



Hay Water Treatment Plant

Pollution Incident Response Management Plan

July 2014

Document Control

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Approved Plan	0.0	July 2014	William Moore	Allen Dwyer

This plan approved for use , General Manager,
(Allen Dwyer)

Hay Shire Council 09 / 07 / 2014.

Note: This plan replaces a previous plan dated September, 2012 prepared by CPE Associates Pty Ltd.

Executive Summary

This Pollution Incident Response Management Plan has been prepared to meet the requirements in respect to Section 153A of the Protection of the Environmental Operations Act 1997 (POEO) and Regulations that are required of all licensees.

This plan relates to the operation of the Hay Water Treatment Plant located at the south east corner of Cadell and Coke Streets, Hay.

In accordance with EPA guidelines this plan addresses the following objectives:

1. To ensure comprehensive and timely communication about a pollution incident to staff at the premises, the Environment Protection Authority (EPA), other relevant authorities specified in the Act (such as local councils, 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
2. To 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, and
3. To 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.

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1. Introduction

1.1 Purpose of Report

Changes to the Protection of the Environment Operations Act 1997 (POEO Act) were implemented on 29 February 2012. In summary, these changes require licensees to develop, implement and test formal pollution-incident response management plans (PIRMPs) for each of their licensed activities. The requirements are set out in part 5.7A of the POEO Act and details contained in Protection of the Environment (General) Amendment (Pollution incident response management plans)

This Pollution incident response management plan is prepared to meet the requirements of the POEO Act and Regulations.

1.2 EPA Licence

The Hay Water Treatment Plant at Coke and Cadell Streets, operates under EPA Licence No 3237 with Council undertaking the roles of both the operator and the licence holder

2. Description and likelihood of hazards

Appendix A contains an Environmental Risk Assessment that identifies the hazards to human health or the environment and likelihood of occurrence. The hazards are described below:

Storage of Chemicals

The following chemicals are stored at the WTP and a pollution incident would occur if these chemicals were released to the environment rather than being used in the treatment process:

- Chlorine,
- Soda Ash,
- Sodium Fluoride,
- Liquid Aluminium Sulphate (Alum),
- Powdered Activated Carbon

Waste Materials (Sludge)

All alum sludge is dried on site and disposed of on site.

Potential Failure of Contaminant Tanks/Process Units

Structural failure of the key process units in the overall plant may release pollutants as well as any failure of the chemical containment tanks.

Uncontrolled Release of Gas or Odours

Failure of chemical storage could release toxic gas or odours.

Flooding of Sludge Lagoons

Flooding of the sludge lagoons would release sludges to the environment. There is a possibility that lagoons could be flooded in an extreme flood above the 100 year flood event.

Potential Cross-contamination between Raw and Filtered Water

There is a very limited possibility that the raw and filtered water services could be cross connected.

Potential for Direct Contact with Chemicals

There is the potential for operators coming in contact with the chemicals during their day to day operation and the need for safety when there are plant visits. There is a risk that operators can carry chemicals off site on their clothes.

3. Pre-emptive actions to be taken

Appendix A contains an Environmental Risk Assessment that identifies the pre-emptive actions to minimise risk to human health or environment. These actions are described below:

Storage of Chemicals

- Gas Cylinders (Chlorine). Chlorine cylinders are stored in a separate dedicated room – there is an alarm fitted to this room and defined procedures to be followed if there was to be a chlorine leakage.
- Fluoride is stored and injected from its own room. A new sodium fluoride saturator system was installed in early 2013. Used in accordance with the manufacturers operating procedures there is minimal potential for leakage or spillage of the chemical.
- Soda Ash is stored on a steel platform (in WTP). The area is not bunded but any spillage from this storage arrangement will flow into the floor outlet that discharges directly into the sludge pond (contained within the site).
- Alum is stored in the bulk storage tank outside the water treatment building – any spillage will also drain to the sludge pond.
- Powdered activated carbon is stored in an enclosed area outside the main building. Spillage of dry powder is collected by manual scooping up. Residue material flushed via drainage system to on-site sludge ponds.
- Storage and handling of these chemicals are in accordance with manufacturers and/or suppliers Material Safety Data Sheets (MSDS).
- The transportation of these chemicals from the supplier to the WTP is done by appropriately qualified carters trained in the transportation of these chemicals and following RMS and other rules in respect to their transportation.

Potential Failure of Contaminant Tanks/Process Units

Independent condition assessment of plant is undertaken every 5 years as part of the mandatory asset valuation process, to report on the structural integrity of the plant. Any structural issues are actioned at that time. Additionally, operators monitor the plant daily and report or attend to any apparent problems observed.

Uncontrolled Release of Gas or Odours

- Each chemical is stored in separate storage facilities with appropriately constructed bunding or drainage systems in place.

- Alarms are fitted for the Chlorine room which represents the greatest threat if it was to be chlorine gas released into the atmosphere and maps have been prepared in relation to where the chlorine may travel to if this were to occur (See Figure 10).

Flooding of Sludge Lagoons

The State Emergency Service has Emergency Management Systems in place to warn of any impending flood event above the 1 in 100 year flood level. The dilution in an extreme event will reduce the impact of pollutants.

Potential Cross-contamination between Raw and Filtered Water

The raw and filtered water reticulation systems at the site are physically separated and clearly marked. Cross-contamination could only occur as an intentional act.

Staff Training

All operators are fully trained in the use and storage of the chemicals with updated MSDS sheets on each of the chemicals stored on the site. All Hazmat personnel are familiar with chemicals stored on site.

Carting home chemicals on clothes.

Operators are to wash overalls and other clothes contaminated by the handling of chemicals on site to prevent such contaminants leaving the site.

4. Inventory of Pollutants

The Process Flow diagram below identifies the inputs to the treatment process:

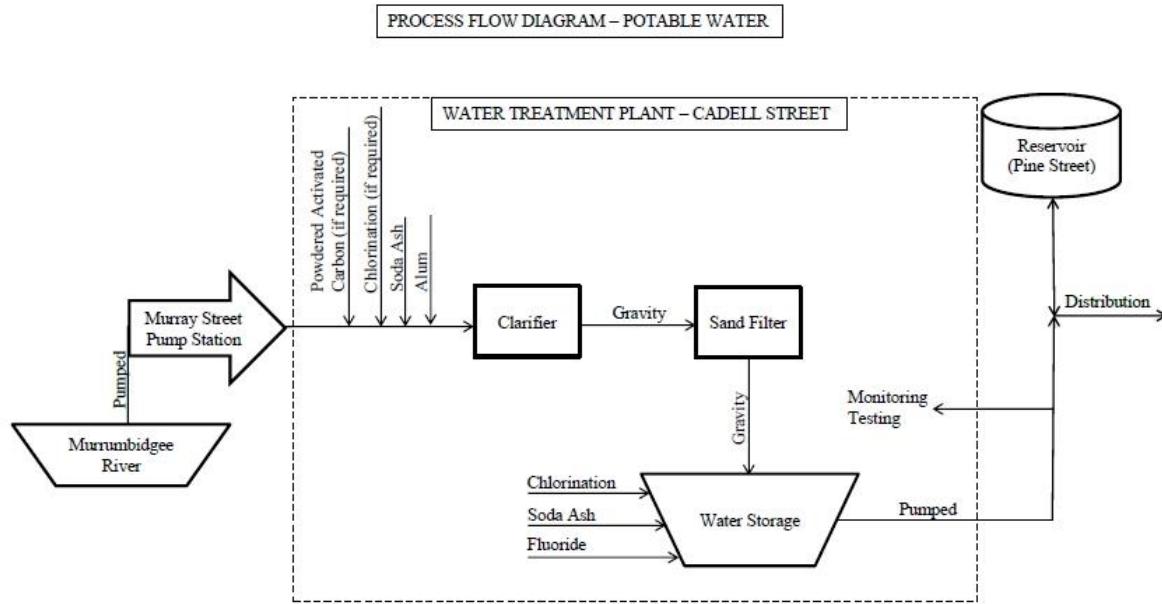


Figure 1 – Process Flow Diagram

The chemicals identified are stored as follows:

- Fluoride in its own room. Soda Ash is stored on a steel platform (in WTP). The area is not bunded. Any spillage will flow to the floor outlet that discharges into the sludge pond (contained within the site). A new sodium fluoride saturator system was installed in early 2013. Used in accordance with the manufacturers operating procedures there is minimal potential for leakage or spillage of the chemical.
- Alum is stored in the tank outside water treatment building – any spillage will drain to the sludge pond.
- Powdered activated carbon stored in an enclosed area outside the main building.
- Gas Cylinders (Chlorine). Chlorine is stored in a separate room – there is an alarm fitted to this room to warn of any leaks

The following photographs show the storage arrangements for these chemicals:

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Figure 2 – Chlorine Storage Room



Figure 3 – Soda Ash Storage



Figure 4 – Alum dosing overflow arrangements to sludge lagoon



Figure 5 – Powder Activated Carbon Storage

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Figure 6 – Fluoride Dosing Containment Tank



Figure 7 – Sludge Ponds showing containment bunding in the distance.

5. Safety Equipment

All Water Treatment Plant Operators are inducted into appropriate Workplace Health and Safety Procedures and are required to wear appropriate Personal Protective Equipment when handling chemicals.

Chlorine equipment requires that dedicated breathing apparatus such as the Dragear units are in place and can be easily accessed so that staff can take remedial action. This includes the suit to prevent chlorine contact with skin. Alarms are in the building and site evacuation procedures exist for Chlorine spills. A wind sock has been installed at the site to indicate wind direction should Chlorine leakages occur. Such information could be crucial given the close proximity of houses.

Storage and handling of chemicals on site is undertaken in accordance with the manufacturers and/or suppliers MSDS.

Water quality is regularly monitored to ensure correct doses of chemical are being applied and water discharge remains safe.

6. Contact Details

6.1 List of 24 hour contact details of key individuals who are responsible for activating plans and managing response.

Name	Position	First Point of Contact (Mobile Number)	Second Point of Contact (Landline)
Tony Davies	Water and Sewer Supervisor	0429 064 992	(02) 6993 1528
Greg Stewart	Infrastructure Manager	0429 931 272	(02) 6993 3393

6.2 List of those authorised to notify relevant authorities under Section 148 of POEO Act

Name	Position	First Point of Contact (Mobile Number)	Second Point of Contact (Landline)
Allen Dwyer	General Manager	0429 931 003	(02) 6990 1100
Greg Stewart	Infrastructure Manager	0429 931 272	(02) 6990 1100

6.3 List of authorities to be notified

Section 148 of the POEO Act lists five authorities to be notified in the event of a pollution incident. These are:

Authority	Phone Number	Fax Number	Email Address
EPA	131 555	02 9995 5922	epa.nsw.gov.au
Hay Shire Council	02 6990 1100	02 6993 1288	mail@hay.nsw.gov.au
NSW Ministry of Health	02 6933 9128	02 6933 9129	kevin.prior@gsahs.health.nsw.gov.au
WorkCover Authority	02 6962 8900	02 6964 1738	contact@workcover.nsw.gov
Fire and Rescue NSW	02 6993 1101	02 6993 1011	michael.edwards@fire.nsw.gov.au

Section R2 of the licence requires Council to notify the EPA of any environmental harm:

“R2 Notification of environmental harm

Note: The licensee or its employees must notify the EPA of incidents causing or threatening material harm to the environment as soon as practicable after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act.

R2.1 Notifications must be made by telephoning the Environment Line service on 131 555.”

7. Communication with neighbours and local community

Figure 10 (Section 9) shows the location of the surrounding residents and their proximity to the plant.

The procedure for providing early warnings and regular updates to the owners and occupiers of premises who may be affected by an incident is:

STEP 1 – The first action is to telephone or doorknock the affected area. Refer to Figure 10 for location of surrounding properties. If there is a serious chemical spill, the responsible officer may need to involve police immediately. Fire and Rescue NSW should be advised if chlorine or fluoride is involved.

STEP 2 - Wider communication with the local community through local radio station (Hay FM) and the Council web site.

STEP 3 – Communication with all residents following an incident through “Local Shire Snippets”, a fortnightly Council publication and in the weekly local newspaper; “The Riverine Grazier”.

8. Minimisation of harm to persons on the premises.

Emergency procedures are activated in the event an incident occurs. A muster point and evacuation route are nominated, and the plan is displayed at the WTP.

The photograph below (Figure 8) shows the evacuation plan for the premises. Figure 10 shows the location of residences close to the premises. If a serious chemical spillage were to occur, the assistance of the police may be required to advise residents.

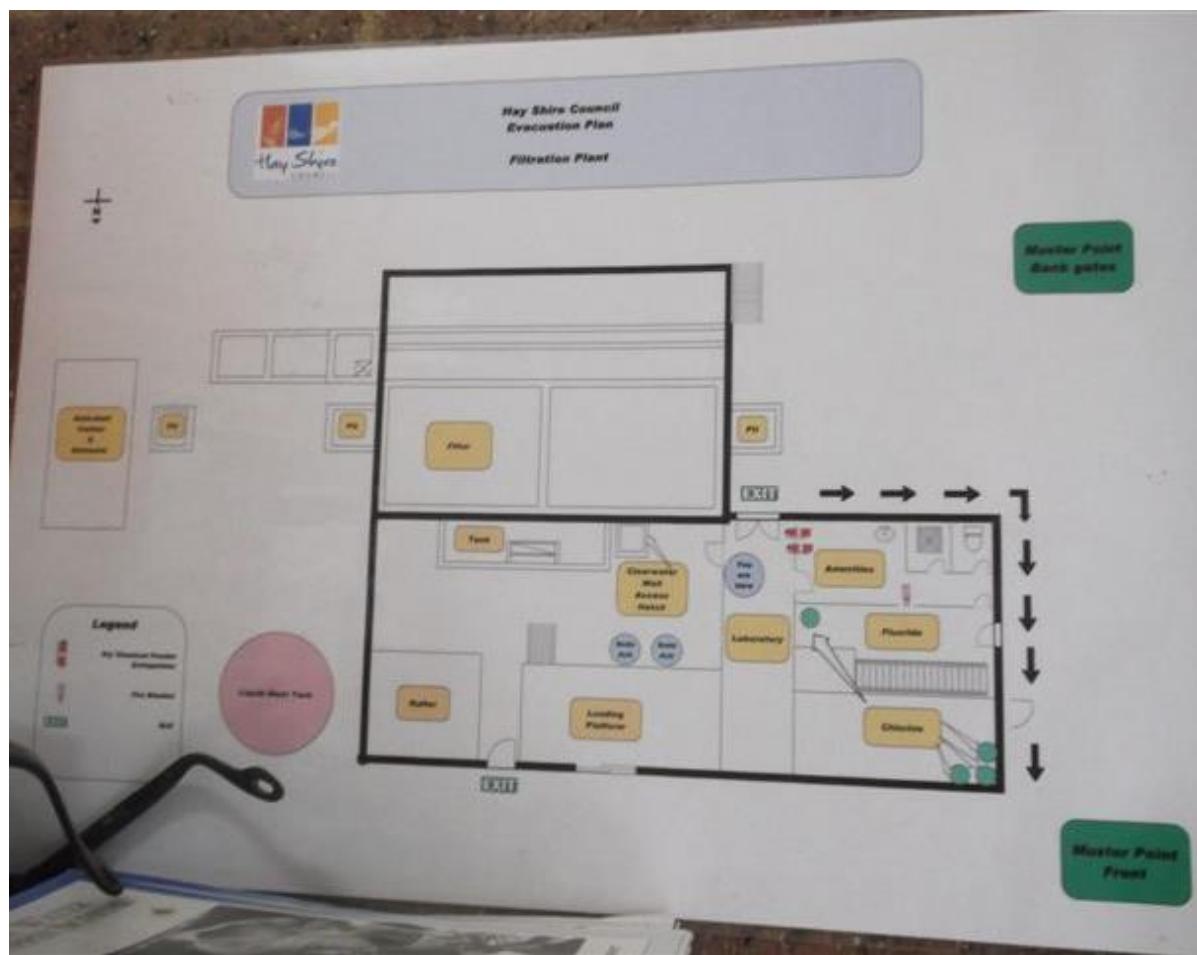


Figure 8 – Evacuation Plan

9. Maps



Figure 9- Aerial Photograph of Hay Water Treatment Plant showing location of potential pollutants on site and surrounding stormwater drainage structures. The Green and blue lines represent the piped stormwater drainage system. Given the existing drainage system within the site it is very unlikely that any spilled chemicals would reach the external stormwater system.

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X - Adjacent properties within 50 metres.

Figure 10- Aerial Photograph of surroundings of Hay Water Treatment Plant showing distance to neighbouring properties and proximity to Murrumbidgee River (Source: Google Maps)

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

The actions to be taken immediately after an incident are:

STEP 1 –Don protective clothing and safety apparatus if pollutant is chlorine or fluoride. Sound alarms and if possible notify relevant agencies

STEP 2 - Isolate the source of pollution wherever possible

STEP 3 – Contain the pollution wherever possible.

STEP 4 – Call Hazmat team if chlorine or fluoride involved ideally concurrently with step 1.

STEP 5 - Notify Senior Council management (see Sec 6.2)

STEP 6 – Designated personnel to notify the relevant statutory authorities required under Section 148 of POEO Act (See Section 6.2)

STEP 7 – Communicate with affected neighbours and the community in accordance with Section 7 of this plan. Reassure them that the matter has been dealt with

STEP 8 – Undertake remedial action as appropriate.

STEP 9 - Ensure formal all clear is given before resuming normal operation of the plant

11. Staff Training

All WTP Operators are skilled and qualified. All are long term employees who have been WTP operators for some time. Succession planning is practiced with other staff well trained to take the place of the normal operators if they are not available.

All relevant qualifications are current. Staff training records are maintained by Council's Risk Management Officer.

All operators are trained on the chemicals used with Material Safety Data Sheets regularly updated and staff made familiar with these and this PIRMP on a twice yearly basis.

12. Making Plans Available

A copy of this plan will be displayed in the staff room at the WTP premises.

A copy of this plan is available on the Council website at

<http://www.hay.nsw.gov.au/CouncilServices/WaterSewer/tabid/124/Default.aspx>

13. Testing Plans Once Every Twelve Months

It is required that the plan be tested every 12 months. The Risk Management Officer will arrange for a desktop test of the plan involving all water treatment plant staff once per year. At least every 2-3 years, the Risk Management Officer will co-ordinate an emergency simulation in consultation with the Local Emergency Management Committee.

Appendix A. – Risk Assessment Matrix

Activity or Factor (Site, Materials, Equipment, Sub-Contractors, Process)	Potential Hazard(s) (what can happen & how)	How Severe	How Likely	Risk No 1-6	Control Measures/Treatment	How Severe	How Likely	Rev Risk No
Storage of Chemicals	<p>The following chemicals are stored at the WTP and an incident could occur if chemicals were released to the environment:</p> <ul style="list-style-type: none"> • Chlorine, • Soda Ash, • Sodium Fluoride, • Liquid Aluminium Sulphate (Alum), • Powdered Activated Carbon 	Serious	Rarely	3	<ul style="list-style-type: none"> • Alarm for chlorine storage • Each chemical is stored in a separate storage room or facility with appropriately constructed drainage to direct any spillage to on-site sludge storage ponds • MSDS exist for each chemical • Safe Work Method Statements exist for handling each chemical. • 	Moderate	Rare	4
Transport of Chemicals	Movement of the chemicals from the Chemical Supplier to the STP site	Moderate	Rarely	4	Council uses only appropriately licensed chemical suppliers and their designated carters	Slight	Rare	5
Potential Failure of Containment Tanks	Structural failure would release pollutants	Severe	Unlikely	4	Condition assessment of plant monitors structural integrity. Staff monitor plant facilities on a daily basis.	Moderate	Unlikely	5

Uncontrolled Release of Gas or Odours	Failure of chemical storage could release toxic gas or odours	Serious	Rare	3	<ul style="list-style-type: none"> • Alarm for chlorine storage • Each chemical is stored in a separate storage room or facility with appropriately constructed drainage to direct any spillage to on-site sludge storage ponds 	Moderate	Rare	4
Flooding of Sludge Lagoons	Plant is located above the 1 in 100 year flood level but is within the PMF. Any flooding will dilute any contaminants	Moderate	Rare	4	Emergency Management Systems in place to warn of any impending flood event above the 1 in 100 year flood level	Moderate	Rare	4
Potential Cross-contamination between Raw and Filtered Water	Possibility of raw water mixing with filtered water	Serious	Medium	2	Supply pipelines are physically separated and distinctively marked. Only deliberate interconnection could result in contamination.	Moderate	Rare	4
Process failure		Moderate	Rare	4	Operator Training to monitor plant	Moderate	Rare	4
Fire in the plant buildings		Major	Rare	2	Fire Alarm	Serious	Rare	3

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Risk Assessment Matrix:

		LIKELIHOOD			
		HIGH Any time	MEDIUM Sometime	LOW Rarely	UNLIKELY Probably never
C	MAJOR IMPACT Significant permanent damage to the environment or the community	1	1	2	3
O	SERIOUS IMPACT Lasting impact on the environment or the community	1	2	3	4
N	MODERATE IMPACT Moderate impact on the environment or the community	2	3	4	5
S	SLIGHT IMPACT Temporary impact on the environment or the community. No permanent damage	3	4	5	6

Control Measures: (How can you reduce the frequency, duration or severity of the hazard?)

- Elimination
- Substitution
- Isolation
- Engineering-structural change to environment or process
- Administrative-(alter procedures, provide instruction)

Assessment:	1 - Immediate action-eliminate or isolate the risk	3-4 - Initiate action as soon as possible	**Responsible Officer	RO – Officer required to ensure action taken
	2 - Initiate action immediately	5-6 - Monitor / do by agreed date		