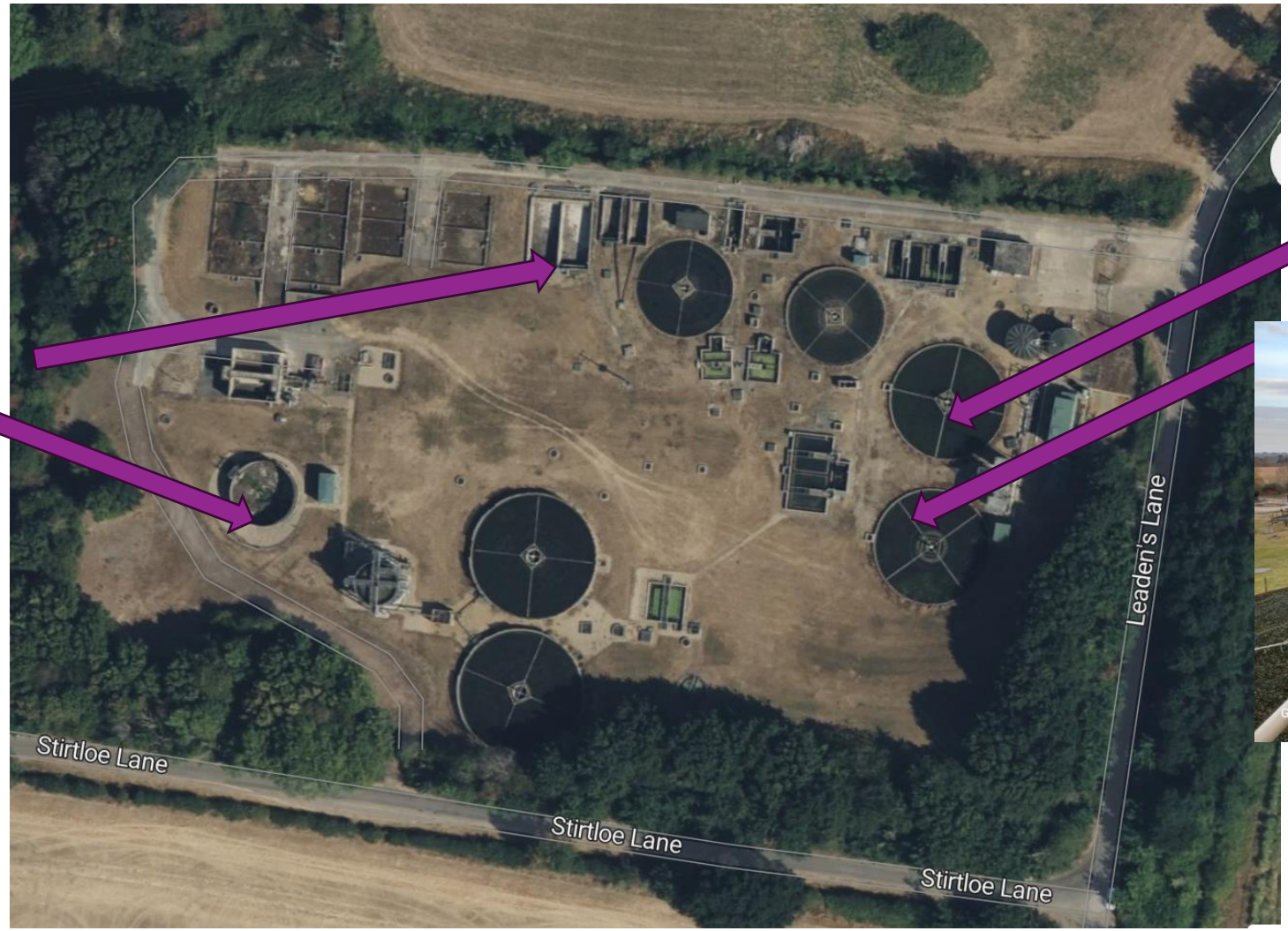
Buckden WRC

March 2025

Site Layout



Storm tanks

Filters

A GUIDE TO THE WATER RECYCLING PROCESS

love every drop anglianwater

Anglian Water works 24 hours a day, every day, to safeguard your family's health and to protect and improve the environment. Part of the way we do this is to collect wastewater, treat it and then safely return it to our rivers and seas.

Our wastewater service starts from the time:

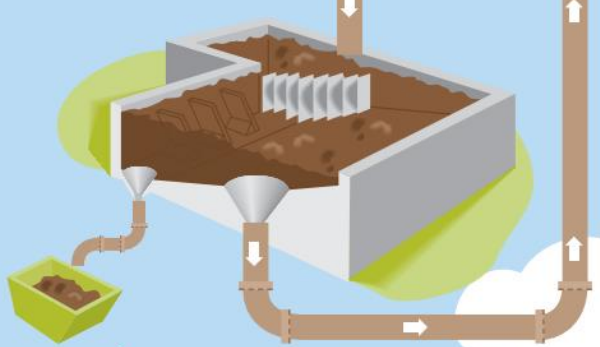
- **you flush the toilet**
- **you pull the plug on your bath or sink**
- **water falls from the sky.**

1 SCREENING

The incoming wastewater passes through a series of screens to remove any rags, paper, wood or rubbish that might otherwise clog up the system. The screenings are removed using automatic rakes and disposed of to landfill sites.

2 GRIT REMOVAL

A large amount of grit gets into wastewater, mainly from roads and other hard surfaces. Unless removed it can cause blockages and excessive wear to pumps and machinery. By letting the wastewater flow slowly through a grit channel or Detroiter the grit will settle while the lighter organic material will carry on.



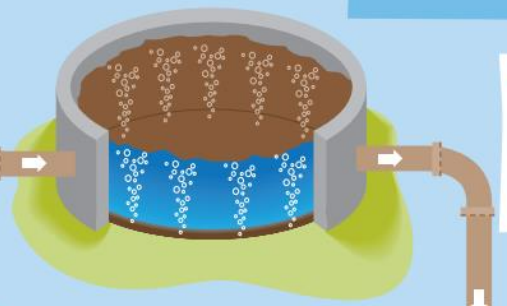
3 PRIMARY SETTLEMENT

The next stage of treatment removes 50–70 per cent of the solids in the wastewater.

The wastewater flows into large tanks and is held there for two to six hours. The heavier solid material that is suspended in the liquid gradually settles to the bottom of the tanks. This is removed as a valuable byproduct called sludge.

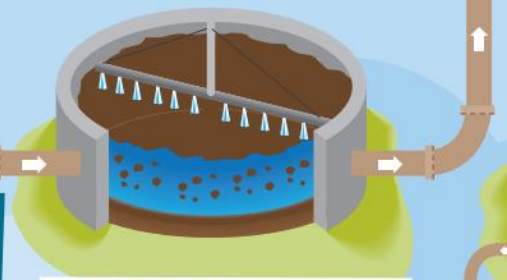
4 BIOLOGICAL TREATMENT

There are two types of secondary treatment used by Anglian Water – traditional biological filtration or a more modern method of activated sludge treatment



Activated sludge

The incoming wastewater is added to tanks containing cultures of specialist bacteria (the same as is found in natural river systems). These micro-organisms multiply, feed on and break down the organic matter in the sewage. Air is added to help speed up the process by providing oxygen for the bacteria. It takes about eight hours to break down the organic material left over from the primary sedimentation.

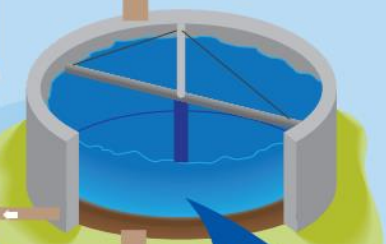


Biological filtration

Wastewater is sprinkled over a filter bed made up of granular material that bacteria live on. As the wastewater percolates down, the microscopic organisms attack and break down the impurities.

5 FINAL SETTLEMENT

The water then passes to the final settlement tanks where the activated sludge is settled out. Some of the activated sludge is then pumped to the beginning of the aeration treatment stage and used to 're-seed' the process.



6 OUTFALL

The wastewater may need further treatment if the river or stream has little natural flow or if the watercourse is deemed 'sensitive' by the Environment Agency. This can be achieved using lagoons, filtering the water through sand or using ultraviolet treatment to disinfect it. The cleaned water is then discharged directly into the watercourse.

Returns to the water cycle

7 SLUDGE TREATMENT

Sludge from the secondary treatment stage can be dealt with in several ways; the first step is the same in each case and that is to remove as much unwanted water as possible (dewatering).

Dewatering/thickening - Water is taken out of the sludge either by drying it in the open air or by using mechanical methods such as centrifuges (spinning it), belt, or filter presses. Anglian Water then treats sludge by either digestion or by adding lime.

Digestion - Sludge is heated in closed tanks for roughly two weeks. Bacteria reduce the volume of sludge by converting the organic matter into methane gas. This can be used as fuel for heating digestion tanks or for electricity generation.

Lime treatment - Lime is added to the sludge, which causes its temperature to rise and kill off any pathogens remaining after the treatment process. This process is quicker, but results in a more odorous product.

The resultant product from the sludge treatment process is known as Biosolids and is used on agricultural land by farmers as a valuable soil conditioner.

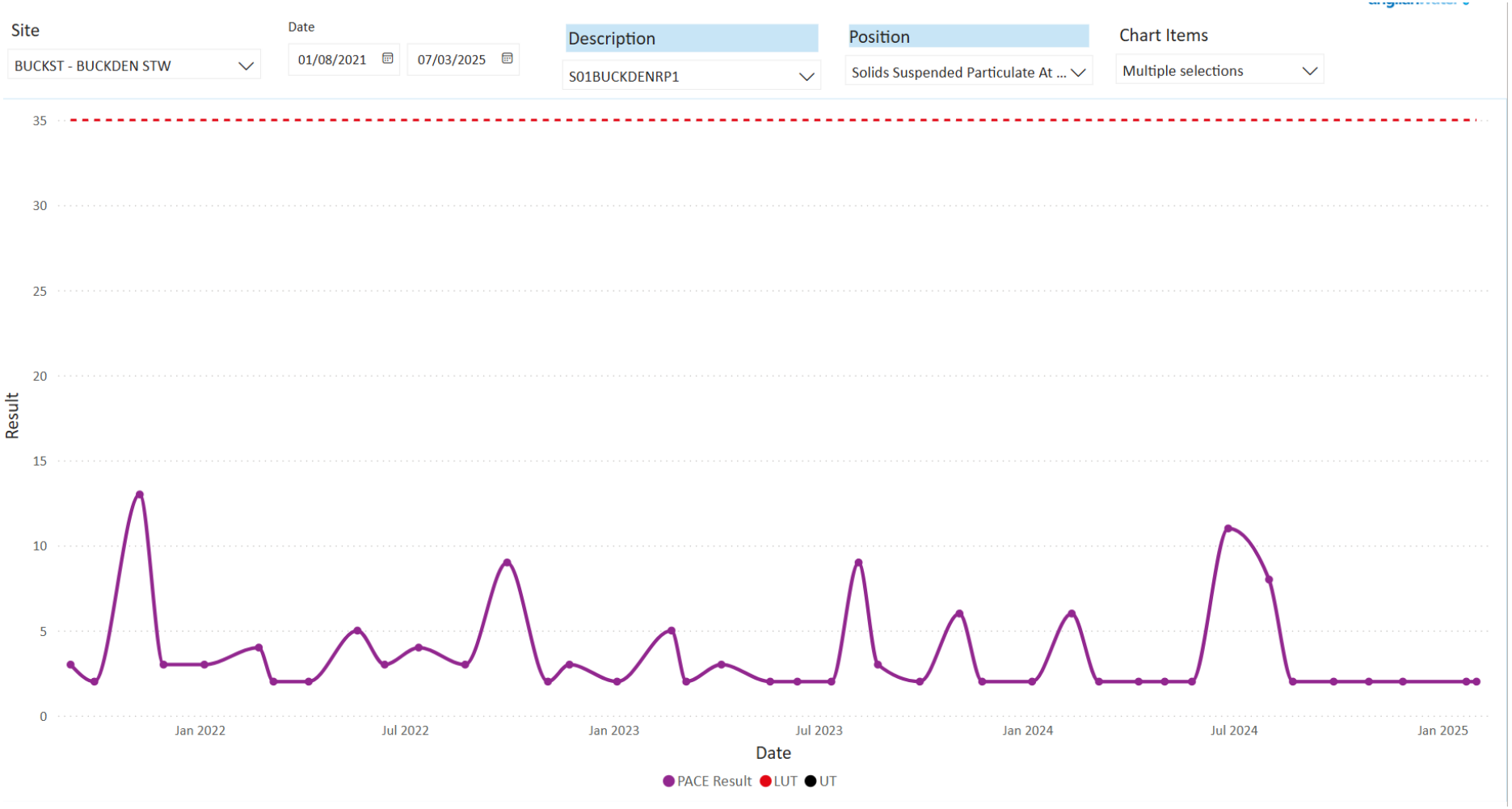
Permit

Permit Compliance

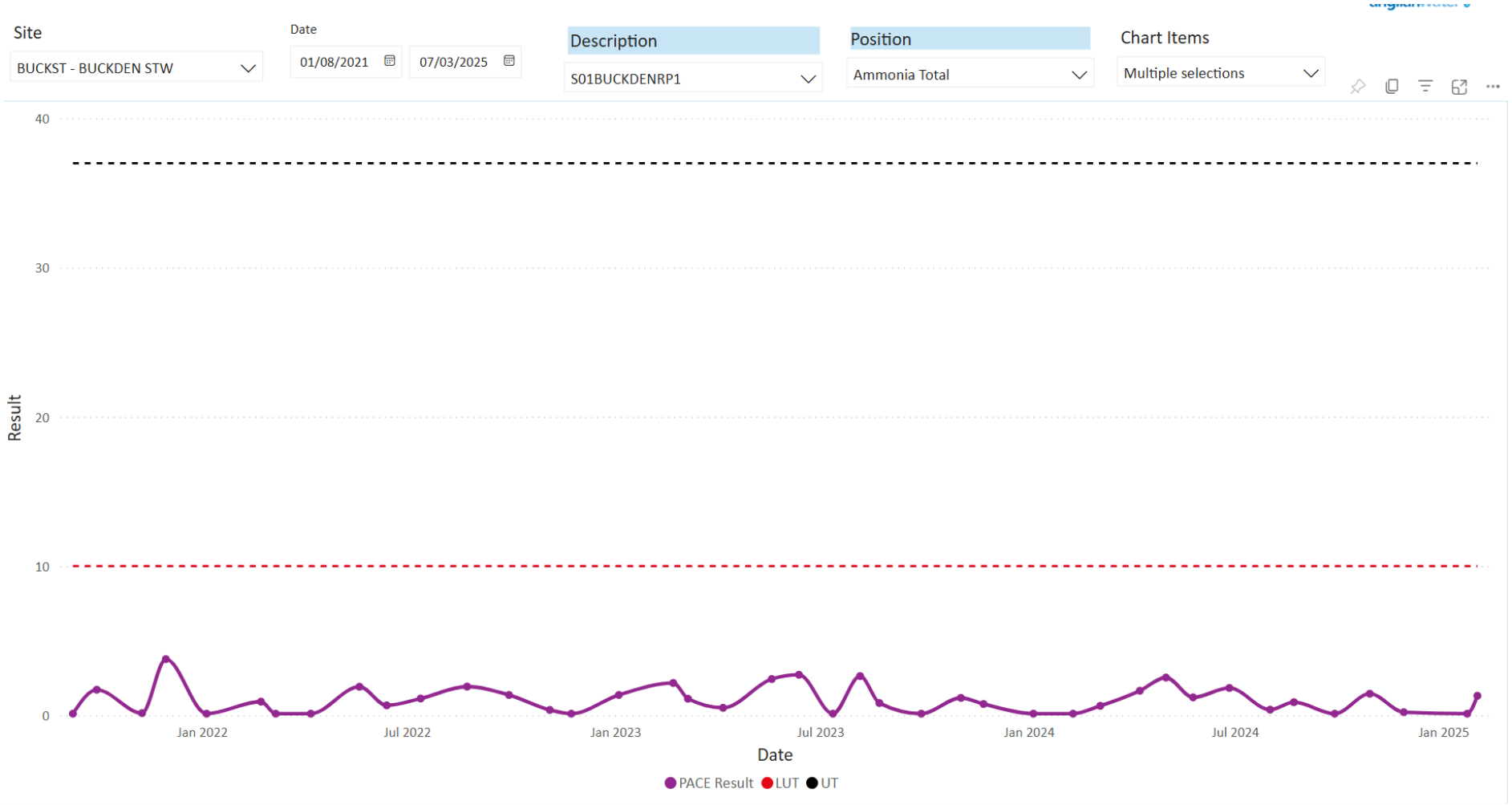
- No permit breaches in last 4 years and 2025 YTD

Shortcode	Site Name	Reason	OSM Flow Banding	OSM Season	Permit Determinand	Tier	Value	Unit
BUCKST	BUCKDEN STW	OSM	Not Flow banded	Not Season banded	AMMONIA	OSM Look Up Table	10.00	mg/l
						OSM Upper Tier	37.00	mg/l
					BOD 5 ATU TOTAL	OSM Look Up Table	20.00	mg/l
						OSM Upper Tier	56.00	mg/l
					IRON TOTAL	OSM Look Up Table	3,000.00	µg/l
						OSM Upper Tier	8,000.00	µg/l
					PHOSPHORUS 12 month rolling year mean	Rolling Year Mean	1,000.00	µg/l
					SOLIDS PARTICULATE (105C) SUSPENDED	OSM Look Up Table	35.00	mg/l
		UWWTR	Not Flow banded	Not Season banded	%BOD removal	UWWTR Look Up Table	70.00	%
					%COD removal	UWWTR Look Up Table	75.00	%
					BOD result	UWWTR Look Up Table	25.00	mg/l
						UWWTR Upper Tier	50.00	mg/l
					COD result	UWWTR Look Up Table	125.00	mg/l
						UWWTR Upper Tier	250.00	mg/l

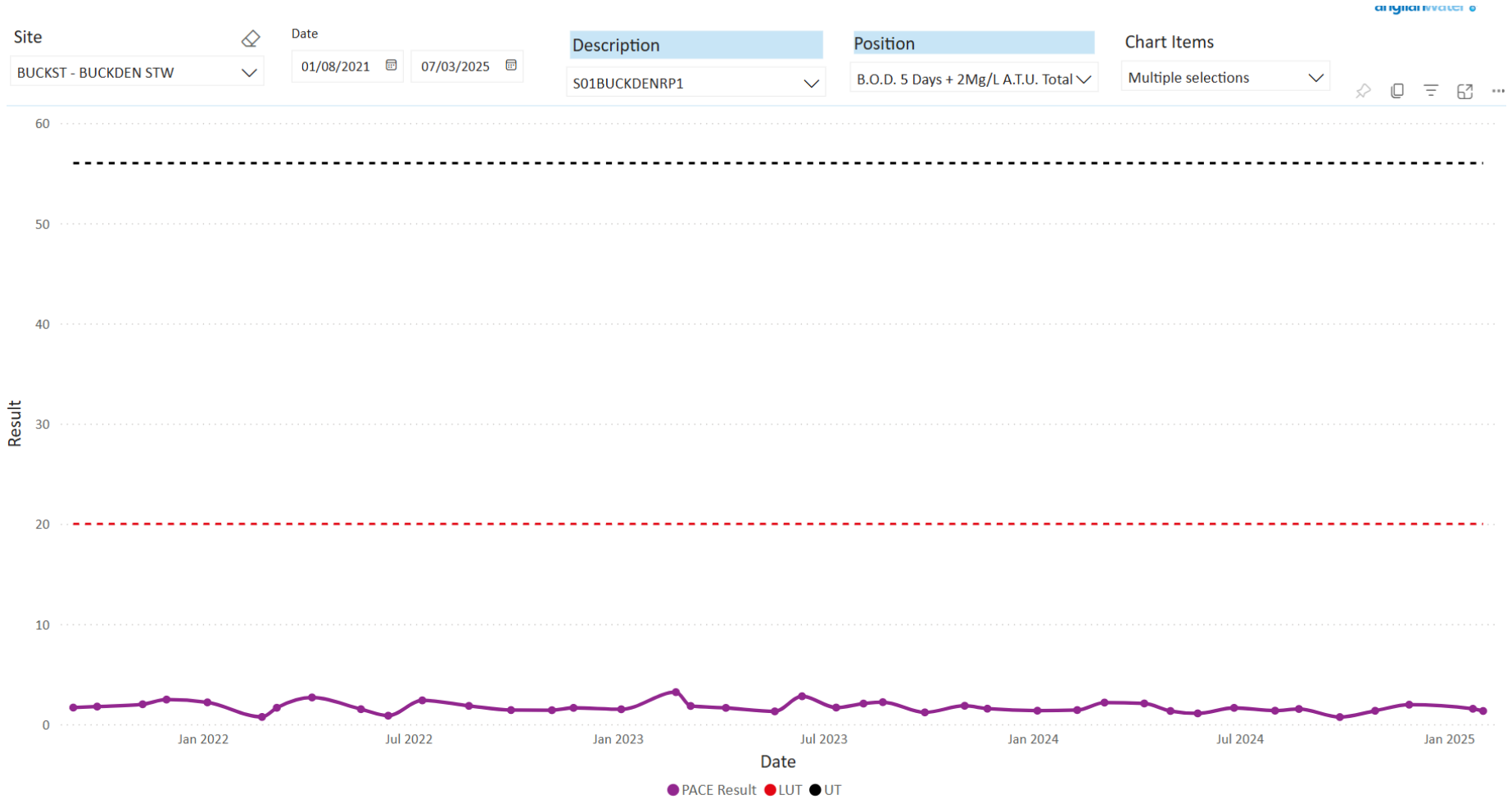
Suspended Solids (WRA)



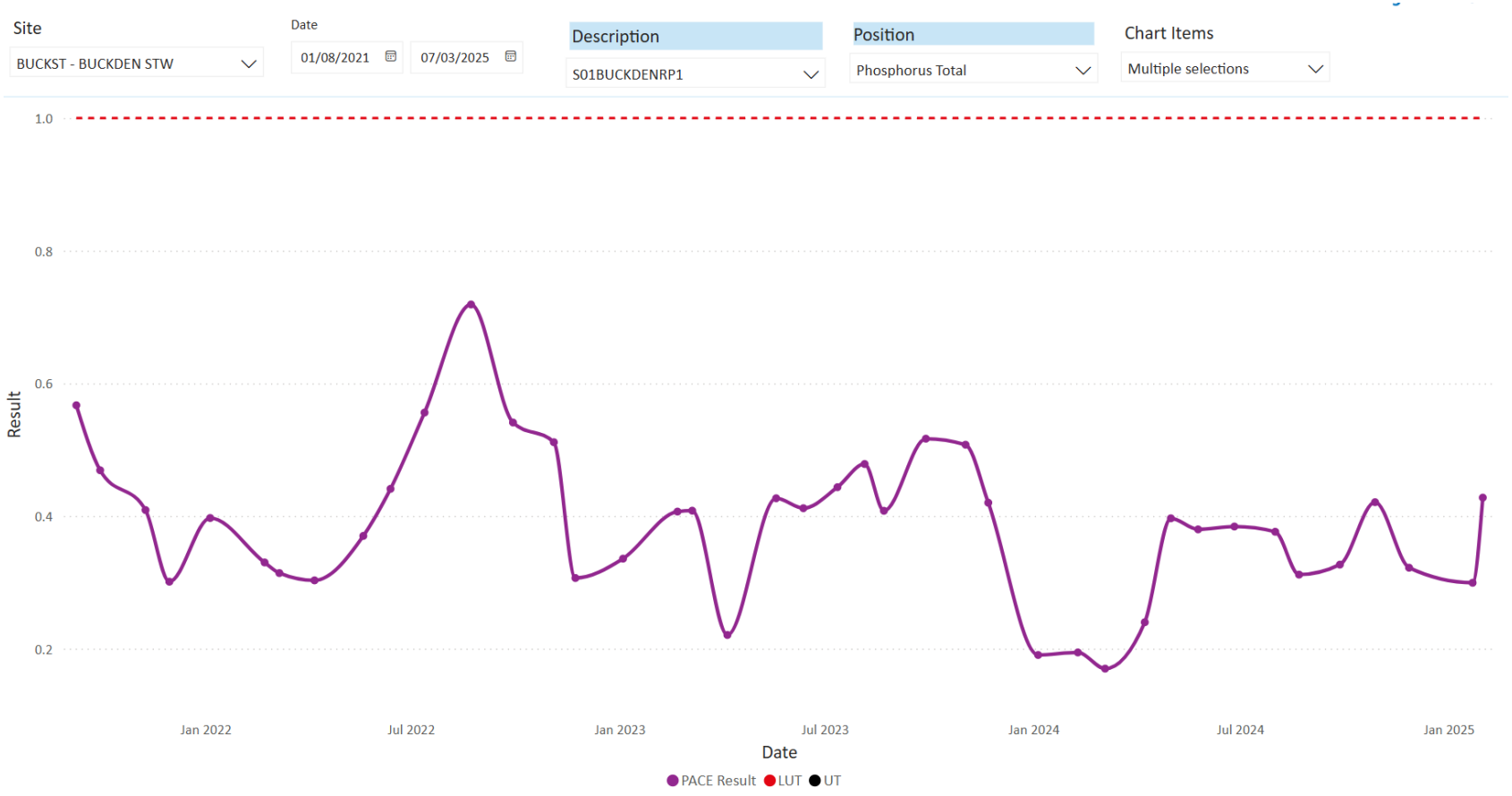
Ammonia (WRA)


Site
BUCKST - BUCKDEN STW
Date
01/08/2021
07/03/2025
Description
S01BUCKDENRP1
Position
Ammonia Total
Chart Items
Multiple selections
40
30
20
10
0
Result
Jan 2022
Jul 2022
Jan 2023
Jul 2023
Jan 2024
Jul 2024
Jan 2025
Date
PACE Result
LUT
UT

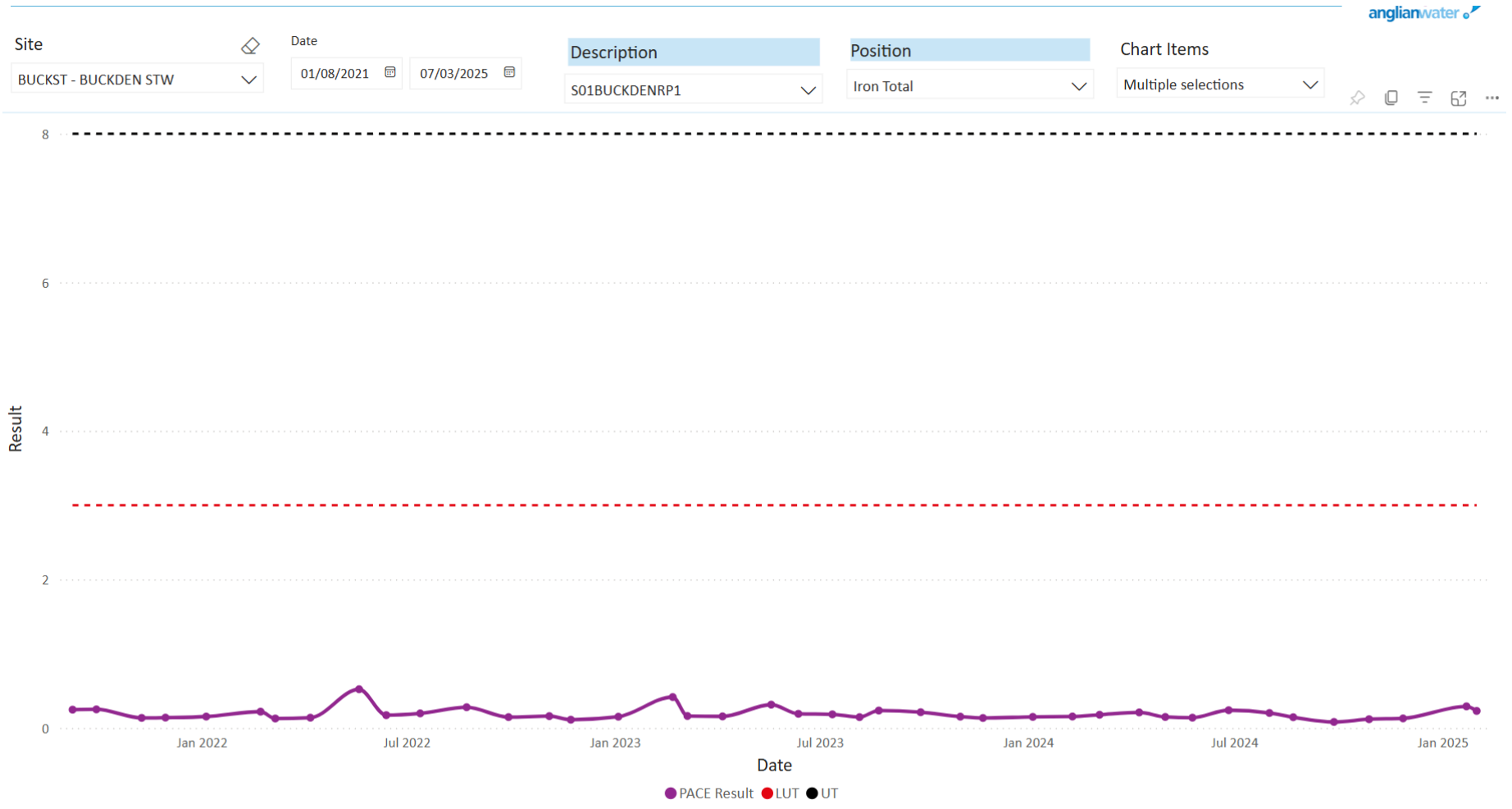
BOD (WRA)


Site
BUCKST - BUCKDEN STW
Date
01/08/2021
07/03/2025
Description
S01BUCKDENRP1
Position
B.O.D. 5 Days + 2Mg/L A.T.U. Total
Chart Items
Multiple selections
60
50
40
30
20
10
0
Result
Jan 2022
Jul 2022
Jan 2023
Jul 2023
Jan 2024
Jul 2024
Jan 2025
Date
PACE Result
LUT
UT

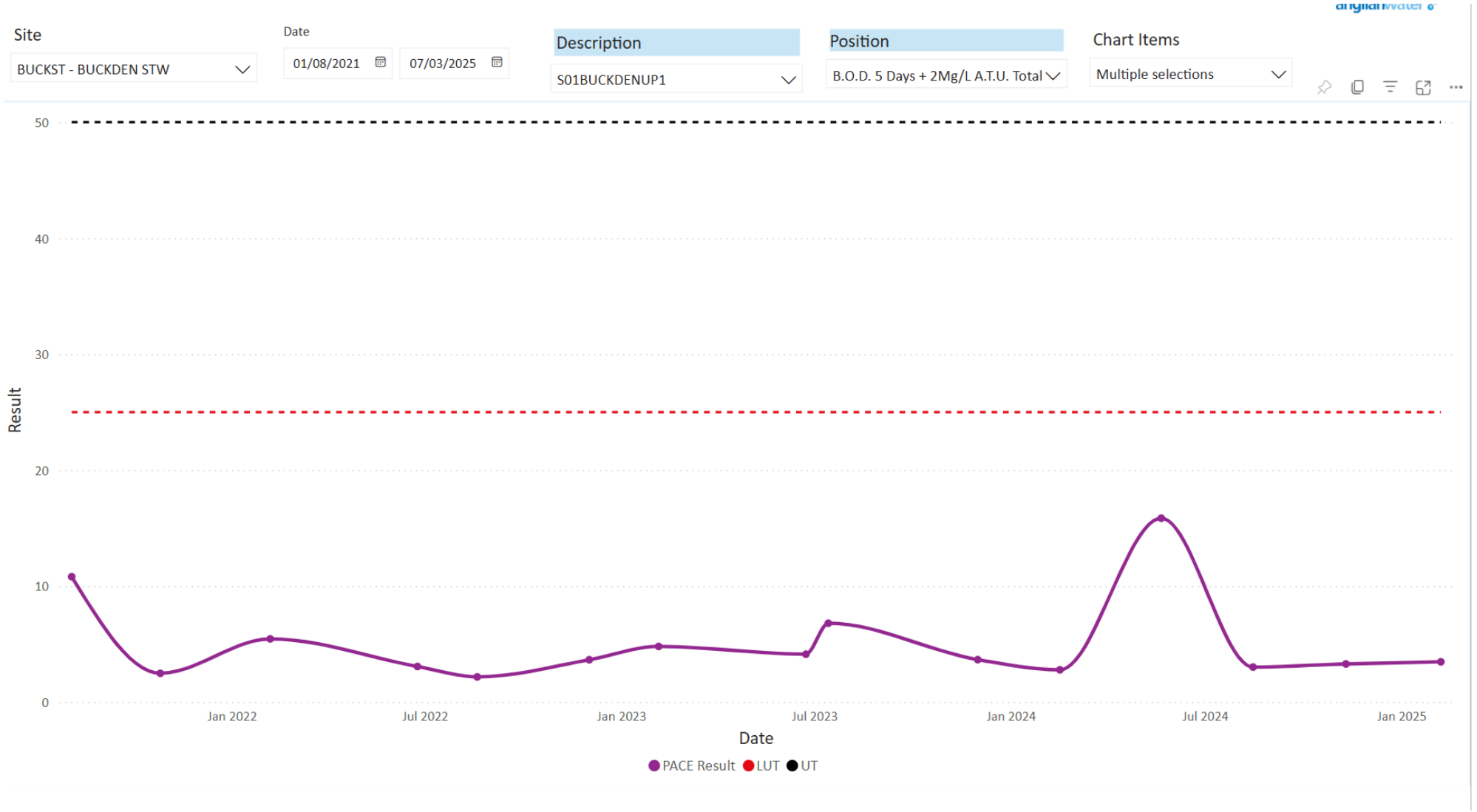
Phosphorous (WRA)



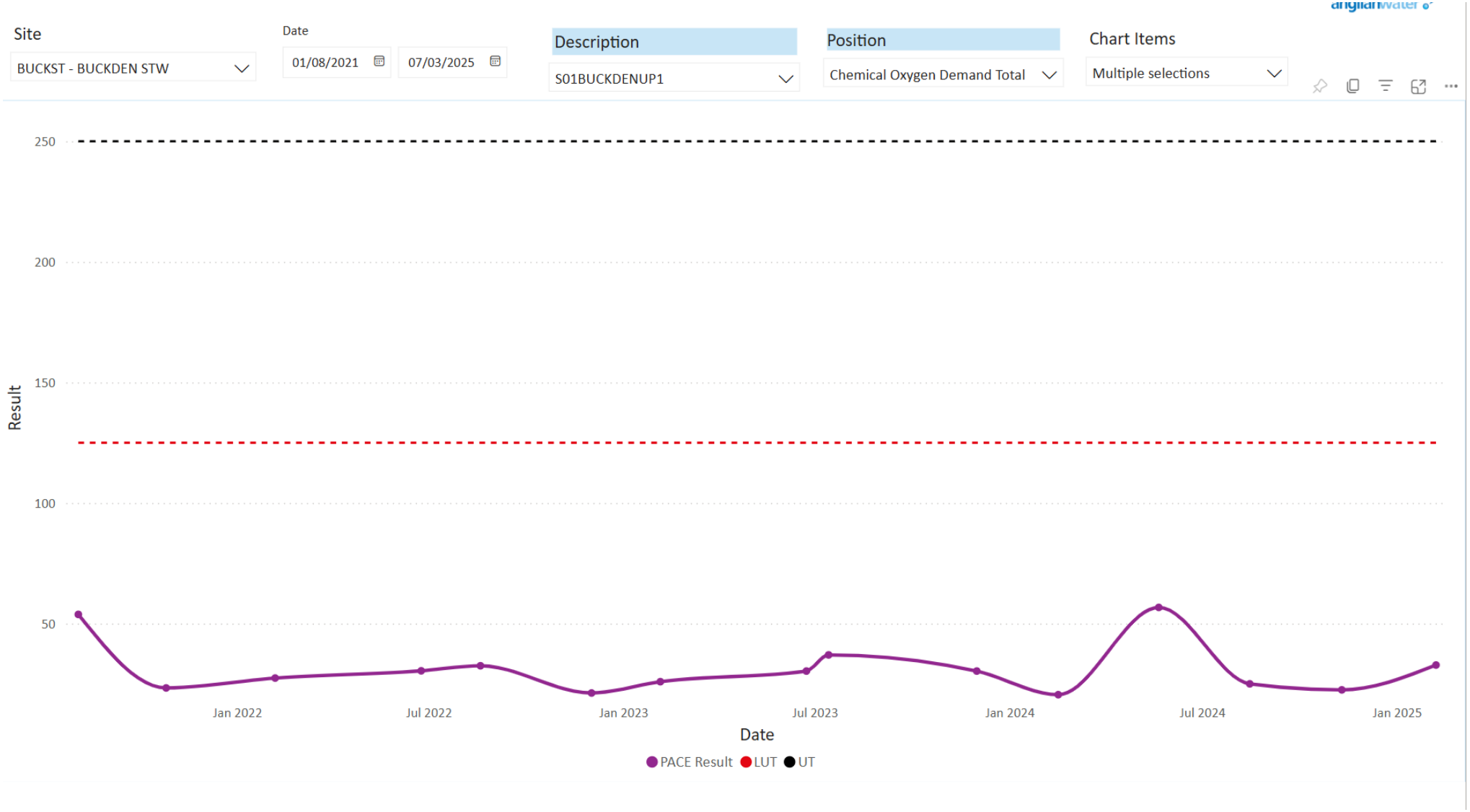
Iron (WRA)


anglianwater
Site
BUCKST - BUCKDEN STW
Date
01/08/2021
07/03/2025
Description
S01BUCKDENRP1
Position
Iron Total
Chart Items
Multiple selections
8
6
4
2
0
Result
Jan 2022
Jul 2022
Jan 2023
Jul 2023
Jan 2024
Jul 2024
Jan 2025
Date
PACE Result
LUT
UT

BOD (UWWTD)


Site
BUCKST - BUCKDEN STW
Date
01/08/2021
07/03/2025
Description
S01BUCKDENUP1
Position
B.O.D. 5 Days + 2Mg/L A.T.U. Total
Chart Items
Multiple selections
50
40
30
20
10
0
Result
Jan 2022
Jul 2022
Jan 2023
Jul 2023
Jan 2024
Jul 2024
Jan 2025
Date
PACE Result
LUT
UT

COD (UWWTD)


Site
BUCKST - BUCKDEN STW
Date
01/08/2021
07/03/2025
Description
S01BUCKDENUP1
Position
Chemical Oxygen Demand Total
Chart Items
Multiple selections
250
200
150
100
50
Result
Jan 2022
Jul 2022
Jan 2023
Jul 2023
Jan 2024
Jul 2024
Jan 2025
Date
PACE Result
LUT
UT

Flow – 35.2L/S

Site Level

20/01/2025 09:38:38

Short Code: BUCKST

Point Name: Storm Handling.Storm Return Tank Overflow.In Operation (Storm to Environment)

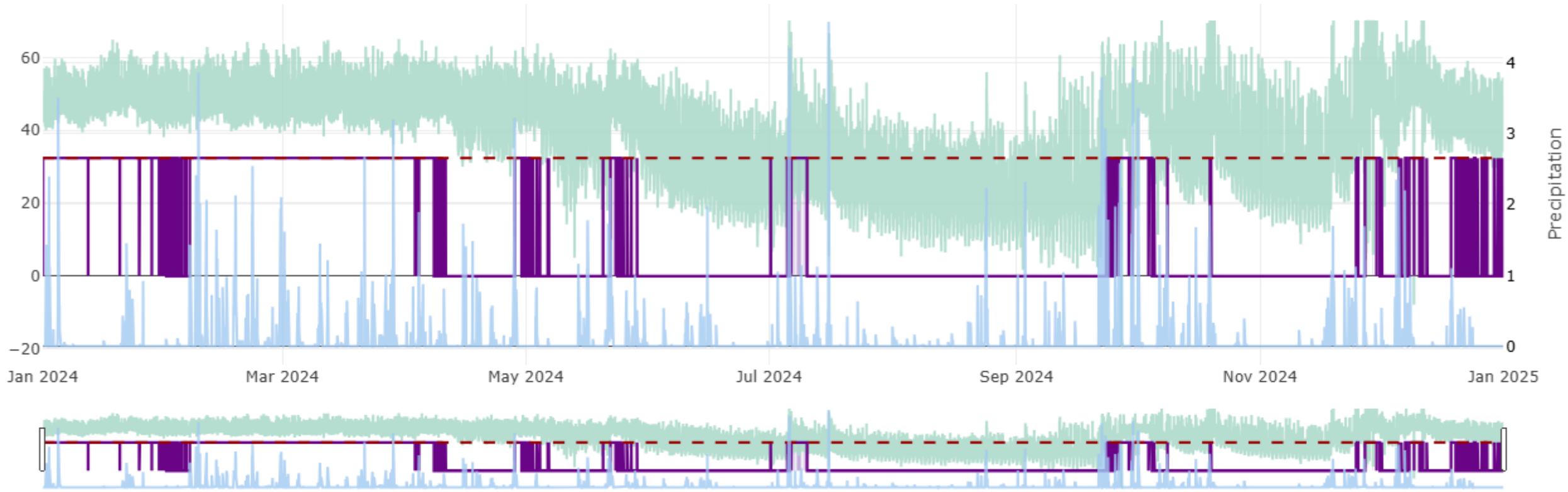
Flow Smoothing: False | True

01/01/2024 – 01/01/2025

Flow Point: Waste Water.B.BUCKDEN STW.Screening.Flow To Treatment Flow Meter.Flow_VAL__calc

Data Points in Visual: 48.77K

1 week | 1 month | 3 months | all



INC - Storm Return Tank Overflow.In Operation
Flow
Precipitation
Spills - Storm Return Tank Overflow.In Operation

Percentage of Indicative Compliance time
98.2%

Site Level

Date Last Refreshed
18/03/2024 09:14:35

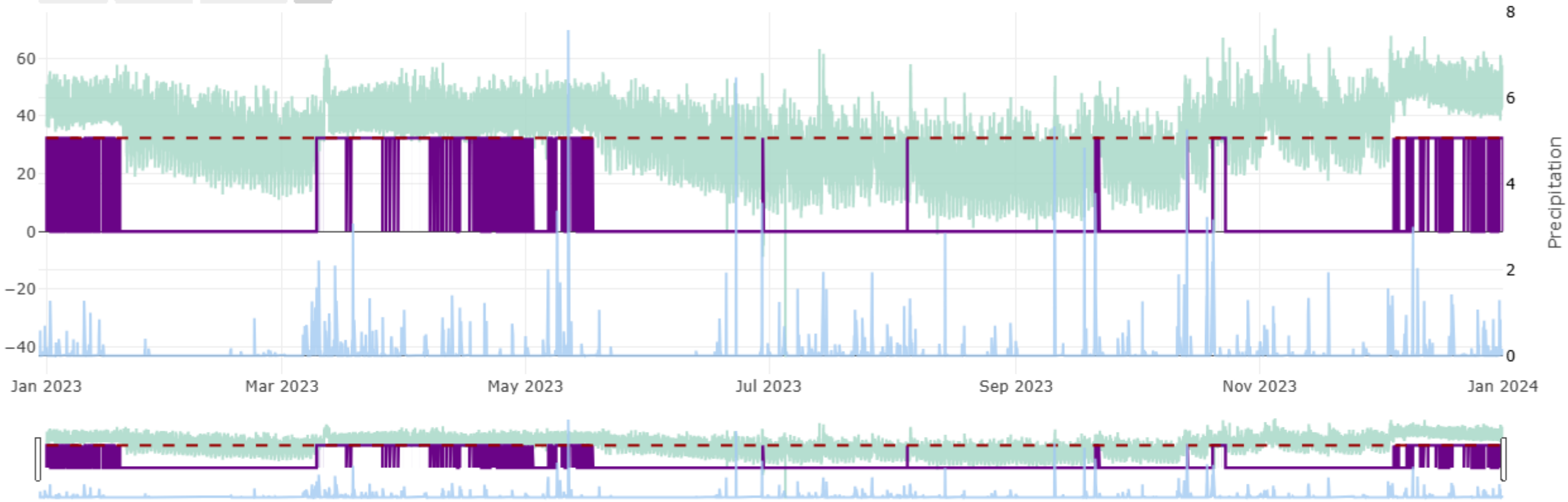
love every drop

Short Code	Point Name	Flow Smoothing		
BUCKST	Storm Handling.Storm Return Tank Overflow.In Operation (Storm to Environment)	False	True	30/12/2022 – 31/12/2023

Flow Point: Waste Water.B.BUCKDEN STW.Screening.Flow To Treatment Flow Meter.Flow_VAL__calc

Data Points in Visual: 51.63K

1 week | 1 month | 3 months | all



INC - Storm Return Tank Overflow.In Operation
Flow
Precipitation
Spills - Storm Return Tank Overflow.In Operation

Percentage of Indicative Compliance time
98.4%

Storm Tank

Site code	Site Name (353 as 04.07.24)	Permit requirement (as 04.07.24) Purple=double checked	Known volume of storm tank
BUCKST	BUCKDEN STW	433	645

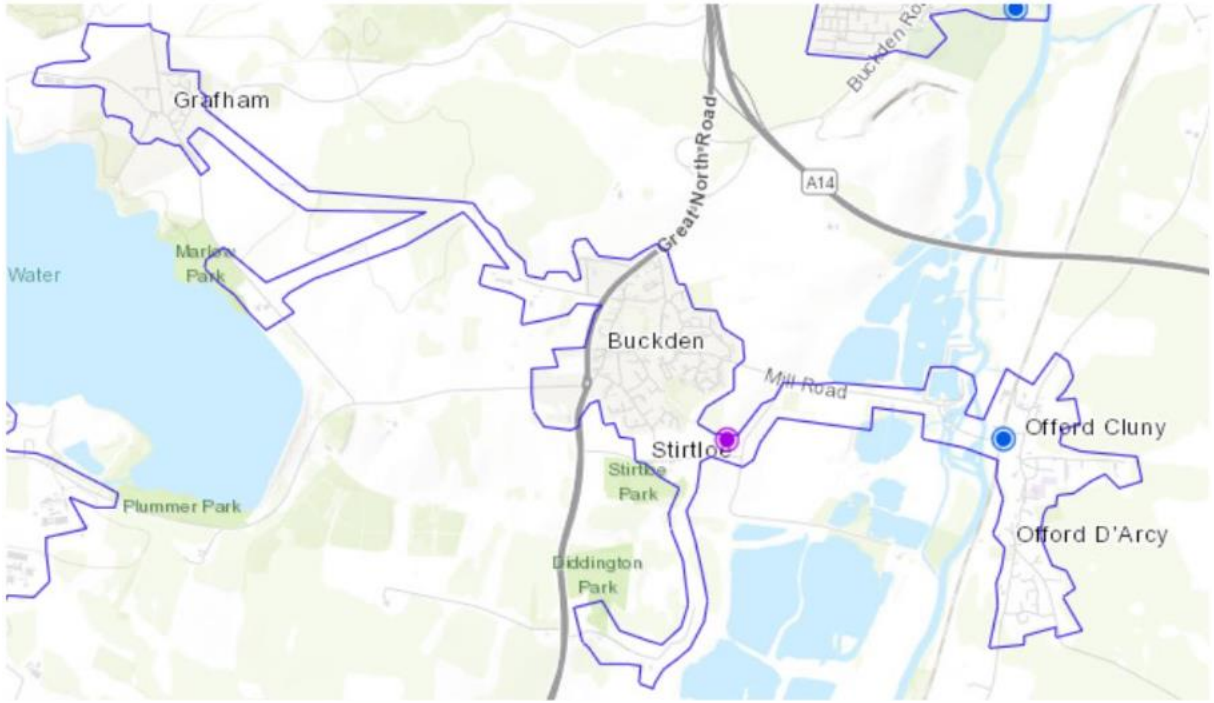
Capacity

Catchment

Catchment area

The site receives incoming flow from two foul gravity sewers from Buckden Village (east) and a pumped foul sewer and a pumped fowl rising main from Offord Cluny Village (west).

This catchment has an area of 11.2 km2 and serves a population equivalent of 5,358.



Any questions?