VISY

FOR A BETTER WORLD

VISY ALBURY

Visy Industries (Australia) Ltd.

ENVIRONMENTAL MANAGEMENT REPORT

Compliance with EPA License 1272

and DA 389-8-2003-i MOD1

1 July 2020 to 30 June 2021

Acknowledgments

Throughout its history, the Visy Albury Mill has operated under a number of consent conditions and environmental permits. Over the years the site has transformed, expanding its operations and maintaining relationships as community expectations changed. Since Visy Industries obtained operational control of the site on 20th March 2020, the mill has become idle while investigations into its redevelopment are occurring. There is no doubt the site and region as a whole will benefit from the changes which are being planned.

The period from 1st July 2020 until the 30th June 2021 has seen no significant changes to the site. All equipment remains drained and cleaned, and the site persists in an extended shutdown mode. As a result, there has been no treated effluent returned to the Murray River during the past three reporting periods for this site.

There were no environmental incidence or community odour complaints during the reporting period.

Troy Watkins
VPP Site Supervisor and Environmental Manager

Introduction

Visy Industries is a world leading producer of packaging, and resource recovery, with 120 sites across Australasia, and seven operational paper mills within Australia. Across Visy 660,000 tonnes of kraft paper, and 825,000 tonnes of recycled paper were produced in 2020 alone. The headquarters of Visy is based in Melbourne, Australia.

Visy produce a range of products including paper, primary packaging, fibre packaging, packing supplies and consumables. Visy also uses innovative approaches that provide sustainable products for their customers, focusing on an enclosed loop of manufacturing and recycling of product and waste, reducing the overall impact the company has on the environment.

The Albury Mill is located approximately 12 km northeast of Albury in NSW. Adjacent to the site Visy Albury maintains a large Effluent Reuse Scheme. Visy Albury operates under Development Consent DA 389-8-2003-i-MOD1 and New South Wales EPA Environmental Protection Licence 1272 for the scheduled activities of Paper and Pulp Production, in addition to Chemical Production. This environmental report has been prepared to meet the annual reporting requirements documented in Schedule 4 of DA 389-8-2003-i-MOD1, details compliance to EPA Licence 1272, and findings of the Mills environmental monitoring programs (EMPs). This Environmental Management Report covers the reporting period from the 1 July 2020 to 30 June 2021.

Contents

Acronyms

AHD	Australian Height Datum
BAT	Best Available Technology
BOD	Biological Oxygen Demand
COD	Chemical Oxygen Demand
dS/m	Deci Siemens per Meter
EC	Electrical Conductivity
EMS	Environment Management System
EPA	Environment Protection Authority
g/m^3	Grams per Cubic Meter
ha	Hectare
kL/tonne	Kilolitres per Tonne
kg	Kilogram
LBL	Load Based Licencing
M	Meter
mg/kg	Milligram per Kilogram
mg/L	Milligram per Litre
MW	Mega Watt
ML	Mega Litre
NATA	National Association of Testing Authorities, Australia
RET	Renewable Energy Target
SEE	Statement of Environmental Effects
TDS	Total Dissolved Solids
TOC	Total Organic Carbon
Total N	Total Nitrogen
Total P	Total Phosphorus
TSS	Total Suspended Solids
RCF	Recycle Fibre Plant
WWTP	Waste Water Treatment Plant

1. Performance Measures

Norske Skog, the previous owners of the Visy Albury site (also previously owned and operated by Australian Newsprint Mills and Fletcher Challenge Paper), received Development Approval for a Recycled Fibre Plant and the Effluent Reuse Scheme in October 1992. The approval was subject to conditions, for which an Environmental Management Plan, with a series of testing regimes and programs was created, establishing a number of comprehensive datasets. Visy Albury received Development Approval DA 389-8-2003-i-MOD1 in 2020 with the takeover of the Mill. This consent together with New South Wales EPA Licence 1272 set the requirements for operations, with revisions outlined for the idle period of the site.

1.1. Production Limits of Development Consent

Visy Albury is limited by Schedule 2 of its development consent, DA-389-8-2003i-MOD1 to produce not more than 300,000 tonnes of finished newsprint and 185,000 tonnes of recovered paper per annum. For the reporting period of 2020-2021 Visy Albury, due to being an idle site, has produced zero tonnes of paper product.

TABLE 1. Visy Albury Annual Newsprint Production

Reporting Period	Production (tonnes)
1/7/2020 – 30/6/2021	0

1.2. Environmental Monitoring and Analysis

Under our Visy Albury Environmental Management Plan, laboratory testing of water and soil parameters specified in NSW EPA Licence 1272 have been undertaken in accordance with standard laboratory testing procedures.

The Albury City Council Waterview Laboratory and ALS Group Environmental Pty Ltd Laboratories have undertaken NATA accredited analysis of the samples.

Timberlands Research Pty Ltd based in Melbourne were contracted to undertake sample collection, testing and interpretation of soils data associated with the Ettamogah Effluent Reuse Scheme. The annual chemical analysis of soil samples was carried out at the Inorganic Chemistry Laboratory of Primary Industries Research Victoria.

1.3. Compliance with NSW EPA Load Limits

The New South Wales EPA Load Based Licensing (LBL) scheme set limits on pollutant loads able to be emitted by Visy Albury as holder of an environment protection Licence. An annual Licence fee is payable to the EPA, calculated on the load of pollutants emitted each period. Table 2 below summarises the assessable air and water pollutants against the corresponding load limit.

TABLE 2. EPA Load Based Licensing

Reporting Period 2020 - 2021	BOD (kg)	Total N (kg)	Total P (kg)	TSS (kg)	Salt (kg)	Zinc (kg)	Coarse Part (kg)	Fine Part (kg)	Nitrogen Oxides (kg)
AMBIENT LOAD	912	323	40	2,742	17,786	7			
LOAD DISCHARGED TO MURRAY RIVER	0	0	0	0	0	0			
LOAD DISCHARGED TO REUSE SCHEME	1,564	686	200	2,781	45,073	6			
NET LOAD	652	363	160	39	27,287	-1	0	0	0
LOAD LIMITS	51,000	31,000	1,900	82,900	7,500,000	1,400	8,300	57,500	285,000
LICENSE COMPLIANCE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Visy Albury were within all specified load limits for the assessable pollutants during the 2020-2021 reporting period.

Visy Albury Ettamogah Dam, New South Wales.

1.4. Compliance with EPA Licence Concentration Limits

1.4.1. Monitoring Point 1 – Treated Effluent Discharged to the Murray River

The Visy Albury site was rated as one of the most efficient newsprint production facilities in the world with respect to water consumption and effluent generation. Despite the Albury Mill being around 40 years old, the effluent generation rate was approximately 10 kL per tonne of production. This is achieved through a number of different techniques including dissolved air flotation, screening, cleaning and filtration which are utilized at different stages throughout the process to allow water and effluent to be reused several times throughout the paper making process.

When water is no longer suitable for use in the pulp or papermaking process, it is discharged as effluent to the Waste Water Treatment Plant (WWTP) where removal of dissolved organics measured as Biochemical Oxygen Demand (BOD) takes place. Treated effluent is then either transferred to the Effluent Reuse Scheme for irrigation on established plantation and pasture, or discharged to the Murray River in accordance with Development Consent and EPA Licence conditions. Since Visy's takeover of the site, there are now plans for redevelopment of this license. Anticipated redevelopment includes plans that will not include any cooling water discharge to the Murray River.

As the EPA License stands at present, treated effluent discharge to the Murray River, identified as Monitoring Point 1, may be carried out under the Effluent Discharge Program (EPA Licence Condition E1).

Effluent Discharge Program

Visy Albury may discharge treated effluent to the Murray River from:

- 1st October of each year, if the level in the Winter Storage Dam exceeds 213.0 m AHD (6.3m depth) until the level in the Winter Storage Dam receded to 212.8 m AHD (6.1m depth).
- 1st March of each year, if the level in the Winter Storage Dam exceeds 211.1 m AHD (or 4.4 m depth) either until April 30 of that year, or until the level in the dam receded to 210.7 m AHD (or 4.0 m depth).

Provided that a ratio of 600:1 (600 parts river water to 1 part treated effluent) in river dilution at the point of discharge is achieved during the discharge period, and that treated effluent discharged is of reasonable quality as specified by the licence conditions.

During the 2020-2021 reporting period, Visy Albury was not required to discharge treated effluent to the Murray River under the Effluent Discharge Program. This was due to the site remaining in an extended shut down period. All raw water processed through the mill's treatment plant was transferred to the Ettamogah Dam to use for irrigation of plantations and crops.

1.4.2. Monitoring Point 2 – Cooling Water Discharged to the Murray River

Visy Albury has the potential to extract 3,250 ML of raw water per annum from the Murray River. Cooling water discharged to the Murray River must comply with percentile concentration limits set by the New South Wales EPA Licence. However, it is possible after the redevelopment of the site that there may not be any further discharge of cooling water to the Murray River.

For the 2020-2021 reporting period, 0 ML of cooling water was discharged to the Murray River. All cooling water was sent to the Ettamogah Dam to be used for future irrigation. Table 3 below presents the monitoring results for cooling water, along with their compliance to the percentile concentration limits when discharging.

TABLE 3. Compliance against EPA License Limits around Cooling Water

Reporting Period 2020 - 2021	Flow (ML/Day)	Oil & Grease (mg/L)	pH		TDS (mg/L)
			Min	Max	
ACTUAL DATA					
100 Percentile	0	0	6.9	8.1	164
CONCENTRATION LIMITS					
100 Percentile	10	5	6.5	8.5	200
LICENCE COMPLIANCE					
100 Percentile	YES	YES	YES	YES	YES

Monitoring Point 2 – Non-Conformances to Percentile Concentration Limits

Throughout the 2020-2021 reporting period, all limits set for monitoring point 2 (cooling water) would have been met with zero exceedances.

1.5. Compliance with EPA Licence Volume Limits

Monitoring Points 1 and 2 each have a volume discharge limit of 10,000 kL/day. Throughout the 2020-2021 reporting period, neither cooling water discharge, nor Effluent discharge to the Murray River exceeded the 10,000kL a day limit. This is because Visy Albury did not discharge cooling water or treated effluent to the Murray River, and as such, the specified limits were not exceeded.

Daily flows of treated effluent and cooling water discharged to the Murray River are presented in Figure 1 on page 16.

1.6. Compliance with EPA Monitoring Conditions

Visy Albury is required under the held EPA Licence Conditions to monitor the concentration of specified pollutants discharged to air, water and land. An Environmental Management Plan with a series of testing programs along with comprehensive data sets has been developed to fulfill this requirement.

1.6.1. Monitoring Point 11 – Air Monitoring Requirements

Coarse Particulate, Fine Particulate and Nitrogen Oxide concentrations discharged to air from the boiler stack are required to be monitored twice per 12-month period. As the boiler was not operational, monitoring did not occur.

1.6.2. Monitoring Point 1 – Treated Effluent Discharge, Biological, Discharge Water and Receiving Environment Monitoring

Biological Monitoring

Throughout the Environmental Monitoring Program's history on this site, more than 220 bird species have now been identified in and around the Effluent Reuse Scheme after more than a decade of annual fauna surveys undertaken by Charles Sturt University and other interested parties.

In 2010, Norske Skog commissioned the Australian Platypus Conservancy to monitor platypus activity both up and downstream of the effluent and cooling water discharge points in the Murray River. This has been done in efforts to help identify any unforeseen consequences of releasing treated effluent and cooling water to the river. The platypus is a useful biological indicator of the health and productivity of freshwater ecosystems, reflecting its role as a top predator feeding on a broad range of aquatic and often sensitive macro-invertebrates.

Based on platypus monitoring results to date, there is no evidence to suggest that treated effluent discharges have negatively impacted on the quality of platypus habitat. Platypus sighting downstream of the discharge point appears to have remained relatively constant since 2010. However, in areas upstream of the discharge point, it appears that sightings have decreased over recent years.

Once operations at the Visy Albury site recommence, similar surveys could be conducted to reassess if there are any negative impacts of water discharged.

1.6.3. Monitoring Point 2 – Cooling Water Monitoring Requirements

Cooling water continued to be monitored, even though none was discharged to the Murray River, with the results presented in Table 4 below. A graphical analysis is presented in Figures 2 to 5, with analysis and discussion to be found in section 3.3, starting page 14.

TABLE 4. Monitoring of Cooling Water

Reporting Period 2020 - 2021		Mean	Std Dev	Minimum	Maximum
Temperature	^{O}C	21.4	3.8	9.8	32.0
pH	pH	7.3	0.4	6.9	8.1
TDS	mg/L	107	52	38	164
Flow	ML/day	0.0	0.0	0.0	0.0
Total Nitrogen	mg/L	2.81	1.71	0.77	5.20
Total Phosphorus	mg/L	0.2	0.3	0.0	0.7
Oil & Grease	mg/L	0.0	0.0	0.0	0.0
Zinc	mg/L	0.01	0.01	0.00	0.03
BOD	mg/L	2.4	2.2	0.0	6.0
TSS	mg/L	1.33	2.02	0.00	5.00
EC	mS	186.2	85.3	77.3	278.8

1.6.4. Monitoring Point 13 – Four Day Holding Pond Monitoring Requirements

Monitoring results of treated effluent quality from the Four Day Holding Pond are presented in Table 5 below, graphical analysis is presented in Figures 6 to 12 with analysis and discussion to be found in section 3.5 on page 16.

TABLE 5. Monitoring of Treated Effluent from the Four Day Holding Pond

Reporting Period 2020-2021		Mean	Std Dev	Minimum	Maximum
BOD	mg/L	3.17	2.86	0	9.0
Total Nitrogen	mg/L	2.14	0.57	1.03	3.04
pH	pH	7.94	0.75	7	9.57
Total Phosphorus	mg/L	0.66	0.33	0.3	1.63
TDS	mg/L	131.17	49.65	0	171
TSS	mg/L	6.08	8.37	0	30
Zinc	mg/L	0.02	0.01	0.01	0.05

1.6.5. Monitoring Points 14-23 – Effluent Reuse Scheme Ground Water Monitoring Requirements

Ground water quality monitoring from deep and shallow bores located throughout the Effluent Reuse Scheme are presented in Table 6 below. They show the standing water level (SWL), pH, Total Nitrogen, Total Phosphorous and finally Conductivity, giving an indication of the dissolved salts present within the ground water.

TABLE 6. Monitoring of Ground Water from the Effluent Reuse Scheme

	Conductivity (uS/cm)								SWL (m)							
	2017-2018		2018-2019		2019-2020		2020-21		2017-2018		2018-2019		2019-2020		2020-21	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Deep 3	909	958	482	943	912	931	916	1012	45.3	45.3	45.2	46.5	44.7	45.3	44.7	45.3
Deep 4	1704	2681	2877	3424	3439	3524	3498	3814	44.7	44.8	44.7	46.5	44.7	44.7	44.7	45.5
Deep 5	3834	4268	4532	5317	5143	5265	4601	5377	44.7	45.2	44.7	45.1	45.2	45.3	48.0	48.0
Deep 6	686	777	688	707	695	708	714	3862	43.5	43.6	43.2	44.9	42.7	44.5	42.7	43.6
Shallow 7	2262	3865	3641	4113	3891	3910	Dry		8.7	9.7	9.7	10.5	10.6	10.7	Dry	
Shallow 8	777	1376	1410	1410	1132	1132	1062	1434	1.8	2.8	2.6	2.6	2.5	2.5	1.5	2.6
Shallow 11	6848	7234	6815	7144	7079	7359	7036	8089	2.9	7.2	7.0	7.3	7.0	7.4	7.1	7.4
Shallow 17	402	471	Dry		Dry		Dry		5.1	6.6	6.6	6.6	6.6	6.6	Dry	
Shallow 20	Dry		Dry		Dry		Dry		10.9	10.9	10.9	10.9	10.9	10.9	Dry	
Shallow 21	2262	2301	2263	2357	2296	2356	2144	2577	6.8	7.5	7.3	7.8	7.1	8.4	8.2	8.5

	pH								Total Nitrogen (mg/L)				Total Phosphurus (mg/L)			
	2017-2018		2018-2019		2019-2020		2020-21									
	Min	Max	Min	Max	Min	Max	Min	Max	2017-18	2018-19	2019-20	2020-21	2017-18	2018-19	2019-20	2020-21
Deep 3	7.1	7.5	6.8	7.1	6.9	7.2	7.0	7.5	0.7	0.0	1.4	1.3	0.19	0.14	0.23	0.24
Deep 4	7.0	7.3	7.2	7.4	7.3	7.5	7.0	7.6	4.7	8.6	9.0	10.3	0.26	0.26	0.04	0.02
Deep 5	6.7	7.0	7.0	7.3	6.8	7.3	6.9	7.2	4.4	4.7	5.5	5.1	0	0	0.02	0.00
Deep 6	7.0	8.1	8.0	8.1	8.0	8.1	7.1	8.2	3.8	0.0	2.0	2.3	0	0	0.02	0.01
Shallow 7	7.1	7.5	7.1	7.3	7.3	7.4	Dry		30.0	24.0	1.0	Dry	0.12	0.25	1.07	Dry
Shallow 8	7.0	7.1	7.2	7.2	7.4	7.4	7.0	7.1	1.5	0.4	3.2	7.9	0.18	0.16	0.09	0.14
Shallow 11	7.0	7.2	7.1	7.3	7.0	7.1	7.0	7.1	0.5	0.0	0.9	1.1	0.07	0.06	0.06	0.06
Shallow 17	6.6	6.7	Dry		Dry		Dry		14.0	Dry	Dry	Dry	0.00	Dry	Dry	Dry
Shallow 20	Dry		Dry		Dry		Dry		Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
Shallow 21	7.1	7.3	7.1	7.3	7.1	7.3	7.0	7.3	7.9	4.5	8.2	7.5	0.09	0.11	0.17	0.21

1.6.6. Monitoring Points 10 – Effluent Reuse Scheme Soil Monitoring Requirements

Soil monitoring from the Effluent Reuse Scheme was carried out by Peter Hopmans of Timberlands Research Pty Ltd as part of the environmental monitoring program to determine the effects treated effluent irrigation had on soil properties in the root zones of plantations, crops and pastures. Below is a summary from the report, however a full copy of the report can be obtained by contacting Visy Albury.

In 2020 seasonal rainfall (612 mm) was well below average and irrigation of trees (1.4 ML/ha) was low. The total hydraulic load (7.5 ML/ha) was below the range for the recent five years (8.8 to 12.4 ML/ha). Irrigation of crops and pastures was higher (3.7 ML/ha) but the total hydraulic load (9.8 ML/ha) was below the range of previous years (10.9 to 12.2 ML/ha). The salt load was lower for trees (1.3 t/ha) compared with crops and pastures (3.4 t/ha) and reflect the difference in irrigation for each land use and lower salinity of irrigation water applied in 2020. In general soil pH, salinity, and to a lesser extent salinity and extractable S remained higher in effluent irrigated soils. The results for soil testing conducted in 2020 are summarised below:

- Soils were slightly alkaline in irrigated soil profiles under crops and pastures (pH_{Ca} 7.1 to 7.5) compared with the moderately acidic conditions of unirrigated soils (pH_{Ca} 5.8 to 6.2). Soils under irrigated trees were moderately acidic (pH_{Ca} 5.5 to 5.8) in the upper layers and slightly acidic (pH_{Ca} 6.3 to 6.5) in the sub-soils.
- Exchangeable sodium percentage (ESP) increased with depth from surface soils (4%) to sub-soils (17%) indicating sodic conditions (ESP > 6%) prevailed in soil profiles under irrigated trees. Soils of unirrigated crops and pastures under natural rainfall were non-sodic at the surface (ESP 2%) but were sodic at depth (ESP 11%). Irrigation

of crops and pastures increased sodicity in surface soils (ESP 4% to 10%) and sub-soils (ESP 23%).

- Average salinity in root zones of irrigated soils under trees declined to 0.8 dS/m under a lower salt load of 1.3 t/ha in 2020. Average salinity in root zones of irrigated crops and pastures decreased to 1.0 dS/m under a salt load of 3.4 t/ha. Salinity in the root zones of trees as well as crops and pastures were below the threshold value of 4.0 dS/m as required under the EPA License.
- Extractable sulphate in irrigated soils under trees declined in surface soils (7 mg/kg) and sub-soils (49 mg/kg) reflecting the low irrigation rate and the lower concentrations of sulphate in diluted effluent in 2020. Likewise, the levels of sulphate in soil profiles under irrigated crops and pastures were low in surface soils (7 mg/kg) and sub-soils (48 mg/kg). This compared with slightly lower levels in surface soils (3 mg/kg) and sub-soils (27 mg/kg) of unirrigated soils.
- Salinity in surface soils (0-30 cm) has declined below the level (EC > 1 dS/m) required for these sodic soils to remain structurally stable. It is recommended to add gypsum to the irrigation water (increase EC to 1.3 dS/m) to raise soil salinity in profiles (EC > 1.0 dS/m) in order to maintain soil structure and hydraulic conductivity.

2. Summary of Complaints

2.1. Complaints Received During the Reporting Periods

Throughout the 2020-2021 reporting period, the Visy Albury site did not receive any complaints from the public in relation to the odour created through the treatment of effluent within the Waste Water Treatment Plant.

TABLE 7. Annual comparison of complaints. Please note that this table also includes previous data on years in which Visy was not the primary owner of the site. The data from 2019-2020 onwards is most relevant to Visy's tenor of the Albury Mill site.

Reporting Period	Number of Complaints	Nature of Complaints
2007-2008	5	Odour
2008-2009	4	Odour
2009-2010	12	Odour
2010-2011	12	Odour (11), Smoke (1)
2011-2012	3	Odour
2012-2013	0	-
2013-2014	1	Odour
2014-2015	2	Odour
2015-2016	0	-
2016-2017	0	-
2017-2018	1	Odour
2018-2019	2	Odour
2019-2020	0	-
2020-2021	0	-

Ettamogah Pine Plantation, Effluent Reuse Scheme

3. Summary, Discussion and Analysis of Monitoring Results

3.1. Monitoring Points 1 & 2 – Returned Waters Discharged to the Murray River

Discharge Volume (Figure 1)

Daily volumes of cooling water discharged to the Murray River during the annual reporting period were under the 10 ML/day limit. A total cooling water volume of 0 ML was returned during the reporting period. The 2020-2021 reporting is an exception as the mill was non-operational and all cooling water has been sent to the Ettamogah Dam for future irrigation.

In comparison to recent years, the cooling water required and returned to the Murray River has substantially decreased. In May 2017 Norske Skog Albury implemented a cooling water recovery project whereby two oil removal units were installed in the cooling water loop, increasing the recycle rate within the cooling water system significantly. Each unit contains 20 Mycellex filters, enough capacity to remove up to 200 litres of oil. Due to this cooling water recovery, we have seen cooling water usage significantly reduce over recent years. In the 2015-2016 reporting period, more than 1518 ML of cooling water was returned to the Murray River, with levels in the 2018-2019 reporting period recording as low as 505 ML for the reporting period. This shows that levels are less than a third of those seen before these water reduction projects were completed. In the future, this level of efficiency will be reproduced by using a closed loop scheme. Therefore, there may be no need to discharge to the Murray River.

3.2. Monitoring Point 1 – Treated Effluent Discharge

Over the 2020-2021 reporting period, Visy Albury did not release any treated effluent to the Murray River. Due to the idle state of the site, river discharge was not required. Any water falling into the effluent system is being transferred to the Ettamogah Dam for irrigation of the trees and crops.

3.3. Monitoring Point 2 – Cooling Water Discharge

Conductivity (Figure 2)

Over the 2020-2021 reporting period, conductivity of the cooling water discharged remained relatively stable between 77 uS/cm and 279 uS/cm. The average conductivity reading for the 52 weekly samples was 183.73 uS/cm.

Oil & Grease (Figure 3)

Cooling water being discharged undertook monthly analysis of grease and oil levels present from the cooling process. Throughout the reporting period, all results measured were below the limit of 5 mg/L as specified by our Environmental Protection Licence. The average reading for the year was 0 mg/L.

pH (Figure 4)

Weekly pH results for the used cooling water returned to the Murray River remained very stable throughout the reporting period. They were all within the licence limits with a maximum value of 8.13 and a minimum measurement of 6.90.

Total Dissolved Solids (Figure 5)

Monthly TDS results were considerably lower than the 100-percentile limit of 200 mg/L, with an average result of 107 mg/L recorded over the reporting period.

3.4. Monitoring Point 13 – Effluent Quality Monitoring, Four Day Holding Pond

Because of the sites idle state, water that falls into the mills effluent system collects in the Four Day Holding Pond before being transferred to the Maryvale Dam. This is why the potential environmental pollutants continued to be monitored during the 2020-2021 reporting period. The results are as follows:

Biological Oxygen Demand (Figure 7)

The four-day holding pond is where treated effluent is normally sent after being processed through the waste water treatment plant. This pond is tested for a number of pollutants, one of which being biological oxygen demand. Throughout the 2020-2021 reporting period, the holding pond recorded BOD values ranging from a minimum of 0 mg/L in July and August of 2020 and a maximum of 9 mg/L during February 2021. The average BOD concentration for the reporting period was 2.87 mg/L, with a decrease of 6.63 mg/L being seen from the previous reporting period.

Nitrogen-Total (Figure 8)

Total nitrogen levels of the four-day holding pond were also tested and recorded for the 2020-2021 reporting period. Throughout the period, total nitrogen levels varied between 1.03 mg/L and 3.04 mg/L. The average concentration for total nitrogen was 2.14 mg/L, which is similar to the previous reporting period's average value.

pH (Figure 9)

Throughout the 2020-2021 reporting period, pH levels of the four-day holding pond remained relatively stable with most values ranging between 7.0 and 8.1. There were a couple of outliers in November and January which were 9.2 and 9.6 respectively, and the reason for this increase in pH is believed to be related to the increase in algae which was present in the pond over the summer months i.e. when CO2 removal was higher than the respiration rate. Overall the holding pond recorded an average pH level of 7.94. All results remained similar to previous reporting periods with only 0.14 change being seen.

Phosphorus Total (Figure 10)

Phosphorous levels within the four-day holding pond were measured both in terms of soluble phosphorous and total phosphorous. The total phosphorous within the four-day holding pond throughout the reporting period ranged from 1.3 to 0.3 mg/L, with a marked drop over the summer months when the algae was present. The average concentration of total phosphorous in the treated effluent sent to the holding pond was recorded at 0.62 mg/L, similar to the previous reporting period's average. The average soluble phosphorus remains low at about 0.5 mg/L.

Total Dissolved Solids (Figure 11)

The total dissolved solids of the effluent sent to and stored in the four-day holding pond had concentrations varying from a low of 0 mg/L to a high of 171 mg/L. The treated effluent averaged a TDS concentration of 131.2 mg/L, significantly less than the previous reporting period.

Total Suspended Solids (Figure 12)

Total suspended solids in the effluent sent to the four-day holding pond are generally quite low with values ranging between that of 0 mg/L and a maximum concentration of 30 mg/L. The average concentration of TSS for the four-day holding pond was 6.08 mg/L, less than the previous reporting period.

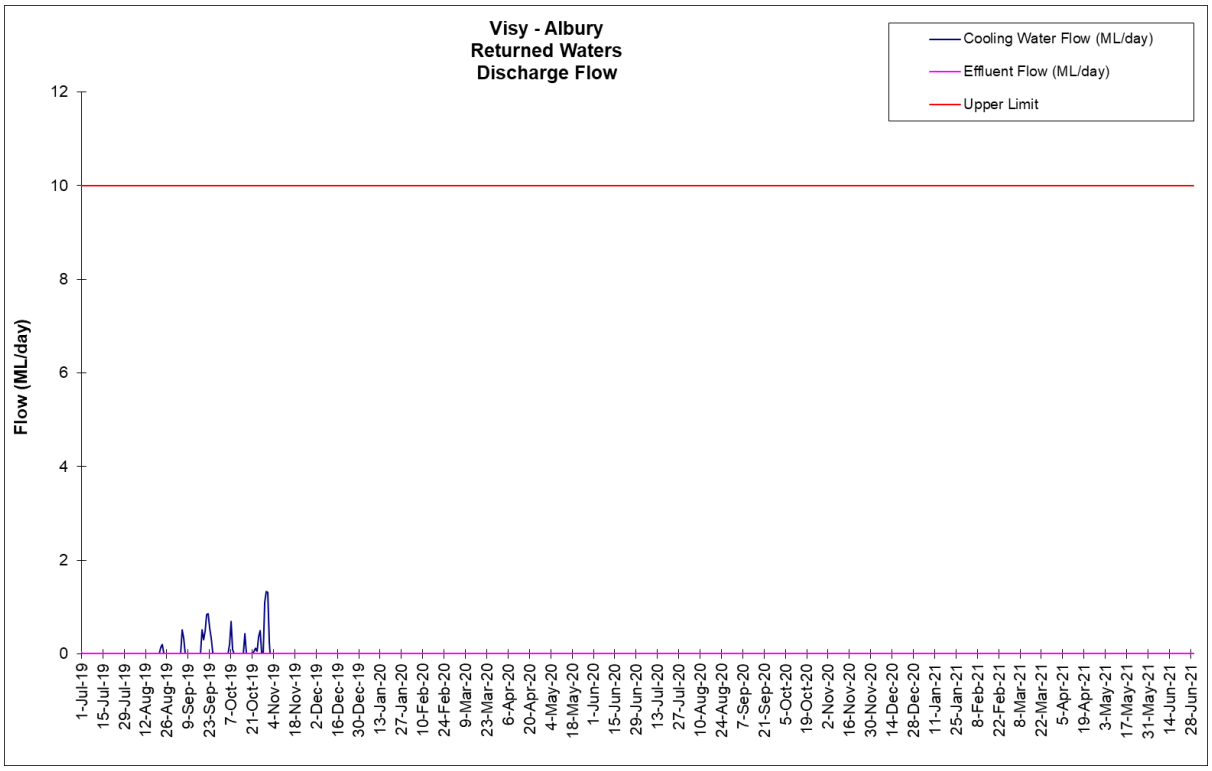
Zinc (Figure 13)

The zinc concentrations for the effluent being held in the four-day holding pond were all relatively low with a maximum level of 0.05 mg/L. The average concentration for the pond was at 0.02 mg/L, with levels being similar in comparison to previous reporting periods.

4. Monitoring Trends – Figures and EMP Tables

4.1. Monitoring Point 1 & 2 – Returned Waters Discharge to the Murray River

FIGURE 1. Cooling Water & Treated Effluent Discharge Flows to the Murray River 2019-2020. Over the 2020-2021 reporting period, Visy Albury did not release any treated effluent to the Murray River. Due to the idle state of the site river discharge was not required. Any cooling water and water that has entered the effluent system is being directed to the Ettamogah Dam.



4.2. Monitoring Point 2 – Cooling Water Discharge

FIGURE 2. Conductivity of Cooling Water Discharged to Ettamogah Dam for irrigation

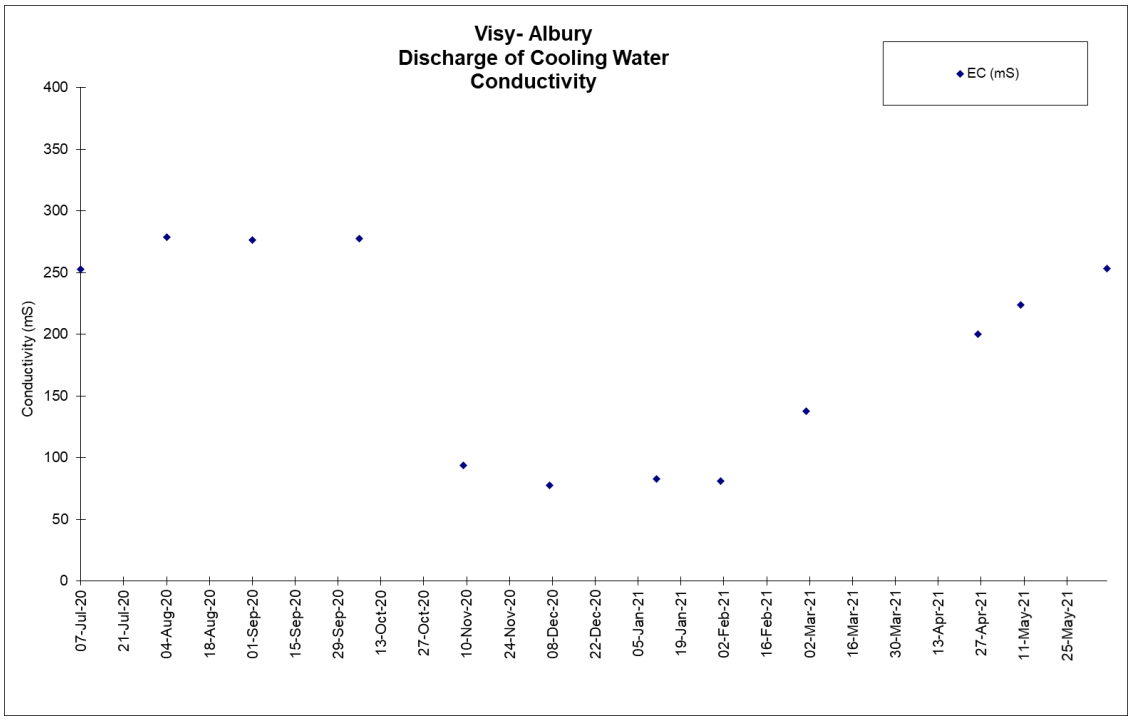


FIGURE 3. Oil & Grease of Cooling Water Discharged

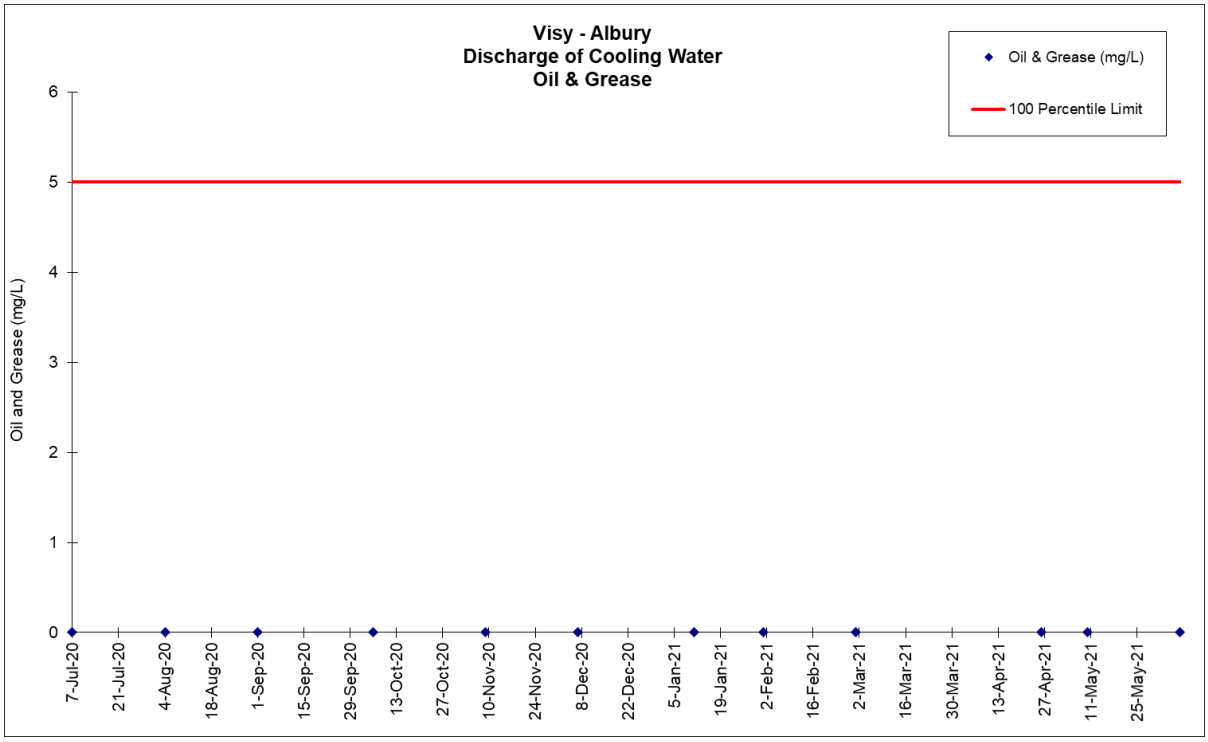


FIGURE 4. pH of Cooling Water Discharged

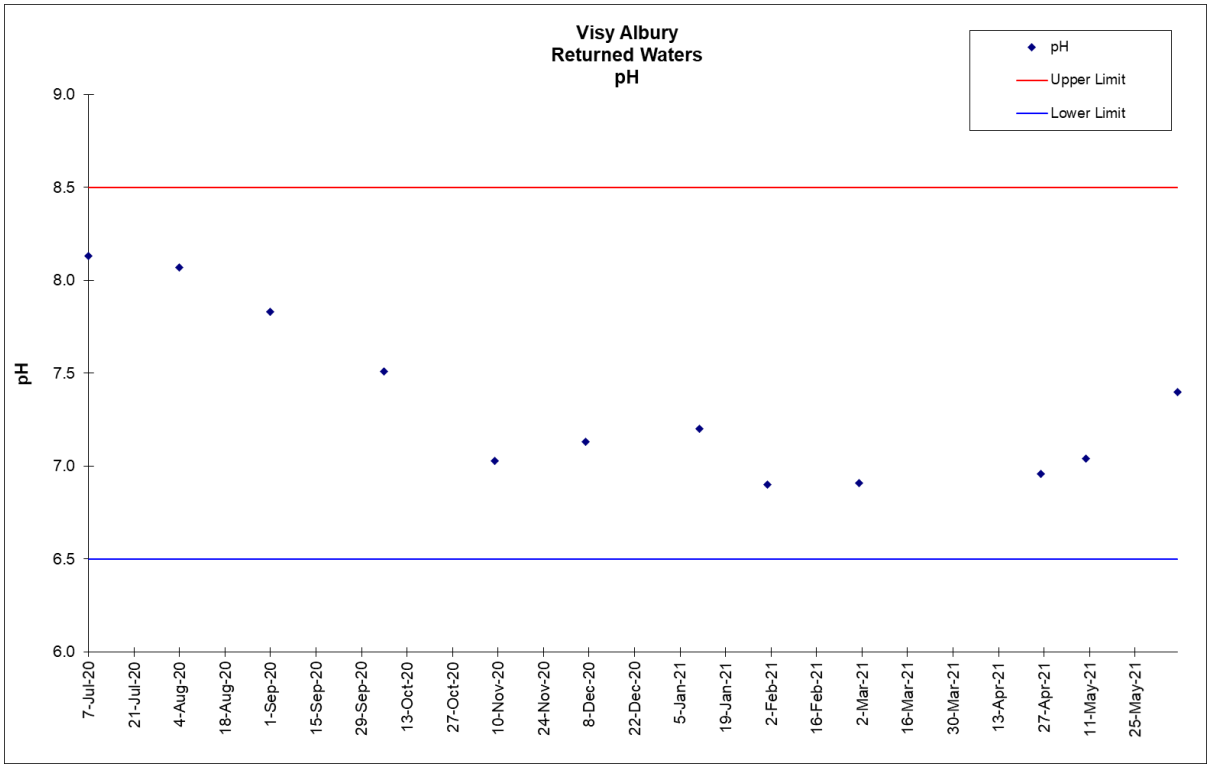
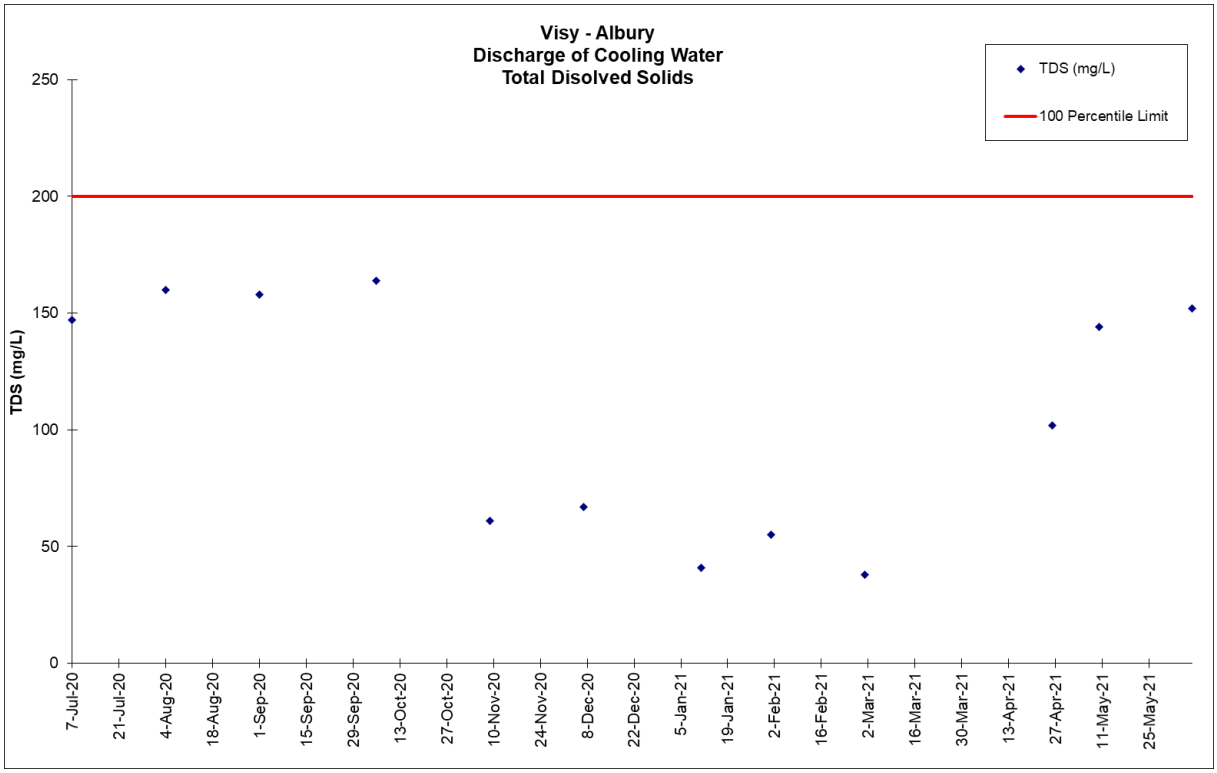


FIGURE 5. Total Dissolved Solids of Cooling Water Discharged



Ettamogah Crop Irrigation, Effluent Reuse Scheme

4.3. Monitoring Point 13 – Effluent Quality Monitoring, Four Day Holding Pond

FIGURE 6. Biological Oxygen Demand of Treated Effluent from the Four Day Holding

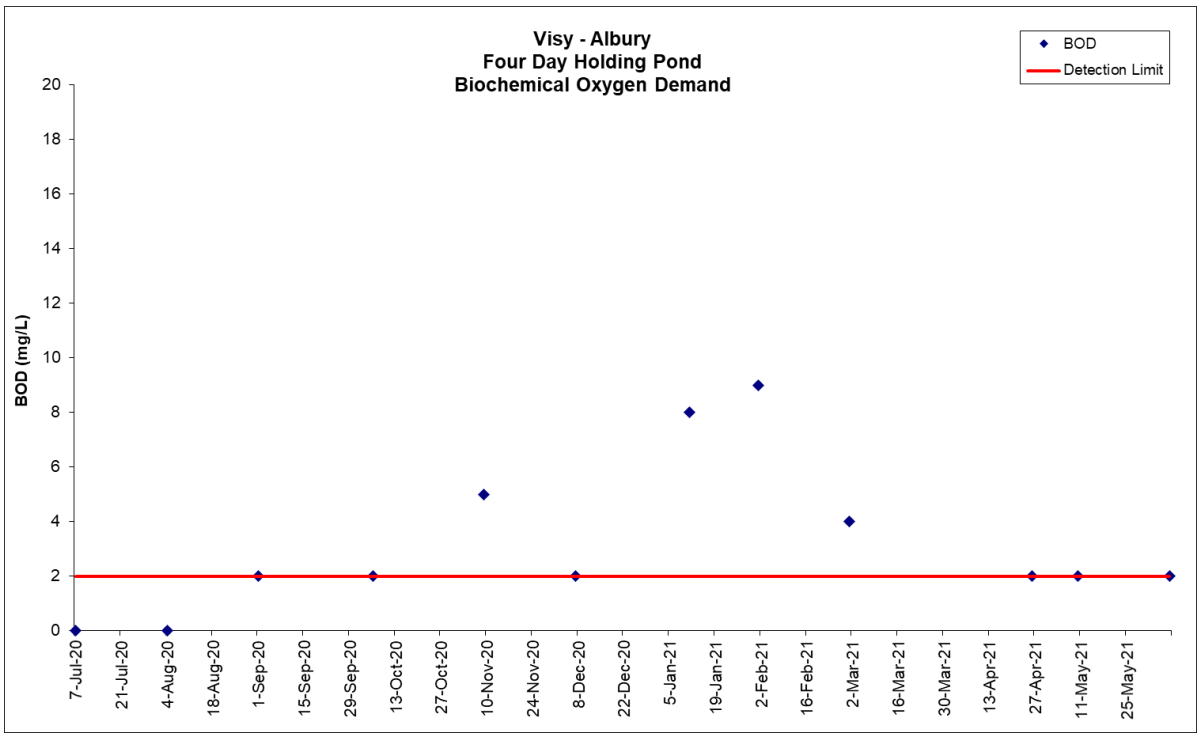


FIGURE 7. Total Nitrogen Concentration of Treated Effluent from the Four Day Holding Pond

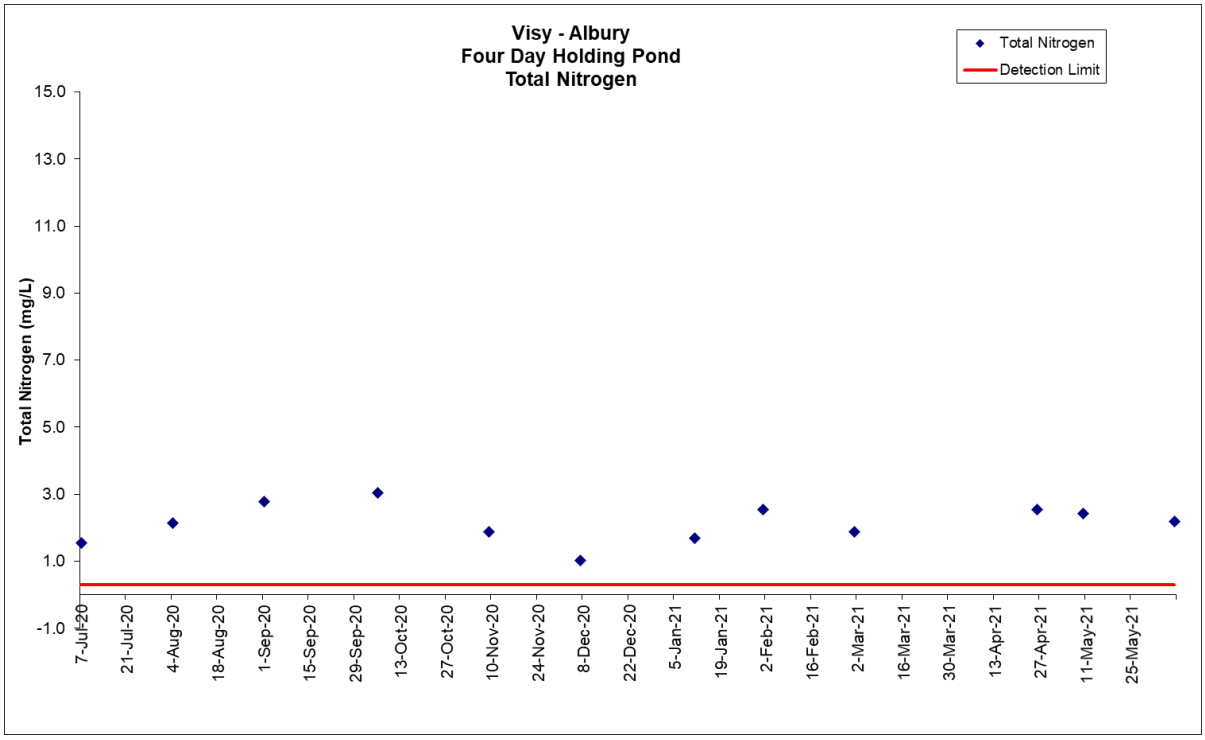


FIGURE 8. pH of Treated Effluent from the Four Day Holding Pond

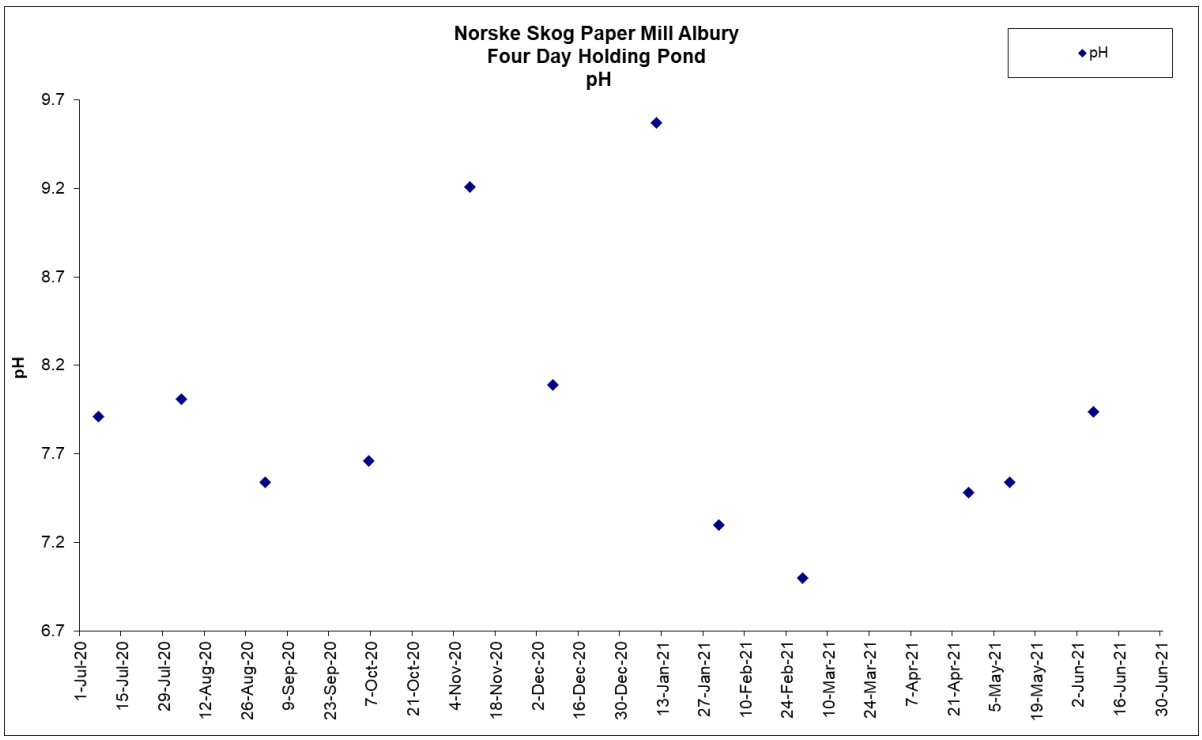


FIGURE 9. Total Phosphorus Concentration of Treated Effluent from the Four Day Holding Pond

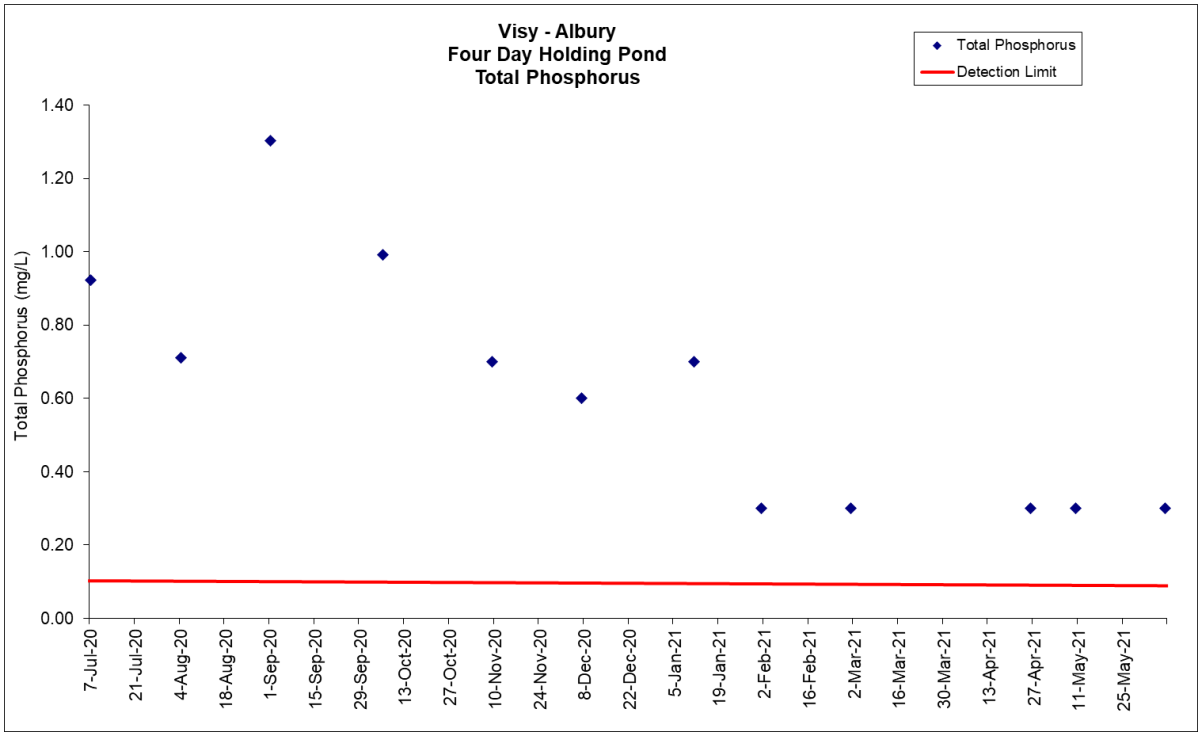


Figure 10. Total Dissolved Solids of Treated Effluent from the Four Day Holding Pond

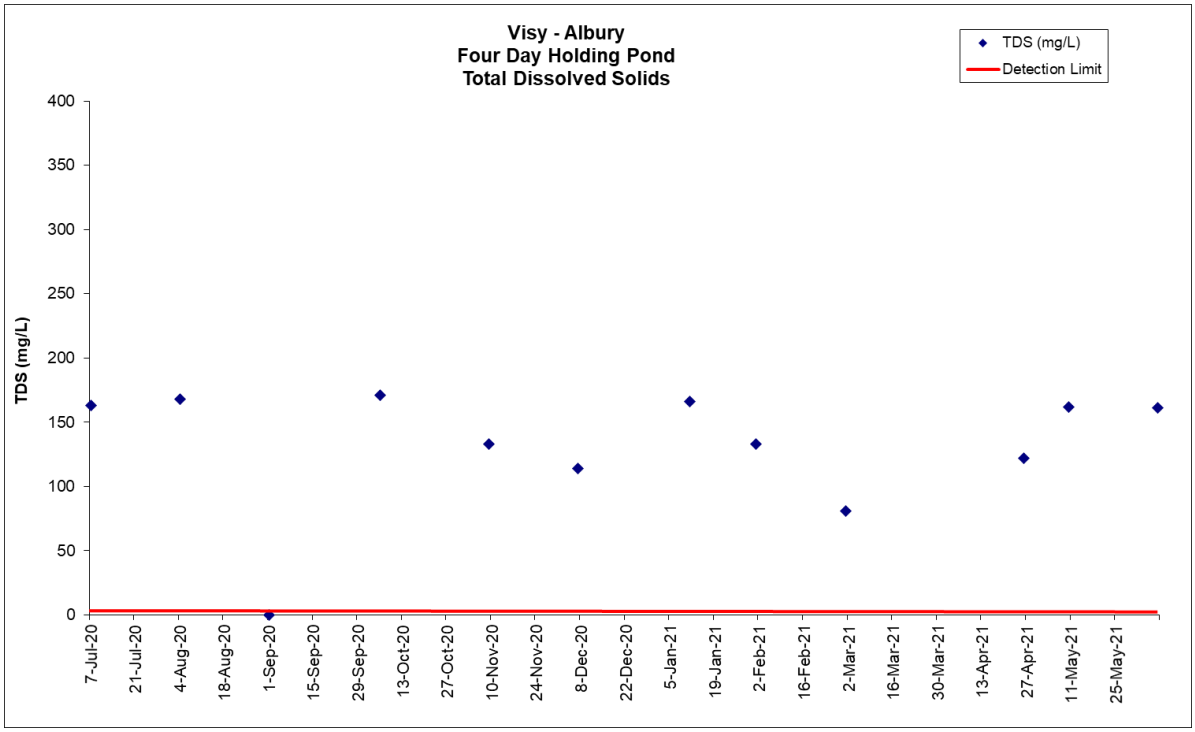


FIGURE 11. Total Suspended Solids of Treated Effluent from the Four Day Holding Pond

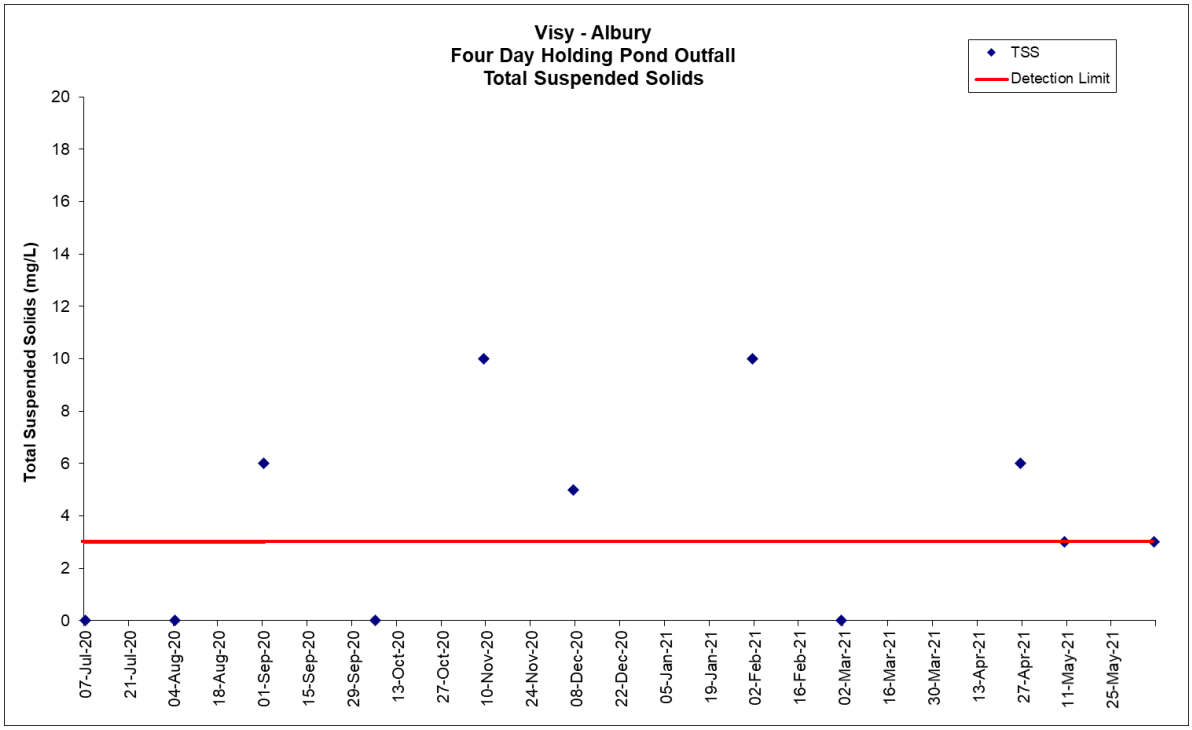
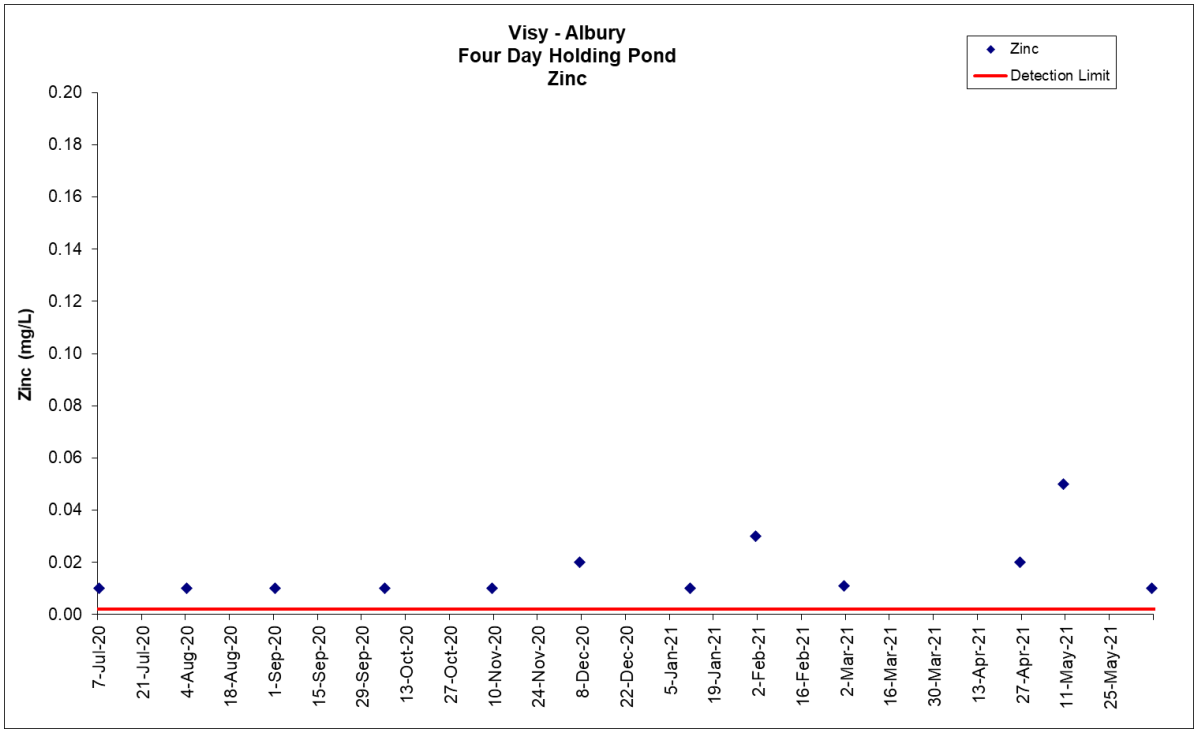


FIGURE 12. Zinc Concentration of Treated Effluent from the Four Day Holding Pond



4.4. Visy Albury Environmental Monitoring Programs (EMP)

Monitoring and measurement of operations at Visy Albury that may have an impact on the environment are an important element of the Mills Environment Management System (EMS). Valuable information is provided to track environmental performance and conformance against environmental objectives, targets and legislative requirements.

In addition to monitoring the EPA Licence requirements for treated effluent and cooling water discharges to the Murray River, soil and ground waters from the Effluent Reuse Scheme, Visy Albury Environmental Management Program monitors the quality of the Storm Water Retention Ponds, treated effluent from the Winter Storage Dam, ground and surface waters from the Effluent Reuse Scheme, and ground and surface waters from Delaney's Quarry. Monitoring data is presented in Tables 8 to 11.

TABLE 8 EMP 16 Storm Water Retention Ponds

	Total Nitrogen (mg/L)								Total Phosphorus (mg/L)								Conductivity (uS/cm)							
	2017 - 18		2018 - 19		2019 - 20		2020 - 21		2017 - 18		2018 - 19		2019 - 20		2020 - 21		2017 - 18		2018 - 19		2019 - 20		2020 - 21	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Retention Pond 1	0.00	0.74	0.00	0.83	0.90	1.57	0.61	1.18	0.00	0.09	0.00	0.14	0.06	0.19	0.03	0.12	142	555	147	662	172	773	130	147
Retention Pond 2	0.85	2.69	0.00	16.90	1.00	2.60	0.60	0.92	0.02	0.15	0.00	0.24	0.08	0.17	0.02	0.06	131	187	135	160	124	217	124	159
Retention Pond 3	0.53	3.14	0.00	1.82	0.82	1.70	0.71	1.49	0.01	0.07	0.07	0.14	0.07	0.13	0.08	0.10	131	188	132	355	115	263	127	146

* Nitrate, Oil & Grease and Turbidity results also available for EMP 16

TABLE 9. EMP 18 Treated Effluent from the Effluent Reuse Scheme Winter Storage Dam, Monitoring Point 6

Date	Sodium mg/L	Potassium mg/L	Calcium mg/L	Magnesium mg/L	Bicarbonate mg/L	Sulphate mg/L	TDS mg/L	Zinc mg/L	Nitrate mg/L	TKN mg/L	Total Nitrogen mg/L	Total P mg/L	Bluegreen Algae cells/100ml	Total Algae Count cells/100ml
7-Jul-20	140	27	27	7	210	162	590	0.03	0.0	2.0	2.2	0.25	154254	200560
13-Oct-20	140	26	25	7	190	147	594	0.05	0.0	2.0	2.4	0.23		
11-Jan-21	147	28	7	6	120	7	498	0.07	0.0	3.0	3.0	0.30	800828	813182
26-Apr-21	130	25	11	5	170	142	545	0.00	0.0	3.2	3.2	0.20	2772615	2807846
Average	139	27	17	6	173	114	557	0.04	0.0	2.5	2.7	0.25	1242566	1273863
Std Dev	7	1	10	1	39	72	45	0.03	0.0	0.6	0.5	0.04	1363929	1363325
Minimum	130	25	7	5	120	7	498	0.00	0.0	2.0	2.2	0.20	154254	200560
Maximum	147	28	27	7	210	162	594	0.07	0.0	3.2	3.2	0.30	2772615	2807846

TABLE 10. EMP 20 & 21 Surface Water from the Effluent Reuse Scheme

	Turbidity (NTU)								Conductivity (uS/cm)							
	2017-18		2018-19		2019-20		2020-21		2017-18		2018-19		2019-20		2020-21	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
9 Mile Creek Before	Dry		Dry		0		101		Dry		Dry		0		369	
9 Mile Creek After	13	54	38		0	62	109		689	1315	1132		0	1096	354	
8 Mile Creek Before	Dry		Dry		0		61		Dry		Dry		0		143	
8 Mile Creek Middle	Dry		69		151	164	182		Dry		386		175	264	140	
8 Mile Creek After	Dry		Dry		0	85	29	116	Dry		Dry		0	197	132	194

	Total Nitrogen (mg/L)								Total Phosphorus (mg/L)							
	2017-18		2018-19		2019-20		2020-21		2017-18		2018-19		2019-20		2020-21	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
9 Mile Creek Before	Dry		Dry		0.0		1.9		Dry		Dry		0.00		1.13	
9 Mile Creek After	0.1	1.1	Dry		0.0	2.9	1.3		0.15	0.22	0.19		0.00	0.41	0.26	
8 Mile Creek Before	Dry		Dry		0.0		1.2		Dry		Dry		0.00		0.11	
8 Mile Creek Middle	Dry		Dry		1.3	1.4	1.3		Dry		0.11		0.20	0.29	0.18	
8 Mile Creek After	Dry		Dry		0.0	1.1	1.1	1.3	Dry		Dry		0.00	0.13	0.10	0.15

* Nitrate, TKN and Ammonia results also available for EMP 20 & 21 before and after Mill Site or Ettamogah Forest

TABLE 11. EMP 30 & 31 Ground & Surface Water from Delaney's Solid Waste Disposal

	Conductivity (uS/cm) X 10								SWL (m) / Depth (%) / Sampled								pH							
	2017-18		2018-19		2019-20		2020-21		2017-18		2018-19		2019-20		2020-21		2017-18		2018-19		2019-20		2020-21	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Deep 1	Dry		1827		1832	1852	1774	2139	38.0		37.9		38.0	38.1	90.7		Dry		6.3		7.3	7.6	7.2	7.6
Shallow 1	4591	4826	4138	4167	4135	4406	1652	4530	1.4	2.0	1.5	2.1	1.4	2.0	1.3	1.5	7.0	7.1	7.0	7.0	7.0	7.1	6.1	7.2
Shallow 2	2205	2402	2039	2192	1942	2069	1070	2248	3.8	4.1	3.9	7.5	3.8	5.6	3.8	3.9	7.2	7.2	7.3	7.3	7.2	7.4	5.8	7.3
Shallow 4	1687	1752	1690	1745	1667	1702	138	1615	10.0	10.2	10.0	10.3	10.4	10.5	10.7	10.8	6.3	6.4	6.2	6.5	6.2	6.4	6.7	6.9
Shallow 5	799	879	825	865	934		1060	1070	7.9	8.0	8.1	8.4	8.5	8.7	8.8	9.0	6.0	6.2	6.0	6.1	5.9		5.8	6.2
Dam A	2525	5550	3027		2653		447	1852	1	20	5		5		5	10	8.4	9.4	9.1		7.9		8.0	8.2
Dam B	644	4850	2126		1503		474	1830	1	15	5		5		5	15	9.7		8.8		7.9		7.6	8.7
Dam D	495	552	666		342		335	4746	5	30	10		20		10	60	8.3	8.7	7.6		8.1		7.1	8.8
Sandy Creek	Dry		Dry		Dry		185		Dry		Dry		Dry		Yes		Dry		Dry		Dry		6.5	

	Nitrate (mg/L)								Total N (mg/L)							
	2017-18		2018-19		2019-20		2020-21		2017-18		2018-19		2019-20		2020-21	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Deep 1	Dry		Dry		3.22	4.87	0.98	1.10	Dry		8.4		6.0	8.1	2.9	3.1
Shallow 1	1.09	1.10	0.65		0.31	3	0.34	4.86	187	281	221	250	183	253	197	212
Shallow 2	0.40	0.74	4.20		1.84	5.08	1.11	3.72	3.2	66	8.0	13	6.2	16.0	6.7	8.8
Shallow 4	0.07	0.44	0.29	0.93	0.30	1.64	0.10	0.23	3.2	10	0.9	3.4	2.5	3.8	1.4	3.2
Shallow 5	0.63	2.59	2.96	3.20	2.68		0.65	2.46	10	68	6	7	6		4	7
Dam A	0.00	0.06	####		39.76		0.31	1	32	188	50		60		4	14
Dam B	0.03	0.04	1.94		0.84		0.02		2.9	16	5.5		4.5		1.5	3.4
Dam D	0.00	0.03	0.25		0.30		0.01	0.11	1.8	9	9.1		4.9		3.0	9.2
Sandy Creek	Dry		Dry		Dry		0.04		Dry		Dry		Dry		1.3	

* Ammonia, Copper, Iron, Manganese, TKN, Zinc also available for EMP 30 & 31

5. Trends in Monitoring Results

A comparison of the predicted treated effluent quality made in the Statement of Environmental Effect (SEE) against the actual treated effluent quality measured from the outlet of the Four Day Holding Pond is presented in Table 12.

Data for the discharge of treated effluent to the Murray River is available from December 1991 onwards. Table 13 shows the data from 1 July 2005 until current. Results from 1991 until 2004 were taken from samples containing a combination of treated effluent and cooling water. Treated effluent was discharged to the river between 1991 and 1995 and intermittently between 1998 and 2005. No treated effluent was discharged to the river from 1996 to 1998, 2006 to 2009 (with the exception of two trial discharges in 2008 and 2009). No treated effluent has been discharged to the river from 2018 to 2021. Currently while the site is being assessed for redevelopment, all of the cooling water is being transferred to the Ettamogah Dam, eliminating the need for discharge to the Murray River.

TABLE 12. Effluent Quality Predictions made in the SEE and Actual Treated Effluent Quality

Consituent	Concentration (mg/L) SEE Proposal	Concentration (mg/L) 2020-2021 Compliance Period (Average)
Oxygen Depleting Substance		
Biochemical Oxygen Demand	10 ± 5	3.2 ± 2.9
Particulate Matter		
Total Suspended Solids	16 ± 14	6.1 ± 8.4
Dissolved Salts		
Total Dissolved Solids	1695 ± 264	131 ± 50
Nutrients		
Total Nitrogen	7.6 ± 3.0	2.1 ± 0.6
Ammonia	0.51 ± 0.66	0.6 ± 0.7
Nitrate	1.05	0.57 ± 0.47
Total Phosphorous	0.32 ± 0.28	0.62 ± 0.33
Metals		
Zinc	0.20 ± 0.19	0.02 ± 0.01

TABLE 13. Trends in Water Quality from the Four Day Holding Pond – Monitoring Point 13

Reporting Year	BOD (mg/L)	Total N (mg/L)	pH	Total P (mg/L)	TDS (mg/L)	TSS (mg/L)	Zinc (mg/L)	Sulphate (mg/L)
1 Jul 2005 - 30 Jun 2006	13.8	10.5	8.1	0.61	1626	13	0.22	426
1 Jul 2006 - 30 Jun 2007	11.3	7.9	8.2	0.25	1846	13	0.21	404
1 Jul 2007 - 30 Jun 2008	9.7	7.9	6.9	0.21	1592	14	0.17	500
1 Jul 2008 - 30 Jun 2009	14.4	4.1	7.6	0.17	1244	11	0.14	420
1 Jul 2009 - 30 Jun 2010	14.8	5.8	7.8	0.23	1407	14	0.07	471
1 Jul 2010 - 30 Jun 2011	11.3	3.8	7.9	0.16	1507	14	0.03	568
1 Jul 2011 - 30 Jun 2012	24.8	4.1	7.8	0.47	1272	20	0.05	417
1 Jul 2012 - 30 Jun 2013	11.1	4.0	7.9	0.28	1087	15	0.09	282
1 Jul 2013 - 30 Jun 2014	11.8	3.0	8.0	0.30	957	15	0.04	149
1 Jul 2014 - 30 Jun 2015	23.7	4.0	7.8	0.35	981	19	0.02	214
1 Jul 2015 - 30 Jun 2016	5.9	2.9	8.1	0.27	932	11	0.02	578
1 Jul 2016 - 30 Jun 2017	5.5	1.6	8.1	0.10	963	5	0.01	130
1 Jul 2017 - 30 Jun 2018	5.1	2.8	8.1	0.13	1043	8	0.02	198
1 Jul 2018 - 30 Jun 2019	6.4	2.6	7.9	0.46	1021	9	0.01	196
1 Jul 2019 - 30 Jun 2020	8.2	2.4	7.9	0.36	796	7	0.02	169
1 Jul 2020 - 30 Jun 2021	3.2	2.1	7.9	0.62	131	6	0.02	13

Figures 13 to 19 present long-term data for treated effluent quality from the Four Day Holding Pond.

FIGURE 13. Trends in Treated Effluent Quality from the Four Day Holding Pond - BOD

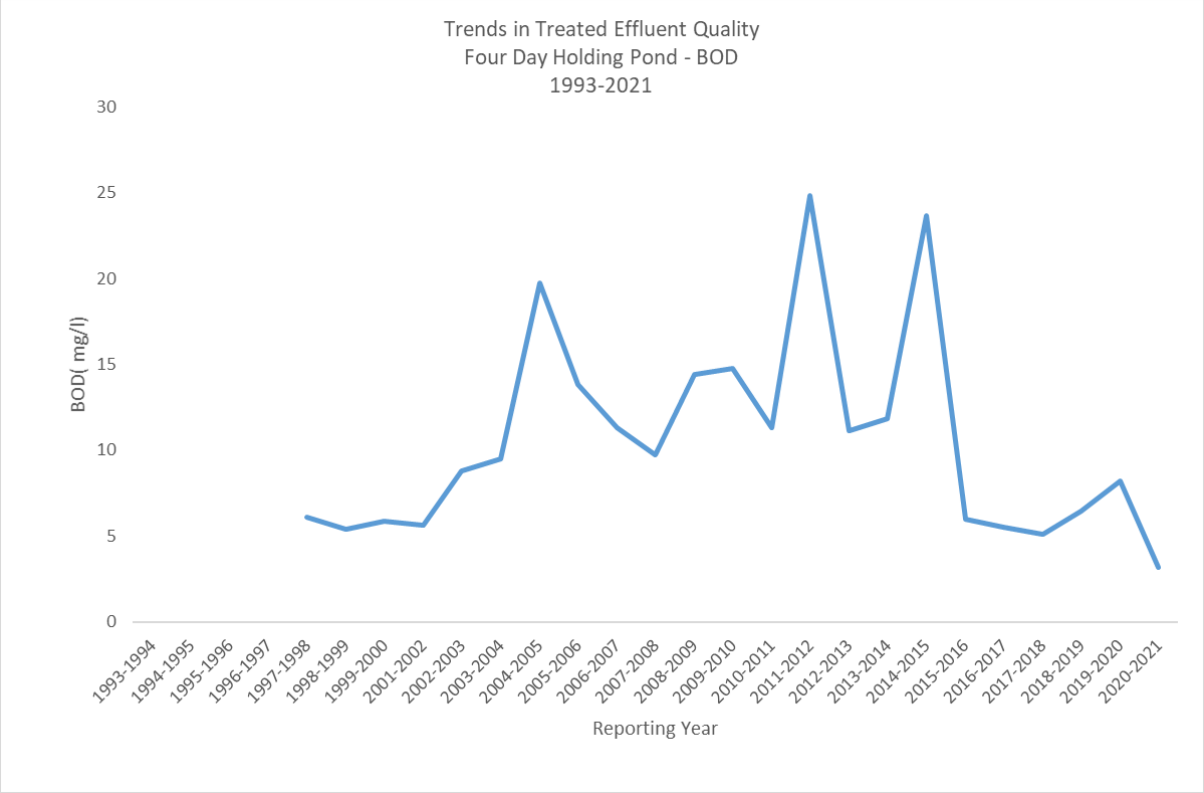


FIGURE 14. Trends in Treated Effluent Quality from the Four Day Holding Pond – Total Nitrogen

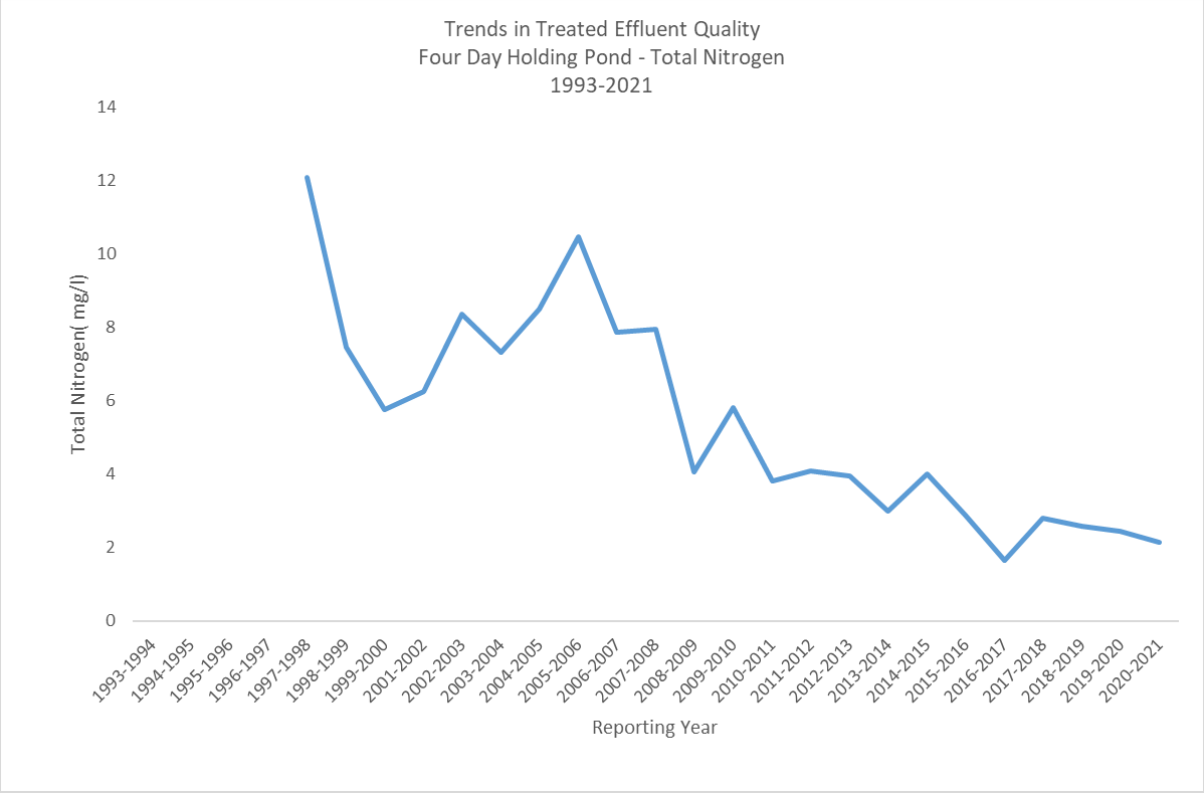


FIGURE 15. Trends in Treated Effluent Quality from the Four Day Holding Pond - pH

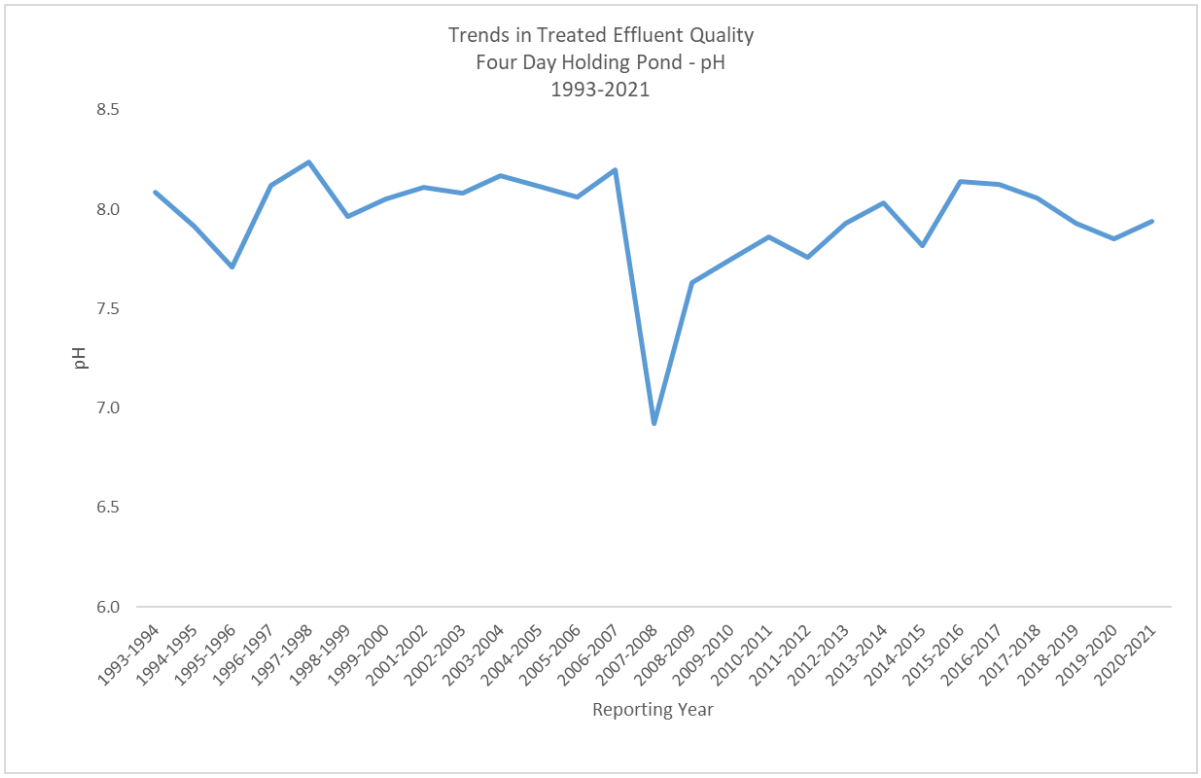


FIGURE 16. Trends in Treated Effluent Quality from the Four Day Holding Pond – Total Phosphorous

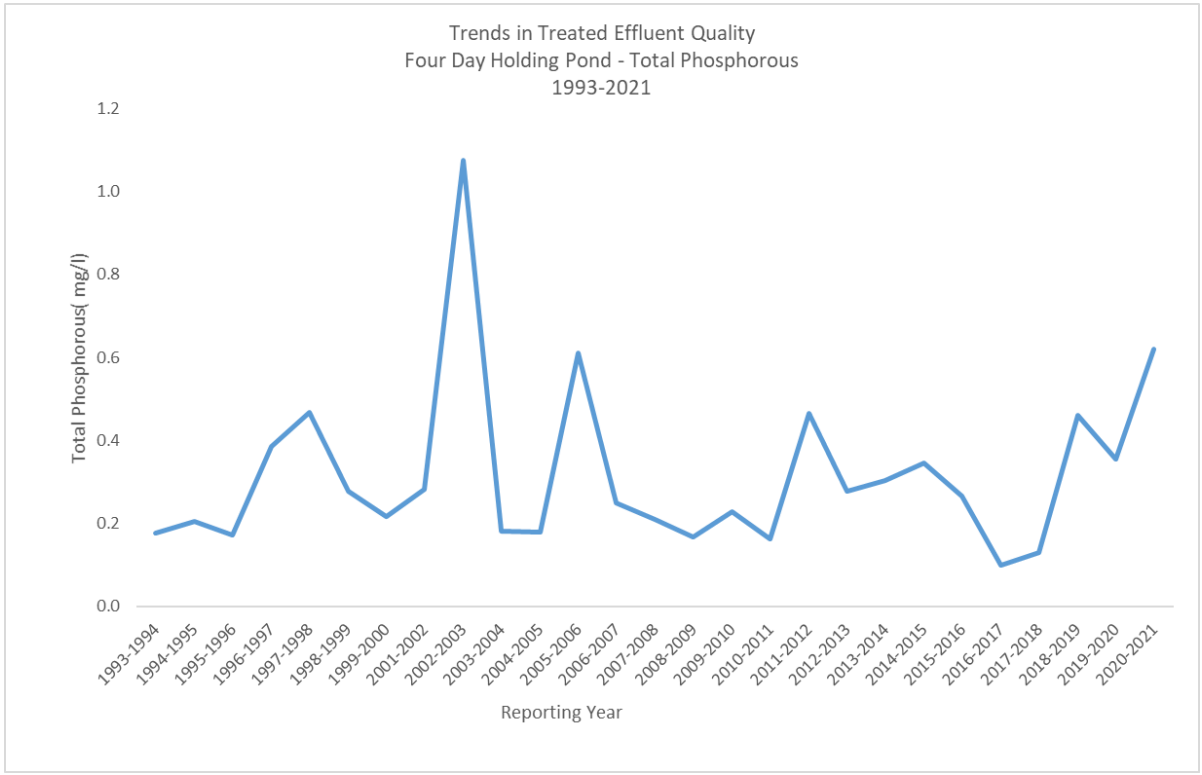


FIGURE 17. Trends in Treated Effluent Quality from the Four Day Holding Pond - TDS

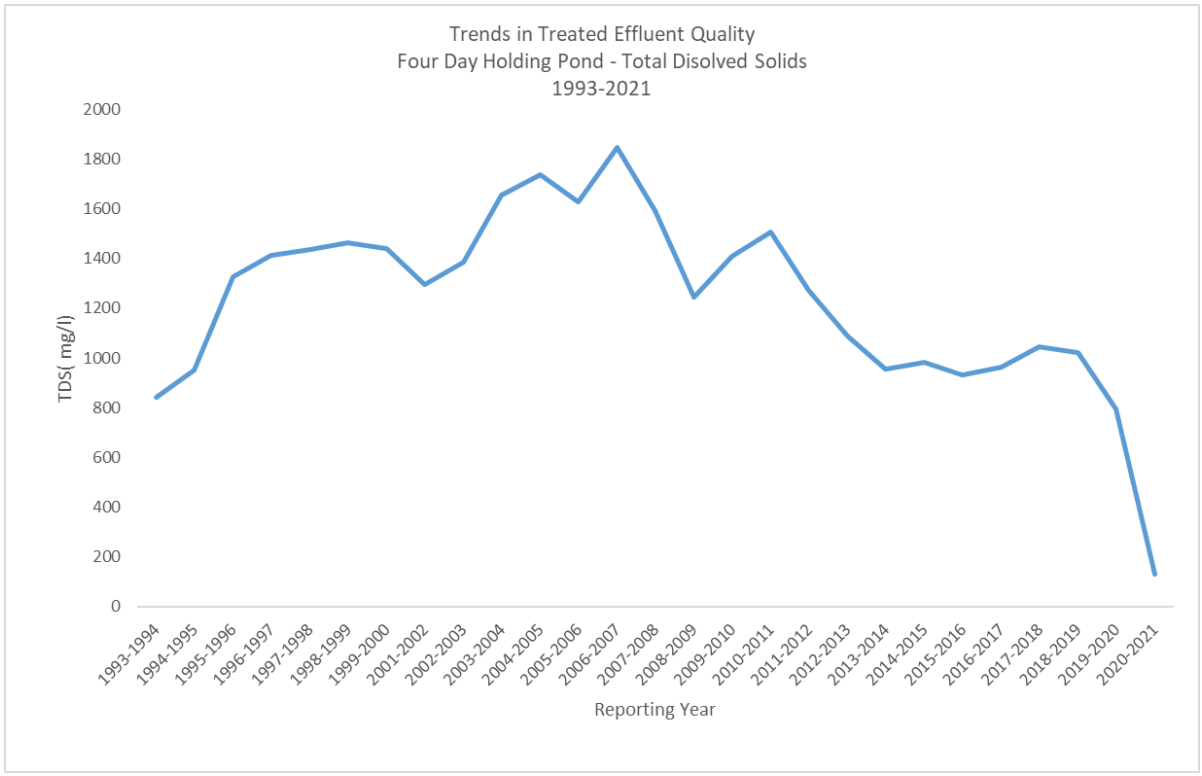


FIGURE 18. Trends in Treated Effluent Quality from the Four Day Holding Pond – TSS

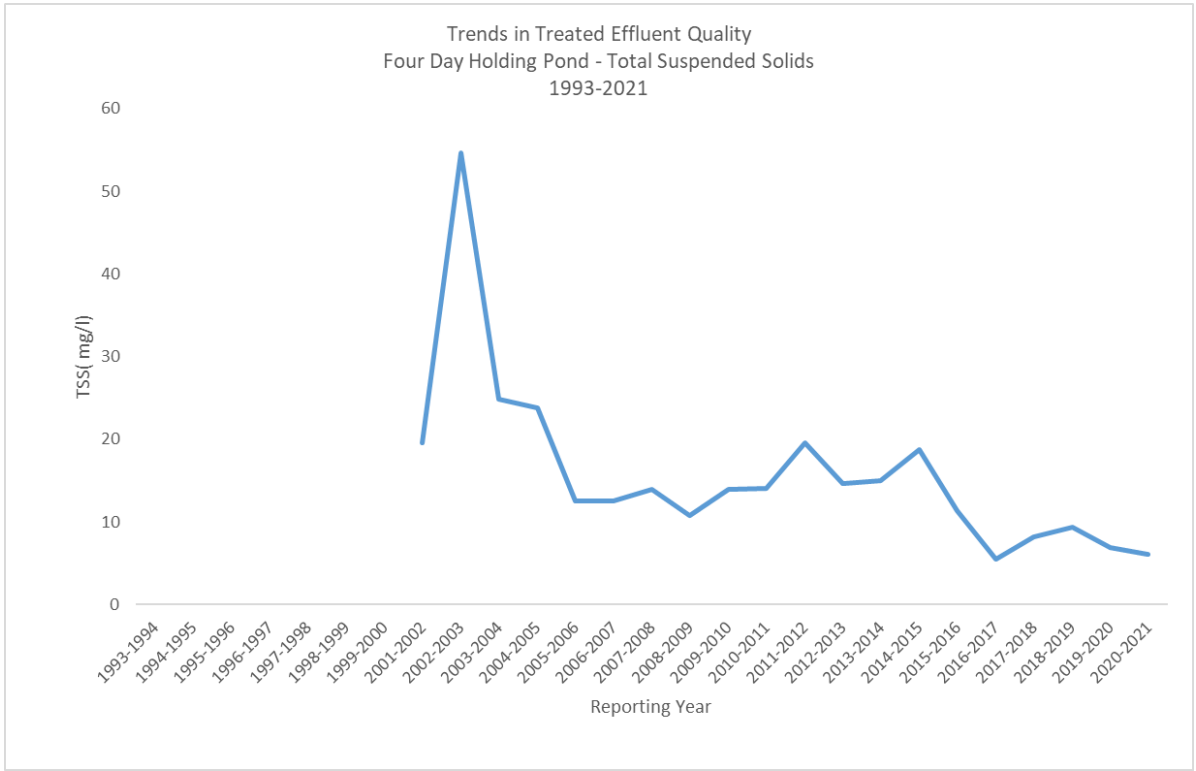
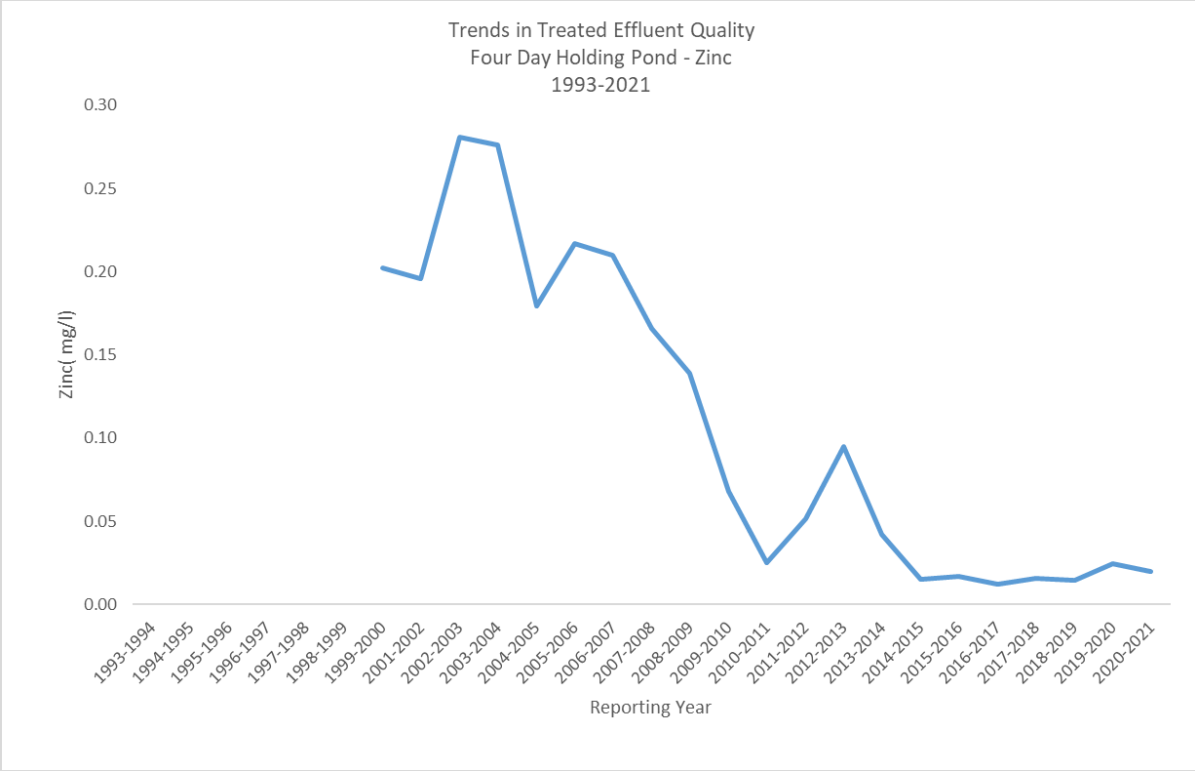


FIGURE 19. Trends in Treated Effluent Quality from the Four Day Holding Pond – Zinc



Recovered Paper, Recycled Fibre Warehouse

6. Non-Compliance and Actions

For the reporting period of 2020-2021 there were no non-compliance incidence.

7. Water Monitoring Report

Visy Albury is redeveloping a Water Management Plan to implement and maintain into the future, as per the requirements of DA 389-8-2003-i-MOD1, Schedule 3, Section 8. This redevelopment is occurring in relation to Visy's takeover of the Albury Mill site. This has created a period where the site is operating in a limited capacity, minimising the requirements of the site over this reporting period. Once the site returns to full production a renewed Water Management Plan will be outlined.

The existing Water Management Plan details strategies and operating practices Visy Albury implements for water management. It covers the key parameters of water quality and the impacts that treated processed water can have on the receiving environment. The Water Management Plant references, as documented within the EMS, the monitoring, reporting and auditing regimes to which the mill complies and steps taken to ensure continual improvement in water efficiencies.

A summary of the existing Water Management Plan is presented below, alternatively contact Visy Albury should a full version of the plan be required.

The Water Management Plan documents the overall strategy the site management implement when operational to manage its water resource. This includes a site water balance, the manner in which different site water streams are categorised, and the discharge points for treated effluent. The utilization of a Green Offset Scheme is described, as well as the potential implementing third party irrigation.

Quality parameters of treated effluent are detailed, as required by the New South Wales EPA Licence, which form the basis for Visy Albury achieving acceptable environmental outcomes. The impact of treated process water on the receiving environment is of paramount importance, with focus on the two receiving environments of treated effluent discharge, being the Effluent Reuse Scheme and the Murray River.

The management of water has built in contingency plans that can intervene immediately for short term process variations which affect the quality of treated effluent. The Water Management Plan commits Visy Albury to cease the discharge of treated effluent to the Murray River if adverse impacts are detected.

7.1. Objectives and Performance Outcomes of the Water Management Plan

- Ensure that a clear strategy is developed and followed for the management of water resources utilized at Visy Albury;
- Provide clear management direction for the quality and impacts of water resources used at the Mill and that they are known and addressed;

- Provide for the monitoring, reporting and auditing of water, ensuring the ongoing compliance to New South Wales EPA License, Consent Conditions and other regulatory requirements;
- Provide the framework for continual improvement in water resource management;
- Provide a clear communications tool for all stakeholders regarding the use and management of water resources at Visy Albury

7.2. Key Environmental Issues Identified by the Water Management Plan

- Water supply, use and discharge;
- Water quality and impacts on the receiving environment;
- Water efficiencies and continual improvement;
- Protection of the natural environment.

7.3. Key Performance Criteria Set by the Water Management Plan

- Water quality targets;
- Monthly raw water quantity targets;
- The environmental impact of treated effluent discharged to the receiving environment is not exceeded as per the requirements of NSW EPA License 1272;
- Ettamogah Winter Storage Dam levels are managed to within target;
- Zero New South Wales EPA License non-conformances and no community complaints;

7.3.1. Water Quality Targets

The quality of treated effluent is critical for the long-term operational success of Visy Albury. The treated effluent discharge point to the Murray River is determined to be a slight to moderately disturbed system, with nutrient status, soft water and highly regulated flows. Visy Albury carries out monitoring of all key water parameters required by the held EPA License, Development Consent and the Mills current Environmental Monitoring Program. In future Visy Albury may irrigate all the water used on site and not discharge any to the Murray River.

Treated effluent goes through extensive processing in the sites waste water treatment plant to remove contaminants prior to being discharged from the Mill, Biological methods used remove approximately 99% of the biologically degradable organic matter, measured as BOD. Components remaining in treated effluent include non-degradable organic compounds, inorganic salts and residual nutrients.

Data presented in Table 14, reflects the existing New South Wales EPA License Limits presented in the Water Management Plan, for treated effluent quality sampled from the Four Day Holding Pond, and actual average data from the reporting periods.

TABLE 14. Water Management Plan – Quality Targets (Four Day Holding Pond)

Parameter	WMP Proposed NSW EPA License Limits	Current NSW 100 Percentile License Limits	Average Concentration 2017-2018	Average Concentration 2018-2019	Average Concentration 2019-2020	Average Concentration 2020-2021
Oxygen Depleting Substances						
Biological Oxygen Demand	20	20	5	6	10	3
Particulate Matter						
Total Suspended Solids	20	20	9	9	7	6
Dissolved Salts						
Total Dissolved Solids	2000	2000	1039	1014	822	131
Nutrients						
Total Nitrogen	15	15	2.9	2.5	2.5	2.1
Total Phosphorus	0.5	0.5	0.13	0.42	0.4	0.66
Ammonia	3	3	0.78	0.33	0.22	0.63
Metals						
Iron	3	-	-	-	-	-
Zinc	0.4	0.4	0.02	0.02	0.03	0.02
Copper	0.05	0.05	0.01	-	-	-
Magnesium	2.5	-	-	-	-	-
Cadmium	0.006	-	-	-	-	-

Oxygen Depleting Substances

Biochemical Oxygen Demand (BOD) is a measure of the amount of oxygen required to degrade residual organic matter remaining in the treated process water. Excessive BOD in treated effluent discharged to rivers and waterways will result in dissolved oxygen depletion, adversely impacting the health of the waterway. The BOD of the treated effluent before biological treatment is in excess of 1,200 mg/L, with there being a reduction of levels to less than 20 mg/L, equating to a significant 99% reduction. Throughout the last four years, BOD has reduced to 10 mg/L and under, due to process changes made in the Waste Water Treatment Plant.

Particulate Matter

Total suspended solids (TSS) are a measurement of the particulate matter present in treated effluent. This fine colloidal material is primarily residual biomass/detritus from the biological oxidation process. Treated effluent will pass through a sand filter under the Effluent Discharge scheme, which removes additional particulate matter. Average levels throughout the current and past reporting periods are all below target limits.

Dissolved Salts

The major parameter in treated effluent from Visy Albury is dissolved solids. Current average concentrations are well below the Licence limit of 2000 mg/L. These dissolved solids are comprised almost entirely of the inorganic ions sodium, calcium, magnesium, potassium, bicarbonate, sulphate and chloride. The major salt in the Mill's treated effluent is sodium bicarbonate, with sodium sulphate being the second most abundant inorganic salt.

Nutrients - Nitrogen

Nitrogen is added in the form of urea to the waste-water prior to entering the activated sludge treatment process due to the wastewater being nitrogen deficient. The normal mode of operation is to add sufficient nitrogen to just satisfy the nutrient requirements of the biomass without having residual within the treated effluent before being discharged. Total Nitrogen is composed of both organic and inorganic components. The organic component

being the major component in Visy Albury treated effluent. This is primarily dead biomass detritus from the biological process. The inorganic components of nitrogen in treated effluent comprise of ammonia and nitrate, which may be readily taken up by aquatic plants after being released into the environment.

Nutrients - Phosphorus

Phosphorus is present in treated effluent, measured and recorded in this report as Total Phosphorus. Phosphorus has an organic and an inorganic form, with the former also degrading slowly in the environment. The inorganic form, referred to also as soluble phosphate, is assimilated more rapidly by aquatic plants. The dominant form in treated process water is the slowly degrading organic form.

Metals

Heavy metals of environmental relevance that may be present and measured in the treated process water are iron, zinc, copper, manganese and cadmium. Iron, zinc and manganese are present in the incoming wood and a proportion of these are released during the pulping process. Cadmium and copper could potentially be present in deinking waste, and their measurement has been a requirement of previous New South Wales EPA Licence conditions.

Chelating Agents

Diethylenetriaminepenta-acetic acid (DTPA), is commonly used as a chelating agent. It is added in the pulp brightening process to improve the efficiency of the brightening chemicals further along in the process. It is degraded to a significant extent both in the pulping process and in the wastewater treatment process. Its main relevance environmentally is the possibility of chronic toxic effects on aquatic species. This chemical is not used Visy Albury.

7.3.2. Raw Water Quantity Targets

Raw water quantity targets, in megalitres (ML) per day and ML per annum, referenced by the Water Management Plan, together with water usage for the current and previous reporting periods are presented in Table 15.

TABLE 15. Water Management Plan - Murray River Net Usage Volumes

	Murray River Net Volumes Water Management Plan		2017-2018		2018-2029		2019-2020		2020-2021	
	Daily (ML)	Annual (ML)	Daily (ML)	Annual (ML)	Daily (ML)	Annual (ML)	Daily (ML)	Annual (ML)	Daily (ML)	Annual (ML)
Raw Water Extracted from Murray River	13.5	4928	12.0	4372	12.7	4636	6.4	2354	1.0	351
Cooling Water Returned to Murray River	3.0	1095	1.7	629	2.0	721	0.0	12	0.0	0
Treated Effluent Returned to Murray Rvier	3.0	1095	2.0	729	0.0	0	0.0	0	0.0	0
Net Water Used	7.5	2738	8.3	3015	10.7	3915	6.4	2342	1.0	351

7.3.3. Environmental Impact of Treated Effluent Discharge

It is one of the key performance criteria set by the water management plan that the environmental impact of treated effluent discharge to the receiving environment, does not exceed the requirements of New South Wales EPA License 1272. A full review of the License

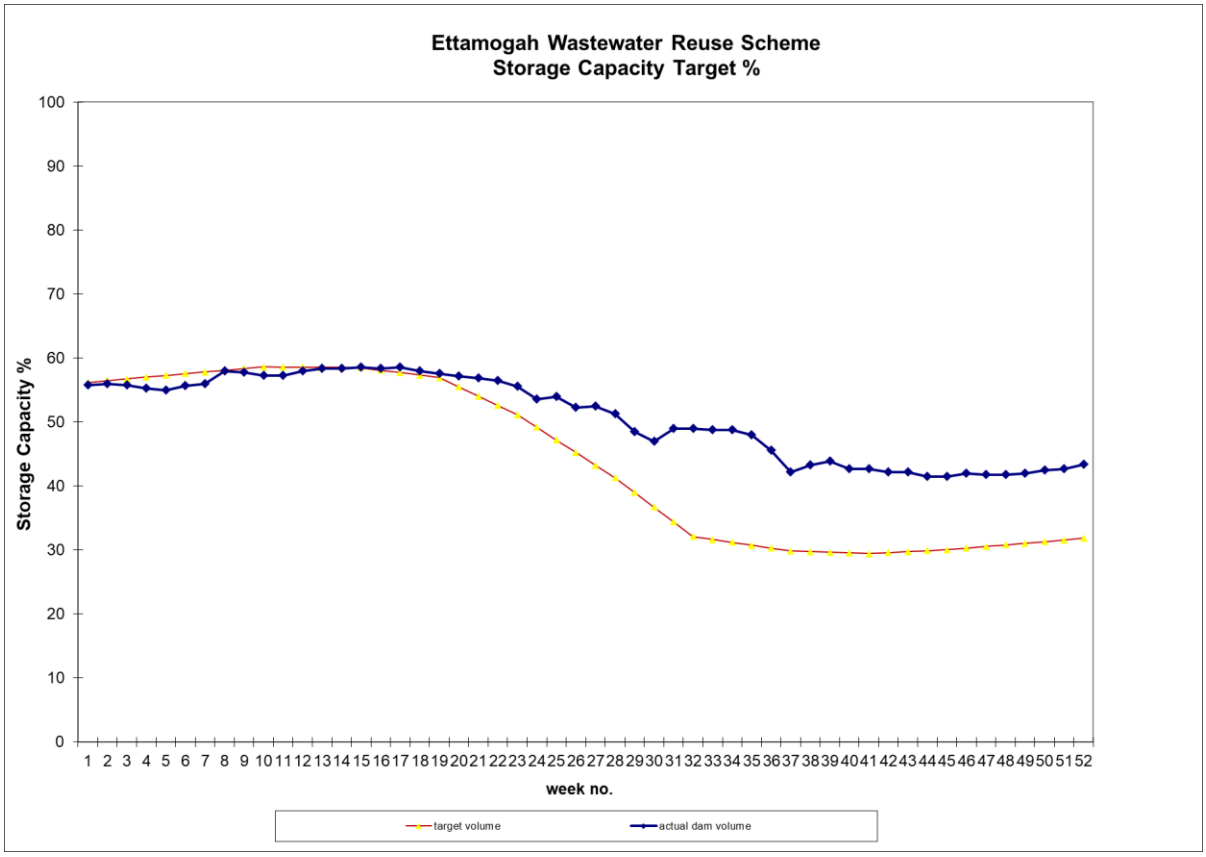
compliance of treated effluent discharged to the Murray River (Monitoring Point 1), are presented in Sections 1, 3 and 4 of this Environmental Management Report.

7.3.4. Ettamogah Winter Storage Dam

The Water Management Plan sets the Winter Storage Dam level being maintained to within target volumes as key performance criteria. While the mill is idle and not producing effluent, an Irrigation Area Management Plan is being followed. This plan was approved by the EPA on 20 November 2020. Figure 20 below present the actual and target dam levels for the 2020-2021 reporting period.

Throughout the most part of the 2020-2021 reporting period, dam volumes were close to the target levels set by the Irrigation Area Management Plan. Since the Mill has been non-operational an increased volume of water in the dam has been preserved. This will be available for the irrigation seasons over the next couple of years while the mill is in an idle state.

FIGURE 20. Winter Storage Dam Actual and Target Capacity



7.3.5. Non-Conformances and Community Complaints

Achieving zero New South Wales EPA License non-conformances and no community complaints is a key performance criterion of the Water Management Plan. Community Complaints and non-compliance are detailed in Sections 2 and 6 of this Environmental Management Report.

8. Solids Waste Monitoring Report

As part of the redevelopment Visy Albury will develop and implement a Solids Waste Management Plan as per the requirements of DA 389-8-2003-i-MOD1, Schedule 3, Section 8.

The purpose of the Solids Waste Management Plan is as follows:

- Characterize all waste according to the current waste classification guidelines;
- Include details of the quantities and destinations of all waste materials;
- Describe measures in place to minimize and manage waste,
- Describe and explore options available to further reduce and reuse waste;
- Confirm that all waste materials are sent to sites that can lawfully accept the waste;
- Describe the biosolids land application monitoring program, detail the results of this monitoring and prepare a monitoring and reporting program.

A summary of the Solids Waste Management Plan is presented below, alternatively contact Visy Albury should a full version of the plan be required.

8.1. Waste Types

Until redevelopment of Visy Albury minimal waste materials require management, these include mostly General Solids Waste - putrescible and non-putrescible. Other waste includes oils, drums, cardboard, metal, paper, electronic equipment, batteries, fluorescent light bulbs and printer cartridges. Waste generated at Visy Albury has been classified according to the New South Wales EPAs Waste Classification Guidelines: Part 1 Classifying Waste, waste types are presented in Table 16.

TABLE 16. Solids Waste Management Plan – Visy Albury Waste Classification

Waste Classification	Visy Albury Waste Types
Special Waste	Asbestos Waste Tyres
Liquid Waste	Oil
Hazardous Waste	Oil Drums (empty) Light Bulbs (fluorescent) Batteries (all sizes)
General Solid Waste Putrescibles	Food waste Garden Waste
General Solid Waste Non-Putrescibles	Metals Paper and Cardboard Printer Cartridges Electronic Equipment Wood Waste Packaging Waste

Special Waste

The Asbestos Storage Handling and Disposal Policy is in place should this waste type be present and require management.

Liquid Waste

Waste oils, mineral-based lubrication or industrial oils are those that have become unfit for the use of which they were originally intended. All current oil waste is disposed of through an independent contractor who recycles this waste.

Hazardous Waste

Oil drums and batteries sent to Albury City Council landfill, with some containers being returned to the supplier for reuse.

General Solid Waste Putrescible

Is waste that is comprises of food, litter bin, and garden waste that are sent to Albury City Council Landfill.

General Solid Waste Non-putrescible

This classification contains the most waste produced at Visy Albury and includes RCF Rejects, Boiler Ash, Metals, Paper and Cardboard, Packaging Waste and Wood Waste.

8.2. Disposal of Waste

The Albury City Council Landfill is licensed to accept general solid waste (putrescible), general solid waste (non-putrescible), asbestos, waste tyres, clinical waste and general waste.

Ettamogah Site, Effluent Reuse Scheme

9. Energy Efficiency Monitoring Report

9.1. Comparison of Visy Albury Energy Use

The future of the Visy Albury Mill will most likely use 100% recycled fibre. This has a much lower energy requirement than the presently installed Thermo-Mechanical Pulping process which supplied approx. 70% of the fibre for the newsprint sheet being produced by Norske Skog.

9.2. Investigation of Energy Efficiency Measures

Visy Albury will be evaluating the advances in pulp and paper process technologies in order to achieve global emission targets.

The main areas of opportunity for step change investment projects include conversion to alternative energy sources such as bio-energy and other renewable technologies, along with increasing the internal generation of power and heat. These types of projects are currently being explored, though they often require technological innovation as well as significant capital investment and are decided on an individual basis, taking into account a variety of factors. These projects are focused on reductions in greenhouse emissions, although energy efficiency improvements are also anticipated.

9.3. Climate Change and Energy

Global Emissions Reduction Targets

Visy acknowledges the reality of climate change and supports the need for action to mitigate the associated risks. The company recognizes the important role industry must play in meeting this challenge and this will be a consideration in the development of the site.

Emissions Trading

The Commonwealth Government split the Renewable Energy Target (RET) into a large-scale renewable energy target (for example electricity from a wind farm) and a small-scale renewable energy target (for example from a roof top solar system). This has increased the amount of renewable energy required to be purchased. All obligations under the RET scheme have been complied with. Details on the RET scheme can be found at:
www.cleanenergyregulator.gov.au

The Albury Mill under Norske Skog was an early participant in the New South Wales Government's energy efficiency program, generating the first certificate under the scheme. Since the inception of this scheme the Albury Mill undertook several energy reduction programs.

9.4. Monitor and Reporting of Energy Efficiency

The European Union Best Available Technology (BAT) or industry best practice values will be taken into account during the redevelopment of the Visy Albury Site. Monitoring and reporting systems will be developed to ensure all energy is used efficiently.

10. Effluent Reuse Scheme

Treated wastewater has been transferred in large volumes to the Ettamogah Effluent Reuse Scheme over recent years. The volume is much smaller currently while the mill is idle. Visy Albury currently operates 452 hectares of irrigated plantation, crop and pasture. Table 17 lists the treated effluent volumes discharged to the Murray River and the Ettamogah Effluent Reuse Scheme during the reporting periods, and includes annual rainfall and evaporation values.

The treated effluent irrigation application rates for the reporting period averaged 0.7 ML/ha.

TABLE 17. Treated Effluent Discharge and Irrigation at the Reuse Scheme

	2017-18	2018-19	2019-20	2020-21
Treated Effluent Discharged to Murray River (ML)	729	0	0	0
Treated Effluent Discharged to Reuse Scheme (ML)	2362	3217	2207	353
Treated Effluent Reused at WWTP (ML)	430	411	212	0
Irrigation to Ettamogah Pivots (ML)	1073	1324	757	167
Irrigation to Rosevale Pivots (ML)	169	184	127	23
Irrigation to Ettamogah Plantations (ML)	1035	900	244	129
Irrigation Total (ML)	2276	2409	1128	319
Area (Ha)	452	452	452	452
Application (ML/Ha)	5.0	5.3	2.5	0.7
Evaporation (mm)	1361	1466	1396	1250
Rainfall (mm)	676	462	590	711

The final recording for the winter storage dam capacity for the 2020-2021 reporting period was taken on the 30th June 2021 and had the dam at 43.4% full.

Data from the monitoring of surface waters in the Eight Mile and Nine Mile Creeks adjacent to Ettamogah Forest, and groundwater monitoring from deep and shallow bores are presented in Section 4.7. The program of sampling and monitoring groundwater is outlined in the Environmental Management Plan (EMP). An absence of data in the tables indicates that no representative sample was available due to the creeks or bores being dry. The full data set has not been presented although is available on request.

Treated effluent quality monitoring from the Winter Storage Dam has been undertaken and is presented in Section 4.7 of this report. A de-stratification system using compressed air and diffuser was installed and commenced operation in May 1998. The installation continues to be accompanied by regular monitoring. Monitoring results indicate that the de-stratification program remains effective and continues to reduce and stabilize the concentrations of manganese, iron, soluble phosphorus and overall colour.

Annual dam embankment settlement and monitoring surveys continue to be undertaken, with no abnormal movement in the embankment detected.

Visy Paper Mill Site, Ettamogah