ANNUAL MONITORING REPORT – YGP EPL230-01 (10/2/2024 – 9/2/2025)

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Document Title	Supersedes / Superseded by	
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REVISION LIST

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HOLD RECORD

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1. ABBREVIATIONS

Abbreviation	Description
BTEX	Benzene, Toluene, Ethylbenzene, Xylene
BOD	Biological Oxygen Demand
EPL 230-01	Environmental Protection Licence (EPL230-01)
Kscm	Thousands of standard cubic meters
ML	Mega-litres
Mn	Manganese
NGER	National Greenhouse and Energy Reporting
NPI	National Pollutant Inventory
NT EPA	Northern Territory Environment Protection Authority
OiW	Oil in Water
SPM	Single Point Mooring
tCO2-e	Tonnes of Carbon Dioxide equivalent
TSS	Total Suspended Solids
YGP	Yelcherr Gas Plant
Zn	Zinc

2. EXECUTIVE SUMMARY

The Blacktip Annual Monitoring Report 2024 summarises the environmental performance of the Blacktip Yelcherr Gas Plant (YGP) for the reporting period 10 February 2024 to 9 February 2025. It makes this comparison against the Environmental Protection Licence (EPL) 230-01.

At times, this Report provides information required for licence anniversary reporting, with a 10 Feb 2024 to 9 Feb 2025 period. At other times, information is reported in Financial Year terms, based on NGER reporting (July to June). Where anniversary or financial year reporting is used, it is clearly marked.

This Report accompanies the Annual Return, which provides a summary of the compliance against the EPL.

2.1 Discharges to Water

Offshore produced water outfall monitoring was conducted on the 3rd of July 2024.

Annual shellfish and sediment monitoring was conducted in August and October 2024. Both shellfish and sediment monitoring results were consistent across control and monitoring sites, indicating that there are no adverse environmental impacts from produced water discharge.

Lower volumes of produced water were discharged in 2024.

Non-compliances with limits and trigger values are outlined in Table 11.1. This includes Produced Water limits for total suspended solids (TSS), Manganese, Zinc (dissolved and total), Copper (dissolved and total), Naphthalene, Toluene, Ethylbenzene, and Xylene (m+p). A trial skid was installed in Q3 2024, with initial results showing improvements.

2.2 Discharges to Air

Total greenhouse gas emissions from Yelcherr Gas Plant calculated in the latest NGER reporting period (July to June) were 28,214 tCO2-e.

Total volume of gas flared during the NGERs reporting period was 2,091 KSCM, with an average daily rate of 5.7 KSCM/d.

2.3 Discharges to Land

Liquid waste discharges – treated wastewater

A total of 1.8ML of treated wastewater effluent was reused for irrigation in the reporting period. Non-compliances with limits and trigger values are outlined in Table 11.1. Non-compliances were recorded for pH, BOD and TSS.

Liquid waste discharges – stormwater

No non-compliances related to stormwater occurred in the 2024-2025 reporting period.

2.4 Groundwater

A total of 13.2ML of groundwater was abstracted for potable water use (1 January – 31 December 2024). All quarterly monitoring results were within the Australian Drinking Water Guidelines and ANZECC guidelines.

2.5 Waste Management

The total volume of waste produced for the 2024 calendar year was approximately 175.4 tonnes, which has decreased compared to 265.75 tonnes produced in 2023.

2.6 Non-Conformances

Non-conformances recorded in 2024/2025 are reported in the Annual Return and recorded in Table 11.1: Environmental non-compliances.

2.7 Community Initiatives

Eni continues to maintain a positive and engaging relationship with the Thamarrurr Rangers, who deliver local environmental monitoring services such as, but not limited to:

- Monitoring of offshore assets (e.g. Single Point Mooring (SPM) and hose);
- Wild fire management;
- Controlled burning;
- Weed and pest monitoring and eradication;
- Marine monitoring;
- Sea turtle monitoring;
- Fauna monitoring and relocation;
- Provision of vessel and crew for offshore environmental sampling;
- Emergency Response: Initial Oil Spill Monitoring Capabilities;
- PW-01 (Produced Water discharge point) monitoring; and
- Containers for Change (plastic bottle recycling).

2.8 Continuous Improvement

The following activities were completed during the reporting period to continually improve compliance to EPL230-01 requirements:

- A Comprehensive annual fugitive emissions survey to monitor for gas leaks across YGP was conducted in August 2024;
- A Comprehensive annual venting validation survey to monitor venting sources at YGP was conducted in August 2024;
- Thamarrurr Rangers participated in fluorometer training on the 5th of December 2024 for initial baseline oil spill monitoring;
- A trial skid to remove metalloids from Produced Water was installed in Q3 2024. This comprises of two chemical dosing units, one for pre-treatment with caustic and the other for post treatment pH correction with citric acid. Each with magnetic flow metering, pH control and digital metering pump for automatic dosing of chemicals. The skid also includes an Oil Water Separator (OWS) designed for bulk removal of oil should carryover occur. This unit also has an air sparging connection for oxidation of metals in the water to enhance their removal. Finally the skid has a Lamella Clarifier (LC) downstream of the oil water separator. This has inclined plates to increase the surface area for solids removal, and hoppers to collect the solids;
- AFFF Programme to remove current C6 containing firefighting foam stock from site;
- Two additional groundwater monitoring bores (BH-2 and BH-4) were included in two sampling rounds;
- A further bore was reinstated and included in sampling (BH-1); and
- In accordance with section 37 of EPL230-01, an environmental audit was conducted in July 2024.

3. INTRODUCTION

This Report summarises the environmental performance of the Blacktip YGP for the reporting period 10th February 2024 to 9th February 2025, as required by condition 63 of the EPL.

Eni Australia Limited (Eni) is the Operator of the Blacktip Gas Project in the Northern Territory. The development consists of a small unmanned offshore wellhead platform, a subsea pipeline bringing whole well stream fluid, (i.e., gas, condensate and produced water) to Yelcherr Beach and the Yelcherr Gas Plant (YGP) near Wadeye.

The processed gas is exported via an onshore export pipeline, by Australian Pipeline Trust, to the customer, Power and Water Corporation, for domestic gas and power generation.

Blacktip YGP commenced production on 26 August 2009. The operation of the YGP is licensed under the Environmental Protection Licence (EPL), EPL230-01, issued by the former Department of Natural Resources, Environment, The Arts and Sport (now Northern Territory Environment Protection Authority (NT EPA)) on 11th August 2009.

EPL230-01 (the current licence) was issued to Eni as the most recent amendment to the EPL. The EPL is due for renewal, which is currently in progress with the NTEPA.

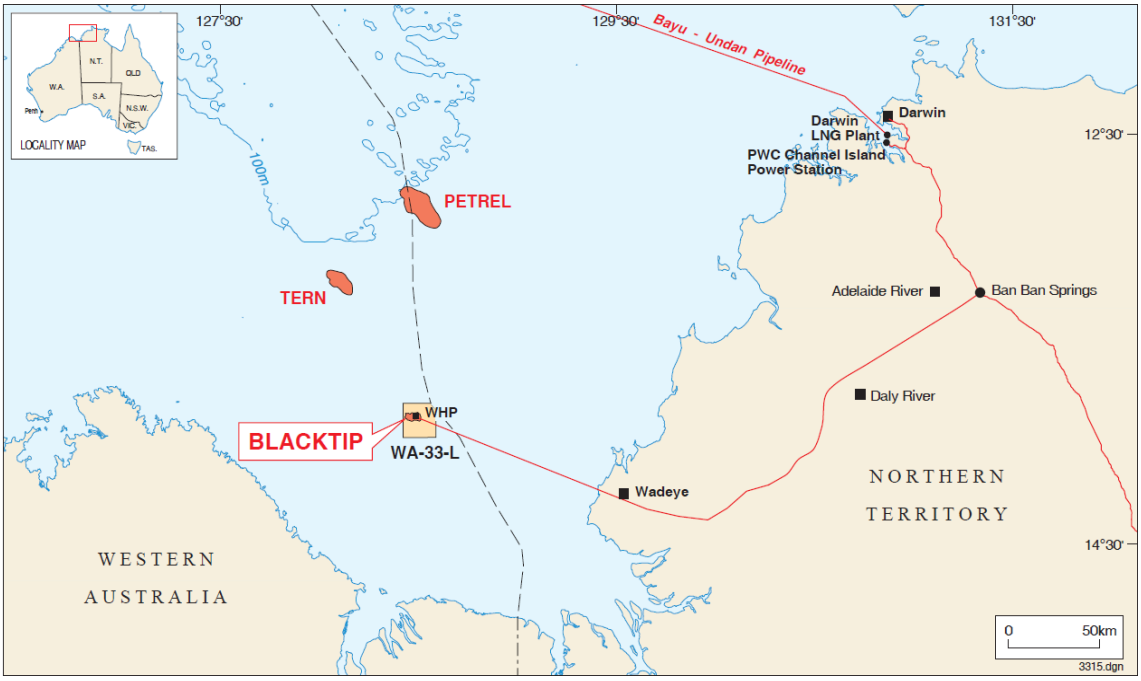

Figure 3-1: Blacktip Project locality map

3.1 Production

Production output for the 2024 calendar year was:

- Gas production was 147 MSCM;
- Annual Gas production was 114 ktonnes; and
- Condensate production was 1,634 tonnes.

3.2 Condition 64 requirements

This Report has been prepared in accordance with NT EPA 'Guideline for Reporting on Environmental Monitoring' and the requirements under condition 64 of the EPL, outlined below.

Table 3.1: EPL Condition Clause 64

Clause	EPL condition	Refer Section
64.1	include an updated description of gas plant infrastructure and processes	3.0
64.2	reports on total condensate produced and total gas processed by the gas plant;	4.0
64.3	reports on the quality of gas received by the plant;	4.4
64.4	includes a tabulation of all monitoring data required as a condition of this licence;	Appendices
64.5	includes a trend analysis and interpretation of all monitoring data required as a condition of this licence;	5.0, 6.0, 7.0, 8.0
64.6	includes a long-term trend analysis of monitoring data to demonstrate any environmental impact associated with the activity over a minimum period of three years;	5.0, 6.0, 7.0, 8.0
64.7	reports the total annual emissions for each emission point, as well as for condensate tanks and fugitive emissions.	7.0
64.8	reports the frequency and volume of wastewater discharges for the reporting period;	6.0
64.9	identifies the number of exceedances of trigger values and limits that have occurred during the reporting period, which includes a record of trigger value exceedances in accordance with condition 61;	1.7, Appendices
64.10	is prepared in accordance with the requirements of the NT EPA *Guideline for Reporting on Environmental Monitoring;*	All sections
64.11	demonstrates continuous improvement in air emissions from the authorised air emissions points identified in Attachment 4;	7.0
64.12	demonstrates continuous improvement in wastewater quality from the authorised discharge points identified in Attachment 2.	5.0, 6.0

3.3 Program objectives

Wastewater streams emanating from the YGP include:

- Produced water;
- Treated sewage wastewater; and
- Stormwater.
- The above streams may contain pollutants, which, if not properly managed, can enter the groundwater or surface waterways and result in soil and groundwater contamination. Therefore, wastewater must be managed appropriately in accordance with the Onshore Gas Plant Environmental Management Plan [000036_DV_PR.HSE.0684.000]. Discharges are monitored for pollutants in accordance with EPL230-01 requirements.

3.4 Site information

3.4.1 Site layout

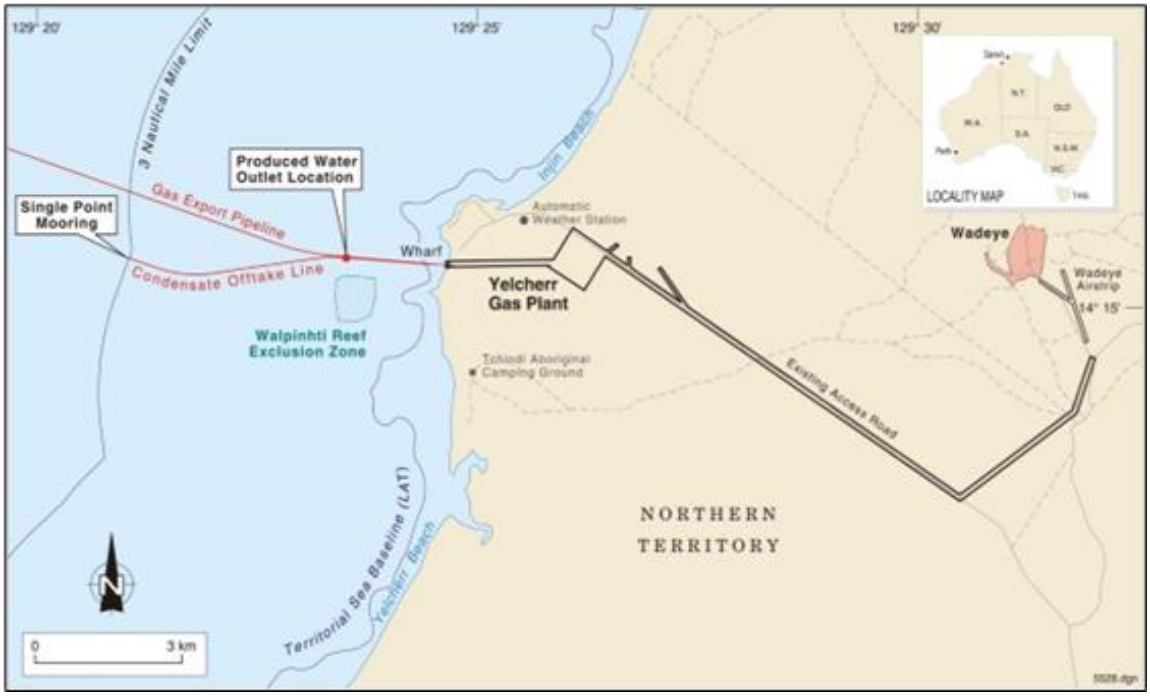

Figure 3-2: Blacktip Project layout

3.4.2 Environmental Context

Wadeye is located in the eastern (onshore) part of the Bonaparte Gulf Basin. The key geological/aquifer unit in the region is the Hyland Bay Formation, of Upper Permian age, which dips to the west (Ref. [5]). The unit is about 400m thick and was deposited in a deltaic environment during a period of marine transgression. Overlying the Hyland Bay Formation are undifferentiated sediments that have been heavily leached/altered to form a blanket cover of laterite and laterised clays and sandstones (Ref. [4]).

The uppermost sediments (in the Hyland Bay Formation) comprise weathered, fine to coarse, clean to clayey sandstone and rounded quartz gravels with interbeds of clay and siltstone. Fracturing within the Hyland Bay Formation sediments has resulted in the development of secondary permeability and highly permeable dual-porosity aquifers in this unit, which have been exploited by bores utilised for water supply by the Wadeye community (Ref. [4]). The aquifers are semi-confined to semi-unconfined, with pumping typically resulting in a delayed yield from surrounding sediments (Ref. [4]).

The lowermost sediments comprise pink to dark grey clays which are at least 50m thick. This clay unit sub-crops immediately to the east of Wadeye.

Geotechnical investigations undertaken by Advanced Geomechanics (AG, 2005) have confirmed that the general lithological sequence of sandstones, clayey/silty sands and gravels at the plant site is fairly consistent with the sequence found at Wadeye, although no gravels have been encountered at Wadeye (Ref. [5]).

Interpretation of a 10-day pumping test undertaken by AG (2005) indicates that the aquifer in the area of the plant site has a transmissivity of around 1,300m2/day, although the lack of measurement precision with which the test was undertaken causes some uncertainty in the estimated transmissivity (Ref. [5]). The groundwater level (elevation) at the time of the test in October 2004 was not provided but is estimated to be around +4mAHD (based on section drawings showing bore elevations). Pumping at around 190kL/day resulted in a final drawdown of 0.2m. Jamieson (1991) reports a typical transmissivity of around 4,000m2/day in the Wadeye area and a specific yield of 10% (Ref. [4]).

Groundwater flows to the northwest toward the Bonaparte Gulf coast and discharges as small springs in coastal creek/swamp areas. The hydraulic gradient is low and estimated to be about 0.1% (Ref. [4]). Based on the results of bore test data, Jamieson (1991) estimates that groundwater throughflows, (and hence coastal discharges to the sea and creek/wetland systems) are of the order of 1.5Mm3/yr/km (Ref. [4]).

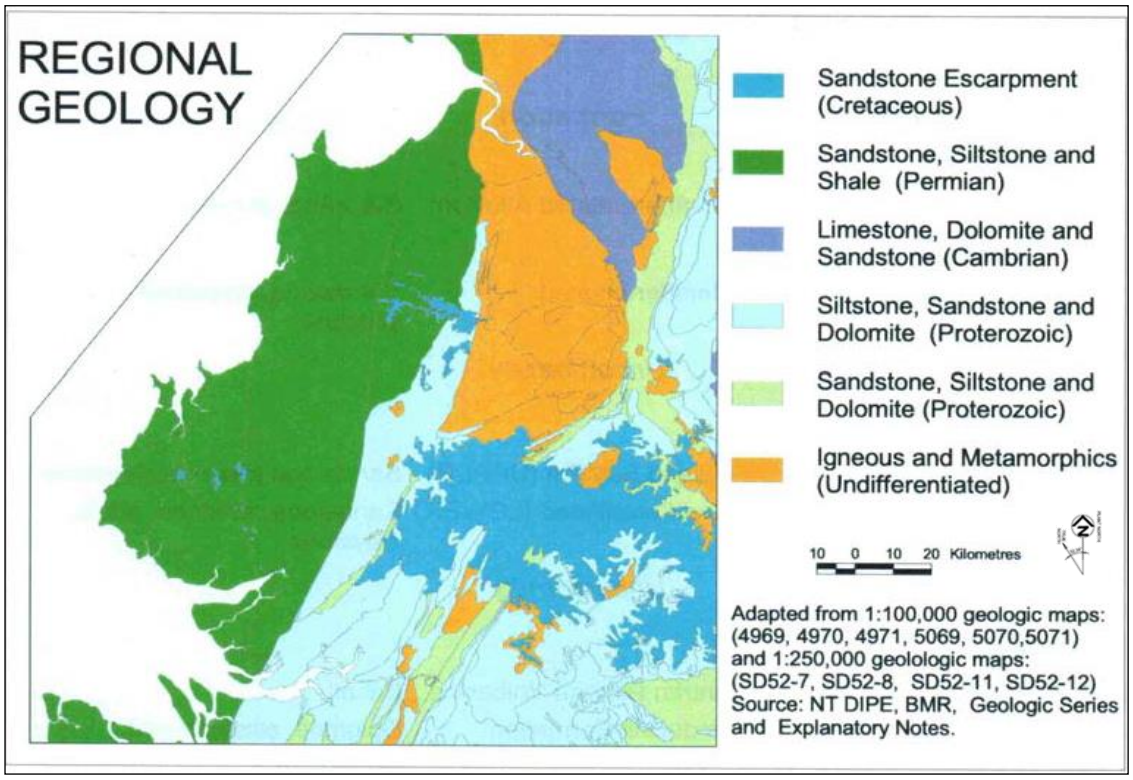

Figure 3-3: Regional Geology layout

Source of above information is Groundwater Management Plan - Blacktip Gas Project (Phase 1 Civil Works), EcOZ Environmental Services Pty Ltd, Sept 2006

4. OVERVIEW OF YELCHERR GAS PLANT

4.1 General overview

In accordance with condition 64.1 of EPL230-01, this section provides a description of the gas plant infrastructure and processes. Infrastructure at the YGP includes:

- A gas processing plant consisting of separation, gas dehydration, compression, condensate storage and produced water treatment facilities;
- The onshore portion of an 18" carbon steel, multi-phase pipeline bringing produced fluids from the offshore gas field to the YGP, starting from the shore crossing;
- The onshore portion of a condensate export pipeline from the condensate storage facilities at the YGP to the shore crossing; and
- A portion of the onshore gas export pipeline that runs from the gas processing plant to a custody transfer meter at the boundary of the YGP site.

4.2 Plant configuration

After processing, un-odorised natural gas at agreed specifications is delivered to the customer via an onshore export pipeline to a custody transfer meter at the boundary of the YGP, at a maximum delivery rate of 120TJ/day.

Stabilised condensate is stored on site at the YGP before being exported to the SPM for offload via tankers.

The production life of the field is planned to be 25 years based on initial gas sales contract. The design life of the Blacktip YGP is 30 years.

The entire YGP site occupies an area of 750m by 750m, with the main process facility located to the south of the site (occupying an area of approximately 250m by 380m) and the accommodation, warehouse, offices, and control room to the north (see Figure 4-1). The number of personnel on site is generally 20 people, with the maximum permanent accommodation capacity being 24 people. The coordinates of the YGP are shown in Table 4.1.

Table 4.1: YGP Coordinates

Corner	GDA 1994		GDA 1994 MGA Zone 52	
	East	North	mE	mN
W	129°25'52.09"	14°14'33.60"	546 510	8 425 393
N	129°26'05.87"	14°14'13.22"	546 924	8 426 018
E	129°26'26.77"	14°14'26.66"	547 549	8 425 604
S	129°26'12.99"	14°14'47.04"	547 135	8 424 979

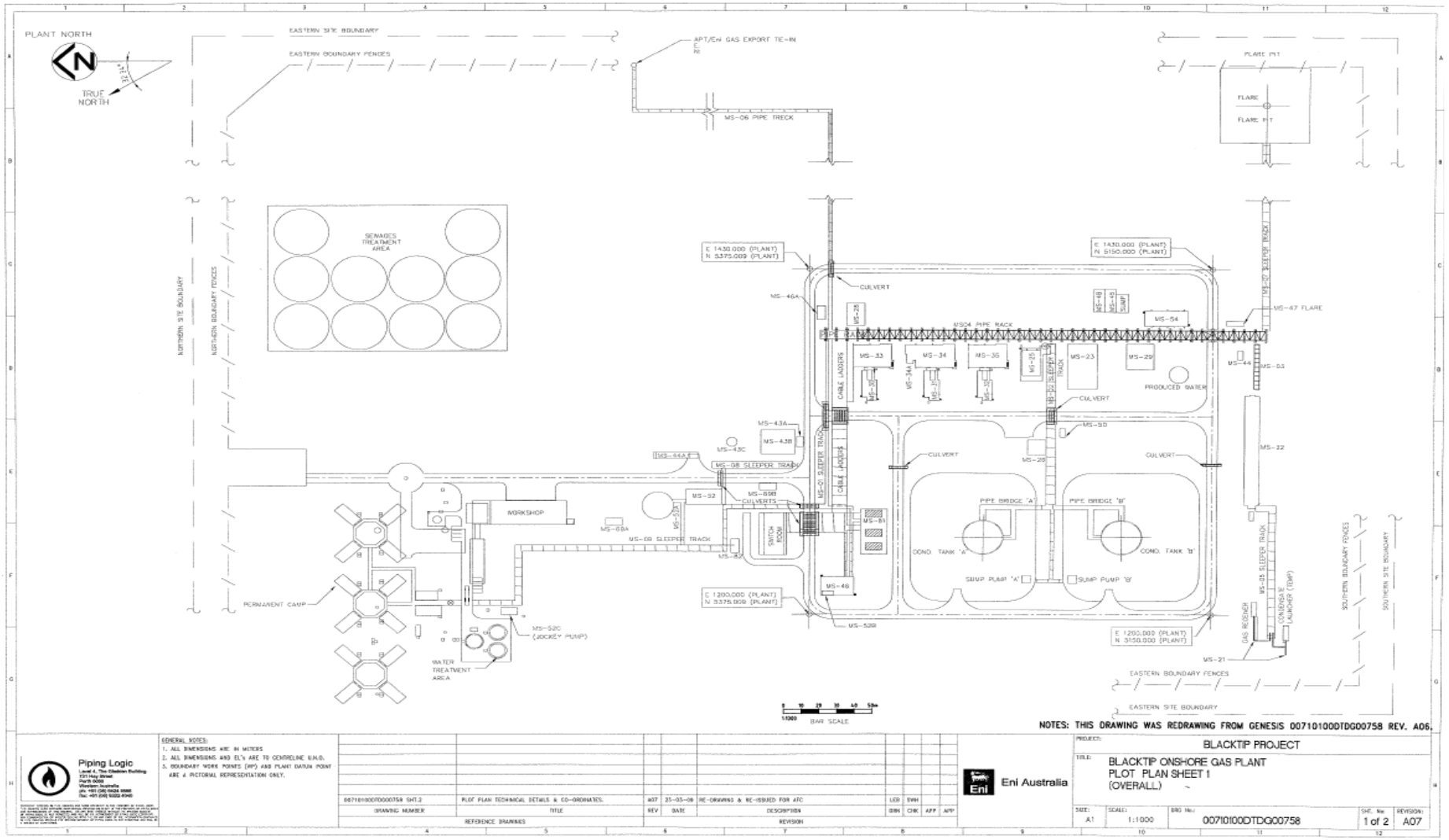

Figure 4-1: Blacktip YGP layout

4.3 Other facilities

Other key facilities on site include:

- Utilities system – including:
  - Power generation;
  - Compressed air system;
  - Potable water system;
  - Chemical injection;
  - Stormwater drainage;
  - Sewage treatment plant and effluent reuse; and
  - Firewater.
- Ancillary buildings – including:
  - Accommodation;
  - Laboratory, workshop and stores; and
  - Cyclone rated emergency response shelter.
- Hazardous chemicals storage; and
- Lighting, security and perimeter fencing.

5. PRODUCTION

5.1 Overview

The annual production is provided in Table 5.1: Blacktip is licensed for a maximum scale of 1,055,300 tonnes of gas and 50,900 tonnes of condensate per annum.

Table 5.1: Overview of production

	2022	2023	2024
Annual gas production (KSCM)	543,814	390,558	147,245
Annual gas production (t)	415,240	297,976	114,340
Condensate production (t)	7,476	4,355	1,634
Total production (t)	422,716	302,331	115,974

Notes: Reporting period is from 1 January – 31 December

5.2 Condensate

No condensate offtakes occurred during the reporting period.

5.3 Gas production

Total gas production in 2024 was 147 MSCM.

5.4 Gas composition

The reservoir fluid properties and contaminants are shown in Table 4.2 and Table 5.3:

Table 5.2: Blacktip reservoir fluid properties

Component	Percentage
CO_2	0.62 mol%
N2	5.88 mol%
Methane	89.06 mol%
Ethane	2.82 mol%
Propane	1.00 mol%
Ibutane	0.12 mol%
Butane	0.23 mol%
Ipentane	0.06 mol%
Pentane	0.05 mol%
Hexanes	0.02 mol%
Heptanes	0.01 mol%
Octanes	0.02 mol%
Nonanes	0.03 mol%
Decanes	0.04 mol%
Undecanes	0.02 mol%
C_{12+}	0.01 mol%

Source: Ref. [2], [3]

Table 5.3: Contaminants in Blacktip Gas

Component	Maximum measured
H_2S	3.0 ppmv
Mercaptan	<0.5 ppmv
Mercury	0.2 µg/m³
Radon	222 Bq/m³
Argon	0.01 mol%
Oxygen	<0.01 mol%
Helium	0.06 mol%
Hydrogen	0.01 mol%
Benzene	0.002 mol%
Toluene	0.002 mol%
Ethyl Benzene	<0.001 mol%
Xylenes	0.001 mol%

Source: Ref. [2], [3]

6. MONITORING DISCHARGES TO WATER

6.1 Produced Water

Produced Formation Water (PFW) or Produced Water (PW) separated from the liquid stream is further processed in the PFW system to remove free and entrained oil prior to disposal at sea.

The key design functions of the PFW Treatment System are to:

- Handle a maximum flow rate of 9,400bwpd (1,500m3/day);
- Reduce the oil in water concentration to below 25ppm; and
- Maintain pH of discharged water to between 6.5 and 8.5.

The main components include:

- Produced Water Degasser;
- Induced Gas Flotation (IGF) Units;
- Produced Water Break Tank; and
- CETCO unit.

The licence limit for OiW is 25mg/l, so a sodium hydroxide solution is added to remove the final hydrocarbon components to ensure specification. pH balance is returned by adding Citric Acid once the OiW readings have steadied below the limit. This information is gathered from site testing using the Horiba method to confirm suitability (within specification) prior to discharge.

Offshore produced water monitoring was conducted on the 3rd of July 2024.

Annual shellfish and sediment monitoring was conducted in August and October 2024. Overall, both shellfish and sediment monitoring results were consistent across control and monitoring sites, indicating that there are no adverse environmental impacts from produced water discharge.

Table 6.1 presents the annual produced water discharges for the past three years. Produced water discharge in this reporting period was 1.97ML. Produced water volumes decreased in the 2024 reporting period.

Table 6.1: Produced Water Annual Discharge

	2022	2023	2024
Volume of PW discharged (m^3)	31,440	37,458	1,971.4
Number of discharge days	237	158	18

Notes: Reporting period is from 10 February – 9 February.

6.1.1 Monitoring Objective

The objective of the Produced Water discharge monitoring program is to:

- Characterise the quality of the discharge stream; and
- Assess compliance with the limits and trigger values in the licence.

6.1.2 Monitoring Methods

Produced water is sampled and tested prior to discharge to ensure certain parameters are within the limits stipulated in the EPL. Samples are taken during discharge to ensure water quality remains within the licence limits. These samples are tested both in the site laboratory and/or transferred to the company's laboratory services provider.

EPL230-01 requires periodic characterisation of PW upon discharge. Sampling has been undertaken as per the sampling plan. In the 2024-2025 reporting period, produced water discharges occurred in May, June, July, September and October 2024 only.

Samples are taken from PW-02 and are analysed for the parameters as specified in EPL230-01. Samples are taken during discharge events and stored appropriately prior to transfer to the company's laboratory services provider Petrolab. The samples travel by charter flight from Wadeye to Darwin on a Wednesday morning. On arrival in Darwin, the samples are then distributed to NATA accredited laboratories for analysis.

Routine and periodic produced water samples are collected by the process operators in line with the Water Sampling Procedure [000036_DV_PR.HSE.1013.000_03] and EPL230-01 requirements. The monitoring regime is further detailed in the document Environmental Monitoring Requirements [000036_DV_PR.HSE.1020.000_03].

6.1.3 Monitoring Results

From November 2023, the volume of PW discharge reduced significantly. The volume of PW remained lower throughout the 2024-2025 reporting period.

All monitoring results for the reporting period, including field sampling and laboratory analyses, and graphs showing historical data are presented in Attachment B.

For metal concentrations, results have been displayed below for total metals. Refer to the tables in Attachment B for filtered sample results where required dissolved metals.

The figures below show historical data and trends for key parameters. Note that values that were recorded as below practical quantitation limits (PQL) by the laboratory will appear on graphs as "0".

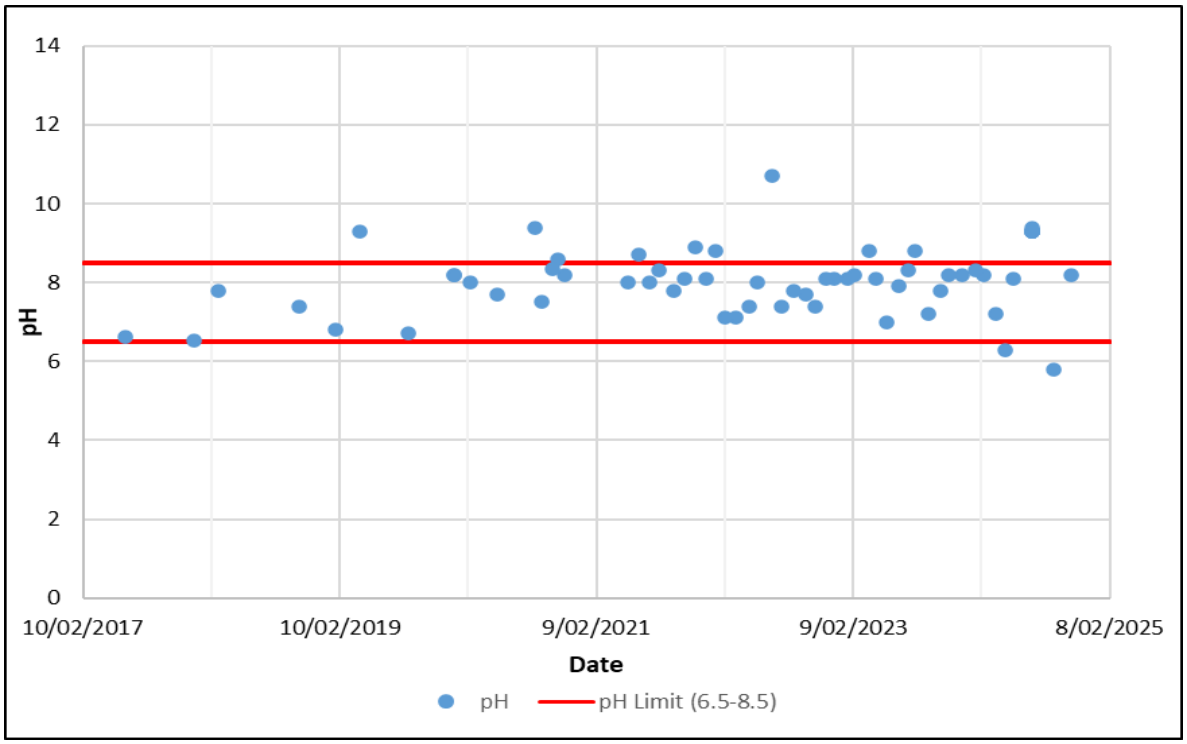

Figure 6-1: Produced Formation Water laboratory analysis results for pH from 10 February 2017 to 9 February 2025.

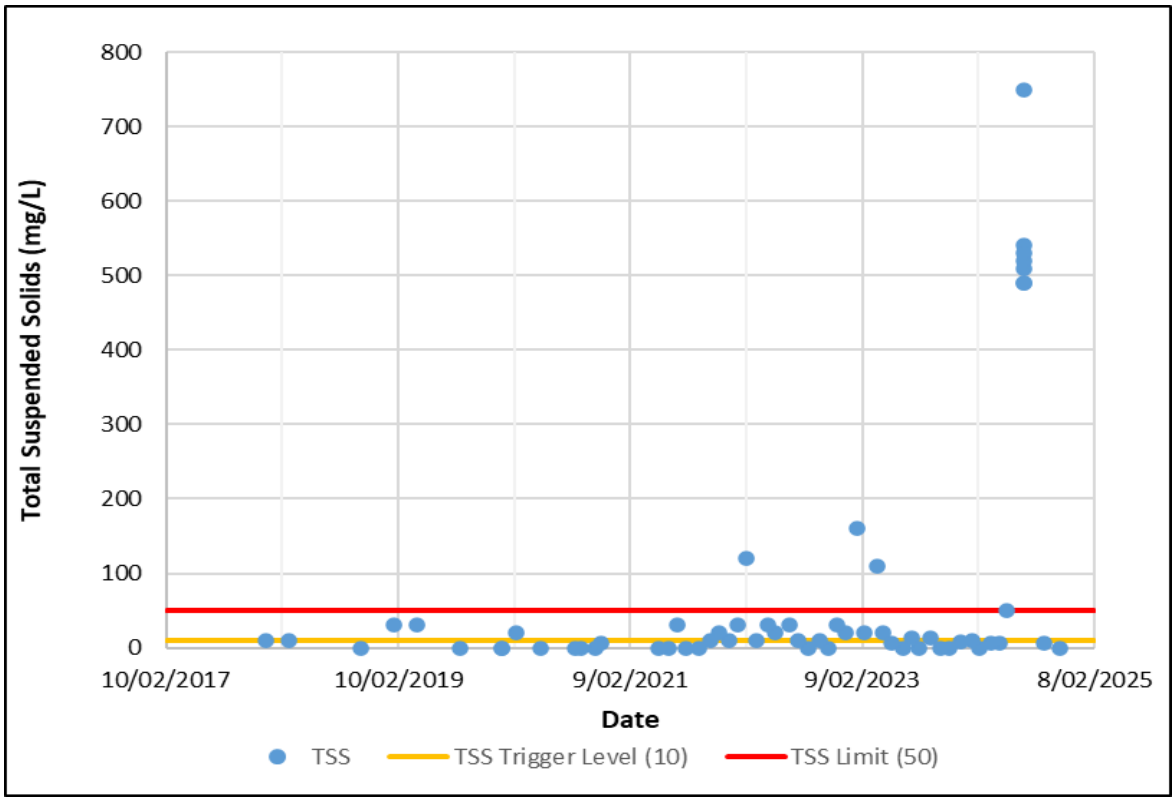

Figure 6-2: Produced Formation Water laboratory analysis results for Total Suspended Solids from 10 February 2017 to 9 February 2025.

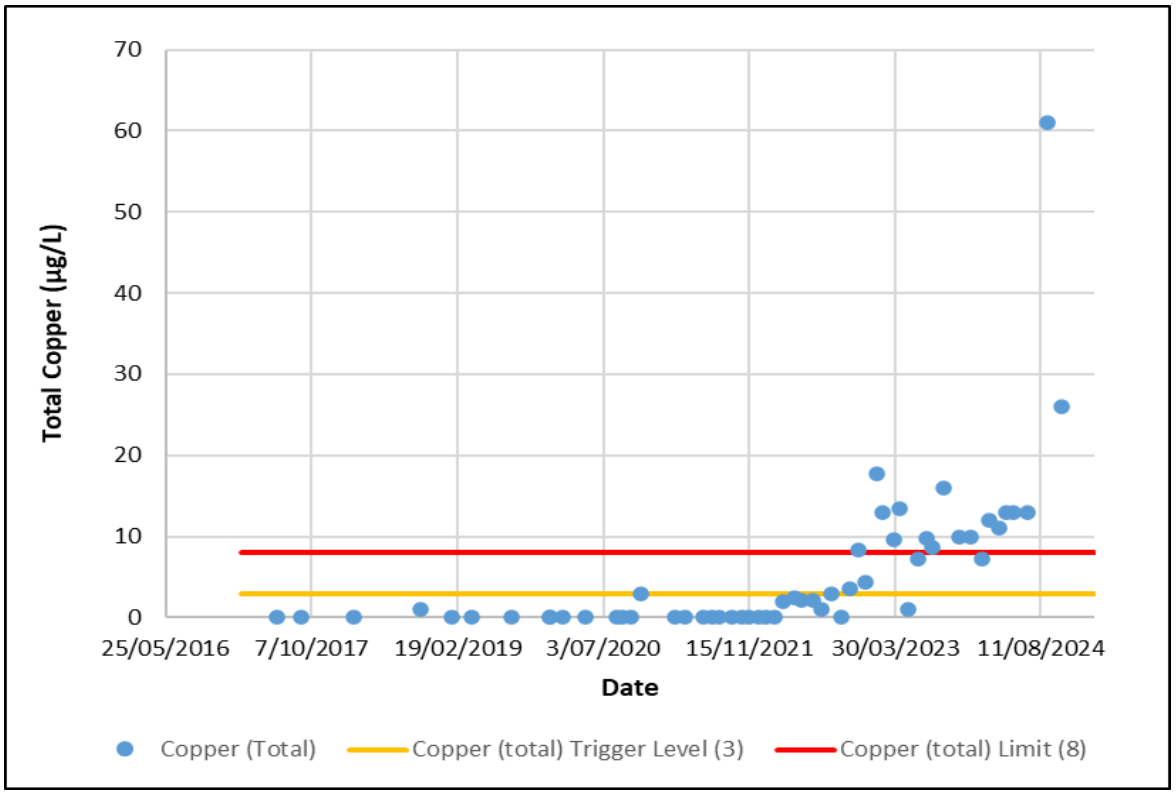

Figure 6-3: Produced Formation Water laboratory analysis results for Total Copper from 10 February 2017 to 9 February 2025.

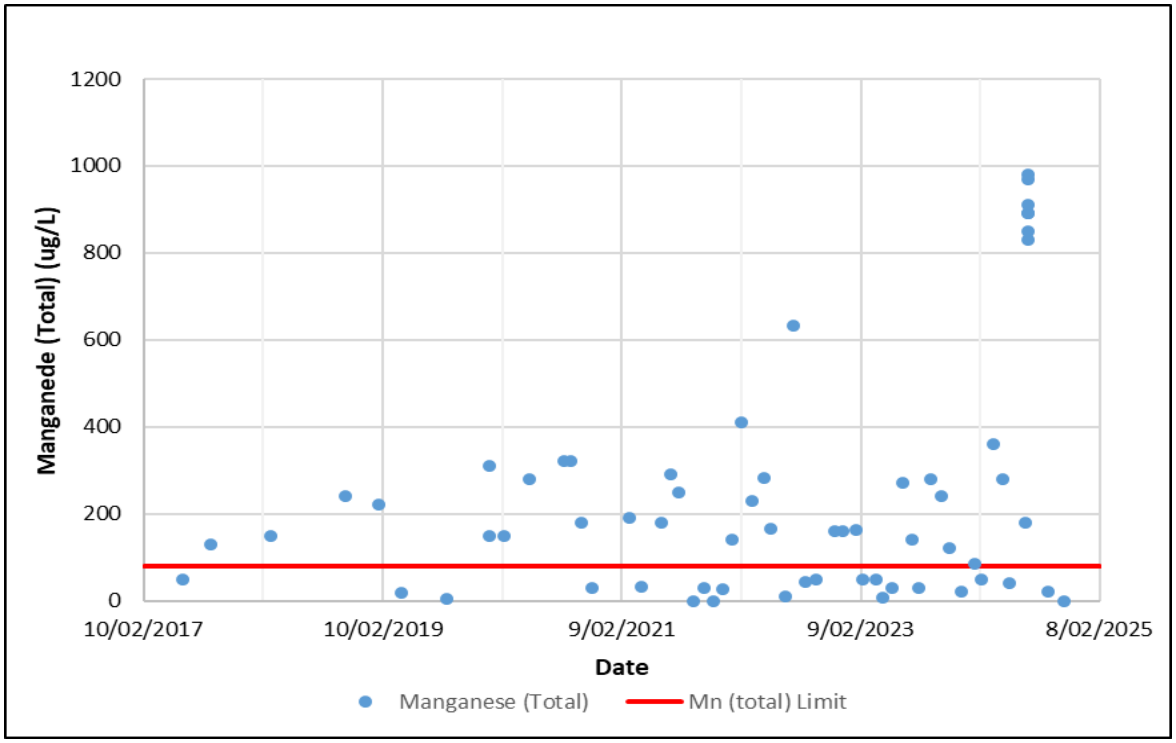

Figure 6-4: Produced Formation Water laboratory analysis results for Total Manganese from 10 February 2017 to 9 February 2025.

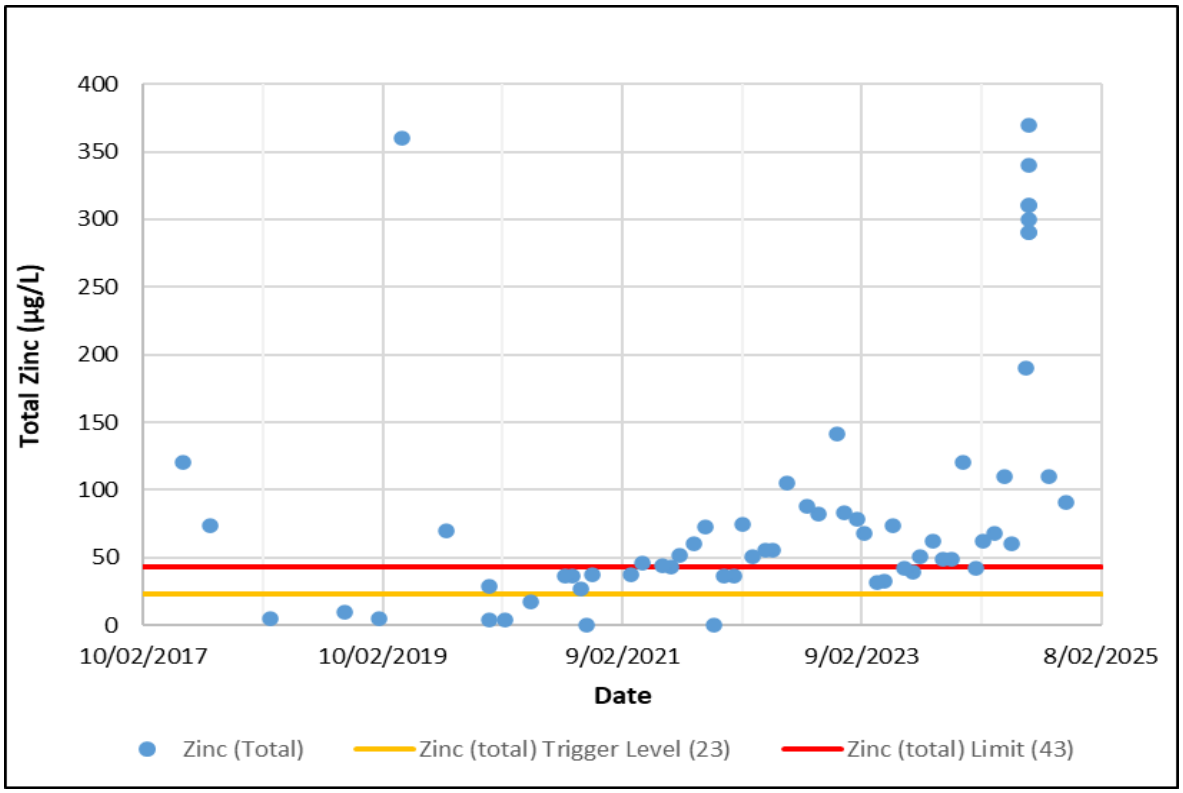

Figure 6-5: Produced Formation Water laboratory analysis results for Total Zinc from 10 February 2017 to 9 February 2025.

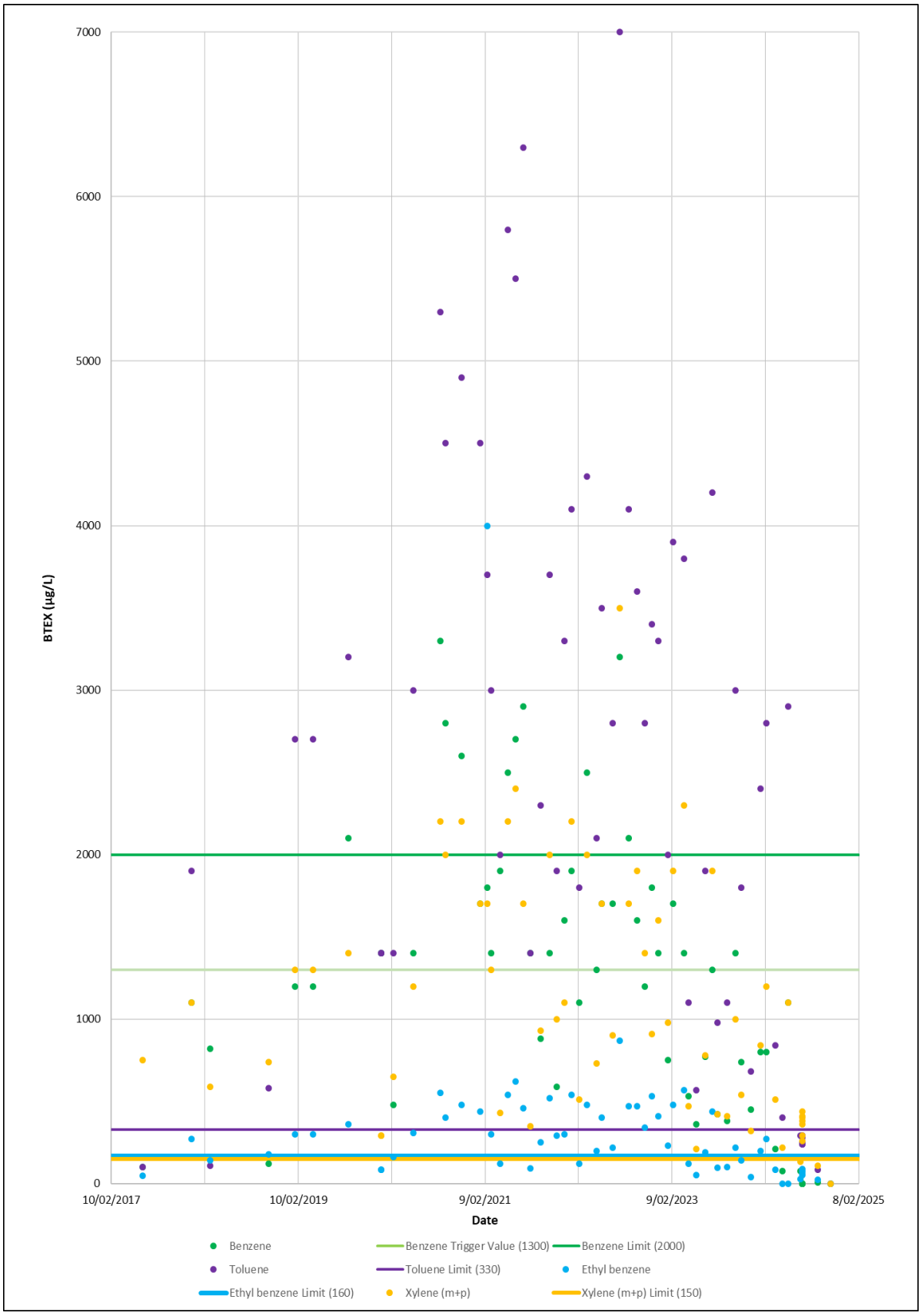

Figure 6-6: Produced Formation Water laboratory analysis results for BTEX from 10 February 2017 to 9 February 2025.

6.1.4 Data Management and Quality Control

The quality assurance/quality control (QA/QC) procedures specific to the collection and analysis of produced water samples from PW-02 include:

- Adhering to requirements outlined in the Water Sampling Procedure [000036_DV_PR.HSE.1013.000_03];
- Using NATA accredited analytical laboratories for all analyses or a test method managed under a NATA accredited quality management system;
- Adhering to laboratory designated sample holding times;
- Completed Chain of Custody forms accompany all samples;
- Calibration of all field-testing equipment is undertaken on a regular basis using standard method(s); and
- Manual data validation has been undertaken during the preparation of this Annual Monitoring Report, including cross checking data with laboratory records and field sheets.

The water sampling procedure is being reviewed and updated in 2025 to align with the new environmental protection licence. Adding duplicate samples and/or blanks to the sample program will be investigated as part of this procedural review.

6.1.5 Discussion and Interpretation of Results

Throughout the reporting period, there were several exceedances of metals concentrations including copper (Figure 6-3), manganese (Figure 6-4) and zinc (Figure 6-5). These were reported as non-conformances as per Table 11.1. In October 2024, process consultants visited the site, and a high pH coagulant (floc) injection system was installed on a trial basis to assist with the removal of metalloids and solids. The coagulant successfully removed Manganese to below practical quantification levels at a pH of 10.5. Zinc and copper are still being detected, and further trials are being undertaken to continue reducing these.

Benzene, Toluene, Ethyl benzene and Xylene (BTEX) chemicals are a group of monoaromatic hydrocarbons. As can be seen in Figure 6-6, beginning in 2016 there was a gradual increase recorded in produced water samples for benzene, toluene, ethyl benzene and xylene. The use of Nitrogen sparging and activated carbon filters to extract the entrained hydrocarbon in PW has been ongoing throughout this reporting period. The use of nitrogen sparging was proven effective with a decrease in levels of BTEXs observable from late 2023. This process has been further refined throughout 2024 in order to keep BTEXs trending down towards EPL230-01 defined thresholds and trigger limits.

6.1.6 Annual Marine Monitoring

Eni has an annual commitment, set out in *Produced Water Management Plan* (000036_DV_EX.HSE.0381.000_A02), to undertake sediment and shellfish sampling in the vicinity of the produced water pipeline to monitor any impacts on sediment and biota.

Sediment and Shellfish Sampling was undertaken on the 6th of August and 2nd of October 2024 in accordance with the *Australian Government National Assessment Guidelines* and with assistance from the Thamarrurr Rangers. One site was unable to be accessed on the 6th of August due to tides and the beach being closed for "sorry business", with the final sample being taken on the 2nd of October. The results of the survey are described in the *Blacktip Operations Marine Survey 2024* (7100.00.P.G.RV.00071).

Shellfish samples were collected from mangroves and rocky headlands located at the southern and northern ends of Yelcherr Beach and two control sites located 7km and 53km north of Yelcherr Beach. Overall, the 2024 results showed that:

- Many of the measured metals concentrations were below or near detection limits;
- All metals concentration results were within the historical ranges across the various locations, with the data for this year showing that the trend is declining;
- No hydrocarbons were detected in any of the samples;
- No abnormalities were observed in the shellfish or reported by the local community; and
- There were no immediate concerns regarding environmental harm or public health.

Sediment samples were taken from mangrove muds at the southern and northern ends of Yelcherr beach, with control samples taken from locations 7km and 53km to the north of Yelcherr beach. Overall, the 2024 results showed that:

- All metal concentrations in mangrove sediments were below the Australian and New Zealand default guideline values;
- Metals concentrations were well within levels measured in previous years and consistent across the sites;
- Magnesium was higher at one of the control locations, however it has reduced at the Yelcherr Beach locations in the previous two years;
- No hydrocarbons were detected at any sites in 2024; and
- No significant differences in results have been identified between monitoring and control sites over the duration of the monitoring program.

Overall, both shellfish and sediment monitoring results were consistent across control and monitoring sites, providing confidence that there are no adverse impacts from produced water discharge.

6.1.7 Produced water model validation

Eni has a commitment in the Produced Formation Water Plan (710100PFPQ50254) to validate the near field and far field produced water dispersion model.

Offshore monitoring at the produced water outfall was undertaken in November 2020, for the purposes of validating the produced water dispersion model in accordance with the Produced Formation Water Plan. The study report was delivered on the 25th of March 2021. The assessment concluded that within the proposed 50m mixing zone, no laboratory parameters exceeded the ANZG (2018) Marine water 99% toxicant DGVs.

Thamarrurr Rangers also participated in an Eni endorsed AIMS water outfall sampling training programme to support future sampling and monitoring of the mixing zone. A targeted campaign of PW outfall data was collected during the monitoring training in June 2023 which demonstrated similar results to the November 2020 Study Report, further validating harm to the environment is not evident.

Produced water outfall monitoring was conducted during the 2024 reporting period. Sampling was undertaken on the 3rd of July 2024 by MScience Marine Research in conjunction with the Larrakia Land and Sea Rangers. This consisted of offshore monitoring near the outfall diffuser and onshore monitoring of produced formation water at PW-02. Forty-two offshore samples were collected across several locations, depths and tidal conditions including a reference site. The offshore water samples were analysed for a broad list of licence analytes and the PW-02 licence limit was used for comparative purposes. Also, eight onshore sampling rounds were taken at the PW-02 sample point on the same day. Although some offshore samples could not be collected due to time/PFW volume constraints, the sampling program was more comprehensive than the previous program and captured significant slack tide data. Key findings in relation to offshore water quality included:

- The offshore monitoring demonstrated almost all licence parameters were diluted below the onshore (PW-02) licence limit including during the worst-case slack tide conditions.
- The water column appeared to be well mixed during slack, flood and ebb tides.
- The only offshore parameter above the PW-02 limit attributed to the outfall discharge was copper - noting that most (32 of 36 and 34 of 36 Intermediate Mixing Zone (IMZ)/Mixing Zone (MZ) samples) were still below the trigger value and licence limits respectively.
- The one slack tide MZ result for zinc above the PW-02 licence limit was not attributed to the outfall discharge.
    - This is because many of the mixing zone results were below the reference site values, and a reference site sample was also recorded above the licence limit. Most (35 of 36 IMZ/MZ samples) were still below the licence limit and trigger value.
- Toluene, ethyl benzene, naphthalene, phenol, and manganese were found to be within the licence limits for the MZ/IMZ samples.
    - This again demonstrated the positive effect of the outfall in diluting the discharged effluent as the onshore (PW-02) samples exceeded the licence limits for -m & p-xylenes, copper (total and dissolved), manganese (total), zinc (total and dissolved), and total suspended solids.
    - All MZ/IMZ samples for TSS above were above its trigger thresholds.

6.1.8 Conclusions and Proposed Actions

To align the quality of discharged PFW with specifications, the Company has developed a PFW Project roadmap towards EPL230-01. As part of the PFW Project, Nitrogen sparging has been used in the Produced Water Treatment tank to remove light hydrocarbons, which has proven effective and has been further refined throughout 2024.

The Project also trialled and implemented inline oil separation using activated carbon filters to further remove entrained hydrocarbons. Additionally, trials for the use of a coagulant injection system utilising engineered equipment to reducing metals in PW have been carried out with positive results.

It is acknowledged that due to dilution in the mixing zone to contaminant concentrations below ANZ Default Guideline Values, the risk of negative environmental receptor impact is deemed low.

7. MONITORING DISCHARGES TO LAND

7.1 Wastewater disposal

Domestic wastewater, including wastewater originating from showers, wash basins, toilet facilities, laundries, and kitchens, is treated by the Wastewater Treatment Plant (WWTP). The WWTP is a ABCO Jacana Sequencing Batch Reactor (SBR). The SBR includes primary treatment by settlement and secondary treatment by activated sludge. Treated effluent is discharged through an irrigation system to the authorised discharge point WW-01 shown in Figure 7-1: Treated Effluent Discharge Area. The irrigation system has a flow rate capacity of 3.5m3/hr and consists of 10 sprinklers, each with a 40m radius.

Figure 7-1: Treated Effluent Discharge Area WW-01.

Wastewater generated at Blacktip YGP is treated in an ABCO Water System 150 EP. Effluent is reused through an irrigation system to land, and a total of 1.8ML was discharged in 2024/2025 as per Table 7.1: Treated wastewater effluent reuse Discharge volumes of wastewater over the reporting period were consistent with 2023 volumes.

Table 7.1: Treated wastewater effluent reuse

	2022	2023	2024
Effluent reuse (ML)	1.4	1.8	1.8

Note: Reporting period is from 1 February to 31 January. See Attachment C:1.

In accordance with EPL230-01, treated wastewater is sampled and analysed on-site for in-situ parameters prior to discharge. Other parameters are analysed monthly by an external laboratory to verify compliance against the contaminant limits. These results are presented in Attachment C.

7.1.1 Monitoring Objective

The monitoring objective for wastewater is to conduct:

- Routine testing on site prior to discharge; and
- Periodic (monthly, quarterly, or annually) monitoring of discharge water for detailed chemical analysis.

Sewage wastewater is treated by the Wastewater Treatment Plan (WWTP) and discharged to a nearby irrigation spray field (authorised discharge point WW-01).

7.1.2 Monitoring Methods

Sewage wastewater samples are collected by the process operators in accordance with the Blacktip Operations Water Sampling Procedure (000036_DV_PR.HSE.1013.000) and EPL 230-01 requirements. Periodic monitoring of discharge water is undertaken to monitor the chemical composition of the wastewater stream and assess water quality across a suite of parameters. Samples are sent to an external laboratory for analysis.

Samples are taken from sample point WW-02 and are analysed for the parameters as specified in EPL230-01. Where possible, samples are taken early on the Wednesday morning and are stored appropriately prior to transfer to the company's laboratory services provider Petrolab. The samples travel by charter flight from Wadeye to Darwin on a Wednesday morning. On arrival in Darwin, the samples are then distributed to NATA accredited laboratories for analysis.

The monitoring regime is further detailed in the document Environmental Monitoring Requirements (000036_DV_PR.HSE.1020.000_03).

7.1.3 Monitoring Results

The total volume of treated wastewater that was discharged from February 2024 to January 2025 was 1,827m^3.

Tables with all laboratory analysis results from WW-02 for the 2024/2025 reporting period are available in Attachment C.

Graphs depicting current and historical data are also available in Attachment C, with key parameters presented below.

The graphs below show historical data and trends for key parameters. Note that values that were recorded as below practical quantitation limits (PQL) by the laboratory will appear on graphs as "0".

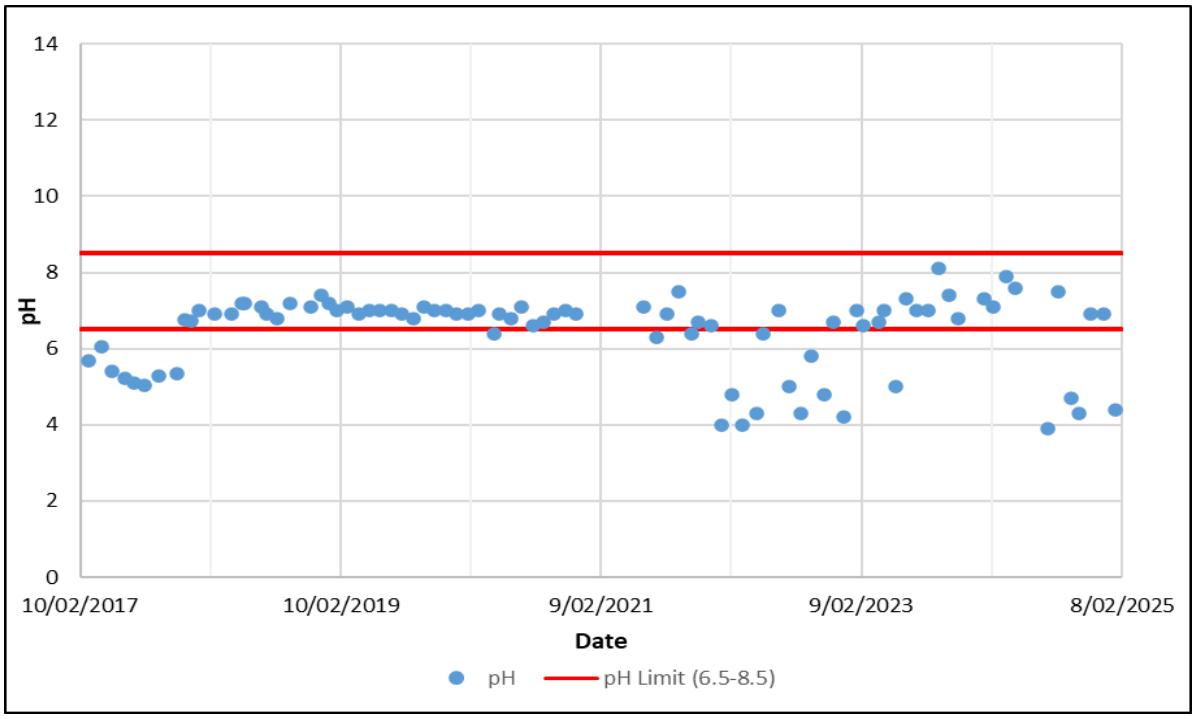

Figure 7-2: Treated wastewater laboratory analysis results for pH from 10 February 2017 to 9 February 2025.

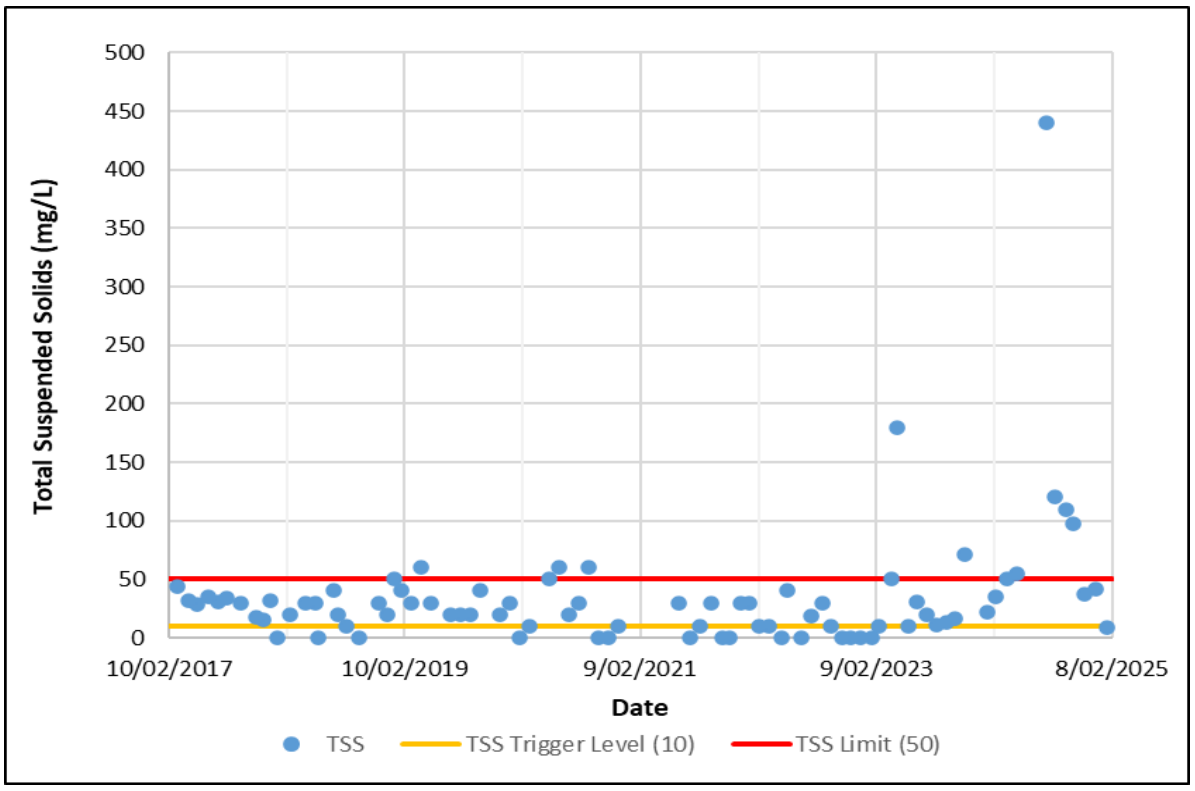

Figure 7-3: Treated wastewater laboratory analysis results for total suspended solids from 10 February 2017 to 9 February 2025.

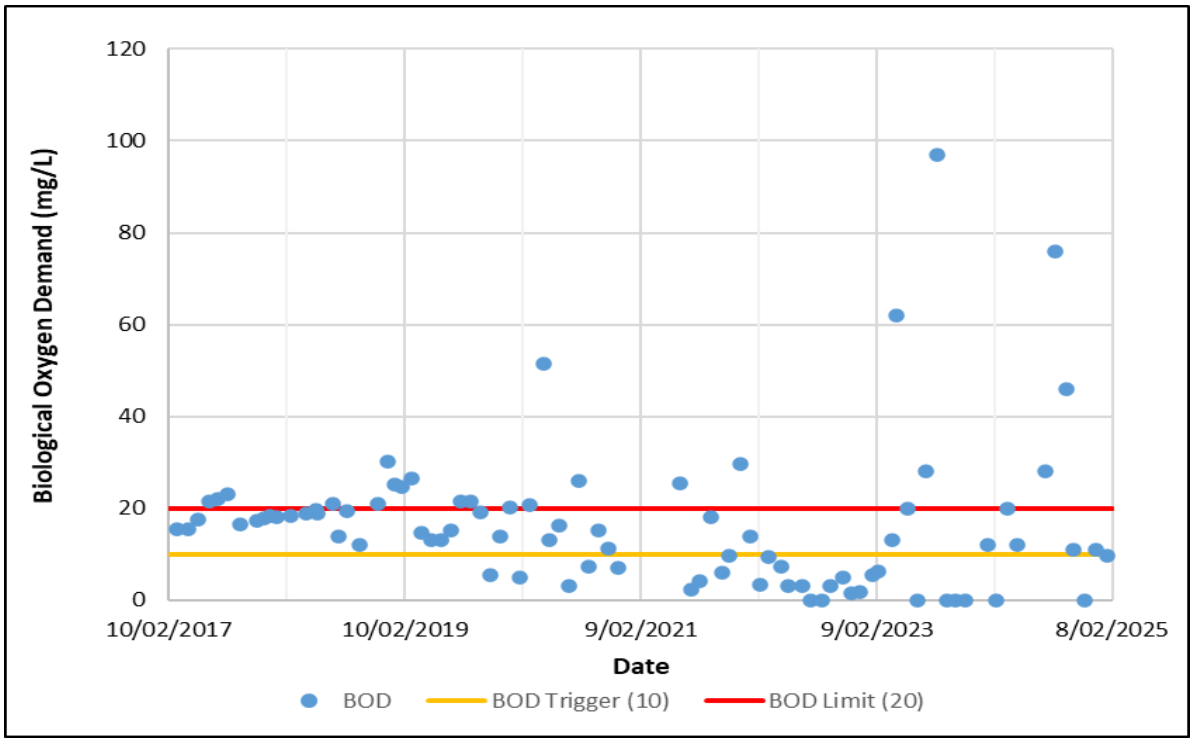

Figure 7-4: Treated wastewater laboratory analysis results for biological oxygen demand from 10 February 2017 to 9 February 2025.

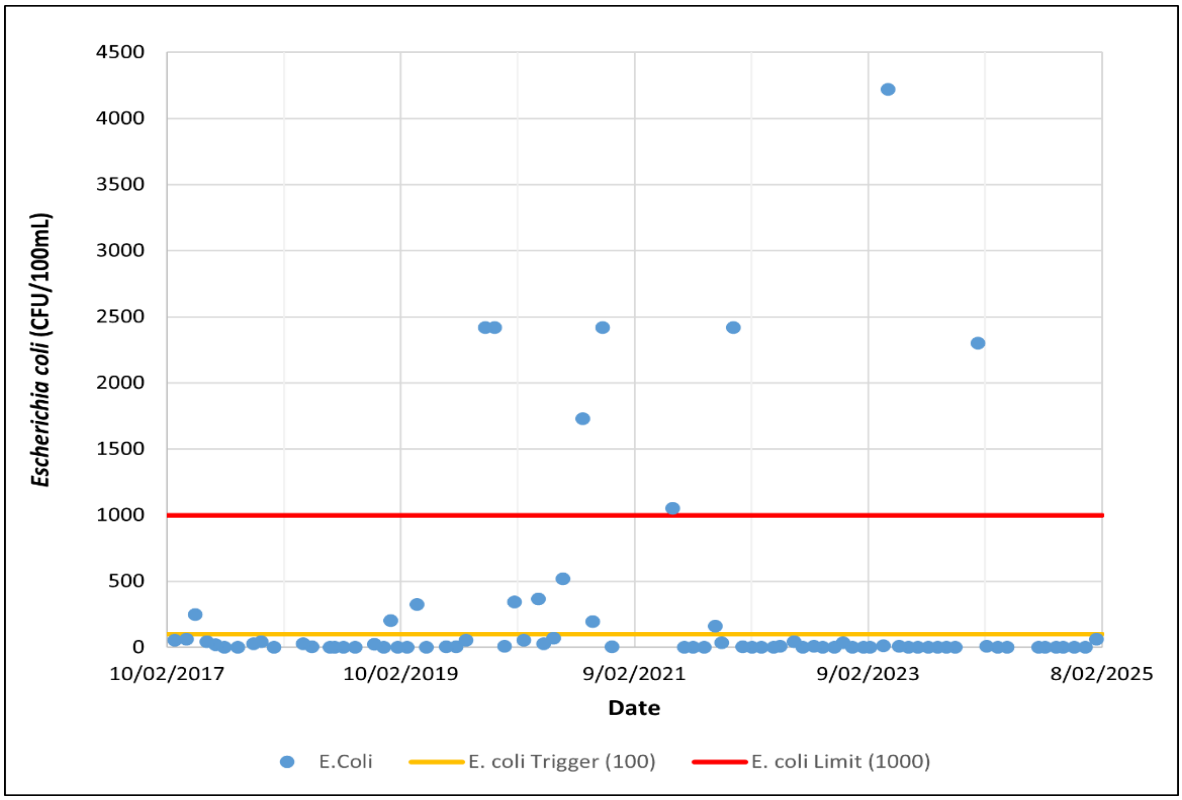

Figure 7-5: Treated wastewater laboratory analysis results for E. coli from 10 February 2017 to 9 February 2025.

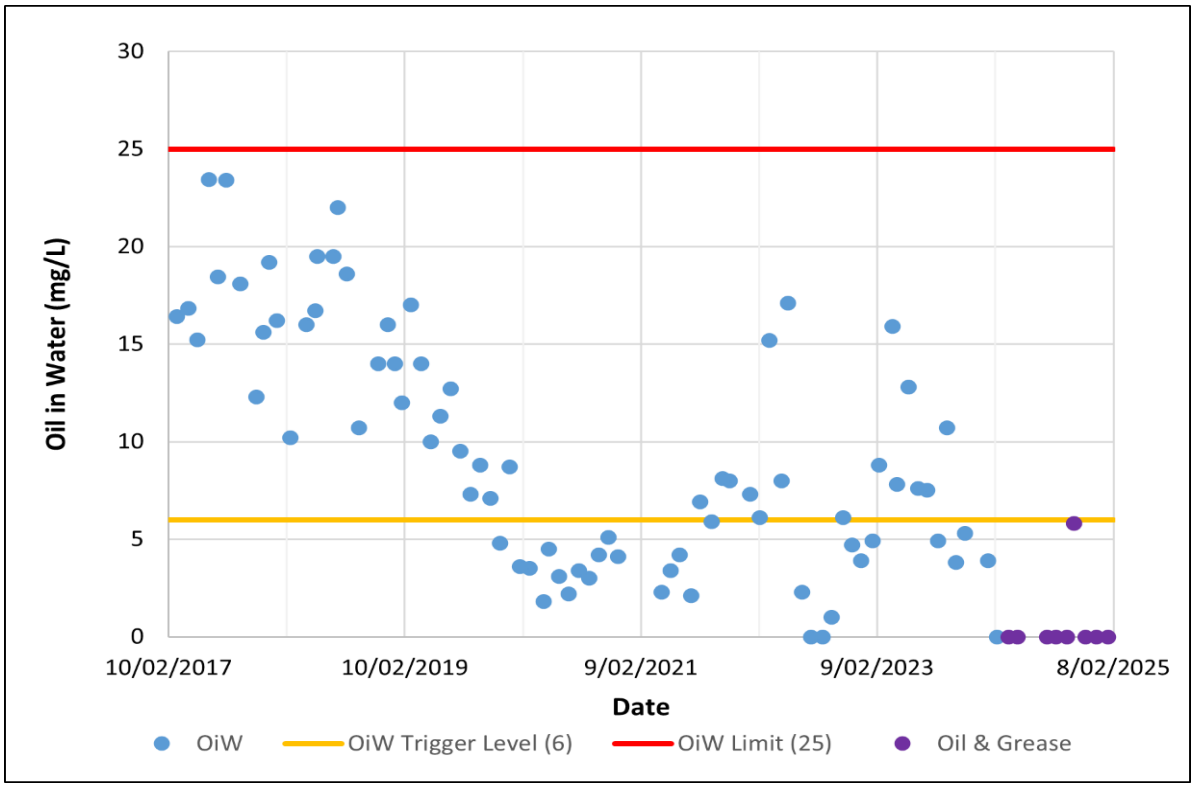

Figure 7-6: Treated wastewater laboratory analysis results for oil in water from 10 February 2017 to 9 February 2025.

7.1.4 Data Management and Quality Control

The quality assurance/quality control (QA/QC) procedures specific to the collection and analysis of wastewater samples from WW-02 include:

- Adhering to requirements outlined in the Water Sampling Procedure [000036_DV_PR.HSE.1013.000_03];
- Using NATA accredited analytical laboratories for all analyses or a test method managed under a NATA accredited quality management system;
- Adhering to laboratory designated sample holding times;
- Completed Chain of custody forms accompany all samples;
- Calibration of all field-testing equipment is undertaken on a regular basis using standard method(s); and
- Manual data validation has been undertaken during the preparation of this Annual Monitoring Report, including cross checking data with laboratory records and field sheets.

The water sampling procedure is being reviewed and updated in 2025. Adding duplicate samples and/or blanks to the sample program will be investigated as part of this procedural review.

7.1.5 Discussion and Interpretation of Results

As displayed in Figure 7-2, there have been several instances during the reporting period where pH has been recorded below the EPL230-01 lower limit of 6.5. These were reported as non-compliances. One potential contributing factor to the low pH readings is the exceedance of laboratory holding times. pH has a holding time of 6 hours as per AS/NZS 5667.1:1998. Due to logistical constraints involving charter flights from site, pH is often the only analyte that is recorded on the laboratory certificate of analysis as being received outside of holding times. Since the most recent exceedance, pH is now being regularly tested on-site. During the upcoming review and update of the Water Sampling Procedure (000036_DV_PR.HSE.1013.000_03), taking in-situ pH readings for treated wastewater will be incorporated into the procedure. Another potential contributing factor to the low pH readings has been identified as the dilution of wastewater after heavy rainfall, resulting in decreased efficiency of the wastewater treatment processes. Following the most recent pH exceedance, wastewater was dosed with sodium bicarbonate to recover pH. pH returned to within specifications following this treatment, as confirmed by on-site testing.

As displayed in Figure 7-3, there have been several instances during the reporting period where total suspended solids (TSS) have been recorded above the EPL230-01 limit of 50mg/L. These were reported as non-compliances. There have been ongoing upgrades made to the wastewater treatment plant aimed at reducing total suspended solids. Since July 2024 the trend for TSS has been declining, with the most recent monthly TSS reading being 9mg/L which is below both the limit and trigger levels.

As displayed in Figure 7-3, there were several instances during the reporting period where biological oxygen demand (BOD) was recorded above the EPL230-01 licence limit of 20mg/L. Aeration pump trials have been undertaken to reduce BOD levels in treated wastewater. BOD levels have declined since the last non-compliance on 18 September 2024 (46mg/L). The most recent BOD value recorded from 22 January 2025 was 9.7mg/L, which is below the licence limit and trigger level.

As displayed in Figure 7-5, there were no exceedances of *Escherichia coli* in treated wastewater during the reporting period. All monthly samples taken have been below the EPL230-01 trigger level (100cfu/100mL) and limit (1000cfu/100mL). Most samples have been recorded as below the practical quantitation limit of 10cfu/100ml. An automatic chlorine dosing system is installed at the WWTP to ensure *E coli* levels remain low.

Figure 7-6 shows historical data for oil in water for treated wastewater. It should be noted that from March 2024, the laboratory services provider has reported this value as "oil & grease" rather than oil in water. Historically, higher values of OiW were associated with inappropriate use of the grease trap in the kitchen. Awareness and discipline on this issue is maintained on site to ensure kitchen hands and chefs dispose the waste oil into the grease trap, which is then transported to Darwin for disposal. Training has been undertaken with the new camp catering provider and they have been receptive to this requirement. No exceedances for oil in water have been recorded during the reporting period.

7.1.6 Conclusions and Proposed Actions

The wastewater treatment plant is considered over-sized for its throughput. It is designed for a 120-person camp, and generally is only processing the waste of 20 persons. This brings with it operational challenges that need to be managed.

Throughout the reporting period, Eni have progressed with further improvements to the wastewater treatment plant system, in addition to previous improvements to chlorine dosing and aeration. The original equipment manufacturer has been engaged to engineer an improved design to the storage tank. This will involve replacing the single, large storage tank with several smaller, enclosed tanks. White ant traps were installed in December around the DAT tank to eliminate risk of damage. The DAT tank liner will be replaced once the new storage system has been installed.

7.2 Stormwater disposal

The open drains on the YGP are designed to collect stormwater, washdown water, fire test water and any accidental spills from equipment. During the wet season, a large volume of water will enter the drains. The main contaminant of concern in the equipment bund will be residual hydrocarbons related to equipment leaks or maintenance. The flow is highly variable and minimal in the dry season and up to the design capacity of 130m3/hr during the wet season. The plant drains are split into two separate systems:

- Hazardous; and
- Non-hazardous.

Stormwater discharge to the environment includes cooling water from the fire pump testing and stormwater collected from the process skids. Fire pump cooling water is potable water used in a tubular design heat exchanger, where the other medium is coolant. The cooling water does not come into direct contact with the coolant or any other contamination sources and is discharged via the Hazardous open drains (HOD) pit (monitoring point SW-03). This source of stormwater was diverted from SW-02 in 2023 to allow treatment at the HOD prior to discharge.

Process skid stormwater is collected in the Open Drain Sump (ODS) for treatment and sampling prior to manual discharge to grade at SW-03. The ODS typically remains closed for much of the dry season and is only opened to grade when rainfall increases during the wet season.

All stormwater, including fire pump cooling water and water collected at SW-02, is routed via subterranean drainage lines to the HOD pit. At the HOD pit, there are weirs to separate oil from water if there is any oil present. Stormwater and fire-pump cooling water are then discharged from SW-03. SW-03 is currently the only discharge point.

7.2.1 Monitoring Objective

The monitoring objective for stormwater is to determine the contaminants in the storm-water run-off stream before being discharged to grade.

There is no flow meter installed at SW-03, however, volumes are calculated via sump level. The fluids flow to grade after a sample is taken and analysed.

7.2.2 Monitoring Methods

Treated storm water samples are collected by the process operators in line with the Water Sampling Procedure [000036_DV_PR.HSE.1013.000_03] and EPL230-01 requirements.

Treated storm water includes runoff from the utilities area (authorised discharge point SW-01) and stormwater runoff from the Open Drains System (authorised discharge point SW-03).

7.2.3 Monitoring Results

All monitoring results for the reporting period, including field sampling and laboratory analyses, and graphs showing historical data are presented in Attachment D.

The graphs below show historical data and trends for key parameters. Note that values that were recorded as below practical quantitation limits (PQL) by the laboratory will appear on graphs as "0".

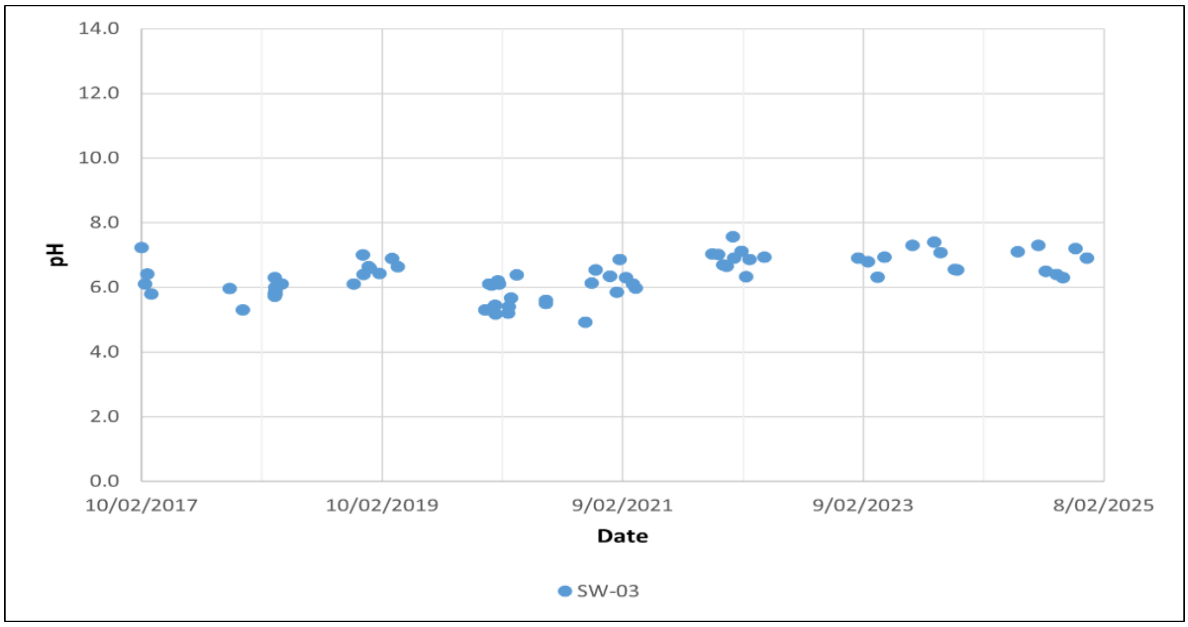

Figure 7-7: pH for SW-03 from 10 February 2017 to 9 February 2025.

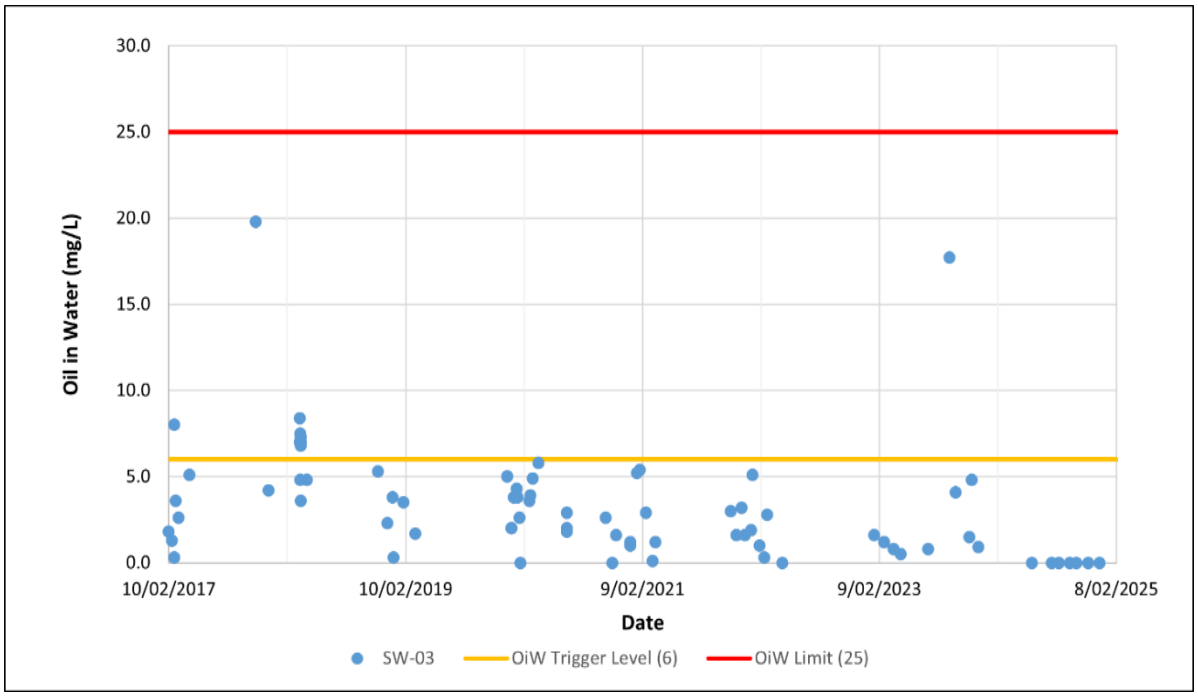

Figure 7-8: Oil in Water for SW-03 from 10 February 2017 9 February 2025.

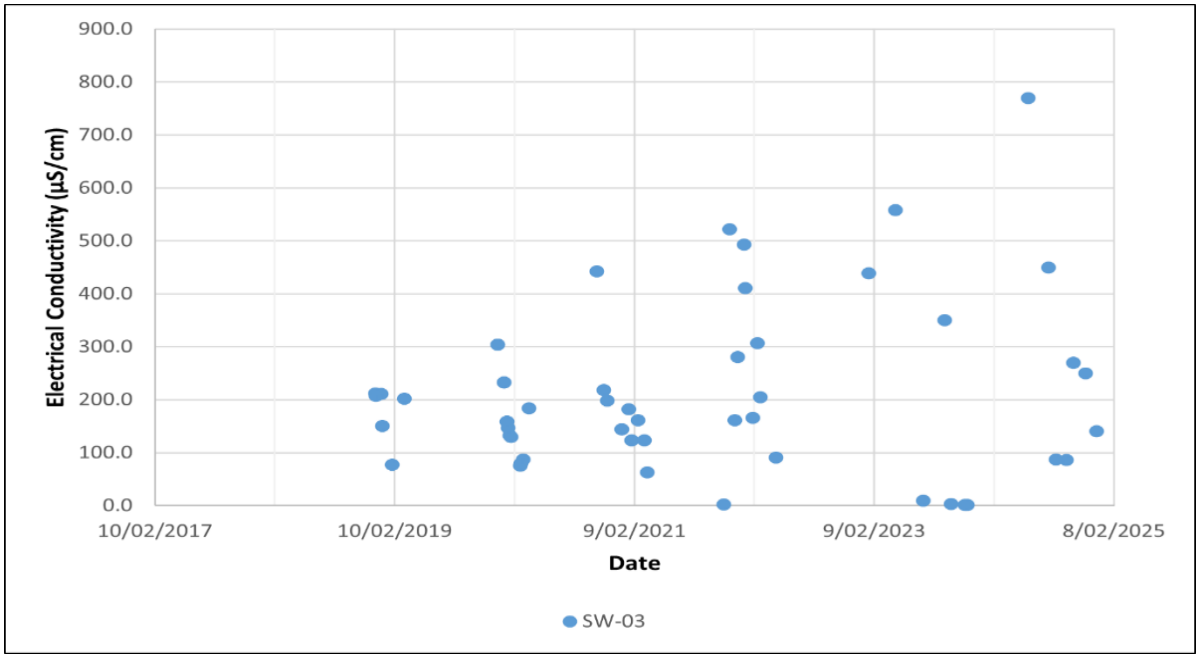

Figure 7-9: Electrical Conductivity for SW-03 from 10 February 2017 to 9 February 2025.

7.2.4 Data Management and Quality Control

The quality assurance/quality control (QA/QC) procedures specific to the collection and analysis of stormwater samples from SW-01 and SW-03 include:

- Adhering to requirements outlined in the Water Sampling Procedure [000036_DV_PR.HSE.1013.000_03];

- Using NATA accredited analytical laboratories for all analyses or a test method managed under a NATA accredited quality management system;
- Adhering to laboratory designated sample holding times;
- Completed Chain of custody forms accompany all samples;
- Calibration of all field-testing equipment is undertaken on a regular basis using standard method(s); and
- Manual data validation has been undertaken during the preparation of this Annual Monitoring Report, including cross checking data with laboratory records and field sheets.

The water sampling procedure is being reviewed and updated in 2025. Adding duplicate samples and/or blanks to the sample program will be investigated as part of this procedural review.

7.2.5 Discussion and Interpretation of Results

Figure 7-7 shows the recorded pH values for sample point SW-03 from 10 February 2017 to 9 February 2025. pH values recorded for the 2024/2025 reporting period are consistent with previous years, and no concerning trends are apparent.

Figure 7-8 shows the recorded oil in water values for sample point SW-03 from 10 February 2017 to 9 February 2025. No exceedances of EPL230-01 limits for oil in water were recorded for the 2024/2025 reporting period. All oil in water values have been recorded as below 5mg/L for the reporting period.

Figure 7-9 shows the recorded electrical conductivity (EC) values for sample point SW-03 from 10 February 2017 to 9 February 2025. In the 2024/2025 reporting period, the highest ever value for EC was recorded at 770µS/cm on 23 May 2024. However, this value decreased upon subsequent sampling events. The most recent value for EC was 140µS/cm recorded on 18 December 2024, which is well within the historical range.

7.2.6 Conclusions and Proposed Actions

No non-compliances related to stormwater were identified during the 2024-2025 reporting period.

Investigations are still being undertaken regarding the feasibility of installing flow meters at stormwater discharge points. Currently, volumes of stormwater discharge from SW-03 are calculated using sump levels.

8. MONITORING DISCHARGES TO AIR

Air emission monitoring is performed by an external laboratory services provider. The majority of air emissions emanating from the YGP are from the following key sources:

- Flares;
- Gas turbine compressors;
- Gas engine generators; and
- Emergency diesel generator.

Total greenhouse gas emissions from Yelcherr Gas Plant calculated in the latest NGER reporting period (2023-2024) were 28,214 tCO_2-e (Ref. [1]).

8.1.1 Monitoring Objective

The monitoring objective is to quantify air emissions for the YGP site.

Fuel usage for the compressors and gas-fired generators is monitored continuously, as are gas quantities flared. Table 8.1 lists the flow meters used for measuring the various gas streams.

Table 8.1: Gas flow meters

Emission Source	Gas Flow Meter	Reference Number
Turbine Compressor	Compressor A	420.1 FIT 161
	Compressor B	420.1 FIT 261
	Compressor C	420.1 FIT 361
Engine Generators	LP Fuel Gas	420.1 FIT 004
Flare	HP Flare	230.1 FIT 008
	LP Flare	230.1 FIT 002
	Fuel Gas Distribution	420.1 FIT 007

Emissions testing is required to be undertaken biannually as per Figure 8-1: Air Emissions Monitoring Programme.

Atmospheric Emission Points		Monitoring location height	Parameter						
Emission point code	Description		CO	CO_2	CH_4	NOx	SO_2	Solid particles	VOC
A01	High Pressure Flare	-	NR	NR	NR	NR	NR	NR	NR
A02	Low Pressure Flare	-	NR	NR	NR	NR	NR	NR	NR
A03	Gas Turbine Compressor A	13 m	B	A	A	B	A	A	B
A04	Gas Turbine Compressor B	13 m							
A05	Gas Turbine Compressor C	13 m							
A06	Gas Engine Generator A	8 m	B	A	A	B	A	A	B
A07	Gas Engine Generator B	8 m							
A08	Gas Engine Generator C	8 m							
A09	Emergency Diesel Generator	-	NR	NR	NR	NR	NR	NR	NR

A = Annually; B = biannually (i.e. every 6 months); NR = Not Required;

Figure 8-1: Air Emissions Monitoring Programme from EPL230-01

Emissions testing is undertaken biannually by Ektimo, the laboratory services provider. Sampling and monitoring are carried out in accordance with Table 8.2. Concentrations determined by the analyses are then multiplied by flow rates to provide the final contaminant flow.

Table 8.2: Summary of air emission monitoring programme

Frequency	Sample Location	Monitoring Methodology	Parameter	Analysis	Concentration Limit
Adhoc	A01 A02	Visual monitoring for visible smoke using a Ringelmann chart	Smoke	Visual observation by site personnel	No visible emission other than for a total period of no more than 5 minutes in any 2 hours
Bi-annual	A03 A04 A05 A06 A07 A08	A sample must be collected by a qualified technician and sent to an external laboratory for analysis	CO^1	External laboratory analysis	100-1600 mg/m^3
			NOX^1		350-2000 mg/m^3
Annual			VOC		40 mg/m^3
			$C0_2$		-
			CH_4		-
			SO_2^1		100 mg/m^3
			Solid Particles		-

[1]Dry, 273K, 101.3 kPa, 15% O_2 or at manufacturers specified level
Source: EPL 230-01, Attachment 4 Air Emission Monitoring programme

Fuel and gas flow are measured and recorded to determine the overall pollutant mass loading and ensure mass limits are not exceeded. Fuel and gas flow are measured by flow meters listed in Table 8.1.

Pollutant loads are calculated and reported annually under the National Greenhouse and Energy Reporting Scheme (NGERS) and the National Pollutant Inventory (NPI) reporting scheme.

8.1.2 Monitoring Methods

NGERS and NPI reports form the basis of the analysis.

Ektimo investigations and reports ensure that the discharge concentration of contaminants is known.

Fuel and gas flow must also be measured and recorded to determine the overall pollutant mass loading and ensure mass limits are not exceeded. Fuel and gas flow are measured by flow meters, shown below. Pollutant loads are calculated and reported annually under the National Greenhouse and Energy Reporting Scheme (NGERS) and the National Pollutant Inventory (NPI) reporting scheme.

8.1.3 Monitoring Results

Atmospheric parameters in the licence have been on specification through 2024/2025.

8.1.4 Data Management and Quality Control

Petrolab subcontracted Ektimo to conduct the Annual Emission Testing Reports 1 and 2 2024. An extract from Report 1 describing Ektimo's QA/QC procedure is included in Attachment F. For Ektimo's full QA/QC details, search for Ektimo at NATA's website www.nata.com.au.

8.1.5 Discussion and Interpretation of Results

Exhaust emissions from the above equipment contains contaminants, which at high levels can contribute to air pollution including greenhouse emissions and smog.

The YGP operates a high pressure (HP) and low pressure (LP) ground flare system. These are in a 'pit' at the southeast corner of the plant. The locations of the solar gas turbine compressors and the gas engine generator packages are also shown in Figure 8-2: Flare, compressor and power turbine locations. The compressors operate on a 1 x 100% basis and generators on a 2 x 100% basis.

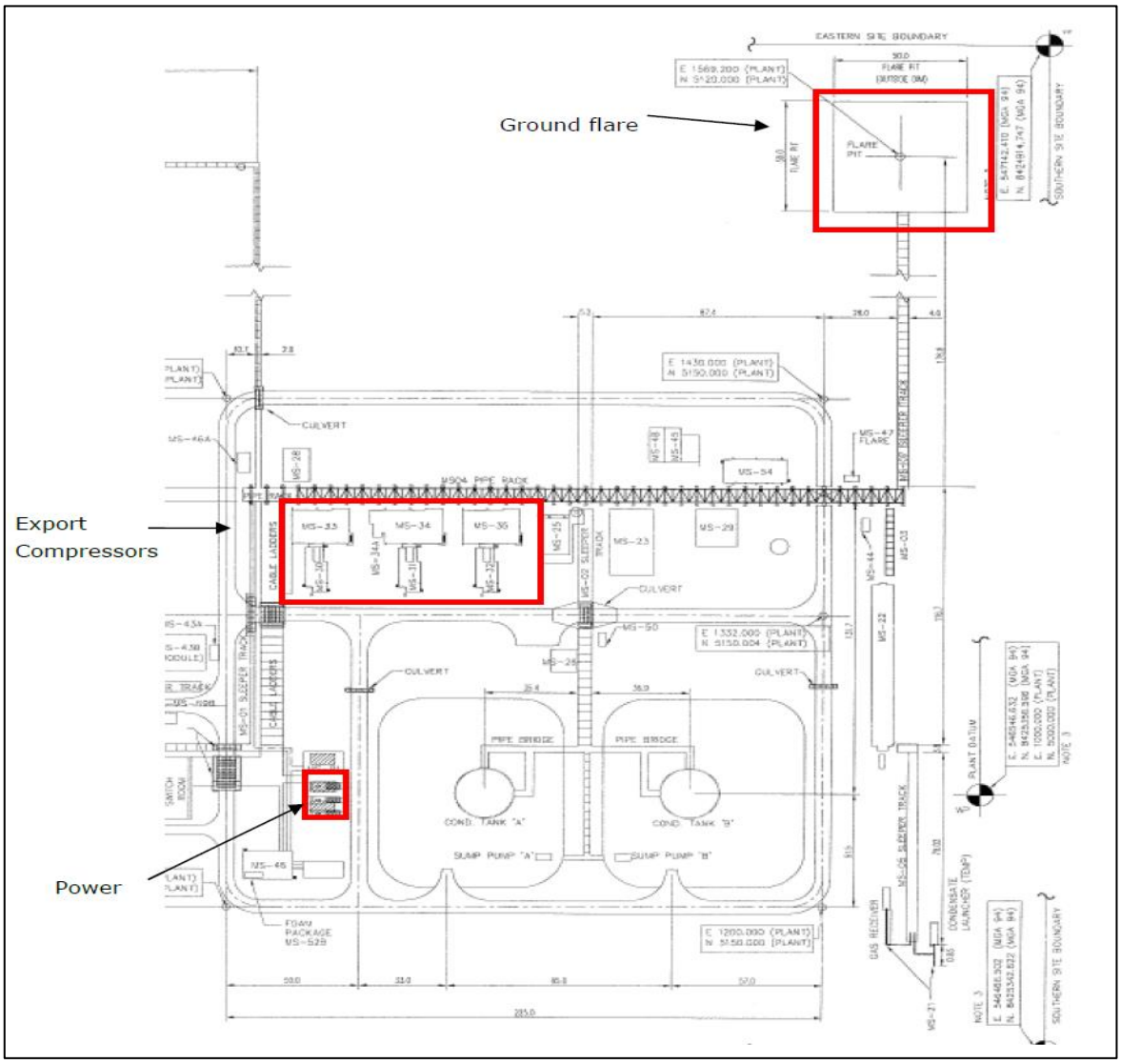

Figure 8-2: Flare, compressor and power turbine locations

8.2 Fuel gas consumption

The two main consumers of high pressure (HP) and low pressure (LP) fuel gas are the gas turbine compressors and power generators. The volume of gas consumed as fuel during the reporting period is summarised in Table 8.3.

Table 8.3: Gas consumption at YGP

	2022[1,2]	2023[1]	2024[3]
Daily fuel gas consumption (KSCM)	55.8	41.3	38.9
Total annual fuel gas consumption (MSCM)	20.3	15.1	14.23
Emissions (tCO_2-e)	46,618	32,228	24,164

Notes:
[1]Reporting period is from 1 January – 31 December
[2]Emissions number for 2022 taken from Eni's internal GHG recording program, SHERPA.
[3]Reporting period is from 1 July 2023 to 30 June 2024. Emissions value is from NGERs reporting.

8.3 Flaring

The HP flare header is designed for inventories above 1000kPag. The system is sized to blowdown the Hydrocarbon inventory in the YGP to achieve the required 690kPag or 50% of operating pressure (whichever is lower) within 15 minutes.

The LP flare is designed to safely dispose of regeneration offgas, and control pressure regulation during normal operation. The annual volume of gas flared from the past three years is summarised in Table 8.4.

Table 8.4: Gas flared at YGP

	2022[1,2]	**2023[1]**	**2024[3]**
Average daily volume of gas flared (KSCM/d)	6.2	8.5	5.7
Total volume of gas flared (KSCM)	2,262	3,103	2,091
Estimated emissions (t CO_2-e)[1]	4,775	6,671	3,722

Notes:
[1]Reporting period is from 1 January – 31 December
[2]Emissions number for 2022 taken from Eni's internal GHG recording program, SHERPA.
[3]Reporting period is from 1 July 2023 to 30 June 2024. Emissions value is from NGERs reporting.

8.4 Diesel Usage

Diesel usage over the reporting period was 77m^3. This equates to GHG emissions of approximately 182 tonnes CO_2-e. This data is sourced from SHERPA, which is Eni's internal GHG data entry program.

Table 8.5: Annual diesel consumption and GHG emissions

	2022[1]	**2023[2]**	**2024[3]**
Diesel – stationary energy (m^3)	64	90	78.4
Diesel – mobile plant and transport (m^3)	7	12	4.9
Emissions (t CO_2-e)	192	276	225

Notes:
[1] Reporting period is from February 2022 to January 2023. It assumes mobile plant and transport is 7m3. The fuel records show a total diesel usage of 71m^3, so the stationary energy is calculated by subtracting mobile usage from total (71-7m^3). The emissions were calculated using interpolation with the 2020 and 2021 relationship.
[2] Reporting period is from 1 January – 31 December using Eni's internal emissions reporting program SHERPA.
[3]Reporting period is from 1 July 2023 to 30 June 2024 using NGERS reported data.

8.5 Stack emission monitoring

Emissions from the export gas turbine compressors are shown in Attachment A. All pollutant emissions measured were within EPL limits.

8.6 Fugitive emission monitoring

During August 2024, a fugitive emissions survey was undertaken at the Blacktip Yelcherr Gas Plant. Four leaks were identified as per Table 8.6: Fugitive Emissions – Number of Leaks with the highest reading out of the preliminary and secondary readings being

used to conservatively calculate leak emissions. These leaks were reported as a non-compliance.

Table 8.6: Fugitive Emissions – Number of Leaks

Classification	Gas Leak [Concentration/Volume]	Number of Leaks at Source	
		Preliminary Reading	Secondary Reading (at 150mm)
Minor	≥ 500 ppm to < 5000 ppm	4	1
Significant	≥ 5000 or LEL% > 10%	0	0
Total Number of Leaks		**4**	

Annual fugitive emissions for YGP were then calculated as per Table 8.7: Leak List Emissions.

Table 8.7: Leak List Emissions

Leak No.	Component Types	Screened Value	TOC emission (kg/year)	CH4 emission (kg/year)	VOC emission (kg/year)
1	Valve	1,950 ppmv	3.80	3.71	0.07
2	Valve	1,350 ppmv	1.27	1.27	0.00
3	Heat Exchanger (Tube - Bolt Interface)	2,110 ppmv	3.17	3.16	0.00
4	Valve	2,860 ppmv	6.68	6.65	0.01
Leaking Component - Total			**14.92**	**14.79**	**0.09**
2162 Non-Leaking Components			**160.47**	**130.44**	**29.66**
All Components Total			**175.39**	**145.23**	**29.75**

Therefore, the annual total fugitive emissions for YGP are as follows:

- Total organic carbon – 175.39 kg/year
- Methane emissions – 145.23 kg/year
- Volatile organic compounds – 29.75 kg/year

8.7 Pollutant inventory reporting

Eni reports emissions to atmosphere and the environment via the National Pollutant Inventory (NPI) and the National Greenhouse and Energy Reporting Scheme (NGERS).

Eni submitted the annual NPI reporting figures via the NPI Online Reporting System on 30 September 2024. NPI details available on request.

The annual NGERS reporting figures were submitted to the Clean Energy Regulator on 31 September 2024. A revision to this report to clarify condensate production volumes was requested by the Clean Energy Regulator and completed by Eni on 10 December 2024. Total emissions from Yelcherr Gas Plant during the July 2023 to June 2024 NGER reporting period were 28,214 tCO_2-e.

A Clean Energy Regulator audit was undertaken in 2024 of Eni's energy and emissions reporting for the 1 July 2022 to 30 June 2023 reporting period. The results of the audit were generally satisfactory. Findings that were identified in the audit report were addressed by Eni through specific actions to prevent non-conformities.

9. UNPLANNED DISCHARGES TO LAND

9.1 Groundwater Quality

Groundwater is abstracted for potable water use and ancillary equipment at Yelcherr Gas Plant. The annual groundwater abstraction volumes are summarised in Table 9.1. The total volume of groundwater extracted in 2024 was 13.2ML, which has decreased compared to 2023.

Table 9.1: Total annual volume of groundwater abstracted

	2022	2023	2024
Groundwater use (ML)	11	15.3	13.2

Notes: Reporting period is from 1 January to 31 December.

Groundwater monitoring at YGP has historically been undertaken at monitoring bores BH-5 and BH-7, as required by EPL230-01. Groundwater monitoring bore BH-1 was reinstated post a hydrogeological study in November 2023. These works provided a third groundwater monitoring location to allow assessment of groundwater flow direction and gradient. Two additional monitoring bores were installed in late 2023, BH-2 and BH-4. The location of the monitoring bores is shown in Figure 9-1.

Figure 9-1: Groundwater abstraction and monitoring bores

The additional two monitoring bores, BH-2 (Sierra) and BH-4 (Nike), were included in two groundwater sampling events in 2024. Results for these bores have been included in Attachment E. A third bore BH-Charlie was also installed and is currently being monitored for water levels. Two ground water extraction bores draw water from the aquifer for potable and plant use.

Groundwater sampling events occurred in February, March, April, June, September and October 2024.

9.1.1 Monitoring Objective

Groundwater is to be monitored on a quarterly basis in accordance with EPL230-01 requirements. The groundwater bores that are required to be monitored in accordance with EPL230-01 are BH-5 and BH-7. Additional monitoring has been undertaken during the reporting period at BH-1, BH-2 and BH-4.

Groundwater is monitored to determine whether wastewater discharges are impacting groundwater quality.

9.1.2 Monitoring Methods

Groundwater samples are collected by the process operators in accordance with the Blacktip Operations Water Sampling Procedure (000036_DV_PR.HSE.1013.000) and EPL 230-01 requirements. Additionally, depth to groundwater is measured on a weekly basis, dependant on the weather.

Quarterly groundwater monitoring is undertaken to assess water quality across a suite of parameters. Groundwater samples are collected by the process operators as coordinated by the Environmental Advisor. Samples are then distributed to an external NATA accredited laboratory for analysis.

Samples are taken from Bores BH-5 and BH-7 to be analysed for parameters as specified in EPL230-01. Samples are taken as close as practicable to the time of the charter flight departure on Wednesday morning. After samples are collected, they are stored appropriately before being transported by charter flight from Wadeye to Darwin on a Wednesday morning. On arrival in Darwin, the samples are then transferred to the company's laboratory services provider and distributed to NATA accredited laboratories for analysis.

The monitoring regime is further detailed in the document Environmental Monitoring Requirements (000036_DV_PR.HSE.1020.000_03). This reporting period has included additional sampling of groundwater bores BH-1, BH-2 and BH-4.

9.1.3 Monitoring Results

All monitoring results for the reporting period and graphs showing historical data are presented in Attachment E.

The most recent groundwater depths (water levels) measured at the end of the reporting period on the 9th of February 2025 are presented below in Table 9.2. Graphs presenting the depth to groundwater from 2023-2025 are presented in Attachment E.

Table 9.2: Recent Groundwater Depths from 9 February 2025

Bore Number	Depth to Groundwater (m)
BH-1	11.27
BH-2	10.58
BH-4	10.95
BH-5	11.34
BH-7	10.51

The figures below show historical data and trends for key parameters. Note that values that were recorded as below practical quantitation limits (PQL) by the laboratory will appear on graphs as "0".

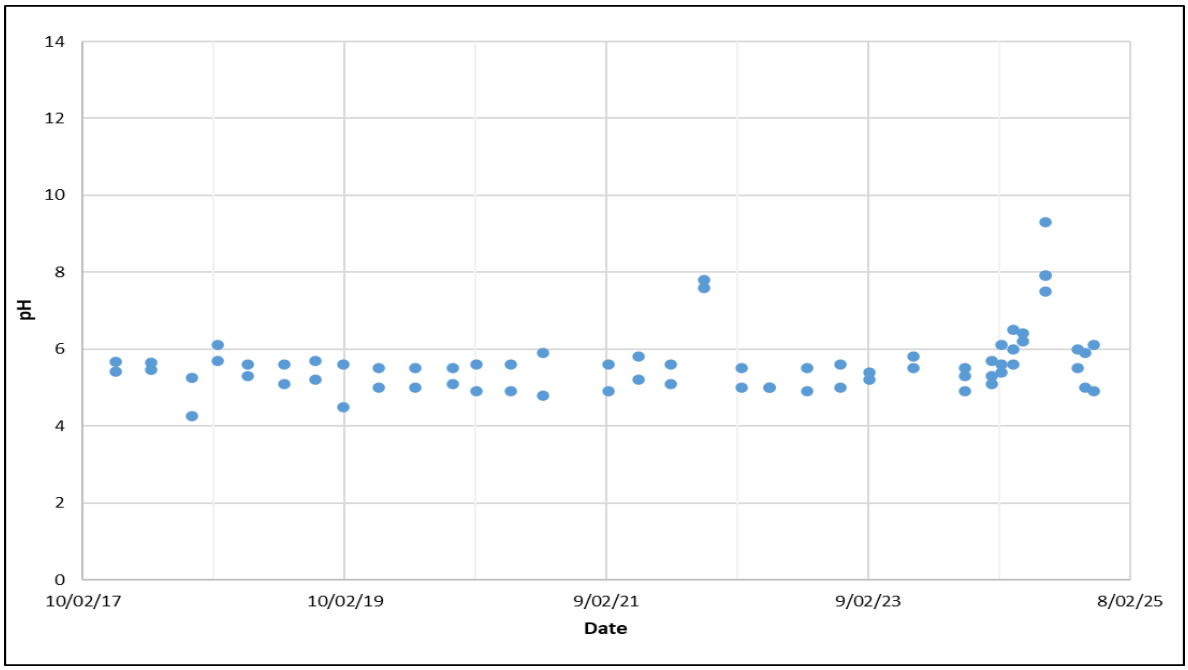

Figure 9-2: Groundwater laboratory analysis results for pH from 10 February 2017 to 9 February 2025. Includes results for bores BH-1, BH-2, BH-4, BH-5 and BH-7.

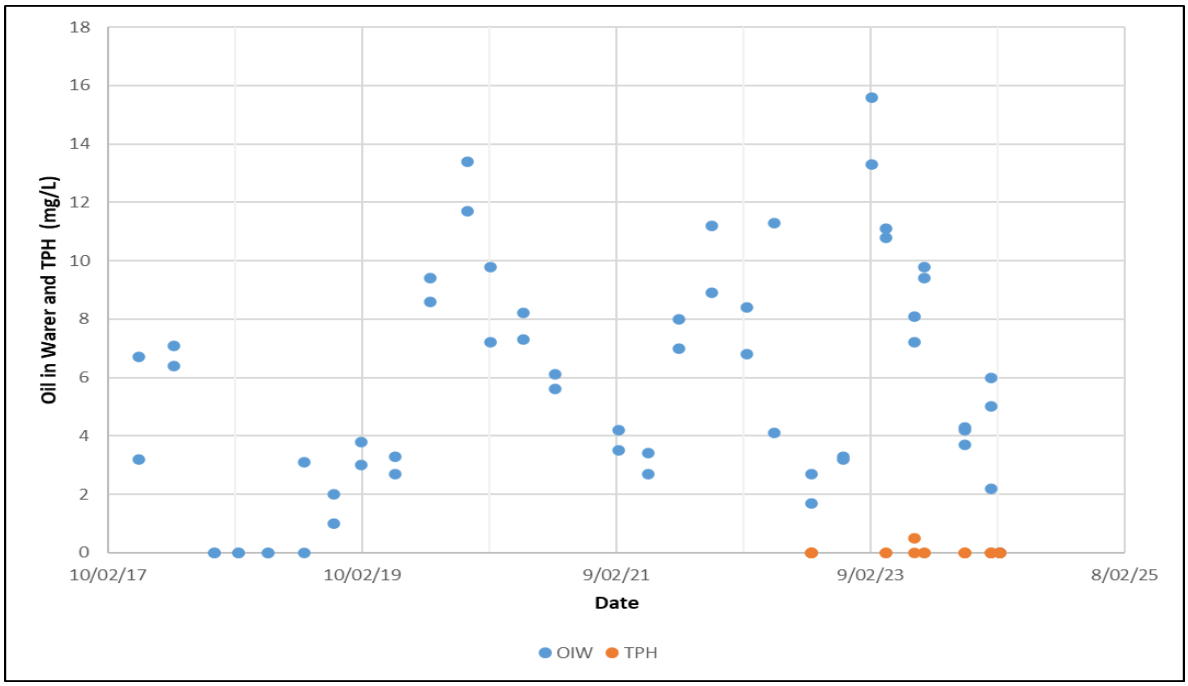

Figure 9-3: Groundwater laboratory analysis results for Oil in Water and TPH from 10 February 2017 to 9 February 2025. Includes results for bores BH-5 and BH-7.

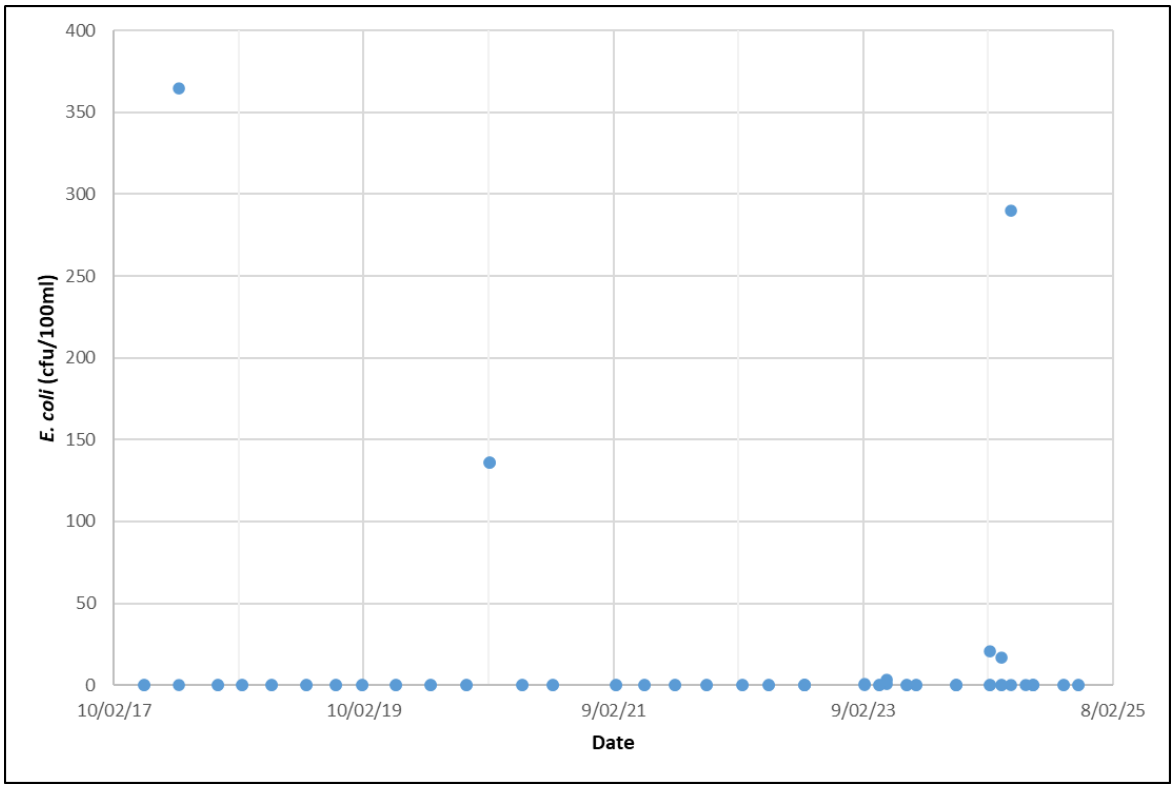

Figure 9-4: Groundwater laboratory analysis results for E. coli from 10 February 2017 to 9 February 2025. Includes results for bores BH-1, BH-2, BH-4, BH-5 and BH-7.

9.1.4 Data Management and Quality Control

The quality assurance/quality control (QA/QC) procedures specific to the collection and analysis of groundwater samples from BH-5 and BH-7 include:

- Adhering to requirements outlined in the Water Sampling Procedure [000036_DV_PR.HSE.1013.000_03];
- Using NATA accredited analytical laboratories for all analyses or a test method managed under a NATA accredited quality management system;
- Adhering to laboratory designated sample holding times;
- Completed Chain of custody forms accompany all samples;
- Calibration of all field-testing equipment is undertaken on a regular basis using standard method(s); and
- Manual data validation has been undertaken during the preparation of this Annual Monitoring Report, including cross checking data with laboratory records and field sheets.

The water sampling procedure is being reviewed and updated in 2025. Adding duplicate samples and/or blanks to the sample program will be investigated as part of this procedural review.

9.1.5 Discussion and Interpretation of Results

As displayed in Figure 9-2 the groundwater pH is generally acidic, with the vast majority of readings for the 2024-2025 reporting period being recorded below 6.5. A spike in pH

can be observed as occurring on the 19th of June 2024, with higher pH values being recorded for BH-01 (7.9), BH-4 (7.5) and BH-2 (9.3). The sample bottles collected on 19 June 2024 were received by the laboratory with headspace and it was noted on the certificate of analysis that analytical results may be affected. Therefore, inaccurate analytical results are considered the likely cause of these higher pH values.

Figure 9-3 shows historical data for oil in water and TPH. Groundwater samples continued to be monitored for the presence of hydrocarbons during the reporting period. This data is no longer reported as a singular value for "Oil in Water" or "Total Petroleum Hydrocarbons" on the certificate of analysis (CoA). Samples are analysed for total recoverable hydrocarbons, which are reported as hydrocarbon fractions on the CoA. Results for all hydrocarbon fractions for the reporting period have been included in Attachment E.

No BTEX chemicals were recorded during the reporting period for any of the monitoring bores. The majority of samples have returned results below practical quantitative limits for all hydrocarbon fractions, including the new bores BH-2 and BH-4. Hydrocarbons (no BTEX) were detected only at BH-05 in a sample taken on 17 September 2024. No hydrocarbons were detected at BH-05 at the following sampling event on 7 October 2024.

Figure 9-4 displays historical data for *Escherichia coli* in the groundwater monitoring bores. During the reporting period, one spike in was recorded at BH-2 on 17 April 2024. *E. coli* levels returned to below practical quantitative levels at BH-2 when the next sample was taken on 19 June 2024.

No concerning or notable trends were identified in the other parameters.

9.1.6 Conclusions and Proposed Actions

Results from groundwater monitoring have detected no negative environmental impacts.

10. WASTE MANAGEMENT

Solid waste is managed onsite according to the Blacktip Waste Management Plan (000036_DV_PR.HSE.0832.000).

Domestic waste from the accommodation village and crib room is taken to the local West Daly Regional Shire Council Landfill. General industrial waste and hazardous waste from the plant is transported by a licensed contractor to Darwin for disposal, treatment, recycling, or destruction.

As per Table 10.1: Waste disposal, the total volume of waste produced in 2024 was 175.4 tonnes, which has decreased compared to 265.75 tonnes in 2023.

Table 10.1: Waste disposal

Waste Type	2022	2023	2024
Domestic waste to local landfill (t) • Kitchen waste • Accommodation waste • Office waste	1	3	4.2
Darwin recycling (t) E.g. Scrap metal	4	6	5.4
Darwin disposal – non-hazardous (t) E.g. spent chemicals, cooking oil	58	30.83	19.6
Darwin disposal – hazardous (t) E.g. waste oil, oily rags, chemical drums and filters	63	225.92	146.2
Total (t)	**126**	**265.75**	**175.4**

Notes: Reporting period is from 1 January to 31 December.

Waste volumes decreased for recycling, non-hazardous and hazardous waste disposed of at Darwin. The volume of domestic waste to the local landfill increased from 3 tonnes in 2023 to 4.2 tonnes in 2024.

In 2024, a campaign was initiated to reduce plastics on site. Single-use plastic bottles have been reduced through the use of "keep-cups" and reusable water bottles. Additionally, proceeds raised through the container deposit scheme are being reinvested into the community.

11. INCIDENTS AND NON-COMPLIANCES

The Waste Management and Pollution Control Act (NT) and EPL require all non-compliances with the EPL and any potential or actual environmental harm or pollution event to be recorded and reported to NT EPA.

Pollution is defined in the Waste Management and Pollution Control Act (NT) as:

- A contaminant or waste that is emitted, discharged, deposited or disturbed or that escapes; or
- A contaminant or waste, effect, or phenomenon, that is present in the environment because of an emission, discharge, deposition or escape or disturbance of a contaminant or waste.

Incidents and non-compliances are submitted to NT EPA within 24 hours of the site being made aware of the issue.

11.1 Incidents and non-compliances

The Annual Return outlines the compliance assessment against the Environment Protection Licence EPL230-01.

Table 11.1 lists the environmental non-compliances recorded between 10 February 2024 and 9 February 2025. These are recorded in a non-compliance register and actions are tracked to closure.

Table 11.1: Environmental non-compliances

Date of NC	Date detected	Clause breached	Case Number	Description
14-Feb-24	18-Mar-24	Condition 28	209147	WW above EPL limits for TSS
14-May-24	16-May-24	Condition 19.1	INC-162006	30,000 Litres of Waste Water (Greywater) from wastewater treatment plant irrigation tank spilled to grade due to compromised tank seal.
31-Dec-23	27-May-24	Condition 41	IR - 469029	During the 2023 reporting year Annual monitoring of Radium Isotopes in Produced Water (PW-02) was not conducted in accordance with EPL230-01 (Attachment 2 – Wastewater Monitoring Program). Reported to NTEPA 14/06/24.
9-May-24	19-Jul-24	Condition 28	INC-495265	PW above EPL Limits for Copper, Zinc, TSS, Toluene, Ethyl benzene, Xylene (m+p) and Napthalene.

Date of NC	Date detected	Clause breached	Case Number	Description
9-May-24	19-Jul-24	Condition 41	IR - 495266	Monthly (May) Produced wastewater (PW-02) discharge monitoring did not provide lab testing and analysis for all parameters as specified in EPL-230-01 Discharge Monitoring Programme (Attachment 2).
9-May-24	19-Jul-24	Condition 41	IR - 495267	Monthly (May) Wastewater (WW-02) discharge monitoring was not undertaken in accordance with EPL Discharge Monitoring Programme (Attachment 2).
24-Jun-24	1-Aug-24	Condition 28	IR - 495268	PW above EPL Limits for Copper, Zinc, Manganese.
14-Aug-24	17-Sep-24	Condition 28	IR-759104	WW above EPL limits for TSS and BOD
18-Jul-24	17-Sep-24	Condition 28	IR-761111	WW above limit for TSS, BOD and pH
01-Sep-24	04-Oct-24	Condition 28	-	PW above limits for Cu (dissolved), Cu (total), Zn (dissolved), Zn (total) and pH.
19-Sep-24	04-Oct-24	Condition 28	-	WW above limits for TSS, BOD and pH.
3-Jul-24	22-Oct-24	Condition 28	IR-759090	PW above EPL Limits for Copper (filtered), Copper (total), Zinc (total), Toluene and Xylene.
9-Oct-24	22-Oct-24	Condition 28	IR-759091	WW above EPL limits for Total Suspended Solids (TSS) and pH
21-Oct-24	7-Nov-24	Condition 28	IR-815088	PW above EPL Limits for Copper (filtered), Copper (total), Zinc (filtered) and Zinc (total)
13-Nov-24	10-Dec-24	Condition 28	IR-843129	WW above EPL limits for Total Suspended Solids (TSS)
Aug-24	11-Dec-24	Condition 31	IR-844088	Fugitive emissions[1]
18-Dec-24	14-Jan-25	Condition 28	IR-852091	WW above limit for TSS
22-Jan-25	12-Feb-25	Condition 28	INC-868101	WW below EPL limit for pH.

[1]Note that this non-compliance relates to fugitive emissions that were identified during the fugitive emissions survey.

11.2 Complaints

No complaints were received during the reporting period.

11.3 Audits and inspections

A site inspection was undertaken by NT EPA authorised officers on 13 June 2024 to assess compliance against EPL 230-01. The inspection also included the collection of water samples from PW-02. A summary of observations from the inspection and items flagged for further clarification was provided by the NT EPA on 19 June 2024.

An external provider was engaged to conduct an environmental audit of YGP in accordance with section 37 of ELP230-01. Site visits for this audit were undertaken in May and June 2024.

12. CONTINUOUS IMPROVEMENT AND OTHER ACTIVITIES

The following activities were completed during the reporting period to continually improve compliance to EPL230-01 requirements:

- A Comprehensive annual fugitive emissions survey to monitor for gas leaks across YGP was conducted in August 2024;
- A Comprehensive annual venting validation survey to monitor venting sources at YGP was conducted in August 2024;
- Produced water outfall sampling was undertaken in July 2024;
- Thamarrurr Rangers undertook fluorometer training on the 5th of December 2024 to increase capabilities for future sampling activities;
- A trial skid to remove metalloids from Produced Water was installed in Q3 2024. This comprises of two chemical dosing units, one for pre-treatment with caustic and the other for post treatment pH correction with citric acid. Each with magnetic flow metering, pH control and digital metering pump for automatic dosing of chemicals. The skid also includes an Oil Water Separator (OWS) designed for bulk removal of oil should carryover occur. This unit also has an air sparging connection for oxidation of metals in the water to enhance their removal. Finally the skid has a Lamella Clarifier (LC) downstream of the oil water separator. This has inclined plates to increase the surface area for solids removal, and hoppers to collect the solids;
- Additional groundwater monitoring bores (BH-2 and BH-4) were installed and included in two sampling rounds in 2024;
- A campaign to reduce plastics was initiated; and
- An environmental audit was conducted in July 2024 in accordance with section 37 of ELP230-01.

13. COMMUNITY INITIATIVES

Eni and the Thamarrurr Rangers continue to work closely to identify opportunities for local engagement and achieve positive environmental outcomes.

Eni continues to maintain a positive and engaging relationship with the Thamarrurr Rangers, who deliver local environmental monitoring services such as, but not limited to:

- Monitoring of offshore assets (e.g. Single Point Mooring (SPM) and hose);
- Wild fire management;
- Controlled burning;
- Weed and pest monitoring and eradication;
- Marine monitoring;
- Sea turtle monitoring;
- Fauna monitoring and relocation;
- Provision of vessel and crew for offshore environmental sampling;
- Emergency Response: Initial Oil Spill Monitoring Capabilities;
- PW-01 (Produced Water discharge point) monitoring; and
    - Containers for Change (plastic bottle recycling).

The SPM monitoring conducted by the Rangers includes inspection of the SPM equipment as well as inspection of the surrounding waters for surface sheen and possible spills. This provides a valuable contribution to the safe offtake of condensate and is an important part of Eni's scheduled maintenance. The Rangers also support the YGP groundwater monitoring, marine monitoring and weed management programs.

In December 2024, Thamarrurr Rangers undertook fluorometer training to enhance capabilities for baseline oil spill response.

The regular monitoring by the rangers allows our site-based personnel to engage with local indigenous community members, providing a greater appreciation of the region and the importance of caring for country.

14. REFERENCES

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ATTACHMENTS

ATTACHMENT A:

AIR EMISSIONS MONITORING PROGRAMME

Attachment A.1: Summary of stack emission monitoring results from the compressors

	CO	NOx[1]	SOx	Solid particles	VOCs
EPL limit	**100 mg/m³**	**350 mg/m³**	**100 mg/m³**	**-**	**40 mg/m³**
October 2021					
Compressor A	<8	210	*<8*	*27*	0.55
Compressor B	<9	230	*<8*	*4.1*	0.18
Compressor C	<8	240	*<8*	*20*	1.8
April 2022					
Compressor A	<7	320	*NT*	*NT*	<0.2
Compressor B	<8	250	*NT*	*NT*	0.18
Compressor C	<7	320	*NT*	*NT*	<0.2
November 2022					
Compressor A	<9	210	*21*	*<2*	0.17
Compressor B	NT	NT	NT	NT	NT
Compressor C	NT	NT	NT	NT	NT
November 2023					
Compressor A	NT[5]	NT[5]	NT[5]	NT[5]	NT[5]
Compressor B	NT[5]	NT[5]	NT[5]	NT[5]	NT[5]
Compressor C	25	320	<2	<2	1.8
2024					
Compressor A	<10	140	<10	<7	2.7
Compressor B	<30	150	<30	NA[6]	12
Compressor C[7]	73	77	<10	13	<0.4

Notes:
[1] NOx presented as NO_2 equivalent.
[2] SOx presented as SO_2.
[3] All measurements reported on a dry basis at NTP and corrected to 15% O_2 in accordance with the EPL.
[4] NT = Not tested.
[5] Compressor A & B were not operational at time of testing due to unplanned maintenance.
[6] Total particulate matter has not been reported.
[7] These values are from the draft Ekitmo report, values are not expected to change with the final version of the report.

Attachment A.2: Summary of stack emission monitoring results from the generators

	CO	NOx[1]	SOx	PM	VOCs
EPL limit	**1600 mg/m³**	**2000 mg/m³**	**100 mg/m³**	**-**	**40 mg/m³**
October 2021					
Generator A	770	1500	*<20*	*8.9*	11
Generator B	750	1500	*<20*	*3.4*	36
Generator C[8]	NT[8]	NT[8]	*NT[8]*	*NT[8]*	NT[8]
April 2022					
Generator A	1100	2000	NT	NT	0.38
Generator B	1100	2000	NT	NT	0.58
Generator C	NT[8]	NT[8]	NT[8]	NT[8]	NT[8]
November 2022					
Generator A	730	1400	<2	NT	4.8
Generator B	610	1400	<4	NT	0.42
Generator C	520	1200	<2	NT	9.2
November 2023					
Generator A	NT[8]	NT[8]	NT[8]	NT[8]	NT[8]
Generator B	1200	2000	<2	<3	1.3
Generator C	860	1700	<2	<2	0.85
2024					
Generator A	350	1600	85	1.9	6.3
Generator B	430	1700	82	<1	0.72
Generator C[9]	420	1400	22	1.6	2.0

Notes:

[1] NOx presented as NO_2 equivalent.

[2] SOx presented as SO_2.

[3] All measurements reported on a dry basis at NTP and corrected to 15% O_2 in accordance with the EPL.

[4] Measurements above the EPL limit are indicated in red, and measurements above the trigger value are indicated in orange.

[5] Emissions sampling provider advised that levels of methane (160-200mg/m³) can cause an interference with the SO_2 cell of the analyser

[6] NT = Not tested.

[7] June 2020 emissions testing was deferred due to COVID travel restrictions.

[8] Gas Engine Generator was not operational due to unplanned maintenance

[9] These values are from the draft 2024 Report 2, values are not expected to change with the final version of the report.

Attachment A.3: Air emissions annual pollutant mass inventory

Atmospheric Emission Points			Annual Pollutant Mass (t)			
			Source: NGERS			
Point ID	**Description**		**CO_2**	**CH_4**	**N_2O**	**tCO_2-e**
A03	**Gas Compressor A**	2018-2019	35,165	3	0.07	35,254
A04	**Gas Compressor B**	2019-2020	42,388	3	0.08	42,496
A05	**Gas Compressor C**	2020-2021	40,691	79	23	40,794
		2021-2022	33,550	65	20	33,635
		2022-2023	19,074	37.11	11.13	19,074
		2023-2024	20,161	39	12	20,212
A06	**Engine Generator A**	2018-2019	3,653	0.28	0.007	3,663
A07	**Engine Generator B**	2019-2020	3,661	0.28	0.007	3,670
A08	**Engine Generator C**	2020-2021	3,682	7	2	3,691
		2021-2022	3,372	7	2	3,381
		2022-2023	2,978	5.79	1.74	2,978
		2023-2024	3,942	8	2	3,952

Note: CH_4, N_2O and CO_2 are as per NGER reports and associated estimation techniques.

ATTACHMENT B:

PRODUCED WATER MONITORING

Attachment B.1: Produced Formation Water (PW-02) sampling results for in situ parameters 2024-2025

Date	Discharge volume (m3/d)	Oil in Water (mg/L)	pH	Electrical Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	Temperature (˚C)	Turbidity (NTU)
Trigger value		6					
Limit		25	<6.5 or >8.5				
6/05/2024	374.9	3	8.23	71.46	3.4	28.7	5.23
9/05/2024	50.2	5	7.95	69.12	3.3	30.9	1.67
13/05/2024	92	11	8.21	69.8	4.5	29.3	4.65
22/06/2024	40	4.5	8.119	70.33	4.8	23.9	5.46
23/06/2024	40.3	1.8	8.091	70.36	3.7	22.6	6.59
3/07/2024	565	14.4	7.8	67.82	3.8	31.8	1.63
1/09/2024	45.9	3.8	8.1	10.85	4.4	30	6.5
2/09/2024	86.6	1.9	7.95	76.7	4.4	25.5	2.4
3/09/2024	87	1.4	7.749	77.13	5.6	23.8	3.9
30/09/2024	77	12.4	7.75	76.74	4.7	23.8	3.1
1/10/2024	119.9	2	7.44	76.8	4.7	23.4	2.72
19/10/2024	39.5	4.6	8.327	78.15	4.2	29.9	45
20/10/2024	105.4	3.4	7.8	75.94	4.7	29.8	4.02
21/10/2024	32	3.6	7.9	77.17	4.5	26.3	4.25
22/10/2024	76.5	3.3	7.96	77.54	4.1	30.9	3.7
24/10/2024	71.6	3.4	8.11	76.1	0.7	30.8	3.73
26/10/2024	39.9	1.6	7.9	77.29	0.84	29.8	1.62
27/10/2024	30.8	2.5	8.16	76.51	0.86	29.9	2.44

Attachment B.2: Produced Formation Water (PW-02) laboratory analysis results 2024-2025

Sample Date[1]	pH[4]	Electrical Conductivity	Turbidity	BOD	COD	TDS	TSS	Oil & Grease	TOC	Phosphate as P	Total Nitrogen
Units	-	µS/cm	NTU	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/L	mg/L
Trigger Value							10	6			
Limit	6.5 - 8.5						50	25			
21/10/2024	8.2	66000	9.5	1700	7800		<5.0	<5.0		0.016	40
01/09/2024	5.8	85000	0.75	28	9600	54000	6	11	1900	0.078	39
7:30am 03/07/2024[2]	9.3	80000	380			48000	540		1400		
09:30am 03/07/2024[2]	9.3	79000	380			49000	490		1800		
10:30am 03/07/2024[2]	9.3	79000	320			48000	490		2300		
11:30am 03/07/2024[2]	9.3	79000	340			49000	510		1100		
12:30pm 03/07/2024[2]	9.3	80000	300			50000	520		1100		
1:30pm 03/07/2024[2]	9.4	80000	280			48000	530		1400		
2:30pm 03/07/2024[2]	9.3	80000	310			49000	750		1300		
24/06/2024[3]					5200			<5.0			
09/05/2024	8.1						51	8.2			

[1] In the 2024-2025 reporting period, produced water discharges occurred in May, June, July, September and October 2024 only.

[2] Produced water outfall monitoring was undertaken during a discharge event on the 3rd of July 2024, samples were taken at PW-02 every hour including a triplicate sample at 8:30am for QA/QC purposes (not included in this table).

[3] Produced water was discharged on the 22nd and 23rd of June. A laboratory sample was taken on 24/06/24 the day after discharge, and these results have been included in the table for June.

[4]For samples taken on 3 July 2024, the field pH reading has been reported here.

Note: Results have not been included in this table for other non-discharge sampling events.

Produced Formation Water laboratory analysis results 2024-2025 – Continued

Sample Date	Oxid. Nitro (NOx)	Ammon. N (NH3-N)	Nitrate (NO3-)	Nitrite (NO2-)	Aluminium (Dissolved)	Aluminium (Total)	Arsenic (Dissolved)	Arsenic (Total)	Barium (Dissolved)	Barium (Total)
Units	mg/l	mg/l	mg/l	mg/l	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Trigger Value										
Limit										
21/10/2024	<0.0050	38	<0.020	<0.020	<50	73	<5.0	<5.0	150000	150000
01/09/2024	<0.0050	28	<0.020	<0.020	68	320	<5.0	21	71000	130000
7:30am 03/07/2024		32							120000	120000
09:30am 03/07/2024		32							120000	110000
10:30am 03/07/2024		33							120000	120000
11:30am 03/07/2024		31							120000	110000
12:30pm 03/07/2024		30							120000	120000
1:30pm 03/07/2024		33							120000	120000
2:30pm 03/07/2024		33							120000	120000
24/06/2024					920	1800	<2.0	<5.0	150000	110000
09/05/2024										

Produced Formation Water laboratory analysis results 2024-2025 – Continued

Sample Date	Beryllium (Dissolved)	Beryllium (Total)	Boron (Dissolved)	Boron (Total)	Cadmium (Dissolved)	Cadmium (Total)	Cobalt (Dissolved)	Cobalt (Total)	Copper (Dissolved)	Copper (Total)
Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Trigger Value									3	3
Limit									8	8
21/10/2024	<2.5	<2.5	3300	3400	0.6	0.5	<5.0	<5.0	27	26
01/09/2024	<2.5	<2.5	1700	4500	0.55	<0.50	<5.0	8	15	61
7:30am 03/07/2024										
09:30am 03/07/2024										
10:30am 03/07/2024										
11:30am 03/07/2024										
12:30pm 03/07/2024										
1:30pm 03/07/2024										
2:30pm 03/07/2024										
24/06/2024	<1.0	<2.5	3000	3300	<0.2	<0.5	<0.2	<0.5	11	13
09/05/2024										13

Produced Formation Water laboratory analysis results 2024-2025 – Continued

Sample Date	Chromium (Dissolved)	Chromium (Total)	Cr III	Cr VI	Iron (Dissolved)	Iron (Total)	Mercury (Dissolved)	Mercury (Total)	Magnesium (Dissolved)	Magnesium (Total)
Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Trigger Value										
Limit										
21/10/2024	<5.0	<5.0	<25	<25	<50	<50	0.052	0.065	NT	120000
01/09/2024	<5.0	<5.0	<25	<25	100	280	<0.050	0.24	150	150000
7:30am 03/07/2024					<50	38000				
09:30am 03/07/2024					71	41000				
10:30am 03/07/2024					55	35000				
11:30am 03/07/2024					58	40000				
12:30pm 03/07/2024					<50	37000				
1:30pm 03/07/2024					56	35000				
2:30pm 03/07/2024					51	34000				
24/06/2024	2.7	<5.0	<25	<25	4900	5100	<0.050	0.13	NR	100000
09/05/2024	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

Produced Formation Water laboratory analysis results 2024-2025 – Continued

Sample Date	Manganese (Dissolved)	Manganese (Total)	Molybdenum (Dissolved)	Molybdenum (Total)	Lead (Dissolved)	Lead (Total)	Nickel (Dissolved)	Nickel (Total)	Selenium (Dissolved)	Selenium (Total)
Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Trigger Value										
Limit	80	80								
21/10/2024	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	36	35	<5.0	<5.0
01/09/2024	52	20	<5.0	<5.0	<5.0	<5.0	19	50	<5.0	<5.0
7:30am 03/07/2024	15	910					9	26		
09:30am 03/07/2024	16	980					8.8	30		
10:30am 03/07/2024	17	850					9.4	23		
11:30am 03/07/2024	15	970					9.6	28		
12:30pm 03/07/2024	16	890					8.8	25		
1:30pm 03/07/2024	17	890					8.5	27		
2:30pm 03/07/2024	16	830					9	27		
24/06/2024	160	180	<2.0	<5.0	<2.0	<5.0	12	14	<2.0	<5.0
09/05/2024		40								

Produced Formation Water laboratory analysis results 2024-2025 – Continued

Sample Date	Tin (Dissolved)	Tin (Total)	Zinc (Dissolved)	Zinc (Total)	Radium Isotopes (Ra 226)	Radium Isotopes (Ra 228)	MBAS	Phenol	Pentachlorophenol	2-Chlorophenol
Units	µg/L	µg/L	µg/L	µg/L	mBq/L	mBq/L	µg/L	µg/L	µg/L	µg/L
Trigger Value			23	23						
Limit			43	43				1200	55	
21/10/2024	<5.0	<5.0	100	91				170	<50	<10
01/09/2024	<5.0	82	100	110	17600	29200	<0.1	200	<5.0	<10
7:30am 03/07/2024			54	310				210	<100[1]	<20
09:30am 03/07/2024			51	370				390	<100[1]	<20
10:30am 03/07/2024			56	290				340	<100[1]	<20
11:30am 03/07/2024			54	340				340	<100[1]	<20
12:30pm 03/07/2024			79	310				380	<100[1]	<20
1:30pm 03/07/2024			56	300				370	<100[1]	<20
2:30pm 03/07/2024			53	290				380	<100[1]	<20
24/06/2024	<2.0	8.8	100	190						
09/05/2024				60						

[1]Practical quantitation limit was raised due to the matrix requiring dilution.

Produced Formation Water laboratory analysis results 2024-2025 – Continued

Sample Date	2-Methylphenol (O-Cresol)	3/4-Methylphenol	2- Nitrophenol	2,4-Dimethylphenol	2,4-Dichlorophenol	2,6-Dichlorophenol	4-Chloro-3-Methylphenol	2,4,6- Trichlorophenol	2,4,5- Trichloro-phenol	2,4-Dinitrophenol
Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Trigger Value										
Limit										
21/10/2024	550	430	<10	280	550	<10	<10	<50	<10	<200
01/09/2024	690	470	<10	350	690	<10	<10	<50	<10	<200
7:30am 03/07/2024	330	180	<20	260	<20	<20	<100	<20	<20	<400
09:30am 03/07/2024	540	370	<20	410	<20	<20	<100	<20	<20	<400
10:30am 03/07/2024	520	310	<20	460	<20	<20	<100	<20	<20	<400
11:30am 03/07/2024	540	320	<20	410	<20	<20	<100	<20	<20	<400
12:30pm 03/07/2024	550	380	<20	450	<20	<20	<100	<20	<20	<400
1:30pm 03/07/2024	600	360	<20	480	<20	<20	<100	<20	<20	<400
2:30pm 03/07/2024	530	360	<20	460	<20	<20	<100	<20	<20	<400
24/06/2024										
09/05/2024										

Produced Formation Water laboratory analysis results 2024-2025 – Continued

Sample Date	4- Nitrophenol	2,3,4,5 & 2,3,4,6 Tetrachlo-rophenol	4,6- Dinitro-o-cresol	PAH	TRH C6-C9	TRH C6-C10	TRH C6-C10 less BTEX (F1)	Methyl tert butyl ether (MTBE)
Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Trigger								
Limit								
21/10/2024	<200	<20	<200	10	<200	310	310	<20
01/09/2024	<200	<2.0	<20	31	750	1100	860	<5.0
7:30am 03/07/2024	<400	<40	<400		7700	12000	11000	<50
09:30am 03/07/2024	<400	<40	<400		3100	4700	4000	<50
10:30am 03/07/2024	<400	<40	<400		6400	10000	9300	<50
11:30am 03/07/2024	<400	<40	<400		7200	12000	11000	<50
12:30pm 03/07/2024	<400	<40	<400		6400	10000	9400	<50
1:30pm 03/07/2024	<400	<40	<400		5900	9600	8800	<50
2:30pm 03/07/2024	<400	<40	<400		2000	2700	2100	<50
24/06/2024				16				
09/05/2024					8000	9300	<5000	<500

Produced Formation Water laboratory analysis results 2024-2025 – Continued

Sample Date	Benzene	Toluene	Ethyl benzene	Xylene (m+p)	Anthracene	Fluoranthene	Benzo (a) pyrene	Xylene (O)	Total Xylene
Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Trigger	1300								
Limit	2000	330	160	150	7	2	0.7		
21/10/2024	<20	<20	<20	<40	<0.10	<0.10	<0.10	<20	<60
01/09/2024	9.4	83	24	110	<0.10	<0.10	<0.10	47	160
7:30am 03/07/2024	<50	290	90	440				180	620
09:30am 03/07/2024	<50	240	58	290				120	410
10:30am 03/07/2024	<50	290	81	400				160	570
11:30am 03/07/2024	<50	280	83	410				170	580
12:30pm 03/07/2024	<50	250	77	380				150	530
1:30pm 03/07/2024	<50	250	72	360				150	510
2:30pm 03/07/2024	<50	240	52	260				110	370
24/06/2024	78	290	28	135	<0.10	<0.20	<0.10	65	
09/05/2024	1100	2900	<500	1100	<0.10	<0.10	<0.10	<20	1100

Produced Formation Water laboratory analysis results 2024-2025 – Continued

Sample Date	Naphthalene (value used in F2 calc)	Dibromofluoromethane	Toluene-D8	4-Bromofluorobenzene	TRH C10-C14	TRH C15-C28	TRH C29-C36	Total +ve TRH C10-C36	TRH >C10-C16	TRH >C10-C16 less Naphthalene F2
Units	µg/L	%	%	%	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Trigger										
Limit										
21/10/2024	<20	101	98.8	99.9	290000	10000	580	300000	17000	17000
01/09/2024	36	98.6	101	101	260000	8000	270	270000	13000	13000
7:30am 03/07/2024	<50	106	96.5	109	230000	39000	780	270000	35000	35000
09:30am 03/07/2024	<50	103	95.8	100	230000	8100	480	240000	13000	13000
10:30am 03/07/2024	<50	107	97.7	94.2	240000	40000	670	280000	36000	36000
11:30am 03/07/2024	<50	106	96.3	86.4	230000	14000	450	240000	17000	17000
12:30pm 03/07/2024	<50	107	97.4	104	250000	33000	670	280000	31000	31000
1:30pm 03/07/2024	<50	105	98.1	86.5	270000	61000	990	330000	51000	51000
2:30pm 03/07/2024	<50	100	96.7	98.2	250000	52000	930	300000	44000	44000
24/06/2024										
09/05/2024	<500	104	101	106						

Produced Formation Water laboratory analysis results 2024-2025 – Continued

Sample Date	TRH >C16-C34 (F3)	TRH >C34-C40 (F4)	Total +ve TRH >C10-C40	o-Terphenyl	>C10-C16 Aliphatic	>C16-C35 Aliphatic	>C35 Aliphatic	>C10-C16 Aromatic	>C16-C35 Aromatic	1-Chlorooctadecane
Units	µg/L	µg/L	µg/L	%	µg/L	µg/L	µg/L	µg/L	µg/L	%
Trigger										
Limit										
21/10/2024	3600	560	21000	81.6	800	100	<100	770	<50	83.8
01/09/2024	2400	230	16000	75.5	390	200	<100	1000	140	94.5
7:30am 03/07/2024	24000	370	59000							
09:30am 03/07/2024	3100	430	17000							
10:30am 03/07/2024	24000	320	60000							
11:30am 03/07/2024	6600	370	24000	74.8						
12:30pm 03/07/2024	19000	460	50000							
1:30pm 03/07/2024	37000	550	89000							
2:30pm 03/07/2024	32000	610	77000							
24/06/2024										
09/05/2024										

Produced Formation Water laboratory analysis results 2024-2025 – Continued

Sample Date	Naphthalene2	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene3	Fluoranthene4	Pyrene	Benzo(a)anthracene	Chrysene	Benzo(a)pyrene	Indeno(1,2,3-c,d)pyrene	Dibenzo(a,h)anthracene	Benzo(g,h,i)perylene	Total +ve PAH	p-Terphenyl-D14	Benzo(b,j,k)fluoranthene
Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	%	%	µg/L
Trigger																	
Limit																	
21/10/2024	2.2	<1.0	<1.0	3.9	4.2	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	10	93.2	<0.20
01/09/2024	22	<1.0	<0.10	5.8	3	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	31	79.6	<0.20
7:30am 03/07/2024																	
09:30am 03/07/2024																	
10:30am 03/07/2024																	
11:30am 03/07/2024																	
12:30pm 03/07/2024																	
1:30pm 03/07/2024																	
2:30pm 03/07/2024																	
24/06/2024																	
09/05/2024																	

Attachment B.3: Produced Formation Water (PW-02) laboratory analysis results previous 3 years – Figures

Note: Values that were recorded as below practical quantitation limits (PQL) by the laboratory will appear on graphs as "0".

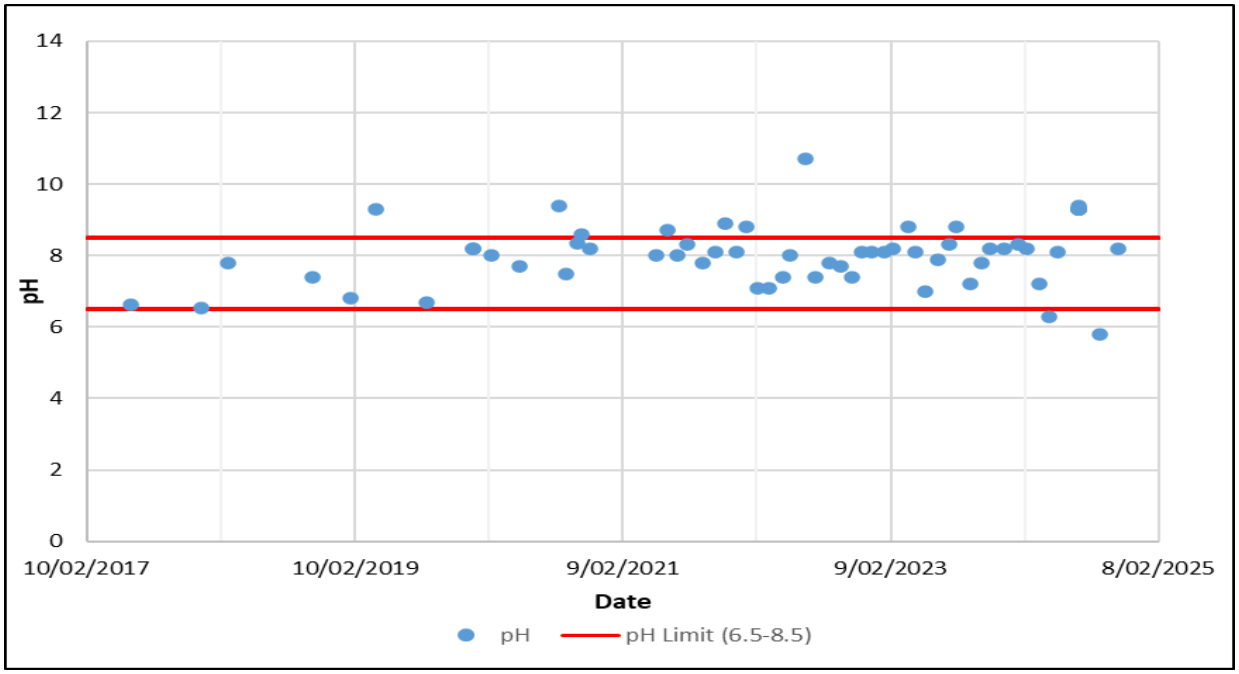


Figure B.3.1: Produced Formation Water laboratory analysis results for pH from 10 February 2017 to 9 February 2025.

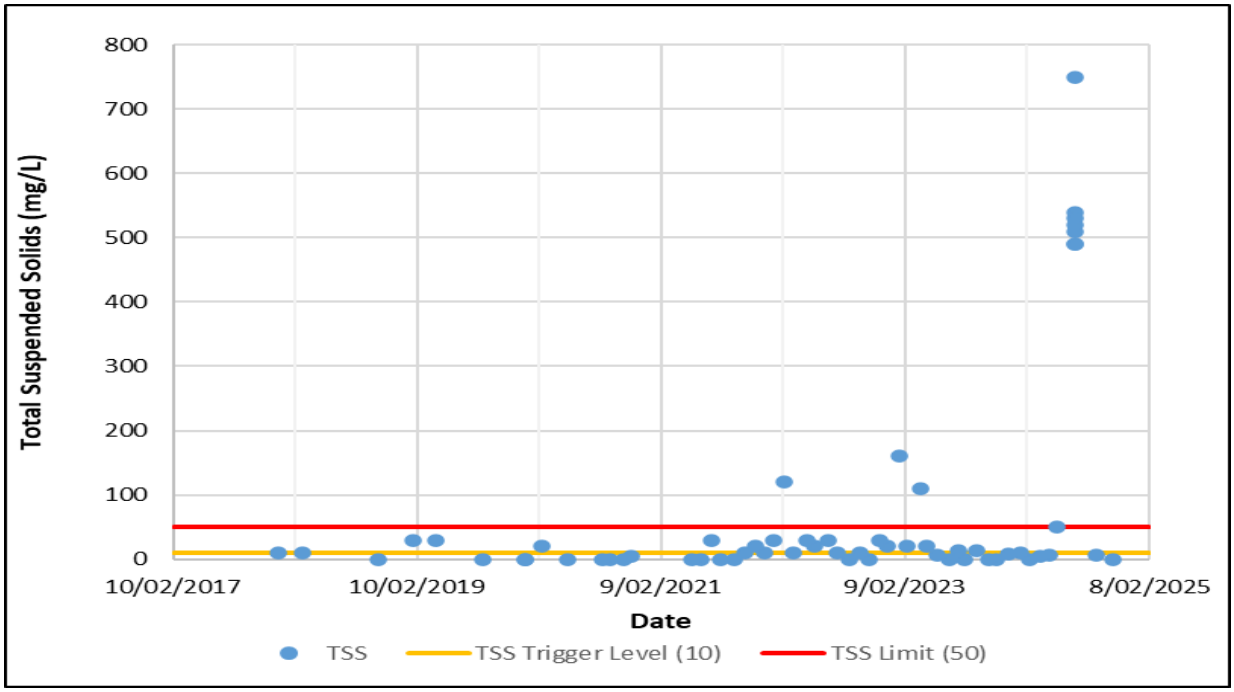


Figure B.3.2: Produced Formation Water laboratory analysis results for Total Suspended Solids from 10 February 2017 to February 2025.

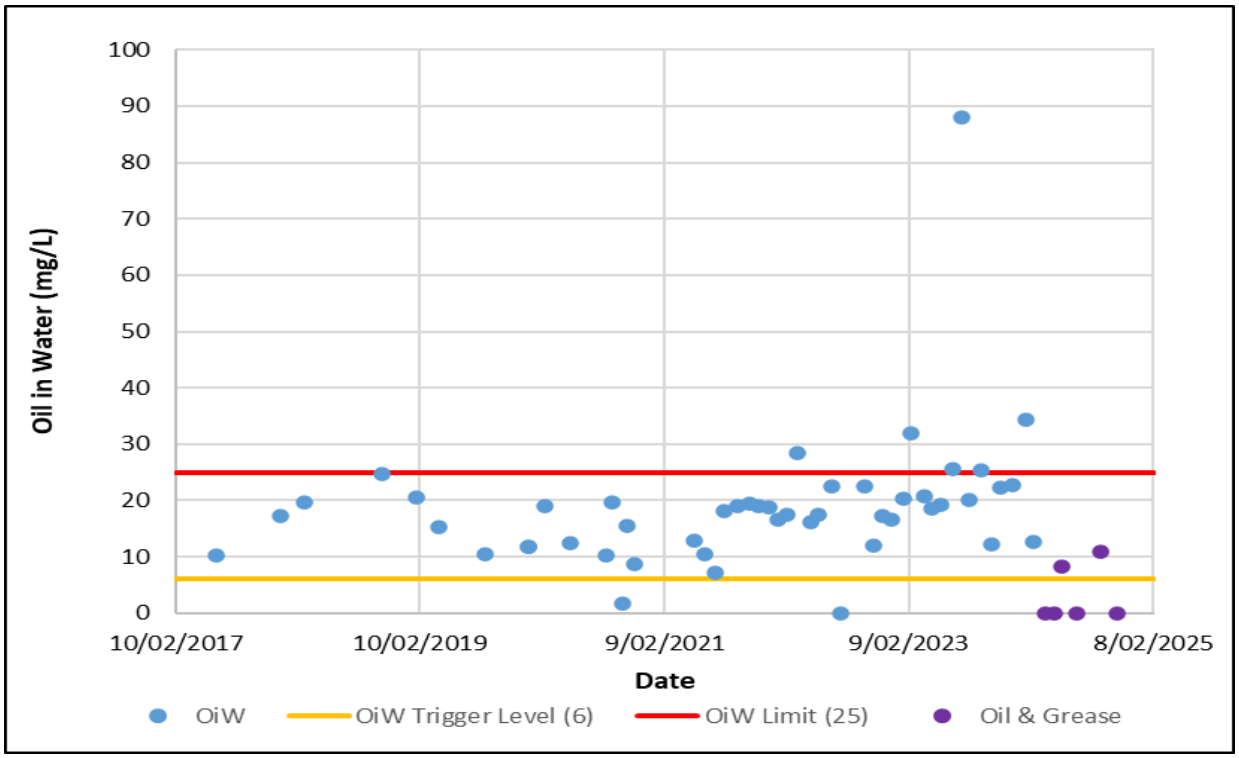


Figure B.3.3: Produced Formation Water analysis results for Oil in Water from 10 February 2017 to February 2025. Note that from March 2024, the laboratory services provider has reported this value as 'oil & grease' rather than oil in water.

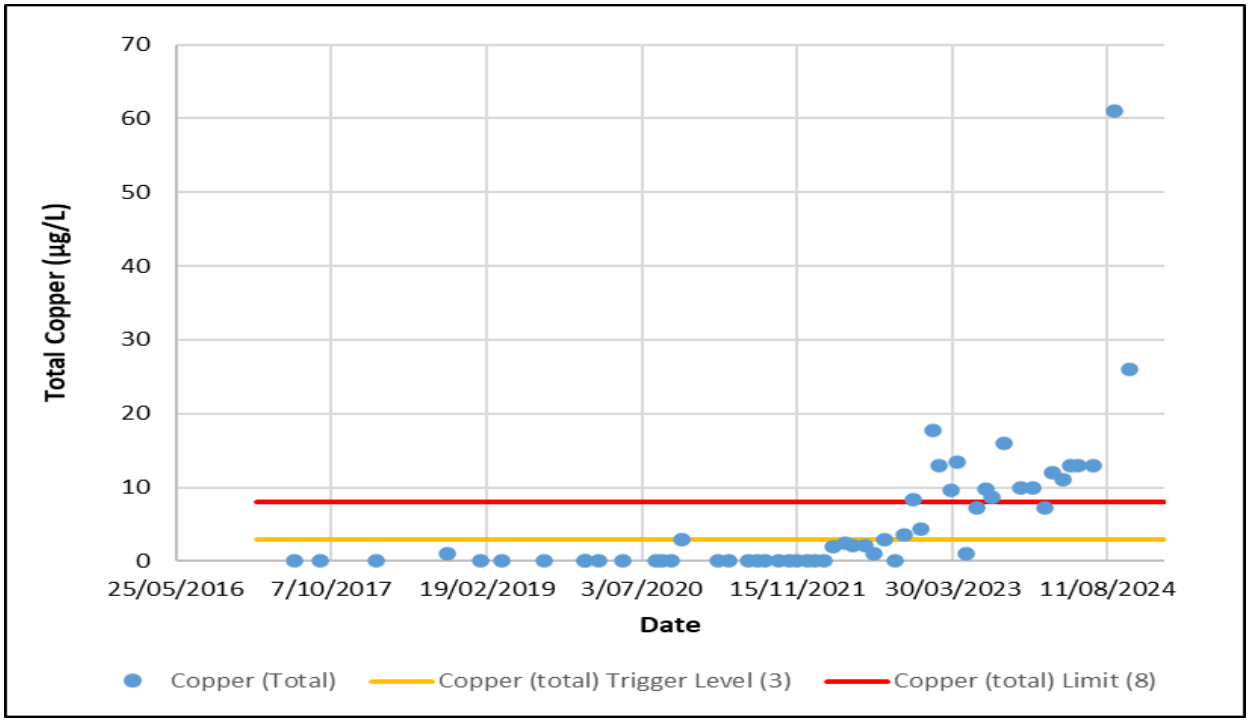


Figure B.3.4: Produced Formation Water laboratory analysis results for Total Copper from 10 February 2017 to February 2025.

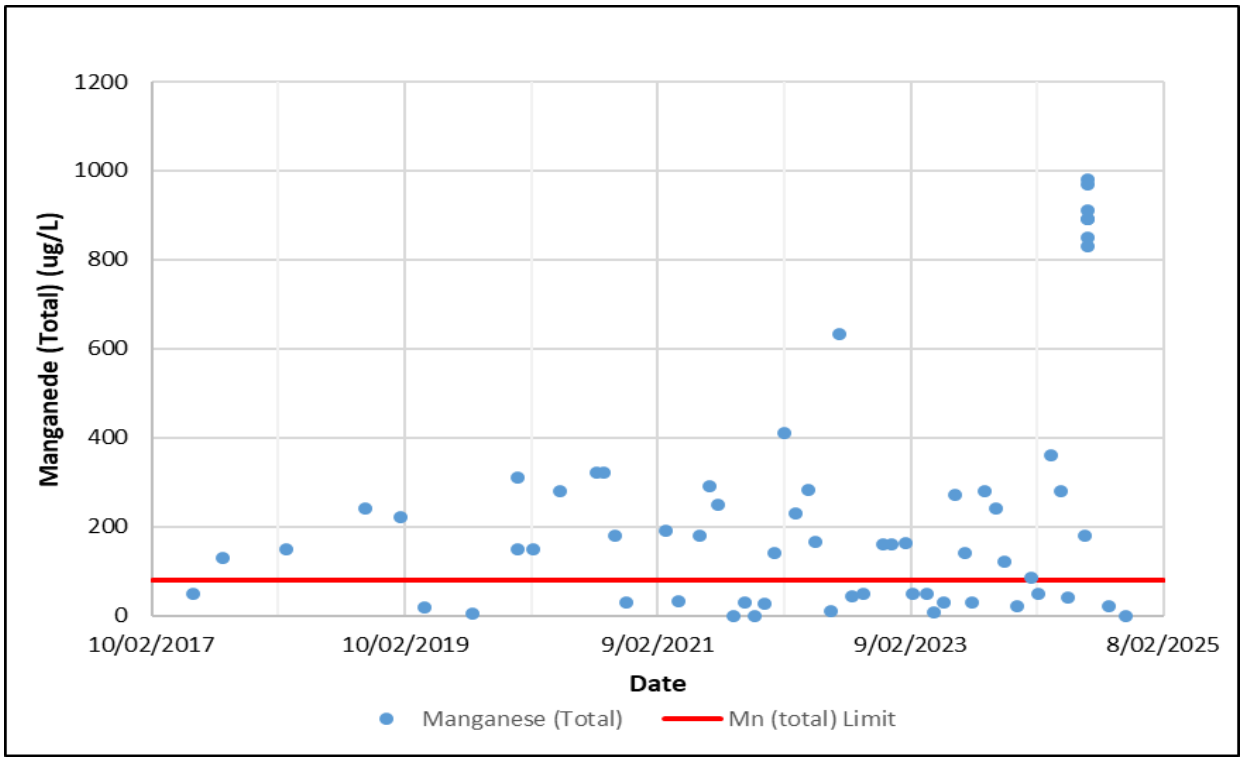


Figure B.3.5: Produced Formation Water laboratory analysis results for Total Manganese from 10 February 2017 to February 2025.

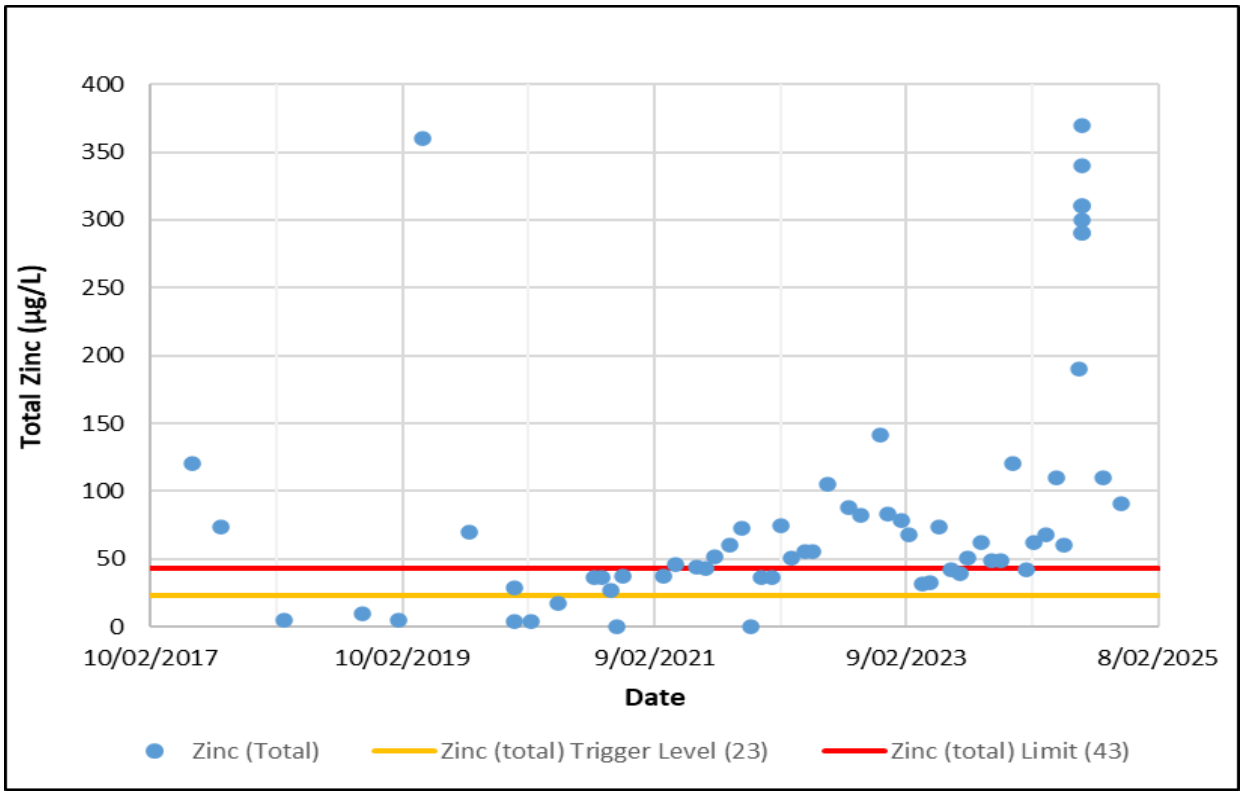


Figure B.3.6: Produced Formation Water laboratory analysis results for Total Zinc from 10 February 2017 to February 2025.

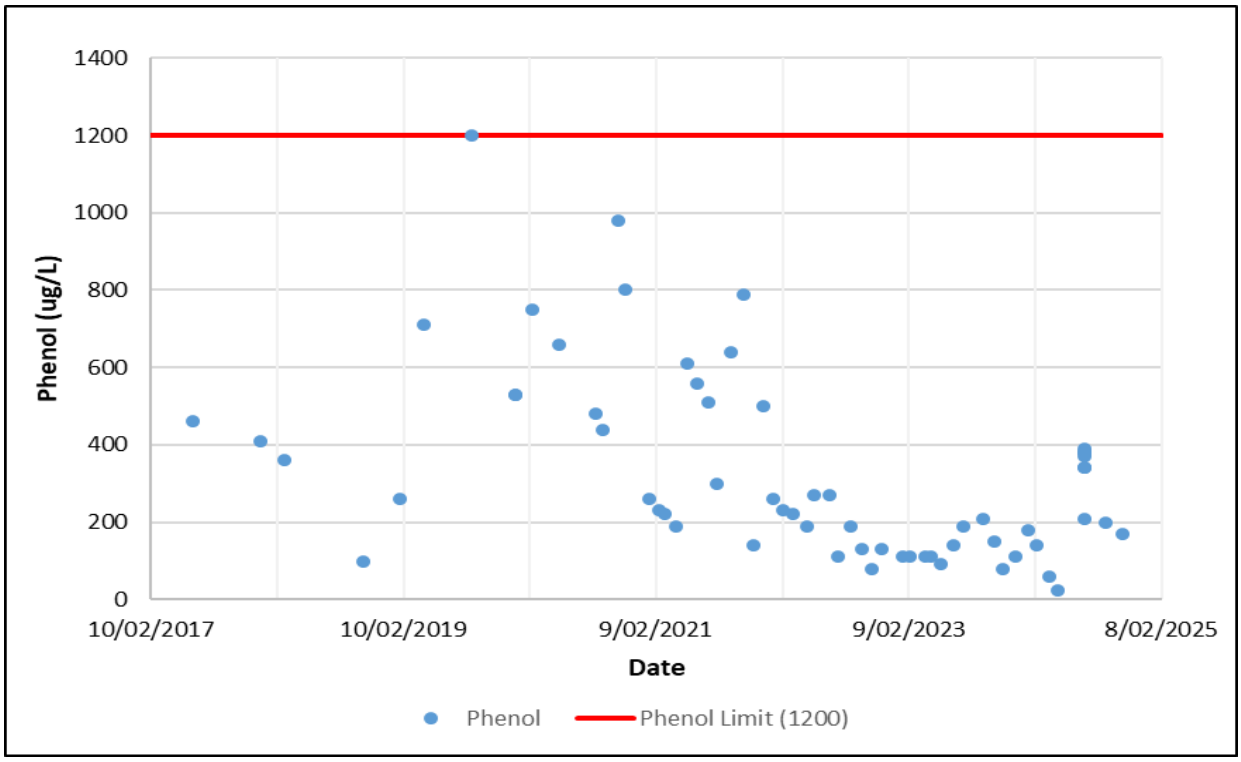


Figure B.3.7: Produced Formation Water laboratory analysis results for Phenol from 10 February 2017 to February 2025.

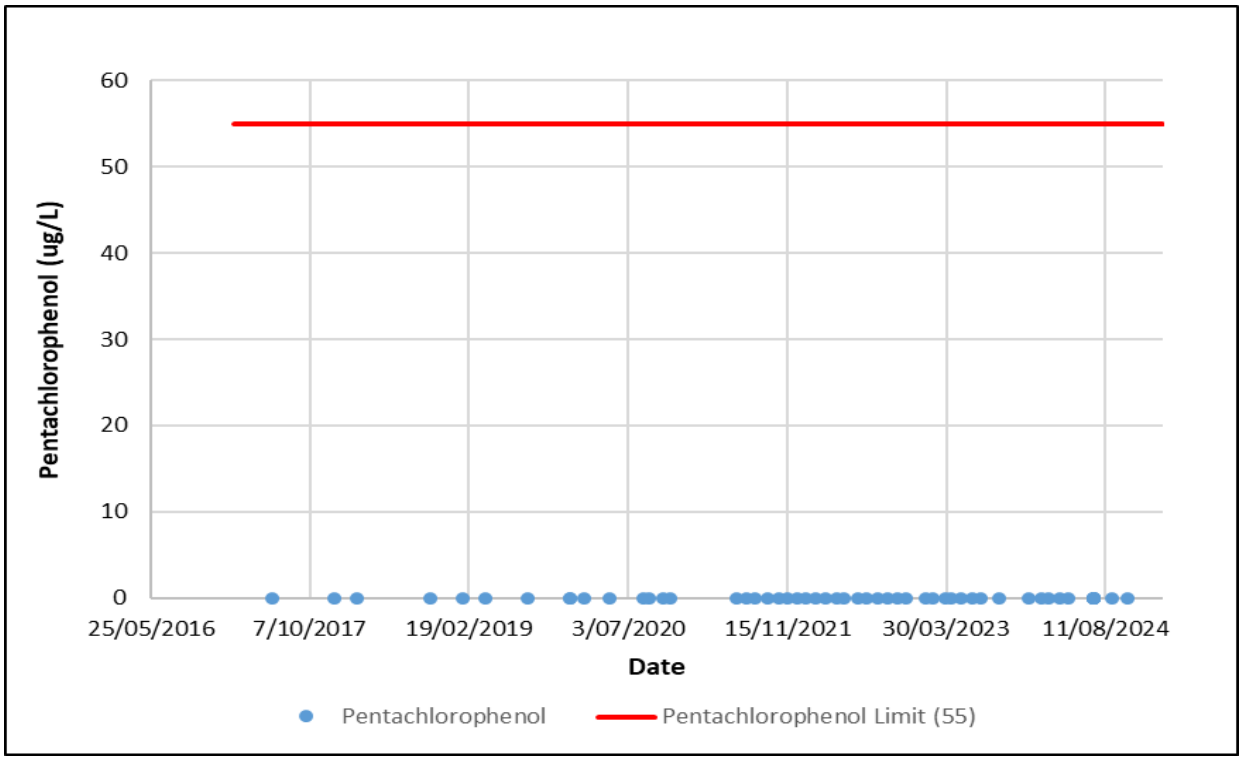


Figure B.3.8: Produced Formation Water laboratory analysis results for Pentachlorophenol from 10 February 2017 to February 2025.

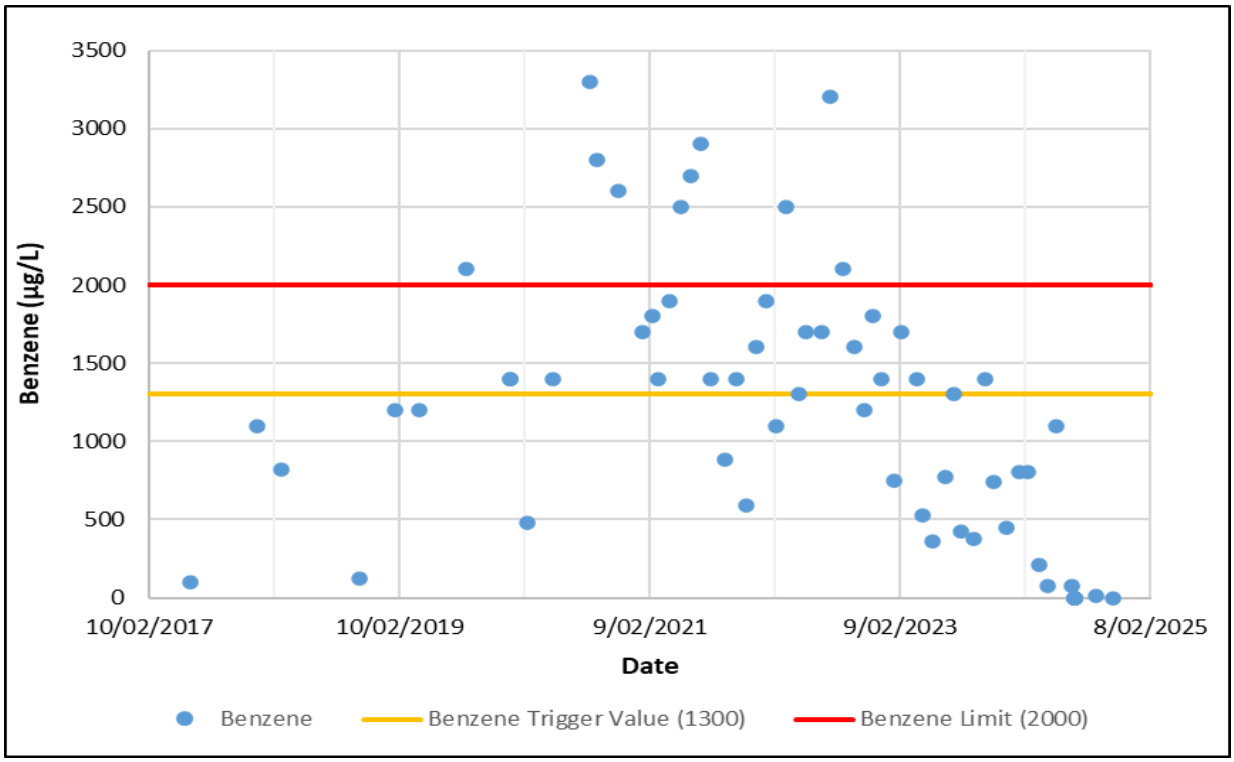


Figure B.3.9: Produced Formation Water laboratory analysis results for Benzene from 10 February 2017 to February 2025.

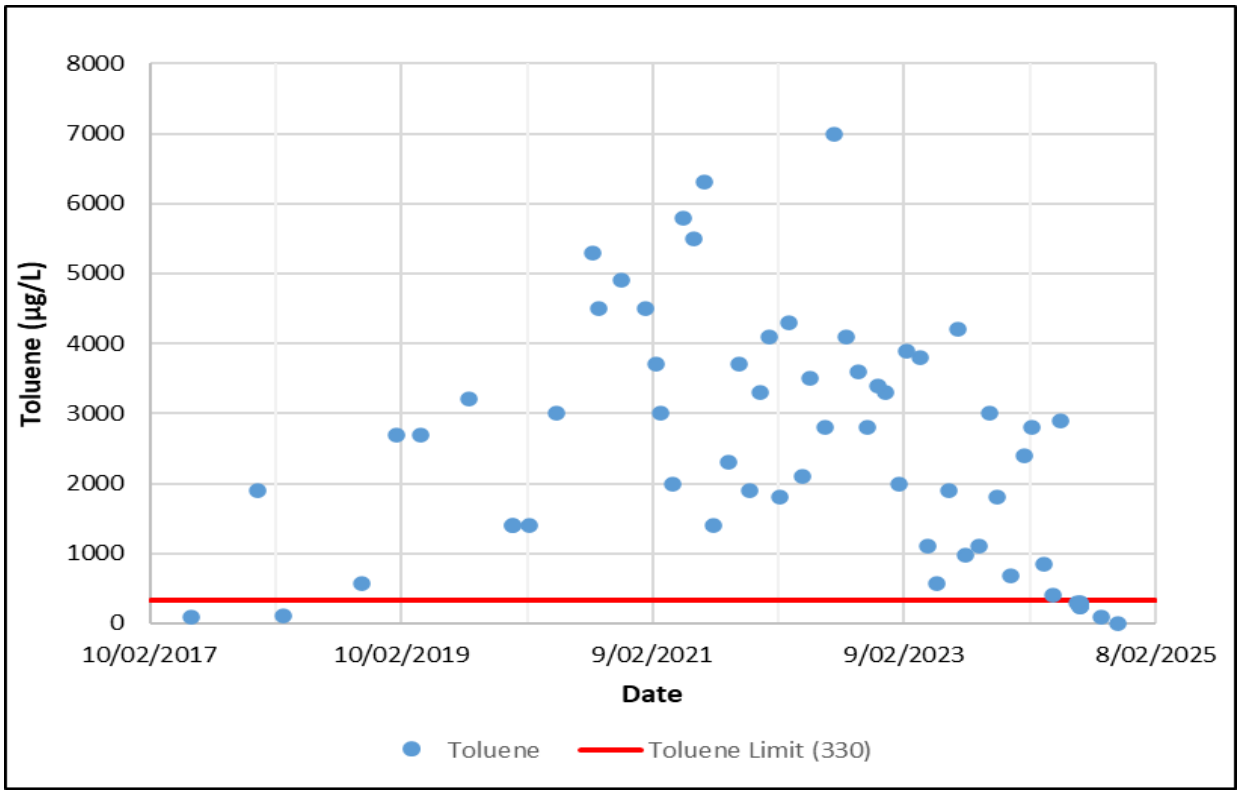


Figure B.3.10: Produced Formation Water laboratory analysis results for Toluene from 10 February 2017 to February 2025.

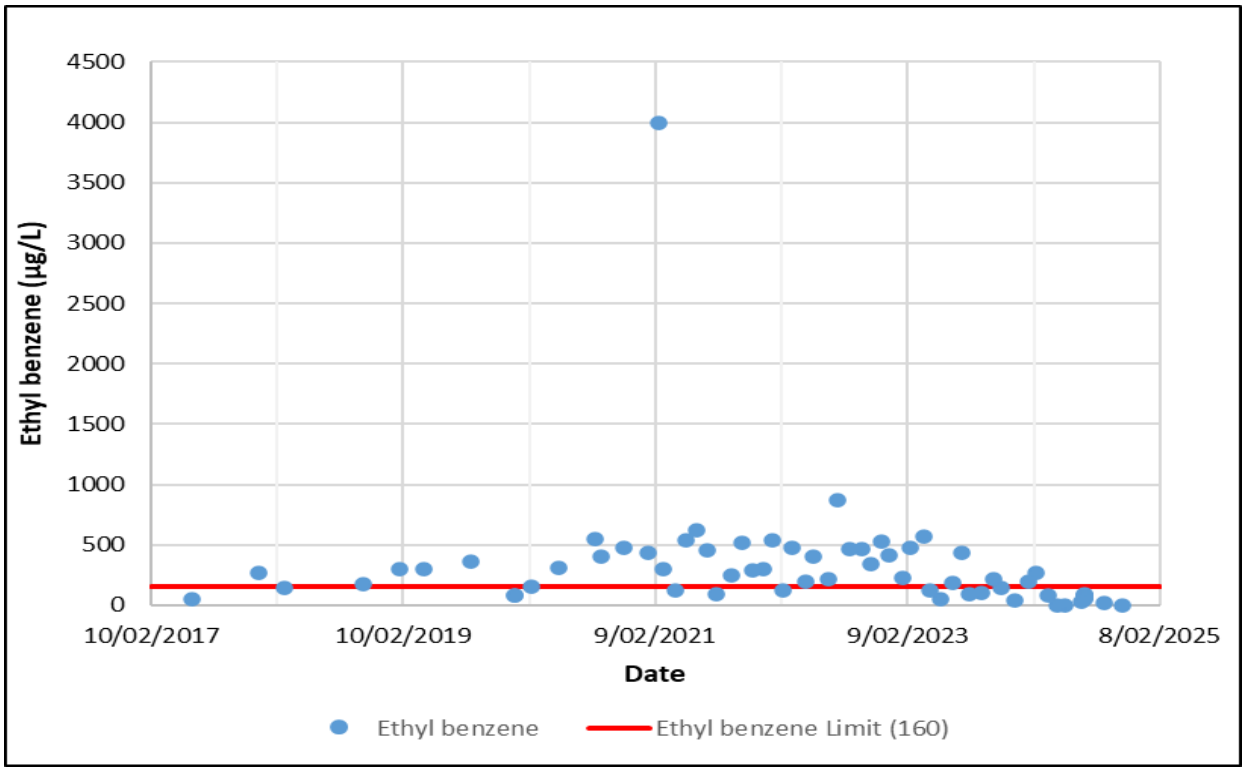


Figure B.3.11: Produced Formation Water laboratory analysis results for Ethyl Benzene from 10 February 2017 to February 2025.

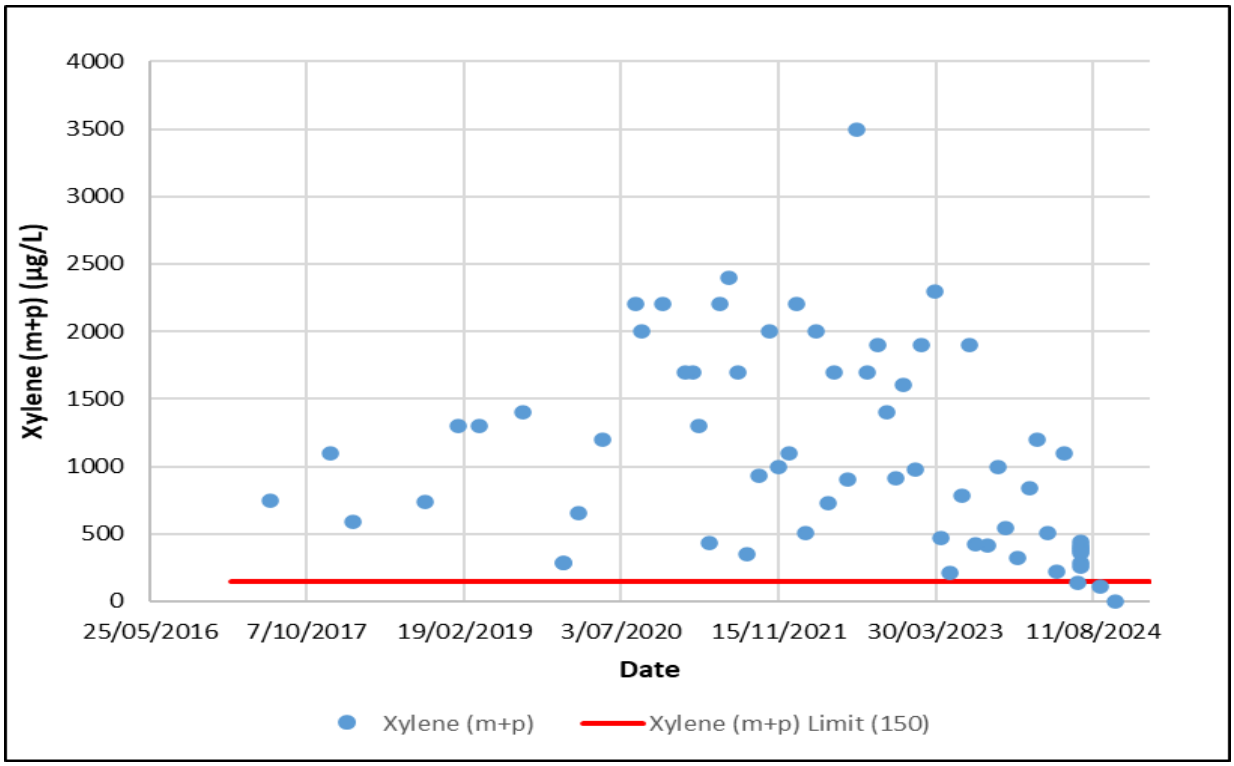


Figure B.3.12: Produced Formation Water laboratory analysis results for Xylene (m+p) from 10 February 2017 to February 2025.

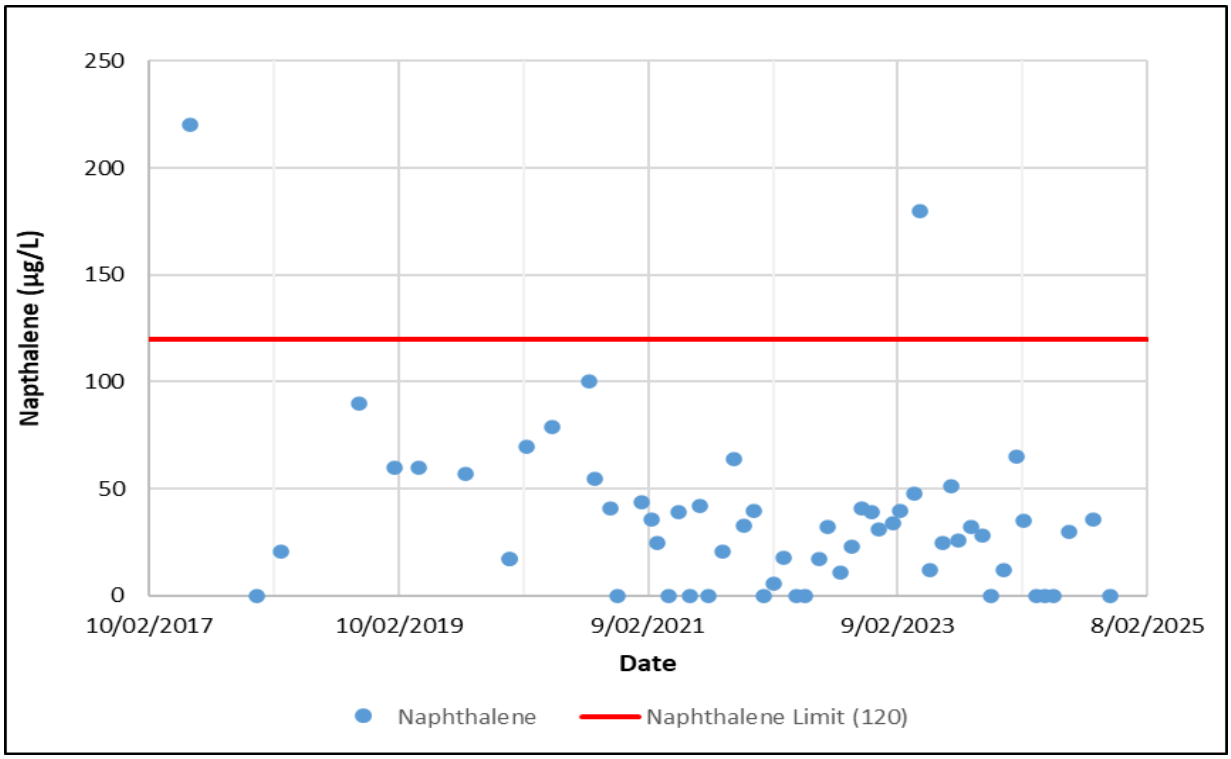


Figure B.3.13: Produced Formation Water laboratory analysis results for Napthalene from 10 February 2017 to February 2025.

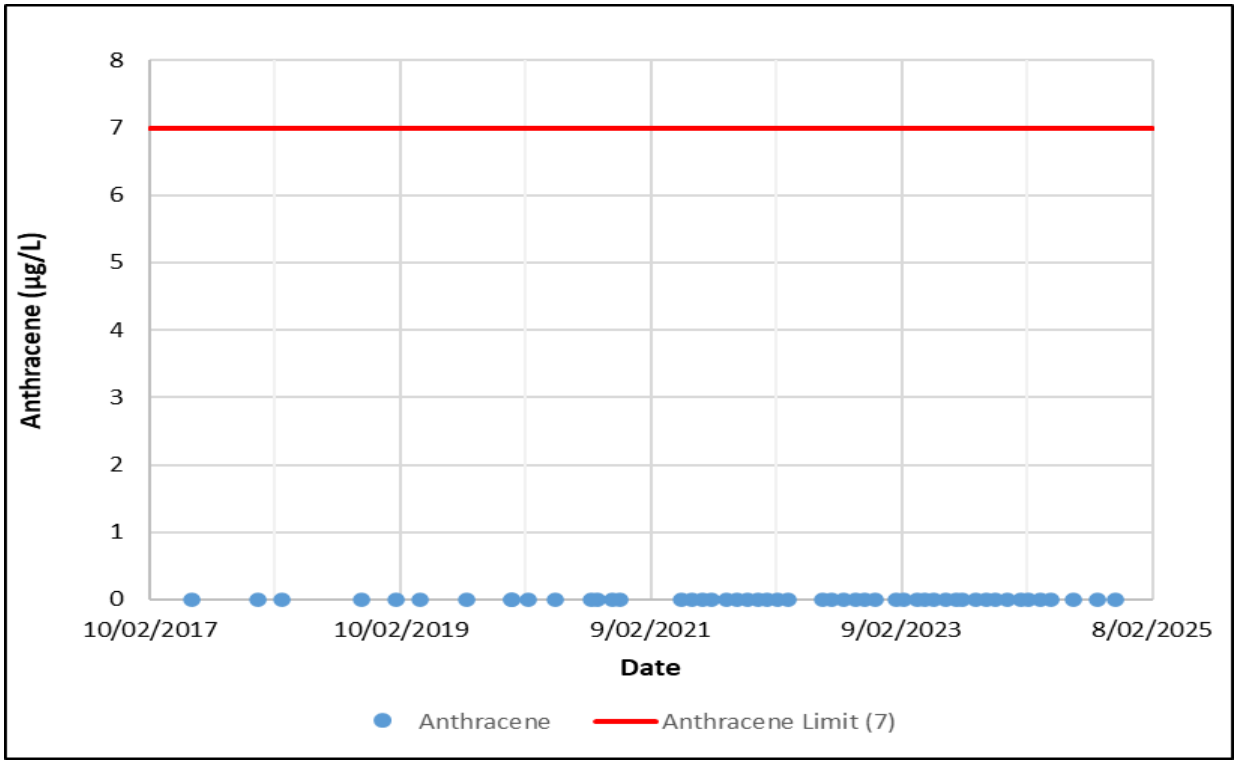


Figure B.3.14: Produced Formation Water laboratory analysis results for Anthracene from 10 February 2017 to February 2025.

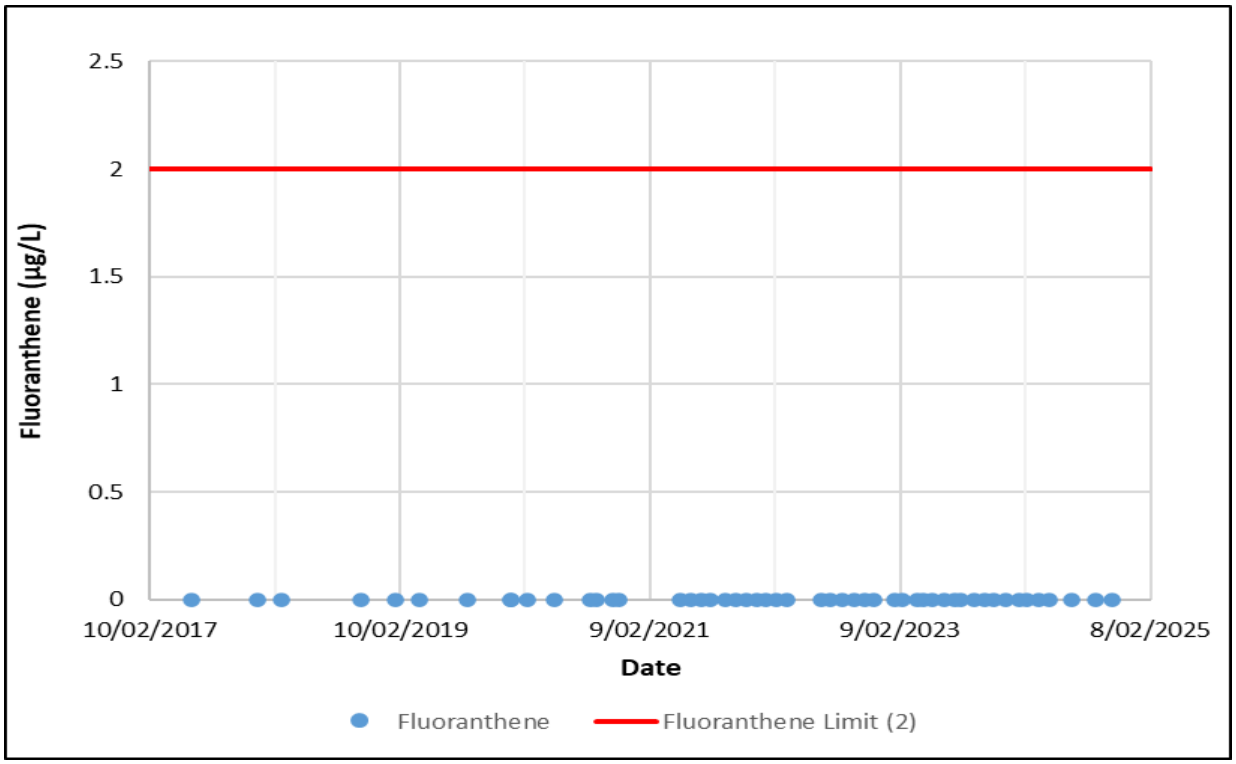


Figure B.3.15: Produced Formation Water laboratory analysis results for Fluoranthene from 10 February 2017 to February 2025.

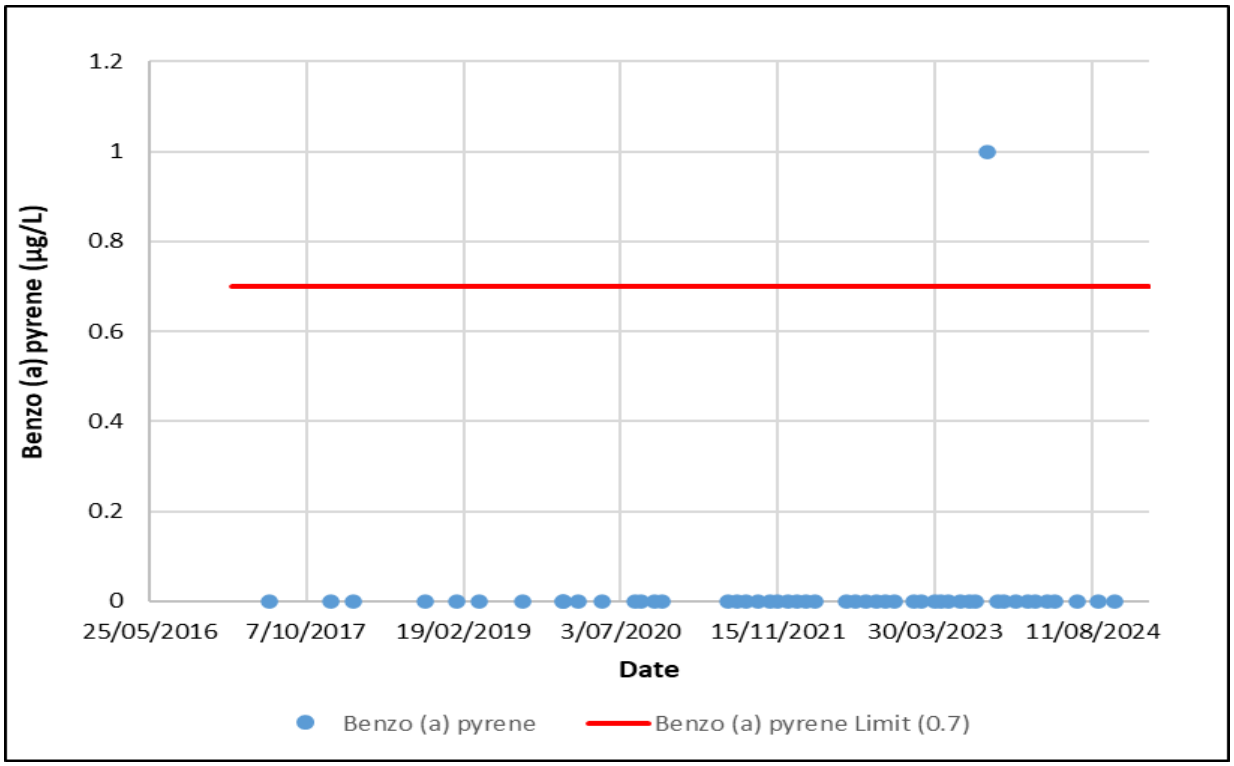


Figure B.3.16: Produced Formation Water laboratory analysis results for Benzo (a) pyrene from 10 February 2017 to February 2025.

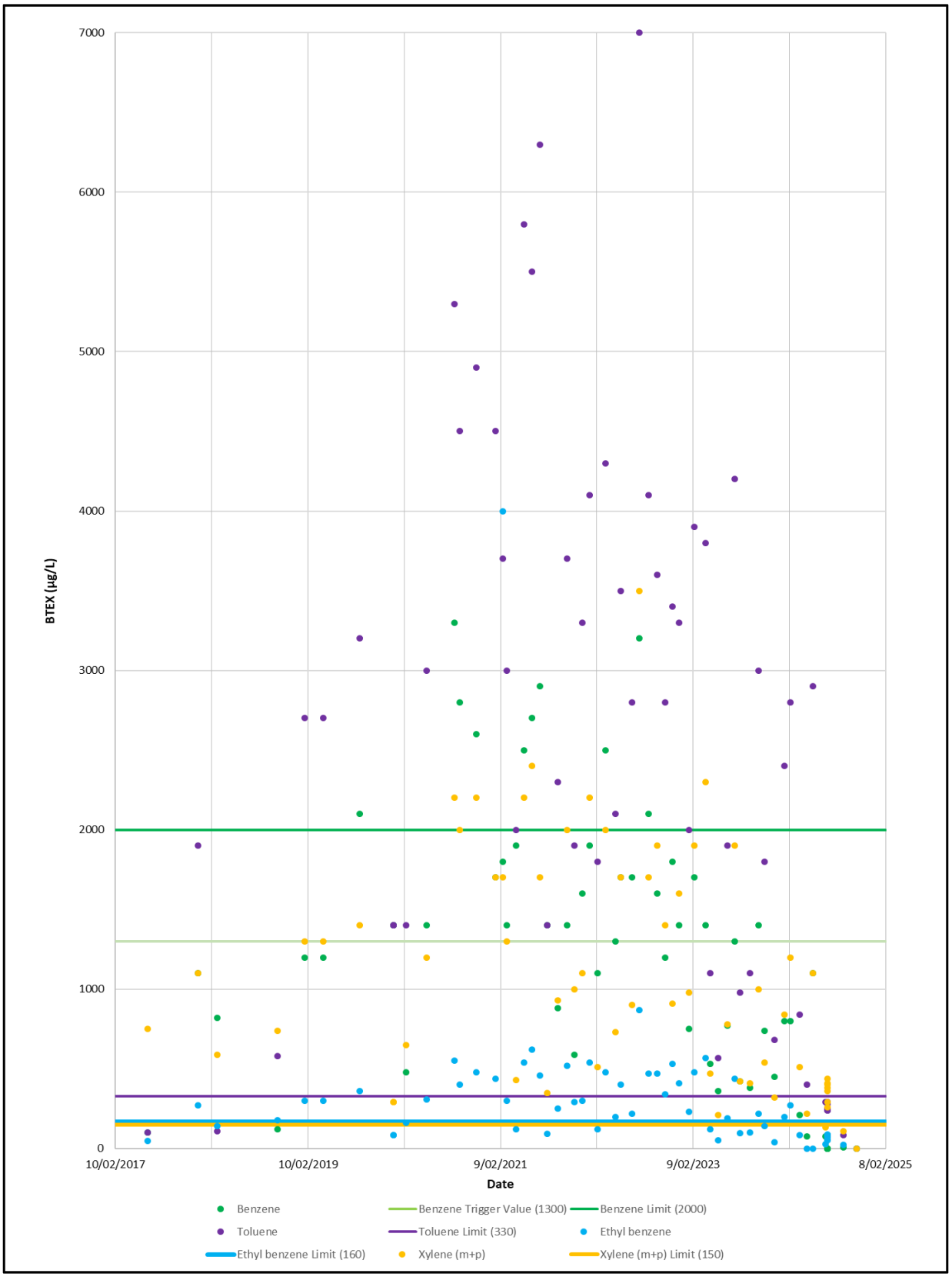


Figure B.3.17: Produced Formation Water laboratory analysis results for BTEX from 10 February 2017 to February 2025.

ATTACHMENT C:

WWTP SAMPLING

Attachment C.1: Treated Wastewater Effluent – Monthly Discharge Volumes

Month	Treated Wastewater Volume Discharged (m^3)
February 2024	194
March 2024	295
April 2024	143
May 2024	69
June 2024	2
July 2024	109
August 2024	171
September 2024	185
October 2024	176
November 2024	169
December 2024	153
January 2025	161
Total 1 February 2024 – 31 January 2025	**1,827**

Source: Eni's internal environmental reporting tool SHERPA.

Attachment C.2: Treated Wastewater Effluent (WW-02) laboratory analysis results 2024-2025 reporting period

Sample Date	pH	Electrical Conductivity	Biological Oxygen Demand	Total Suspended Solids	Total Dissolved Solids	Total Organic Carbon	Oil in Water	Oil & Grease	Total Phosphorous	Total Dissolved Phosphorous
Units	unitless	µS/cm	mg/l	mg/l	mg/l	mg/l	mg/l	mg/L	mg/L	mg/L
Threshold			10	10			6			
Limits	6.5 -8.5		20	30			10			
22/01/2025	4.4	750	9.7	9	500	6.8		<5.0		
18/12/2024	6.9	760	11	42	400	14		<5.0	1.3	0.13
13/11/2024	6.9	780	<5	37	460	12		<5.0		
9/10/2024	4.3	770	11	97	490			5.8		
18/09/2024	4.7	740	46	110	490	34		<5		
14/08/2024	7.5	1300	76	120	740	16		<5.0		
24/07/2024[1]										
17/07/2024[1]	3.9	1400	28	440	770	52		<12		
19/06/2024	6.1	64	<5.0	12	550	11		<5.0	0.68	
17/04/2024	7.6	1500	12	55	680	21		<5.0	1.6	
20/03/2024	7.9	1400	20	50	610			<5.0	2.5	1.2
14/02/2024	7.1	1,100	<5.0	35	530	20	<1		1.3	0.4

[1]Sample taken on 17 July 2024 was unable to be tested for bacteriological analytes due to missing sample bottle. Replacement sample for bacteriological analysis only was taken on 24 July 2024.

Note: Wastewater tank was empty in May 2024, therefore no sample taken.

Attachment C.2: Treated Wastewater Effluent (WW-02) laboratory analysis results 2024-2025 reporting period – continued

Sample Date	Total Nitrogen	Total Dissolved Nitrogen	Ammoniacal Nitrogen	Oxidised Nitrogen (NOx)	Nitrate (NO3-N)	Nitrite (NO2-N)	*Escherichia coli*	Enterococci	Total coliforms	Themotolerant coliforms
Units	mg/l	mg/l	mg/l	mg/l	mg/L	mg/L	CFU/100ml	CFU/100ml	CFU/100ml	CFU/100ml
Threshold							100			
Limits							1000			
22/01/2025	20		1.2				60	<10		590
18/12/2024	11	9.9	6.4				<10	<10		<10
13/11/2024	5.5	4	1.2				<10	<10		20
9/10/2024	17	17	1.2				<10	<10		<10
18/09/2024	22		1.3				<10	<10		<10
14/08/2024	60		2.2				<10	<10		37
24/07/2024[1]							<10	<10		<10
17/07/2024[1]	98		19							
19/06/2024	61		29	21	93	0.39	1600	840		7000
17/04/2024	39		25				<10	<10		<10
20/03/2024	28	22	18				<10	20		<10
14/02/2024	26	24	20	3.9	3.7	0.19	10	<10	>150000	

[1]Sample taken on 17 July 2024 was unable to be tested for bacteriological analytes due to missing sample bottle. Replacement sample for bacteriological analysis only was taken on 24 July 2024.

Note: Wastewater tank was empty in May 2024, therefore no sample taken.

Attachment C.2: Treated Wastewater Effluent (WW-02) laboratory analysis results 2024-2025 reporting period – continued

Sample Date	Aluminium (Dissolved)	Aluminium (Total)	Arsenic (Dissolved)	Arsenic (Total)	Barium (Dissolved)	Barium (Total)	Beryllium (Dissolved)	Beryllium (Total)	Boron (Dissolved)	Boron (Total)
Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Threshold										
Limits										
22/01/2025										
18/12/2024										
13/11/2024	95	1700	<1.0	<1.0	32	32	<0.50	<0.50	200	310
9/10/2024										
18/09/2024										
14/08/2024										
24/07/2024										
17/07/2024										
19/06/2024	120	970	<5.0	<5.0	10	130	<2.5	<2.5	430	500
17/04/2024										
20/03/2024										
14/02/2024										

Note: Wastewater tank was empty in May 2024, therefore no sample taken.

Attachment C.2: Treated Wastewater Effluent (WW-02) laboratory analysis results 2024-2025 reporting period – continued

Sample Date	Cadmium (Dissolved)	Cadmium (Total)	Cobalt (Dissolved)	Cobalt (Total)	Copper (Dissolved)	Copper (Total)	Chromium (Dissolved)	Chromium (Total)	Cr III	Cr VI
Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Threshold										
Limits										
22/01/2025										
18/12/2024										
13/11/2024	<0.1	0.16	<1.0	<1.0	3	7.3	<1.0	<1.0	<0.0050	<0.0050
9/10/2024										
18/09/2024										
14/08/2024										
24/07/2024										
17/07/2024										
19/06/2024	<0.50	<5.0	<5.0	<5.0	14	21	<5.0	<5.0	<0.0050	<0.0050
17/04/2024										
20/03/2024										
14/02/2024										

Note: Wastewater tank was empty in May 2024, therefore no sample taken.

Attachment C.2: Treated Wastewater Effluent (WW-02) laboratory analysis results 2024-2025 reporting period – continued

Sample Date	Iron (Dissolved)	Iron (Total)	Mercury (Dissolved)	Mercury (Total)	Magnesium (Dissolved)	Magnesium (Total)	Manganese (Dissolved)	Manganese (Total)	Molybdenum (Dissolved)	Molybdenum (Total)
Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Threshold										
Limits										
22/01/2025										
18/12/2024										
13/11/2024	<10	78	<0.050	<0.050		2600	34	33	<1.0	<1.0
9/10/2024										
18/09/2024										
14/08/2024										
24/07/2024										
17/07/2024										
19/06/2024	<50	<50	<0.050	<0.050		2600	38	40	<0.50	<0.50
17/04/2024										
20/03/2024										
14/02/2024										

Note: Wastewater tank was empty in May 2024, therefore no sample taken.

Attachment C.2: Treated Wastewater Effluent (WW-02) laboratory analysis results 2024-2025 reporting period – continued

Sample Date	Lead (Dissolved)	Lead (Total)	Nickel (Dissolved)	Nickel (Total)	Selenium (Dissolved)	Selenium (Total)	Tin (Dissolved)	Tin (Total)	Zinc (Dissolved)	Zinc (Total)
Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Threshold										
Limits										
22/01/2025										
18/12/2024										
13/11/2024	<1.0	<1.0	7.6	7.1	<1.0	1.8	<1.0	<1.0	110	160
9/10/2024										
18/09/2024										
14/08/2024										
24/07/2024										
17/07/2024										
19/06/2024	<0.50	<0.50	12	10	<0.50	<0.50	<5.0	<5.0	18	94
17/04/2024										
20/03/2024										
14/02/2024										

Note: Wastewater tank was empty in May 2024, therefore no sample taken.

Attachment C.2: Treated Wastewater Effluent (WW-02) laboratory analysis results 2024-2025 reporting period – continued

Sample Date	TPH[1]	PAH	TRH C6-C9	TRH C6-C10	TRH C6-C10 less BTEX (F1)	MTBE	Benzene	Toluene	Ethyl benzene	Xylene (m+p)
Units	mg/L	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l
Threshold										
Limits										
22/01/2025										
18/12/2024		1.4	<10	<10	<10	<1.0	<1.0	<1.0	<1.0	<2.0
13/11/2024		<0.1	<10	<10	<10	<1.0	<1.0	<1.0	<1.0	<2.0
9/10/2024			<10	<10	<10	<2.0	<1.0	<1.0	<1.0	<2.0
18/09/2024			<10	<10	<10	<1	<1	<1	<1	<2
14/08/2024										
24/07/2024										
17/07/2024										
19/06/2024		<0.1	<50	<50	<50	<5.0	<5.0	<5.0	<5.0	<10
17/04/2024										
20/03/2024		<0.1	<10	<10	<10	<0.1	<1.0	<1.0	<1.0	<2.0
14/02/2024	<0.1	<0.1	<10	<10	<10	<0.1	<1.0	1.5	<1.0	<2.0

[1]The laboratory services provider ceased reporting "TPH" values in March 2024. Total Recoverable Hydrocarbons (TRH) is the equivalent, and TRH fractions have been reported from March 2024 onwards.

Attachment C.2: Treated Wastewater Effluent (WW-02) laboratory analysis results 2024-2025 reporting period – continued

Sample Date	Xylene (o)	Total Xylene	Naphthalene	Anthracene	Fluoranthene	Benzo (a) pyrene	Total +ve PAH	TRH C10-C14	TRH C15-C28	TRH C29-C36
Units	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l
Threshold										
Limits										
22/01/2025										
18/12/2024	<1.0	<3.0	<1.0	<0.10	<0.10	<0.10	1.4	<50	130	<100
13/11/2024	<1.0	<3.0	<1.0	<0.1	<0.1	<0.1	<0.10	<50	120	<100
9/10/2024	<1.0	<3.0	<1.0					<50	<100	120
18/09/2024	<1	<3.0	<1	<0.10	<0.10	<0.1	<0.10	59	240	170
14/08/2024										
24/07/2024										
17/07/2024										
19/06/2024	<5.0	<15	<5.0	<0.10	<0.10	<0.10	<0.10	<50	110	<100
17/04/2024										
20/03/2024	<1.0	<3.0	<1.0	<0.1	<0.1	<0.1	<0.10	89	160	160
14/02/2024	<1		<1.0	<0.1	<0.1	<0.5	<0.1	85	260	190

Attachment C.2: Treated Wastewater Effluent (WW-02) laboratory analysis results 2024-2025 reporting period – continued

Sample Date	Total +ve TRH C10-C36	TRH >C10-C16	TRH >C10-C16 less Naphthalene F2	TRH >C16-C34 (F3)	TRH >C34-C40 (F4)	Total +ve TRH >C10-C40	>C10-C16 Aliphatic	>C16-C35 Aliphatic	>C35 Aliphatic	>C10-C16 Aromatic	>C16-C35 Aromatic
Units	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l
Threshold											
Limits											
22/01/2025											
18/12/2024	130	67	67	110	<100	180	86	95	<100	69	110
13/11/2024	120	57	57	130	<100	190	<50	<50	<100	<50	<50
9/10/2024	120	<50	<50	170	<100	170	<50	<50	<100	<50	<50
18/09/2024	470	61	61	370	<100	430	<50	72	<100	<50	74
14/08/2024											
24/07/2024											
17/07/2024											
19/06/2024	110	<50	<50	130	<100	130	<50	60	<100	<50	<50
17/04/2024											
20/03/2024	410	94	94	240	120	450	<50	73	<100	<50	54
14/02/2024		92	92	370	120		<50	50	<100	<50	63

Attachment C.3: Treated Wastewater Effluent (WW-02) laboratory analysis results from 2017-2025 – Graphs

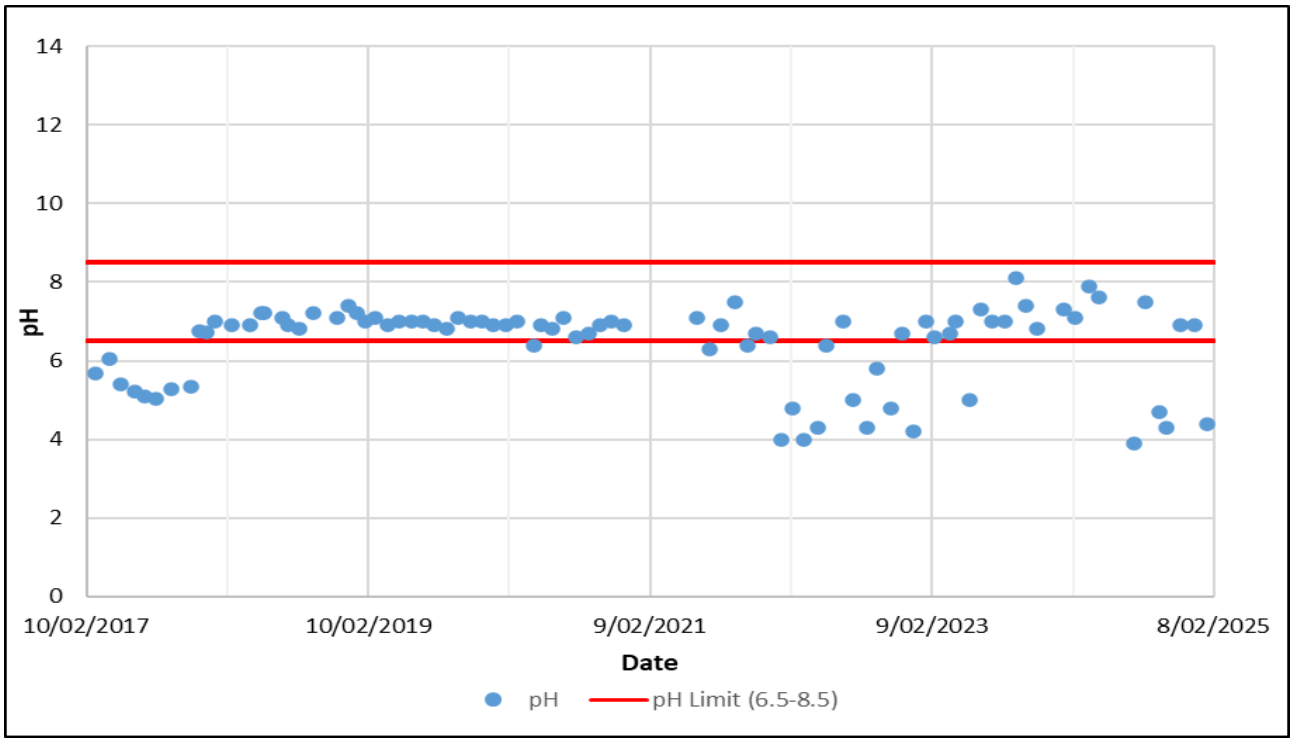


Figure C.3.1: Treated wastewater laboratory analysis results for pH from 10 February 2017 to 9 February 2025.

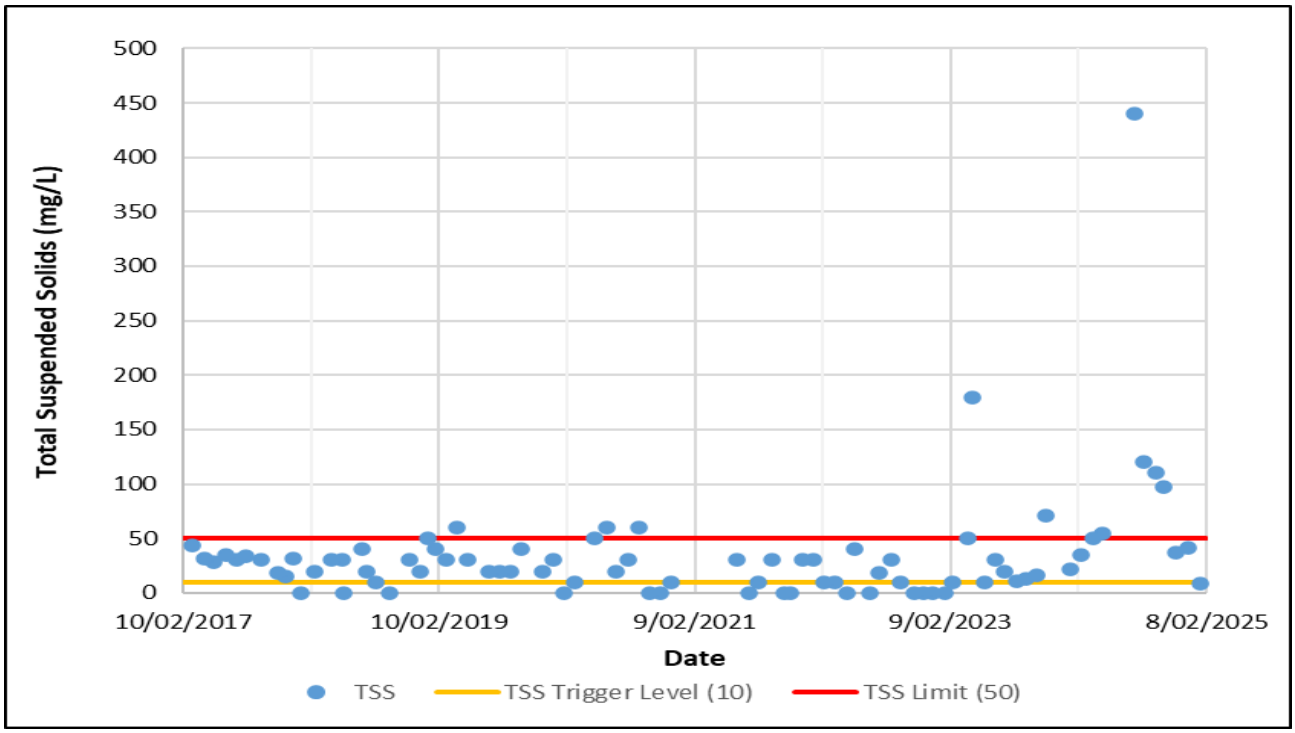


Figure C.3.2: Treated wastewater laboratory analysis results for total suspended solids from 10 February 2017 to 9 February 2025.

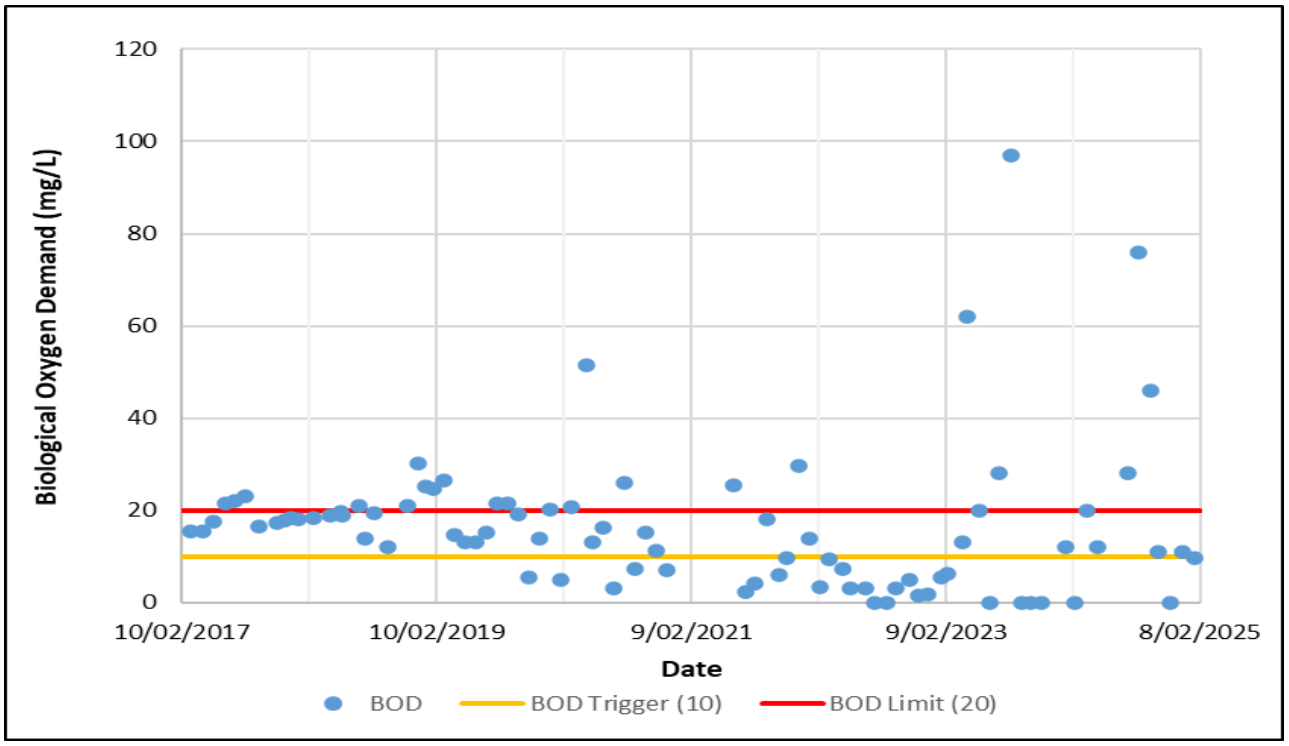


Figure C.3.3: Treated wastewater laboratory analysis results for biological oxygen demand from 10 February 2017 to 9 February 2025.

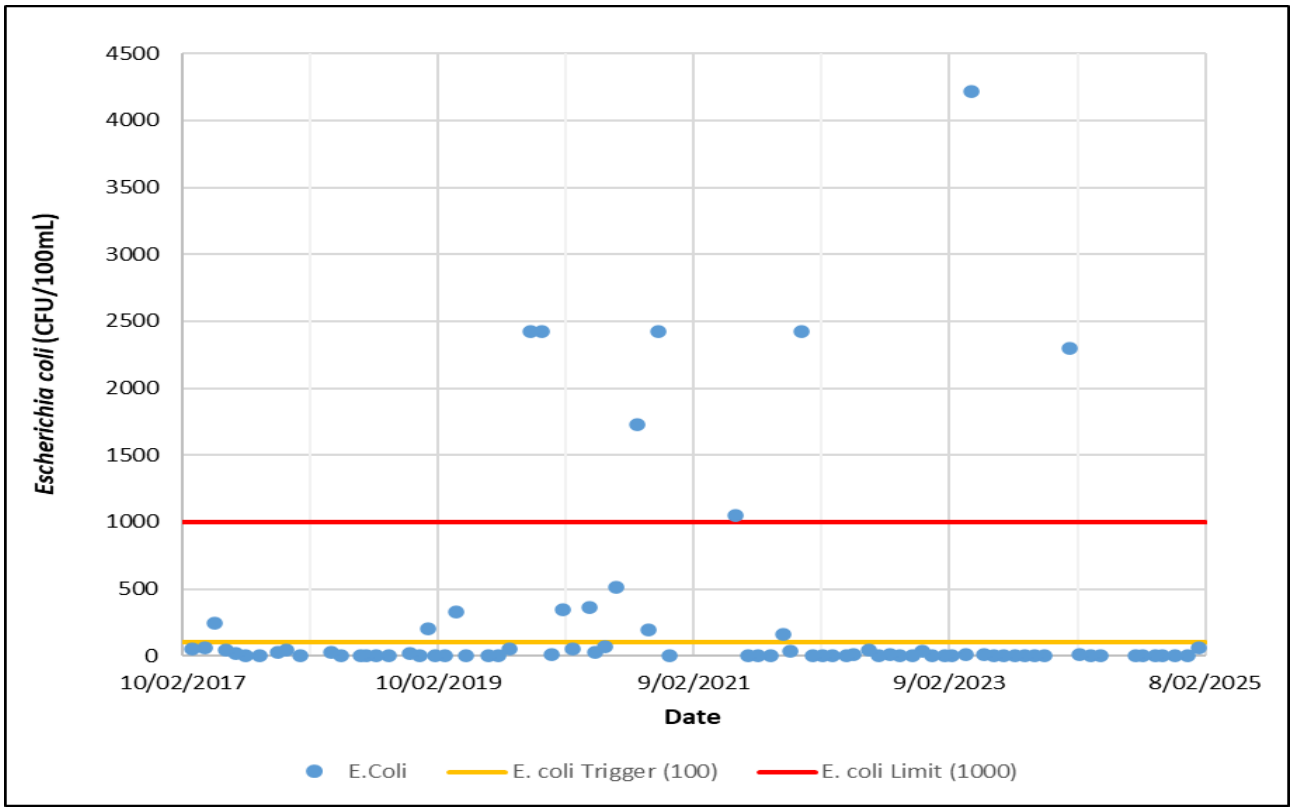


Figure C.3.4: Treated wastewater laboratory analysis results for E. coli from 10 February 2017 to 9 February 2025.

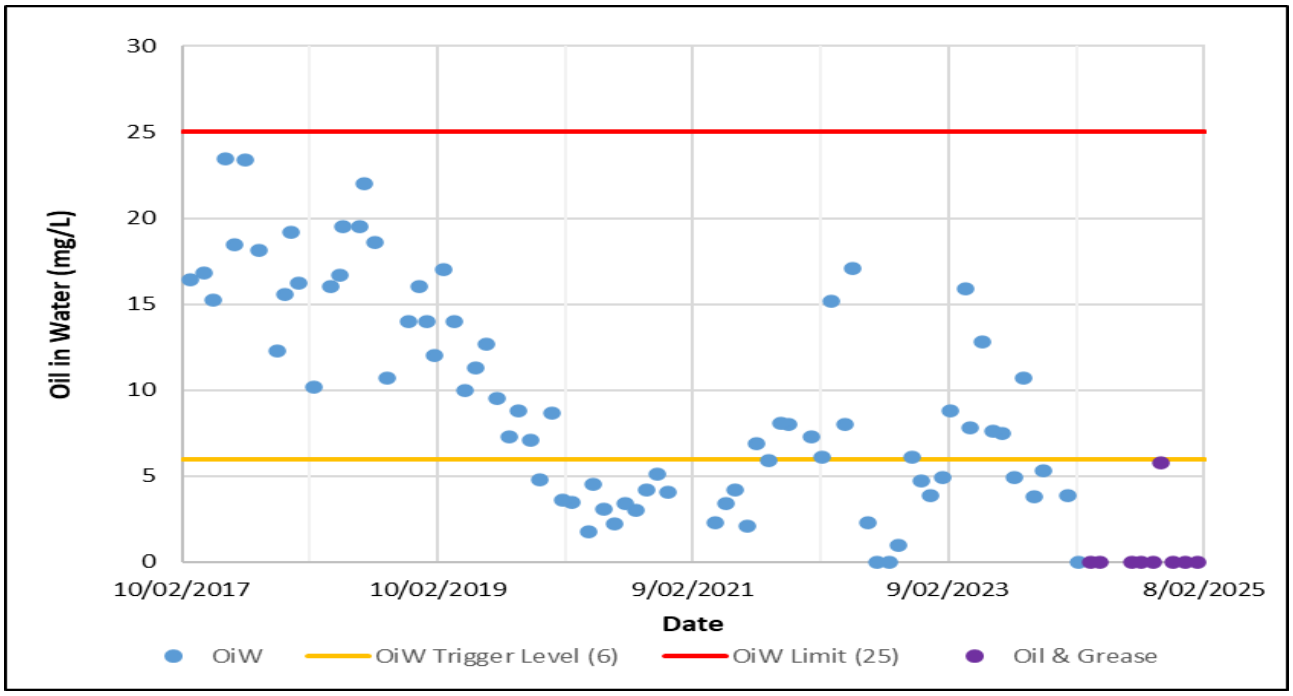


Figure C.3.5: Treated wastewater laboratory analysis results for oil in water from 10 February 2017 to 9 February 2025. Note that from March 2024, the laboratory services provider has reported this value as 'oil & grease' rather than oil in water.

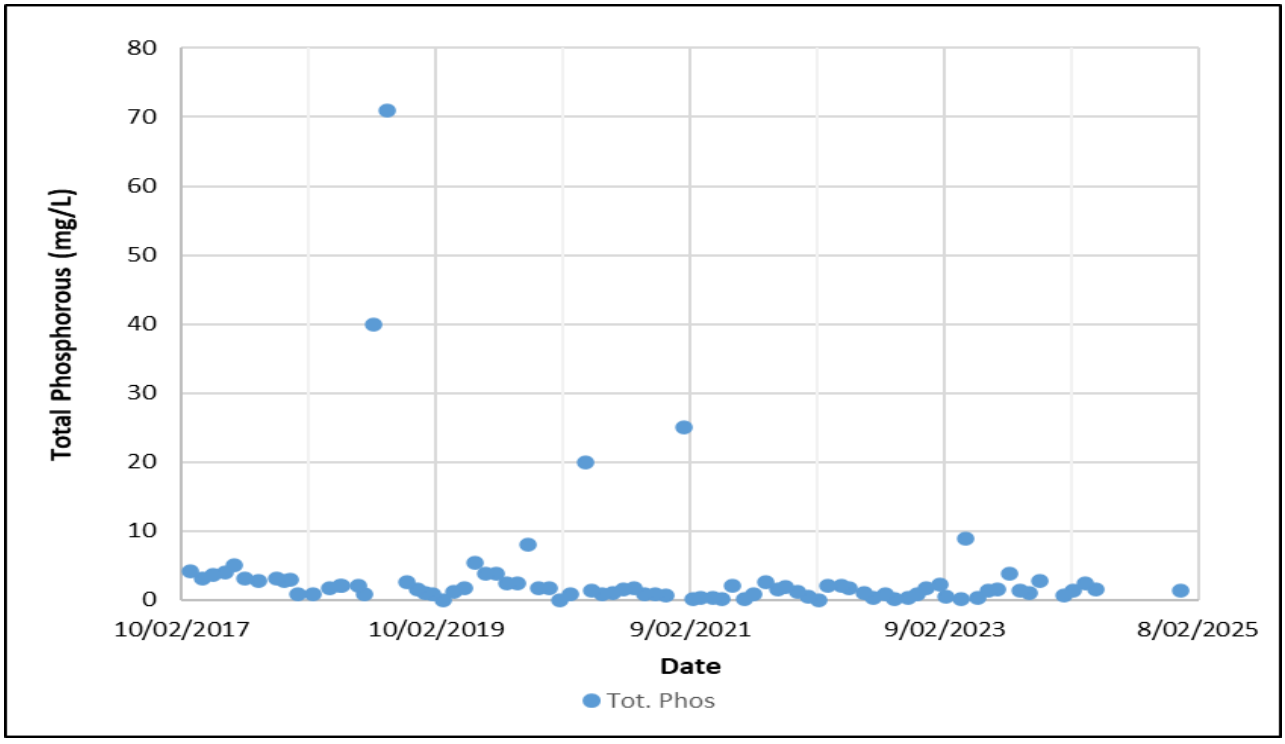


Figure C.3.6: Treated wastewater laboratory analysis results for Total Phosphorous from 10 February 2017 to 9 February 2025.

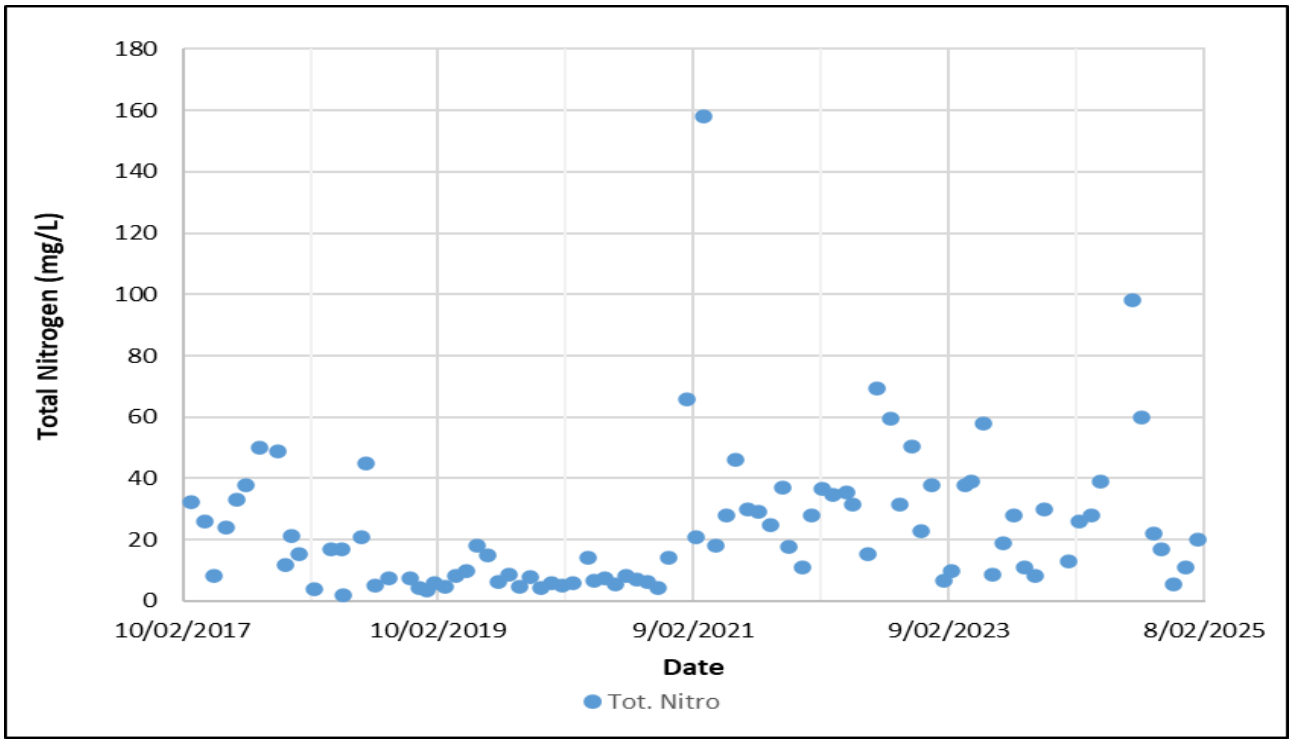


Figure C.3.7: Treated wastewater laboratory analysis results for total nitrogen from 10 February 2017 to 9 February 2025.

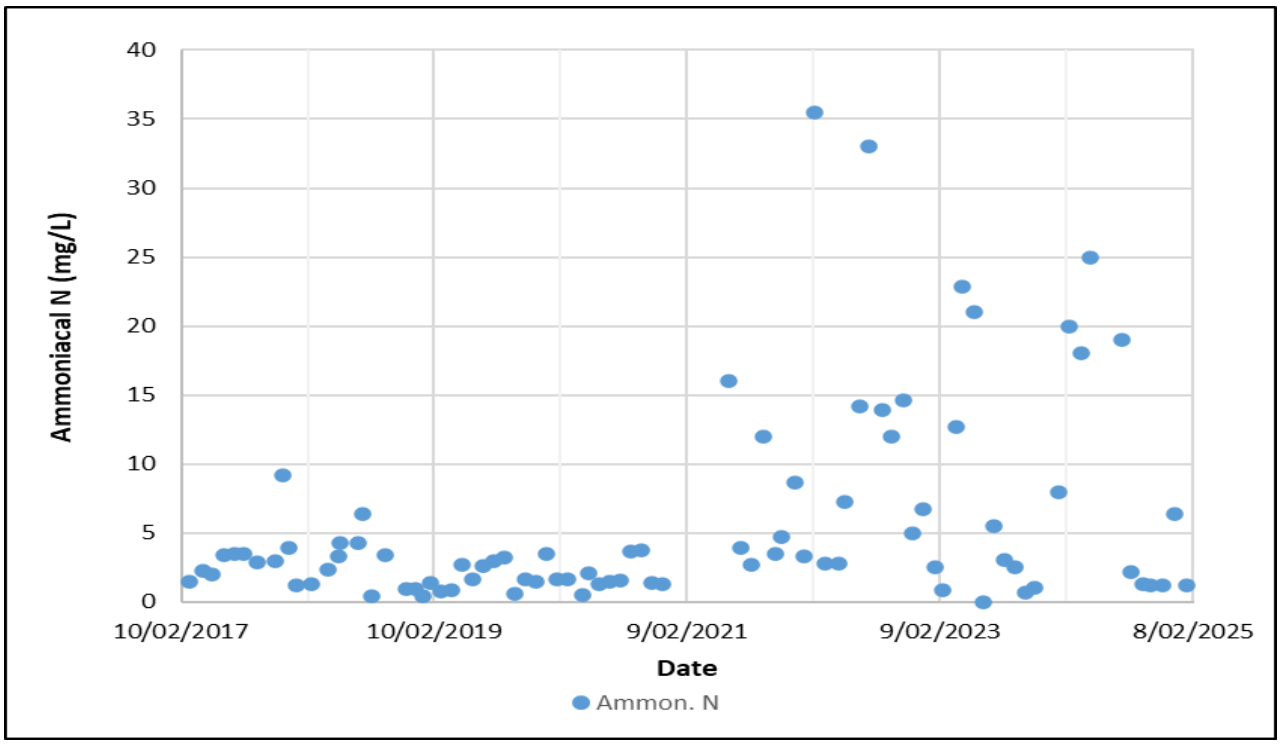


Figure C.3.8: Treated wastewater laboratory analysis results for ammoniacal nitrogen from 10 February 2017 to 9 February 2025.

ATTACHMENT D:

STORMWATER MONITORING

Attachment D.1: Stormwater discharge on-site monitoring table (SW-01 and SW-03)

Location	Date	pH	EC	Oil in Water
Units		pH	µs/cm	mg/L
Trigger				1
Limit				6
SW-03	18/12/2024	6.9	140.0	<5.0
SW-03	13/11/2024	7.2	250.0	<5.0
SW-03	7/10/2024	6.3	270.0	<5.0
SW-03	17/09/2024	6.4	86.0	<5.0
SW-03	15/08/2024	6.5	87.0	<5.0
SW-03	24/07/2024	7.3	450.0	<5.0
SW-03	23/05/2024	7.1	770.0	<5.0
SW-01	16/04/2024	6.8	230.0	<5.0
SW-01	18/03/2024	6.7	83.0	<5.0

Note: All routine site measurements conducted in the site laboratory, using the PC700 bench meter for pH and EC, and the Horiba OCMA500 with Florisil solvent for oil in water, unless otherwise stated.

Attachment D.2: Annual Stormwater Monitoring November 2024 (SW-03) Table

Parameter	Unit	Value
Oil & Grease	mg/L	<5.0
pH	pH units	7.2
Electrical Conductivity	µS/cm	250
Total Dissolved Solids	mg/L	210
Total Suspended Solids	mg/L	<5.0
Calcium	mg/L	5.9
Magnesium	mg/L	0.85
Potassium	mg/L	2.7
Sodium	mg/L	39
Hardness (calc) equivalent CaCO3	mg/L	18
TRH C6-C9	µg/L	11
TRH C6-C10	µg/L	30
TRH C6-C10 less BTEX (F1)	µg/L	30
Methyl tert butyl ether (MTBE)	µg/L	<1.0
Benzene	µg/L	<1.0
Toluene	µg/L	<1.0
Ethylbenzene	µg/L	<1.0
meta+para Xylene	µg/L	<2.0
ortho-Xylene	µg/L	<1.0
Total Xylene	µg/L	<3.0
Naphthalene (value used in F2 calc)	µg/L	<1.0
Dibromofluoromethane	%	99.6
Toluene-D8	%	98.2
4-Bromofluorobenzene	%	98.7
TRH C10-C14	µg/L	91
TRH C15-C28	µg/L	240
TRH C29-C36	µg/L	<100
Total +ve TRH C10-C36	µg/L	330
TRH >C10-C16	µg/L	130
TRH >C10-C16 less Naphthalene F2	µg/L	130
TRH >C16-C34 (F3)	µg/L	240
TRH >C34-C40 (F4)	µg/L	<100
Total +ve TRH >C10-C40	µg/L	370
o-Terphenyl	%	65.7
Naphthalene	µg/L	<0.10
Acenaphthylene	µg/L	<0.10
Acenaphthene	µg/L	<0.10
Fluorene	µg/L	<0.10
Phenanthrene	µg/L	<0.10
Anthracene	µg/L	<0.10
Fluoranthene	µg/L	<0.10
Pyrene	µg/L	<0.10
Benzo(a)anthracene	µg/L	<0.10
Chrysene	µg/L	<0.10
Benzo(b,j,k)fluoranthene	µg/L	<0.20
Benzo(a)pyrene	µg/L	<0.10

Parameter	Unit	Value
Indeno(1,2,3-c,d)pyrene	µg/L	<0.10
Dibenzo(a,h)anthracene	µg/L	<0.10
Benzo(g,h,i)perylene	µg/L	<0.10
Total +ve PAH	µg/L	<0.10
p-Terphenyl-D14	%	61.4
Hexavalent Chromium	mg/L	<0.0050
Hexavalent Chromium (Total)	mg/L	<0.0050
Trivalent Chromium	mg/L	<0.0050
Trivalent Chromium (Total)	mg/L	<0.0050
Metals (Total)		
Aluminium	µg/L	48
Arsenic	µg/L	<1.0
Barium	µg/L	330
Beryllium	µg/L	<0.50
Boron	µg/L	110
Cadmium	µg/L	3.4
Chromium	µg/L	<1.0
Cobalt	µg/L	<1.0
Copper	µg/L	29
Iron	µg/L	1300
Lead	µg/L	4.5
Manganese	µg/L	42
Mercury	µg/L	<0.050
Molybdenum	µg/L	2.1
Nickel	µg/L	17
Selenium	µg/L	<1.0
Tin	µg/L	<1.0
Zinc	µg/L	270
Metals (Dissolved)		
Aluminium	µg/L	27
Arsenic	µg/L	<1.0
Barium	µg/L	350
Beryllium	µg/L	<0.50
Boron	µg/L	62
Cadmium	µg/L	0.83
Chromium	µg/L	<1.0
Cobalt	µg/L	<1.0
Copper	µg/L	4.7
Iron	µg/L	460
Lead	µg/L	<1.0
Manganese	µg/L	37
Mercury	µg/L	<0.050
Molybdenum	µg/L	2.0
Nickel	µg/L	8.3
Selenium	µg/L	<1.0
Tin	µg/L	<1.0
Zinc	µg/L	86

Note: Annual stormwater monitoring sample was taken on 14 November 2024 from sample point SW-03 and analysed at a NATA accredited laboratory.

Attachment D.3: Stormwater Discharge (SW-03 and SW-01) results from 2017-2025 – Graphs

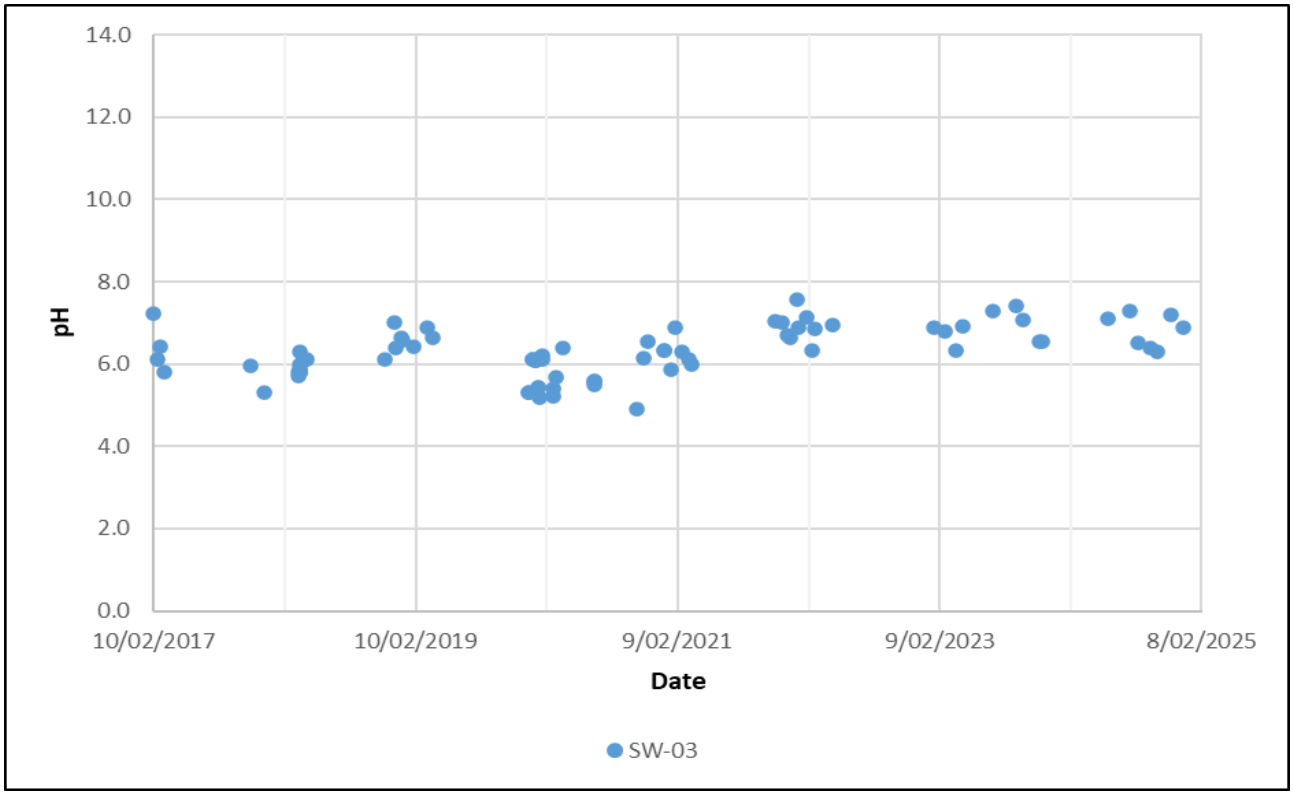


Figure D.3-1: pH for SW-03 from 10 February 2017 to January 2025.

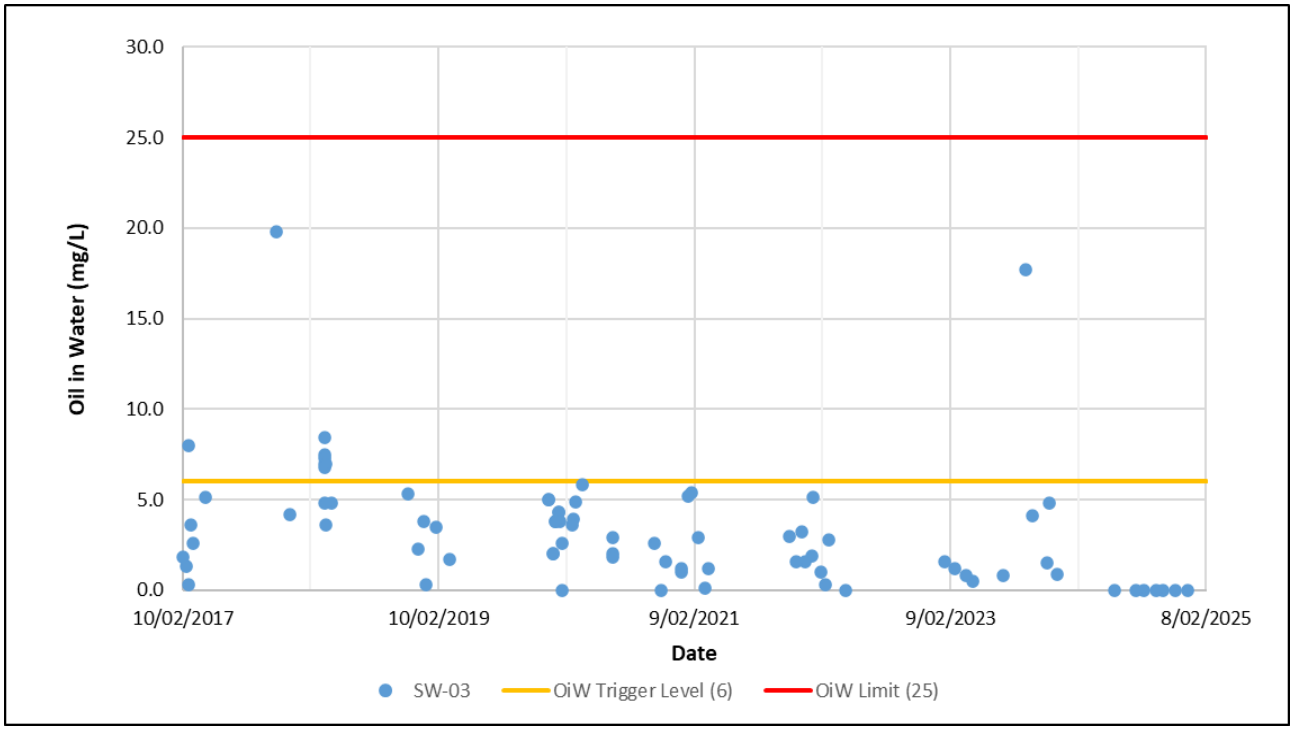


Figure D.3-2: Oil in Water for SW-03 from 10 February 2017 to January 2025.

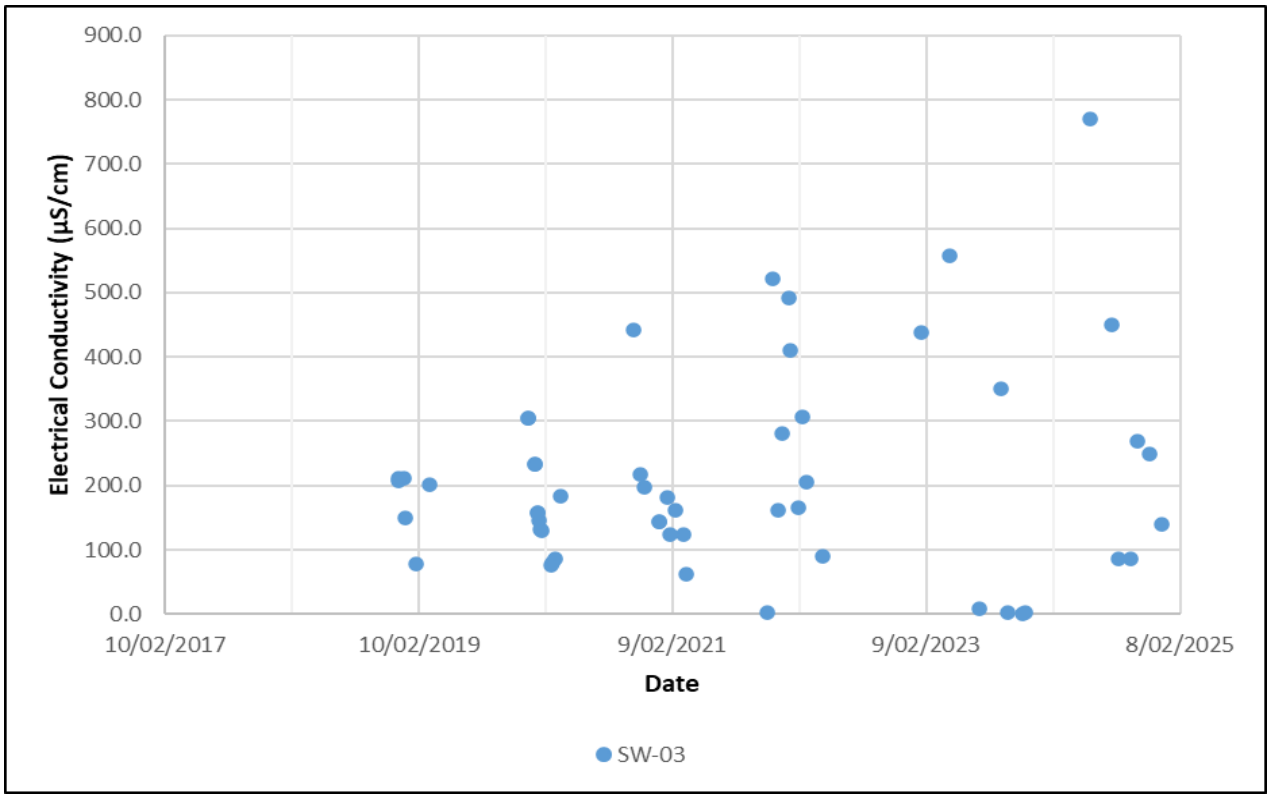


Figure D.3-3: Electrical Conductivity for SW-03 from 10 February 2017 to January 2025.

ATTACHMENT E:

GROUNDWATER MONITORING

Attachment E.1: Groundwater laboratory analysis results 2024-2025 reporting period

Bore Location	Sample Date	pH	Electrical Conductivity	Dissolved Oxygen	Biological Oxygen Demand	Total Phosphate	Total Nitrogen	NOx (Oxid. N)	NH3 (Amm)	N (Nitrate)	NO3 (Nitrate)	N (Nitrite)
	Units	-	µS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
BH-05	30/10/24	4.9	60	11	7.9	0.0099	2.8	2.6	<0.0050	2.6	11	<0.0050
BH-07	30/10/24	6.1	40	11	7.9	0.0076	2.4	2	<0.0050	2	9	<0.0050
BH-05	07/10/24	5	65	11	<5.0	0.018	3	2.6	0.033	2.6	12	<0.0050
BH-07	07/10/24	5.9	48	9.3	7.8	0.01	2.2	2	0.03	2	8.7	<0.0050
BH-05	17/09/24			9.7	26	0.0079	3.4	2.7	0.13	2.7	12	<0.0050
BH-07	17/09/24			10	22	0.0076	2.6	2	0.13	2	8.8	<0.0050
BH-01	19/06/24	7.9	900	8.5	7.1	<0.0050	1.3	1.1	0.018	1.1	4.8	<0.0050
BH-04	19/06/24	7.5	1200	9.6	<5.0	<0.0050	1.6	0.61	0.0055	0.61	2.7	<0.0050
BH-02	19/06/24	9.3	900	8.2	5.4	<0.0050	1.2	0.057	0.0074	0.057	0.25	<0.0050
BH-01	29/05/24											
BH-04	17/04/24	6.4	87	8.3	8.9	0.0059	0.85	0.58	<0.0050	0.58	2.6	<0.0050
BH-02	17/04/24	6.2	56	7.8	12	<0.0050	0.27	0.042	<0.0050	0.041	0.18	<0.0050
BH-01	19/03/24	6.5	44	9.3	11	<0.0050	1.3	1.1	0.034	1.1	4.8	<0.0050
BH-05	19/03/24	5.6	73	8.4	18	<0.0050	4.3	3.7	0.044	3.7	16	<0.0050
BH-07	19/03/24	6	65	8.5	15	<0.0050	3.6	3	0.058	3	13	<0.0050
BH-01	15/02/24	6.1	45	8.3	<5.0	<0.005	1.8	1.2	0.16		1.2	
BH-05	15/02/24	5.4	76	7.2	<5.0	<0.005	5.2	4.2	0.16		4.2	
BH-07	15/02/24	5.6	51	7.7	<5.0	<0.005	3.6	2.7	0.17		2.7	

Attachment E.1: Groundwater laboratory analysis results 2024-2025 reporting period – Continued

Bore Location	Sample Date	NO2 (Nitrite)	TKN as N (by calculation)	Organic Nitrogen	Phosphorous (acid extractable metals)	E. coli	Ent-Cocci	Total Coliforms	Thermotolerant Coliforms	TPH	TRH C6-C9	TRH C6-C10
	Units	mg/L	mg/L	mg/L	mg/L	cfu per 100ml	cfu per 100ml	per 100ml MPN	cfu per 100ml	µg/L	µg/L	µg/L
BH-05	30/10/24	<0.020	0.17	0.17		<10	<10		10		<10	<10
BH-07	30/10/24	<0.020	0.34	0.33		<10	<10		<10		<10	<10
BH-05	07/10/24	<0.020	0.38	0.35							<10	<10
BH-07	07/10/24	<0.020	0.24	0.21							<10	<10
BH-05	17/09/24	<0.020	0.64	0.51	<0.050	<1	11				<10	<10
BH-07	17/09/24	<0.020	0.63	0.5	<0.050	<1	4				<10	<10
BH-01	19/06/24	<0.020	0.23	0.21		<1	<1		<1		<10	<10
BH-04	19/06/24	<0.020	0.97	0.96		<10	<10		<10		<10	<10
BH-02	19/06/24	<0.020	1.2	1.2		<10	<10		<10		<10	<10
BH-01	29/05/24					<1	<1		<1			
BH-04	17/04/24	<0.020	0.27	0.27		<10	<10	<10			<10	<10
BH-02	17/04/24	<0.020	0.22	0.23		290	<10	290			<10	<10
BH-01	19/03/24	<0.020	0.21	0.18		<1	<1	<1			<10	<10
BH-05	19/03/24	<0.020	0.65	0.61		17	<1	17			<10	<10
BH-07	19/03/24	<0.020	0.55	0.49		<1	<1	6			<10	<10
BH-01	15/02/24	<0.005				<1	<1	20		<0.1		
BH-05	15/02/24	<0.005				>150	<1	<150		<0.1		
BH-07	15/02/24	<0.005				21	<1	21		<0.1		

Attachment E.1: Groundwater laboratory analysis results 2024-2025 reporting period – Continued

Bore Location	Sample Date	TRH C6-C10 less BTEX (F1)	Methyl tert butyl ether (MTBE)	Benzene	Toluene	Ethylbenzene	meta+para Xylene	ortho-Xylene	Total Xylene	Naphthalene (value used in F2 calc)	Dibromofluoromethane
	Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	%
BH-05	30/10/24	<10	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<3.0	<1.0	104
BH-07	30/10/24	<10	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<3.0	<1.0	105
BH-05	07/10/24	<10	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<3.0	<1.0	108
BH-07	07/10/24	<10	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<3.0	<1.0	95.4
BH-05	17/09/24	<10	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<3.0	<1.0	101
BH-07	17/09/24	<10	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<3.0	<1.0	100
BH-01	19/06/24	<10	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<3.0	<1.0	102
BH-04	19/06/24	<10	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<3.0	<1.0	101
BH-02	19/06/24	<10	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<3.0	<1.0	102
BH-01	29/05/24										
BH-04	17/04/24	<10	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<3.0	<1.0	105
BH-02	17/04/24	<10	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<3.0	<1.0	100
BH-01	19/03/24	<10	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<3.0	<1.0	90.2
BH-05	19/03/24	<10	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<3.0	<1.0	90.8
BH-07	19/03/24	<10	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<3.0	<1.0	92.9
BH-01	15/02/24										
BH-05	15/02/24										
BH-07	15/02/24										

Attachment E.1: Groundwater laboratory analysis results 2024-2025 reporting period – Continued

Bore Location	Sample Date	Toluene-D8	4-Bromofluorobenzene	TRH C10-C14	TRH C15-C28	TRH C29-C36	Total +ve TRH C10-C36	TRH >C10-C16	TRH >C10-C16 less Naphthalene F2	TRH >C16-C34 (F3)	TRH >C34-C40 (F4)	Total +ve TRH >C10-C40	o-Terphenyl
	Units	%	%	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	%
BH-05	30/10/24	98.5	95.1	<50	<100	<100	<50	<50	<50	<100	<100	<50	95.2
BH-07	30/10/24	98.2	95.7	<50	<100	<100	<50	<50	<50	<100	<100	<50	86.2
BH-05	07/10/24	98.2	90.2	<50	<100	<100	<50	<50	<50	<100	<100	<50	83.1
BH-07	07/10/24	98.2	95	<50	<100	<100	<50	<50	<50	<100	<100	<50	87.9
BH-05	17/09/24	99	88.1	74	100	<100	170	120	120	<100	<100	120	83.9
BH-07	17/09/24	98.5	83.1	<50	<100	<100	<50	<50	<50	<100	<100	<50	92.6
BH-01	19/06/24	97.4	95.7	<50	<100	<100	<50	<50	<50	<100	<100	<50	93.3
BH-04	19/06/24	96	89	<50	<100	<100	<50	<50	<50	<100	<100	<50	90.5
BH-02	19/06/24	97.5	93.5	<50	<100	<100	<50	<50	<50	<100	<100	<50	90
BH-01	29/05/24												
BH-04	17/04/24	93.4	89.4	<50	<100	<100	<50	<50	<50	<100	<100	<50	80.2
BH-02	17/04/24	93.6	89.2	<50	<100	<100	<50	<50	<50	<100	<100	<50	88.2
BH-01	19/03/24	102	99.6	<50	<100	<100	<50	<50	<50	<100	<100	<50	75.7
BH-05	19/03/24	102	99.9	<50	<100	<100	<50	<50	<50	<100	<100	<50	78.1
BH-07	19/03/24	100	99.7	<50	<100	<100	<50	<50	<50	<100	<100	<50	79.3
BH-01	15/02/24	98.5	95.1	<50	<100	<100	<50	<50	<50	<100	<100	<50	95.2
BH-05	15/02/24	98.2	95.7	<50	<100	<100	<50	<50	<50	<100	<100	<50	86.2
BH-07	15/02/24	98.2	90.2	<50	<100	<100	<50	<50	<50	<100	<100	<50	83.1

Attachment E.2: Groundwater laboratory analysis results 2015-2024 – Graphs

Note: Values that were recorded as below practical quantitation limits (PQL) by the laboratory will appear on graphs as "0".

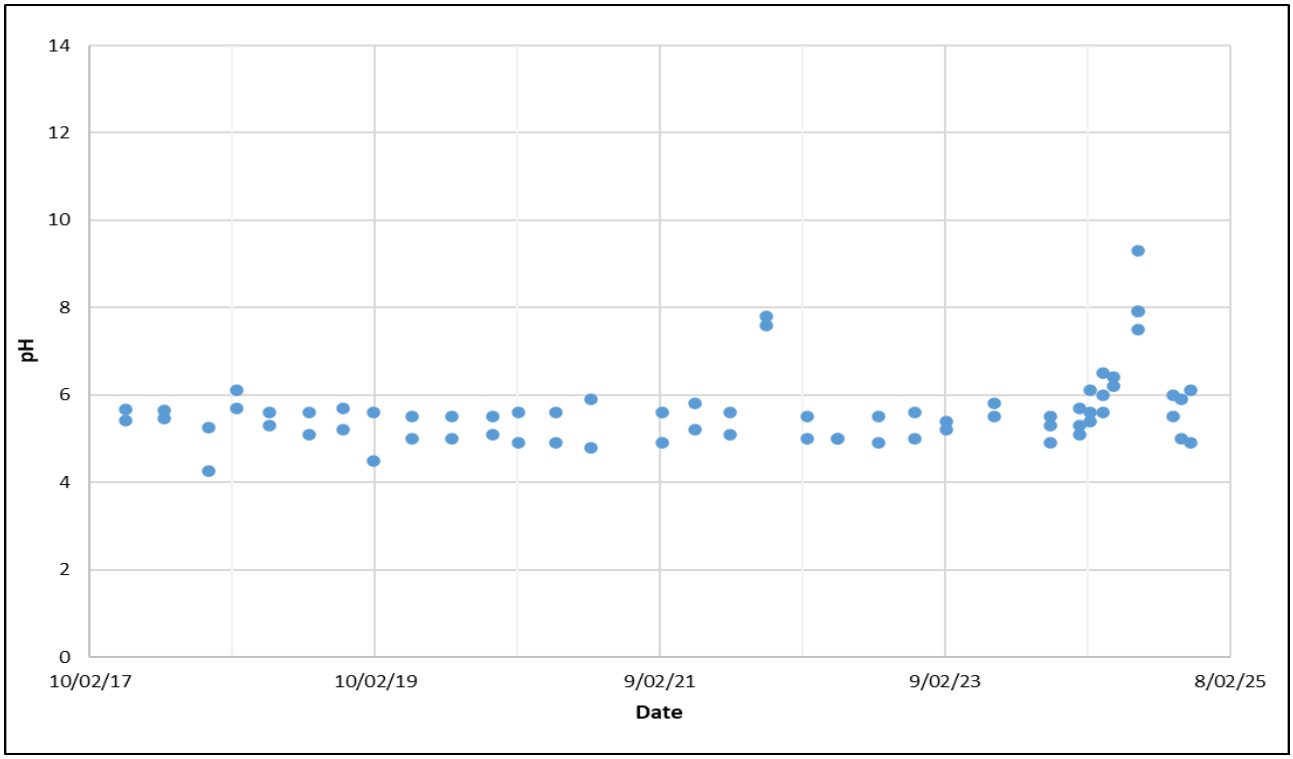


Figure E.2-1: Groundwater laboratory analysis results for pH from 10 February 2017 to 9 February 2025. Includes results for bores BH-1, BH-2, BH-4 BH-5 and BH-7.

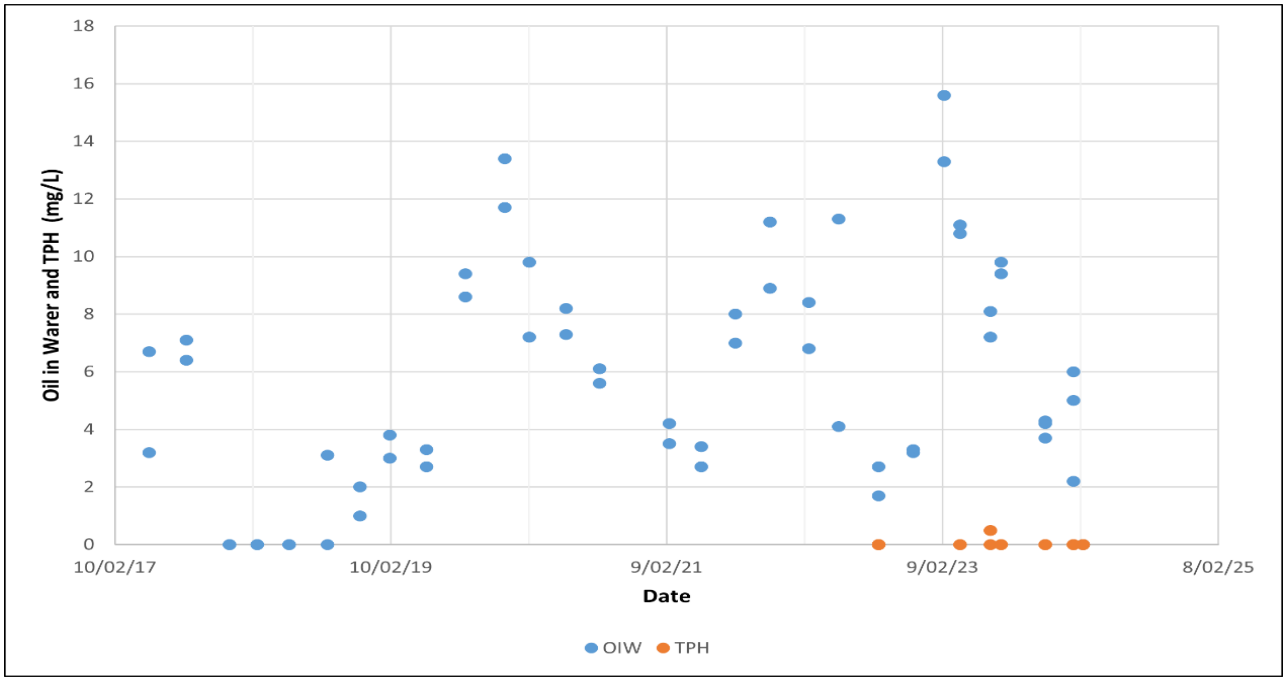


Figure E.2-2: Groundwater laboratory analysis results for Oil in Water from 10 February 2017 to 9 February 2025. Includes results for bores BH-5 and BH-7.

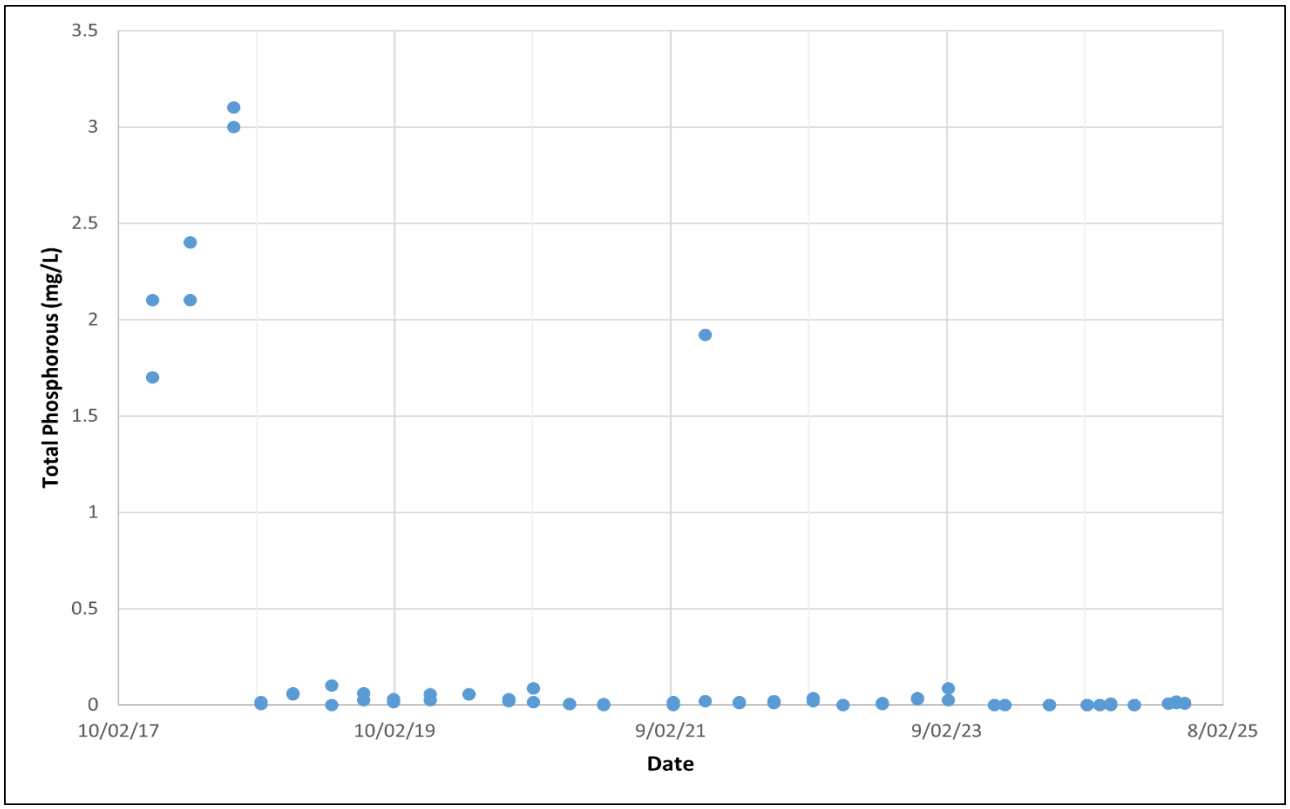


Figure E.2-3: Groundwater laboratory analysis results for Total Phosphorous from 10 February 2017 to 9 February 2025. Includes results for bores BH-1, BH-2, BH-4 BH-5 and BH-7.

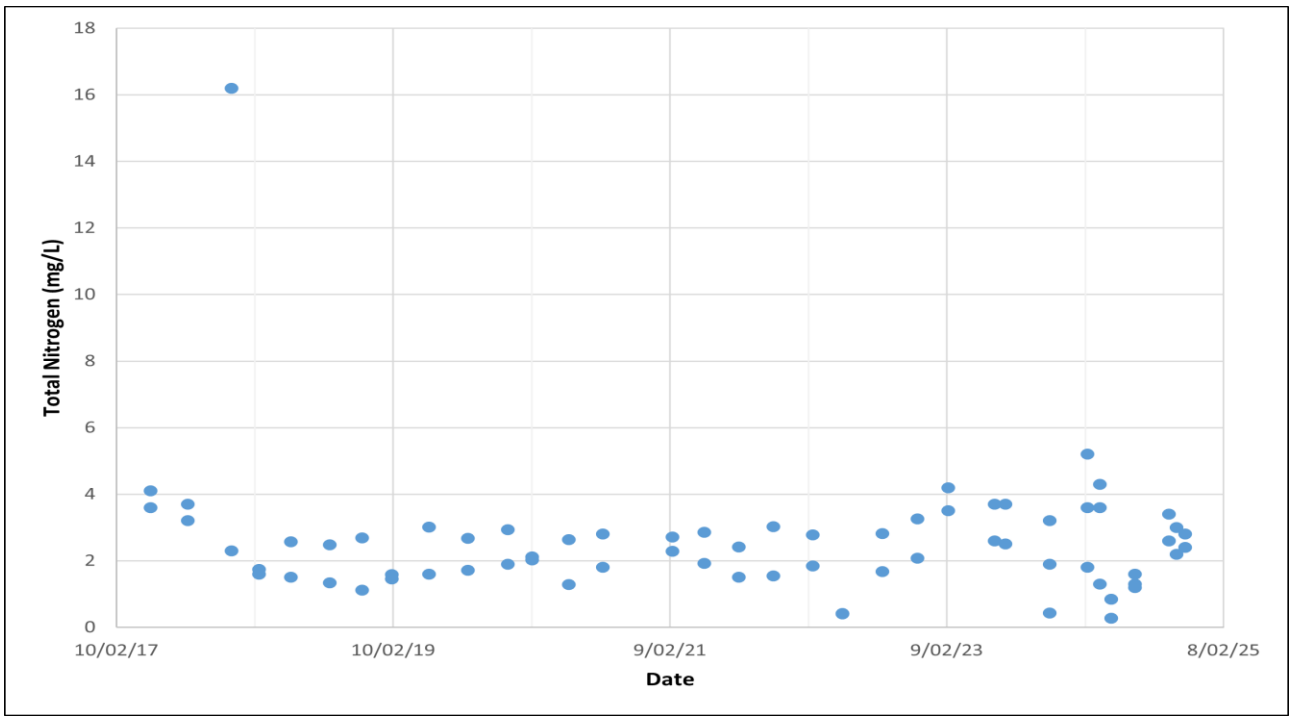


Figure E.2-4: Groundwater laboratory analysis results for Total Nitrogen from 10 February 2017 to 9 February 2025. Includes results for bores BH-1, BH-2, BH-4, BH-5 and BH-7.

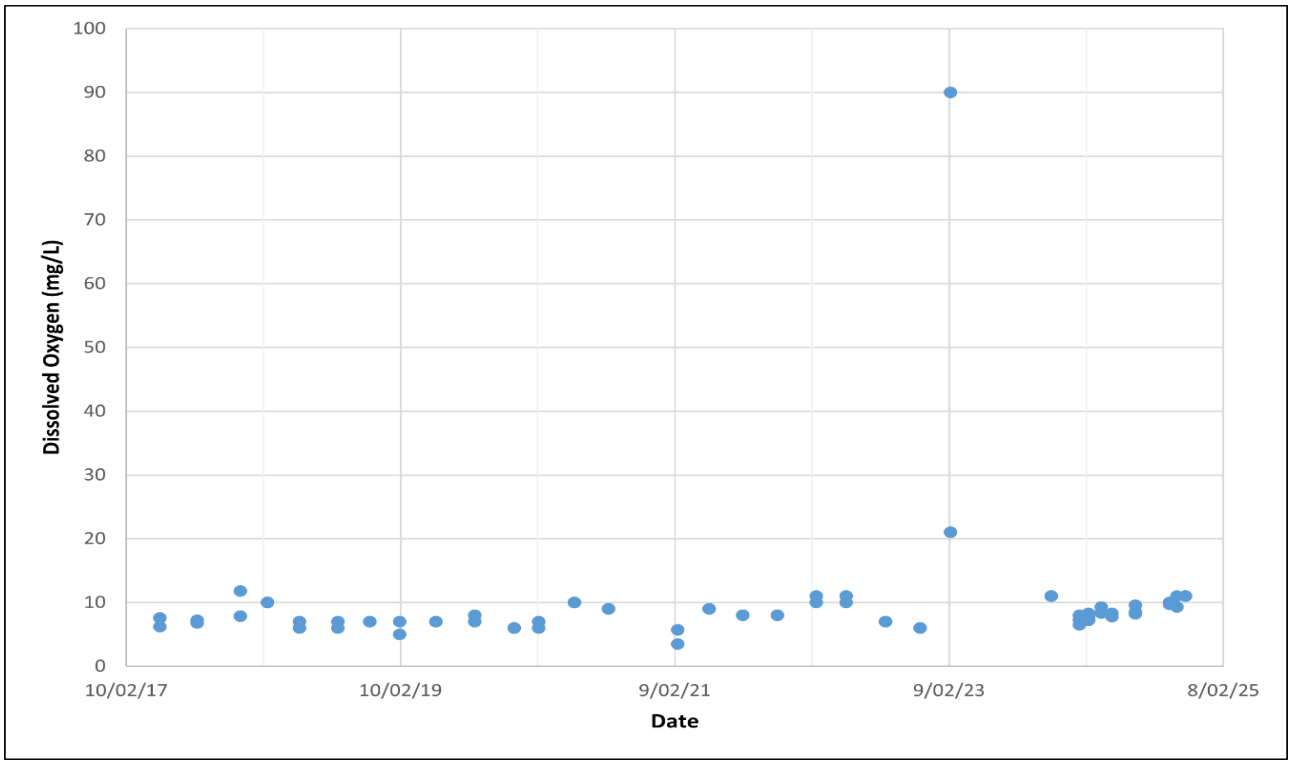


Figure E.2-5: Groundwater laboratory analysis results for Dissolved Oxygen from 10 February 2017 to 9 February 2025. Includes results for bores BH-1, BH-2, BH-4, BH-5 and BH-7.

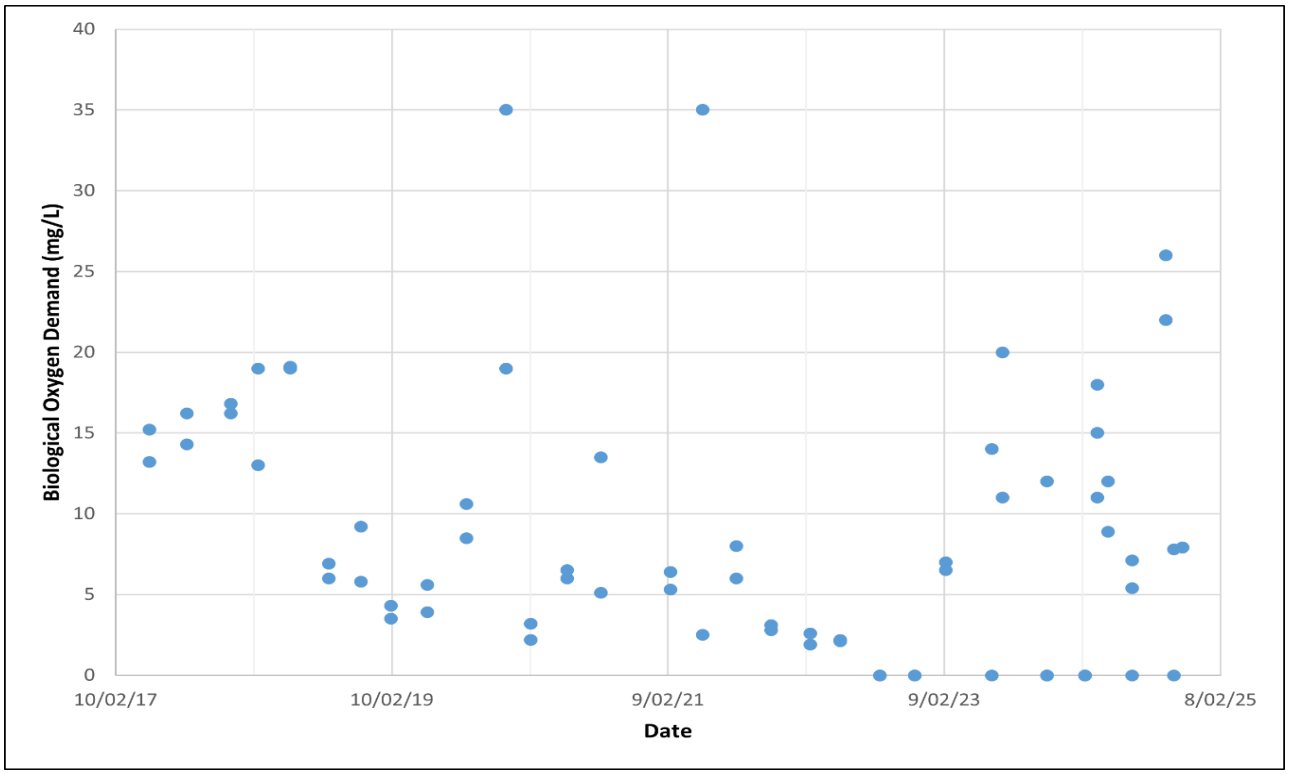


Figure E.2-6: Groundwater laboratory analysis results for Biological Oxygen Demand from 10 February 2017 to 9 February 2025. Includes results for bores BH-1, BH-2, BH-4, BH-5 and BH-7.

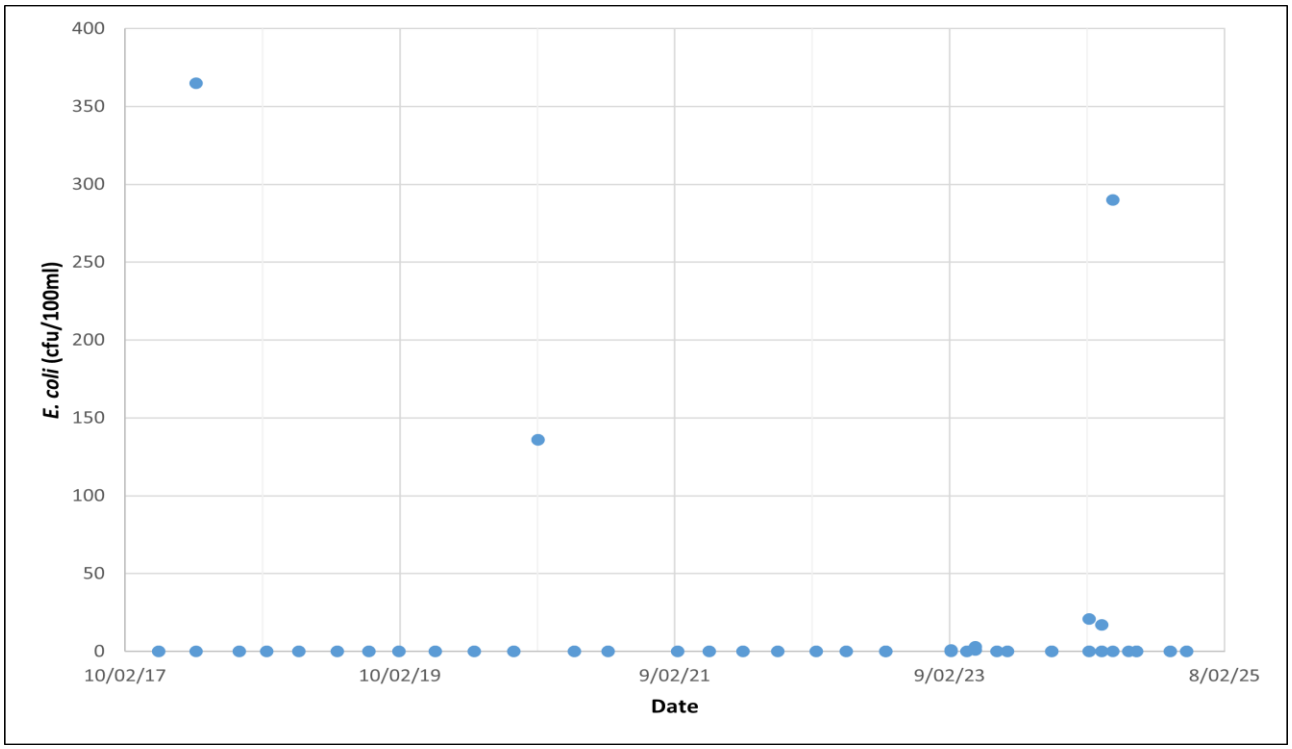


Figure E.2-7: Groundwater laboratory analysis results for E. coli from 10 February 2017 to 9 February 2025. Includes results for bores BH-1, BH-2, BH-4, BH-5 and BH-7.

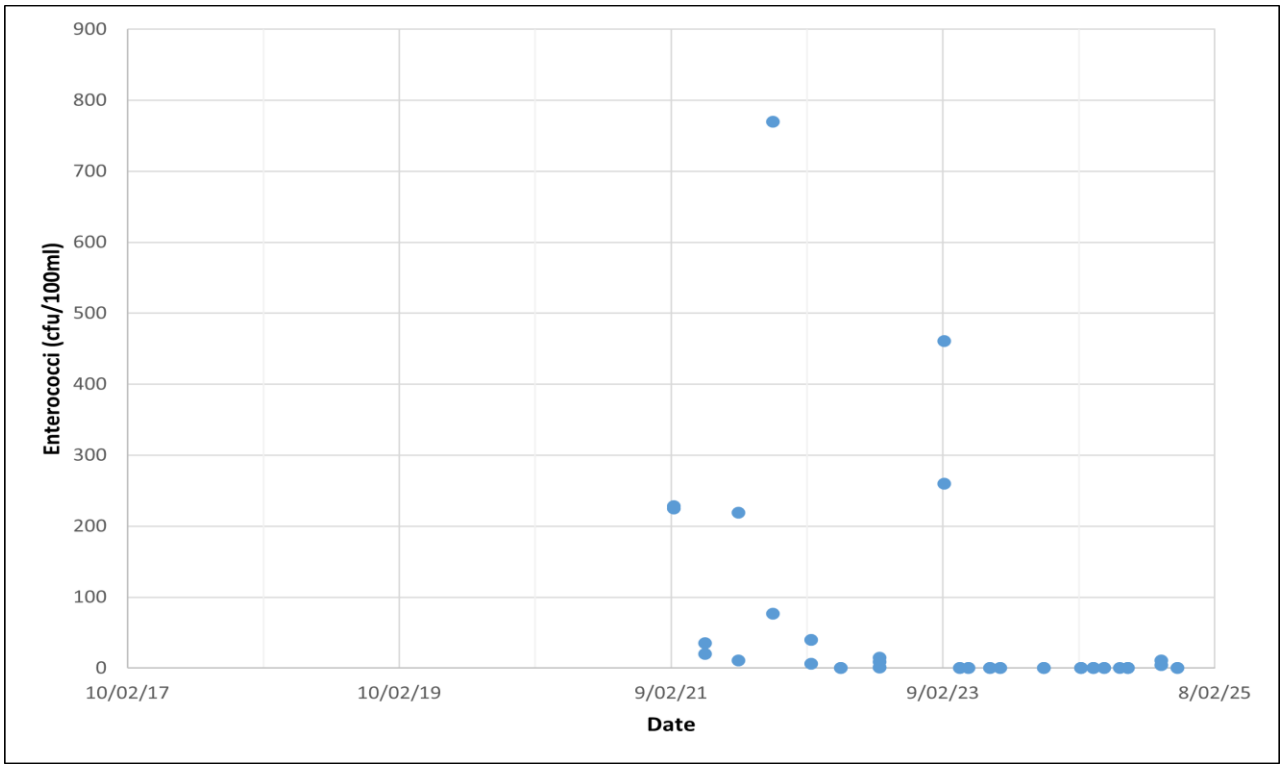
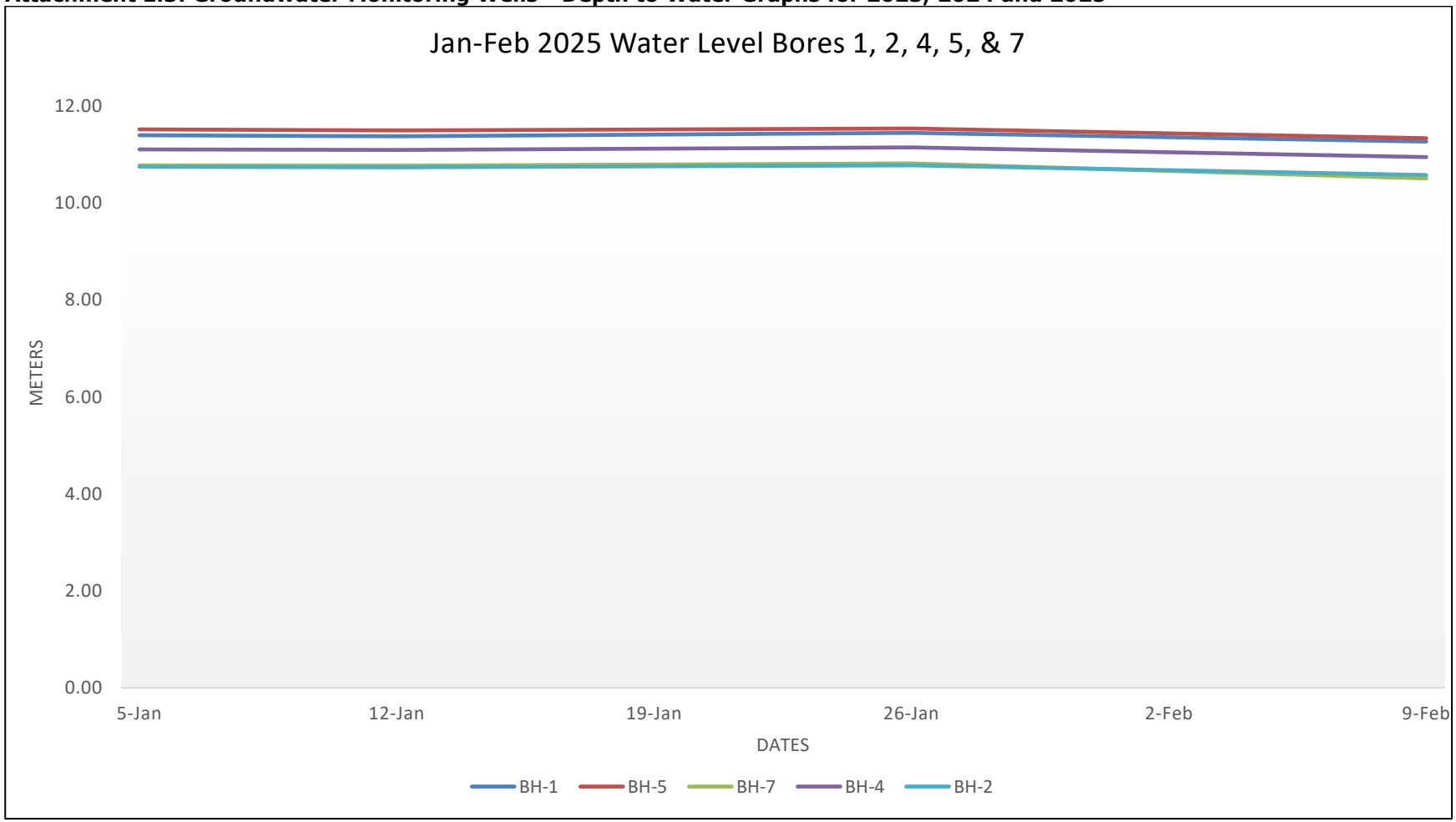
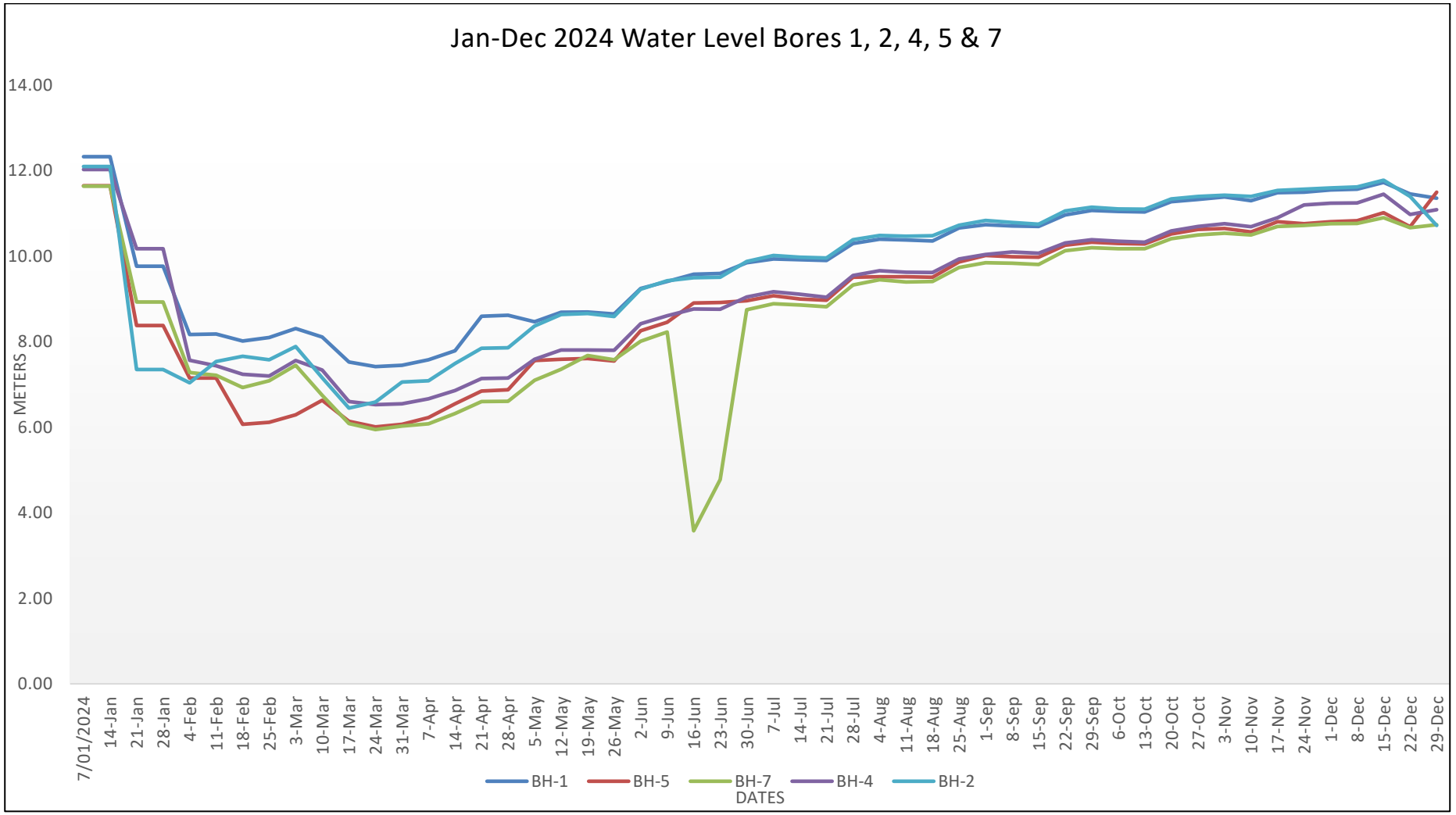
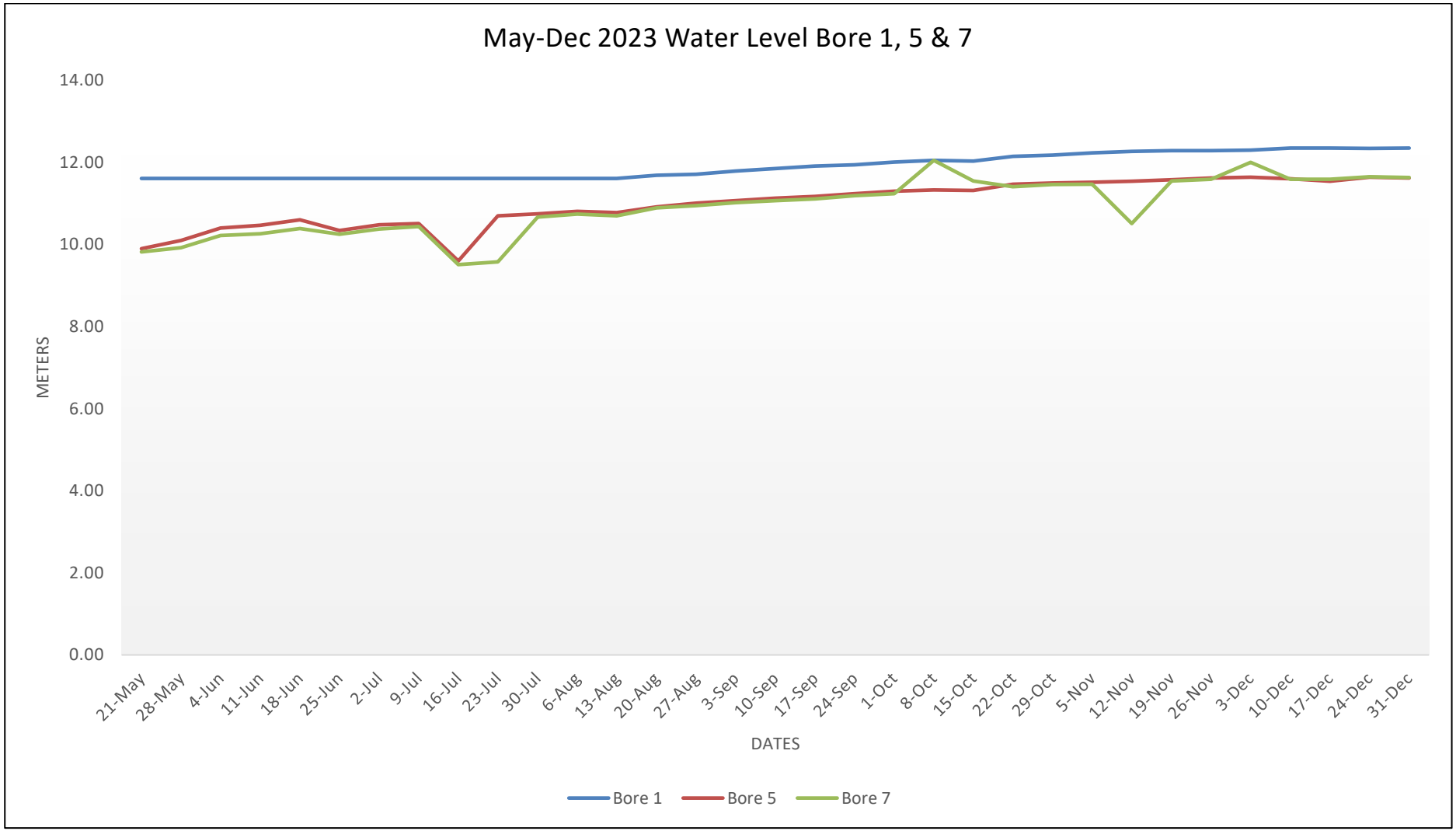


Figure E.2-8: Groundwater laboratory analysis results for Enterococci from 10 February 2017 to 9 February 2025. Includes results for bores BH-1, BH-2, BH-4 BH-5 and BH-7.

Attachment E.3: Groundwater Monitoring Wells - Depth to Water Graphs for 2023, 2024 and 2025







ATTACHMENT F:

CALIBRATION CERTIFICATES AND QA/QC

HORIBA OCMA-500 Calibration Report (SN: TFTR9D53)

intertek
Total Quality. Assured.

VERIFICATION REPORT

Client: Petrolab Australia Pty. Ltd
Instrument: HORIBA OCMA-500
Serial Number: TFTR9D53
Date Calibrated: 06th September 2024
Next Calibration: 06th March 2025

Method

1. Zero Calibration
   a. Pure S-316 Solvent is measured in measurement mode, and result should be 0.0 mg/L if not replace internal filters and re measure.
   b. Change instrument into Zero Calibration and run S-316 Solvent.
2. Span Calibration
   a. Prepared known sock sample is measured to obtain steady reading. Concentration of standard is twice the value of measured sample.
3. Verify with Standard or Stock Samples.

Maintenance:

Were Internal Filter / O-ring replaced : No
Were repairs carried out : No

Calibration Results:

Following readings were obtained against Pure S-316 & Standard.

Mode	Expected Reading (mg/L)	Instrument Reading (mg/L)
Zero Calibration	0.0	0.0
Span Calibration	200.0	200.0
Stock Sample 1	28.0	28.3
Stock Sample 2	12.0	11.3

Remarks:

The Instrument is acceptable for use as per the standard operating test procedure (ASTM D 7066).

Verified by: Pasan Mihijaya
Title: Chemist
Date: 06th September 2024

intertek caleb brett

e 1 of 1

HORIBA OCMA-500 Calibration Report (SN: T9EHWHDT)

intertek
Total Quality. Assured.

VERIFICATION REPORT

Client: ENI Australia, Blacktip YGP
Instrument: HORIBA OCMA-500
Serial Number: T9EHWHDT
Date Calibrated: 20th August 2024
Next Calibration: 20th February 2025

Method

1. Zero Calibration
   a. Pure S-316 Solvent is measured in measurement mode, and result should be 0.0 mg/L if not replace internal filters and re measure.
   b. Change instrument into Zero Calibration and run S-316 Solvent.
2. Span Calibration
   a. Prepared known sock sample is measured to obtain steady reading. Concentration of standard is twice the value of measured sample.
3. Verify with Standard or Stock Samples.

Maintenance:

Were Internal Filter / O-ring replaced : No
Were repairs carried out : No

Calibration Results:

Following readings were obtained against Pure S-316 & Standard.

Mode	Expected Reading (mg/L)	Instrument Reading (mg/L)
Zero Calibration	0.0	0.0
Span Calibration	200.0	200.0
Stock Sample 1	60.0	59.2
Stock Sample 2	12.5	13.0

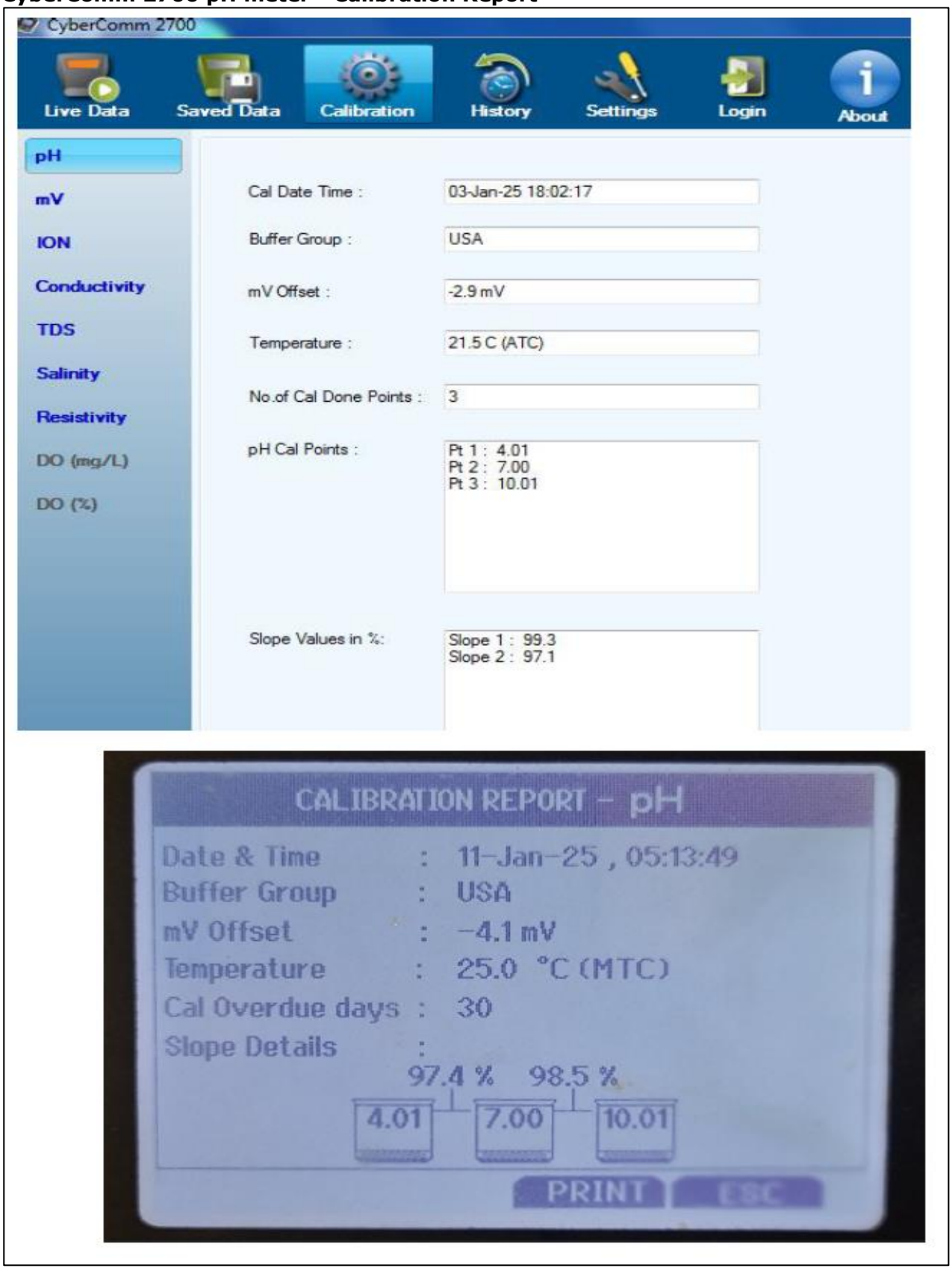
Remarks:

The Instrument is acceptable for use as per the standard operating test procedure (ASTM D 7066).

Verified by: Pasan Mihijaya
Title: Chemist
Date: 20th August 2024

intertek caleb brett

CyberComm 2700 pH meter - Calibration Report



Ektimo Quality Assurance/Quality Control Information – from Section 6 of the Biannual Emission Testing Report 2024 (R016916)

Ektimo is accredited by the National Association of Testing Authorities (NATA) for the sampling and analysis of air pollutants from industrial sources. Unless otherwise stated test methods used are accredited with the National Association of Testing Authorities. For full details, search for Ektimo at NATA's website www.nata.com.au.

Ektimo is accredited by NATA to ISO/IEC 17025 - Testing. ISO/IEC 17025 - Testing requires that a laboratory have adequate equipment to perform the testing, as well as laboratory personnel with the competence to perform the testing. This quality assurance system is administered and maintained by the Quality Director.

NATA is a member of APAC (Asia Pacific Accreditation Co-operation) and of ILAC (International Laboratory Accreditation Co-operation). Through mutual recognition arrangements with these organisations, NATA accreditation is recognised worldwide.

Unless specifically noted, all samples were collected and handled in accordance with Ektimo's QA/QC standards.

Bureau Veritas Equipment Calibration – Venting Validation Survey 2024 Report (4072C3-23145906-FE-03 Rev. 0)

All equipment was calibrated; physically and internally inspected prior to the survey.

Table 1 defines the equipment type, serial number, calibration schedule and brief description.

Table 1: Equipment Properties

Equipment	Serial Number & Calibration	Brief Description
Heath RMLD CS	S/N - 821191920011 (Internal calibration)	- Tuneable diode laser absorption spectroscopy device. - The RMLD CS is a handheld laser and the analysis unit, providing an audible response to any detected source of methane plume emissions. Up to 30 metres in detection distance. - Leaks are quantified as ppm-m readings.
Health DPIR +	S/N – 9000952009 (Internal calibration)	- Infrared optical gas detection utilising a pumped sample gas via a probe and bellows [8]. - The Heath DPIR has a greater sensitivity and suction rate than the GMI Leaksurveyor 500s.
OPGAL EyeCGas 2.0 Camera	S/N – TGC-131100089 (Internal Calibration)	- The OPGAL EyeCGas is an optical gas imaging camera capable of detection, and thermographic and digital imaging to quickly detect methane, carbon monoxide, carbon dioxide and VOC leaks.
GMI PS200s	S/N – 391110, 391109, 408757, 408747 Calibrated prior to survey (Next due date 11/24)	- Personal safety gas monitor carried on personnel.

Bureau Veritas Equipment Calibration – Fugitive Emissions Survey 2024 Report (4072C3-23145096-FE-01 Rev. 0)

All equipment was calibrated; physically and internally inspected prior to the survey.

The table below defines the equipment type, serial number, calibration schedule and brief description.

Table 4: Equipment Properties

Equipment	Serial Number & Calibration	Brief Description
Heath RMLD CS	S/N - 821191920011 (Internal calibration)	- Tuneable diode laser absorption spectroscopy device. - The RMLD CS is a handheld laser and the analysis unit, providing an audible response to any detected source of methane plume emissions. Up to 30 metres in detection distance. - Leaks are quantified as ppm-m readings.
Health DPIR +	S/N – 9000952009 (Internal calibration)	- Infrared optical gas detection utilising a pumped sample gas via a probe and bellows [6]. - The Heath DPIR has a greater sensitivity and suction rate than the GMI Leaksurveyor 500s.
GMI Leaksurveyor 700	S/N – 711267 Calibrated prior to survey (Next due date 08/25)	- The Leaksurveyor 700 portable gas detector used to quantify and pinpoint fugitive emissions in terms of ppmv levels, %LEL and %VOL. - The equipment is comprised of a probe with a cone bellows and gas detector unit with an internal pump.
OPGAL EyeCGas 2.0 Camera	S/N – TGC-131100089 (Internal Calibration)	- The OPGAL EyeCGas is an optical gas imaging camera capable of detection, and thermographic and digital imaging to quickly detect methane, carbon monoxide, carbon dioxide and VOC leaks.
GMI PS200s	S/N – 391110, 391109, 408757, 408747 Calibrated prior to survey (Next due date 11/24)	- Personal safety gas monitor carried on personnel.