

# EPL 283 2022 - 2023 Monitoring Report



Reporting Period: 24<sup>th</sup> November 2022 – 24<sup>th</sup> November 2023

Date Submitted: 8<sup>th</sup> December 23

Version Number: 1

Submitter Details: Kane Taylor, Paspaley Pearling Company Pty Ltd



## Executive Summary

This report outlines the following in relation to Environmental Protection Licence 283 for the reporting period of November 24, 2022, until November 24, 2023:

- Monitoring objectives and plan
- Monitoring results
  - Presentation
    - Tabular representation
    - Graphical representation
    - Water discharge log
  - Quality assurance/Quality control evaluation
- Discussion and Interpretation of results
  - Exceedance report for Total Suspended Solids
- Conclusion and proposed actions

## Monitoring Plan and Objectives

The monitoring conditions are specified in sections 23, 24, 25, 26, 27, 28 and 29 in the Environmental Protection Licence (EPL 283). The specific details of the surface water monitoring plan are as follows:

|  |                 |              |                             | Sample Locations <sup>1</sup>   |  |  |  |
|--|-----------------|--------------|-----------------------------|---|--|--|--|
| Site Code  |                 |              |                             | TSF Discharge 1<br>(Discharge Pond -<br>Monitoring point for<br>assessment of<br>discharge water quality) | TSF Ambient 1 <sup>2</sup><br>(Compliance point –<br>where discharge water<br>enters the Blackmore<br>River) | TSF Ambient 3<br>(Monitoring point for<br>assessment of<br>background ambient<br>water quality in Darwin<br>Harbour) | INLET<br>(Monitoring point for<br>water being pumped<br>into the facility) |
| Longitude  |                 |              |                             | 130.912222  | 130.910639   | 130.901938   | 130.908591   |
| Latitude   |                 |              |                             | -12.568233  | -12.575809   | -12.591187   | -12.565763   |
| Parameter  | Abbreviation    | Units        | Trigger Values <sup>3</sup> |   |  |  |  |
| <b>In situ (field) Measurements</b>                              |                 |              |                             |   |  |  |  |
| pH   | pH              | pH units     | 6.0-8.5                     | W   | M  | M  | W  |
| Electrical Conductivity  | EC              | µS/cm        | NA                          | W   | M  | M  | W  |
| Dissolved Oxygen   | DO              | % saturation | 80-100%                     | W   | M  | M  | W  |
| Turbidity  | NTU             | NTU          | <4 <sup>4</sup>             | W   | M  | M  | W  |
| Temperature  | T               | °C           | NA                          | W   | M  | M  | W  |
| <b>Parameters to be assessed at a NATA accredited laboratory</b> |                 |              |                             |   |  |  |  |
| Biological Oxygen Demand   | BOD             | mg/L         | NA                          | M   | M  | M  | M  |
| Total Suspended Solids   | TSS             | mg/L         | <10                         | M   | M  | M  | M  |
| Filterable Reactive Phosphorous                                  | FRP             | µg/L         | <10                         | M   | M  | M  | M  |
| Total Phosphorous  | TP              | µg/L         | <30                         | M   | M  | M  | M  |
| Ammonia  | NH <sub>3</sub> | µg/L         | <20                         | M   | M  | M  | M  |
| Total Nitrogen   | TN              | µg/L         | <300                        | M   | M  | M  | M  |
| Total Oxidised Nitrogen  | NO <sub>x</sub> | µg N/L       | <20                         | M   | M  | M  | M  |
| Nitrate  | NO <sub>3</sub> | µg/L         | NA                          | M   | M  | M  | M  |
| Nitrite  | NO <sub>2</sub> | µg/L         | NA                          | M   | M  | M  | M  |
| Chlorophyll-a  | Chl-α           | µg/L         | <4                          | M   | M  | M  | M  |

W = Weekly during operation, when actively discharging wastewater in accordance with Table 2.

M = Monthly during operation, when actively discharging wastewater in accordance with Table 2.

NA = Not Available

<sup>1</sup> Monitoring Locations are shown in Attachment 3.

<sup>2</sup> For monitoring at this location, the sample must be collected during an outgoing or turning tide (not an incoming tide).

<sup>3</sup> Water Quality Objectives for the Darwin Harbour Region – Blackmore River Estuary, to be applied to the compliance point (TSF Ambient 1).

<sup>4</sup> Only applies where the turbidity value at TSF Discharge 1 is greater than the INLET on same sampling occasion.



### Monitoring Results - Presentation

### Tabulation of Results

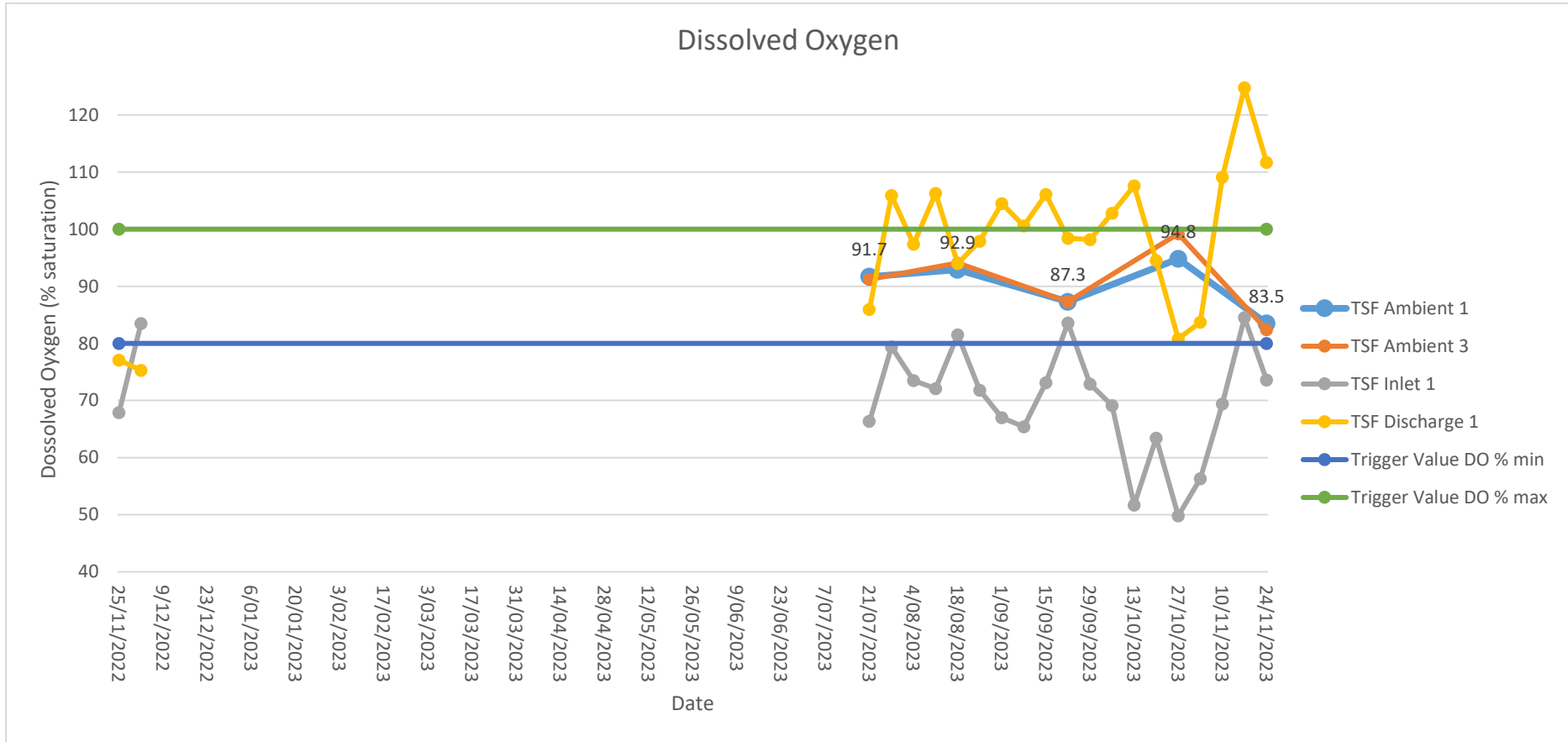
In situ (field) Measurements for the EPL 283 Surface Water Monitoring Plan November 2022 – November 2023

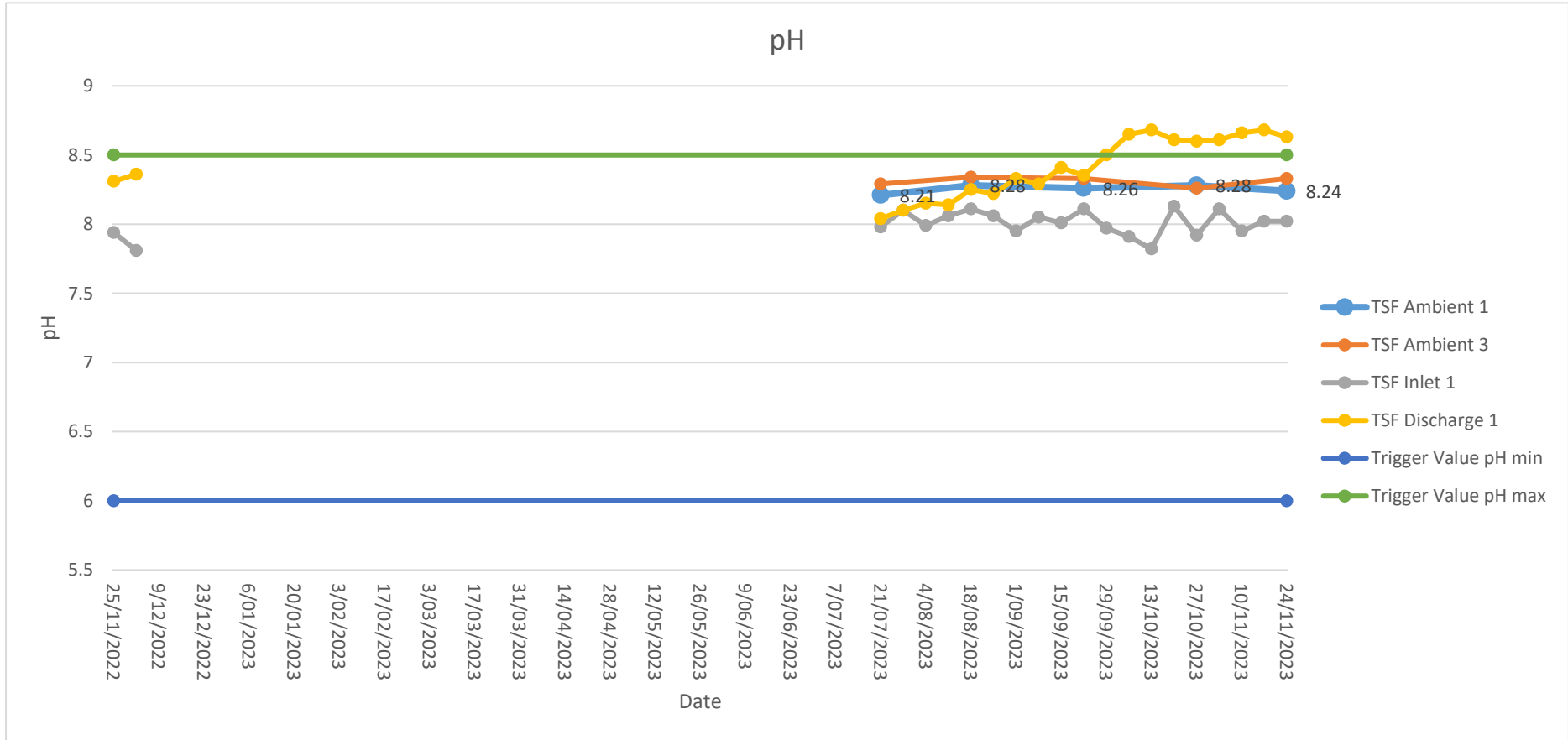
| Date       | TSF Ambient 1              |                      |      |  |                                    |                 |                | TSF Ambient 3              |                      |      |  |                                    |                 | TSF Inlet 1                |                         |                      |      |  |                                    | TSF Discharge 1            |                |                         |                      |      |  |                                    |                 |                |
|------------|----------------------------|----------------------|------|--|------------------------------------|-----------------|----------------|----------------------------|----------------------|------|--|------------------------------------|-----------------|----------------------------|-------------------------|----------------------|------|--|------------------------------------|----------------------------|----------------|-------------------------|----------------------|------|--|------------------------------------|-----------------|----------------|
|            | Dissolved Oxygen (mg/L)    | Dissolved Oxygen (%) | pH   | Electrical Conductivity ( $\mu\text{S/cm}$ ) | Temperature ( $^{\circ}\text{C}$ ) | Turbidity (NTU) | Salinity (ppt) | Dissolved Oxygen (mg/L)    | Dissolved Oxygen (%) | pH   | Electrical Conductivity ( $\mu\text{S/cm}$ ) | Temperature ( $^{\circ}\text{C}$ ) | Turbidity (NTU) | Salinity (ppt)             | Dissolved Oxygen (mg/L) | Dissolved Oxygen (%) | pH   | Electrical Conductivity ( $\mu\text{S/cm}$ ) | Temperature ( $^{\circ}\text{C}$ ) | Turbidity (NTU)            | Salinity (ppt) | Dissolved Oxygen (mg/L) | Dissolved Oxygen (%) | pH   | Electrical Conductivity ( $\mu\text{S/cm}$ ) | Temperature ( $^{\circ}\text{C}$ ) | Turbidity (NTU) | Salinity (ppt) |
| 25/11/2022 |                            |                      |      |  |                                    |                 |                |                            |                      |      |  |                                    |                 |                            | 4.31                    | 67.9                 | 7.94 | 54.24  | 31.7                               | 61.6                       | 35.91          | 4.6                     | 77.1                 | 8.31 | 49.866                                       | 33.1                               | 10.7            | 32.31          |
| 2/12/2022  |                            |                      |      |  |                                    |                 |                |                            |                      |      |  |                                    |                 |                            | 5                       | 83.5                 | 7.81 | 52.95  | 32.7                               | 104.2                      | 34.67          | 4.36                    | 75.3                 | 8.36 | 43.28  | 37.4                               | 25.9            | 27.48          |
| 9/12/2022  | Ponds empty. No discharge. |                      |      |  |                                    |                 |                | Ponds empty. No discharge. |                      |      |  |                                    |                 | Ponds empty. No discharge. |                         |                      |      |  |                                    | Ponds empty. No discharge. |                |                         |                      |      |  |                                    |                 |                |
| 16/12/2022 | Ponds empty. No discharge. |                      |      |  |                                    |                 |                | Ponds empty. No discharge. |                      |      |  |                                    |                 | Ponds empty. No discharge. |                         |                      |      |  |                                    | Ponds empty. No discharge. |                |                         |                      |      |  |                                    |                 |                |
| 23/12/2022 | Ponds empty. No discharge. |                      |      |  |                                    |                 |                | Ponds empty. No discharge. |                      |      |  |                                    |                 | Ponds empty. No discharge. |                         |                      |      |  |                                    | Ponds empty. No discharge. |                |                         |                      |      |  |                                    |                 |                |
| 30/12/2022 | Ponds empty. No discharge. |                      |      |  |                                    |                 |                | Ponds empty. No discharge. |                      |      |  |                                    |                 | Ponds empty. No discharge. |                         |                      |      |  |                                    | Ponds empty. No discharge. |                |                         |                      |      |  |                                    |                 |                |
| 6/01/2023  | Ponds empty. No discharge. |                      |      |  |                                    |                 |                | Ponds empty. No discharge. |                      |      |  |                                    |                 | Ponds empty. No discharge. |                         |                      |      |  |                                    | Ponds empty. No discharge. |                |                         |                      |      |  |                                    |                 |                |
| 13/01/2023 | Ponds empty. No discharge. |                      |      |  |                                    |                 |                | Ponds empty. No discharge. |                      |      |  |                                    |                 | Ponds empty. No discharge. |                         |                      |      |  |                                    | Ponds empty. No discharge. |                |                         |                      |      |  |                                    |                 |                |
| 20/01/2023 | Ponds empty. No discharge. |                      |      |  |                                    |                 |                | Ponds empty. No discharge. |                      |      |  |                                    |                 | Ponds empty. No discharge. |                         |                      |      |  |                                    | Ponds empty. No discharge. |                |                         |                      |      |  |                                    |                 |                |
| 27/01/2023 | Ponds empty. No discharge. |                      |      |  |                                    |                 |                | Ponds empty. No discharge. |                      |      |  |                                    |                 | Ponds empty. No discharge. |                         |                      |      |  |                                    | Ponds empty. No discharge. |                |                         |                      |      |  |                                    |                 |                |
| 3/02/2023  | Ponds empty. No discharge. |                      |      |  |                                    |                 |                | Ponds empty. No discharge. |                      |      |  |                                    |                 | Ponds empty. No discharge. |                         |                      |      |  |                                    | Ponds empty. No discharge. |                |                         |                      |      |  |                                    |                 |                |
| 10/02/2023 | Ponds empty. No discharge. |                      |      |  |                                    |                 |                | Ponds empty. No discharge. |                      |      |  |                                    |                 | Ponds empty. No discharge. |                         |                      |      |  |                                    | Ponds empty. No discharge. |                |                         |                      |      |  |                                    |                 |                |
| 17/02/2023 | Ponds empty. No discharge. |                      |      |  |                                    |                 |                | Ponds empty. No discharge. |                      |      |  |                                    |                 | Ponds empty. No discharge. |                         |                      |      |  |                                    | Ponds empty. No discharge. |                |                         |                      |      |  |                                    |                 |                |
| 24/02/2023 | Ponds empty. No discharge. |                      |      |  |                                    |                 |                | Ponds empty. No discharge. |                      |      |  |                                    |                 | Ponds empty. No discharge. |                         |                      |      |  |                                    | Ponds empty. No discharge. |                |                         |                      |      |  |                                    |                 |                |
| 3/03/2023  | Ponds empty. No discharge. |                      |      |  |                                    |                 |                | Ponds empty. No discharge. |                      |      |  |                                    |                 | Ponds empty. No discharge. |                         |                      |      |  |                                    | Ponds empty. No discharge. |                |                         |                      |      |  |                                    |                 |                |
| 10/03/2023 | Ponds empty. No discharge. |                      |      |  |                                    |                 |                | Ponds empty. No discharge. |                      |      |  |                                    |                 | Ponds empty. No discharge. |                         |                      |      |  |                                    | Ponds empty. No discharge. |                |                         |                      |      |  |                                    |                 |                |
| 17/03/2023 | Ponds empty. No discharge. |                      |      |  |                                    |                 |                | Ponds empty. No discharge. |                      |      |  |                                    |                 | Ponds empty. No discharge. |                         |                      |      |  |                                    | Ponds empty. No discharge. |                |                         |                      |      |  |                                    |                 |                |
| 24/03/2023 | Ponds empty. No discharge. |                      |      |  |                                    |                 |                | Ponds empty. No discharge. |                      |      |  |                                    |                 | Ponds empty. No discharge. |                         |                      |      |  |                                    | Ponds empty. No discharge. |                |                         |                      |      |  |                                    |                 |                |
| 31/03/2023 | Ponds empty. No discharge. |                      |      |  |                                    |                 |                | Ponds empty. No discharge. |                      |      |  |                                    |                 | Ponds empty. No discharge. |                         |                      |      |  |                                    | Ponds empty. No discharge. |                |                         |                      |      |  |                                    |                 |                |
| 7/04/2023  | Ponds empty. No discharge. |                      |      |  |                                    |                 |                | Ponds empty. No discharge. |                      |      |  |                                    |                 | Ponds empty. No discharge. |                         |                      |      |  |                                    | Ponds empty. No discharge. |                |                         |                      |      |  |                                    |                 |                |
| 14/04/2023 | Ponds empty. No discharge. |                      |      |  |                                    |                 |                | Ponds empty. No discharge. |                      |      |  |                                    |                 | Ponds empty. No discharge. |                         |                      |      |  |                                    | Ponds empty. No discharge. |                |                         |                      |      |  |                                    |                 |                |
| 21/04/2023 | Ponds empty. No discharge. |                      |      |  |                                    |                 |                | Ponds empty. No discharge. |                      |      |  |                                    |                 | Ponds empty. No discharge. |                         |                      |      |  |                                    | Ponds empty. No discharge. |                |                         |                      |      |  |                                    |                 |                |
| 28/04/2023 | Ponds empty. No discharge. |                      |      |  |                                    |                 |                | Ponds empty. No discharge. |                      |      |  |                                    |                 | Ponds empty. No discharge. |                         |                      |      |  |                                    | Ponds empty. No discharge. |                |                         |                      |      |  |                                    |                 |                |
| 5/05/2023  | Ponds empty. No discharge. |                      |      |  |                                    |                 |                | Ponds empty. No discharge. |                      |      |  |                                    |                 | Ponds empty. No discharge. |                         |                      |      |  |                                    | Ponds empty. No discharge. |                |                         |                      |      |  |                                    |                 |                |
| 12/05/2023 | Ponds empty. No discharge. |                      |      |  |                                    |                 |                | Ponds empty. No discharge. |                      |      |  |                                    |                 | Ponds empty. No discharge. |                         |                      |      |  |                                    | Ponds empty. No discharge. |                |                         |                      |      |  |                                    |                 |                |
| 19/05/2023 | Ponds empty. No discharge. |                      |      |  |                                    |                 |                | Ponds empty. No discharge. |                      |      |  |                                    |                 | Ponds empty. No discharge. |                         |                      |      |  |                                    | Ponds empty. No discharge. |                |                         |                      |      |  |                                    |                 |                |
| 26/05/2023 | Ponds empty. No discharge. |                      |      |  |                                    |                 |                | Ponds empty. No discharge. |                      |      |  |                                    |                 | Ponds empty. No discharge. |                         |                      |      |  |                                    | Ponds empty. No discharge. |                |                         |                      |      |  |                                    |                 |                |
| 2/06/2023  | Ponds empty. No discharge. |                      |      |  |                                    |                 |                | Ponds empty. No discharge. |                      |      |  |                                    |                 | Ponds empty. No discharge. |                         |                      |      |  |                                    | Ponds empty. No discharge. |                |                         |                      |      |  |                                    |                 |                |
| 9/06/2023  | Ponds empty. No discharge. |                      |      |  |                                    |                 |                | Ponds empty. No discharge. |                      |      |  |                                    |                 | Ponds empty. No discharge. |                         |                      |      |  |                                    | Ponds empty. No discharge. |                |                         |                      |      |  |                                    |                 |                |
| 16/06/2023 | Ponds empty. No discharge. |                      |      |  |                                    |                 |                | Ponds empty. No discharge. |                      |      |  |                                    |                 | Ponds empty. No discharge. |                         |                      |      |  |                                    | Ponds empty. No discharge. |                |                         |                      |      |  |                                    |                 |                |
| 23/06/2023 | Ponds empty. No discharge. |                      |      |  |                                    |                 |                | Ponds empty. No discharge. |                      |      |  |                                    |                 | Ponds empty. No discharge. |                         |                      |      |  |                                    | Ponds empty. No discharge. |                |                         |                      |      |  |                                    |                 |                |
| 30/06/2023 | Ponds empty. No discharge. |                      |      |  |                                    |                 |                | Ponds empty. No discharge. |                      |      |  |                                    |                 | Ponds empty. No discharge. |                         |                      |      |  |                                    | Ponds empty. No discharge. |                |                         |                      |      |  |                                    |                 |                |
| 7/07/2023  | Ponds empty. No discharge. |                      |      |  |                                    |                 |                | Ponds empty. No discharge. |                      |      |  |                                    |                 | Ponds empty. No discharge. |                         |                      |      |  |                                    | Ponds empty. No discharge. |                |                         |                      |      |  |                                    |                 |                |
| 14/07/2023 | Ponds empty. No discharge. |                      |      |  |                                    |                 |                | Ponds empty. No discharge. |                      |      |  |                                    |                 | Ponds empty. No discharge. |                         |                      |      |  |                                    | Ponds empty. No discharge. |                |                         |                      |      |  |                                    |                 |                |
| 21/07/2023 | 6.04                       | 91.7                 | 8.21 | 54.72  | 26.2                               | 0               | 36.2           | 6                          | 91.2                 | 8.29 | 54.65  | 26.4                               | 0               | 36.14                      | 4.41                    | 66.3                 | 7.98 | 56.13  | 25.3                               | 31.4                       | 37.27          | 5.69                    | 85.9                 | 8.04 | 53.4   | 26.2                               | 0               | 35.21          |
| 28/07/2023 |                            |                      |      |  |                                    |                 |                |                            |                      |      |  |                                    |                 |                            | 5.22                    | 79.4                 | 8.1  | 55.78  | 26.1                               | 42.2                       | 36.98          | 7.04                    | 105.9                | 8.1  | 55.26  | 25.5                               | 0               | 36.62          |
| 4/08/2023  |                            |                      |      |  |                                    |                 |                |                            |                      |      |  |                                    |                 |                            | 4.85                    | 73.5                 | 7.99 | 55.49  | 25.9                               | 15.9                       | 36.78          | 6.27                    | 97.4                 | 8.15 | 55.67  | 27.4                               | 6.68            | 36.87          |
| 11/08/2023 |                            |                      |      |  |                                    |                 |                |                            |                      |      |  |                                    |                 |                            | 4.66                    | 72.1                 | 8.06 | 57.08  | 26.7                               | 36                         | 37.95          | 6.82                    | 106.3                | 8.14 | 56.4   | 27.4                               | 4.16            | 37.42          |
| 18/08/2023 | 6.06                       | 92.9                 | 8.28 | 55.75  | 26.5                               | 0.82            | 36.96          | 6.17                       | 94.1                 | 8.34 | 55.39  | 26.4                               | 0               | 36.7                       | 5.31                    | 81.5                 | 8.11 | 56.21  | 26.6                               | 54.3                       | 37.3           | 6.08                    | 94                   | 8.25 | 56.71  | 26.8                               | 0               | 37.67          |
| 25/08/2023 |                            |                      |      |  |                                    |                 |                |                            |                      |      |  |                                    |                 |                            | 4.75                    | 71.8                 | 8.06 | 56.33  | 26.8                               | 18.3                       | 37.4           | 6.04                    | 97.9                 | 8.22 | 57.03  | 27.3                               | 0               | 37.82          |
| 1/09/2023  |                            |                      |      |  |                                    |                 |                |                            |                      |      |  |                                    |                 |                            | 4.11                    | 67                   | 7.95 | 56.94  | 27.1                               | 31.6                       | 37.89          | 6.11                    | 104.5                | 8.33 | 57.98  | 28.6                               | 4.9             | 38.11          |
| 8/09/2023  |                            |                      |      |  |                                    |                 |                |                            |                      |      |  |                                    |                 |                            | 3.97                    | 65.4                 | 8.05 | 57.29  | 27.9                               | 10.8                       | 38.1           | 5.99                    | 100.6                | 8.29 | 58.28  | 29.5                               | 7.85            | 38.58          |
| 15/09/2023 |                            |                      |      |  |                                    |                 |                |                            |                      |      |  |                                    |                 |                            | 4.77                    | 73.1                 | 8.01 | 56.81  | 28.8                               | 24.2                       | 37.65          | 6.2                     | 106.1                | 8.41 | 59.11  | 30.7                               | 0               | 39.48          |
| 22/09/2023 | 5.59                       | 87.3                 | 8.26 | 56   | 27.6                               | 0               | 37.15          | 5.58                       | 87.3                 | 8.33 | 56.8   | 27.8                               | 2.65            | 37.03                      | 5.25                    | 83.6                 | 8.11 | 57.4   | 28.5                               | 7.91                       | 38.13          | 6.01                    | 98.4                 | 8.35 | 59.7   | 29.6                               | 0               | 39.83          |
| 29/09/2023 |                            |                      |      |  |                                    |                 |                |                            |                      |      |  |                                    |                 |                            | 4.67                    | 72.9                 | 7.97 | 57.86  | 30.1                               | 51.7                       | 38.24          | 5.81                    | 98.2                 | 8.5  | 59.94  | 32.5                               | 2.42            | 39.95          |
| 6/10/2023  |                            |                      |      |  |                                    |                 |                |                            |                      |      |  |                                    |                 |                            | 4.18                    | 69.1                 | 7.91 | 57.25  | 30.9                               | 80.9                       | 37.94          | 5.89                    | 102.8                | 8.65 | 60.38  | 33.7                               | 0               | 40.18          |
| 13/10/2023 |                            |                      |      |  |                                    |                 |                |                            |                      |      |  |                                    |                 |                            | 3.01                    | 51.7                 | 7.82 | 58.22  | 33                                 | 64.9                       | 38.58          | 6.16                    | 107.6                | 8.68 | 60.78  | 33.6                               | 5.72            | 40.49          |
| 20/10/2023 |                            |                      |      |  |                                    |                 |                |                            |                      |      |  |                                    |                 |                            | 3.87                    | 63.4                 | 8.13 | 57.32  | 30.2                               | 10.75                      | 38.01          | 5.52                    | 94.5                 | 8.61 | 60.42  | 32.3                               | 5.26            | 40.27          |
| 27/10/2023 | 5.65                       | 94.8                 | 8.28 | 57.43  | 31.8                               | 0               | 38.04          | 5.9                        | 99.2                 | 8.26 | 57.23  | 32                                 | 0               | 37.88                      | 3.01                    | 49.8                 | 7.92 | 57.61  | 30.8                               | 27.3                       | 38.21          | 4.79                    | 80.8                 | 8.6  | 60.27  | 31.4                               | 0               | 40.2           |
| 3/11/2023  |                            |                      |      |  |                                    |                 |                |                            |                      |      |  |                                    |                 |                            | 3.42                    | 56.3                 | 8.11 | 57.79  | 30.5                               | 13.18                      | 38.36          | 4.96                    | 83.7                 | 8.61 | 60.35  | 31.4                               | 6.45            | 40.25          |
| 10/11/2023 |                            |                      |      |  |                                    |                 |                |                            |                      |      |  |                                    |                 |                            | 4.51                    | 69.4                 | 7.95 | 57.61  | 30.9                               | 75.3                       | 38.22          | 6.27                    | 109.1                | 8.66 | 59.1   | 31.8                               | 8.77            | 39.12          |
| 17/11/2023 |                            |                      |      |  |                                    |                 |                |                            |                      |      |  |                                    |                 |                            | 5.09                    | 84.5                 | 8.02 | 57.66  | 31.1                               | 58.7                       | 38.24          | 7.29                    | 124.8                | 8.68 | 59.21  | 32.6                               | 10.52           | 39.34          |
| 24/11/2023 | 5.24                       | 83.5                 | 8.24 | 57.24  | 31.7                               | 0.09            | 37.9           | 5.23                       | 82.4                 | 8.33 | 57   | 31.9                               | 0               | 37.71                      | 4.37                    | 73.6                 | 8.02 | 57.62  | 32                                 | 21.8                       | 38.17          | 6.44                    | 111.7                | 8.63 | 57.87  | 34.2                               | 6.17            | 38.27          |

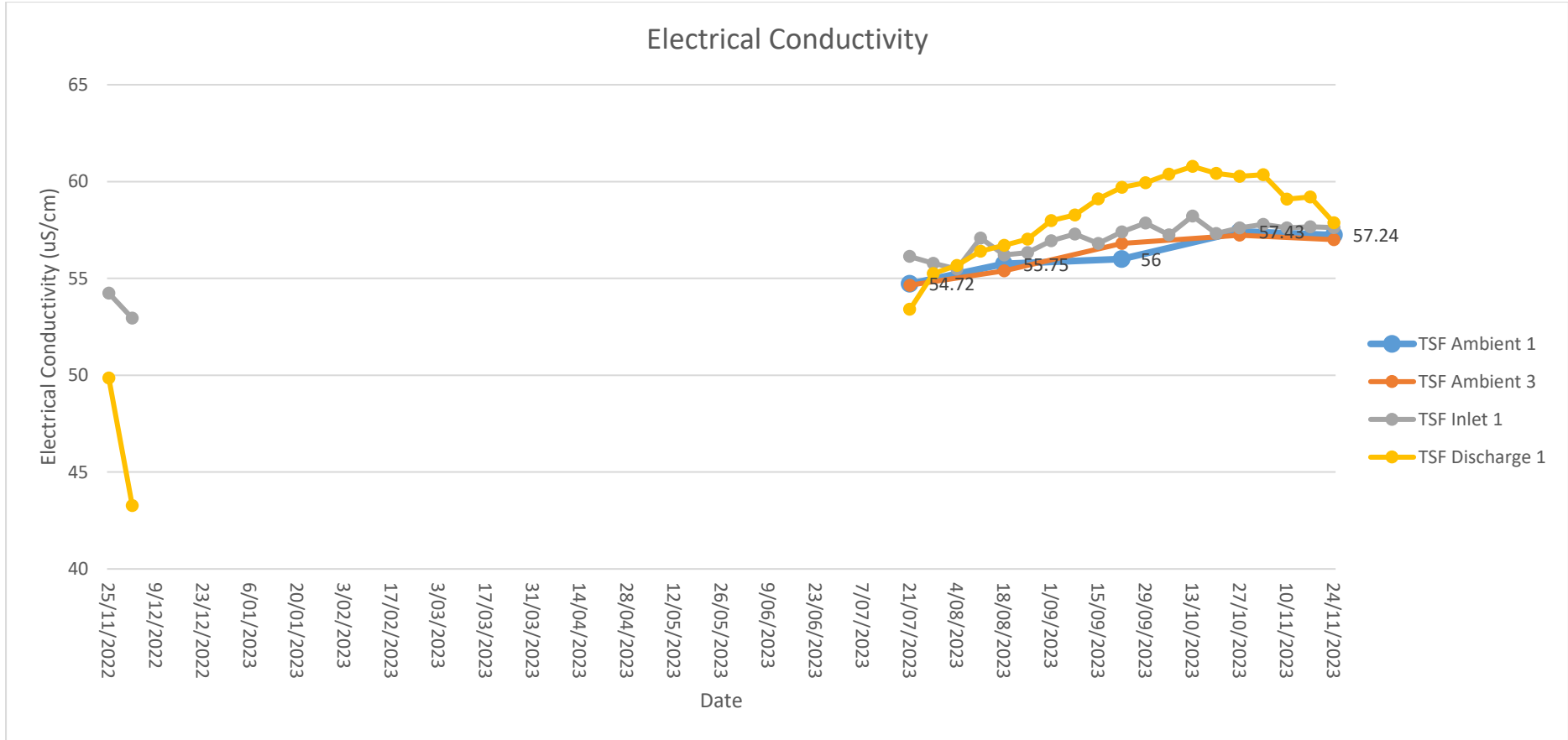




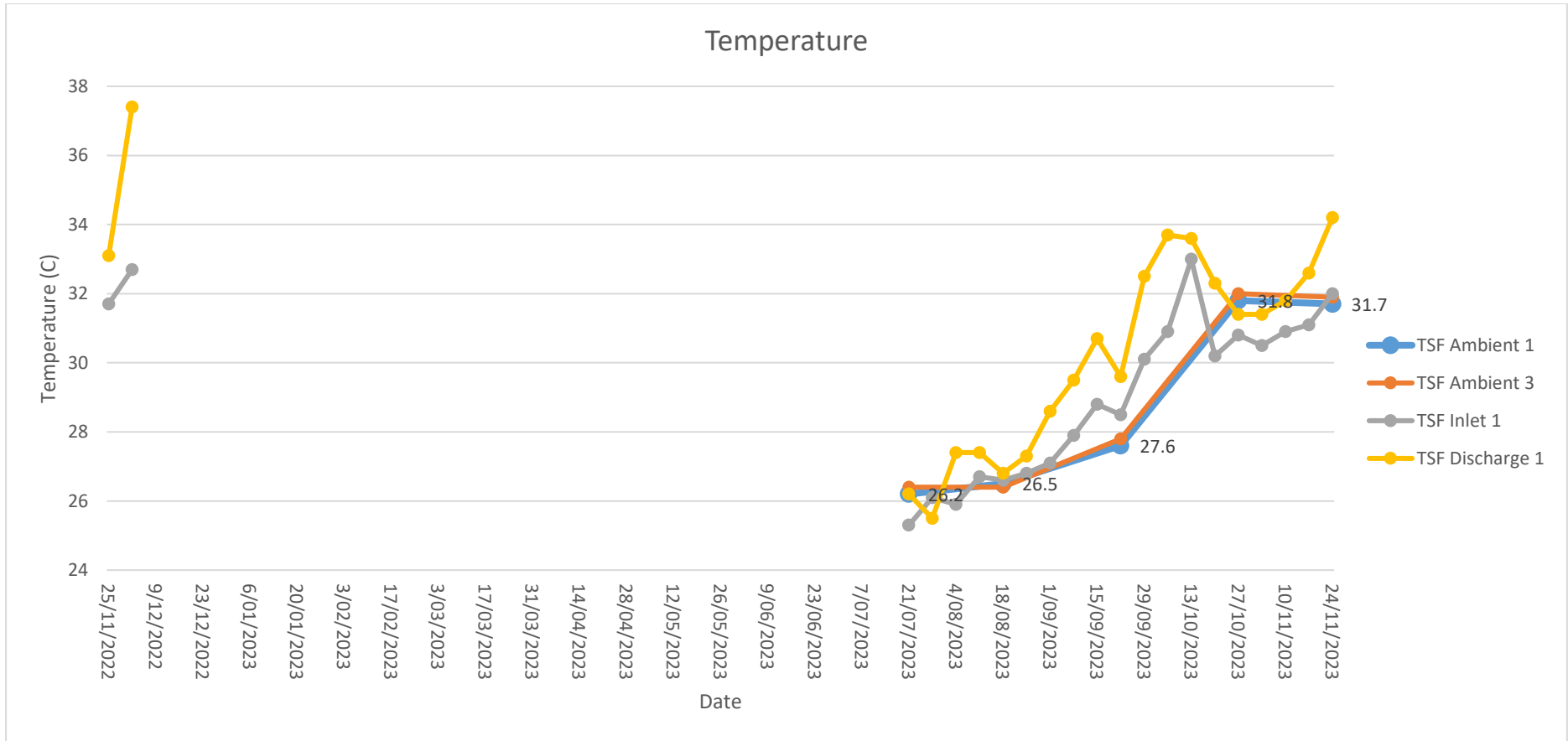
## Graphs of Results

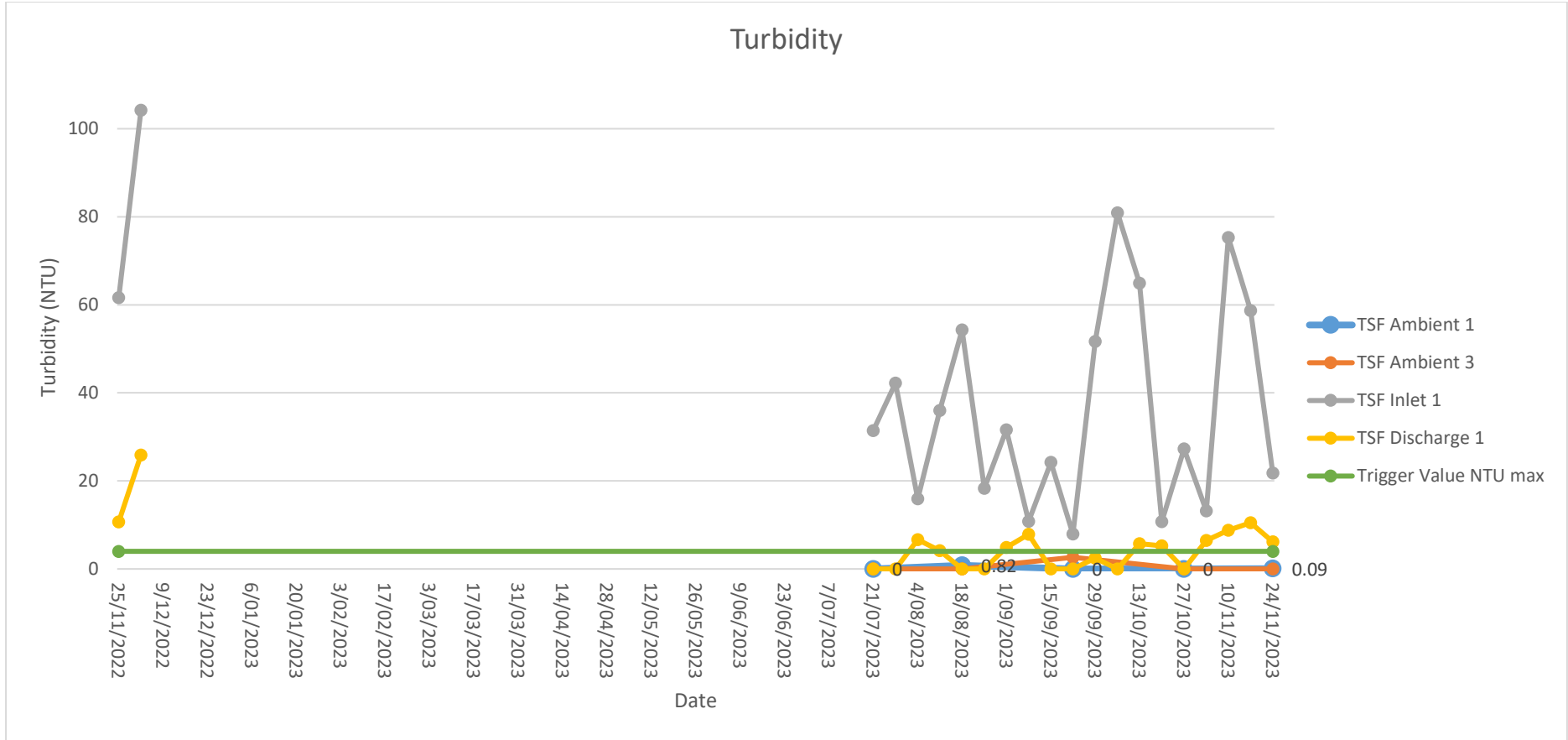


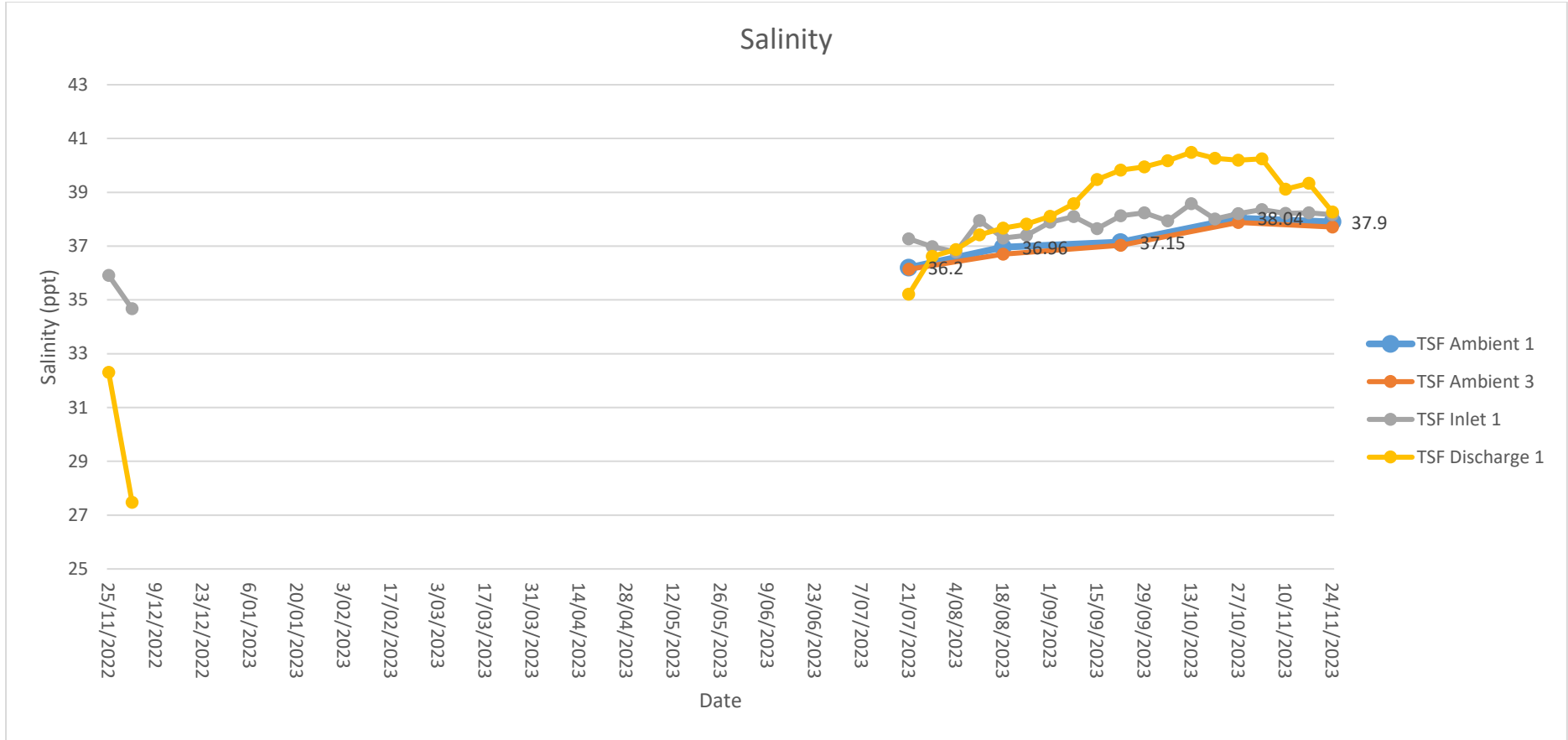


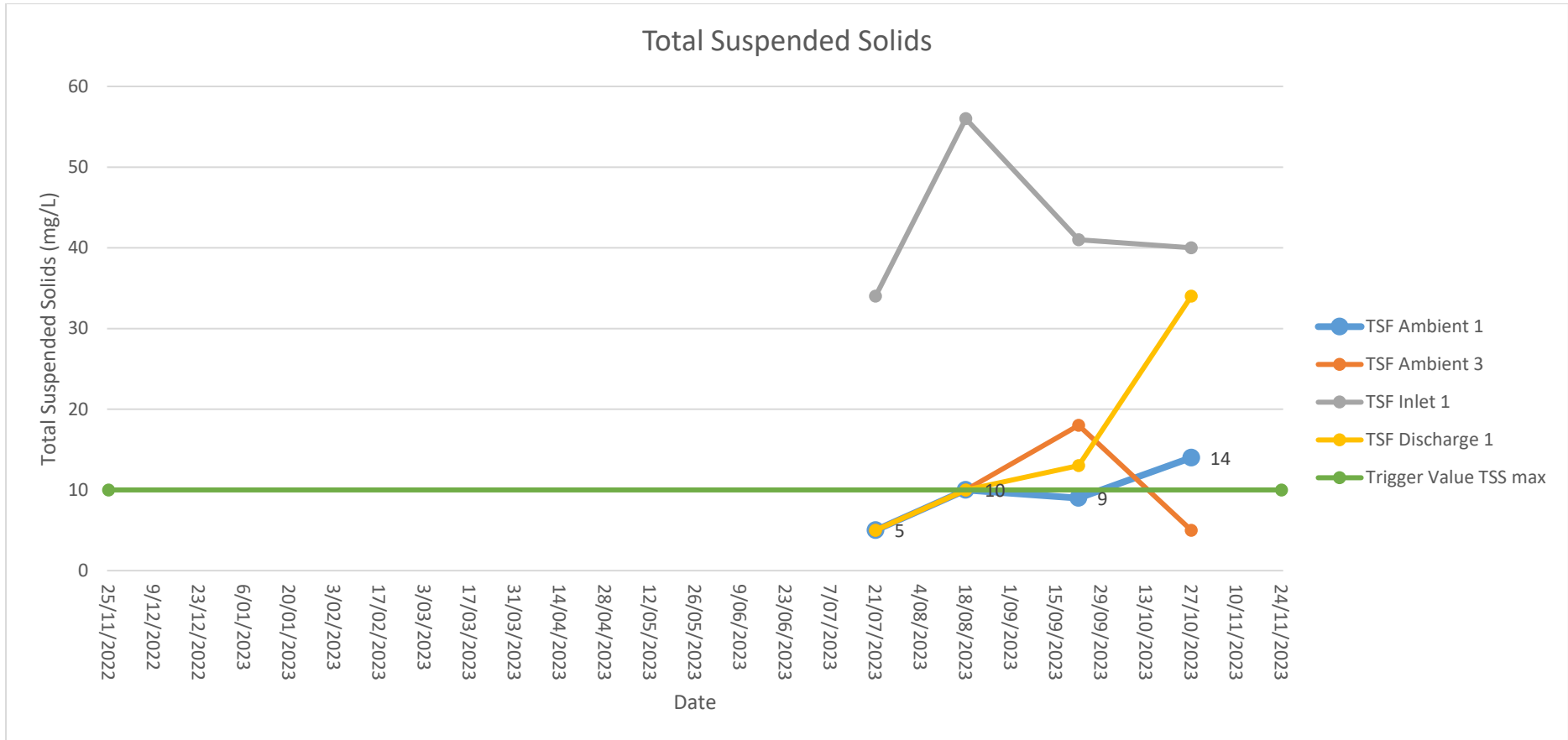


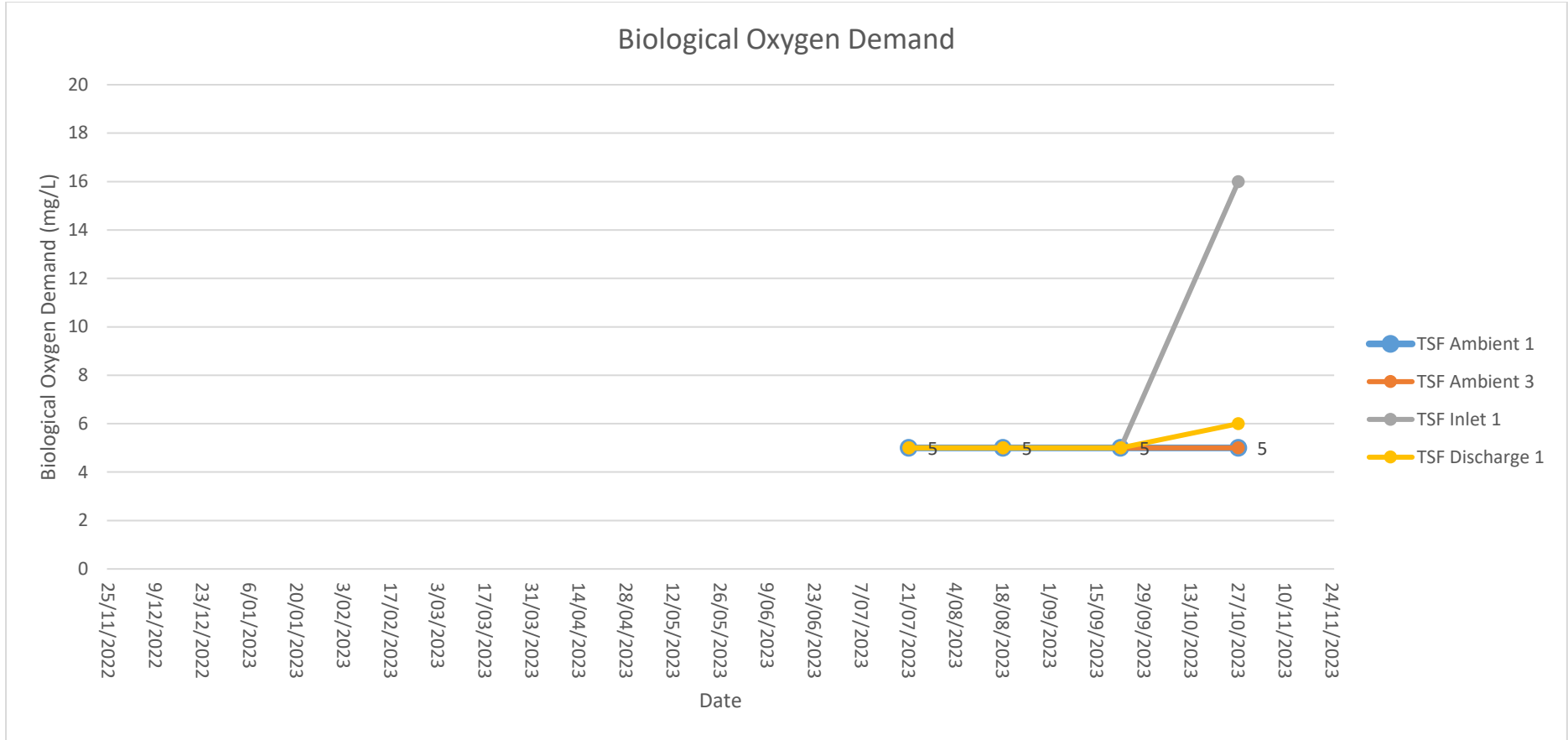


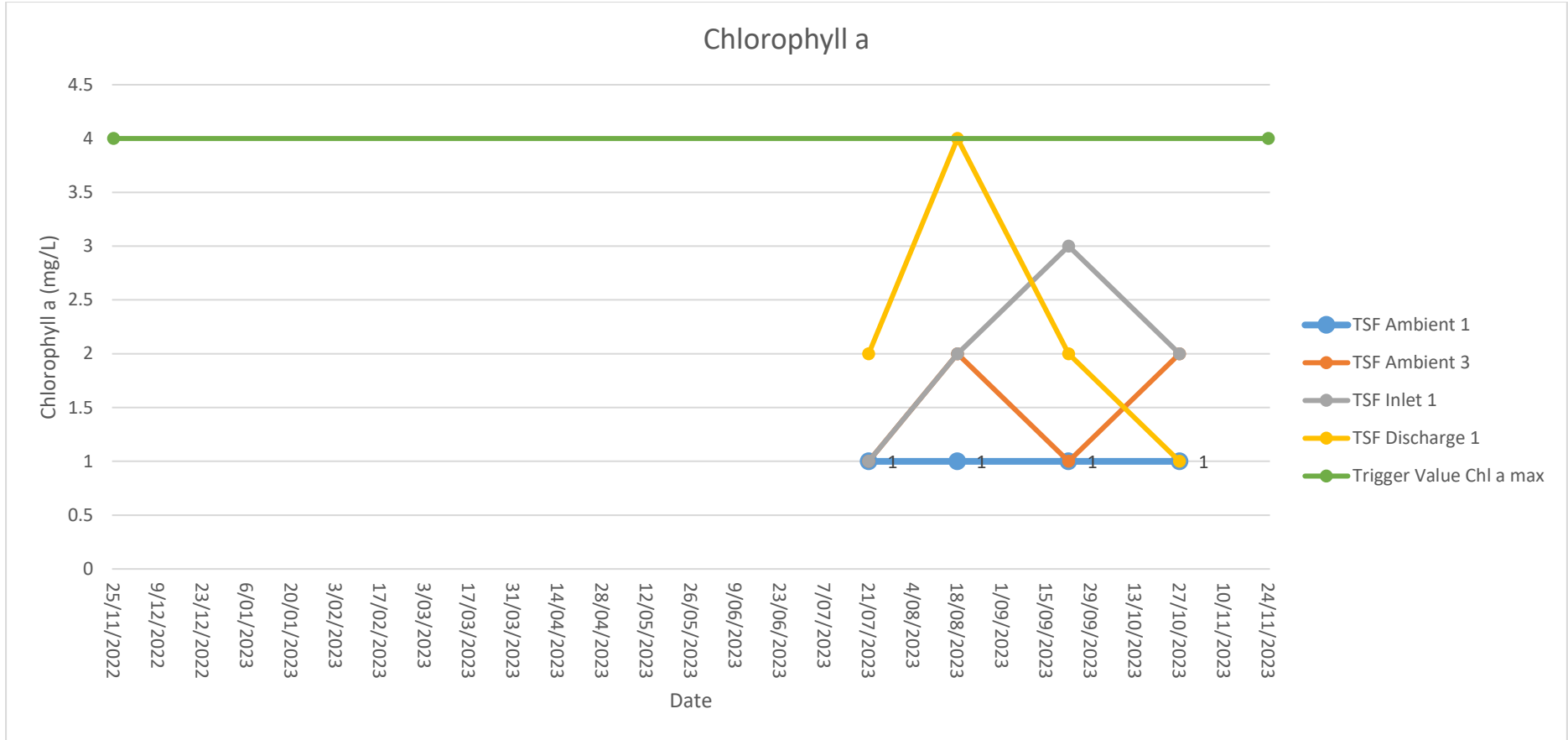


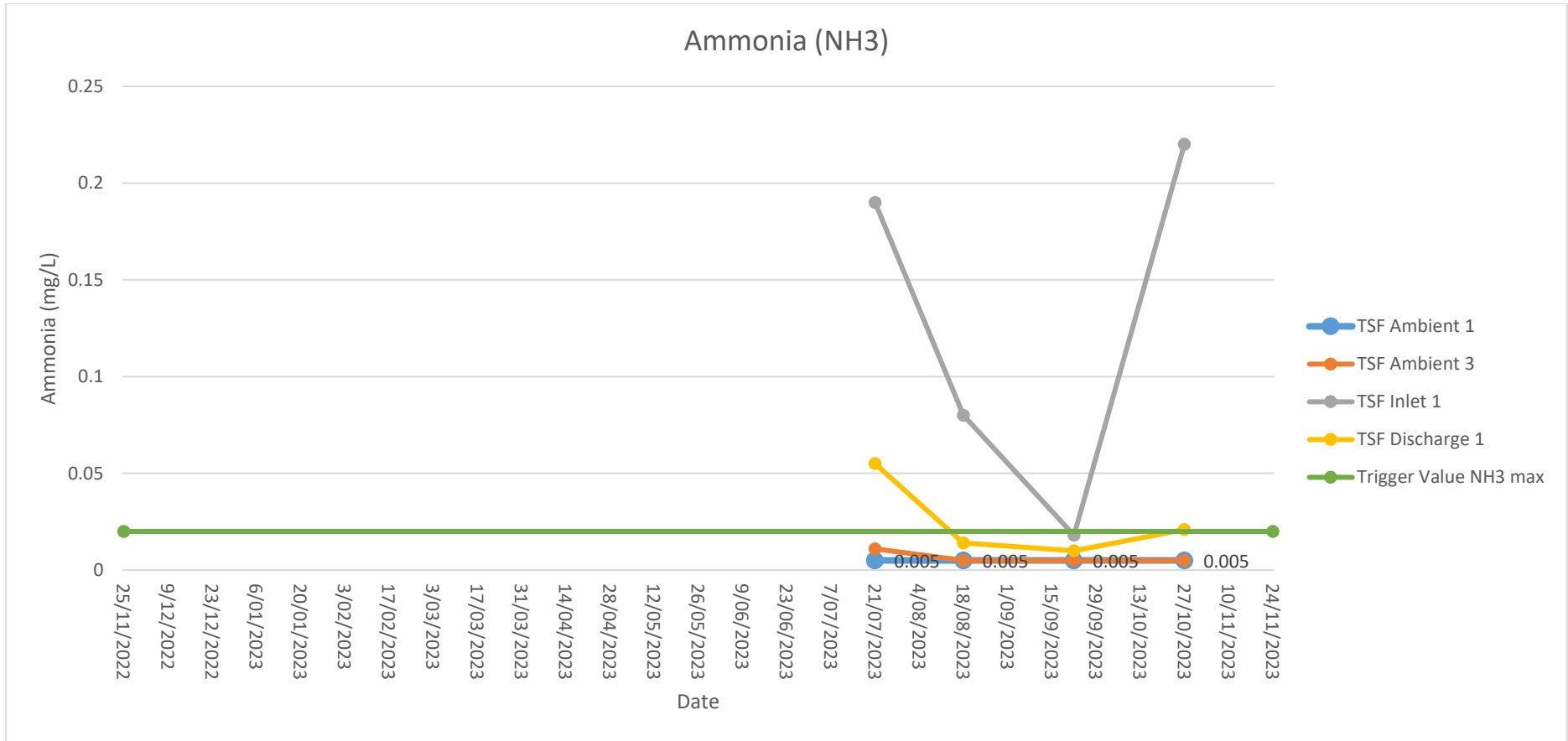


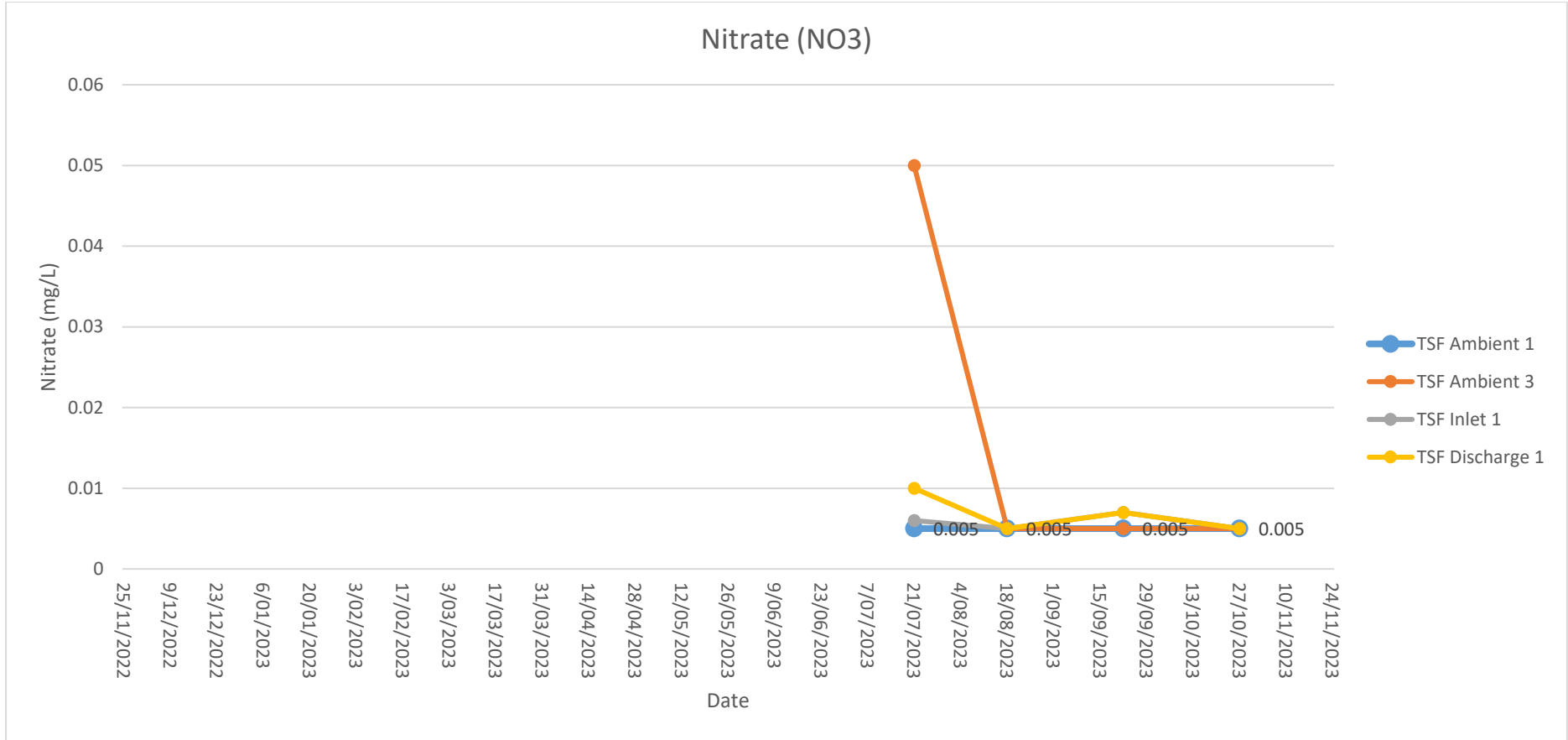




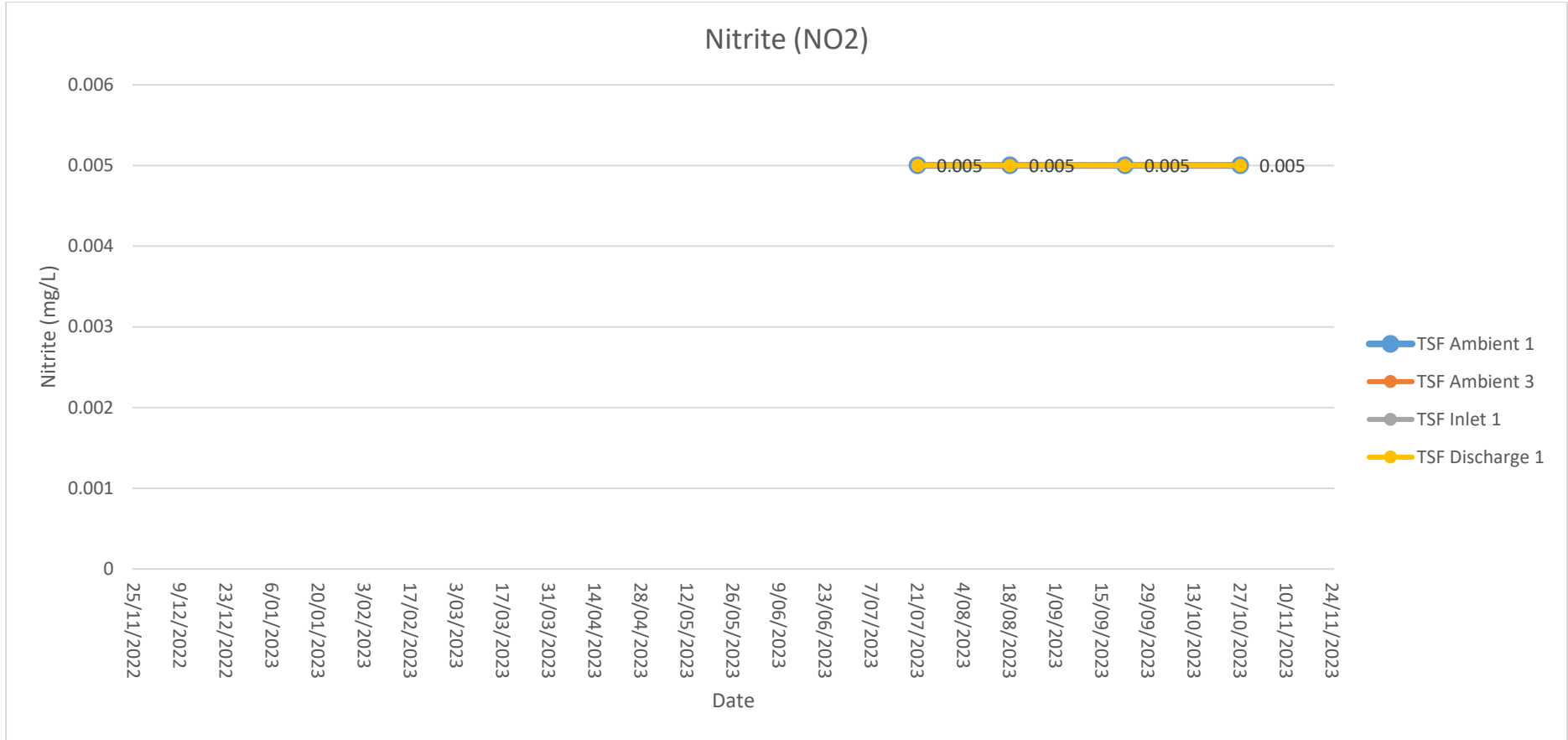


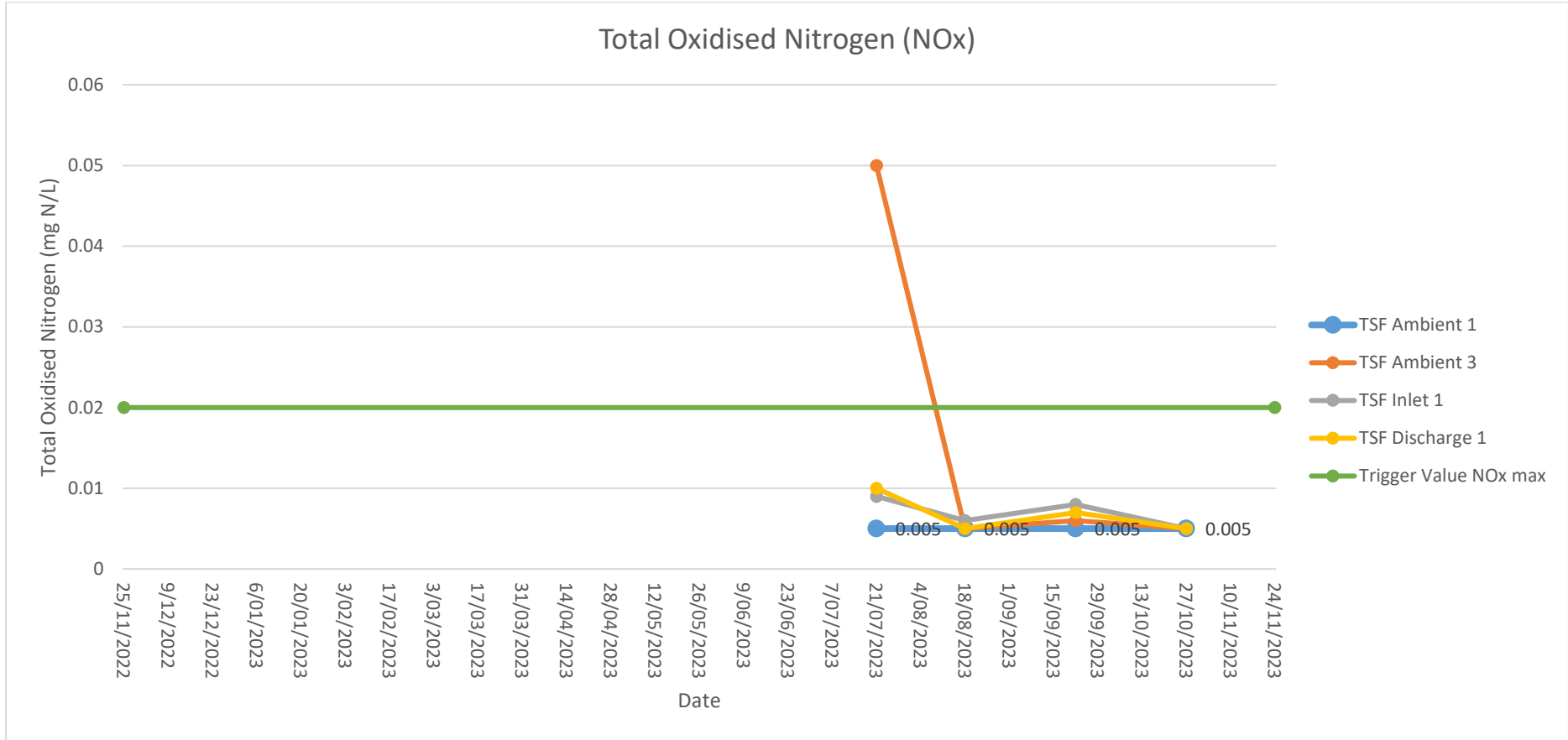


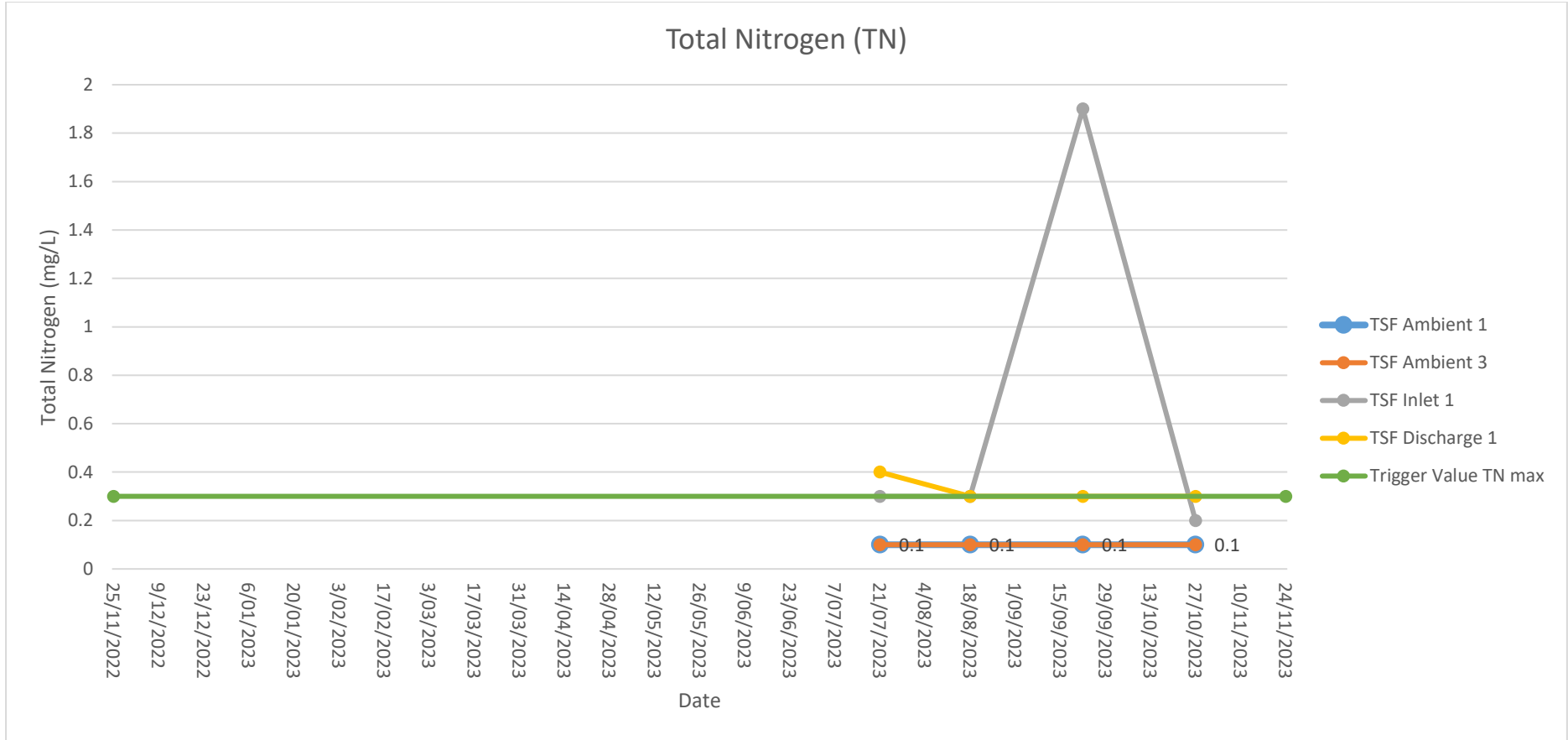


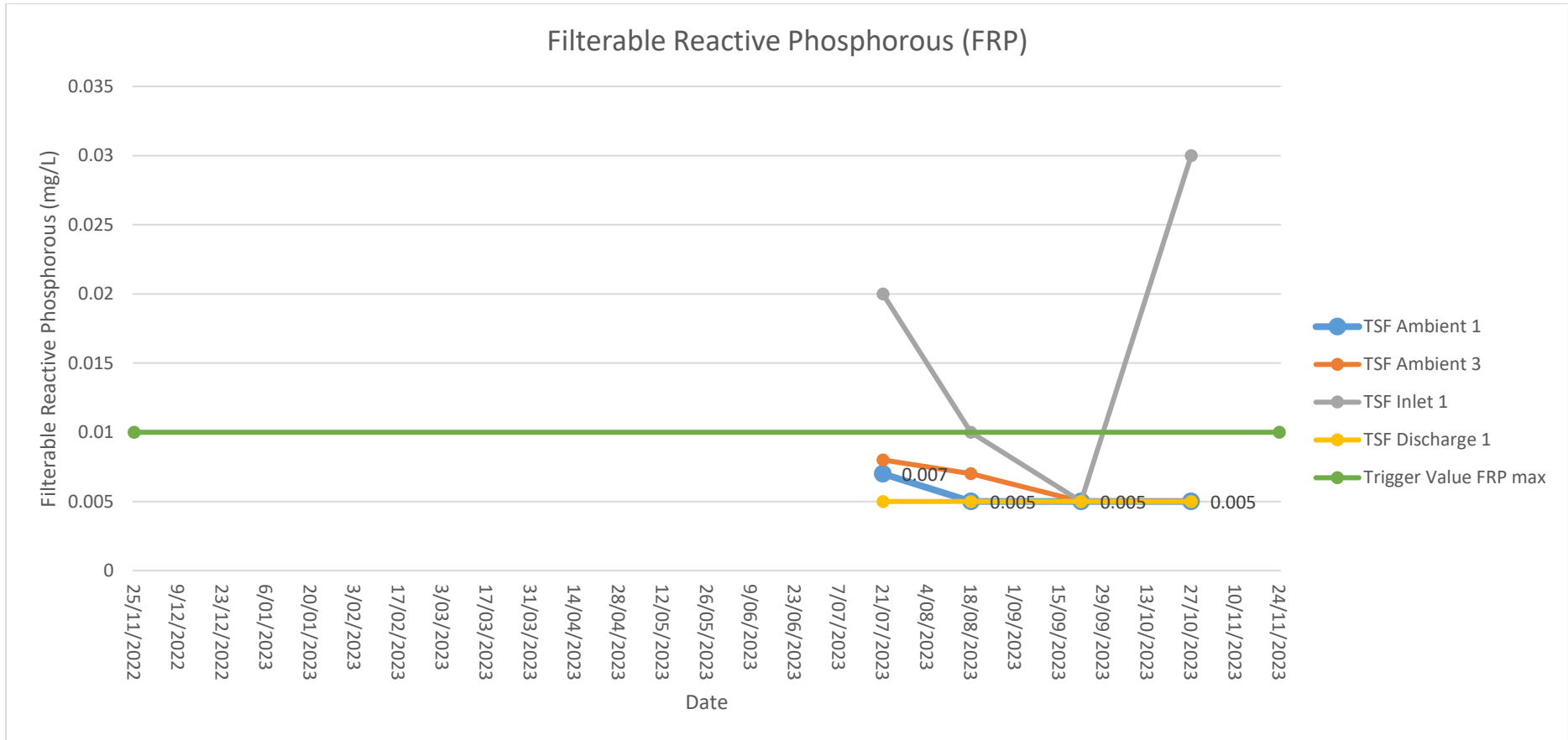


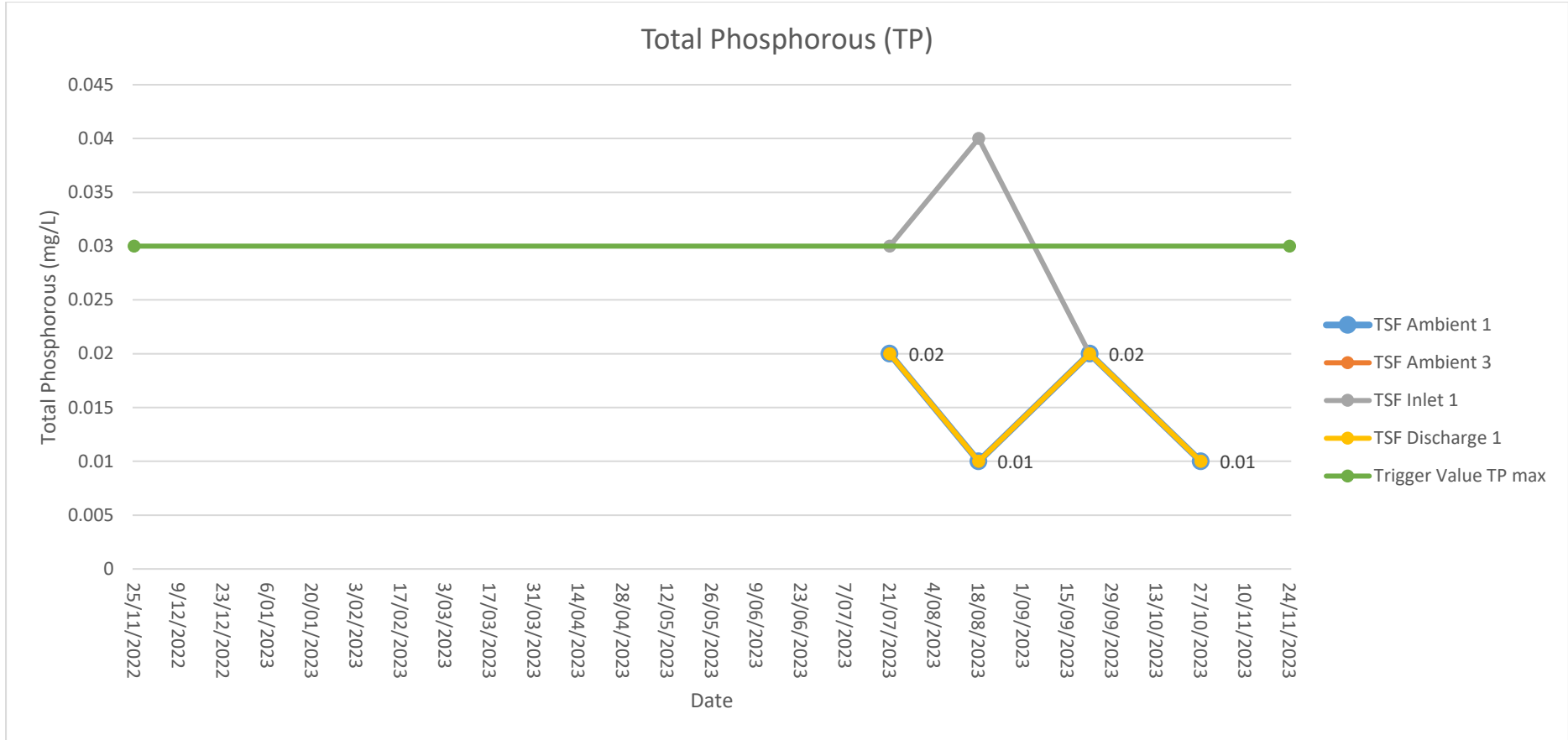














### Water Discharge Log

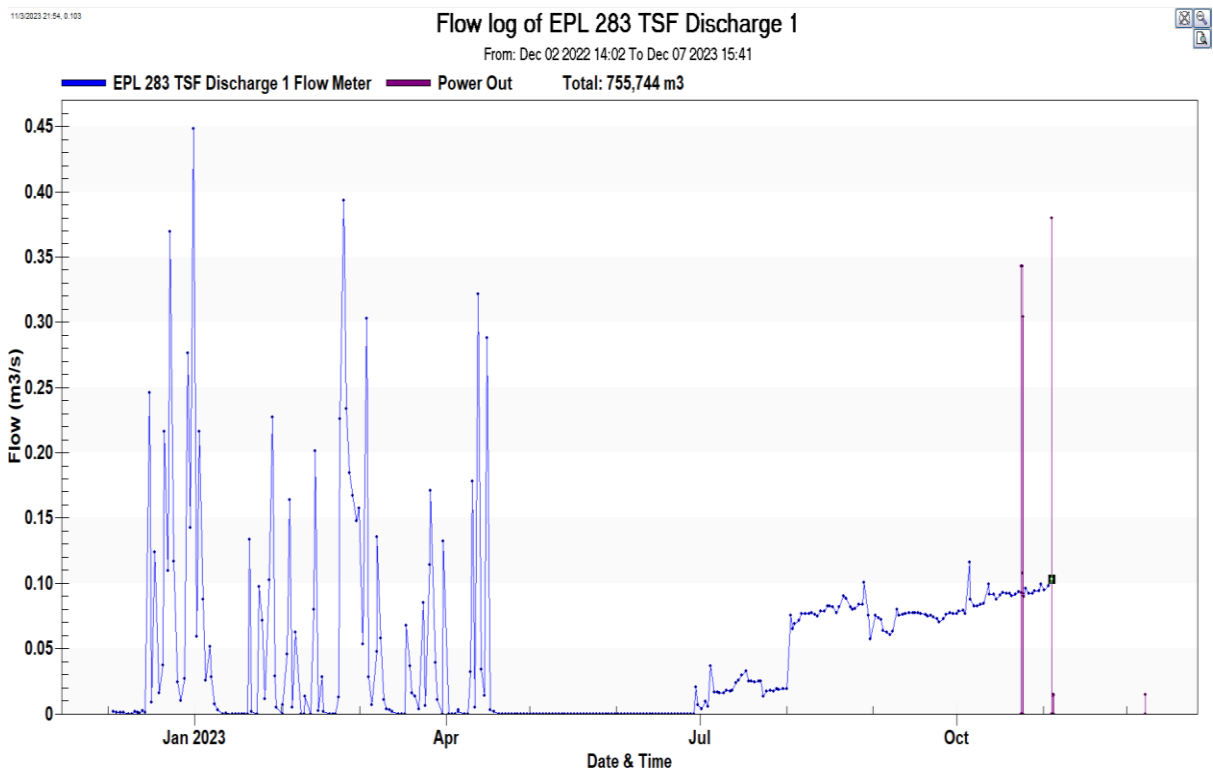
The graph below details the water discharged from the site TSF Discharge 1 as recorded by the water flow meter.

The graph shows a many high peaks during the annual wet seasons from rainfall events.

From the start of July, the ponds show a steady increase in discharge as more ponds are used in production. The flow rate in October is believed to be near maximum for the site as all ponds and tanks were being used at this time.

Unfortunately, the flow meter battery appears to have run out on November 3.

The total discharge for this time is 755744m<sup>3</sup>.





### Monitoring Results – Quality Assurance / Quality Control Evaluation

In situ (field) measurements for the surface water monitoring plan for this reporting period were conducted weekly when discharging for the TSF Inlet 1 and TSF Discharge 1 sites, and monthly for the TSF Ambient 1 and TSF Ambient 3 sites.

Parameters to be assessed at a NATA accredited laboratory were sampled monthly for all 4 sites.

The site was not in operation from the 2-12-22 until the 10-07-23. No sampling occurred during this period as it is not required during when not discharging.



## Discussion and Interpretation of Results

### In situ (field) Measurements

The readings at the compliance point for the in situ (field) measurements all fell within the trigger values for pH, dissolved oxygen, and turbidity.

### Parameters to be assessed at a NATA accredited laboratory

The measurements at the compliance point for the NATA assessed parameters were within the trigger values for; filterable reactive phosphorous, total nitrogen, total oxidised nitrogen, chlorophyll a, total phosphorus, and ammonia. There was a single exceedance in Total Suspended Solids (TSS).

### Exceedance – Total Suspended Solids

| Sampling Date | Total Suspended Solids (mg/L)       |                  |                |                    | Key  |
|---------------|-------------------------------------|------------------|----------------|--------------------|--|
|               | TSF Ambient 1<br>(compliance point) | TSF<br>Ambient 3 | TSF<br>Inlet 1 | TSF<br>Discharge 1 |  |
| 21/07/2023    | <5                                  | <5               | 34             | <5                 | less than trigger value at compliance point          |
| 18/08/2023    | 10                                  | 10               | 56             | 10                 | exceedance of trigger value at compliance point      |
| 22/09/2023    | 9                                   | 18               | 41             | 13                 | non-compliance of trigger value at compliance point  |
| 27/10/2023    | 14                                  | <5               | 40             | 34                 | less than trigger value for compliance point         |
|               |                                     |                  |                |                    | exceedance of trigger value for compliance point     |
|               |                                     |                  |                |                    | non-compliance of trigger value for compliance point |
|               |                                     |                  |                |                    | TSS trigger value: 10                                |

### Actual and potential causes and the contributing factors to the exceedance

The results show exceedances of the trigger values for Total Suspended Solids (TSS) at all the monitoring sites, most noticeably the TSF Inlet 1 and TSF Discharge 1. This was also reported in the EPL 283 2021 – 2022, Monitoring Report EPL 283 2020 – 2021, Monitoring Report, EPL 283 2019 – 2020 Monitoring Report, and frequently in reports for the previous waste discharge licence (WDL 173-05). It appears that the high TSS measurements are not a result of the ponds operation and are more likely a result of the natural environment of Darwin Harbour.

### Risk of environmental harm arising from the exceedance

Nil.

### Action(s) that have or will be taken to address the exceedance

Perhaps we could review Total Suspended Solids as a trigger for an exceedance and non-compliance.

### If no action was taken, why was no action taken





### Conclusion and Proposed Actions

There has been a single exceedance against the trigger values for Total Suspended Solids at the TSF Ambient 1 compliance point. A reasonable explanation for this is outlined above. It is of my opinion that none of these are caused by the operation of the ponds facility or would have caused any environmental harm.

A thought to review the trigger values for the Total Suspended Solids parameter should be considered as the water quality objectives are often exceeded in all monitoring locations.