NSW NATIONAL PARKS & WILDLIFE SERVICE

Pollution Response Incident Management Plan

Sawpit Creek Sewage Treatment Plant

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Cover photo: Sawpit Creek, Kosciuszko National Park. Ryan Petrov/DPE

Published by:

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ISBN 978-1-922900-24-1
EHG 2022/0555
First published in November 2018; reprinted October 2021 and November 2022.

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1. Introduction

The Sawpit Creek Sewage Treatment Plant (STP) is a relatively small package type treatment plant with a rating of 280 equivalent persons (EP). The STP is operated by the National Parks and Wildlife Service (NPWS) and receives and treats wastewater from 3 sources:

- Kosciuszko Tourist Park (camping, cabins, caravans)
- NPWS Education Centre (offices and visitor facilities)
- Sawpit Creek Landfill leachate pond.

Wastewater from the Kosciuszko Tourist Park is fed to the STP via gravity main sewers. Sewage from the NPWS Education Centre gravitates to a pumping station at the rear of the building. From there, it is pumped approximately 220 metres via a 50 mm polyethylene rising main to a vented maintenance hole adjacent to the amenities block in the Kosciuszko Tourist Park. Wastewater from the Sawpit landfill leachate pond can be gravity fed to the STP via a 215 metre long 50 mm uPVC main to a maintenance hole adjacent to the STP. The gravity main crosses Sawpit Creek via a bridging structure.

The primary pollution incidents that may occur are sewage overflows. Historically, sewage overflows from the Sawpit Creek sewerage system are rare. This can be attributed to a number of factors, including the generally low volumes of sewage that pass through the system. Within the Kosciuszko Tourist Park, reticulation sewage spills can be contained, with the resultant risk to public health and the environment being assessed as low.

A spill that does occur would generally be restricted to land. However, a large spill could potentially enter Sawpit Creek, which flows into Thredbo River before entering Lake Jindabyne. This may impact downstream users in the catchment (including those that source water supplies from Lake Jindabyne) if the strength and quantity of the sewage was significant.

Overflows that may occur from the Education Centre sewage pumping station or the Sawpit Creek STP would result from a major malfunction within the system or part of the system (e.g. switchboard fire, power outage combined with failure of generator, rising main failure etc.), which is a rare occurrence. The resultant level of risk to the environment of such an event is assessed as moderate, taking into account the response time in controlling the spill and the nature of the receiving environment.

To reduce the likelihood of sewage spills, NPWS undertakes a number of pre-emptive actions, including both operational and maintenance activities, as detailed in the Sawpit Creek Sewerage System Operations Manual.

The possible sewer surcharge scenarios have been identified in the following sections.

The actions implemented in response to these scenarios may vary depending on the type of incident. However, the general response procedure that is to be followed for any pollution incident is shown diagrammatically in Figure 1.

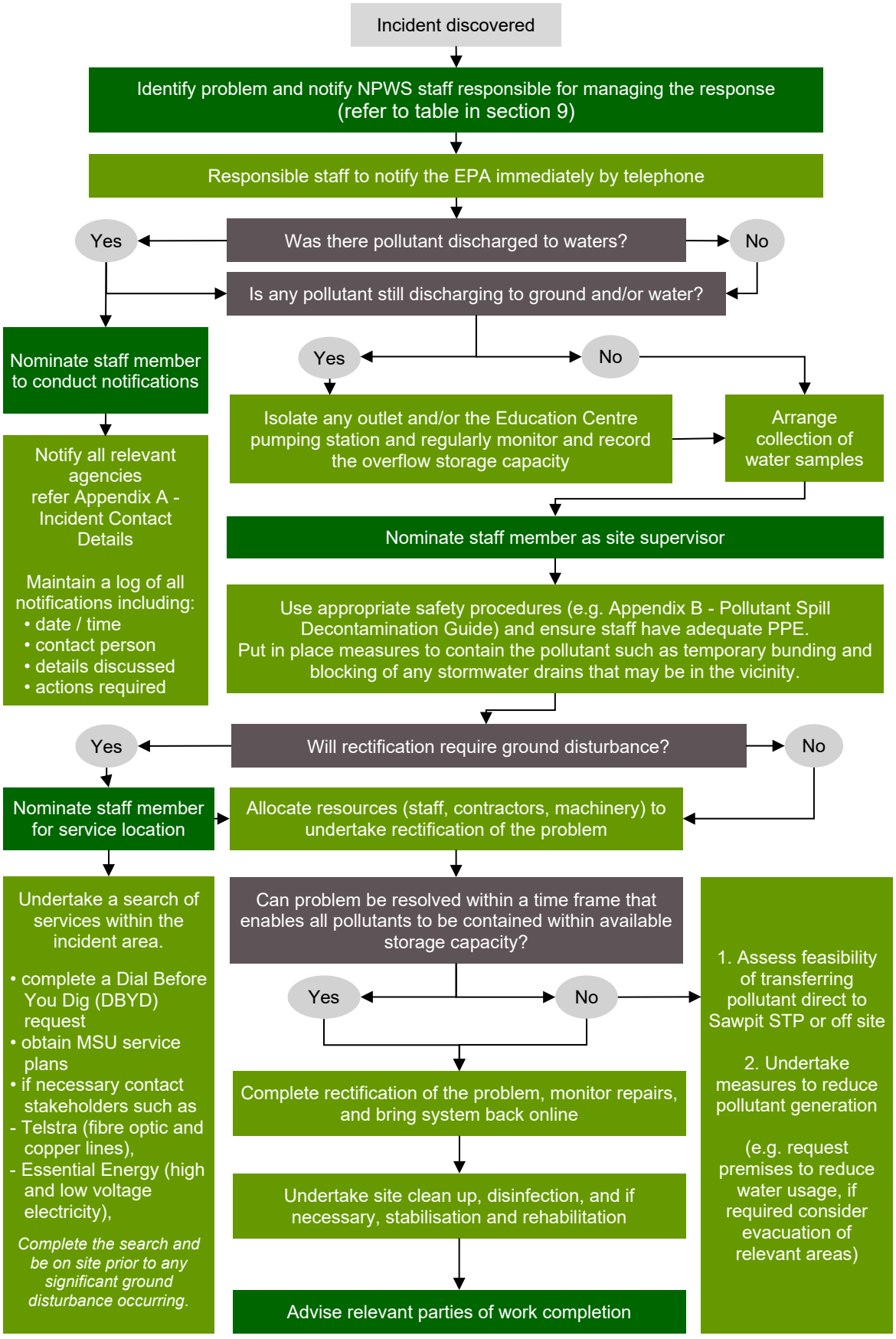

Figure 1 Response procedure for pollution incident

2. Localised sewer surcharge

Localised sewer surcharges are rare in the Sawpit Creek reticulation and generally result from external interference (e.g. pipes broken during excavation etc.) with subsequent poor repair work. The normal urban reticulation problems, such as fat build-up, are virtually non-existent and tree root invasion is minimal.

The volumes of sewage discharged from these events are generally small but may vary depending on the location within the reticulation system. If the sewer surcharge is located in part of the gravity reticulation system (e.g. within Kosciuszko Tourist Park) and promptly detected, then the discharge would be minimal. By comparison, a surcharge in the reticulation section that is also fed by the Education Centre pump station may potentially result in larger volumes of sewage being discharged. However, this situation can only occur in a very small section of the reticulation network.

In most cases, the surcharge is caused by a blockage at the outlet of a maintenance hole. In these cases, rectification is relatively straightforward. Once the excess sewage is removed (by isolating the inflow and waiting for backed-up sewage to drain or by pumping to a downstream maintenance hole or waste contractor), the cause of the blockage can be identified and removed. If the blockage is between maintenance holes, rectification may take longer through the use of an electric eel (also known as a ‘sewer snake’) or, in more difficult cases, by the excavation of the problem area.

3. Rising main failure

There is only one sewer rising main within the Sawpit Creek reticulation network and this is from the Education Centre pump station. The volumes of sewage that pass through this rising main are not significant as the majority of the time, the Education Centre is occupied by only a few NPWS staff. Peak flows do occur sporadically when large school groups utilise the facility.

A failure of this rising main, if undetected for a period of time could potentially result in the loss of large volumes of sewage to the environment. Failure of a sewer rising main can result from damage to the pipe that may have occurred during other works undertaken close to the pipeline or may result from fatigue and degradation of the pipe over time.

Response to a failure of the rising main needs to be prompt with available resources utilised to rectify the problem as soon as possible. However, it is noted that unlike Perisher where the sewage storage capacity within the reticulation system is typically limited to 6 hours or less, a failure of the rising main at Sawpit Creek only impacts the Education Centre where the pump well has good storage capacity for typical flows.

Should it not be possible to effect the repairs within the available storage capacity timeframes, it would be minimal disruption to minimise water consumption at the Education Centre.

In nearly all cases, notification to all relevant authorities and stakeholders will be required if sewer is discharged from a rising main failure. As per the pollution incident management procedures, a staff member should be dedicated solely to this task and must keep a detailed log of all notifications.

4. Sewer surcharge from the pumping station and/or the Sawpit Creek STP

Possible incidents that may result in a surcharge from the Education Centre sewage pumping station (SPS) or the Sawpit Creek STP include:

- pump failure
- total power outage
- switchboard fire/explosion
- inundation of the system through infiltration, stormwater inflow or flooding.

A surcharge from the Education Centre SPS or Sawpit Creek STP would generally be contained on land; however, there would still be a risk of contamination to staff or visitors to the area. A surcharge from the Sawpit Creek STP of significant quantities could possibly result in sewage being discharged to Sawpit Creek. In all cases, it would be possible to contain the surcharging sewage within a localised area. It may be necessary to consider the engagement of a liquid waste contractor to transfer sewage between locations or off site.

Similar to rising main failures, these events will generally require notification to all relevant authorities and stakeholders.

5. Inventory of pollutants

There are a number of chemicals stored and used at the Sawpit Creek STP. A full inventory is provided Appendix C, and the storage locations are shown on the maps provided in Appendix D.

6. Chemical discharge to the environment

The risk of environmental harm from a spill of the chemicals listed in Appendix C is generally considered low, given the relatively small quantities stored and the containment systems in place. However, some chemicals that are used more frequently in the treatment process have been assessed to pose a slightly higher risk. These include phosphoric acid, aluminium sulfate, and aluminium chlorohydrate. There is a potential for these chemicals to be discharged to the environment through a leak from a storage container or accidental overdose.

In the event of a spill or overdose, similar procedures to those listed for sewer discharge are to be followed, including notification of all relevant authorities. In these incidents, the key objective is to capture and contain the pollutant as soon as practical to minimise the discharge to the environment.

Leaks from within the STP or accidental overdosing of chemicals will require the containment of the contaminated effluent. Depending on the time of year, there may be available storage space within the polishing ponds, extended aeration tank, or sludge storage tank, or the effluent may need to be transferred off site.

As per the general response procedure shown in section 1, as soon as staff become aware of a leak or chemical overdosing, the system should be immediately isolated and at the

same time, the Supervisor Water and Wastewater, Senior Engineer, or Manager contacted for advice and assistance.

7. Public notification

Where required, a number of public notification mechanisms are available such as:

- direct phone calls to stakeholders and NPWS staff working in the Sawpit Creek area
- text messages to stakeholders and NPWS staff
- door knocking to alert stakeholders and visitors
- media releases (via the Public Affairs Branch).

Any form of public notification is to be approved and coordinated by the Manager Southern Ranges Services. Additionally, public notifications should be undertaken in consultation with the NSW Health, Public Health Unit.

8. Incident response equipment

Personal Protective Equipment (PPE) and spill kits are located at Sawpit Creek STP and the NPWS Perisher Valley office. An emergency response kit is also located in the workshop of the Perisher office that includes a variety of tools, such as valve keys and maintenance hole lifters.

9. Responsible staff

All staff are responsible for undertaking actions in response to a pollution incident to mitigate potential impacts. It is expected that any staff member who becomes aware of an incident begins implementing the procedures set out in this document, including notifying other staff for assistance.

In the event of an incident, one or more of the staff listed below are responsible for managing the response and are authorised to notify relevant authorities as required.

Table 1 Response management staff

Position	Name	Contact details
Manager, Southern Ranges Services	Ryan Petrov	Work: 6450 5629 Mobile: 0408 225 528
Senior Engineer	Chris Brooke	Work: 6450 5673 Mobile: 0438 667 069
Supervisor Water and Wastewater	Martin Buhler	Work: 6457 4431 Mobile: 0428 484 757
Director, Southern Ranges Branch	Kyle Williams	Work: 6450 5698 Mobile: 0481 333 484

10. Staff training

Familiarisation with these procedures must form part of the induction process for any new staff and be documented on the relevant induction records.

For existing staff, a formal re-familiarisation should occur with every revision rollout of the Sawpit Creek Sewerage System Operation Manual.

Practical implementation of these procedures should occur at least once every 5 years. This may require a simulated incident if no real situations present themselves within this time.

Any incident that does occur (including simulations) should be followed up with a debrief with all relevant staff. This debrief should include a critical review of these procedures. The debrief results are to be documented, and any relevant changes to the procedures are made and implemented as soon as practical.

Appendix A

Incident contact details

How to use this document

This document provides contact information for the relevant agencies in the event of a pollution incident.

Incidents that present an immediate threat to human health or property

Call 000 Fire and Rescue NSW, the NSW Police, and the NSW Ambulance Service are the first responders, as they are responsible for controlling and containing incidents.

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

Authority contact details

Environment Protection Authority (EPA)	Contact phone	Notes
Environment Line	131 555	24-hour hotline
Manager, South East Region	6229 7002	Queanbeyan office (business hours only)

NSW Health	Contact phone	Notes
Public Health Unit, Albury	6080 8900	After-hours diverts to Albury Base Hospital – ask for the Public Health Officer on call
Senior Environmental Health Officer - Population Health	6080 8900 0418 464 916	James Allwood

For NSW Health's complete notification procedures, see Water Supply Authority Sewage Overflow Notification.

WorkCover Authority	Contact phone	Notes
SafeWork NSW	13 10 50	To be notified of any incident that involves: • the death of a person • a serious injury or illness • a dangerous incident

Fire and Rescue NSW	Contact phone	Notes
Emergency Contact	000	
Pollution incident notification	1300 729 579	
Perisher Valley Station	(02) 6457 5037	Only during winter season
Jindabyne Station	(02) 6456 2476	

Snowy Hydro	Contact phone	Notes
Snowy Hydro, Cooma	6453 2888	Business hours only
Safety & Environmental Incidents	1800 766 333	Redirected to Visitors Centre on weekends. Answering service after hours
Environment Manager	0427 773 504	Charlie Litchfield
Area Manager, Kosciuszko	0477 044 027	Drew Twigg

Snowy Monaro Regional Council	Contact phone	Notes
Manager Water and Waste Water Operations	6451 1587	Jessica Dunstan
Sewer Supervisor	0408 484 853	Dennis Pilkington
Water Supervisor	0418 672 523	Grant Holmes

Premises at Sawpit Creek	Contact phone	Notes
Kosciuszko Tourist Park	6456 2224	Camping and cabin facilities
NPWS Education Centre	6451 3700	
NPWS Vehicle Entry Station	6451 3751	Located on Kosciuszko Road

Water supply authority sewage overflow notification

Introduction

The Environment Protection Authority (EPA) licences local councils' sewerage systems. The licence conditions include notification to public health units of incidents within the sewerage system, which are of public health significance. A risk to public health will exist when people are exposed to untreated or inadequately treated sewage.

A variety of overflow and bypass incidents can occur either within the sewage reticulation system or at the sewage treatment plant (STP). Of these incidents, dry weather pollution events are considered to present a potentially significant risk to public health. These events result in untreated sewage being discharged into the surrounding environments, including creeks and streams. Unlike wet weather events, there is no significant dilution of the sewage. During dry weather, there is a higher demand for recreational use of our inland waterways and coastal beaches, increasing the potential exposure of people to sewage. The community would also not be anticipating pollution of a recreational water body during dry weather.

Inland waterways and coastal beaches are used for a range of activities where increased pollution levels may pose a risk to public health. Some of these activities include:

- primary and secondary recreational activities, including swimming, water skiing, surfing
- domestic use, including potable and non potable uses
- livestock feed water
- irrigation of crops
- other riparian land users
- aquaculture industries, including fish and especially shellfish industries.

In considering the impact on any of these activities the public health risk relates to the proximity of the incident to the activity, the approximate concentration of pathogens within the effluent, the volume of effluent released to the environment and dilution factors within the environment.

Event definitions

Bypasses

Sewage is received at the STP and discharged without receiving some or all of the designed treatment processes. This can occur in both dry and wet weather.

During **dry weather**, bypasses may also occur because of equipment failure or power loss to the STP. (This is considered a potential health risk especially if disinfection is compromised).

During **wet weather**, bypasses may occur because of excess stormwater entering the system. Sewage that is capable of being treated by the STP process is treated, and any additional sewage bypasses some of the treatment processes. (This is considered a potential health risk and contributes to an overall increased health risk during and following rain events along with the input of contaminated stormwater).

Overflows

At sewage treatment plants

Occurs when the incoming flow exceeds the disinfection capacity, i.e. sewage continues to go through the treatment process but exceeds the disinfection process capacity.

This usually occurs in wet weather. (This is considered a potential health risk and contributes to an overall increased health risk during and especially following rain events along with the input of contaminated stormwater).

In the reticulation system

It can occur in any part of the system by design in wet weather, or system failure in both wet and dry weather.

Dry weather overflows are due to system breakdowns such as blockage of the sewer caused by tree roots or, sewage pumping stations (SPS) failures due to events such as a power failure. (This is considered a potential health risk depending on the location and extent of the overflow).

Wet weather overflows are primarily due to excess stormwater entering the system and flows exceeding pipe or pump capacity. Directed overflows from the reticulation system occur in wet weather and are designed to provide relief points in the system when excessive rainfall from storm events enters the sewerage system. (This is considered a potential health risk and contributes to an overall increased health risk during rain events along with the input of contaminated stormwater).

Notification conditions

The health risk associated with sewage overflows and bypasses will vary with each incident depending on the population exposed, e.g. swimmers, school children. The majority of these are overflows on customers' properties as a result of chokes in the sewerage system. However, some of these overflows discharge to waterways or to public locations in both dry and wet weather.

The public health unit should be notified of incidents that present a risk to public health. The notification process be separated into immediate notification of incidents, which represent a potentially increased risk to public health, and other incidents that pose a lower risk to public health.

The determination of an incident, which would be considered to pose a significant health risk, requires a degree of site investigation and subjective judgement of the situation on the part of water supply authority. Requirements for incidents to be reported are defined below.

Immediate notification

Immediate notification to the public health unit is to occur as soon as practicable following notification to water supply authority of incidents that represent a potential increased risk to public health, as defined below.

Notification is to occur as follows:

By phone during office hours 9 am – 5 pm. All information is to be emailed as soon as practicable;

By phone outside office hours (7 am to 9 am; 5 pm to 10 pm on normal working days; 7 am to 10 pm on weekends and public holidays). All information is to be emailed on the next working day.

Note 1: Notifications occurring between 10 pm and 7 am should be reported by phone the next morning at 7am and information faxed unless requested otherwise.

Note 2: Not all the requested information may be available at the time of reporting, e.g. for reticulation overflows volume estimates can't be provided. However, currently State Water Corporation (SWC) provides information on the number of customers connected upstream of the overflow, indicating the catchment size. This information generally takes a longer period to collect and should be provided by the next working day.

Criteria for immediate notification

Dry weather events (overflows or bypasses) constitute a potentially increased health risk. These include those which occur in the following circumstances:

- Public municipal parks where significant usage for recreational activities is being undertaken or main recreational areas of national parks and similar. Examples of an area where significant usage is parks where sporting activities are occurring at the time of the overflow.
- Inside a child care centre or school or in close proximity to schools where there is assessed to be a high risk of exposure of children to the overflow incident.
- In close proximity to known high use recreational sites in waterways (primary or secondary use). For secondary use, this includes high use access locations – such as boat ramps, sailing club access, etc.
- When the Shellfish Quality Assurance Program (SQAP) is notified.
- When the duration of sewage discharge exceeds 12 hours from the time of notification to SWC.
- Bypass at a STP where disinfection has been compromised. Disinfection may be compromised as a result of a direct bypass of the disinfection facility; failure of disinfection equipment; or ineffectiveness of disinfection due to bypass of upstream treatment processes.
- Bypassing of the deep water ocean outfalls at North Head, Bondi and Malabar STPs.

Information required on immediate notification

Phone

Site (address).

Reason for notification e.g. within 10 metres of a school.

Time of notification to water supply authority of discharge.

Action taken.

Email

Site (address).

Reason for notification, e.g. within 10 metres of a school.

Time of notification to water supply authority of discharge.

Known period of discharge.

Action taken.

Known volume or estimated volume of sewage released.

This may include the provision of information on the number of customers connected upstream of the site, providing an indication of the catchment size.

Summarised notification

Summarised notification to the public health unit, by the way of a monthly summary, to be sent by the fifth working day of the following month is to occur for other events of potential public health significance, of much lower priority. (Although delayed summarised information will not allow for immediate follow-up by the public health unit, it may be useful in identifying specific trouble spots).

In addition to the events described below, the summary is to include in a separate table those events for which immediate notification was given.

Criteria for summarised notification

Dry weather events where sewage is discharged to waterways.

All wet weather events which have resulted in a compromise to disinfection of sewage at a STP.

Information required on summarised notification

Summaries are to include:

- site of discharge (address)
- site of potential human exposure (stream, recreational area or distance from waterway)
- time of notification to the water supply authority of discharge
- known period of discharge
- actions taken
- volume (if known)
- other agencies notified.

Following review of the monthly summary the public health unit may request results of any water samples collected for waterways where known recreational sites are located or other locations of public health concern.

Information to the public

For each event notified, the water supply authority must discuss the need for provision of information to the public, e.g. media release, radio announcement, signage etc., with the public health unit.

Appendix B

Pollutant spill decontamination guide

This document is a general guide in the decontamination of personnel and equipment involved in rectifying a pollutant spill.

Whilst this guide outlines the general procedures and principles to be followed, the incident site supervisor will be required to make their own judgement according to the site specific requirements.

The incident site supervisor must provide a copy of the relevant Job Safety Analysis (JSA) and undertake a Job Safety Brief (JSB) with all personnel (including contractors) before the commencement of site activities.

If the pollutant is a chemical that has been identified, the incident site supervisor must have the relevant Material Safety Data Sheet (MSDS) available and advise all staff of the relevant risks.

Wherever possible, all personnel involved in the clean up of a sewage spill should be vaccinated against hepatitis A and hepatitis B. Staff that do not have current vaccinations are to be informed of the risks and permitted to be tasked to non-front line roles.

Personnel in direct contact with contaminants must be dressed in the following personal protective equipment (PPE) before the commencement of work.

- disposable overalls
- rubber gum boots
- elbow-length rubber gloves
- eye protection

Personnel to buddy up to ensure PPE is fitted correctly and covers all exposed skin.

The site supervisor is responsible for establishing a decontamination area that includes a disinfectant bath.

All personnel (including contractors) must dip gloves and boots into a disinfectant bath before leaving the site and/or operating vehicles etc.

Gloves and gum boots are to be placed in a plastic bag and disinfected after the incident.

Disposable overalls and tape is to be placed in a lined garbage bin for disposal.

The site supervisor is responsible for ensuring all used equipment is disposed of appropriately.

All equipment that is to be reused must be disinfected and restocked in the appropriate location.

Decontamination kit

A decontamination kit is to be maintained and kept in the Perisher Valley NPWS workshop. The kit is to contain the following stock.

Item	Quantity
Disposable overalls	6 sets
Rubber gum boots	6 pair
Rubber elbow length gloves	6 pair
Duct tape	2 rolls
Nitrile gloves (disposable)	2 boxes
Disinfectant	5 litres
Alcohol hand gel (500 mL)	2
Plastic bags	10
Milk crate	1
Garbage bin (60 L)	1
Cable ties (200 mm)	1 pkt
Eye protection (clear)	6
Current Job Safety Analysis (JSA) – laminated	1 copy
Sewage Spill Decontamination Guide – laminated	1 copy

The incident site supervisor is responsible for restocking the decontamination kit and ensuring all contaminated equipment has been cleaned and disinfected before it is put away.

Appendix C

Pollutant inventory at Sawpit Creek Sewage Treatment Plant

Substance	Use	State	Location	Max amount stored	Type of containment
Unleaded fuel	Fuel supply for mowers	Liquid	Storage shed	50 L	One (1) x 5 L, One (1) x 10 L, One (1) x 20 L storage drums
Aluminium Sulfate	Sewage treatment process	Liquid	Laboratory	380 L	380 L Chem dosing system
			Bunted pallet	800 L	Four (4) x 200 L plastic drums
Aluminium Chlorohydrate	Sewage treatment process	Liquid	Bunted pallet	800 L	Four (4) x 200 L plastic drums
Blood and Bone	Feed program	Solid	Chem store container	625 kg	25 bags @ 25 kg
Soda Ash	Sewage treatment process	Solid	Chem store container	750 kg	30 bags @ 25 kg
Urea	Sewage treatment process	Solid	Laboratory	100 kg	4 bags @ 25 kg
			Chem store container	250 kg	10 bags @ 25 kg
Sugar	Sewage treatment process	Solid	Chem store container	200 kg	8 bags @ 25 kg
Hydrated Lime	Sludge treatment process	Solid	Chem store container	80 kg	4 bags @ 20 kg
Sodium Hypochlorite	Algae treatment	Liquid	Laboratory	60 L	Four (4) x 15 L plastic drums
		Solid	Storage shed	60 kg	Three (3) x 20 kg storage drums
Sodium Thiosulfate	Neutralisation of chlorine	Solid	Laboratory	50 kg	Two (2) x 25 kg bags
Phosphoric Acid (5%)	Sewage treatment process	Liquid	Laboratory	100 L	Four (4) x 25 L plastic drums
			Bunted pallet	200 L	One (1 0 x 200 L plastic drum)
Shell Tivela S220	Gear oil - blowers	Liquid	Blower Room	20 L	One (1) x 20 L storage drum
Zeolite	Sludge treatment process	Solid	Chem store container	125 kg	Five (5) x 25 kg bags

Appendix D

System maps

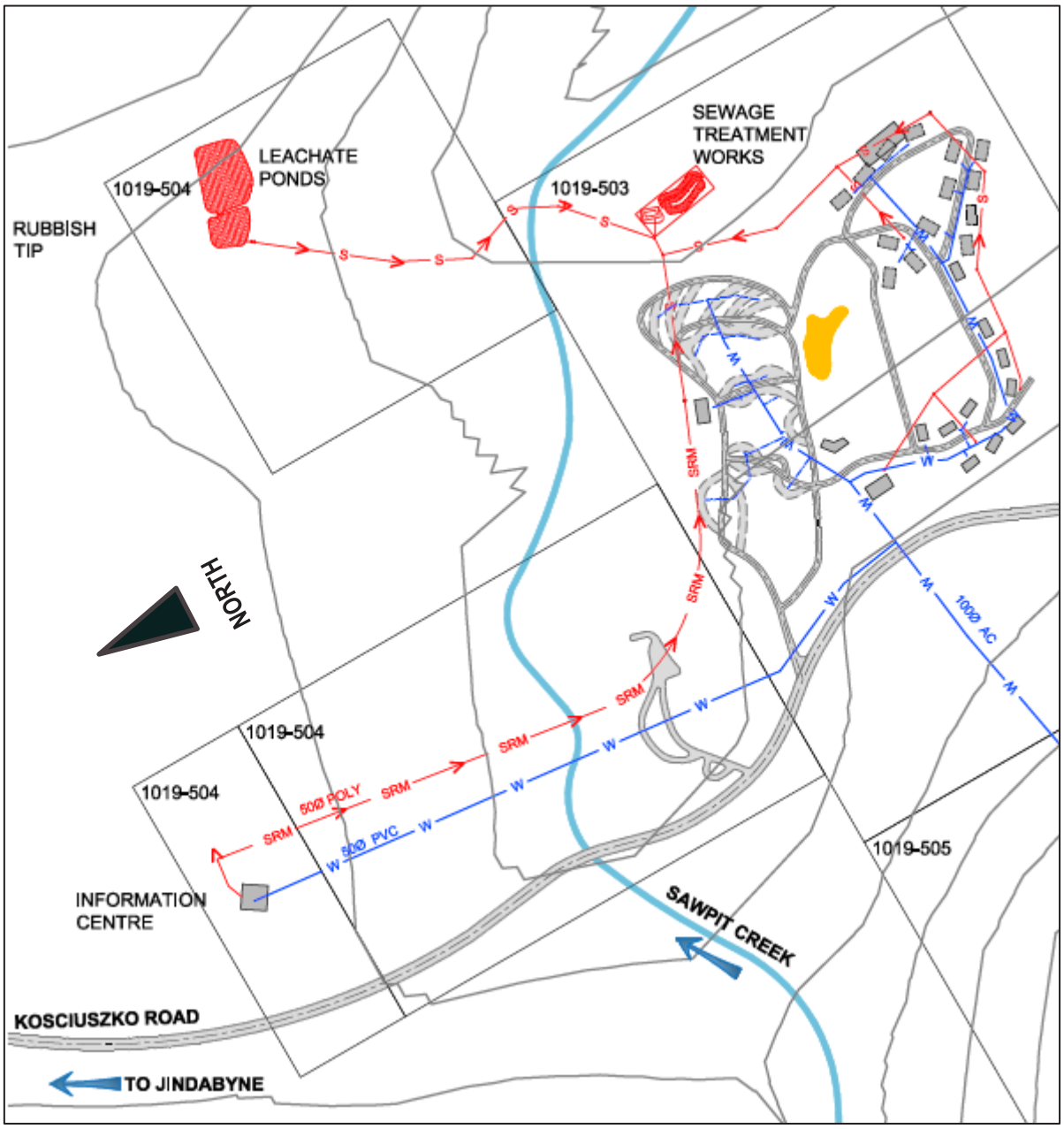

Figure 2 Sewerage reticulation system for Sawpit Creek

Figure 3 Aerial photo of Sawpit Creek Sewage Treatment Plant.

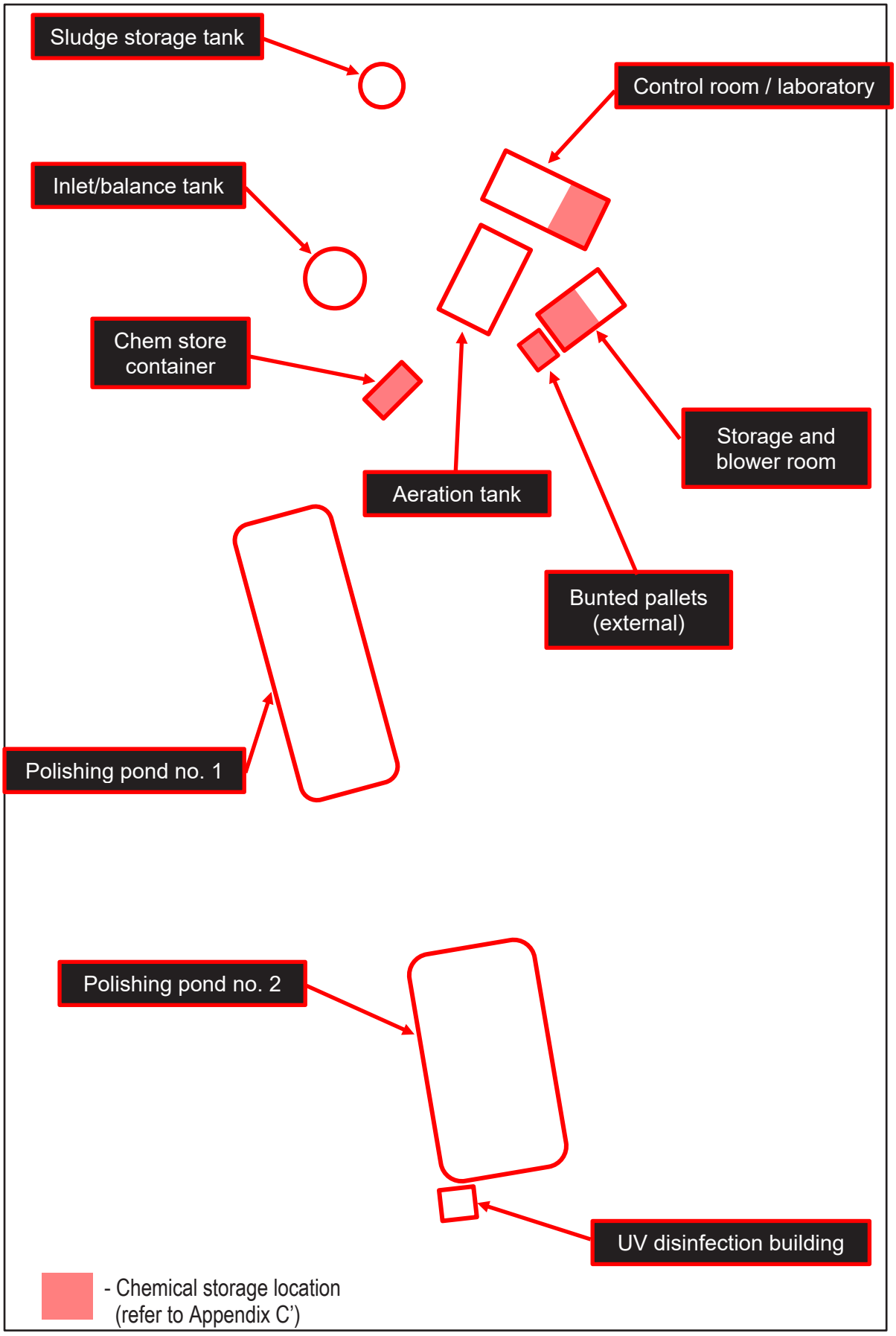

Figure 4 **Layout of Sawpit Creek Sewage Treatment Plant showing chemical storage locations**