



# OBERON SEWERAGE TREATMENT PLANT

Environmental Management System (EMS) Plan

April 2020

# Document Control

---

## *Document Control*

Version	Author	Reviewer	Approved for Issue	
			Name	Date
V1.0	Hunter H2O	Sam Golam; Andrew Krol		

# Forward

---

This Environmental Management System (EMS) Plan has been prepared by Hunter H2O together with Oberon Council.

This EMS Plan has been prepared to conform to the international standard (as adopted by Australia) for Environmental Management Systems, AS/NZS ISO 14001:2016 (SAI Global Limited, 2016).

This document has also been prepared with reference to Environmental Management Systems Guidelines (NSW EPA, 2019); and Guideline for the Preparation of Environmental Management Plans (Department of Infrastructure, Planning and Natural Resources, 2004). However, it is worth noting the Guideline for the Preparation of Environmental Management Plans was based on the previous, now superseded version of ISO 14001.

## *Hunter H2O Document History and Status*

<b>Revision</b>	<b>Report Status</b>	<b>Prepared by</b>	<b>Reviewed by</b>	<b>Approved by</b>	<b>Issue Date</b>
1	Draft	Emily Hyde	Clara Laydon	Clara Laydon	16.03.2020
2	Final	Emily Hyde	Lisa Procter	Lisa Procter	3.04.2020

# Environmental Policy

---

Oberon Council provides water, sewerage and trade waste services to a population of approximately 2700 people, in the town of Oberon and surrounding villages, in New South Wales.

Council is committed to providing these services in an environmentally responsible manner, and to a standard that exceeds government and customer expectations.

To achieve this aim Council will:

- Establish and maintain an Environmental Management System in accordance with the International Standard ISO 14001.
- Pro-actively manage the significant environmental impacts of Council's operations and activities by preventing and reducing pollution.
- Regularly set and review environmental objectives and targets to achieve continuous improvement in our environmental performance.
- Communicate progress on environmental performance to the community, the Environment Protection Authority (EPA), industry and other stakeholders via an annual Environmental Report.
- Comply with relevant environmental laws and regulations and other requirements to which Council subscribes.
- Provide adequate training to all employees to ensure that they are aware of and committed to Council's Environmental Policy and the requirements of the Environmental Management System.
- Require contractors to demonstrate awareness of Council's Environmental Policy, and the requirements of the Environmental Management System.
- Integrate consideration of environmental factors into Council's operations and activities.
- Display the Environmental Policy at all work places and make it available to the public.

---

General Manager

---

Date

# Table of Contents

---

Document Control .....	ii
Forward.....	iii
Environmental Policy.....	iv
Table of Contents.....	v
1 Introduction.....	1
1.1 Aims of the EMS .....	1
1.2 Key Reference Documents .....	2
1.3 Implementation of a Successful EMS.....	2
1.4 Continuous Improvement Approach.....	2
1.5 Structure of this EMS Document .....	4
2 Background and Context.....	5
2.1 Scope of this EMS .....	5
2.2 STP Site Background.....	5
2.2.1 Site Location .....	5
2.2.2 Site Services.....	6
2.2.3 Operations Staff.....	6
2.2.4 Process Description .....	6
2.2.5 Chemical Stored Onsite .....	10
3 Environmental Objectives & Compliance Obligations .....	11
3.1 Environmental Policy .....	11
3.2 Compliance Obligations .....	11
3.2.1 Protection of Environment Operators (POEO) Act 1997 (NSW) .....	11
3.2.2 Environment Protection Licence (EPL).....	12
3.2.3 Other Key Legislations and Guidelines .....	14
3.3 Environmental Objectives .....	18
4 Environmental Operational Processes, Controls and Monitoring.....	19
4.1 Environmental Controls, Practices and Procedures .....	19
4.2 Monitoring.....	19
4.2.1 Effluent Monitoring.....	19
4.2.2 Operational Monitoring.....	19
4.2.3 Biosolids Quality Monitoring.....	20
4.2.4 Environmental Monitoring .....	20
4.2.5 Goundwater Monitoring.....	20
4.2.6 Soil Monitoring .....	20
4.3 Activities / Controls .....	20
4.3.1 Site Inspections / Checks.....	20

4.3.2	Pest Controls .....	21
4.3.3	Vegetation Controls .....	21
4.4	Emergency Preparedness and Response .....	21
4.4.1	Pollution Incident Response.....	21
4.4.2	Emergency Response.....	21
5	Environmental Hazard Assessment .....	22
5.1	Identification of Environmental Aspects and Impacts .....	22
5.1.1	Specific Environmental Aspects for Oberon STP .....	22
5.2	Criteria for Assessment of Environmental Aspects.....	25
5.3	Environmental Hazard Risk Assessment.....	26
5.4	Significant Environmental Aspects .....	32
5.5	Risks and Opportunities .....	32
6	Environmental Competence and Training .....	34
6.1	Environmental Management Structure .....	34
6.1.1	Roles and Responsibilities .....	34
6.2	Training / Competency Requirements .....	35
6.3	Training / Competency Records.....	35
7	Internal and External Communication .....	36
7.1	Communication of the EMS .....	36
7.2	Annual Environmental Report .....	36
7.3	Communication Protocols .....	36
8	Performance Evaluation and Auditing .....	37
8.1	EMS Internal Review .....	37
8.1.1	Management Review .....	37
8.2	External Auditing.....	38
8.3	Audit and Review Records.....	38
9	Improvement Plan.....	39
10	References.....	42
	Appendix A: Annual Environmental Report Template.....	43

# 1 Introduction

---

Oberon Council own and operate Oberon Sewerage Treatment Plant (STP). Oberon Council has made a commitment to establish and maintain an environmental management system (EMS) for Oberon Sewerage Treatment Plant (STP) that conforms to the international standard (as adopted by Australia) for Environmental Management Systems, AS/NZS ISO 14001:2016 (SAI Global Limited, 2016).

Council have produced a separate EMS for the Oberon Submersible Sewerage Pumping Stations.

This EMS Plan outlines the core components of the Council's EMS and provides direction to enable staff to locate relevant EMS documentation such as procedures, registers and records.

This document is not a means to provide detailed information on environmental activities of the Council. It is a "road map" and reference document to guide the Council's staff in the implementation and operation of the EMS.

## 1.1 Aims of the EMS

Organisations of all kinds are increasingly concerned with achieving and demonstrating sound environmental performance by controlling the impact of their activities, products or services on the environment. They do so in the context of increasingly stringent legislation, the development of economic policies and other measures to foster environmental protection.

A means of achieving this performance is through the development of a structured management system commonly referred to as an Environmental Management System (EMS).

An EMS is a structured framework for identifying, evaluating and managing the environmental impacts of an organisation's operations and activities.

There is currently an International Standard for development of Environmental Management Systems approved for use in Australia by Standards Australia AS/NZS ISO 14001:2016 (SAI Global Limited, 2016). Note this document has superseded the previous international standards ISO 14001:2004 and ISO 14001:1996.

The primary aim of an EMS is to provide an organisation with a structured, integrated and systematic framework for:

- Protecting the environment by preventing or mitigating adverse environmental impacts
- Mitigating the potential adverse effect of environmental conditions on the organisation
- Assisting the organisation in the fulfilment of compliance obligations
- Enhancing environmental performance
- Controlling or influencing the way the organisation's products and services are designed, manufactured, distributed, consumed and disposed by using a life cycle perspective that can prevent environmental impacts from being unintentionally shifted elsewhere within the life cycle
- Achieving financial and operational benefits that can result from implementing environmentally sound alternatives that strengthen the organisations the organisation's market position
- Communicating environmental information to relevant parties

The EMS provides a framework to bring together, and supplement where necessary, the existing operational procedures and work practices of the organisation into a structured management system. The EMS is designed to formalise and link together these procedures and practices, and assist in setting priorities, allocation of resources and performance of daily work activities.

## 1.2 Key Reference Documents

This EMS has been prepared to document environmental monitoring and mitigation strategies associated with the aspects of the operations at Oberon STP. The EMS Plan aims to integrate with Council's existing management plans and strategies and, where relevant, makes reference to existing procedures to manage specific aspects of the operations that have the potential to impact on the environment.

Documents that interconnect with this EMS are listed in Table 1-1. Reference documents are stored on the Council server.

*Table 1-1 Reference Documents for this EMS*

<b>Document Title</b>
<b>Oberon Council Environmental Policy</b>
<b>Oberon STP EPL (No. 1644) (licence anniversary date of 1 April) (NSW EPA, 2015)</b>
<b>Oberon STP and Collection System Pollution Incident Response Management Plan (PIRMP) (Oberon Council, 2019) – Updated annually.</b>
<b>Standard Operating Procedure: Oberon Sewerage Treatment Plant (STP) (Oberon Council, 2020)</b>
<b>Standard Operating Procedure - Water: Receipt of Chemical Deliveries Doc No. S010 (Oberon Council, 2020)</b>

## 1.3 Implementation of a Successful EMS

Key factors in the development and implementation of an effective EMS are:

- Making the environment a key Council value
- Building environmental management into all aspects of Council's activities
- Ensuring the EMS is simple and understandable
- Involving staff at all levels in the development of the EMS to ensure it is well targeted and user-friendly for the people who must implement it.

The focus of the EMS is on continual improvement, which includes improving the system itself. We should therefore look positively at any issues that are raised with the EMS and view these as opportunities for improvement.

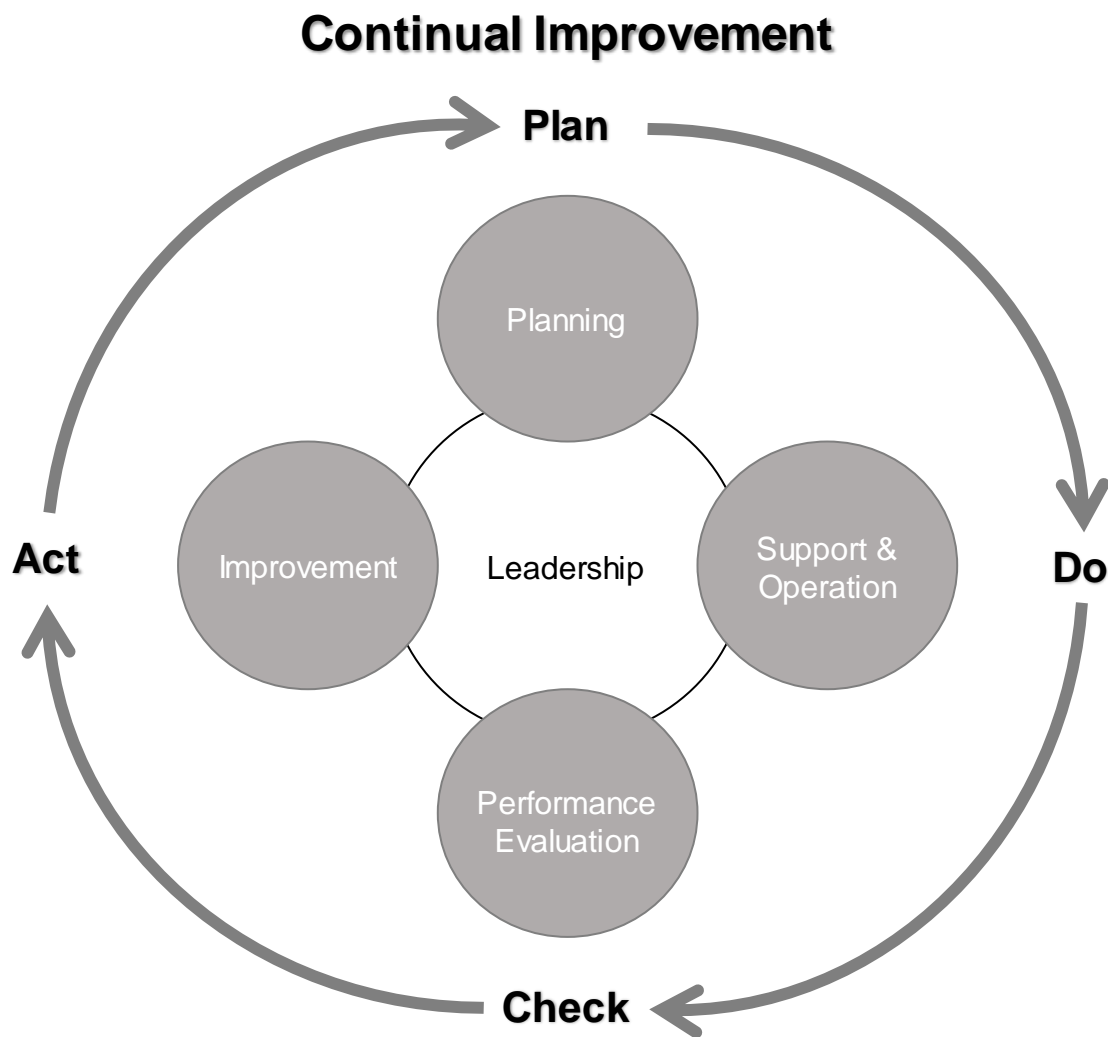
## 1.4 Continuous Improvement Approach

The EMS approach underlying the international EMS standard (AS/NZS ISO 14001:2016) is based on the concept of Plan-Do-Check-Act (PDCA). The iterative process provided by the PDCA model enables continual improvement. The model can be applied to the environmental management system and to each of its comprising components, as described below:

**PLAN**      Establish environmental objectives and processes necessary to delivery results in accordance with Council's environmental policy. This involves risk identification and assessment process where the environmental impacts are identified and prioritised, then objectives, targets and programs for improvement are developed for implementation.



- DO** Implement the processes as planned. This involves putting in place procedures, controls, and work practices to address the environmental impacts that were identified in the planning phase.
- CHECK** Monitor and measure processes against the environmental policy. This involves monitoring the procedures and controls that have been implemented to ensure that the objectives and targets set in the planning phase are being met.
- ACT** Take actions to continually improve. This involves periodic review and auditing of the EMS to assess whether the system is being effective and make any necessary changes to ensure compliance with the EMS standard.



*Figure 1-1 Relationship between the Plan-Do-Check-Act model and the EMS framework*

## 1.5 Structure of this EMS Document

The international standard AS/NZS ISO 14001:2016 requires the EMS to include documented information as required by the standard, as well as, documented information determined by the organisation as being necessary for the effectiveness of the environmental management system.

The structure of this EMS is based on these requirements, the key components are:

- Background and Context
- Environmental Objectives & Compliance Obligations
- Environmental Operational Processes, Controls and Monitoring, including
  - Emergency Preparedness and Response
- Environmental Hazard Assessment, including
  - Identification of Environmental Aspects, Hazards and Assessment of Impacts
  - Determination of Significant Environmental Aspects
  - Identifications of Risk & Opportunities
- Environmental Competence and Training
- Internal and External Communication
- Performance Evaluation and Auditing
- Improvement Plan

## 2 Background and Context

---

### 2.1 Scope of this EMS

The scope of this EMS covers Oberon STP including activities undertaken and products produced onsite. Oberon Council (Council) are the organisation that own and operate Oberon STP.

### 2.2 STP Site Background

#### 2.2.1 Site Location

Oberon STP provides sewerage treatment for sewerage collected from the Oberon township. The STP site is located off Fairfax Street, to the South East of the main Oberon township (Figure 2-1).



*Figure 2-1 Location of Oberon STP*

Key features of the STP site include:

- The site is surrounded by farm land
- Access to Oberon STP is via Fairfax Street within a residential area
- The site is bordered to south east by Fish River, the effluent ponds are located close by this natural waterway
- The plant boundary is approximately 250 m from the closest residential property
- Residential areas are to the west/north of the STP site.

## **2.2.2 Site Services**

### **Site Drainage**

There is no dedicated site drainage.

The site is sloped such that run off for the main STP area is collected into sludge lagoon 1. Behind sludge lagoon 1 are old drainage pipes that will direct drainage to effluent pond 1, however these are not currently maintained.

### **Site Amenities**

The onsite amenities /office / laboratory building is located adjacent to the sedimentation tanks.

### **Site Sewerage**

Site sewerage is fed into the treatment plant and treated onsite with the rest of the town sewerage.

### **Service Water System**

Potable water is utilised onsite as service water.

### **Potable Water Supply**

Potable water is supplied by the potable water network via a break tank.

## **2.2.3 Operations Staff**

Oberon STP is generally serviced by two (2) full-time and one (1) part-time operator. A relief operator is also available. Typical serviced hours at the STP are weekdays 06:54 to 16:00.

An operator is on-call for emergency situations.

## **2.2.4 Process Description**

The STP is a convention trickling filter plant. Oberon STP was constructed in 1965 with the last major capacity upgrade at the plant was completed in 1988. The plant is currently estimated to have an average dry weather flow of 1,160 kL/d.

Sewerage generated within Oberon STP serviced area is collected by pump stations and discharged to the STP mostly via gravity mains. The STP does currently accept septic waste.

Oberon STP includes the following key processes:

- A balance (equalisation) tank
- Inlet works with grit channel, flow measuring flume and mechanical spiral screen
- Two (2) sedimentation tanks (2,600 EP)
- Two (2) trickling filters (3,800 EP)
- One (1) clarifier (6,000 EP)
- Two (2) sludge digesters (4,000 EP)
- Alum dosing facility
- Three (3) sludge lagoons (7,000 EP)
- Sludge drying bed (1,000 EP)
- Four (4) effluent ponds.

A description of the treatment process is provided below.

Raw sewerage from Oberon STP service area and accepted septic waste enters the STP through a balance (equalisation) tank. The balance tank acts to balance inflows and so as not to

overload the treatment processes during times of high flow. Wet weather flows in excess of the capacity of the plant are bypassed to the maturation (effluent) ponds.

Sewerage from the balance tank is fed into the inlet works where the sewerage is screened and de-gritted. A flow measuring flume located between the grit channel and screen, measures the inflow to be treated by the plant as per licence conditions.

The screened and de-gritted sewerage is then directed to two sedimentation tanks and onto two trickling filters operating in parallel. These units provide primary sedimentation and secondary biological treatment.

Treated sewerage from the trickling filters is transferred to a clarifier for secondary clarification. Alum is dosed to the clarifier for chemical phosphorus removal, allowing phosphorus to be removed with the solids.

Sludge collected in the clarifier is transferred to the anaerobic digesters. Once digested, the sludge is transferred to the sludge lagoon 1 for further stabilisation. Supernatant from sludge lagoon 1 overflows into sludge lagoon 2. Sludge lagoon 2 supernatant overflows in the sludge lagoon 3. Supernatant from sludge lagoon 3 overflows into a collection pit, supernatant in the collection pit is pumped to the balance tank.

After a stabilisation period of at least two-three months, sludge from sludge lagoon 1 is transferred to the sludge drying area for further drying. The sludge drying area is surrounded by a soil embankment to prevent run off entering the drying area.

Biosolids are taken to Council's waste facility by Council using suitably equipped trucks.

Grit and screenings produced from the process are dried on raised beds in the grit and screenings drying area (2-3 days drying) and then taken to the waste facility for disposal.

Treated effluent from the clarifier is collect in the maturation (effluent) ponds. Effluent detention allows for natural UV disinfection to occur via sunlight. The ponds provide approximately 20 days of detention time.

Treated effluent has been licenced for discharge into Fish River.

In rare cases where the wet weather flows are greater than the process design capacity, the balance tank overflows to effluent pond 1.

Sewerage Pump Stations (SPS) No. 1 and 2 are fitted with telemetry that monitors the system and provides alarming to the STP.

A process flow diagram and site layout of Oberon STP are provided in Figure 2-2 and Figure 2-3.

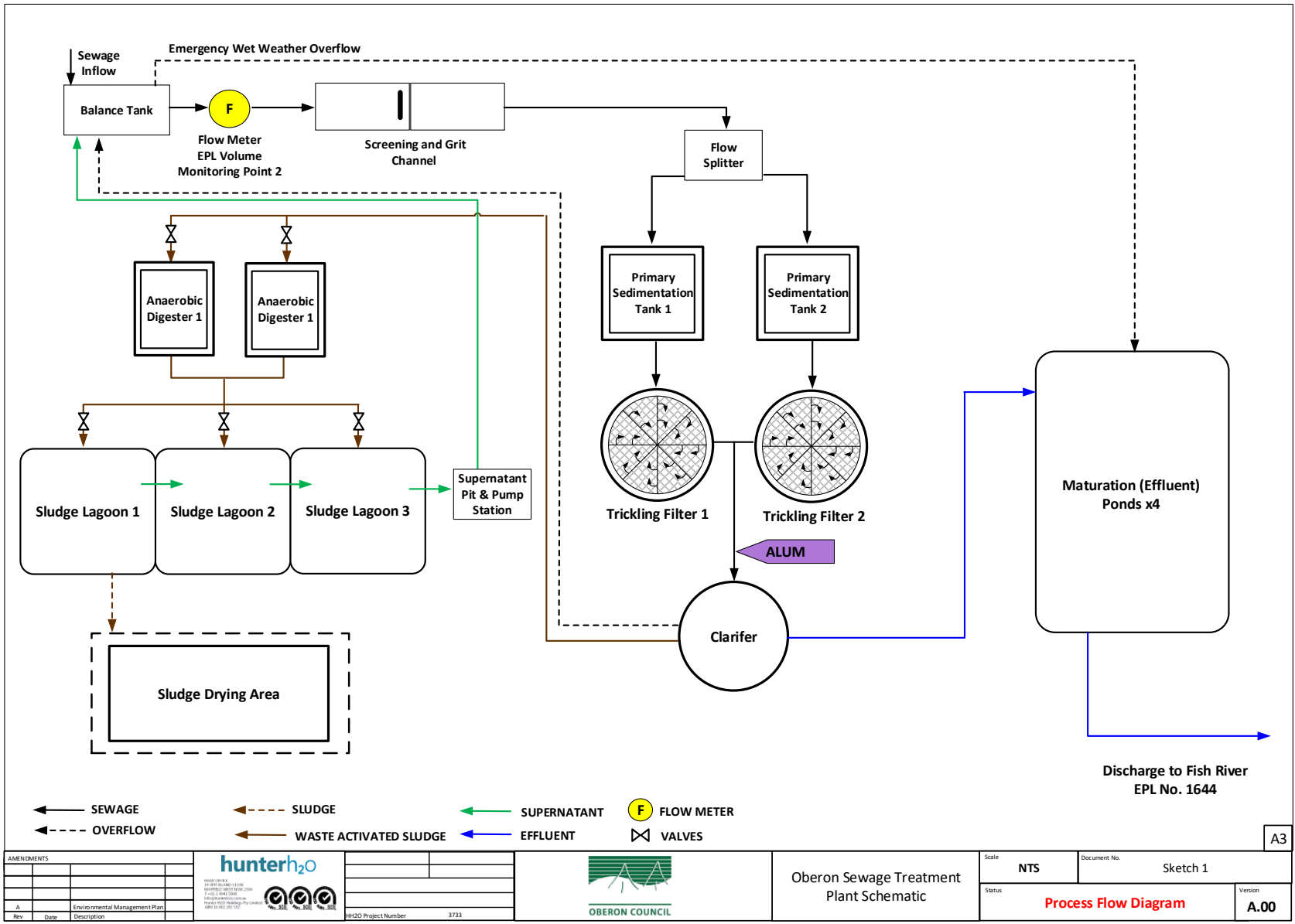


Figure 2-2 Oberon STP Process Flow Diagram



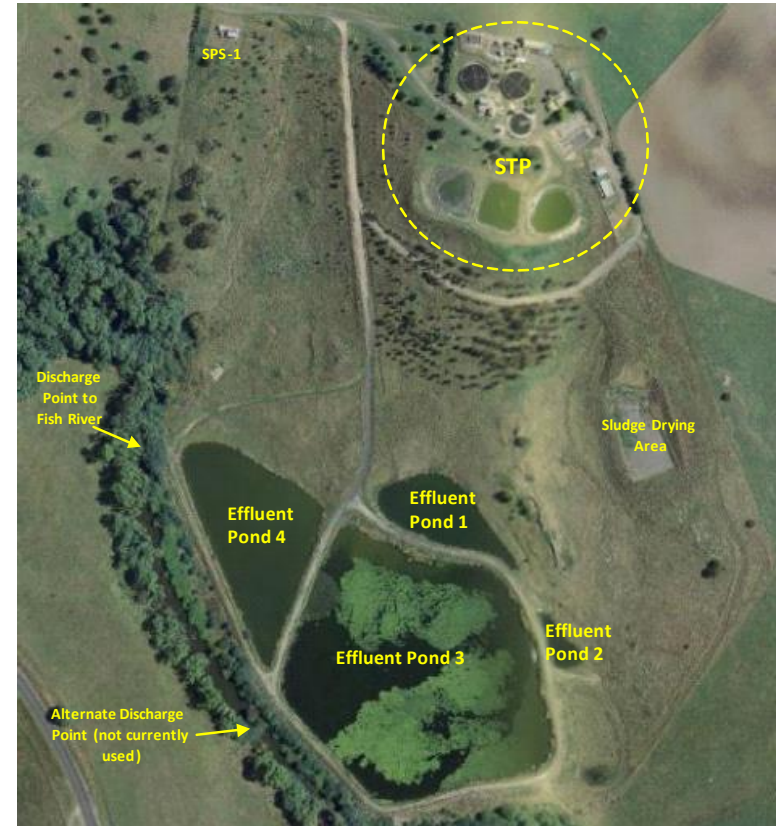


Figure 2-3 Oberon STP Site Layout

### **2.2.5 Chemical Stored Onsite**

The PIRMP contains a list of chemicals and chemicals stored onsite. This information includes the amount stored and use of the chemicals.

Hard copies of current Safety Data Sheets (SDS) for each chemical stored onsite are kept in a folder in the STP office.



## 3 Environmental Objectives & Compliance Obligations

---

### 3.1 Environmental Policy

The Environmental Policy sets the broad directions and commitments made by Council's executive management in relation to environmental performance and compliance with legal requirements. The policy is the driver for implementation of the EMS.

Council's current Environmental Policy forms a key component of this EMS and is included as the first page in this document. The environmental policy is to be displayed at Head Office and each depot, and communicated by management to all staff. The Environmental Policy shall also be made available to the public.

### 3.2 Compliance Obligations

#### 3.2.1 Protection of Environment Operators (POEO) Act 1997 (NSW)

Protection of the environment throughout NSW is governed by the *Protection of Environment Operations (POEO) Act 1997 (NSW)* which became effective on 1 July 1999.

The POEO Act provides that the EPA is the Appropriate Regulatory Authority (ARA) for most activities, unless noted otherwise.

Chapter 5 of the POEO Act deals specifically with environment protection offences and the penalties that may be incurred. There are three classifications (Tiers) of offences:

1. Tier 1 offences are the most serious, including the wilful or negligent disposal of waste causing or likely to cause harm to the environment, or wilfully or negligently causing a substance to leak, spill or otherwise escape;
2. Tier 2 offences are other offences under the Act or regulations, including water, air and noise pollution; and
3. Tier 3 offences are Tier 2 type offences which may be dealt with by way of penalty notices and fines.

With the possibility of significant penalties and imprisonment terms for some offences under the POEO Act, it is prudent for organisations to develop environmental disaster response plans and/or environmental management plans to address the possibility of any potential problems which may contravene the Act and any licences held under the Act. The existence of such plans is not an automatic defence against liability under the POEO Act, although it may be considered as evidence of due diligence during prosecution or penalty determination.

Organisations also need to be aware of their responsibility regarding the notification of pollution incidents under the POEO Act, as summarised in Attachment 1 of this appendix. Failure to adequately notify the appropriate regulatory authority of certain pollution events is an offence under the Act.

Further information about the Act can be obtained from the EPA website

<https://www.epa.nsw.gov.au/licensing-and-regulation/legislation-and-compliance/about-the-poeo-act>

### 3.2.2 Environment Protection Licence (EPL)

Oberon STP operates under an Environment Protection Licence, Number 1644, which is issued by the NSW EPA under the provision of Section 55 of the POEO Act.

Effluent quality limitations for discharge into Fish River are stipulated in Oberon STP's Environmental Protection Licence (EPL) (No. 1644, licence anniversary date of 01 April, version date 22 May 2015).

Effluent discharge to Fish River is limited to 3000 kL per day.

Effluent quality limits for discharge into the river are summarised in Table 3-1.

Table 3-1 Effluent Quality Limits (for EPA Point 1,5,6) Under EPL No. 1644.

Pollutant	Units	50 Percentile Concentration Limit	80 Percentile Concentration Limit	90 Percentile Concentration Limit	100 Percentile Concentration Limit
<b>EPA Points 1,5,6</b>					
Biological Oxygen Demand (BOD)	mg/L	15	-	20	30
Faecal Coliforms	CFU/100mL	-	200	-	600
Nitrogen (total)	mg/L	-	-	15	20
Oil & Grease	mg/L	-	-	-	10
pH	pH	-	-	-	6.5-8.5
Phosphorous (total)	mg/L	-	-	1	2
Total Suspended Solids (TSS)	mg/L	20	-	25	30
<b>EPA Point 6</b>					
Chlorine (total residual)	mg/L	-	-	-	0.5

Reference: Oberon STP EPL (No. 1644) (NSW EPA, 2015)

Six EPA points are specified in the Oberon STP EPL. The location of EPA points are labelled in Figure 3-1.



Figure 3-1 Location of Oberon STP EPA monitoring points 1-6.

EPA point 1 is the main discharge point to Fish River.

EPA point 2 is located at the inlet of the plant and is used for total volume monitoring.

EPA points 3 and 4 located are upstream and downstream of the discharge point (EPA point 1), respectively. These points are used for environmental monitoring.

EPA points 5 and 6 are used for effluent quality monitoring.

EPA point 5 is located at the outlet of the Fish River discharge line from Effluent Pond 4. Note the EPL licence defines Point 5 as the discharge point from Pond 3, however Pond 3 discharges only through an under road pipeline to Pond 4. Pond 4 then discharges to Fish River.

EPA point 6 is located at the outlet of the Fish River discharge line from Effluent Pond 2. Discharge from Pond 2 to Fish River is via a channel with a gate shut off valve.

The frequency of monitoring required at each monitoring point are summarised in Table 3-2.

*Table 3-2 Monitoring Required for Each EPA Monitoring Point Under EPL No. 1644*

<b>Parameter</b>	<b>POINT 1,5</b>	<b>POINT 3</b>	<b>POINT 4</b>	<b>POINT 6</b>
<b>Biological Oxygen Demand (BOD)</b>	Monthly*	-	-	Monthly*
<b>Faecal Coliforms</b>	Monthly*	-	-	Monthly*
<b>Nitrogen (ammonia)</b>	Monthly*	-	-	Monthly*
<b>Nitrogen (total)</b>	Monthly*	Monthly <sup>+</sup>	Monthly <sup>+</sup>	Monthly*
<b>Nitrogen (ammonia)</b>	Monthly*	-	-	Monthly*
<b>Oil and Grease</b>	Monthly*	-	-	Monthly*
<b>pH</b>	Monthly*	Monthly <sup>+</sup>	Monthly <sup>+</sup>	Monthly*
<b>Phosphorous (total)</b>	Monthly*	Monthly <sup>+</sup>	Monthly <sup>+</sup>	Monthly*
<b>Total Suspended Solids (TSS)</b>	Monthly*	-	-	Monthly*

\* During discharge

+ Minimum frequency every 4 weeks

**Reference:** Oberon STP EPL (No. 1644) (NSW EPA, 2015)

### **3.2.3 Other Key Legislations and Guidelines**

Sewerage activities are operated under the legislation, licences and guidelines. These legislation, licences and guidelines along with the corresponding authority are summarised in Table 3-3.

Note that while relevant legislation and its implications are broadly summarised in this document, this should not be used as a substitute for the legislation or legal advice. It will be the responsibility of Council, and their nominated contractors, to ensure that the relevant provisions of the following legislation and guidelines are complied with when carrying out work. This EMS document will need to be updated to reflect any legislative changes.

Table 3-3 Key Legislations and Guidelines.

Environmental Aspect	Title	Applicability	Interested Party / Authority
<b>General</b>	Environmental Planning and Assessment Act 1979 (NSW Government, 1979)	Assessment of proposed operation of scheme	NSW Department of Planning, Industry and Environment (DPIE)
	Environmental Planning and Assessment Regulation 2000 (NSW Government, 2000)	Assessment of proposed operation of scheme	DPIE
	State Environmental Planning Policy (Infrastructure) 2007 (NSW Government, 2007)	Any new assessment of proposed operation of scheme	DPIE
	State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011 (NSW Government, 2011)	Any new assessment of proposed operation of scheme	DPIE
<b>Approvals</b>	Local Government Act 1993 (S60) (NSW Government, 1993)	Approval to operate sewerage scheme	DPIE
	Protection of the Environment Operations Act 1997 (NSW Government, 1997)	Licensing of the scheme and any variations to the existing licence  Operational conditions (i.e. load limits and monitoring) for the operation of the scheme	NSW Environment Protection Authority (NSW EPA)
<b>Monitoring</b>	Approved Methods for Sampling and Analysis of Water Pollutants in New South Wales (NSW EPA, 2004)	The Oberon STP is required to sample and analyse the quality of treated wastewater discharged to waterways.	NSW EPA



<b>Discharge Licence</b>	Oberon STP EPL (No. 1633) (NSW EPA, 2015)	The Oberon STP undertakes the fee based activity Sewerage treatment processing by small plants. The licence covers the sewer reticulation, discharge of treated effluent to Fish River and production and onsite management / storage of biosolids	NSW EPA
<b>Biosolids Reuse / Disposal</b>	Environmental Guideline – Use and Disposal of Biosolids, NSW EPA 1997 (NSW EPA, 1997)	Biosolids must be classified prior to disposal / application to land in accordance with the guidelines	NSW EPA
<b>Erosion / Sediment Control</b>	Soil Conservation Act (NSW Government, 1938)	Soil erosion and sediment control at STP site	DPIE
<b>Waste</b>	Waste Avoidance and Resource Recovery Act 2001 (NSW Government, 2001)	Waste handling on STP site	NSW EPA
	Protection of the Environment Operations Act 1997 (NSW Government, 1997)	Pollution prevention for STP	NSW EPA
<b>Noise</b>	Protection of the Environment Operations (Noise Control) Regulation 2017 (NSW Government, 2017)	Equipment noise from raw sewerage reticulation system, SPS and STP	NSW EPA
	NSW Industrial Noise Policy 2000 (NSW EPA, 2017)	Equipment noise from raw sewerage reticulation system, SPS and STP	NSW EPA
<b>Air Quality</b>	Protection of the Environment Operations Act 1997 (NSW Government, 1997)	Odours from raw sewerage reticulation system, SPS and STP	NSW EPA
<b>Work Health and Safety (WHS)</b>	Workplace Health and Safety Act 2011 (NSW Government, 2011)	Employee work health and safety	SafeWork NSW
<b>Public Health</b>	Public Health Act 2010 (NSW Government, 2010)	Employee / public safety	NSW Ministry of Health (NSW Health)

Public Health (General) Regulation  
2012 (NSW Government, 2012)

Employee / public safety

NSW Health

### 3.3 Environmental Objectives

A requirement of the development of an EMS is the establishment of Environmental Objectives. The following Environmental Objectives, as per the Environmental Policy have been agreed by Council:

- Establish and maintain an Environmental Management System in accordance with the current International Standard ISO 14001 Environmental Management Systems – Requirements with guidance for use.
- Pro-actively manage the significant environmental impacts of Council's operations and activities by preventing and reducing pollution.
- Regularly set and review environmental objectives and targets to achieve continuous improvement in our environmental performance.
- Communicate progress on environmental performance to the community, the Environment Protection Authority (EPA), industry and other stakeholders via an annual Environmental Report.
- Comply with relevant environmental laws and regulations and other requirements to which Council subscribes.
- Provide adequate training to all employees to ensure that they are aware of and committed to Council's Environmental Policy and the requirements of the Environmental Management System.
- Require contractors to demonstrate awareness of Council's Environmental Policy, and the requirements of the Environmental Management System.
- Integrate consideration of environmental factors into Council's operations and activities.
- Display the Environmental Policy at all work places and make it available to the public.
- Meet all compliance obligations, including those associated with the POEO Act.

These Environmental objectives have been developed based on the Environmental Policy, with the last objective developed to meet the ISO14001 requirements for meeting compliance obligations.



# 4 Environmental Operational Processes, Controls and Monitoring

---

## 4.1 Environmental Controls, Practices and Procedures

The following practices and produces are established as environmental controls at Oberon STP.

*Table 4-1 List of Procedures & Practices at Oberon STP as Environmental Controls*

Procedure/Practice Description	Document Title	Location of Document/s
<ul style="list-style-type: none"> <li>▪ Site Inspections/Checks (daily, weekly)</li> <li>▪ Plant Maintenance Activities (daily, weekly, monthly)</li> <li>▪ Sampling &amp; Testing (daily, weekly, monthly) – Results recorded in Sewer Spreadsheet</li> <li>▪ Vegetation Management Activities</li> </ul>	<b>Standard Operating Procedure: Oberon Sewerage Treatment Plant (STP)</b>	Council Server
<ul style="list-style-type: none"> <li>▪ Procedure for Chemical Deliveries (used both for the water treatment plant and sewerage treatment plan)</li> </ul>	<b>Standard Operating Procedure - Water: Receipt of Chemical Deliveries Doc No. S010</b>	Council Server

## 4.2 Monitoring

### 4.2.1 Effluent Monitoring

The effluent monitoring program follows the requirements of the Oberon STP’s Environment Protection Licence No. 1644 (NSW EPA, 2015).

The EPL monitoring requirements are detailed in Section 3.2.1.

Samples required for EPL monitoring are sent to Australian Lab Services for testing.

FASS microbiological testing is undertaken weekly.

Data is recorded in a data spreadsheet titled “Sewer Spreadsheet” and stored on the Council server.

### 4.2.2 Operational Monitoring

Operational sampling and testing is undertaken as per the *Standard Operating Procedure – Oberon Sewerage Treatment Plant (STP)*. These results are recorded on the sewer spreadsheet as per the Sewer Spreadsheet.

As of the time of writing this sampling includes the following. Please refer to the *Standard Operating Procedure – Oberon Sewerage Treatment Plant (STP)* for the current list.

Daily Testing (~08:30):

- pH and Temperature in
  - Balance tank
  - Sedimentation (Sed) tank
  - Filters
  - Aerators
  - Clarifier
  - Digester No. 1.

Weekly Effluent Quality Testing:

- pH
- Temperature
- Ammonia
- Nitrate
- Phosphate
- Colour.

#### **4.2.3 Biosolids Quality Monitoring**

There is no biosolids quality monitoring currently undertaken.

#### **4.2.4 Environmental Monitoring**

##### **4.2.4.1 Fish River**

Oberon STP is licenced to discharge treated effluent into Fish River.

Fish River borders the STP site and is located close by the effluent lagoons and roadways around the effluent lagoons.

EPL No. 1644 (NSW EPA, 2015) requires monitoring of Fish River upstream and downstream of the STP discharge point. Environmental monitoring requirements of the EPL are summarised in Section 3.2.2 and are included in the *Standard Operating Procedure – Oberon Sewerage Treatment Plant (STP)*.

Samples required for EPL monitoring are sent to Australian Lab Services for testing.

##### **4.2.5 Goundwater Monitoring**

No groundwater monitoring is currently undertaken at the STP site.

##### **4.2.6 Soil Monitoring**

No soil monitoring is currently undertaken at the STP site.

### **4.3 Activities / Controls**

#### **4.3.1 Site Inspections / Checks**

Daily and weekly inspections of the site are undertaken by operators as per the *Standard Operating Procedure – Oberon Sewerage Treatment Plant (STP)*.

This includes checking for any visible leaks, overflows or malfunctioning equipment.

This also includes inspecting the banks of the bottom effluent ponds, adjacent to Fish River, to check for any erosion.

#### **4.3.2 Pest Controls**

The following activities are undertaken as per the *Standard Operating Procedure – Oberon Sewerage Treatment Plant (STP)* to assist with control of pests:

- Weekly sweeping and moping of floors in lab, amenity and office
- Weekly removal of rubbish and otto bins to waste facility.

#### **4.3.3 Vegetation Controls**

Practices / activities to control vegetation are undertaken as per the *Standard Operating Procedure – Oberon Sewerage Treatment Plant (STP)*. Activities are undertaken on an “as required” basis.

These activities include:

- Grass mowing
- Spraying for weeds
- Trimming of tree branches around / above access roads (for truck access).

### **4.4 Emergency Preparedness and Response**

#### **4.4.1 Pollution Incident Response**

The Oberon Sewerage Treatment Plant and Collection System Pollution Incident Response Management Plan (PIRMP) (Oberon Council, 2019) outlines the required procedures for the management of pollution incidents at the Oberon STP and the sewerage collection system, including:

- Protocols for communication and actions to be undertaken during and following the occurrence of a pollution incident
- Preventative actions to be undertaken to control/minimise the risk of a pollution incident occurring.

#### **4.4.2 Emergency Response**

A list of emergency contact details are provided in the PIRMP (Oberon Council, 2019).

Council currently do not have an emergency plan for the Oberon STP site. Development of an emergency plan for the site has been included as an action item in the environmental improvement plan (Section 9).

## 5 Environmental Hazard Assessment

---

A preliminary desktop environmental aspects risk assessment has been undertaken by Hunter H2O. The preliminary environmental aspects risk assessment was reviewed by key Council staff, including the lead STP operator, and Hunter H2O during a teleconference workshop held 24 March 2020.

The assessment was undertaken using information provided by Council at the time of writing. As part of an ongoing improvement process, Council are committed to formalising this preliminary hazard identification & assessment process by undertaking an environmental risk assessment workshop involving key Council staff at a later date.

### 5.1 Identification of Environmental Aspects and Impacts

A desktop assessment of the activities and operations undertaken at Oberon STP has been undertaken to identify environmental aspects that have the potential to cause environmental impacts.

#### 5.1.1 Specific Environmental Aspects for Oberon STP

Oberon STP involves the treatment of sewerage, discharge of effluent into Fish River and production / storage of screenings / grit and biosolids. Failure of any part of the system has the potential to cause an environmental incident.

Environmental aspects/hazards associated with the operation and maintenance of the Oberon STP are summarised below.

##### 5.1.1.1 Water & Soil Contamination

Pollution of soil, groundwater and/ or surface water at or near the STP site could potentially be caused by:

- Discharge of effluent with excess pollutants that could damage the environment, due to poor treatment, mechanical failure, extended power outages, emergency situation, overloading of process
- Release or leakage of poor quality effluent from the effluent lagoons
- Overflows or leaks of sewerage or sludge streams due to stormwater inflows, extended power outages, emergency situation, overloading of process, loss of containment.
- Inadequate treatment due to sabotage of the STP
- Contaminated run off water from site draining into natural waterway
- Chemical leaks or spills (alum, soda ash, petrol)
- Malfunctioning of mechanical equipment leading to oil or fuel leaks
- Poorly sited drying area for sludge/biosolids leading to run off.
- Poorly sited drying area for screenings & grit leading to run off.
- Biosolids / screenings / grit spillages during transport to disposal to waste facility.
- Application / use of biosolids that fail to meet Biosolids guidelines for application.

STP raw sewerage, sludge, supernatant and effluent may contain harmful microbes, traces of toxic metals and organic compounds, or compounds associated with chemical dosing.

Design should ensure that any spills of wastewater (untreated / partially treated) or chemicals cannot enter the environment or the stormwater system by means of bunding etc.

### 5.1.1.2 Noise / Vibration

Noise / vibrations may be generated at the STP and due to plant activities by:

- Mechanical equipment noise / vibrations:
  - Sewerage Pump Station 1
  - Motorised valves and mixers
  - Dosing pump/s
  - Supernatant return pump.
- Traffic – Delivery, biosolids / waste transportation vehicles accessing the site through residential area.

There is not mention of noise in Oberon STP's EPL. Therefore, Council will adopt the noise level restrictions imposed by the Protection of the Environment Operations (Noise Control) Regulation 2017.

At the time of writing, Council have indicated they have not received any STP noise complaints in recent times.

### 5.1.1.3 Air Quality (Odours, Dust and Gases)

Air quality problems arising at a STP may be associated with:

- General plant process
- Odours from biosolids and/or solids handling process
- Dust off the biosolid storage area due to high winds and/or traffic
- Odours from algae in the effluent lagoons.

Odour problems in the sewerage treatment and solids handling streams may be increased by the presence of algae or other organic compounds.

Odours may become a problem when surrounding residences are close to the STP. For this reason, STPs are generally located away from residential areas in accordance with Department of Planning guidelines.

The Oberon STP boundary is approximately 250 m from the closest residential property.

At the time of writing, Council have indicated they have not received any STP odour / air quality complaints in recent times.

### 5.1.1.4 Other Environmental Impacts

Other potential environmental impacts that may be associated with operation of Oberon STP include:

- Flora & fauna impacts:
  - Plant operations attracting pests, e.g. rodents, insects.
  - Overgrowth of site impacting process and assets.
- Erosion and sedimentation:
  - Erosion damage to the banks of the river caused by plant operations. Note the banks adjacent to the Effluent Ponds are well vegetated and built up by approximately 3 m.

### 5.1.1.5 Summary

Table 5-1 summarises potential environmental incidents and their causes.

Table 5-1 Identified Potential Environmental Incidents for Oberon STP

Potential Environmental Incident	Possible Cause
Water and Soil Contamination	<ul style="list-style-type: none"> <li>▪ Poor treatment, mechanical failure, extended power outages, emergency situation, overloading of process</li> <li>▪ Release or leakage of poor quality effluent from the effluent lagoons</li> <li>▪ Overflows or leaks of sewerage or sludge streams due to stormwater inflows, extended power outages, emergency situation, overloading of process, loss of containment.</li> <li>▪ Inadequate treatment due to sabotage of the STP</li> <li>▪ Contaminated run off water from site draining into natural waterway</li> <li>▪ Chemical leaks or spills (alum, soda ash, petrol)</li> <li>▪ Malfunctioning of mechanical equipment leading to oil or fuel leaks</li> <li>▪ Poorly sited drying area for sludge/biosolids leading to run off.</li> <li>▪ Poorly sited drying area for screenings &amp; grit leading to run off.</li> <li>▪ Biosolids / screenings / grit spillages during transport to disposal to waste facility.</li> <li>▪ Application / use of biosolids that fail to meet Biosolids guidelines for application.</li> </ul>
Noise	<ul style="list-style-type: none"> <li>▪ Mechanical equipment noise / vibrations:               <ul style="list-style-type: none"> <li>○ Sewerage Pump Station 1</li> <li>○ Motorised valves and mixers</li> <li>○ Dosing pump/s</li> <li>○ Supernatant return pump</li> </ul> </li> <li>▪ Traffic – Delivery, biosolids / waste transportation vehicles accessing the site through residential area.</li> </ul>
Odours and Gases	<ul style="list-style-type: none"> <li>▪ General plant process</li> <li>▪ Odours from biosolids and/or solids handling process</li> <li>▪ Dust off the biosolid storage area due to high winds and/or traffic</li> <li>▪ Odours from algae in the effluent lagoons.</li> </ul>
Flora & Fauna	<ul style="list-style-type: none"> <li>▪ Plant operations attracting pests, e.g. rodents, insects.</li> <li>▪ Overgrowth of site impacting process and assets.</li> </ul>
Erosion and Sedimentation	<ul style="list-style-type: none"> <li>▪ Erosion damage to the banks of the river caused by plant operations. Note the banks adjacent to the Effluent Ponds are well vegetated and built up by approximately 3 m.</li> </ul>

## 5.2 Criteria for Assessment of Environmental Aspects

A numerical assessment process, where each identified hazard is assigned a 'risk score', to determine which environmental aspects are significant and need to be addressed. The 'risk score' of a hazard is a function of the likelihood of the hazard occurring and the environmental impacts that may result from the hazard. The 'likelihood' and 'impact' of each hazard is assigned using the numerical rating systems given in Table 5-2 and Table 5-3, respectively. The level of uncertainty for each hazard was also scored via the criteria in Table 5-4. In keeping with accepted conservative risk management principals, the worst case 'likelihood' and 'impact' was assumed for hazards with a high level of uncertainty.

Table 5-2 Criteria for Assessment - Likelihood

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

Table 5-3 Criteria for Assessment - Impacts

Level	Classification	Example Definition Environment (including scale, severity & duration)
1	Insignificant	No detectable environmental impact.
2	Minor	Localised, short term, minor environmental impact.
3	Moderate	Localised, medium term, moderate environmental impact.
4	Major	Severe, long term, large scale environmental impact.
5	Catastrophic	Severe, permanent, large scale environmental impact.

Table 5-4 Score for the Level of Uncertainty

Uncertainty Rank / Score	Water Quality Data Verification	Anecdotal Observation	Scientific Validation
High	Water quality data indicates no clear trend on risk.	No reports from staff on risk occurring, but suspect risk occurs.	Some small-scale scientific studies nationally or internationally.
Medium	Water quality data indicates some sporadic trends in risk.	Occasional reports from staff on risk occurring.	Risk confirmed through national or state-based research.

<b>Low</b>	Water quality data indicates a statistically significant trend of the risk.	Numerous reports from staff on risk occurring.	Risk confirmed through national or state-based research and/or local research studies.
------------	---	--	--

Once the likelihood and consequence of a hazard are assigned, the 'risk score' is determined using the risk matrix. Council risk matrix (Table 5-5) assigns a qualitative 'risk score'. An adapted risk matrix has been developed to provide a numerical 'risk score'. The 'risk score' helps prioritise hazards and identify significant environmental aspects. The hazard score is represented by the words very high, high, medium, low and insignificant.

*Table 5-5 Criteria for Assessment – Qualitative Risk Score*

Likelihood	Impacts				
	Insignificant 1	Minor 2	Moderate 3	Major 4	Catastrophic 5
Almost Certain – 5	Low	Moderate	High	Very High	Very High
Likely – 4	Low	Moderate	High	Very High	Very High
Possible – 3	Low	Moderate	Moderate	High	Very High
Unlikely – 2	Low	Low	Moderate	High	Very High
Rare – 1	Low	Low	Low	Moderate	High

*Table 5-6 Criteria for Assessment – Numerical Risk Score*

Likelihood	Impacts				
	Insignificant (1)	Minor (2)	Moderate (3)	Major (6)	Catastrophic (20)
Almost Certain – 5	5	10	15	30	100
Likely – 4	4	8	12	24	80
Possible – 3	3	6	9	18	60
Unlikely – 2	2	4	6	12	40
Rare – 1	1	2	3	6	20

### 5.3 Environmental Hazard Risk Assessment



Table 5-7 Oberon STP Desktop Environmental Aspects Risk Assessment

Environmental Aspect	Hazard / Issue	Impact	Baseline Likelihood	Baseline Consequence	Baseline Risk Score	Baseline Numerical Risk Score	Uncertainty	Control Measures	Recommendations / Investigations / Planned Future Control Measures
Water & Soil Contamination (Effluent / Sewerage / site drainage)	Discharge of effluent with excess pollutants that could damage the environment. Issue could be due to poor treatment, mechanical failure, extended power outages, emergency situation, overloading of process.	Waterway contamination Health effects Regulatory Action	Almost Certain	Moderate	<b>HIGH</b>	15	Medium	PIRMP EPA effluent quality monitoring and records Breach of EPA quality limits are reported to the EPA (notification protocols in PIRMP) Operational monitoring of effluent Telemetry system for SPS1 & SPS2 On-call operator On-call contractors Reliable power system (long power outages are usually planned) Units will still provide some treatment in power outage.	Council are planning to upgrade Oberon STP to meet demand and quality targets. Upgrade will also include additional controls and alarming for STP. Develop an Emergency Plan for the Oberon STP site.
	Release or leakage of poor quality effluent from the effluent ponds. Could be due to damage to containment infrastructure, storm event.	Contaminated water leaking into the environment. Especially the nearby Fish River.	Possible	Major	<b>HIGH</b>	18	High	Monthly report - EPA monitoring points in river upstream/downstream of STP Visual monitoring of the levels of the effluent ponds	Council to consider developing and establishing a groundwater/soil monitoring program. Council to implement solar powered dosing into the ponds for chlorination and pH rectification.
	Overflows or leaks of sewerage streams. Could be due to stormwater inflows, extended power outages, emergency situation, overloading of process, damage to containment infrastructure.	Land contamination Waterway contamination Health effects Regulatory Action	Unlikely	Moderate	<b>MODERATE</b>	6	High	PIRMP STP designed for peak wet weather flows (PWWF) STP overflow from balance tank (very rare) is transferred to effluent pond Monitoring flow meter on overflow line - checked daily and recorded on sewer spreadsheet Slope of main STP site directs drainage/spills to the sludge lagoons. Old drainage pipes located on the other side of the sludge lagoons will direct drainage to effluent pond 1. Telemetry system for SPS1 & SPS2 On-call operator On-call contractors Reliable power system (long outages are usually planned and very rare)	Council are planning to upgrade Oberon STP to meet demand and quality targets.

								Units will still provide some treatment in power outages.	
	Inadequate treatment due to sabotage of plant	Land contamination Waterway contamination Health effects Regulatory Action	Rare	Moderate	LOW	3	High	Electric locked gate. Fencings around STP Warning signage around STP. Locked building. Telemetry system for SPS1 & SPS2	Consider installing security cameras with plant upgrade. Develop an Emergency Plan for Oberon STP.
	Overflows or leaks of sludge streams	Land contamination Waterway contamination Health effects Regulatory Action	Unlikely	Moderate	MODERATE	6	High	EPA monitoring points in river upstream/downstream of STP Slope of main STP site directs drainage/spills to the sludge lagoons. Old drainage pipes located on the other side of the sludge lagoons will direct drainage to effluent pond 1.	Update site drainage / improve the old drainage system behind the sludge lagoons.
Water & Soil Contamination (Site drainage)	Contaminated run off water from site draining into natural waterway	Contaminated water draining into the environment.	Possible	Major	HIGH	18	High	EPA monitoring points in river upstream/downstream of STP Slope of main STP site directs drainage/spills to the sludge lagoons. Old drainage pipes located on the other side of the sludge lagoons will direct drainage to effluent pond 1.	Update site drainage / improve the old drainage system behind the sludge lagoons.
Water & Soil Contamination (Hazardous Materials)	Chemical spill due to infrastructure failure, during delivery, or due to damaged pipework. Alum, soda ash (powder), petrol stored onsite.	Land contamination Waterway/groundwater contamination Health effects Regulatory Action	Likely	Minor	MODERATE	8	Medium	Alum storage area is banded. Alum chemical transfer area is banded. Soda ash is in 20 kg bags. Small amount of petrol stored onsite (~20L). SDS for chemicals kept onsite. Operators conduct daily inspections of site - Standard Operating Procedures: Oberon Sewerage Treatment Plant (STP) (24/03/2020). Council procedure for chemical deliveries is Standard Operating Procedure - Water: Receipt of Chemical Deliveries Doc No. S010 (9/01/2019). Operator onsite during deliveries. Delivery drivers have their own SWMS for chemical delivery. Delivery drivers conduct their own inspections of pipework & equipment, any identified issues will	Consider to establishing and implementing an asset management and renewals program. Establish and enforce an induction process for delivery contractors/visitors including Environmental Management System Induction. Council are planning to upgrade Oberon STP to meet demand and quality targets. Upgrade will also include additional controls and alarming for STP.

								be communicated to Council. Ongoing inspections of pipework & equipment.	
	Malfunctioning of mechanical equipment leading to oil or fuel leaks	Land contamination Waterway/groundwater contamination Health effects Regulatory Action	Unlikely	Minor	LOW	4	Medium	Daily inspections (SOP: Oberon STP). Monitoring by operators when in used. Small amount of petrol kept onsite (~20L)	
Water & Soil Contamination (Waste / Biosolids)	Poorly sited storage of dried sludge - leading to run off.	Run-off - Land/Waterway/Groundwater contamination Health effects Regulatory Action	Possible	Moderate	MODERATE	9	High	Embankment around drying area. Embankment is regularly maintained Site is fenced.	Council are planning to upgrade Oberon STP to meet demand and quality targets - consideration given to new drying beds or contract dewatering for the new plant (Oberon STP Concept Design Report, Hunter H2O, 2018).
	Poorly sited drying area for screenings & grit leading to run off	Run-off - Land/Waterway/Groundwater contamination Health effects Regulatory Action	Likely	Moderate	HIGH	12	High	Drying area is a raised bed Composed mainly of grit and dries quickly (2-3 days). Regularly removed and disposed of (taken to Council tip)	Council are planning to upgrade Oberon STP to meet demand and quality targets - will include upgrade to screening/grit disposal system (Oberon STP Concept Design Report, Hunter H2O, 2018).
	Biosolids / screenings / grit spillages during transport to disposal to waste facility	Contamination of Land/ Waterways/ groundwater Illegal application of biosolids outside of guidelines	Possible	Moderate	MODERATE	9	High	Biosolids dried before transport. Trucks are appropriate for use and have covering for loads.	Develop a SWMS / procedure for transport of biosolids.
	Application / use of biosolids that fail to meet Biosolids guidelines for application. On rare occasions, Kangaroos been known to jumped the fence get in to the STP site. They can eat grass growing on the drying beds. In drought conditions, a nearby Farmer has been allowed into the STP site to let his cows graze, but livestock was carefully watched and not allowed near the drying beds.	Failure to meet Biosolids guidelines	Likely	Minor	MODERATE	8	High	Embankment around drying area. Embankment is regularly maintained. Site is fenced.	Consider developing a procedure around allowing cattle onto site to formalise the controls around not allowing them to consume grasses grow on untested biosolids, if this is to be allowed again.

Noise / Vibration / Vehicle Movement	Mechanical equipment noise / vibrations: - Sewerage Pump Station 1 - Motorised valves and mixers - Dosing pump/s - Supernatant return pump	Complaints Unacceptable emissions that do not comply with POEO Act and NSW EPA noise guidelines	Unlikely	Minor	LOW	4	Medium	Buffer distance between plant & residences. Quiet pumping stations. Daily operator inspections of site and pump stations - SOP: Oberon STP. No complaints have been received in recent memory.
	Traffic - Delivery / Biosolids transportation vehicles noise / movement (access to plant is through residential area)	Complaints Unacceptable emissions that do not comply with POEO Act and NSW EPA noise guidelines	Unlikely	Minor	LOW	4	Medium	No truck deliveries outside of hours (earliest 7 am). Deliveries are infrequent.
Air Quality	General plant process.	Complaints by residents. Unacceptable emissions that do not comply with POEO Act	Unlikely	Minor	LOW	4	Medium	Buffer distance between plant & residences. Residences located to the west of the STP. Some vegetation screening. No complaints have been received in recent memory.
	Odours from biosolids - solids handling process	Complaints by residents Unacceptable emissions that do not comply with POEO Act	Unlikely	Minor	LOW	4	Medium	Buffer distance between plant & residences. Residences located to the west of the STP. Some vegetation screening. No complaints have been received in recent memory. The process produces stable biosolids Biosolids dried prior to storage
	Dust off biosolids due to high winds and traffic.	Complaints by residents Unacceptable emissions that do not comply with POEO Act Health effects	Unlikely	Minor	LOW	4	Medium	Buffer distance between plant & residences. Residences located to the west of the STP. Some vegetation screening. No complaints have been received in recent memory. Embankment around drying area.
	Odours from algae in the effluent lagoons	Complaints by residents Unacceptable emissions that do not comply with POEO Act	Unlikely	Minor	LOW	4	Medium	Buffer distance between plant & residences. Residences located to the west of the STP. Some vegetation screening. No complaints have been received in recent memory.
Flora and Fauna	Plant operations attracting pests, e.g. rodents. Rats rarely seen, insects can be a problem.	Impact on native species WHS/health impacts Asset damage, i.e. rats chewing through cables.	Almost Certain	Insignificant	LOW	5	High	Building onsite are locked. Weekly sweep/mop of lab/amenity/office (SOP: Oberon STP)

								Weekly removal of rubbish to waste facility (SOP: Oberon STP)	
	Overgrowth of site	Impact on process and assets WHS/health impacts	Almost Certain	Moderate	<b>HIGH</b>	15	High	All operators have chemical certificates and undertake spraying for weeds (SOP: Oberon STP). Operators maintain grounds when necessary, incl. mowing around STP site, trimming of trees above access road for truck access (SOP: Oberon STP). Operators undertake slashing around effluent pond roads when necessary to keep grass down.	Develop a vegetation management plan for the site.
Heritage	Impact of plant operations on site of indigenous or non-indigenous heritage.	Heritage/cultural impacts	Possible	Major	<b>HIGH</b>	18	High	Inspection has been undertaken as part of the development of the REF by cultural heritage officer. There has been no indication of any indigenous or non-indigenous heritage identified onsite.	REF to be undertaken as part of planning for the Oberon STP upgrade.
Erosion and Sedimentation	Erosion damage to the banks of the river caused by plant operations.	Contamination of local water ways	Unlikely	Moderate	<b>MODERATE</b>	6	High	EPA monitoring of river water quality (upstream/downstream) Operator site inspections include inspection of the banks of the bottom ponds adjacent to Fish River (SOP: Oberon STP). Banks built up (~3m) where effluent pond roads are located. Banks in STP site are heavily vegetated. There is no driving on the banks.	

## 5.4 Significant Environmental Aspects

Hazards that were determined to have a risk score of High or Very High (i.e. a numerical risk score of greater than 10) were labelled as a significant environmental aspect.

Through the Environmental Hazard Risk Assessment process a number of hazards and their corresponding environmental aspects were identified as significant (Table 5-7). This list of significant environmental aspects is provided below:

- Discharge of effluent with excess pollutants that could damage the environment. Issue could be due to poor treatment, mechanical failure, extended power outages, emergency situation, overloading of process.
- Release or leakage of poor quality effluent from the effluent ponds. Could be due to damage to containment infrastructure, storm event.
- Contaminated run off water from site draining into natural waterway
- Poorly sited drying area for screenings & grit leading to run off
- Overgrowth of site
- Impact of plant operations on site of indigenous or non-indigenous heritage.

## 5.5 Risks and Opportunities

The Environmental Hazard Risk Assessment process identified 12 improvement actions that could be taken to reduce the risk of environmental hazards, summarised in Table 5-8.

*Table 5-8 Recommendations, Investigations and Planned Future Control Measures*

Recommendations, Investigations and Planned Future Control Measures	
1	Council are planning to upgrade Oberon STP to meet demand and quality targets. Upgrade will also include additional controls and alarming for STP. Will also include upgrade of solids/screening/grit handling.
2	Develop an Emergency Plan for the Oberon STP site.
3	Council to consider developing and establishing a groundwater/soil monitoring program.
4	Council to implement solar powered dosing into the ponds for chlorination and pH rectification - Dec 2020.
5	Consider installing security cameras with plant upgrade.
6	Update site drainage / improve the old drainage system behind the sludge lagoons.
7	Consider to establishing and implementing an asset management and renewals program.
8	Establish and enforce an induction process for delivery contractors/ visitors including Environmental Management System Induction.
9	Develop a SWMS / procedure for transport of biosolids.

10	Consider developing a procedure around allowing cattle onto site to formalise the controls around not allowing them to consume grasses grow on untested biosolids, if this is to be allowed again.
11	Develop a vegetation management plan for the site.
12	REF to be undertaken as part of planning for the Oberon STP upgrade.

These improvement actions have been compiled into an EMS Improvement Plan (Section 9).

The EMS Improvement Plan will include actions arising from the Environmental Hazard Risk Assessment process alongside improvements to the EMS identified in the initial compiling of the EMS document and in subsequent audits/reviews of the EMS.

# 6 Environmental Competence and Training

## 6.1 Environmental Management Structure

### 6.1.1 Roles and Responsibilities

The roles and responsibilities under this EMS of relevant council staff are provided in Table 6-1.

Table 6-1 Roles and Responsibilities under the EMS

Role	Responsibilities
<b>Water &amp; Sewer Manager / Sewer Coordinator / Engineer</b>	<ul style="list-style-type: none"> <li>▪ Undertake the management review</li> <li>▪ Sign off on updates / revisions to the EMS</li> <li>▪ Communicate any changes to EMS relevant staff</li> <li>▪ Sign off on the annual environmental report</li> <li>▪ Ensure Council staff receive relevant EMS training</li> <li>▪ Retain accountability for the effectiveness of the EMS</li> <li>▪ Ensure the environmental policy and environmental objectives are established and are compatible with the strategic direction and context of the organisation</li> <li>▪ Ensure the integration of the environmental management system requirements into the organisation's business processes</li> <li>▪ Ensure that the resources needed for the environmental management system are available</li> <li>▪ Communicate the importance of effective environmental management and of conforming to the environmental management system requirements</li> <li>▪ Promote continual improvement</li> <li>▪ Supporting other relevant management roles to demonstrate their leadership as it applies to their areas of responsibility.</li> </ul>
<b>Sewer Coordinator / Engineer</b>	<ul style="list-style-type: none"> <li>▪ Compile the annual environmental report</li> <li>▪ Organise annual third party audits of EMS documentation</li> <li>▪ Conduct internal audit of the EMS as per Section 8.1</li> <li>▪ Implement any changes recommended by EMS audits</li> <li>▪ Distribute annual environmental report once approved</li> <li>▪ Participate in Environmental Risk Assessment Workshop/s</li> </ul>
<b>STP Operator</b>	<ul style="list-style-type: none"> <li>▪ Enact the all protocols / controls specified in this EMS and associated documentation (i.e. Standard Operating Procedures, PIRMP)</li> <li>▪ Ensure visitors and contractors receive EMS induction and sign the onsite register</li> <li>▪ Provide contractors with relevant sections of the EMS if requested or required</li> <li>▪ Participate in Environmental Risk Assessment Workshop/s</li> </ul>
<b>Contactors / Visitors</b>	<ul style="list-style-type: none"> <li>▪ Have undertaken an EMS site induction as per Section 6.2</li> <li>▪ Be aware of Council's Environmental Policy</li> <li>▪ Discuss with Council staff any work that may impact or pose a risk to the environment.</li> </ul>



## **6.2 Training / Competency Requirements**

### **Council Staff**

Council staff operating and managing Oberon STP are trained in the implementation of this EMS as part of their staff induction process. Renewal of training in the EMS will be conducted every three years.

Any changes made to the EMS between training renewals will be communicated to Council staff.

Following the induction process or training renewal, staff will be required to demonstrate competency in:

- Understanding the documented environmental practices, procedures and systems.
- Understanding of their role and responsibilities within the EMS
- Understanding of the potential impacts their work activities may have on the environment
- Understanding how to respond to environmental issues

Additional training requirements will be assessed by Council.

### **Contractors / Visitors**

Contractors and visitors to site are required to undertake site inductions.

During the site induction the inductee will be:

- Shown the location of the hard copy of the Environmental Policy and EMS Plan available in the STP office
- Directed to read Council's Environmental Policy.

Where contractors are required to conduct work that has the potential to impact on the environment, the contractors must undertake an extended induction on the EMS which will include:

- Discussion of the potential impacts their work activities may have on the environment and any controls / procedures outlined in the EMS relevant to that work
- Information how to respond to environmental issues as per the EMS.

It is the responsibility of the Council that these requirements are discussed with the contractor and providing the relevant sections of the EMS to the contractor as required or requested.

## **6.3 Training / Competency Records**

Council are required to keep evidence of competence (including training records) of all relevant onsite persons.

Records of staff qualifications are kept by Council. Training records of employees are maintained on Council's server.

Induction records for all persons attending site, including contractors and visitors, are kept as an attendance register at the STP site.

Training records and needs will be reviewed as part of the EMS internal review process (Section 8.1).

# 7 Internal and External Communication

---

## 7.1 Communication of the EMS

Council's Environmental Policy will be displayed as a hard copy in STP Office.  
This EMS Plan will be made available to all employees on the Council's server.

## 7.2 Annual Environmental Report

Council will produce an annual environmental report to communicate across the organisation and to other relevant stakeholders, as per Council's Environmental Policy.

Council's Annual Environmental Report template has been provided in Appendix A.

## 7.3 Communication Protocols

Any changes to the EMS Plan should be communicated to relevant staff, contractors and visitors.

The PIRMP should be consulted for internal/external communication during a pollution incident. The PIRMP (Oberon Council, 2019) includes:

- Contact details key internal / external stakeholders in the event of a pollution incident
- Communication protocols for communication with neighbours and the community following a pollution incident
- The notification process following a pollution incident.

# 8 Performance Evaluation and Auditing

---

## 8.1 EMS Internal Review

The controlled master copy of the EMS Plan will be retained on the Council server. Information on version control is contained at the start of this document.

The EMS should be reviewed and updated:

- When there is a change in the scope, e.g. a plant upgrade or change in licence conditions
- Following significant environmental incidents
- When there is a need to improve performance in an area of environmental impact
- At the completion of environmental audits.
- Every 3 years.

The Sewer Coordinator / Engineer is responsible for reviewing the EMS and updating the document as needed. This review is to include:

- Review and update to the environmental hazard assessment
- Review of the legal requirements related to the environmental aspects of the STP operation and update as required
- Review of the environmental procedures
- Review of the training records to ensure they are current
- Review of the training needs of staff to ensure they are sufficient
- Review and update of the improvement plan, including add information on progress made and adding new action items as required.

The requests for changes will be reviewed and approved by the Manager Water and Sewer before the master document can be amended.

It will be the responsibility of the Manager, Water and Sewer Services to redistribute the EMS to all relevant personnel following any changes. Once updated, the EMS will require redistribution to all relevant staff.

### 8.1.1 Management Review

The Manager Water and Sewer is responsible for reviewing and approving all requests for changes to the EMS Plan before the master document can be amended.

The Manager Water and Sewer is also responsible for reviewing the EMS every 3 years to ensure its continuing suitability, adequacy and effectiveness.

The outputs of the management review will include:

- Conclusions on the continuing suitability, adequacy and effectiveness of the EMS
- Decisions related to continual improvement opportunities
- Decisions related to any need for changes to the EMS, including resourcing
- Additional actions required if environmental objectives have not been achieved
- Opportunities to improve integration of the EMS with other business processes / procedures
- Any implications to the strategic direction of the organisation.

Improvements to the EMS will be immediately implemented were possible. Where immediate implication of an identified improvement is not possible, the improvement action will be added to the improvement plan.

## 8.2 External Auditing

The EPA Risk-based Licensing: Environmental Management Systems Guidelines (NSW EPA, 2019) Annual Return Question Item 9, requires **an annual, third party audit** of the documented environmental practices, procedures and systems in place during the Annual Return period.

A third party auditing program is yet to be established. This is an item in the EMS improvement plan.

Improvements recommended by the third party audit will be immediately implemented where possible. Where immediate implication of an identified improvement is not possible, the improvement action will be added to the improvement plan.

## 8.3 Audit and Review Records

Details for all EMS audits and reviews undertaken will be recorded at the front of this document in the Document Control section.

## 9 Improvement Plan

---

An improvement plan has been developed to align with the underlying continuous improvement approaches as outlined in ISO14001 and summarised in Section 1.4. The improvement plan has been designed to capture commitments for EMS improvement as improvement plan action items.

Improvement plan action items have been, and will continue to be, identified by the following undertakings:

- Preliminary desktop environmental hazard risk assessment (Section 5)
- Environmental risk assessment workshop (to be undertaken by Council at a later date)
- Ongoing performance evaluations and audits of the plan (Section 8).

For each of the improvement plan action items, a target completion date has been assigned.

The improvement plan will be reviewed during internal / external audits of the EMS. This will include a review of the status of each of the action items.

Contingency arrangements will be determined for action items that have not been completed/progressed by the target completion date timeframe.

Table 9-1 Improvement Plan

ID No.	Action Item	Environmental Aspect	Target Completion Date	Status / Progress
1	Council to implement solar powered dosing into the ponds for chlorination and pH rectification	Water & Soil Contamination	Dec 2020	
2	Undertake a formal Environmental Risk Assessment workshop with key stakeholders to review and revise the preliminary risk assessment	All	Dec 2021	
3	Develop and establish an annual, third party auditing schedule as per Section 8.2.	All	Dec 2021	
4	Establish and enforce a Council Staff EMS training renewal program as per Section 6.2. Staff should receive training when first inducted and every three years.	All	Dec 2021	
5	Establish and enforce an induction process for delivery contractors/ visitors including Environmental Management System Induction as per Section 6.2.	All; Water & Soil Contamination	Dec 2021	
6	Develop an Emergency Plan for the Oberon STP site.	Water & Soil Contamination	Dec 2021	
7	Council to consider developing and establishing a groundwater/soil monitoring program.	Water & Soil Contamination	Dec 2022	
8	Develop a vegetation management plan for the site.	Flora & Fauna	Dec 2022	
9	Consider installing security cameras with plant upgrade	Water & Soil Contamination	Dec 2023	
10	Update site drainage / improve the old drainage system behind the sludge lagoons	Water & Soil Contamination	Dec 2023	
11	Consider to establishing and implementing an asset management and renewals program	Water & Soil Contamination	Dec 2023	
12	Develop a SWMS / procedure for transport of biosolids.	Water & Soil Contamination	Dec 2023	

13	REF to be undertaken as part of planning for the Oberon STP upgrade.	Heritage	Dec 2023
14	Council are planning to upgrade Oberon STP to meet demand and quality targets. Will also include upgrade of solids/screening/grit handling.	Water & Soil Contamination	Dec 2024
15	Consider developing a procedure around allowing cattle onto site to formalise the controls around not allowing them to consume grasses grow on untested biosolids, if this is to be allowed again.	Water & Soil Contamination	Prior to allowing livestock on site

## 10 References

---

- Department of Infrastructure, Planning and Natural Resources. (2004). *Guideline for the Preparation of Environmental Management Plans*. Sydney, Australia: Department of Infrastructure, Planning and Natural Resources.
- NSW EPA. (1997). *Environmental Guidelines: Use and Disposal of Biosolids Products*. Sydney, Australia: NSW EPA.
- NSW EPA. (2004). *Approved Methods for the Sampling and Analysis of Water Pollutants in New South Wales*. NSW EPA.
- NSW EPA. (2015). *Environment Protection Licence (EPL) Number 1644*. NSW EPA.
- NSW EPA. (2017). *Noise Policy for Industry*. NSW EPA.
- NSW EPA. (2019). *Risk-based licensing: Environmental management systems guidelines*. Sydney, Australia: NSW Environment Protection Authority (EPA).
- NSW Government. (1938). *Soil Conservation Act 1938*. NSW Government.
- NSW Government. (1979). *Environmental Planning and Assessment Act 1979 No 203*. NSW Government.
- NSW Government. (1993). *Local Government Act 1993*. NSW Government.
- NSW Government. (1997). *Protection of the Environment Operations Act 1997*. NSW Government.
- NSW Government. (2000). *Environmental Planning and Assessment Regulation 2000*. NSW Government.
- NSW Government. (2001). *Waste Avoidances and Resource Recovery Act 2001*. NSW Government.
- NSW Government. (2007). *State Environmental Planning Policy (Infrastructure) 2007*. NSW Government.
- NSW Government. (2010). *Public Health Act 2010*. NSW Government.
- NSW Government. (2011). *State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011*. NSW Government.
- NSW Government. (2011). *Work Health and Safety Act 2011*. NSW Government.
- NSW Government. (2012). *Public Health Regulation 2012*. NSW Government.
- NSW Government. (2017). *Protection of the Environment Operations (Noise Control) Regulation 2017*. NSW Government.
- Oberon Council. (2019). *Oberon Sewage Treatment Plant and Collection System Pollution Incident Response Management Plan (PIRMP)*. Oberon Australia: Oberon Council.
- Oberon Council. (2020). *Standard Operating Procedure - Water: Receipt of Chemical Deliveries Doc No. S010*. Oberon, Australia: Oberon Council.
- Oberon Council. (2020). *Standard Operating Procedure: Oberon Sewerage Treatment Plant (STP)*. Oberon, Australia: Oberon Council.
- SAI Global Limited. (2016). *AS/NZS ISO 14001:2016 Environmental management system - Requirements with guidance for use*. Sydney, Australia: SAI Global Limited.



# Appendix A: Annual Environmental Report Template

---

# Oberon Council: Oberon Sewerage Treatment Plant (STP) Annual Environmental Report 20##

Authored by: NAME/POSITION

Approved by: NAME/POSITION

Date: DATE

## Background

Council is committed to providing these services in an environmentally responsible manner, and to a standard that exceeds government and customer expectations as per Council's Environmental Policy.

As part of this commitment, Council issues an Annual Environmental Report to communicate progress on environmental performance to relevant internal and external stakeholders and the community.

## Environmental Compliance Obligations

As per the conditions of the Oberon STP Environmental Protection Licence, Oberon Council are required to submit an annual report to the EPA.

Council have met their annual compliance obligations through the submission of their Annual EPA Report on DATE.

## Environmental Management System Improvement Plan

Council's environmental management system (EMS) improvement plan captures planned actions and investigations to enact Council's commitment to continuous improvement of Oberon STP's environmental management systems.

Council have completed ## action items this year.

An additional ## action items have been progressed.

Moreover, ## action items have been added to the improvement plan for future action.

## EMS Audit

The EPA Risk-based Licensing: Environmental Management Systems Guidelines (NSW EPA, 2019) Annual Return Question Item 9, requires an annual, third party audit of the documented environmental practices, procedures and systems in place during the Annual Return period.

Council engaged a third party to undertake an EMS audit on **DATE** to satisfy this requirement.

Improvements recommended by the third party audit were immediately implemented where possible. Where immediate implication of an identified improvement was not possible, the improvement action was added to the improvement plan.

## Additional Comments

Add additional comments or “Nil”.