



**Pollution Incident Response
Management Plan
2012**

Overview

To comply with requirements set out by the *Protection of the Environment Legislation Amendment Act 2011* (POELA Act), a Pollution Incident Response Management Plan has been prepared and implemented by Shoalhaven Water. The plan relates to Shoalhaven Water's sites in possession of an environmental protection license, which include all wastewater treatment plants in the Shoalhaven region.

As identified by the Environment Protection Authority¹, the objective of the plan is to:

- Ensure comprehensive and timely communication about a pollution incident to staff at the premises, the Environmental Protection Authority (EPA), other relevant authorities specified in the Act (such as NSW Ministry of Health, WorkCover NSW, and Fire and Rescue NSW) and people outside the facility who may be affected by the impacts of the pollution incident.
- Minimise and control the risk of a pollution incident at the facility by requiring identification of risks and the development of planned actions to minimise and manage those risks.
- 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 specific requirements for pollution incident response management plans are set out in Part 5.7A of the POEO Act and the Protection of the Environment Operations (General) Regulation 2009 (POEO (G) Regulation).² In summary, this provision requires the following:

- All holders of environment protection licenses must prepare a pollution incident response management plan (section 153A, POEO Act).
- The plan must include the information detailed in the POEO Act (section 153C) and be in the form required by the POEO (G) Regulation (clause 98B).
- Licensees must keep the plan at the premises to which the environment protection license relates.
- Licensees must test the plan in accordance with the POEO (G) Regulation (clause 98E).

¹ NSW Environment Protection Authority, 2012, *Environmental guidelines: Preparation of pollution incident response management plans*.

² As amended by the Protection of the Environment Operations (General) Amendment (Pollution Incident Response Management Plans) Regulation 2012

1. Description and likelihood of hazards

The main hazards to human health and the environment due to the associated activities undertaken by Shoalhaven Water include the event of uncontrolled release of wastewater into the environment, as well as the associated hazards relating to chemical storage and use.

1.1 Wastewater Release to Environment

Shoalhaven Water is responsible for the collection, transportation, and treatment of wastewater; therefore many factors contribute to the potential uncontrolled release of wastewater to the environment. Sources of an uncontrolled release involve the failure of a boundary riser, main line, pumping station or rising main, as well as a process treatment bypass at a treatment plant.

Untreated wastewater is highly contaminated by a variety of pollutants, in particular disease causing pathogens. The main hazards to human health involve the event of a person being exposed to or to come into contact with the wastewater. This could occur by:

- Inhalation of aerosols;
- Direct ingestion of contaminated water or food supplies exposed to contaminated water; or
- Indirect exposure via soil and airborne dust from contaminated soil.

There is likely to be minimal generation of aerosols associated with wastewater overflows. Given that outlets are generally located at ground level, there would be limited opportunity for aerosols to spread beyond the outlet. Direct ingestion of contaminated water is unlikely in the immediate vicinity of the flow relief facilities. There would be a relatively greater likelihood of human contact where the wastewater has overflowed into waterways used for recreation, fishing or other purposes. Direct ingestion of food exposed to contaminated water could potentially occur if a large wastewater overflow has taken place. Indirect exposure via soil and airborne dust from contaminated soil is considered unlikely for most pump station sites. Overflows from all sites are directed to vegetated areas or drains. However, there is an elevated risk of public contact with soils contaminated from overflows in public reserves.

The most likely impact of a wastewater release to the environment is the cumulative impact on surface and groundwater quality. Individual overflows are expected to have generally minor impacts; however it is possible that there may be an accumulation of pathogens in groundwater.

Circumstances that could increase the likelihood of this hazard occurring, involves significant wet weather events and natural disasters (wind storm or bush fire) which may cause major power failures. As many incidents are uncontrolled, the number of occurrences is actively minimised by effective control measures.

1.2 Chemical Storage

Various chemicals are used at Shoalhaven Water sites for the safe and effective treatment of wastewater, including chlorine gas, sodium hydroxide, ferrous chloride and aluminium sulphate.

Chlorine Gas

Chlorine is a hazardous substance and dangerous good which is used for final effluent disinfection at wastewater treatment plants. The main hazards to human health and the environment involve the incident of an uncontrolled leakage of gas. The immediate

associated effects on human health include eye and skin irritation as well as asphyxiation by inhalation. If the gas is released to the environment, significant biological hazards will result due to the toxicity of the gas. The likelihood of this hazard is limited due to the control measures in place including, the storage of the chemical in enclosed cylinders or drums, adequate ventilation, and air monitoring systems. Circumstances that could increase the likelihood of the hazard occurring involve during the connection and disconnection of chlorine containers which is effectively controlled by specific training and the use of PPE. Overall, the risks are identified as significant; however the control measures in place significantly reduce the likelihood of an incident.

Sodium Hydroxide Solution (Caustic Soda)

Sodium Hydroxide is a hazardous substance and dangerous good which is used for pH correction in aeration tanks at wastewater treatment plants. The main hazards to human health and the environment involve the incident of a spillage or splash of the chemical. The immediate associated effects on human health include skin and eye irritation by inhalation of vapors or ingestion of the liquid. The likelihood of this hazard is limited due to the control measures in place including spillage containment systems such as bunded areas, adequate ventilation and safety shower's. Circumstances that could increase the likelihood of the hazard occurring involve the time when persons are working in the vicinity of addition points and during the delivery and receiving of bulk supply. This is effectively controlled by specific training and the use of PPE. Overall, the risks are identified as significant; however the control measures in place significantly reduce the likelihood of an incident.

Ferrous Chloride

Ferrous Chloride is a hazardous substance and dangerous good which is used for the odour control of raw sewage. The main hazards to human health and the environment involve the incident of a spillage or splash of the chemical. The immediate associated effects on human health include skin and eye irritation, by inhalation of vapors or ingestion of the liquid. The likelihood of this hazard is limited due the control measures in place including spillage containment systems such as bunded areas and safety shower's. Circumstances that could increase the likelihood of the hazard occurring involve the time when persons are working in the vicinity of addition points and during the delivery and receiving of bulk supply. Overall, the risks are identified as significant; however the control measures in place significantly reduce the likelihood of an incident.

Aluminium Sulphate (Alum)

Alum is a hazardous substance and non-dangerous good which is used as a coagulating agent, consequently aiding in phosphorus removal during the wastewater treatment process. The main hazards to human health and the environment involve the incident of a spillage or splash of the chemical. The immediate associated effects on human health include irritation of the skin and eyes by the liquid or produced fumes. The likelihood of this hazard is limited due to the control measures in place including spillage containment systems such as bunded areas and safety shower's. Circumstances that could increase the likelihood of the hazard occurring involves the time when persons are working in the vicinity of addition points and during the delivery and receiving of bulk supply. This is effectively controlled by specific training and the use of PPE. Overall, the risks are identified as not significant now and are not likely to increase in the future.

2. Pre-emptive actions to be taken

Actions undertaken to minimise or prevent any risk of harm to human health or the environment arising from activities undertaken by Shoalhaven Water are listed below.

2.1 Wastewater Release to Environment

- Telemetry at pump stations – all pump stations are monitored by radio telemetry, which activates an alarm to operators in the event of high water levels, pump or power faults etc. Alarms are sent to on-call staffs who respond to incidents 24 hours a day.
- Dual pumps in pump stations – The majority of pump stations are fitted with dual pumps allowing for dual / standby operation. Those with single pumps are low risk and if an overflow occurs, it will be contained within the sewer system.
- Pump station maintenance – Operators monitor pump station operation daily and check and clean all pump stations weekly. In addition, further monthly, three monthly etc. inspection and maintenance activities are carried out on all electrical, telemetry and mechanical equipment.
- Pump station tanker pump-outs – Shoalhaven Water owns pump-out tankers as well as have access to a twenty-four hour service pump-out contractor. These tankers are routinely called on site of potential overflow as a precautionary measure.
- Maintenance program for manholes and sewers – Shoalhaven Water actively maintains manholes and sewer mains, checking covers, root intrusion, infiltration and sediment deposits etc.
- Jet washing/CCTV inspection – CCTV camera equipment is used to survey areas which have repeat chokes, overflows or excessive infiltration to determine the corrective actions required.
- Sewer relining – Council actively relines damaged pipes to reduce infiltration and chokes in the system.
- Staff training and skills – An annually updated training program is in place for each employee, whilst developing teamwork and best practice. Also by raising the awareness of legislative requirements, particularly relating to the environment.

2.2 Storage of Chemicals

- On-site induction system – All personnel on-site at treatment plant facilities are provided with a comprehensive site induction which provides the necessary safety information, including the actions to be taken in the event of an emergency.
- Evacuation plan – Evacuation plans are provided at each site and are discussed during the site induction. Plans include the location of hazardous substances, emergency escape routes and safety equipment.
- Flammable goods storage locker – Containing small quantities of flammable goods, the locker is vented to the outside air.
- Spill containment systems – Chemical storage locations and tanker unloading areas are adequately bunded, so to capture and prevent the release of chemicals to the environment.
- Storage containers – All chemicals are stored in the appropriate containers, and are separated from other dangerous goods of other classes as well as from flammable material.
- Isolation valves – In all bunded areas, isolation valves are installed and closed during delivery of supply. In the event of a spillage, the closed valve will contain the chemical, preventing contamination.

- Chlorine sensors – Dual leak detection meters are installed nearby to the location of chlorine rooms, if a leak occurs, the detector activates a visual and audible alarm. In addition, a wind sock is located nearby to notify personnel of the upwind direction.
- Automatic dosing – Automatic dosing methods significantly reduce the contact between the operator and the chemical, this also provides additional alarmed control.
- Safety signs – Are located at all chemical locations and correctly identify the chemical and its associated hazard rating as well as emergency measures. All signs are in the correct location and are clearly visible and readable.
- Material Safety Data Sheets (MSDS) – Provide essential information regarding first aid measures, handling and storage instructions as well as the properties of the chemical etc. These documents are located at all sites and are regularly reviewed and updated.
- Staff training and skills – An annually updated training program is in place for each employee, whilst developing teamwork and best practice. This includes specific activities such as chlorine handling etc.

3. Inventory of pollutants

Details of pollutants are located within Shoalhaven Water's current Emergency Response Plan.

4. Safety equipment

Various safety equipment and devices are used to minimise the risks to human health and the environment, by providing containment or protection from a pollution incident. All equipment is regularly tested and overhauled as recommended by suppliers and include;

- CO₂ extinguisher – Located within amenities buildings, areas containing electrical equipment as well as chlorine rooms.
- Dry chemical extinguisher – Located within all chlorine rooms and workshop areas,
- Water extinguisher – Located within amenities buildings.
- Fire fighting hose reel – Located within amenities buildings and chlorine rooms.
- First aid kit – Located within amenities buildings and are restocked monthly, and regulated with the use of a first aid register.
- Fire blanket – Located within amenities buildings.
- Safety shower and eyewash station – Located nearby to amenities buildings, dosing areas and chlorine rooms.
- Self-Contained Breathing Apparatus – Sites are equipped with multiple breathing apparatus' in various locations, namely blower rooms and amenities buildings, to provide for increased access in an emergency event.
- Chlorine container safety cap – Protect the valves on all chlorine cylinders and drum valves.
- Wind Socks - Located nearby to chlorine rooms to identify upwind direction in the event of emergency.
- Chemical spill kit – For minor spills, located in storerooms.

5. Contact details

Under section 148 of the Protection of the Environment and Operations (POEO) Act, in the event of a pollution incident, Shoalhaven Water follows the notification protocol below:

1. The Environmental Protection Authority (EPA) – Environmental Line 131 555
2. Illawarra Public Health Unit – Phone 4421 6700
3. WorkCover Authority – Phone 13 10 50
4. Fire and Rescue NSW – Phone 1300 729 579

Specific details of these contacts are provided within Shoalhaven Water's current Emergency Response Plan (ERP) and are readily accessible to all staff. Additional contacts relative to this plan include Orica Chemicals and Shellfish Quality Assurance Program (SQAP) etc. which are also provided in the ERP and are regularly checked and updated.

6. Communicating with neighbors and the local community

All Shoalhaven Water's wastewater treatment plants are located in areas that include a buffer area, which would negate the need to notify residents nearby to the treatment plants. Buffer zones are implemented to decrease the risks of environmental or health impacts on sensitive environments such as populated areas or water bodies, if an incident was to occur. If an emergency occurs, affecting offsite, this will be dealt with as per Shoalhaven Water's current; Emergency Response Plan and the local community will be informed, by external emergency services or Shoalhaven Waters staff.

7. Minimising harm to persons on the premises

Actions and arrangements that are in place to minimise the risk of harm to persons on the premises or likely to be on the premises should an incident occur include site inductions, the activation of evacuation procedures, visible and audible warning alarms as well as other pre-emptive measures.

Evacuation procedures are implemented and tested at each site, and also show the location of safety equipment as well as emergency escape routes and emergency gathering locations. All personnel on site receive a site induction conducted by the treatment plant operators, which educates persons on the description and likelihood of hazards, the above mentioned emergency procedures and the provided safety equipment onsite. Refer to section 0 for a list of pre-emptive actions to be taken, which are in place at all treatment plant sites.

8. Maps

Maps that form part of this plan (not included in this document) include each of the site emergency evacuation plans. These include the location of all chemicals and safety measures that may be utilised in the event of an emergency.

9. Actions to be taken during or immediately after a pollution incident

Please refer to Shoalhaven Water's Emergency Response Plan (not included in this document) for detailed charts on how to manage specific emergency events by detailing the actions to be taken by staff during or immediately after a pollution incident. The following charts are included in the plan:

- Chart 1 – is the general 'Overflow Emergency Response Plan'. It directs the reader to refer to one or more of the following charts;
- Chart 2 – Boundary Riser Failure
- Chart 3 – Main Line Failure
- Chart 4 – Pumping Station or Rising Main Failure
- Chart 5A – Major Sewage Overflow
- Chart 5B – Minor Sewage Overflow
- Chart 6 – Process Treatment Bypass at a treatment plant
- Chart 7 – Sewage Overflow Inside House
- Chart 8 – Chlorine Leak
- Chart 8A – Chlorine Leak Incident Form
- Chart 9 – Liquid Chemical Spill
- Chart 9A – Liquid Chemical Spill Incident Form

10. Staff Training

As this plan will form as part of the current Shoalhaven Water – Emergency Response Plan, training will be incorporated into current practices.

The objective of training programs is to allow for staff to be suitably qualified, and well prepared in an emergency event. An annually updated training program is in place for each employee, which includes specific training. For example, all staff that operates chlorine systems undergoes 'Chlorine Handling Awareness & Procedures' training by Orica. Staff are made aware of MSDS' for their site and are reviewed annually.

All records of training are kept in Councils Training and Development (TRAAD) system. In addition, Safe Work Method Statements and Safe Work Procedures are generated and implemented during activities that have potential to cause harm to persons or the environment.