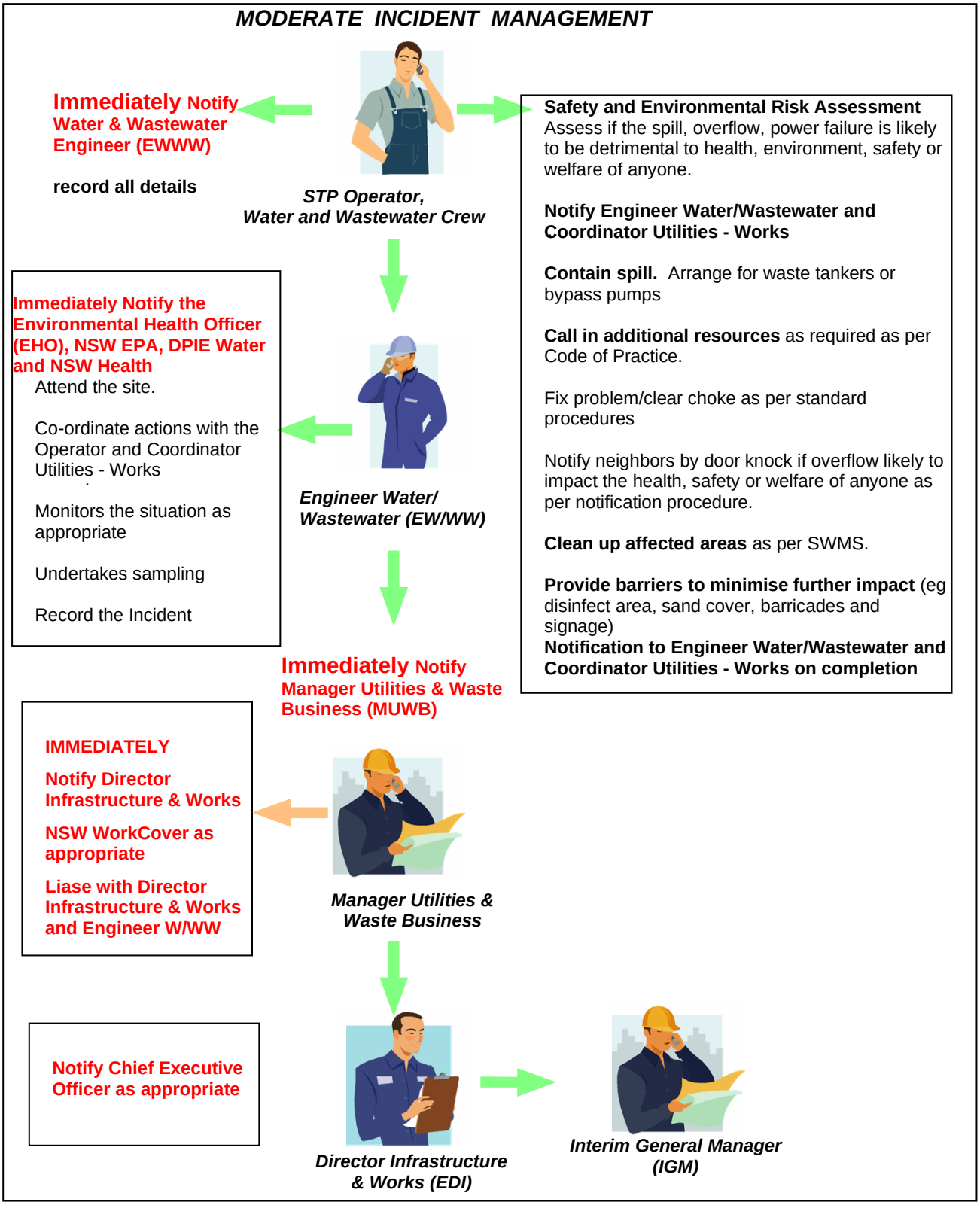
**Figure 10.1 Minor Incident Action Plan**



## 10.2 Moderate Incident Action Plan

The action plan for significant incidents is shown in **Figure 10.2**:

**Figure 10.2 Moderate Incident Action Plan**

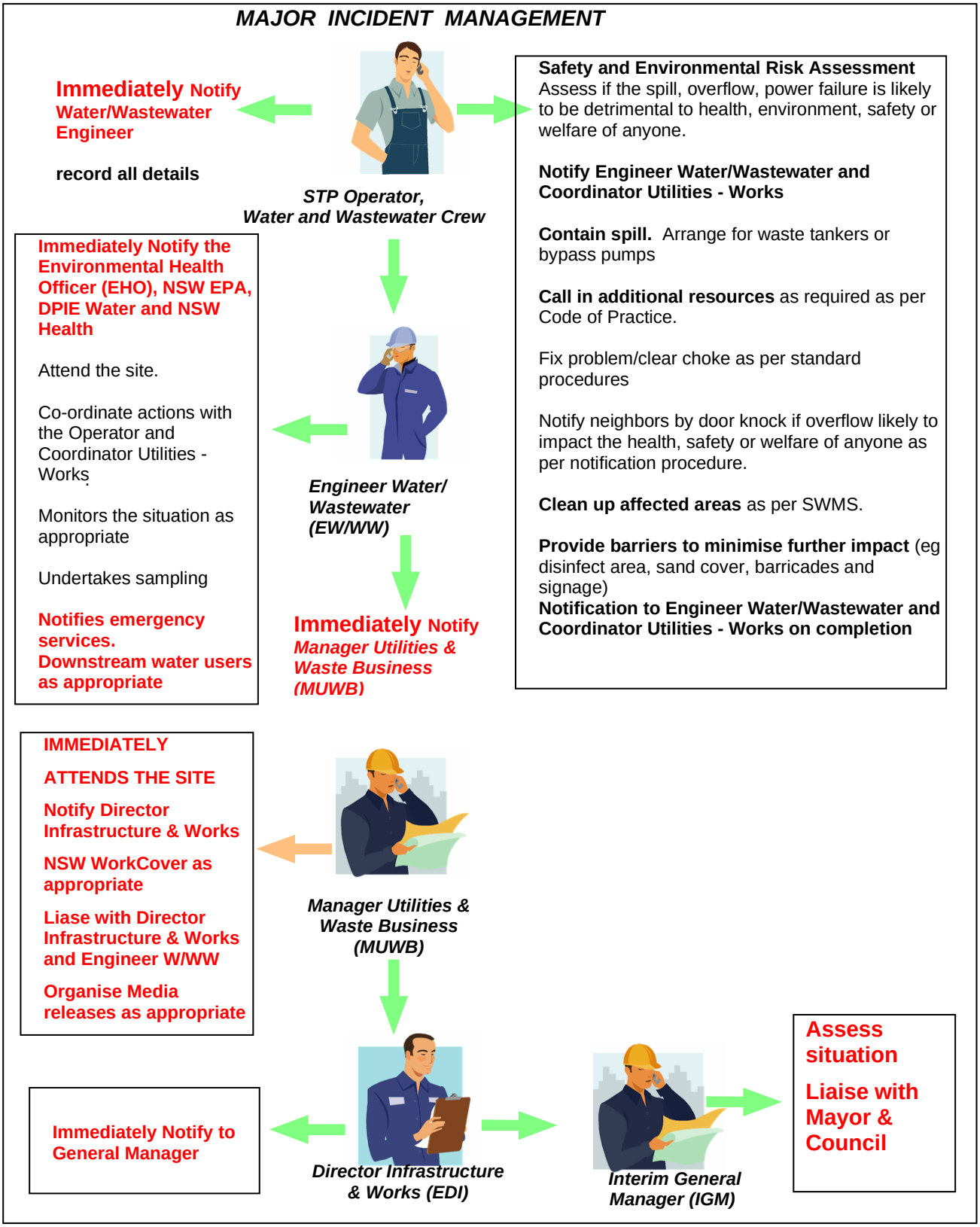



***Note: If the Engineer W&WW is not able to contact MUWM or EDI, Engineer W&WW will notify EPA, Health, Work Covers, DPE Water and IGM.***

## 10.3 Major Incident Action Plan

The action plan for significant incidents is shown in **Figure 10.3**:

**Figure 10.3 Major Incident Action Plan**




***Note: If the Engineer W&WW is not able to contact MUWM or EDI, Engineer W&WW will notify EPA, Health, Work Covers, DPE Water and IGM.***

# 11 Evaluation, Audit and Review for Continuous Development

## 11.1Evaluation and Review

A systematic review of the plan will be undertaken by the Manager Utilities & Waste Business annually or within one month of an incident occurring at the plant. The evaluation will:

- Assess the relevance of the risk assessment against the current state of the plant
- Identify any emerging problems and trends
- Assess the communication between SVC, SVC operational staff and regulators
- Assist in determining priorities for improving procedures
- Assessment of incidents and responses determined
- Determine when and what is to be audited in the next six months

Evaluation of results described above will be documented and the plan updated.

Evaluation will be reported to the stakeholders.

## 11.2 Auditing

Auditing of the pollutant inventory is to be done annually.

An audit may also be triggered by a significant incident or if the process chemical is changed.

# 12 References


1. POELA Act 2011
2. POEO Act 1997
3. SVC Website, “Tumbarumba Shire Council Management Plan 2009-2012” accessed on 23/10/2012.
4. NSW EPA, Environment Protection Licence (EPL) No. 448.
5. Tumbarumba STP Routine Operations and Maintenance Work from Monday to Sunday.
6. Tumbarumba STP Daily Operation and Emergency Management Strategy.
7. Snowy Valleys Council’s Complaints Handling Policy.
8. Snowy Valleys Council’s Confined Space Policy.
9. Snowy Valleys Council’s Hazardous Substance Policy.
10. Snowy Valleys Council’s Manual Handling Policy.
11. Snowy Valleys Council’s Occupational Health and Safety Policy.
12. Snowy Valleys Council’s Personal Protective Equipment Policy.
13. Snowy Valleys Council’s Risk Management Policy.
14. Snowy Valleys Council’s Workplace Safety Audit and Inspection Policy.

# 13 Appendices

## Appendix A - Attachments

1: Tumbarumba STP Routine Operations and Maintenance Work from Monday to Sunday.

2: Tumbarumba STP Daily Operation and Emergency Management Strategy.

3. Snowy Valleys Council's Complaints Handling Policy.

4. Snowy Valleys Council's Confined Space Policy.

5. Snowy Valleys Council's Hazardous Substance Policy.

6. Snowy Valleys Council's Manual Handling Policy.

7. Snowy Valleys Council's Occupational Health and Safety Policy.

8. Snowy Valleys Council's Personal Protective Equipment Policy.

9. Snowy Valleys Council's Risk Management Policy.

10. Snowy Valleys Council's Workplace Safety Audit and Inspection Policy.

# Appendix B – Training Register

| Date | Name | Description of Training |
|---|---|---|
| 3/08/2016 | Mick/Laxmi | Training provided to STP Operator |
| 24/09/2019 | David | Training provided to STP Operator (Warren) |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

# Appendix C – PIRMP Testing Register

| Test Date | Name | Comment |
|---|---|---|
| 3/08/2016 | Mick/Laxmi/Adrian | PIRMP's desktop testing carried out and few update recommended, which is incorporated in report |
| 14/09/2017 | Mick/Laxmi/Adrian | PIRMP's desktop testing carried out and few update recommended, which is incorporated in report |
| 24/09/2019 | Warren/David/Edward | PIRMP's desktop testing carried out and few update recommended, which is incorporated in report |
| 4/11/2020 | Warren/Mick/David | PIRMP's desktop testing carried out. No issues found. |
| 21/10/2021 | Warren/Mick/David | PIRMP's desktop testing carried out. No issues found. . |
| 27/10/2022 | Mick/David | PIRMP's desktop testing carried out. No issues found. |
| 21/06/2023 | Mick/David | PIRMP's desktop testing carried out. No issues found. |
| 22/05/2024 | David Sam/ Micheal Sleaman | PIRMP's desktop testing carried out. No issues found. |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

## Appendix D – Incident Reporting Form

PART A

# Report to Environmental Incident Hotline
## LOCATION OF INCIDENT

Recent changes to Part 5.7 of the *Protection of the Environment Operations Act* 1997 (POEO Act) specify new requirements relating to the notification of pollution incidents. For more information go to the **EPA website** (www.epa.nsw.gov.au/pollution/notificationprotocol.htm)

☐ Project ☐ Facility ☐ Activity ☐ Location/Name:

STREET NUMBER

STREET NAME

SUBURB

NEAREST CROSS STREET

WHERE DID THE INCIDENT OCCUR

SECTION/UNIT RESPONSIBLE FOR THE SITE

☐ **Sewage**
- ☐ break in mains
- ☐ pumping station (sewage or chemical)
- ☐ sewage treatment plant
- ☐ other (ponds etc)

☐ **Waste**
- ☐ waste from Council project/facility/activity
- ☐ dumped waste
- ☐ asbestos only

☐ **General**
- ☐ spill/overflow (chemical, fuel, substance etc) *- additional detail required below*
- ☐ vegetation – disturbance / damage
- ☐ general – (heritage, water, wildlife etc)
- ☐ other

**Cause**
- ☐ blockage
- ☐ mechanical failure
- ☐ electrical failure or power outage
- ☐ rainfall inundation
- ☐ trade waste incident
- ☐ break in main
- ☐ other

DESCRIPTION OF INCIDENT

ACTION TAKEN TO CONTAIN / MANAGE THE INCIDENT

Were photos taken: YES ☐ NO ☐ Were samples taken: YES ☐ NO ☐

## DETAILS OF PERSON REPORTING THE INCIDENT

NAME

DATE

PHONE

MOBILE

DEPARTMENT SECTION

PART B

# Report to Environmental Incident Hotline
# INVESTIGATION

The appropriate Section Supervisor/Manager is responsible for completion of Part B of the incident report.

## IMMEDIATE ACTION BY SUPERVISOR/MANAGER

**Will the incident:**

1. Require assistance from other agencies to contain, isolate or cleanup? YES ☐ NO ☐ NOT SURE ☐
   If "Yes" call 000 immediately.
2. Pose any actual or potential harm to human health that is not trivial? YES ☐ NO ☐ NOT SURE ☐
   - Is it located within 100m of a school, childcare centre, aged care home?
   - Could it impact on users of public areas such as ovals, reserves, waterways?
   - Could the impact spread and potentially harm occupants of nearby properties?
3. Pose any actual or potential harm to ecosystems that is not trivial? YES ☐ NO ☐ NOT SURE ☐
   - Could the incident flow / impact on a water body or drainage system?
   - Could the incident flow / impact on environmentally sensitive land?
4. Result in actual or potential loss or property damage of an amount over $10,000? YES ☐ NO ☐ NOT SURE ☐

If you answered **'YES' to any of the above** then the incident should be considered as a notifiable "pollution event". There is a **duty to notify** the EPA, Ministry of Health, WorkCover and Fire and Rescue NSW immediately after becoming aware of a pollution incidents where material harm is caused or threatened. Failure to do so is an offence *(Protection of the Environment Operations Act 1997)*

## AGENCY NOTIFICATIONS

If the incident does not require an initial combat agency, or once the 000 call has been made, notify the relevant authorities in the following order.

**NSW EPA** (EPA Environment Line: 131 555)

Contacted: ☐ YES ☐ NO Reason not contacted:

| NAME OF EPA REPRESENTATIVE | TIME AND DATE | EPA REFERENCE NUMBER |
|---|---|---|
| | | |

ACTIONS REQUIRED BY EPA

**NSW Health – Local Public Health Unit** (See www.health.nsw.gov.au/publichealth/infectious/phus.asp)

Contacted: ☐ YES ☐ NO Reason not contacted:

| NAME OF PHU REPRESENTATIVE | TIME AND DATE | PHU REFERENCE NUMBER |
|---|---|---|
| | | |

ACTIONS REQUIRED BY LOCAL PHU

**WorkCover Authority** (WorkCover: 13 10 50)

Contacted: ☐ YES ☐ NO Reason not contacted:

| NAME OF WORKCOVER REPRESENTATIVE | TIME AND DATE | WORKCOVER REFERENCE NUMBER |
|---|---|---|
| | | |

ACTIONS REQUIRED BY WORKCOVER

**Fire & Rescue NSW** (Emergency Hotline: 000)

Contacted: ☐ YES ☐ NO Reason not contacted:

| NAME OF FIRE & RESCUE REPRESENTATIVE | TIME AND DATE | FIRE & RESCUE REFERENCE NUMBER |
|---|---|---|
| | | |

ACTIONS REQUIRED BY FIRE & RESCUE

**CONTINUES ON REVERSE**

## OTHER NOTIFICATIONS TO CONSIDER INCLUDE:

- ☐ Internal contacts eg Environmental Health Officer
- ☐ Media
- ☐ NSW Food Authority
- ☐ Shellfish programs
- ☐ River users eg boat hiring companies
- ☐ Marine education centres
- ☐ Other

## PRELIMINARY INVESTIGATION

Notes from discussions with relevant operational staff

Any further observations or comments by Supervisor / Manager

## CATEGORISATION BY AUTHORISED OFFICER

| | |
|---|---|
| ☐ **Minor**<br>*No notification required* | • Incident affects small area only (eg single property) AND<br>• Incident is easy to clean up without additional assistance, AND<br>• There is no risk of material harm to humans or the environment. |
| ☐ **Moderate**<br>*Notify EPA and Local PHU only* | • Incident affects more than one property OR<br>• There is a risk of pollution or material harm to the environment BUT<br>• Cleanup can be completed without assistance AND<br>• There is no danger to humans. |
| ☐ **Major**<br>*Notification required - Notify EPA, Local PHU, Workcover and Fire & Rescue* | • Potential or actual harm to humans and the environment AND/OR<br>• Assistance is required with cleanup from other agencies. |
| ☐ **Council Responsible** | Incident occurred as a direct result of Council activity or function. |
| ☐ **Response by Council** | Incident occurred on Council land, or land under Council care and control BUT Council did not cause the incident. |
| ☐ **Technical Licence Breach** | Relating to technical compliance such as exceedence of permissible discharge volume or environmental monitoring limits. |

## DETAILS OF APPROPRIATE SECTION SUPERVISOR/MANAGER REPORTING THE INCIDENT

NAME

DATE

PHONE

MOBILE

DEPARTMENT SECTION



WATER DIRECTORATE

# Chemical Spill and Sewage Surcharge/Spill Notification Letter Templates:

**CHEMICAL SPILL IN VICINITY OF PROPERTY**

Dear Resident,

This notice is to inform you that there has been a chemical spill in the vicinity of your property.

The cause of this event is being rectified and any contaminated area will be cleaned and disinfected as soon as possible. In the meantime you are requested to avoid any area that may have been contaminated with chemicals.

For further information regarding this matter please contact Snowy Valleys Council on (02) 69 412 555 or for after hours on 0427 470 555.

Yours faithfully,

Steven Pinnuck

**Interim General Manager**

**SEWAGE SURCHARGE/SPILL IN VICINITY OF PROPERTY**

Dear Resident,

This notice is to inform you that there has been a sewage surcharge/spill in the vicinity of your property.

The cause of this event is being rectified and any contaminated area will be cleaned and disinfected as soon as possible. In the meantime you are requested to avoid any area that may have been contaminated with sewage.

For further information regarding this matter please contact Snowy Valleys Council on (02) 69 412 555 or for after hours on 0427 470 555.

Yours faithfully,

Steven Pinnuck

**Interim General Manager**



Tumbarumba Office: Bridge St (PO Box 61), Tumbarumba NSW 2653 • P 02 6948 9100 • tumbaadmin@snowyvalleys.nsw.gov.au
Tumut Office: 76 Capper St, Tumut NSW 2720 • P 02 6941 2555 • tumutadmin@snowyvalleys.nsw.gov.au

## Appendix E – SDS

# SAFETY DATA SHEET

## 1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

| | |
|---|---|
| **Product Name:** | **LIQUID CAUSTIC SODA 31.5%.** |
| **Other Names:** | Sodium hydroxide - liquid (31.5%), Soda lye solution (31.5%), Caustic soda solution (31.5%), Sodium hydroxide solution (31.5%), Liquid caustic soda (31.5%). |
| **Manufacturers Product Code:** | Liquid Caustic Soda 31.5%. |
| **Recommended use of the chemical and restrictions on use:** | Neutralising acids; making sodium salts (e.g. removing sulphuric and organic acids during petroleum refining); treating cellulose for production of viscose rayon and cellophane; reclaiming rubber by dissolving out the fabric; dissolving casein for plastics production; hydrolysing fats to manufacture soaps; precipitating alkaloids (bases) and most metals (hydroxides) from aqueous solutions of their salts; laboratory reagent; alkalizer in pharmaceutical production. Veterinary therapeutic category – dehorning of cows. |
| **Supplier:** | Omega Chemicals |
| **ABN:** | 32 982 143 022 / A.C.N 005 032 744 T/A |
| **Address:** | 55 Fitzgerald Road, Laverton North, Victoria 3026. |
| **Telephone Number:** | +61 3 8368 8000 |
| **Facsimile:** | +61 3 8368 8020 |
| **Emergency Telephone:** | 1300 131 001 (24 Hours)<br>Poisons Information Centre Australia: 131 126 |

## 2. HAZARD IDENTIFICATION

| | |
|---|---|
| **Hazard Classification:** | Classified as Hazardous according to the criteria of Safe Work Australia.<br>Classified as Dangerous according to the ADG Code. |
| **GHS Classification:** | Skin corrosion/irritation – Category 1A<br>Eye damage/irritation – Category 1<br>Corrosive to metals – Category 1 |
| **Signal Word (s):** | DANGER |
| **Hazard Statement(s):** | H314 Causes severe skin burns and eye damage.<br>H290 Maybe corrosive to metals<br>H302 Harmful if swallowed |

**Precautionary Statement(s):**

**Prevention Statement(s):**
P102 Keep out of reach of children.
P103 Read label before use.
P234 Keep only in original container.
P260 Do not breathe fume/vapours/spray.
P264 Wash hand thoroughly after handling
P270 Do not eat, drink smoke when using this product.
P280 Wear protective gloves/protective clothing/eye protection/face protection.

**Response Statement(s):**
P301+P330+P331 IF SWALLOWED: Rinse mouth. Do not induce vomiting.
P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P363 Wash contaminated clothing before reuse.
P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P310 Immediately call a POISON CENTER or doctor/physician.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P321 Specific treatment (see First Aid Measures on Safety Data Sheet).
P390 Absorb spillage to prevent material damage.

**Storage Statement(s):**
P405 Store locked up.
P406 Store in corrosive resistant container with resistant inner liner.

**Disposal Statement(s):**
P501 Dispose of contents/container in accordance with local/regional regulations.

**Poisons Schedule (SUSMP):** **6: POISON**

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

| Ingredients: | CAS Number | Proportion | Hazard Codes |
|---|---|---|---|
| Sodium Hydroxide | 1310-73-2 | 31.5% | H314, H290, H302, H318 |
| Water | 7732-18-5 | Balance to 100% | |

## 4. FIRST - AID MEASURES

For advice, contact Poisons Information Centre on 131 126 or a Doctor.

**Ingestion:** Immediately rinse mouth with water. Give water to drink. DO NOT induce vomiting. If vomiting occurs, place victim's face downwards, head lower than hips to prevent vomit entering lungs. **Seek immediate medical attention.**

**Eyes:** Immediately irrigate with copious quantities of water for at least 15 minutes. Eyelids to be held open. Remove clothing if contaminated and wash skin. Risk of blindness. **Urgently seek medical assistance. Transport to hospital or medical centre.**

**Skin:** Remove all contaminated clothing without delay. Immediately wash contaminated skin gently and thoroughly with copious amounts of water or

swab with polyethylene glycol 400. For gross contamination, immediately drench with water and remove clothing. If swelling, redness, blistering or irritation occurs immediate seek medical advice. For skin burns, immediately flood burnt area with plenty of water and cover with a clean, dry dressing. Seek medical advice. Ensure contaminated clothing is washed before re-use or discarded.

**Inhalation:** Remove the source of contamination or move the victim to fresh air; avoid becoming a casualty. Remove contaminated clothing and loosen remaining clothing. Allow patient to assume most comfortable position and keep warm. Keep at rest until fully recovered. **For all but the most minor symptoms arrange for patient to be seen by a doctor as soon as possible, either on site or at the nearest hospital.**

**Advice to Doctor:** Treat symptomatically and for exposure to strongly alkaline substances and corrosive material. **Can cause corneal burns.**

## 5. FIRE FIGHTING MEASURES

**Extinguishing Media:** Not combustible, however reaction with metals will produce flammable hydrogen gas, which will burn if ignited. Use water fog (or if unavailable then fine water spray), foam or dry agent (carbon dioxide or dry chemical powder).

**Hazchem Code:** 2R

**Specific Hazards arising from the substance or mixture:**

Hazards from Combustion: Product is non-flammable and stable under normal conditions of use and storage. Reacts violently with acids. Reacts with ammonium salts liberating ammonia gas. Corrosive to aluminium, zinc and tin liberating flammable hydrogen gas. Absorbs carbon dioxide from air. Reacts exothermically (produces heat) on dilution with water.

Flammability Conditions: Product is a non-flammable liquid; however, flammable hydrogen gas may be formed in contact with aluminium, zinc and tin.

**Special Protective Precautions and Equipment for Fire Fighters:** Fire fighters should wear a self-contained breathing apparatus operated in positive pressure mode and full protective clothing along with protective equipment. Water spray may be used to keep fire exposed containers cool. Prevent fire extinguishing water from contaminating surface water or the ground water system.

## 6. ACCIDENTAL RELEASE MEASURES

**Emergency Procedures/Protective Equipment/Personal Precautions:** Evacuate all unnecessary personnel. Work upwind. Increase ventilation. Personnel involved in the clean-up should wear full protective clothing including respiratory protection. Stop leak if safe to do so. Avoid walking through spilled product as it will be slippery. Cover drains. Collect, bind and pump off spills.

| | |
|---|---|
| **Environmental Precautions:** | Do not allow product to enter drains, waterways, sewers or soil. If contamination of drains has occurred, advise the local emergency services. |
| **Methods and Materials for Containment and Clean Up:** | Slippery when spilt. Avoid accidents, clean up immediately. Wear protective equipment to prevent skin and eye contact and breathing in vapours. Self-contained breathing apparatus may be needed for prolonged periods of exposure. Work up wind or increase ventilation. Contain spilled product using absorbent (sand or kitty litter). Prevent run off into drains, waterways, sewers or soil. Collect and seal in properly labelled containers or drums ready for appropriate disposal. Caution - heat may be evolved on contact with water. For large spills notify local emergency services. |

## 7. HANDLING AND STORAGE

| | |
|---|---|
| **Precautions for Safe Handling:** | Ensure an eye bath and safety shower are available and ready for use. Avoid skin and eye contact and breathing in vapour, mists and aerosols. Wear appropriate protective equipment to prevent inhalation, skin and eye contact. Ensure a high level of personal hygiene is maintained when using this product, that is, always wash hands before eating, drinking, smoking or using the toilet. |
| **Container Type:** | Packaging must comply with requirements of Hazardous Substances (Packaging) Regulations 2001. Store in original packaging as approved by manufacturer. Do not store in aluminium or galvanised containers or use die-cast zinc or aluminium bungs. Plastic bungs should be used. |
| **Conditions for Safe Storage, including any Incompatibles:** | Store in a cool, dry, well-ventilated area out of direct sunlight. Do not store with incompatible products such as acids and ammonium salts. Keep containers securely sealed at all times and protected against physical damage. Reacts exothermically (produces heat) with water. Heat evolved may cause boiling and spattering. Do not store with any foodstuffs<br><br>At temperatures greater than 40°C, tanks must be stress relieved. Check regularly for spills and leaks. Over a period of time, sludge may develop in the base of storage tanks. The sludge may contain mercury in a finely divided form, spread throughout the particulate matter in the sludge. |

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Control Parameters:**

| | |
|---|---|
| National Exposure Standards: | Sodium hydroxide: AU OEL Peak Limitation: 2 mg/m$^3$. |
| Biological Limit Values: | No data available. |

| | | |
|---|---|---|
| **Appropriate Engineering Controls:** | Ensure ventilation is adequate to maintain air concentrations below exposure standards. Use with local exhaust ventilation or while wearing mist respirator. Keep containers closed when not in use in a well-ventilated area. | |
| **Individual Protection Measures, such as Personal Protective Equipment (PPE):** | **Respirator:** | If there is a risk of inhalation of mists, wear an approved canister-type respirator suitable for particulates and alkaline gases. |
| | **Eyes:** | Splash-proof chemical goggles or full-face shield. |
| | **Hands:** | Elbow-length impervious nitrile gloves. |
| | **Clothing:** | Protective overalls, splash apron and rubber boots. Launder frequently. Change clothing if required. |

After using this product always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storage or re-use.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Core Information**

| | |
|---|---|
| **Appearance:** | Colourless to slightly coloured clear liquid. |
| **Formula:** | NaOH. |
| **Molecular Weight:** | 40.00. |
| **Odour:** | Odourless. |
| **pH:** | 12.7 (at 20°C). |
| **Vapour Pressure:** | No data available. |
| **Vapour Density:** | >1 (where air = 1). |
| **Boiling Point:** | ca. 115°C. |
| **Freezing Point:** | ca. 1°C. |
| **Solubility (in Water):** | 100% g/L (at 25°C). |
| **Specific Gravity:** | 1.35 +/-0.01 (at 20°C). |
| **Flash Point:** | N/A. |
| **Flammability Limits (as Percent Volume in Air):** | **Lower Explosive Limit** N/A.<br>**Upper Explosive Limit** N/A. |
| **Ignition Temperature:** | No data available. |

## Additional Information

| | |
|---|---|
| **Specific Heat Value:** | No data available. |
| **Particle Size:** | No data available. |
| **Volatile Organic Compounds Content (VOC):** | No data available. |
| **Viscosity:** | ca. 180 centipoise (at 25°C). |
| **Percent Volatile:** | No data available. |
| **Octanol/Water Partition Coefficient:** | No data available. |
| **Saturated Vapour Concentration:** | No data available. |
| **Additional Characteristics:** | No data available. |
| **Flame Propagation/Burning Rate of Solid Materials:** | No data available. |
| **Properties that may Initiate or Contribute to the Intensity of a Fire:** | Reacts violently with acids. Reacts with ammonium salts liberating ammonia gas. Corrosive to aluminium, zinc and tin liberating flammable hydrogen gas. |
| **Potential for Dust Explosion:** | No data available. |
| **Reactions that Release Flammable Gases or Vapours:** | Corrosive to aluminium, zinc and tin liberating flammable hydrogen gas. Reacts with ammonium salts liberating ammonia gas. |
| **Fast or Intensely Burning Characteristics:** | No data available. |
| **Non-Flammables that Could Contribute Unusual Hazards to a Fire:** | No data available. |
| **Release of Invisible Flammable Vapours and Gases:** | No data available. |
| **Decomposition Temperature:** | No data available. |
| **Evaporation Rate:** | <1.0 (where n-butyl acetate = 1). |

## 10. STABILITY AND REACTIVITY

| | |
|---|---|
| **Reactivity:** | Reacts violently with acids. Reacts exothermically on dilution with water. |
| **Chemical Stability:** | Stable under normal ambient and anticipated storage and handling conditions of temperature and pressure. |
| **Possibility of hazardous Reactions:** | Reacts violently with acids. Reacts exothermically (produces heat) on dilution with water. Corrosive to aluminium, zinc, lead and tin liberating flammable hydrogen gas. Reacts with ammonium salts liberating ammonia gas. Results in explosion when heated in the presence of zirconium. Reacts vigorously with chloroform/methanol mixtures. |
| **Conditions to Avoid:** | Contact with aluminium, zinc, tin, lead, acids, ammonium salts. Reacts exothermically (produces heat) on dilution with water. |
| **Incompatible Materials:** | Reacts violently with acids. Reacts exothermically (produces heat) on dilution with water. Corrosive to aluminium, zinc, lead and tin liberating flammable hydrogen gas. Keep away from all foodstuffs. |
| **Hazardous Decomposition Products:** | No data available. |

## 11. TOXICOLOGICAL INFORMATION

**Toxicity Data**

| | |
|---|---|
| **LD50:** | 40 mg/kg (mouse, intrapertioneal, solid). |
| **LD50:** | 500 mg/kg (rabbit, oral, 10% solution). |
| **LD50:** | 500 mg/kg (mouse, 10% solution). |
| **Skin (severe irritation):** | 500 mg/24 hours (rabbit, solid). |
| **Eyes (severe irritation):** | 1 mg/30 seconds rinse (rabbit, solid). |

Concentrated solutions are irritant and corrosive to all tissues with which they come into contact; producing burns, deep ulceration and gelatinous necrotic areas at the site of contact; it will cause severe burns to the eyes and skin. Solutions as low as 5% (w/v) can damage eyes severely. Ingestion of this product will cause severe internal irritation and damage. Inhalation of the mist will cause irritation and damage to the respiratory tract. Low systemic toxicity.

**Acute (short term)**

**Ingestion:** May be harmful if swallowed. Ingestion of this product may cause nausea, vomiting, diarrhoea, abdominal pain and chemical burns to the mouth, throat and stomach, perforation of the gastrointestinal tract, cardiovascular collapse and coma.

**Eye:** Causes serious eye damage. Corrosive to eyes, contact can cause corneal burns. **Can result in permanent injury. Risk of blindness.**

**Skin:** Corrosive to skin. May cause skin burns. Contact with skin will result in severe irritation. Repeated or prolonged skin contact may lead to irritant contact dermatitis.

**Inhalation:** Inhalation of mists will result in severe respiratory irritation and possible harmful corrosive effects including lesions of the nasal septum, pulmonary oedema, pneumonitis and emphysema. Inhalation of mists at elevated temperatures will increase these symptoms.

**Chronic (long term)**

**Ingestion:** Repeated or prolonged exposure can cause erosion of teeth and ulceration of the nose and gums.

**Skin:** Repeated or prolonged exposure may lead to dermatitis in some individuals.

**Inhalation:** Repeated or prolonged exposure can lead to respiratory disorders, or it may aggravate existing respiratory disorders such as emphysema and chronic bronchitis.

## 12. ECOLOGICAL INFORMATION

**Ecotoxicity:** Harmful effect due to pH shift.

**Persistence and Degradability:** No data available.

**Mobility:** No data available.

**Additional Information**

**Environmental Fate (Exposure):** No data available.

**Bio accumulative Potential:** No data available.

**Other Adverse Effects:** Discharge into the environment must be avoided. Avoid contaminating waterways.

**Aquatic toxicity:** 125 ppm/96 hours (mosquito fish, $TL_m$, fresh water).
180 ppm/23 hours (oysters, lethal, salt water).

## 13. DISPOSAL CONSIDERATIONS

**Disposal Methods:** Dispose of in accordance with all local, state and federal regulations. Refer to appropriate State Waste Disposal Authority. Observe local regulations. After dilution and careful neutralisation, approved liquid waste land fill site may be suitable. Empty containers must be decontaminated.

**Special Precautions for Landfill or Incineration:** No data available.

## 14. TRANSPORT INFORMATION

**UN Number:** 1824.

**UN Proper Shipping Name:** Sodium Hydroxide Solution.

**Dangerous Goods Class:** 8.

**Subsidiary Risk:** None allocated.

**Packaging Group:** II.

**Special Precautions for User:** CORROSIVE.

**Hazchem Code:** 2R.


**Incompatible Classes**

This product is incompatible in a placard load with any of the following:

- Class 1 – Explosives.
- Class 4.3 - Dangerous when Wet Substances.
- Class 5.1 - Oxidising Agents.
- Class 5.2 - Organic Peroxides.
- Class 7 - Radioactive Substances.
- All food and food packaging in any quantity.

## 15. REGULATORY INFORMATION

**Poisons Schedule:** 6.

**EPG:** 37.

**AICS Name:** Sodium Hydroxide.

**Additional information:** No data available.

## 16. OTHER INFORMATION

### Revision Details

**Reason for Revision:**

| | |
|---|---|
| **Version 1** | 5 year review. Updated to a new format. Additional information added. |
| **Version 2** | Alignment to GHS requirements. |

### Literature References

| | |
|---|---|
| **Chemical Rubber Company:** | Handbook of Chemistry and Physics, 85th Edition. |
| **Merck:** | The Merck Index, 14th Edition. |
| **Weiss, G.:** | Hazardous Chemicals Data Book, 2nd Edition. |
| **Luxon, S. G.:** | Hazards in the Chemical Laboratory, 5th Edition. |
| **Sax, N. Irving:** | Dangerous Properties of Industrial Materials, 3rd Edition. |
| **Safe Work Australia:** | Hazardous Chemicals Information System (HCIS) Exposure Standards and GHS Classifications Data-Base, 25 June 2016. |
| **National Transport Commission:** | Australian Code for the Transport of Dangerous Goods by Road and Rail, Volume 7. |

### Abbreviations

| | |
|---|---|
| **CAS Number:** | Chemical Abstract Service Registry Number. |
| **GHS:** | Globally Harmonized System of Classification and Labelling of Chemicals. |
| **EPG:** | Emergency Procedure Guide. |
| **LD50:** | Lethal Dose 50%: The lowest concentration at which approximately 50% of test animals will die when given the specified dose by mouth. |
| **$TL_m$:** | Medium Tolerance Limit, approximately 50% of fish will show abnormal behaviour including death under the given concentration and time. |
| **ADG:** | Australian Code for the Transport of Dangerous Goods by Road and Rail, Volume 7. |
| **AICS Name:** | Australian Inventory of Chemical Substances Name. |
| **OEL:** | Occupational Exposure Level. |
| **N/A:** | Not Applicable. |

**Disclaimer**

This Safety Data Sheet is offered solely for information, consideration and investigation to determine the suitability of various health and safety precautions as may be required under the user's specific conditions and processes. All such conditions and processes are beyond the control of Omega Chemicals.

The information contained herein is based on data available to Omega Chemicals from both our own technical sources and recognised published references and is believed to be both accurate and reliable. Omega Chemicals however provides no warranties, either expressed or implied, and assumes no responsibility for the accuracy or completeness of this information.

Omega Chemicals reserves the right to revise this Safety Data Sheet as information becomes available. The user has the responsibility, by making contact with this company or otherwise to make certain the Safety Data Sheet is the latest issue.



**DOCUMENT END**

# SAFETY DATA SHEET

## 1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

| | |
|---|---|
| **Product Name:** | **ALUMINIUM SULPHATE LIQUID** |
| **Other Names:** | Sulphate of Alumina, Alum, Papermakers Alum, Filter Alum, Liquid. |
| **Manufacturers Product Code:** | Liquid Aluminium Sulphate T.I.F |
| **Recommended use of the chemical and restrictions on use:** | Treatment of municipal water supplies, sewage and industrial effluents; paper manufacturing; tanning; chemical intermediate for other aluminium compounds; clarifying oils and fats; antiperspirants; pesticides; fireproofing and waterproofing cloths; waterproofing concrete; catalyst for oil refining. |
| **Supplier:**<br>**ABN:**<br>**Street Address:** | Omega Chemicals<br>32 982 143 022 / A.C.N 005 032 744 T/A<br>55 FITZGERALD ROAD, LAVERTON NORTH, VIC 3026 |
| **Telephone Number:**<br>**Facsimile:** | +61 3 8368 8000<br>+61 3 8368 8020 |
| **Emergency Telephone:** | 1300 131 001 (All Hours)<br>Poisons Information Centre Australia: 131 126 |

## 2. HAZARD IDENTIFICATION

| | |
|---|---|
| **Hazard Classification:** | Classified as Hazardous according to the Globally Harmonised System of Classification and Labelling of Chemicals (GHS) and Safe Work Australia criteria.<br><br>Classified as a Non Dangerous Goods according to the ADG Code. |
| **GHS Classification:** | Skin Corrosion/Irritation - Category 2<br>Serious eye damage/eye irritation – Category 2A<br>Corrosive to Metals – Category 1<br>Acute Toxicity(Oral) – Category 4 |
| **Signal Word (s):** | Warning  |

**Hazard Statement(s):**
H315 Causes skin irritation
H319 Causes serious eye irritation
H290 May be corrosive to metals
H302 Harmful if swallowed

**Precautionary Statement(s):**

**Prevention Statement(s):**
P102 Keep out of reach of children.
P103 Read label before use.
P234 Keep only in original container.
P264 Wash hands thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P390 Absorb spillage to prevent material damage.

**Response Statement(s):**
P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
P330 Rinse mouth.
P302+P352 IF ON SKIN: Wash with plenty of soap and water.
P321 Specific treatment (see First Aid Measures on the Safety Data Sheet).
P332+P313 If skin irritation occurs: Get medical advice/attention.
P362 Take off contaminated clothing before re-use.
P305+P354+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313 If eye irritation persists: Get medical advice/attention.
P390 Absorb spillage to prevent material damage.

**Storage Statement(s):**
P406 Store in corrosive resistant/compatible container.

**Disposal Statement(s):**
P501 Dispose of contents/container in accordance with jurisdictional regulations.

**Poisons Schedule (SUSMP):** N/A

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

| Ingredients | CAS Number | Proportion: | Hazard Codes |
|---|---|---|---|
| Aluminium Sulphate | 10043-01-3 | 47% | H315, H319, H290, H302 |
| Water | 7732-18-5 | Balance to 100% | |

## 4. FIRST AID MEASURES

For advice, contact Poisons Information Centre on 131 126 or a Doctor.

**Ingestion:** Immediately rinse mouth with water. Give plenty of water to drink. **DO NOT** induce vomiting. If vomiting occurs give further water. Never give anything by mouth if victim is rapidly losing consciousness. **Seek immediate medical attention.**

**Eyes:** Immediately irrigate with copious quantities of water for at least 15 minutes. Eyelids to be held open. Remove clothing if contaminated and wash skin. **Seek medical assistance.**

**Skin:** Remove all contaminated clothing without delay. Wash skin gently and thoroughly with copious amounts of water. If irritation occurs, seek medical attention.

**Inhalation:** Remove the source of contamination or move the victim to fresh air; avoid becoming a casualty. Remove contaminated clothing and loosen remaining clothing. Allow patient to assume most comfortable position and keep warm. Keep at rest until fully recovered. Seek medical attention.

**Advice to Doctor:** Treat symptomatically.

**Additional Information**

**Aggravated medical conditions caused by exposure:** Persons with pre-existing skin disorders may be more susceptible to the effects from this product.

## 5. FIRE FIGHTING MEASURES

**Extinguishing Media:** In case of fire, use an appropriate extinguishing media (water fog or if unavailable fine water spray, foam, carbon dioxide, dry chemical powder) that is the most suitable for surrounding fire conditions. Keep containers cool with water spray. If safe to do so, remove containers from path of fire. Suppress (knock-down) gases, vapours and mists with a water spray jet.

**Hazchem Code:** N/A.

**Specific Hazards arising from the substance or mixture:**

Hazards from Combustion: Product is non-flammable.

Flammability Conditions: Product is a non-flammable liquid.

**Special Protective Precautions and Equipment for Fire Fighters:** Fire fighters should wear a self-contained breathing apparatus and full protective clothing along with protective equipment. Prevent fire extinguishing water from contaminating surface water or the ground water system.

## 6. ACCIDENTAL RELEASE MEASURES

**Emergency Procedures/Protective Equipment/Personal Precautions:** Evacuate all unnecessary personnel. Work upwind. Increase ventilation. Use water spray to disperse vapours. Personnel involved in the clean-up should wear full protective clothing; self-contained breathing apparatus may be needed for prolonged periods of exposure. Avoid walking through spilled product as it may be slippery. Cover drains. Collect, bind and pump off spills.

| | |
|---|---|
| **Environmental Precautions:** | Do not allow product to enter drains, sewers, waterways or soil. If contamination of drains has occurred, advise the local emergency services. |
| **Methods and Materials for Containment and Clean Up:** | Contain spilled product using absorbent (soil or sand). Prevent run off into drains, sewers waterways or soil. Collect and seal in properly labelled drums ready for appropriate disposal. Dilute remaining product with water, neutralize with lime or soda ash and hold contaminated water for treatment. For large spills notify local emergency services. |

## 7. HANDLING AND STORAGE

| | |
|---|---|
| **Precautions for Safe Handling:** | Irritant liquid. Ensure an eye bath and safety shower are available and ready for use. Use only in a well-ventilated area. Prevent the build-up of mists in the work atmosphere. Avoid inhalation of mists, and skin or eye contact. Wear appropriate protective equipment to prevent inhalation, skin and eye contact when mixing and using. Ensure a high level of personal hygiene is maintained when using this product, that is, always wash hands before eating, drinking, smoking or using the toilet. Keep containers sealed when not in use. |
| **Container Type:** | Packaging must comply with requirements of Hazardous Substances (Packaging) Regulations 2001. Store in original packaging as approved by manufacturer. Store and transport in corrosion-resistant containers made of stainless steel, rubber-lined steel, PVC, fibreglass or polyethylene. |
| **Conditions for Safe Storage, including any Incompatibles:** | Store in a cool, dry, well-ventilated area out of direct sunlight. Do not store with incompatible products such as acids, sodium hydroxide and other alkalis. Do not store with any foodstuffs.<br><br>In very dilute aqueous solutions, this product may hydrolyse to form some sulphuric acid. Strong aqueous solutions of aluminium sulphate will readily react with sodium hydroxide and other alkali to form a thick slippery paste or jell. Mildly corrosive to metals and concrete. |

## 8. EXPOSURE CONTROLS

**Control Parameters:**

| | |
|---|---|
| National Exposure Standards: | Aluminium Sulphate: No specific exposure standard.<br>Aluminium soluble salts (as Aluminium): AU OEL: 2 mg/m$^3$. |
| Biological Limit Values: | No data available |
| **Appropriate Engineering Controls:** | Select suitable materials for the construction of storage tanks, containers, pipe valves and fittings. Ensure adequate ventilation using a combination of natural and local or general exhaust as appropriate. Keep containers closed when not in use in a well-ventilated area. |

| | | |
|---|---|---|
| **Individual Protection Measures, such as Personal Protective Equipment (PPE):** | **Respirator:** | If engineering controls are not effective in controlling airborne exposure then an approved respirator with a replaceable mist filter should be used. |
| | **Eyes:** | Chemical splash goggles or safety glasses with side shields and a full-face shield as appropriate should be used. |
| | **Hands:** | Wear elbow-length gloves of impervious material, PVC or rubber should be suitable. |
| | **Clothing:** | Protective overalls, splash apron and rubber boots. |

After using this product always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storage or re-use.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Core Information**

| | | |
|---|---|---|
| **Appearance:** | Clear to straw coloured liquid. | |
| **Formula:** | $Al_2(SO_4)_3$ 14 $H_2O$ | |
| **Odour:** | Odourless. | |
| **pH:** | 2.0 – 2.7. | |
| **Vapour Pressure:** | No data available. | |
| **Vapour Density:** | No data available. | |
| **Boiling Point:** | 120°C. | |
| **Freezing Point:** | -15°C. | |
| **Solubility (in Water):** | Miscible. | |
| **Specific Gravity:** | 1.31 (at 20°C). | |
| **Flash Point:** | N/A. | |
| **Flammability Limits (as Percent Volume in Air):** | **Lower Explosive Limit** | N/A. |
| | **Upper Explosive Limit** | N/A. |
| **Ignition Temperature:** | No data available. | |

**Additional Information**

| | |
|---|---|
| **Specific Heat Value:** | No data available. |

| | |
|---|---|
| **Particle Size:** | No data available. |
| **Volatile Organic Compounds Content (VOC):** | No data available. |
| **Viscosity:** | No data available. |
| **Percent Volatile:** | No data available. |
| **Octanol/Water Partition Coefficient:** | No data available. |
| **Saturated Vapour Concentration:** | No data available. |
| **Additional Characteristics:** | Insoluble in alcohol. |
| **Flame Propagation/Burning Rate of Solid Materials:** | No data available. |
| **Properties that may Initiate or Contribute to the Intensity of a Fire:** | No data available. |
| **Potential for Dust Explosion:** | N/A. |
| **Reactions that Release Flammable Gases or Vapours:** | No data available. |
| **Fast or Intensely Burning Characteristics:** | No data available. |
| **Non-Flammables that Could Contribute Unusual Hazards to a Fire:** | No data available. |
| **Release of Invisible Flammable Vapours and Gases:** | No data available. |
| **Decomposition Temperature:** | No data available. |
| **Evaporation Rate:** | No data available. |

## 10. STABILITY AND REACTIVITY

| | |
|---|---|
| **Reactivity:** | Reacts with alkali. |
| **Chemical Stability:** | Stable under normal conditions of storage and handling.<br>In very dilute aqueous solutions, this product may hydrolyse to form some sulphuric acid. |
| **Possibility of hazardous Reactions:** | Strong aqueous solutions of aluminium sulphate will readily react with sodium hydroxide and other alkali to form a thick slippery paste or jell. Mildly corrosive to metals and concrete. Thermal decomposition will produce dilute sulphuric acid. |

| | |
|---|---|
| **Conditions to Avoid:** | Heat-sensitive, avoid exposure to extreme heat and high temperatures. Avoid sources of ignition. |
| **Incompatible Materials:** | Mildly corrosive to metals and concrete. Avoid contact with mild steel, acids, sodium hydroxide and other alkalis Keep away from all foodstuffs. |
| **Hazardous Decomposition Products:** | Hazardous decomposition products include sulphur dioxide ($SO_2$) and sulphur trioxide ($SO_3$) and dilute sulphuric acid. |

## 11. TOXICOLOGICAL INFORMATION

**Toxicity Data**

| | |
|---|---|
| **LD50:** | 6207 mg/kg (mouse, oral, *as solid aluminium sulphate*). |
| **LD50:** | 1930 mg/kg (rat, intrapertioneal, *as solid aluminium sulphate*). |
| **Neurotoxicity:** | Injection of aluminium salts directly into the brain of animals caused functional and structural damage. |
| **Inhalation:** | Prolonged inhalation of 2 to 4 mg/m$^3$ of aluminium sulphate caused scarring of upper lung tissue. |

**Acute (short term)**

| | |
|---|---|
| **Ingestion:** | May be harmful if swallowed. May cause abdominal pain, nausea, vomiting, diarrhoea, bleeding stomach, gastrointestinal irritation, incoordination, muscle spasm and kidney damage. |
| **Eye:** | Can cause moderate to severe irritation and inflammation to the eyes. |
| **Skin:** | Can cause irritation to open cuts and wounds. |
| **Inhalation:** | Breathing in mists or aerosols may cause sore throat and coughing, and irritation to the respiratory tract, nose and throat. |

**Chronic (long term)**

| | |
|---|---|
| **Skin:** | Repeated or prolonged exposure may numb of the fingers. |
| **Ingestion:** | Repeated ingestion of this product may cause phosphate deficiency which can weaken bones. |

## 12. ECOLOGICAL INFORMATION

| | |
|---|---|
| **Ecotoxicity:** | No data available. |
| **Persistence and Degradability:** | No data available. |

| | |
|---|---|
| **Mobility:** | No data available. |

**Additional Information**

| | |
|---|---|
| **Environmental Fate (Exposure):** | No data available. |
| **Bio accumulative Potential:** | No data available. |
| **Other Adverse Effects:** | Discharge into the environment must be avoided. Avoid contaminating waterways, drains and sewers. |

## 13. DISPOSAL CONSIDERATIONS

| | |
|---|---|
| **Disposal Methods:** | Dispose of in accordance with all local, state and federal regulations. Refer to appropriate State Waste Disposal Authority. Observe local regulations. After dilution and careful neutralisation, approved liquid waste land fill site may be suitable. |
| **Special Precautions for Landfill or Incineration:** | No data available. |

## 14. TRANSPORT INFORMATION

| | |
|---|---|
| **UN Number:** | None allocated. |
| **UN Proper Shipping Name:** | Aluminium Sulphate Liquid. |
| **Dangerous Goods Class:** | None allocated. |
| **Subsidiary Risk:** | None allocated. |
| **Packaging Group:** | None allocated. |
| **Special Precautions for User:** | Irritant. |
| **Hazchem Code:** | N/A. |

## 15. REGULATORY INFORMATION

| | |
|---|---|
| **Poisons Schedule:** | N/A. |
| **EPG:** | N/A. |
| **AICS Name:** | Sulphuric acid, aluminium salt (3:2). |
| **Additional information:** | No data available. |

## 16. OTHER INFORMATION

**Revision Details**

**Reason for Revision:**

| | |
|---|---|
| Version 1 | 5 year review. Updated to a new format. Additional information added. |
| Version 2 | Alignment to GHS requirements. |

**Literature References**

| | |
|---|---|
| **Chemical Rubber Company:** | Handbook of Chemistry and Physics, 85th Edition. |
| **Safe Work Australia:** | Hazardous Substances Information System (HCIS) Exposure Standards and GHS Classifications Data-Base, 25 June 2016. |
| **National Transport Commission:** | Australian Code for the Transport of Dangerous Goods by Road and Rail, Volume 7. |

**Abbreviations**

| | |
|---|---|
| **CAS Number:** | Chemical Abstract Service Registry Number. |
| **GHS:** | Globally Harmonized System of Classification and Labelling of Chemicals. |
| **EPG:** | Emergency Procedure Guide. |
| **LD50:** | Lethal Dose 50%: The lowest concentration at which approximately 50% of test animals will die when given the specified dose by mouth. |
| **ADG Code:** | Australian Code for the Transport of Dangerous Goods by Road and Rail, Volume 7. |
| **AICS Name:** | Australian Inventory of Chemical Substances Name. |
| **OEL:** | Occupational Exposure Level. |
| **N/A:** | Not Applicable. |

**Disclaimer**

This Safety Data Sheet is offered solely for information, consideration and investigation to determine the suitability of various health and safety precautions as may be required under the user's specific conditions and processes. All such conditions and processes are beyond the control of Omega Chemicals.

The information contained herein is based on data available to Omega Chemicals from both our own technical sources and recognised published references and is believed to be both accurate and reliable. Omega Chemicals however provides no warranties, either expressed or implied, and assumes no responsibility for the accuracy or completeness of this information.

Omega Chemicals reserves the right to revise this Safety Data Sheet as information becomes available. The user has the responsibility, by making contact with this company or otherwise to make certain the Safety Data Sheet is the latest issue.



**DOCUMENT END**

Public Works
NSW Water Solutions

Level 14 McKell Building
2-24 Rawson Place
Sydney NSW 2000

www.publicworks.nsw.gov.au