

Lamby Way annual report January 2024 – December 2024

**With reference to section 4.2 of Lamby Way Landfill site permit Variation
notice UP3130MA of permit JP3239ST**



Lamby Way Landfill Site

Variation Notice UP3130MA

2024 Annual Report as per Schedule 4.2 sub section 4.2.1

(a) Review of result - See Appendix 1

(b) Annual Improvement targets

Since 1st January 2024:

1. Works undertaken to improve pumping of leachate from the site, further maintenance undertaken to the leachate treatment plant, and installation of remote telematics, providing more consistent throughput.
2. Surface water system jetting and cctv inspection.

(c) Energy consumption of site as set out in schedule 5 Table S5.3

(d) Water consumption of site as set out in schedule 5 Table S5.3

Table S5.3 Performance Parameters				
Parameter		Frequency of assessment	Annual total	Unit
Potable water use		Annual	N/A	Cubic meters
Energy used (including for leachate treatment)		Annual	8.76	MWh electricity
Non potable water		Annual	N/A	Cubic meters

(e) Annual production / treatment as set out in schedule 5 Table S5.2

Table S5.2 Annual Production /Treatment	
Leachate:	Cubic metres/ year
Disposed of offsite:	0
Disposed of to any onsite effluent treatment plant;	40,035 m3
Recalculated into the waste mass.	0 m3
Surface Water and / or groundwater:	Cubic metres / year

Disposed of offsite;	Not measured
Disposed of to any onsite effluent treatment plant;	0
Landfill gas:	Normalised cubic metres/ year
Combustion in flares	172,359 m ³
Combustion in gas engines;	4,248,725 m ³
Other methods of gas utilisation	N/A

(f) Details of any contamination or decontamination of the site

- No waste has been rejected from site – Landfill is closed
- No known acts of vandalism and/or unauthorised activity are known to have caused the introduction of any unauthorised materials.
- No fuel or oil spills have been reported. The site maintains a good supply of spill kits in the event that they are required.
- Surface water inspections have not produced any recordings of visible oils and greases in Surface Water sampling manholes.

(g) Topographical survey required by condition 3.6.3

See Appendix 4.0 - Drawing – ‘Lamby Way Landfill Site – Topographical Plan’

(h) Volumetric difference (m³) between most recent topographical survey and previous annual topographical survey i.e. additional volume of landfill void that is occupied by waste.

See attached plan– No additional waste as site Closed.

(i) Assessment of settlement behaviour difference (m³) between most recent topographical survey and previous annual topographical survey for areas that did not receive waste between surveys.

See attached plan

(j) Calculation of remaining capacity (m³) derived from the pre-settlement contours and the most recent topographical survey.

n/a – Landfill closed, no further tipping possible

See additional map *Annual report section (i)*

(k) Compliance testing undertaken within this period

1. Six monthly calibration of G5000 Gas meter completed

Appendix 1 – Review of Results

Lamby Way: Data Report – 2024

Monitoring data for the Lamby Way landfill from January 2024 to December 2024 at Lamby Way Landfill site.

Data included for Perimeter Gas, Leachate, Groundwater and Surface water in accordance with Schedule 4 – Emissions & Monitoring plans for permit variation number UP3130MA.(Variation Notice UP3130MA 2024 Annual Report as per Schedule 4.2 sub section 4.2.1).

Summary of missing Data.

Some of the sampling locations at Lamby Way are not accessible, the details of which are shown below along with proposed / implemented resolutions.

Groundwater borehole (C9) – Borehole destroyed and sample cannot be extracted.

Groundwater borehole (C17) – Borehole destroyed and sample cannot be extracted.

Leachate well (L3) – Borehole blocked by cables.

The above are additional monitoring points

Leachate well (SL1) - Borehole is dry, no sample obtainable. Situation will be monitored.

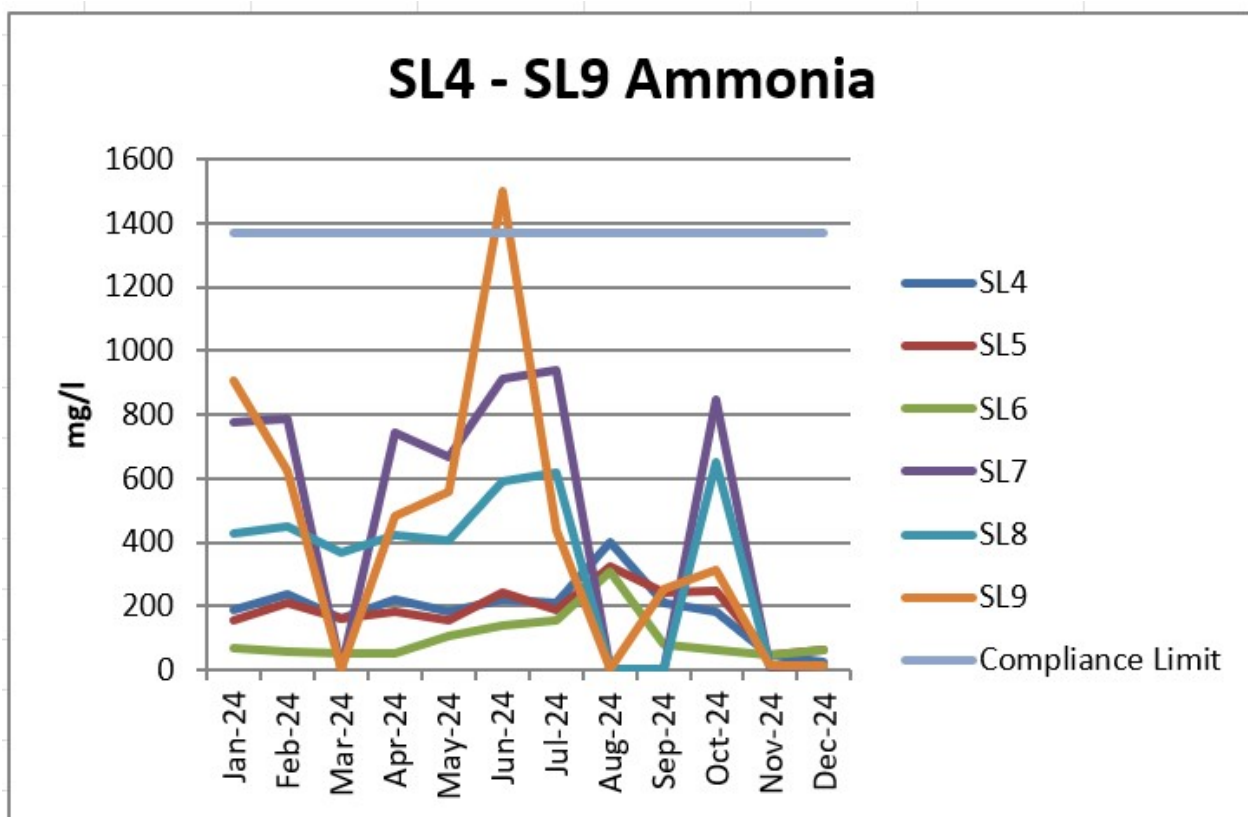
Leachate well (SL2) - Borehole is dry, no sample obtainable. Situation will be monitored.

Leachate well (SL3) - Borehole is blocked below surface, leachate head monitoring is still possible and undertaken.

Leachate Data (SL4– SL9)

Ammoniacal Nitrogen (Ammonia)

Ammoniacal nitrogen ($\text{NH}_3\text{-N}$) is a measure commonly used for testing the quantity of Ammonium ions, derived naturally via organic processes, in water or waste liquids. It is a measure used mainly for quantifying values in waste treatment and water purification systems, as well as a measure of the health of natural and manmade water reserves.

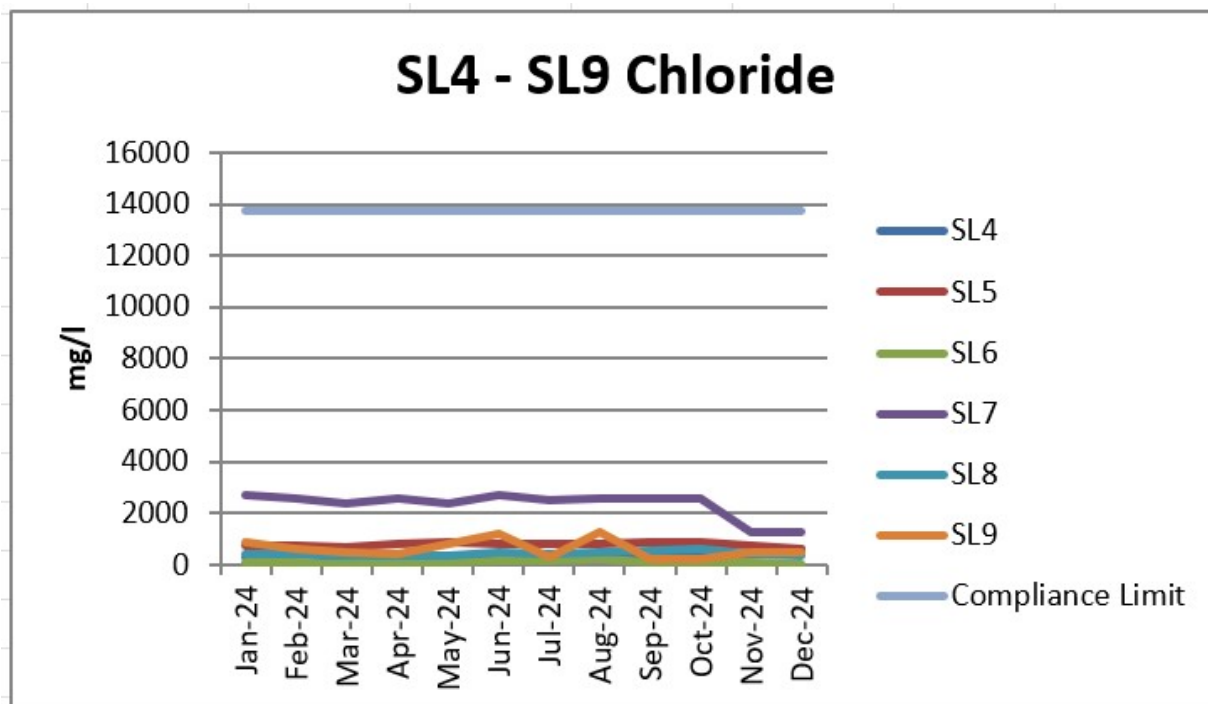


Monitoring points SL4 – SL8 remained below the compliance limit (1370 mg/l) throughout the entire year.

SL9 breached the compliance limit in the month of June with a value of 1500 (mg/l).

Chloride

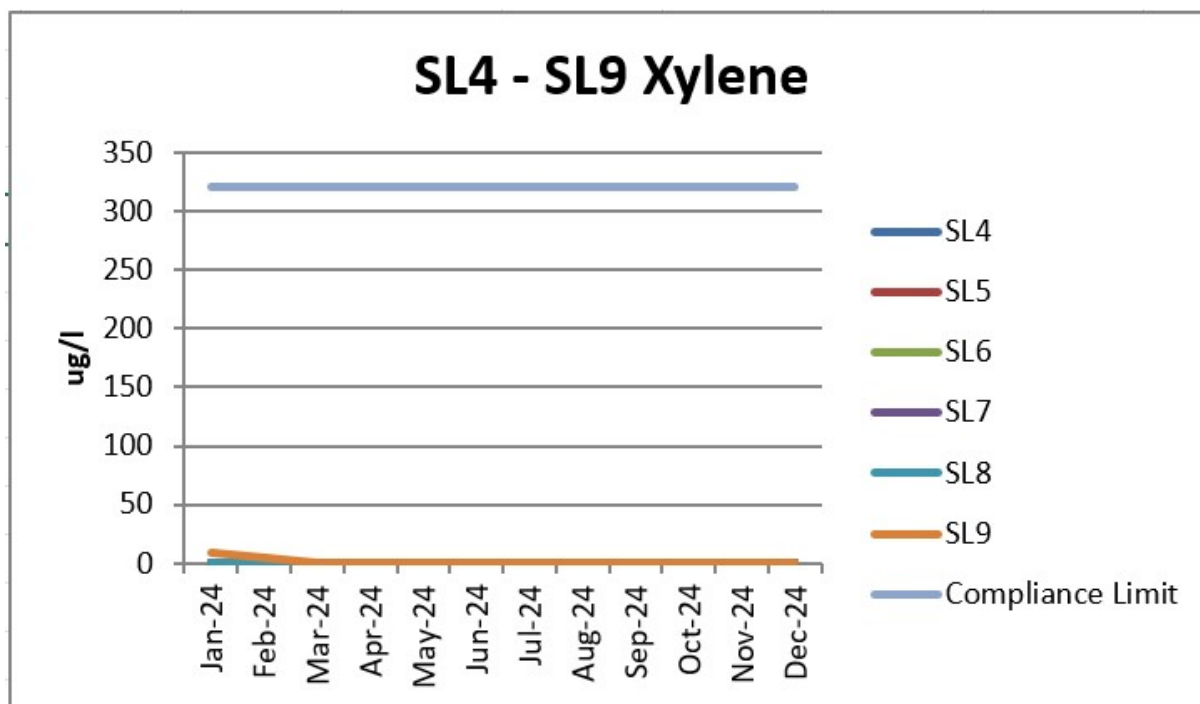
Chloride levels in a waste mass are closely linked to naturally occurring sea water. It is measured to determine if there is any ingress of sea water (or saline ground waters) into a waste mass.



There were no breaches of the trigger level (13713 mg/l) detected in 2024.

Xylene

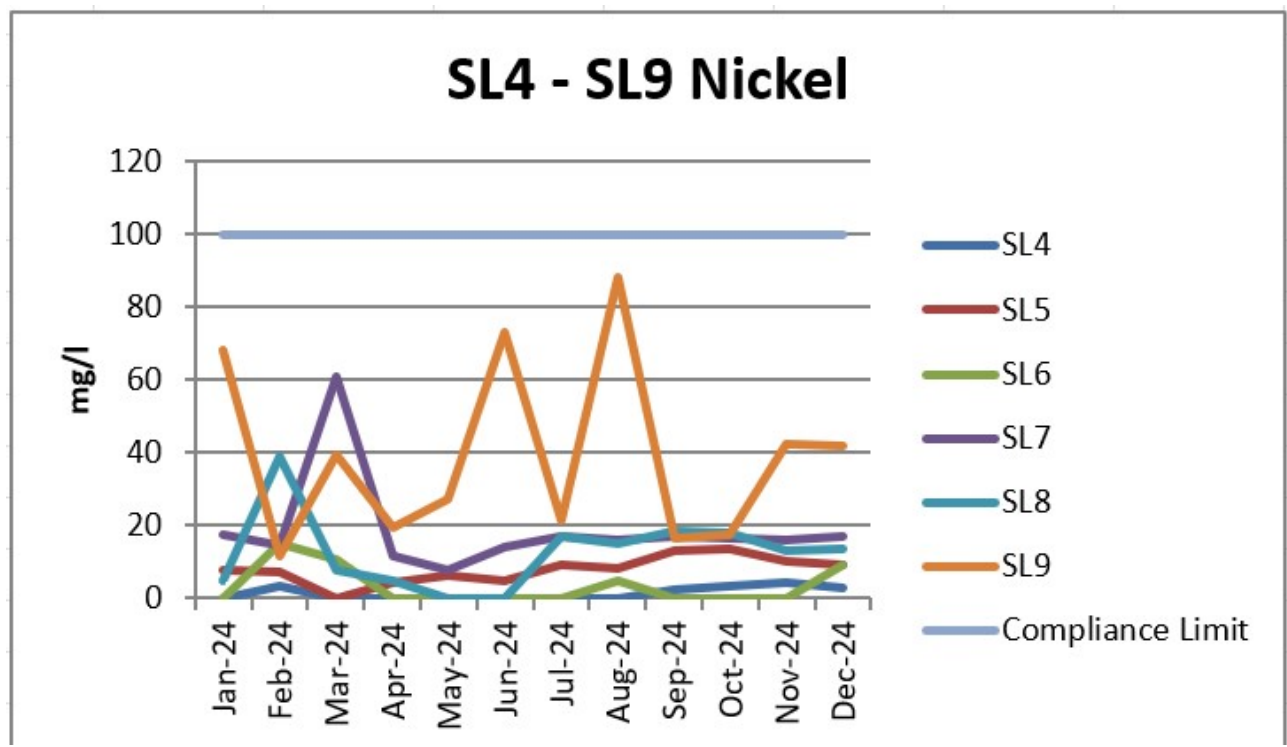
In the presence of Acidic conditions, Xylene can be the pre-cursor to more hazardous compounds of the Benzene family, especially in the presence of Chloride.



There were no breaches of the trigger level (320 mg/l) detected in 2024.

Nickel

Nickel occurs naturally in soils, groundwater, and surface water. As with most heavy metals, nickel can damage the heart and liver of animals exposed to large amounts over a prolonged period of time.

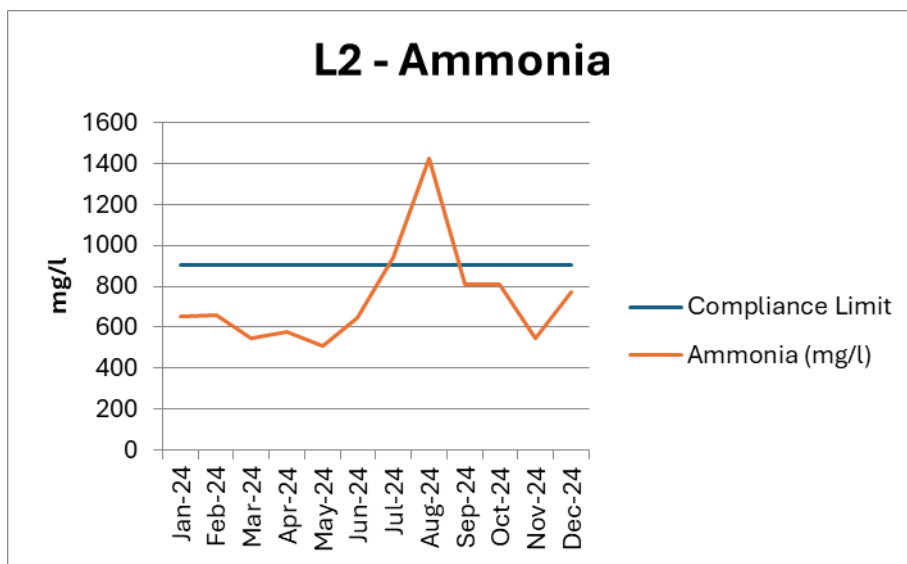


There were no breaches of the compliance limit (100mg/l) detected in 2024.

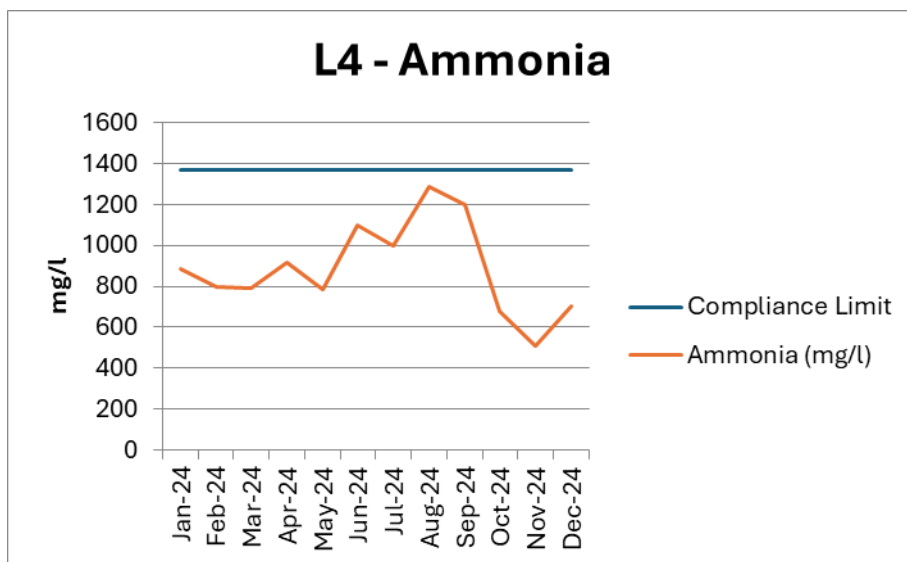
Leachate Data – (L2, L4, LTP1)

Ammoniacal Nitrogen (Ammonia)

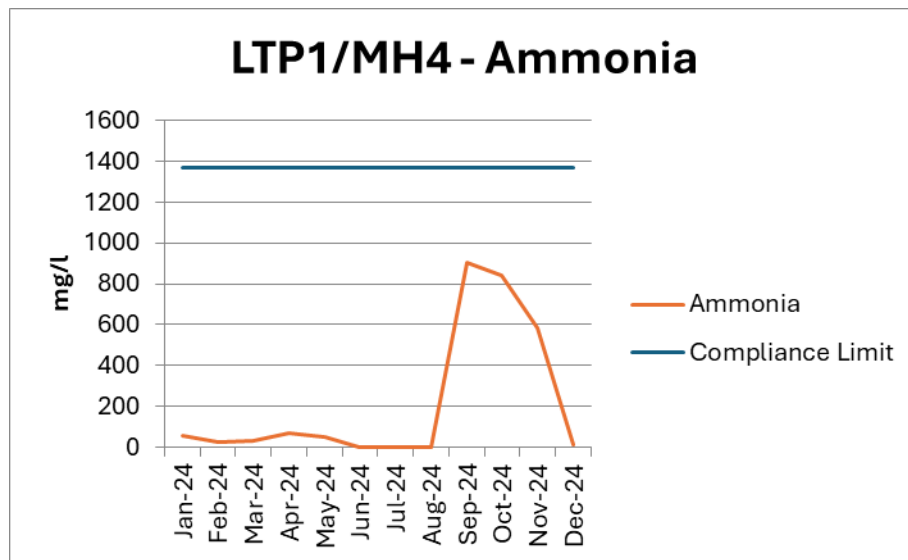
The ammoniacal nitrogen trigger level for L2 is 904 mg/l and the trigger level for L4 and LTP1/MH4 is 1370 mg/l.



L2 exceeded the compliance limit in July with a value of 942 mg/l and in August with a value of 1423 mg/l.



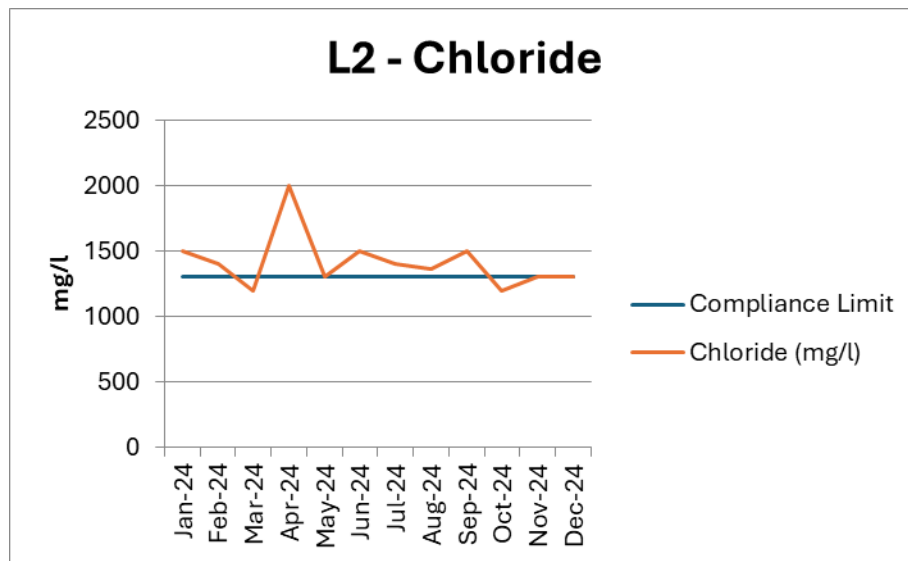
L4 remained below the compliance limit throughout the entire monitoring period.



There were no breaches from LTP1/MH4 during the monitoring period.

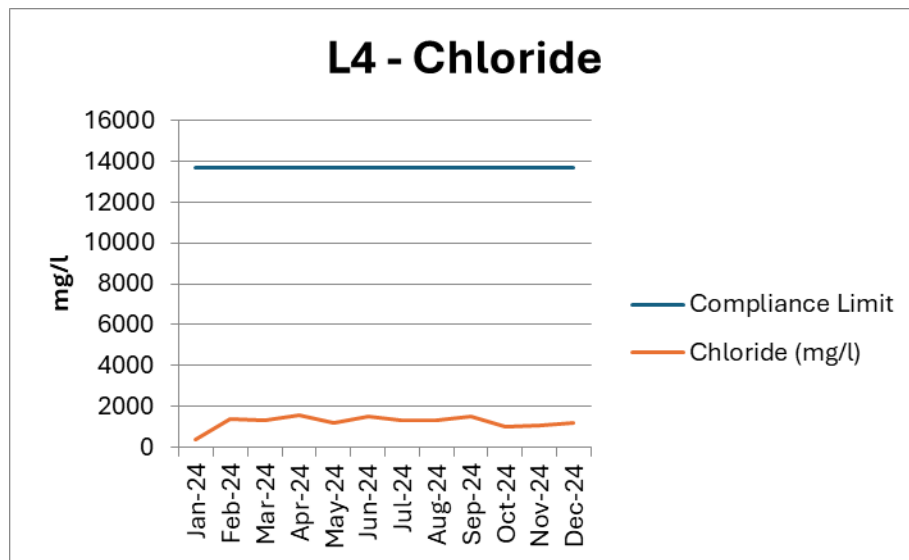
Chloride

There are different trigger levels in place for L2 (1306 mg/l) and L4 (13713 mg/l). There is no trigger level for LTP1/MH4.

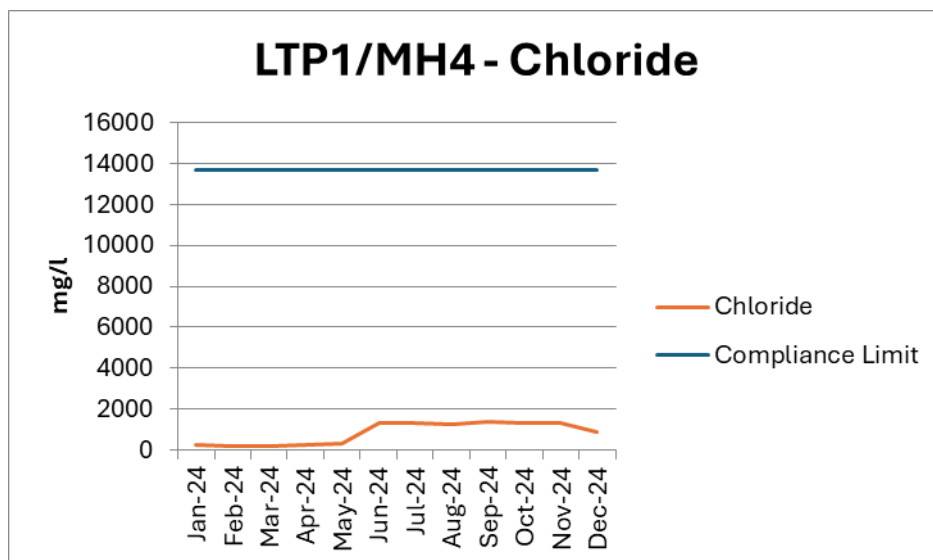


The compliance limit for L2 (1,306 mg/l) was exceeded 7 times in 2024;

- January – 1,500 mg/l.
- February – 1,400 mg/l
- April – 2,000 mg/l.
- June – 1,500 mg/l.
- July – 1,400 mg/l.
- August – 1,365 mg/l.
- September – 1,500 mg/l.



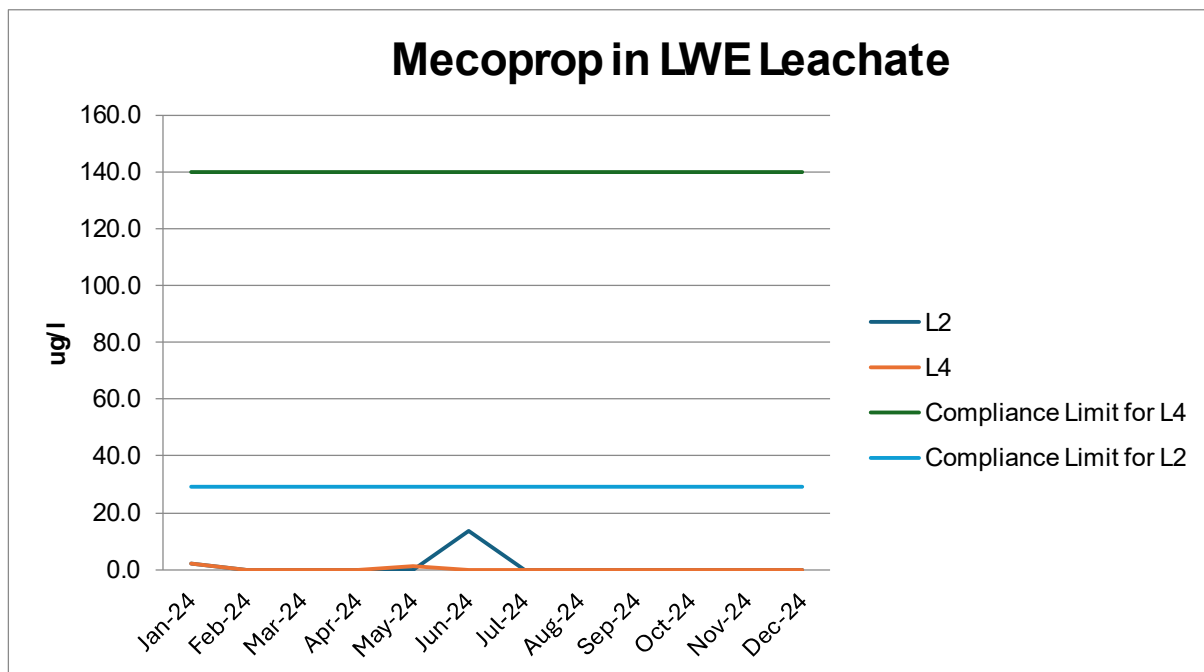
There were no breaches for L4.



There were no breaches for LTP1/MH4.

Mecoprop

Mecoprop or Methylchlorophenoxypropionic acid (MCP) is a common general use herbicide found in many household weed killers and "weed-and-feed" type lawn fertilizers.



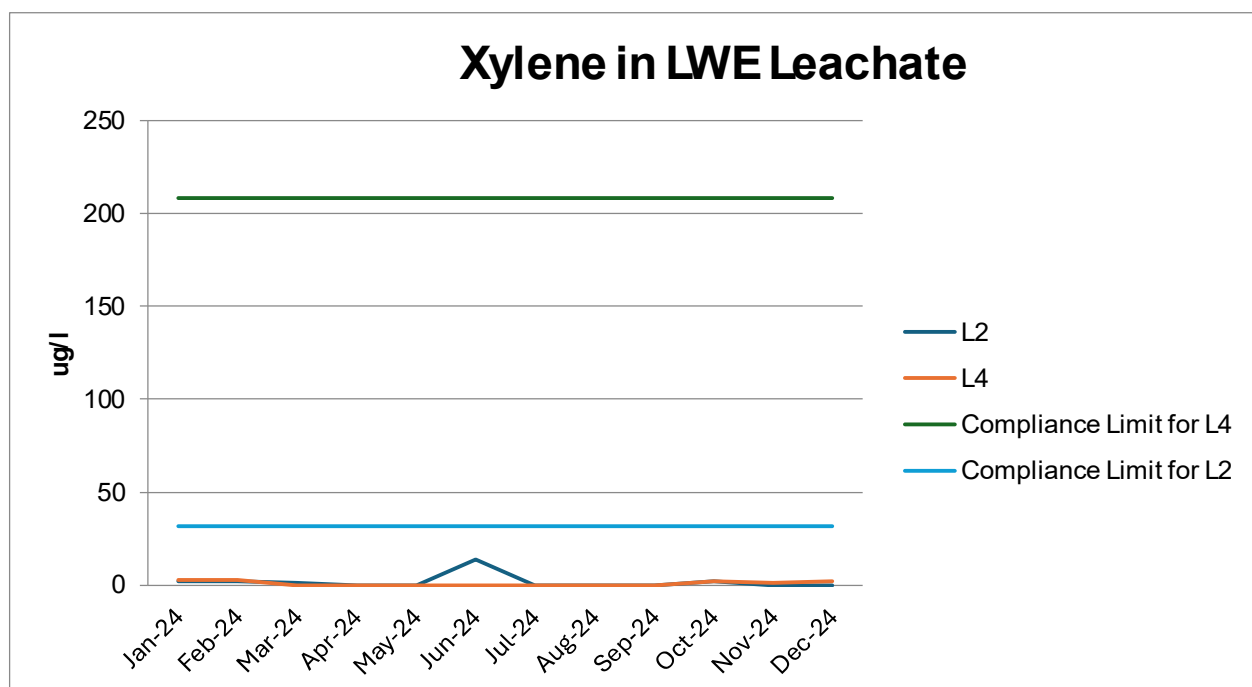
There are two trigger levels, 29ug/l for L2 and 140ug/l for L4 and LTP1/MH4.

L2 did not breach the compliance limit in 2024.

L4 did not breach the compliance limit in 2024.

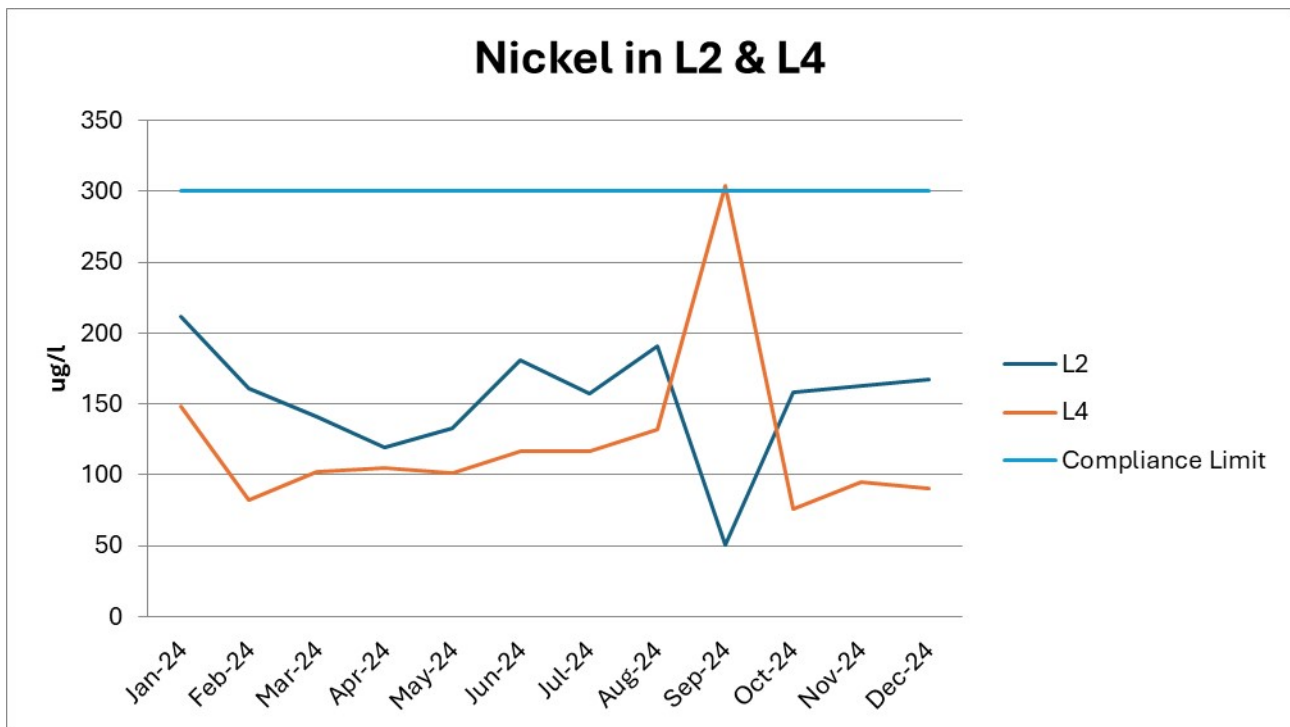
Mecoprop data from LTP1/MH4 is not reported as it is not required by the permit.

Xylene



There was no breach of the 32ug/l trigger level for L2 and no breaches of the 208ug/l trigger for L4.

Nickel



The trigger level for Nickel at these locations is 300ug/l.

L2 did not exceed the compliance limit in 2024.

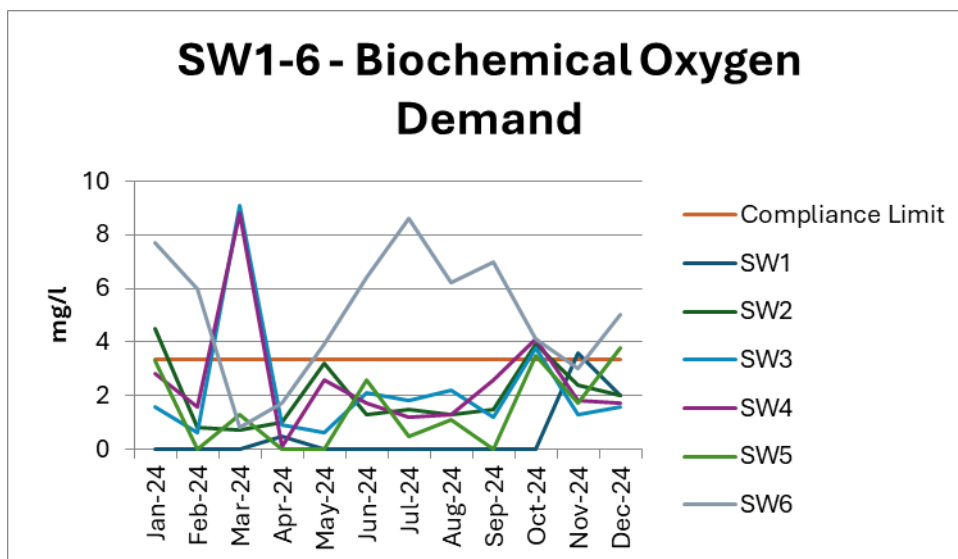
L4 only exceeded the compliance limit in September (2024) with a value of 304ug/l.

Surface Water (SW1-SW6)

There are 6 surface water monitoring points, designated SW1 to SW6.

Biochemical Oxygen Demand (BOD)

Biochemical Oxygen Demand (or BOD) is the amount of dissolved oxygen needed by aerobic biological organisms in a body of water to break down organic material present in a given water sample at certain temperature over a specific time period. The term also refers to a chemical procedure for determining this amount. This is not a precise quantitative test, although it is widely used as an indication of the organic quality of water. The BOD value is most commonly expressed in milligrams of oxygen consumed per litre of sample during 5 days of incubation at 20 °C.

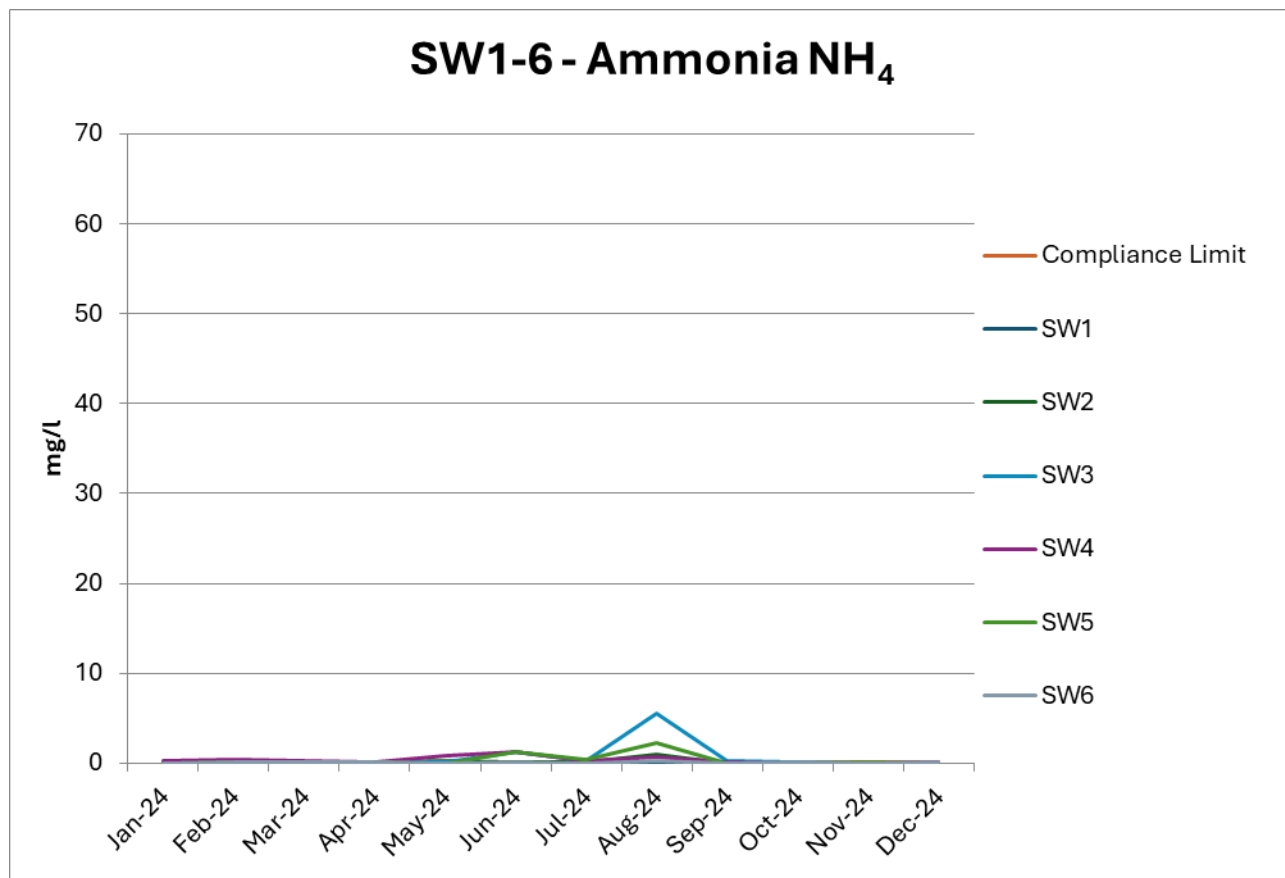


This graph shows the distribution of BOD data in surface water in 2024. In total there were 18 breaches of the 3.35mg/l limit with the following distribution.

Note: SW1 could only be obtained in April, November and December.

SW1	1
SW2	2
SW3	2
SW4	2
SW5	2
SW6	9
	18

Ammoniacal Nitrogen (Ammonia)



There were 25 breaches of the 0.17mg/l limit in 2024.

Note: SW1 could only be obtained in April, November and December.

SW1	0
SW2	2
SW3	5
SW4	8
SW5	3
SW6	2
	20

Ground Water (C1-C22)

Ammoniacal Nitrogen (Ammonia)

The trigger levels for the GW boreholes are shown below.

C2	Am Ni	1.10 mg/l
C3	Am Ni	5.40 mg/l
C4	Am Ni	0.40 mg/l
C5	Am Ni	3.60 mg/l
C6	Am Ni	13.40 mg/l

In total there were 20 breaches of the trigger levels.

C2 exceeded the compliance limit in January (3.0mg/l), July (3.6mg/l), August (1.4mg/l) and in September (1.90mg/l).

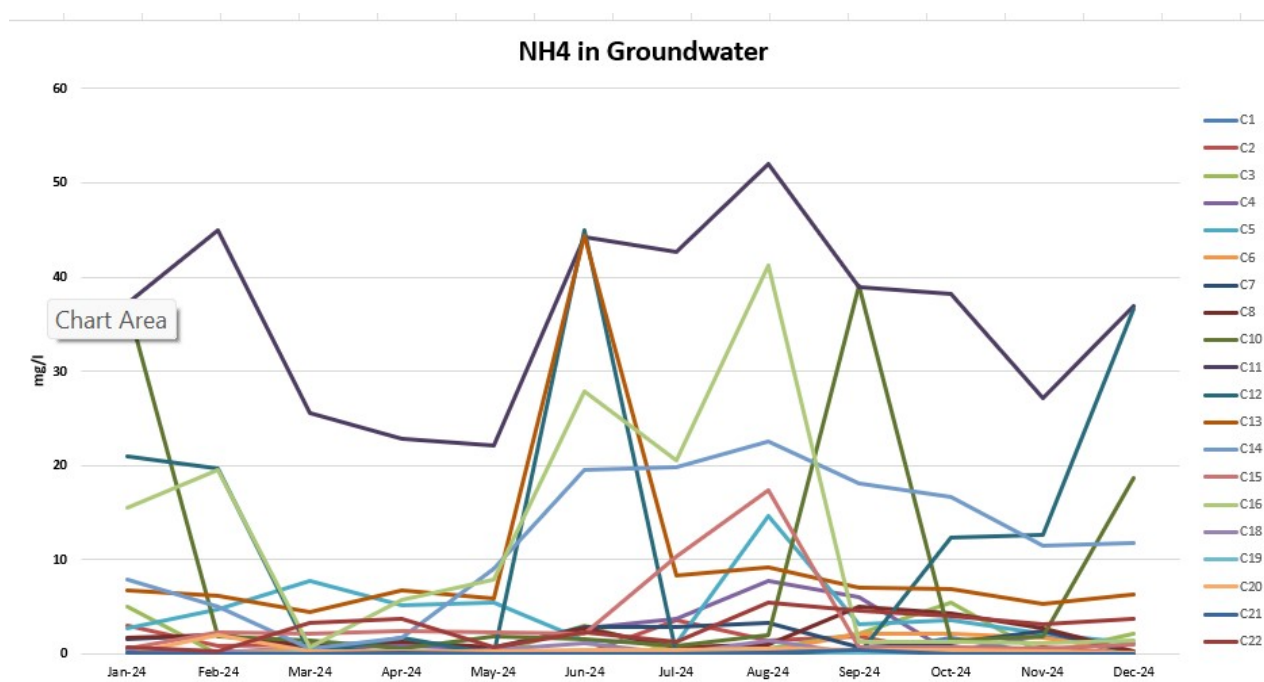
C3 exceeded the compliance limit in October with a value of 5.5mg/l.

C4 exceeded the compliance limit in January (0.55mg/l), March (0.72 mg/l), April (0.91 mg/l), May (0.63mg/l), June (2.7mg/l), July (3.7 mg/l), August (7.7mg/l), September (6.10mg/l) and in November (2.0mg/l).

C5 exceeded the compliance limit in February (4.7mg/l), March (7.7mg/l), April (5.2mg/l), May (5.4mg/l), August (14.6mg/l) and in October (3.6mg/l).

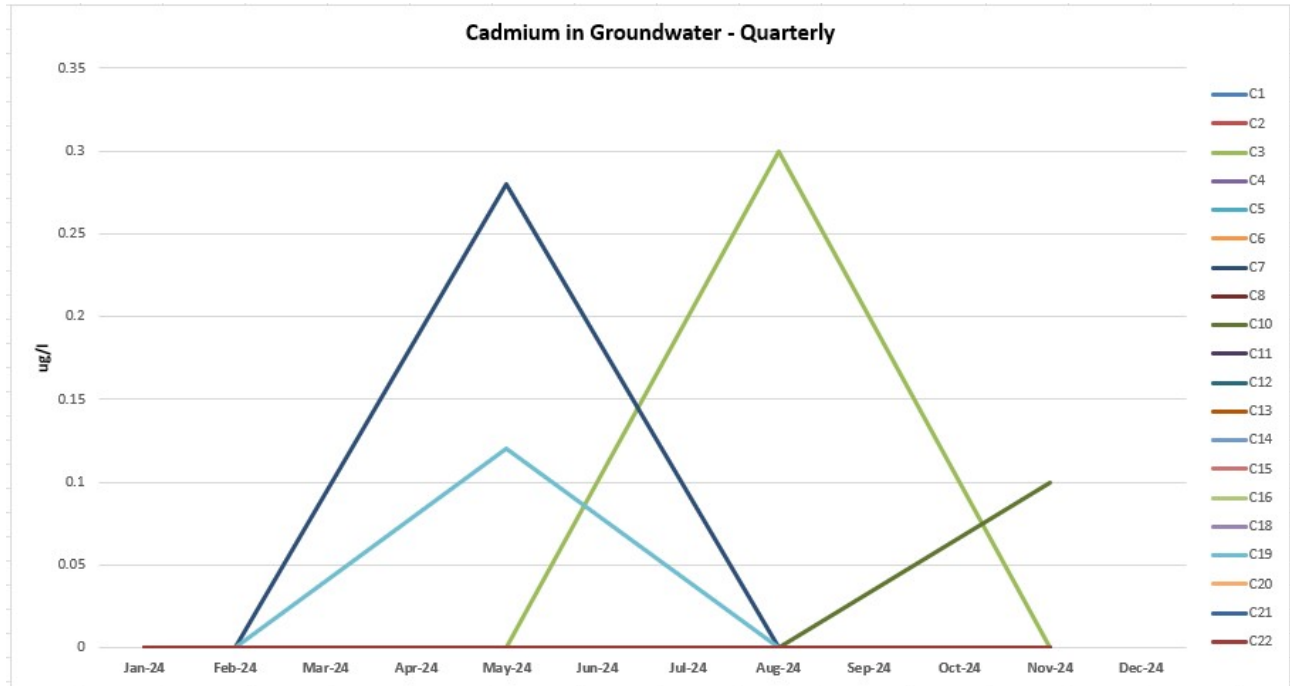
The distribution of breaches is shown below.

C2	4
C3	1
C4	9
C5	6
C6	0
	20



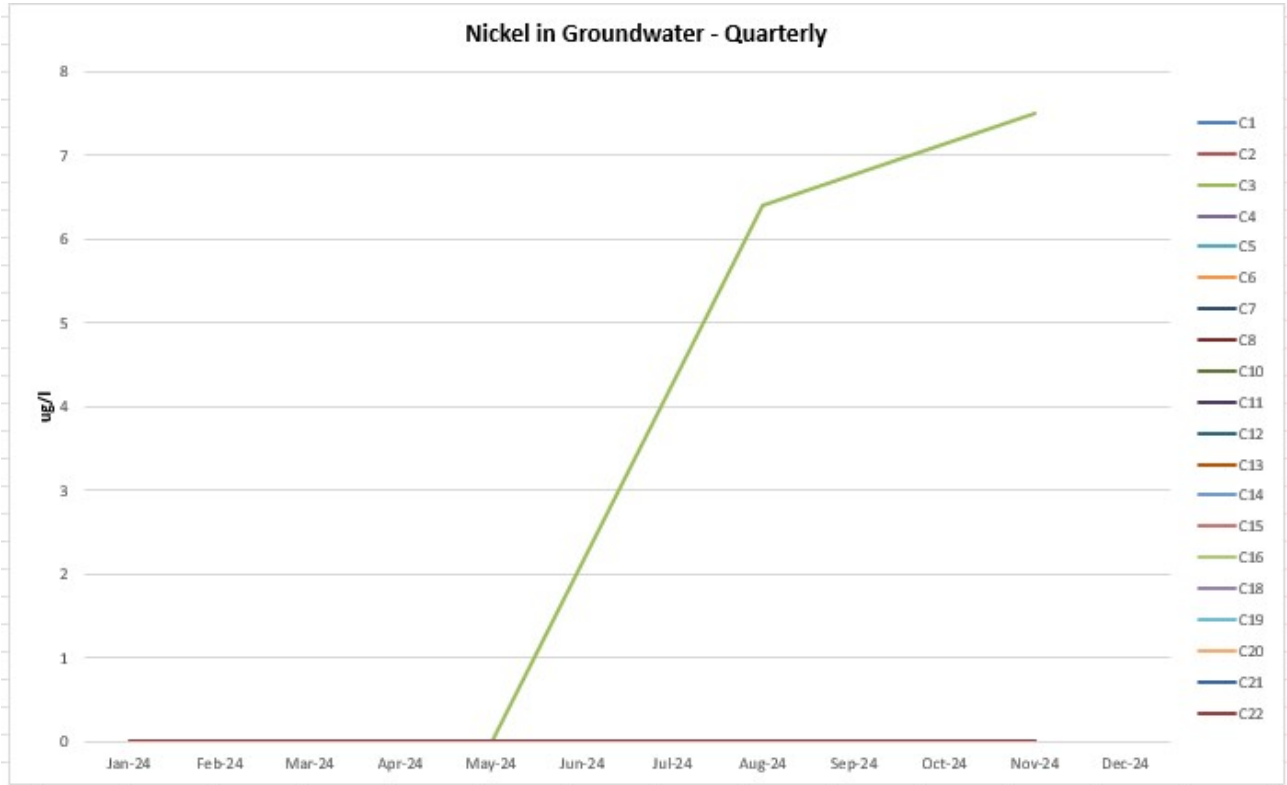
Cadmium

Cadmium can be found in low concentrations in rocks, coal, and petroleum and enters the ground and surface water when dissolved by acidic waters. It may enter the environment from industrial discharge, mining waste, metal plating, water pipes, batteries, paints and pigments, plastic stabilizers, and landfill leachate. Cadmium replaces zinc bio chemically in the body and can cause severe health implications such as high blood pressure, liver and kidney damage, and anaemia. It is toxic to aquatic organisms.



The compliance limit of 0.5 ug/l of Cadmium was not exceeded throughout 2024.

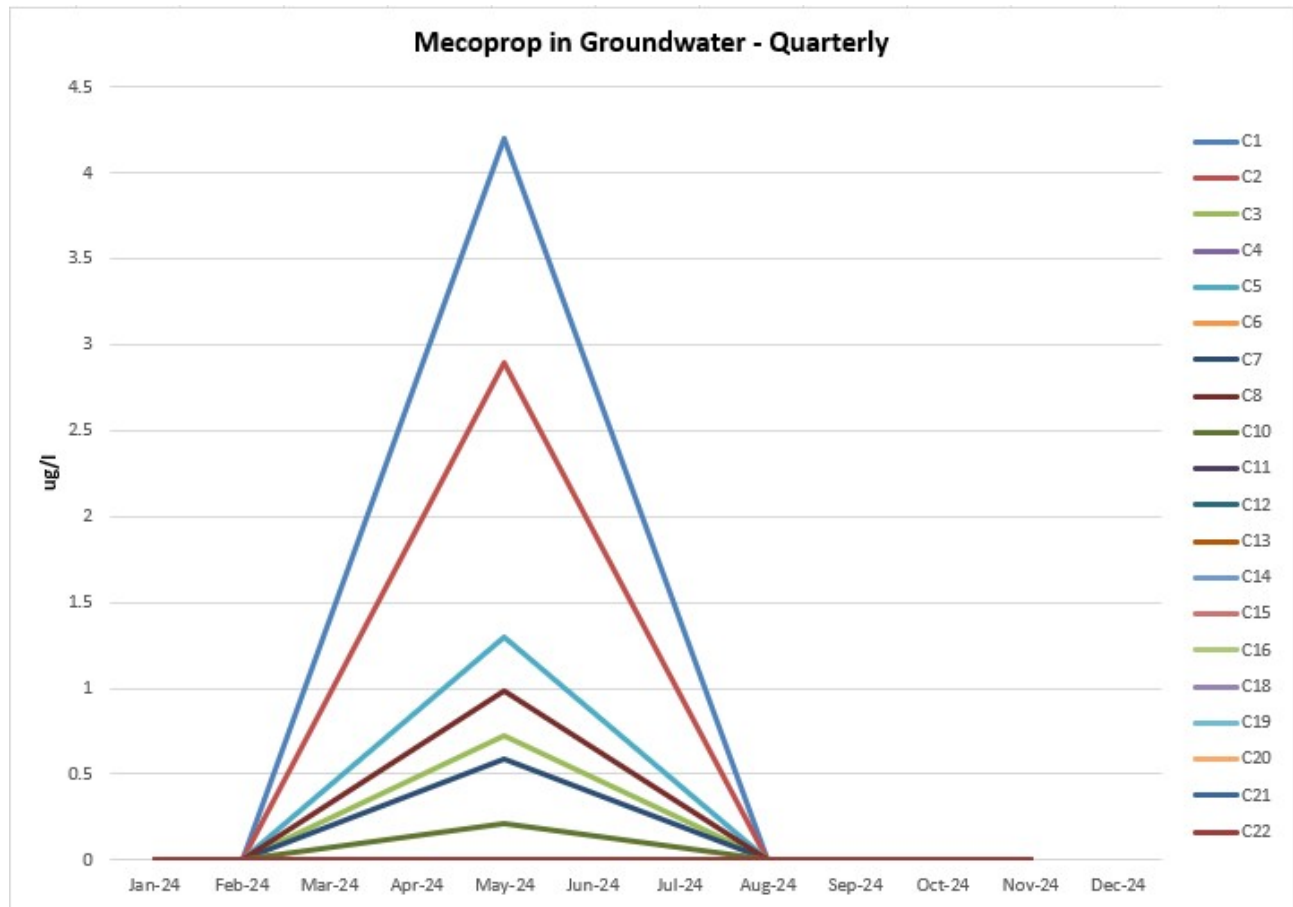
Nickel



The trigger level for Nickel is 20ug/l.

There were no breaches for Nickel in 2024.

Mecoprop



There were 7 breaches of the 0.05ug/l mecoprop trigger level.

C1 exceeded the compliance limit in May (4.2ug/l).

C2 exceeded the compliance limit in May (2.9ug/l).

C3 exceeded the compliance limit in May (0.72ug/l).

C5 exceeded the compliance limit in May (1.30ug/l).

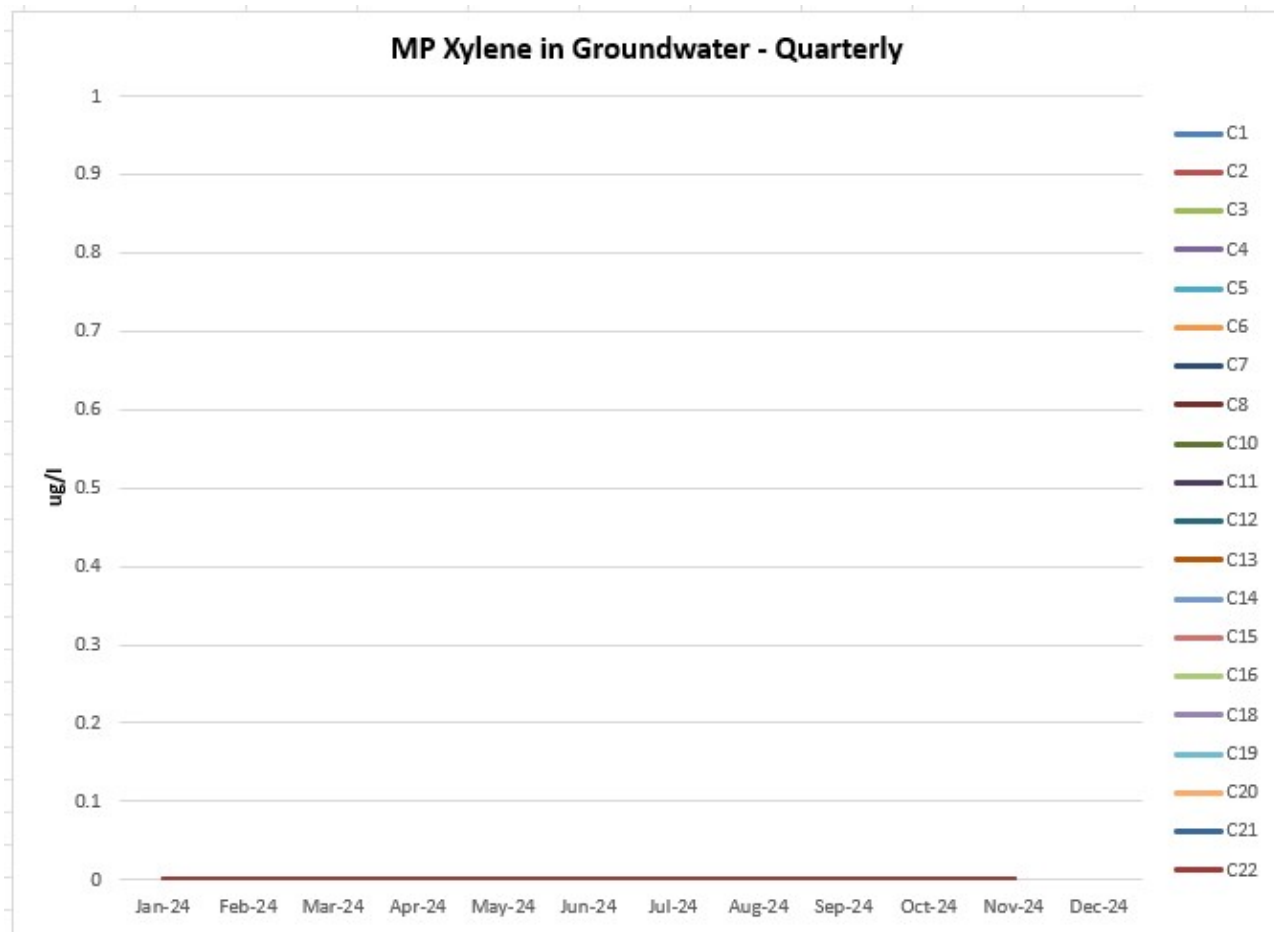
C7 exceeded the compliance limit in May (0.59ug/l).

C8 exceeded the compliance limit in May (0.98ug/l).

C10 exceeded the compliance limit in May (0.21ug/l).

Xylene

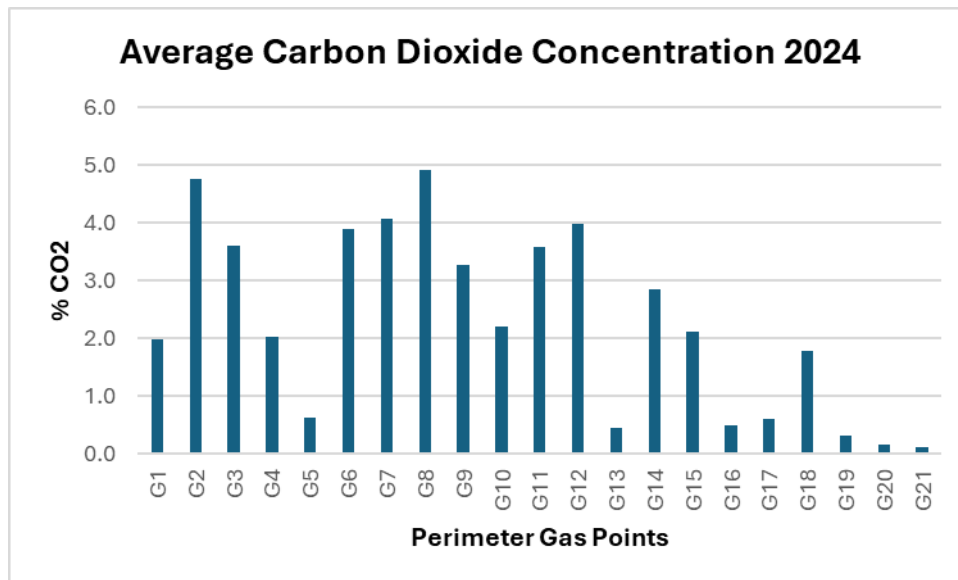
No breaches of the 1ug/l trigger level were detected in 2024. All results were below the detection limit and were reported as <0.1ug/l



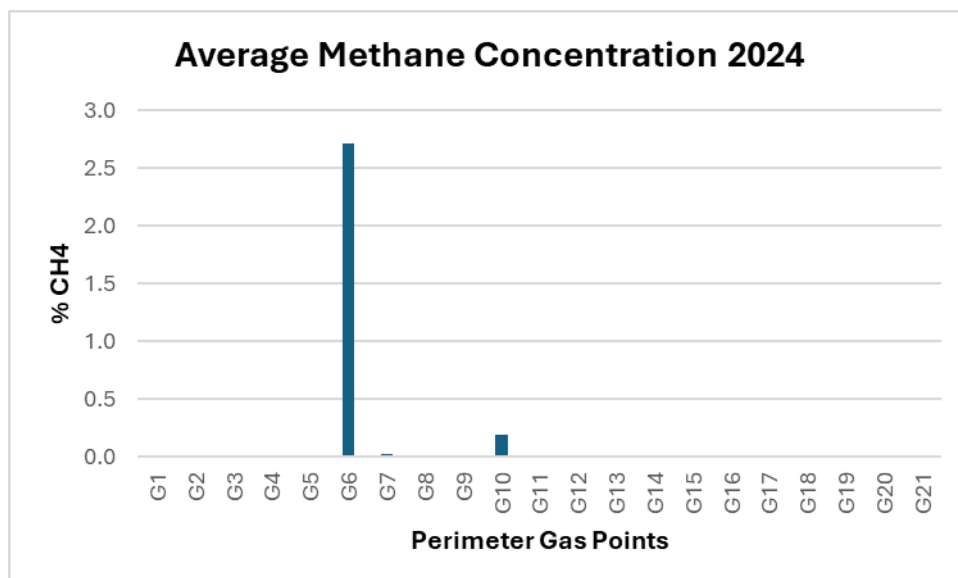
Perimeter Gas Data

The highest volumes of CO₂ are detected within G8, located on the eastern perimeter of Lamby Way Landfill site. Points G5, G13, G16, G17, G19, G20 and G21 remain on average low CO₂ concentrations, with other points having on average elevated levels.

Points G22 – G23 have been lost due to damage / vegetation.



The highest volumes of CH₄ are detected within G6, with an average concentration of 2.7%. G10 Had an average concentration of 0.2%. All other monitoring locations had a concentration of 0%.



Leachate volumes

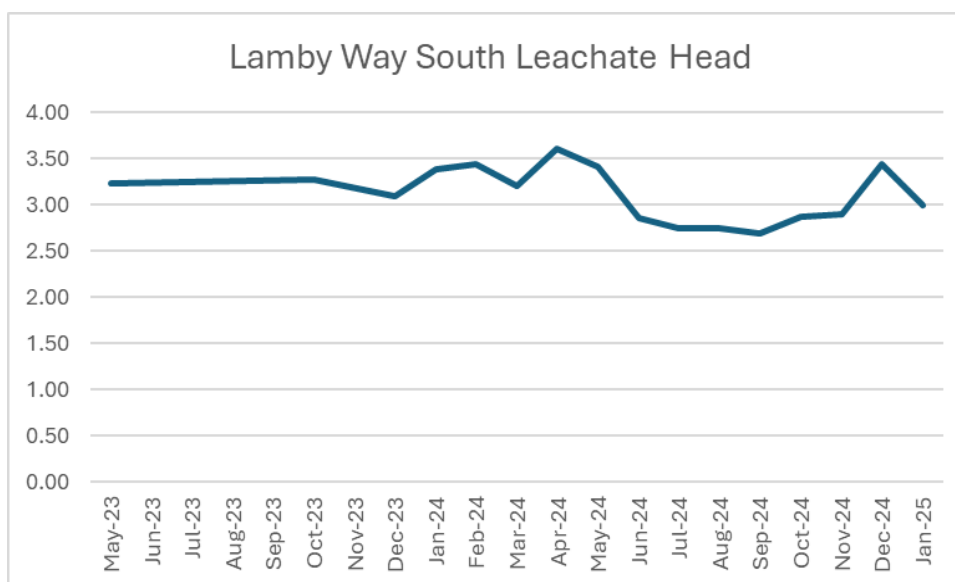
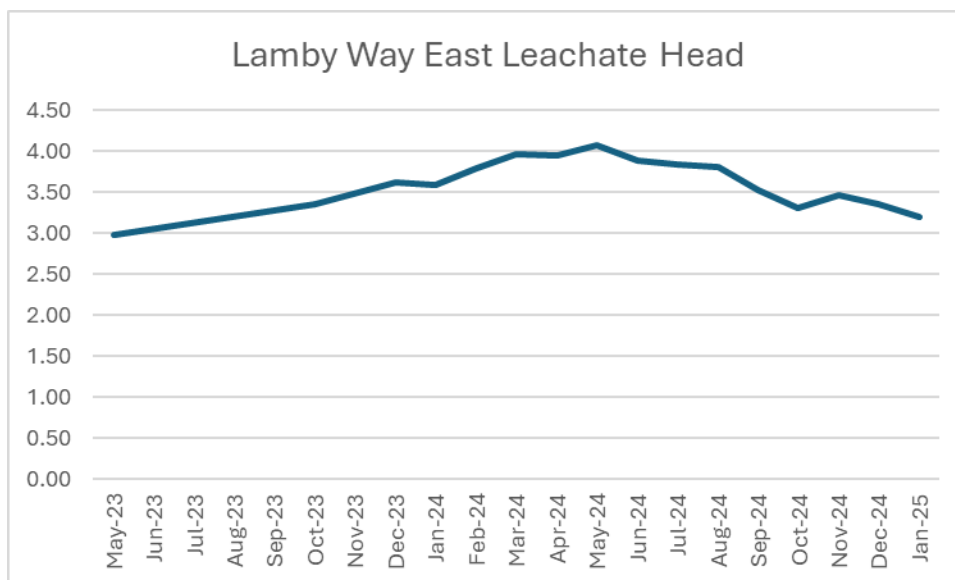
	LTP	M3 discharged
02/01/2024	437546	3098
08/01/2024	438177	631
15/01/2024	439322	1145
22/01/2024	440395	1073
29/01/2024	441549	1154
05/02/2024	442556	1007
13/02/2024	444101	1545
19/02/2024	445126	1025
26/02/2024	446458	1332
04/03/2024	447626	1168
11/03/2024	448734	1108
18/03/2024	450001	1267
26/03/2024	451272	1271
02/04/2024	452324	1052
08/04/2024	453361	1037
15/04/2024	454365	1004
22/04/2024	455103	738
29/04/2024	455804	701
07/05/2024	456598	794
13/05/2024	457082	484
20/05/2024	457653	571
03/06/2024	458456	803
10/06/2024	459093	637
17/06/2024	459543	450
24/06/2024	459894	351
05/07/2024	460216	322
09/07/2024	460612	396
15/07/2024	461026	414
22/07/2024	461380	354
12/08/2024	462102	722
19/08/2024	462531	429
22/08/2024	462602	71
23/08/2024	462636	34
02/09/2024	462962	326
06/09/2024	463245	283
09/09/2024	463454	209
16/09/2024	463918	464
17/09/2024	463977	59
20/09/2024	464220	243
23/09/2024	464443	223
30/09/2024	465355	912
07/10/2024	466216	861
14/10/2024	466815	599
21/10/2024	467379	564
28/10/2024	467485	106

04/11/2024	468127	642
11/11/2024	468699	572
18/11/2024	469151	452
25/11/2024	469720	569
02/12/2024	470797	1077
09/12/2024	471338	541
16/12/2024	472505	1167
23/12/2024	473445	940
30/12/2024	474483	1038
Total		40,035

Leachate head within Lamby Way 2019

Average head (East)		
Date	M	
01/01/2024		3.59
01/02/2024		3.80
01/03/2024		3.97
01/04/2024		3.95
01/05/2024		4.08
01/06/2024		3.89
01/07/2024		3.84
01/08/2024		3.81
01/09/2024		3.53
01/10/2024		3.31
01/11/2024		3.46
01/12/2024		3.36

Average head (South)		
Date	M	
01/01/2024		3.38
01/02/2024		3.44
01/03/2024		3.21
01/04/2024		3.61
01/05/2024		3.42
01/06/2024		2.86
01/07/2024		2.74
01/08/2024		2.74
01/09/2024		2.68
01/10/2024		2.87
01/11/2024		2.90
01/12/2024		3.44



Weather conditions at Lamby Way 2024

The annual rainfall for Lamby Way is shown below in mm

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
102..9	282	167.8	92.6	97.0	34.4	95.8	65.6	178.9	122.6	120	99.2	1,458