PROJECT CONSTRUCTION GROUNDWATER MONITORING PROGRAM

Groundwater Monitoring Program

Sydney Metro West – Western Tunnelling Package

ISSUE DATE: 14 JUNE 2022

Document Details

Document Title	**Groundwater Monitoring Program**
Project Name	**Sydney Metro West – Western Tunnelling Package**
Client	**Sydney Metro**
GA Project No.	**<Insert GA Project No.>**
Document Reference No.	**SMWSTWTP-GLO-1NL-EN-PRG-000002**
Principal Contractor	**Gamuda Australia Branch**
ABN	**27 632 738 768**
Project Address	**<insert project name>**

Document Authorisation

Approvals Manager	**Environment & Sustainability Lead**	**Project Director**
Signature	Signature	Signature
14/06/2022	14/06/2022	14/06/2022
Date	Date	Date

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

TABLE OF CONTENTS

Document Details 2
Document Authorisation 2

DOCUMENT CONTROL 6
Revision History 6

1 INTRODUCTION 7
1.1 Project Description 7
1.2 Context 9
1.3 Environmental Management System Overview 9
1.4 Consultation Requirements 9
1.5 Certification and Approval 10

2 PURPOSE AND SCOPE 11
2.1 Purpose 11
2.2 Scope 11

3 OBJECTIVES 12

4 ENVIRONMENTAL REQUIREMENTS 13
4.1 Legislation and Guidelines 13
4.2 Approvals, Licenses and Permits 13
4.3 Smart Principles 14

5 EXISITING ENVIRONMENT 15

6 ENVIRONMENTAL IMPACTS SUMMARY 19

7 GROUNDWATER MONITORING 21
7.1 Overview 21
7.2 Existing Groundwater Reports 21
7.3 Existing Groundwater Monitoring Data 23
7.4 Data Gap Assessment and Additional Investigations 24
7.5 Nominated Baseline and Construction Stage Monitoring Network 24
7.6 Groundwater Level and Drawdown Monitoring 27
7.6.1 Monitoring Program 27
7.6.2 Monitoring Methodology 27
7.6.3 Data Analysis 29
7.6.4 Performance Criteria 29
7.7 Groundwater Quality Monitoring 31
7.7.1 Monitoring Program 31
7.7.2 Monitoring Methodology 32
7.7.3 Data Analysis 36
7.7.4 Performance Criteria 36

8 EXCAVATIONS / TUNNEL INFLOWS 40
8.1 Excavations 40
8.1.1 Monitoring Program 40

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

8.1.2 Monitoring Methodology 40
8.1.3 Data Analysis 41
8.1.4 Performance Criteria 41
8.2 Tunnels 42
8.2.1 Monitoring Program 42
8.2.2 Monitoring Methodology 43
8.2.3 Data Analysis 43
8.2.4 Performance Criteria 43

9 WATER TREATMENT PLANTS 44
9.1 Water Treatment Plant Monitoring 44
9.1.1 Monitoring Methodology 44
9.1.2 Data Analysis 44
9.1.3 Performance Criteria 45
9.1.4 Water Treatment Plant Commissioning 45
9.1.5 Water Treatment Plant Post Commissioning 46
9.1.6 Water Treatment Plant Discharge Volumes 46

10 LABORATORY TESTING – WATER QUALITY 47
10.1 Quality Assurance / Quality Control 47
10.2 Laboratory Selection and Water Quality Testing Parameters 47
10.2.1 Laboratory Selection 47
10.2.2 Laboratory Quality Assurance / Quality Control 47
10.3 Suitability of Sampling Results 48
10.3.1 Duplicate RPDs 48
10.3.2 Suitably Qualified Staff 49
10.3.3 Calibration Records 49
10.3.4 Monitoring Program 49
10.4 Calibration, Quality Assurance and Competency 50

11 GROUNDWATER MANAGEMENT STRATEGIES 51

12 COMPLIANCE MANAGEMENT 52
12.1 Roles and Responsibility 52
12.2 Monitoring Records 53
12.3 Auditing 53
12.4 Reporting 53

13 REVIEW AND IMPROVEMENT 55
13.1 Continuous Improvement 55
13.2 Document Updates 55
13.3 Distribution 55

ATTACHMENTS 56
Attachment 1 – Compliance Matrix 57
Attachment 2 – Stakeholder Consultation 64
Attachment 3 – Proposed Monitoring Locations 72
Attachment 4 – Project Borehole Network 74

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Attachment 5 – Background Groundwater Quality Monitoring Data..... 78
Attachment 6 – Default Guideline Values for Discharges to Waterways and Groundwater Quality 79

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

DOCUMENT CONTROL

The current document version number and date of revision are shown in the document footer. All changes made to the Management Plan during its implementation on a live project are to be recorded in the amendment tables below.

Revision History

Revision	Date	Description of changes	Prepared by	Approved by
A	24/03/2022	Early Works Submission		
B	14/06/2022	Draft following stakeholder consultation		

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

1 INTRODUCTION

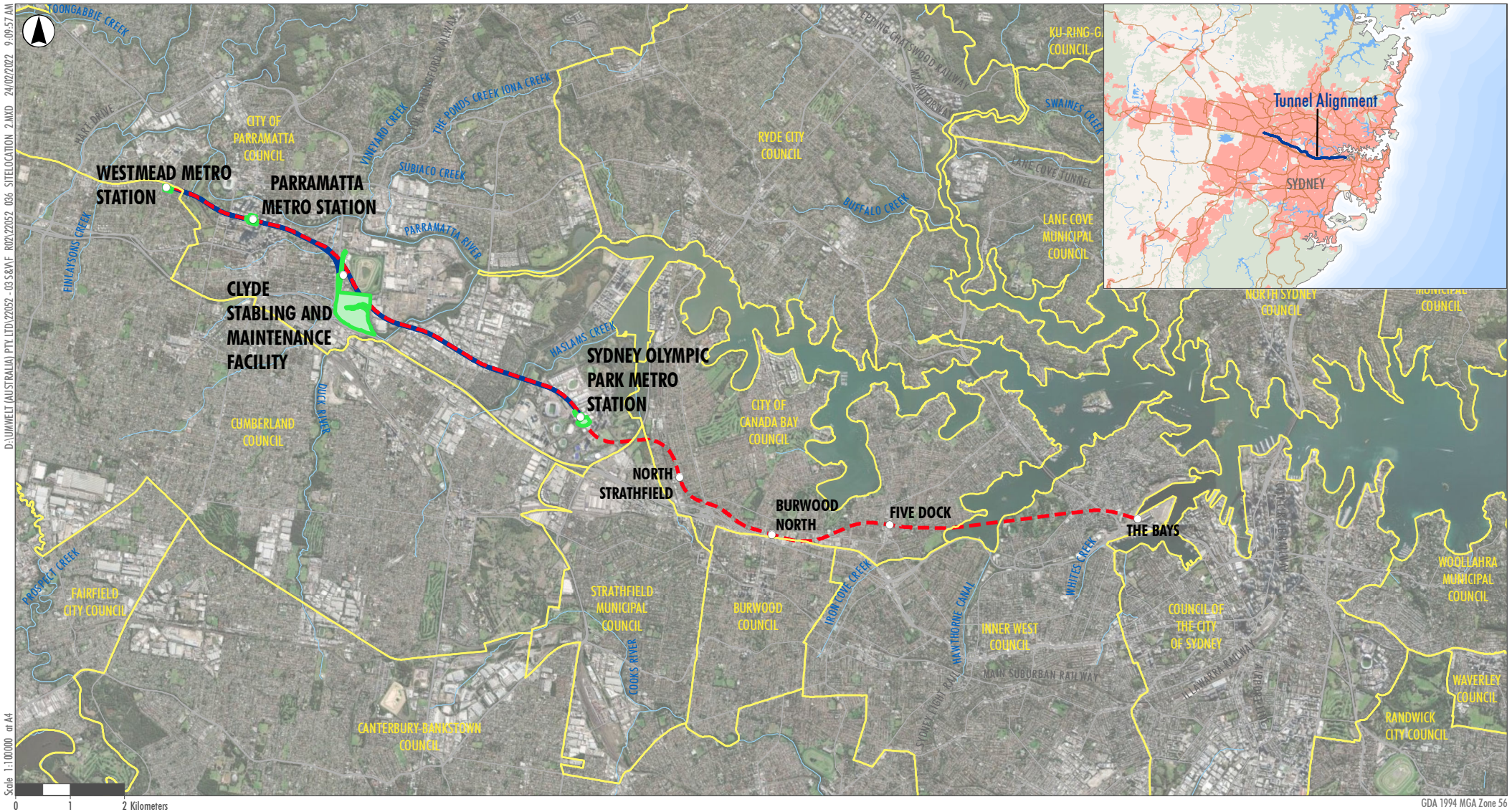
1.1 Project Description

The scope of the work being undertaken under the Sydney Metro West Western Tunnelling Package works (WTP) (the Project) includes but is not limited to, the following:

- Westmead Station box excavation, including temporary support, stub tunnels, partially mined station cavern and crossover cavern including permanent lining and support
- Parramatta Station, including excavation of station box and associated support
- Clyde Maintenance and Stabling Facility (MSF), including permanent dive structure, portal, spur running tunnels, spur tunnel junction cavern, bulk earthworks, civil structures, utilities corridor, road crossing and creek diversion
- Rosehill Services Facility, including shaft excavation, permanent lining and lateral support
- A precast segment manufacturing facility at Eastern Creek
- Demolition and site clearance works
- Tunnelling between Sydney Olympic Park (SOP) and Westmead. Tunnelling will be undertaken by placing the tunnel boring machines (TBMs) at the Rosehill Services Facility box and retrieved out at the SOP Station Box and then placed back at the Rosehill Services Facility and retrieved at the Westmead Station Box. No surface works are proposed at SOP except for the retrieval of the TBM.

Refer to Figure 1 for the location of the WTP project.

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY



Scale 1:100000 at A4

D:\UMWELT (AUSTRALIA) PTY LTD\72052 - 03 S&WF R02\72052_036_SITELOCATION_2.MXD 24/02/2022 9:09:57 AM

GDA 1994 MGA Zone 56

Legend

- Surface Construction Sites
- The Project (Western Tunnelling Package)
- Sydney Metro West Concept and Stage 1
- Approved Station Sites
- Local Government Boundary
- Road
- Drainage Line
- Railway Line

Image Source: ESRI Basemap (2022) Data source: NSW DFSI (2021)

1.2 Context

The Construction Environmental Management Plan (CEMP) and sub-plans have been developed for the delivery of the WTP. It will be delivered by Gamuda Australia Laing O'Rourke Consortium (GLC). This Construction Groundwater Monitoring Program (GMP) forms part of the Construction Environment Management Plan (CEMP) (SMWSTWTP-GLO-1NL-EV-PLN-000001) for the Project.

Sydney Metro West – Westmead to The Bays Concept and Stage 1 received planning approval on 11 March 2021 (SSI 10038). The Project comprises the WTP, which is the western portion of Stage 1 of SSI 10038, from Sydney Olympic Park to Westmead. This GMP has been prepared to address requirements of the Minister's Conditions of Approval (MCoA) and any modifications to the MCoA, Revised Environmental Management Measures (REMMs) listed in the Sydney Metro West – Submissions Report, dated 20 November 2020, the Construction Environmental Management Framework (CEMF) requirements and all applicable legislation as they relate to the Project.

1.3 Environmental Management System Overview

An overview of the Environmental Management System (EMS) is provided in the CEMP Section 3.

Key interactions for this sub-plan with other management plans in the EMS include:

- Site Establishment Management Plan
- Soil and Water Management Sub-plan
- Groundwater Management Sub-plan
- Waste Management Sub-plan
- Spoil Management Sub-plan
- Flora and Fauna Management Sub-plan.

1.4 Consultation Requirements

This monitoring plan builds on the consultation that had been undertaken during the EIS and Response to Submissions, managed by the project proponent, Sydney Metro.

This program has been provided to DPE Water and Sydney Olympic Park Authority (SOPA) for review and comment, in accordance with MCoA C14(d).

Consultation was undertaken over a 21-day period, commencing on 27 April 2022 with the submission of the GMP. The Consultation approach was applied across all plans and stakeholders and included issuing of the document to stakeholders accompanied by an introductory workshop. Following receipt of comments two weeks later, an offer was made to hold a comment review workshop to discuss and close comments directly with the stakeholder the following week. A second workshop would also be made available should there be any outstanding or technical issues requiring further discussion.

An introductory meeting was held on 1 April with SOPA, which was organised by Sydney Metro and delivered by GLC. At the introductory meeting, GLC introduced themselves, the project team and outlined the scope of the WTP. The consultation approach was presented, and feedback invited on that approach. No issues were raised on the consultation approach during the introductory meetings.

SOPA did not take the offer of a comment review workshop in relation to their review of this GMP.

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Details of issues raised by stakeholders during consultation is provided in Attachment 2, including copies of correspondence in accordance with MCoA A6. The approach to consultation is further outlined in the CEMP.

Ongoing consultation with stakeholders may be undertaken as required during project delivery. In line with MCoA B11, a copy of the Construction Monitoring Reports will be published on the GLC project website.

1.5 Certification and Approval

Sydney Metro West – Westmead to The Bays Concept and Stage 1 was subject to environmental impact assessment under the NSW Environmental Planning and Assessment Act 1979 (EP&A Act). It was also declared a Critical State Significant Infrastructure (CSSI) by the Minister for Planning & Public Spaces (the Minister).

An Environmental Impact Statement (EIS) has been prepared under Division 5.2 of the EP&A Act and in accordance with Part 3 of Schedule 2 of the Environmental Planning and Assessment Regulation 2000. Following exhibition of the EIS, an Amendment Report and Submissions Report were also prepared. After an assessment was carried out, the Minister determined that the Sydney Metro West – Stage 1 would be approved subject to conditions.

The planning approval (Infrastructure Approval SSI 10038) and related environmental assessment documents are located at: https://www.planningportal.nsw.gov.au/major-projects/project/25631.

This GMP has been expressly nominated by the Planning Secretary to be endorsed by the ER. This GMP will be submitted to the ER for endorsement and DPE for information no later than one (1) month before the commencement of construction, or where construction is phased no later than one (1) month before the commencement of that phase. Construction will not commence until this GMP has been endorsed by the ER, unless otherwise agreed by the Planning Secretary. Similarly construction cannot commence until all relevant baseline data for the specific construction activity has been collected.

This GMP, as submitted to the ER, including any minor amendments approved by the ER, will be implemented for the duration of construction.

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

2 PURPOSE AND SCOPE

2.1 Purpose

The purpose of this GMP is to describe the groundwater monitoring approach that will be employed by GLC employees and its subcontractors during construction of the Project. This monitoring program forms an integral part of the Project's CEMP and GLC's EMS. It applies to all works associated with Project works and establishes the environmental management controls to be implemented by GLC employees and its subcontractors.

2.2 Scope

The scope of this GMP is to describe how GLC will monitor groundwater during construction of the Project. Monitoring of groundwater will be undertaken to identify potential impacts and ensure an appropriate management regime can be implemented to address those impacts and manage local groundwater conditions.

The program provides details of the groundwater monitoring network, frequency of monitoring, monitoring requirements, and test parameters.

Not considered within this GMP is the Eastern Creek precast manufacturing facility. Furthermore, groundwater around Sydney Olympic Park is being considered within the Central Tunnelling Package, currently being delivered by the Acciona Ferrovial Joint Venture. This package includes all station boxes and tunnels between The Bays and Sydney Olympic Park.

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

3 OBJECTIVES

The GMP will be utilised to define, address and implement groundwater monitoring requirements. The GMP outlines how GLC will comply and implement the applicable elements of the following documents:

- Sydney Metro Construction Environmental Management Framework (CEMF)
- Minister for Planning and Public Space's Conditions of Approval for the Project (MCoA)
- Revised Environmental Mitigation Measures (REMMs)
- SSI Modifications - Modification 1 Administrative Modification
- SSI Modifications - Modification 2 Clyde Stabling and Maintenance Facility – Current Status (16 May 2022) being: More Information Required
- Infrastructure Sustainability Council (ISC) Infrastructure Sustainability (IS) rating tool.

Specific objectives of the groundwater monitoring program relevant to CEMF, CoA, and REMMs are summarised in Attachment 1.

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

4 ENVIRONMENTAL REQUIREMENTS

Relevant legislation and guidelines and project specific requirements are detailed herein.

4.1 Legislation and Guidelines

GLC obligations include satisfying the requirements and complying with the provisions of the relevant legislation, guidelines, and policies, as well as international and Sydney Metro's standards. Details are provided in Table 1.

Table 1: Shows the legislation, standards, policies and guidelines relevant to the Project

Legislation	(NSW) *Protection of the Environment Operations Act 1997* (POEO Act) (NSW) *Contaminated Land Management Act 1997* (CLM Act) (NSW) *Water Management Act 2000* (WM Act) (NSW) Protection of the Environment Operations (Waste) Regulation 2014 (the Waste Regulation) *Sydney Water Act 1994* *Environmental Planning and Assessment Act 1979* (EP&A Act)
Standards	AS/NZS ISO 14001:2016 Environmental management systems - Requirements with guidance for use AS 1940-2017: The Storage and Handling of Flammable and Combustible Liquids AS/NZS 4452-1997: The Storage and Handling of Toxic Substances
Guidelines, Specifications and Notices	Australian and New Zealand Guidelines for Fresh and Marine Water Quality (known as 'ANZG Guidelines') (ANZG 2018). Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC and ARMCANZ 2000) Approved Methods for the Sampling and Analysis of Water Pollutants in NSW (NSW EPA, 2004) Guidelines for the Assessment and Management of Groundwater Contamination (DEC 2007) Maintenance of remediation notice 28040 (EPA 2009) National Environment Protection Council (NEPC) 1999 (amended 2013), National Environment Protection (Assessment of Site Contamination) Measure (NEPM) PFAS National Environmental Management Plan 2.0 (HEPA 2020) Remediated Lands Management Plan (SOPA, 2009) (or revisions that have been accepted by the EPA)

4.2 Approvals, Licenses and Permits

This GMP has been developed to satisfy the requirements of MCoA C1. A full list of applicable MCoAs, REMMs, CEMF requirements and EPL condition requirements is provided in Attachment 1. Other legislation relevant to this GMP is included in Attachment 2 of the CEMP.

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

4.3 Smart Principles

In accordance with the requirements of CoA C15(j) the GMP is to be developed with consideration of SMART principles. This plan achieves this as follows:

1. Specific – the GMP for the WTP includes specific background data, sampling locations, as well as trigger values relating to specific construction sites
2. Measurable – parameters requiring reporting are all measurable
3. Actionable – the methodology for the collection and analysis of data is provided
4. Realistic – the GMP is achievable and not overly onerous
5. Timely – specific timeframes for the completion of tasks is provided.

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

5 EXISITING ENVIRONMENT

A review of the existing environment is included in Section 5 of the Project Groundwater Management Sub-plan (GWMP). Table 2 provides a summary overview of the key geological and hydrogeological conditions relevant to design and implementation of the groundwater monitoring program.

Table 3 provides a summary of the potential groundwater contamination conditions associated with the Project. The Soil and Water Management Plan details the contaminated land management program to be implemented to meet the requirements of the MCoA. This includes the delivery of Detailed Site Investigations across the various construction sites that will include the collected of groundwater data. This data will inform potential contaminants of concern for this program.

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Table 2: Characteristics of the groundwater aspects of the WTP

Location	Hydrostratigraphic Units	Groundwater dependent ecosystems present? (High priority ecosystems are in italics)	Groundwater Users
Westmead	• Quaternary deposits – unconfined & semi-confined aquifer (primary porosity). • Mittagong Formation – Unconfined aquifer at outcrop, confined to semi-confined where overlying clays are present. • Ashfield Shale - aquitard • Hawkesbury Sandstone -Unconfined aquifer at outcrop, confined to semi-confined where overlying clays or shale are present. • Faults and dykes may be present throughout Mesozoic sediments	Three GDEs: • Swamp Oak open forest on river flats of the Cumberland Plain and Hunter Valley • Forest Red Gum – rough-barked apple grassy woodland on alluvial flats of the Cumberland Plain along Domain Creek and Toongabbie Creek • *Grey Box – Forest Red Gum grassy woodland on flats of the Cumberland Plain within the construction site footprint*	• 11 Monitoring Bores • 1 industrial supply bore
Paramatta		Four GDEs: • Swamp Oak open forest on river flats of the Cumberland Plain and Hunter Valley along Parramatta River • Forest Red Gum – rough-barked apple grassy woodland on alluvial flats of the Cumberland Plain along Parramatta River • *Grey Box – Forest Red Gum grassy woodland on flats of the Cumberland Plain along Parramatta River* • Mangrove Forests in estuaries of the Sydney Basin Bioregion and southeast corner bioregion along Parramatta River	
Clyde and Rosehill		Three GDEs: • Mangrove Forests in estuaries of the Sydney Basin Bioregion and southeast corner bioregion along Duck Creek • Swamp Oak swamp forest fringing estuaries, Sydney Basin Bioregion and southeast corner bioregion along Duck Creek • Saltmarsh in estuaries of the Sydney Basin Bioregion and southeast corner bioregion along Duck Creek	

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Location	Hydrostratigraphic Units	Groundwater dependent ecosystems present? (High priority ecosystems are in italics)	Groundwater Users
Sydney Olympic Park		Mangrove Forests in estuaries of the Sydney Basin Bioregion located along Haslams Creek.	• SOPA (Blaxland Sustainable Leachate Wetlands, Wilson Park and the Water Reclamation and Management Scheme (WRAMS))

Table 3: Summary of potential groundwater contamination sources and associated contaminants of potential concern

Potential Source	Associated Contaminants	Westmead Station	Parramatta Station	Rosehill Shaft	Clyde	Tunnels
Leaks and spills from fuel storage infrastructure (such as service stations, mechanic workshops)	Hydrocarbons, VOCs and heavy metals	Yes			Yes	Yes
Firefighting activities associated with surrounding facilities (such as sub stations or aerodromes)	PFAS		Yes		Yes	Yes
Land reclamation, landfilling and other uncontrolled fill material. (e.g., Sydney Olympic Park).	Metals, hydrocarbons, pesticides, polychlorinated biphenyls (PCBs)			Yes	Yes	Yes
Acid sulfate soils (ASS)	Acidic conditions, sulphides		Yes		Yes	
Former and current industrial land uses	Hydrocarbons, heavy metals and metalloids, chlorinated hydrocarbons (solvents), phenolics, pesticides, heavy metals, PFAS, polycyclic aromatic hydrocarbons (PAH)		Yes	Yes	Yes	Yes
Existing railways and associated activities (including fill material)	Metals, hydrocarbons, pesticides, nutrients, phenols, carbamates, pesticides, herbicides, PAH	Yes				

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Potential Source	Associated Contaminants	Westmead Station	Parramatta Station	Rosehill Shaft	Clyde	Tunnels
Dry cleaners and solvent use (former printing facility)	Chlorinated hydrocarbons		Yes	Yes		Yes
Application of fertilizers and pesticides	OCP/OPP, nutrients					Yes

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

6 ENVIRONMENTAL IMPACTS SUMMARY

A review of the environmental impacts relevant to groundwater is included in Section 6 of the GWMP.

Table 4 provides a summary overview of the key geological and hydrogeological conditions relevant to design and implementation of the groundwater monitoring program.

Table 4: Characteristics of potential impacts relevant to groundwater from construction stage activities

Location	Drawdown	Contamination
Westmead	• Groundwater drawdown associated with excavations potential to impact GDEs • One groundwater industrial supply bore within predicted radius of drawdown • Drawdown impacts on settlement considered to be limited due to absence of Quaternary alluvium and unconsolidated sediments.	• Migration of groundwater contamination as a result of drawdown (further detail provided in HIR). • Groundwater contamination resulting from site activities.
Paramatta	• Groundwater drawdown associated with excavations potential to impact GDEs • Drawdown impacts on settlement considered to be limited due to control measures to be implemented including diaphragm wall structures extending below final excavation level nominated by SM .	• Migration of groundwater contamination as a result of drawdown (further detail provided in HIR). • Groundwater contamination resulting from site activities.
Clyde	• Eleven groundwater monitoring bores within predicted radius of drawdown • Drawdown impacts on settlement considered to be limited due to control measures to be implemented including tanked structures and cut-off walls.	• Migration of groundwater contamination as a result of drawdown (further detail provided in HIR). • Groundwater contamination resulting from site activities.
Rosehill	• Drawdown impacts on settlement considered to be limited due to control measures to be implemented including diaphragm wall structures extending below final excavation level and Rosehill's base being permanently drained.	• Migration of groundwater contamination as a result of drawdown (further detail provided in HIR). • Groundwater contamination resulting from site activities.

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Location	Drawdown	Contamination
Sydney Olympic Park	• Groundwater drawdown associated with excavations potential to impact GDEs • Drawdown impacts on settlement considered to be limited due to tunnelling methodology (double shield TBM), refer to Section 8 for further details.	• Migration of leachate to groundwater from existing waste containment structures as a result of construction (e.g., drawdown / vibration). • Migration of contaminated groundwater associated with historic impacts around Sydney Olympic Park into tunnels. • Groundwater contamination from leaks and spills within tunnels (contamination incidents). • Groundwater contamination of Quaternary or Mesozoic sediments from migration of leachate or impacted groundwater.

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

7 GROUNDWATER MONITORING

7.1 Overview

The following sections outline the existing and proposed groundwater monitoring locations and details of the baseline and construction monitoring program. Baseline groundwater level and quality monitoring data has been collected from the Project groundwater monitoring network since 2018.

7.2 Existing Groundwater Reports

In addition to the EIS chapters and supporting EIS technical papers, the following documents (identified in Table 5) provide information on groundwater conditions, contamination, and considerations for water treatment plants relevant to the Project.

Table 5: Groundwater Related Reports for the Sydney Metro West Project

Report Title	Content
GLC (2022): Technical Report: Sydney Metro West – Western Tunnelling Package – Hydrogeological Interpretative Report, SSMWSTWTP-GLO-1NL-NL000-GE-RPT-000001	Technical report developed to address groundwater related aspects of the specifications including key hydrogeological and geotechnical features, assessment of groundwater levels and inflows, hydrogeological conditions and parameters used as a basis for the design.
GLC (2021): Technical memo: Assessment of water treatment plant inflow volumes and quality, SMSMW215-GLC-SWD-SW000-CT-TEM-0000003	Technical memo assessing the volumes and quality of inflows to water treatment plants proposed to collect water within sub-surface infrastructure (e.g. stations, the tunnel, dive sites and tunnel spurs) along the Sydney Metro West – western tunnel package during construction and at handover.
GLC (2021): Sydney Metro West – Western Tunnelling Package – Hydrogeological Interpretive Report (DRAFT). SMSMW210-GLC-SWDSW000-GE-TME-000001000 – Rev A. 02 June 2021.	Hydrogeological Interpretive Report (HIR) to address the groundwater related aspects of Returnable Schedule 3.2: Technical Solution, requirement 3.2B (2.9) – Geotechnical and hydrogeological design.
Golder | Douglas Partners (2021): 00013/11180 Sydney Metro West Groundwater Monitoring Report - Stage 3 Locations, 1791865-026-R-GWM Stage 3 RevC, dated 23 June 2021.	Factual results of hydrogeological investigations carried out at additional locations along the proposed tunnel alignment. This groundwater monitoring report included the results of well development, groundwater sampling and level monitoring for the additional works completed in February 2021.

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Report Title	Content
Golder | Douglas Partners (2021): Sydney Mero West Geotechnical Investigation Groundwater Monitoring Report – Stage 2 Locations, 1791865-023-R-GWM Stage 2 Rev 1, dated 20 May 2021.	Factual results of hydrogeological investigations carried out at additional locations along the proposed tunnel alignment.
Golder | Douglas Partners (2021): Sydney Mero West Geotechnical Investigation Groundwater Monitoring Report – Stage 2 Locations, 1791865-023-R-GWM Stage 2 Rev A, dated 7 October 2020.	Factual results of hydrogeological investigations carried out at additional locations along the proposed tunnel alignment.
Golder | Douglas Partners (2020): Contamination Factual Report, Downer EDI, Unwin St, Rosehill, 1791865-019-R-Rev0, Dated 4 May 2020.	Factual results of the contamination investigations along the proposed tunnel alignment.
Golder | Douglas Partners (2019): 00013/11180 Sydney Metro West Geotechnical Investigation Groundwater Level Monitoring Report Round 8, August 2019, 1791865-016-R-GWMR8-RevA, Dated 6 September 2019.	Factual results of the ongoing groundwater level monitoring along the proposed tunnel alignment
Golder | Douglas Partners (2019): 00013/11180 Sydney Metro West Geotechnical Investigation Groundwater Level Monitoring Report Round 7, June 2019, 1791865-013-R-GWMR7-RevA, Dated 17 June 2019.	
Golder | Douglas Partners (2019): 00013/11180 Sydney Metro West Geotechnical Investigation Groundwater Level Monitoring Report Round 6, March 2019, 1791865-012-R-GWMR6-RevA, Dated 20 March 2019.	
Golder | Douglas Partners (2019): 00013/11180 Sydney Metro West Geotechnical Investigation Groundwater Level Monitoring Report Round 5, January 2019, 1791865-011-R-GWMR5-RevA, Dated 11 February 2019.	
Golder | Douglas Partners (2018): 00013/11180 Sydney Metro West Geotechnical Investigation Groundwater Level Monitoring Report Round 4, December 2018, 1791865-009-R-GWMR4-RevA, Dated 11 January 2019.	Factual results of the ongoing groundwater level monitoring along the proposed tunnel alignment.
Golder | Douglas Partners (2018): 00013/11180 Sydney Metro West Geotechnical Investigation Groundwater Level Monitoring Report Round 3, November 2018, 1791865-005-R-GWMR3-RevA, Dated 23 November 2018.	
Golder | Douglas Partners (2018): 00013/11180 Sydney Metro West Geotechnical Investigation	

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Report Title	Content
Groundwater Level Monitoring Report Round 2, November 2018, 1791865-004-R-GWMR2-RevA, Dated 6 November 2018.	
Golder | Douglas Partners (2018): 00013/11180 Sydney Metro West Geotechnical Investigation Groundwater Monitoring Report, November 2018, 1791865-003-R-GWMR-RevA, Dated 16 October 2018.	Factual results of hydrogeological investigations carried out along the proposed tunnel alignment. This first groundwater monitoring report included the results of well development, slug tests, groundwater sampling and level monitoring.

Baseline groundwater monitoring data has been extracted from the reports listed above, summarised and included in Attachment 4. The data is discussed further in the following sections.

7.3 Existing Groundwater Monitoring Data

A network of groundwater monitoring bores have been advanced across the Project area (including stations and sections of the tunnel from Westmead up to Sydney Olympic Park) over the course of multiple environmental and geotechnical site investigations.

A list of boreholes that have been converted to groundwater monitoring bores as either standpipe piezometers or vibrating wire piezometers is presented in **Attachment 4.**

Monitoring bores and vibrating wire piezometers were designed to target the following hydrogeological units, providing information on groundwater levels and groundwater quality:

- Anthropogenic fill materials
- Quaternary alluvial sediments
- Residual soils
- Ashfield Shale
- Hawkesbury Sandstone

At present there is no baseline monitoring data available for the project with the exception of water levels and water quality samples collected during or shortly after the installation of standpipe piezometers. A number of the standpipe piezometers with water quality data have only been sampled for a limited analytical suite. The groundwater level and water quality monitoring results from existing monitoring bores are presented in **Attachment 5.**

All vibrating wire piezometers are fitted with continuous dataloggers. A number of standpipe piezometer have also been fitted with transducers and dataloggers for continuous measurement of water pressure.

The status and suitability of the documented groundwater monitoring bores for the purpose of baseline monitoring and ongoing construction monitoring is currently unknown. The viability of existing monitoring bores for ongoing monitoring will be assessed as part of the initial baseline monitoring event.

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

7.4 Data Gap Assessment and Additional Investigations

Within the current version of the HIR, data gaps have been identified and recommendations put in place to fill these data gaps. This includes works as part of geotechnical site investigations. Similarly detailed site investigations are currently underway as part of the contaminated land management program. Any new monitoring wells that are advanced as part of upcoming investigations will be assessed for suitability and purpose as monitoring points to be incorporated to the project groundwater monitoring plan as part of an adaptive management strategy. Once the reporting from this program of works has been provided, this plan will be updated as necessary.

7.5 Nominated Baseline and Construction Stage Monitoring Network

The status and suitability of the documented groundwater monitoring bores for the purpose of baseline monitoring and ongoing construction monitoring is currently unknown. The viability of existing monitoring bores for ongoing monitoring will be assessed as part of the initial baseline monitoring events prior to commencement of construction activities involving the disturbance of groundwater.

Baseline monitoring will incorporate existing information collected as part of the EIS stage investigations, and tender investigations within the new SI scope. There will be a need to install the proposed monitoring wells (GHD and SMEC 2022) to facilitate baseline data crossover with the historical baseline data, and to assess the viability of historic monitoring wells as part of the ongoing construction monitoring program.

Groundwater level and quality monitoring will be carried out prior to and throughout the construction stages of the project to collect information on baseline conditions and assess any potential impacts to groundwater conditions during construction, including groundwater levels, drawdown, contamination status, and salinity.

The nominated groundwater monitoring network for the project (based on the existing groundwater monitoring network) is summarised in Table 6 and Table 7 for standpipe piezometers and VWPs respectively. This monitoring network is based on existing monitoring points only targeting each of the construction excavation sites (in accordance with MCoA C17(a). Baseline monitoring on the nominated monitoring network is proposed to commence in July 2022. A summary and figure is also provided in Attachment 3.

All standpipe piezometers identified in Table 6 will be manually dipped to record groundwater levels, where possible. A sub-set of the nominated monitoring bores will be installed with digital transducers (dataloggers) to record continuous data on groundwater level, and a separate sub-set have been nominated for groundwater quality sampling.

Additional boreholes and replacement bores are to be added as construction works progress and in response to additional site investigations planned to enable construction activities and to provide an adaptive monitoring strategy. Additional monitoring bores will be planned to fill in the identified data gaps with the location and design of monitoring points to be confirmed following third party access, stakeholder and planning approvals processes.

The location of ongoing groundwater monitoring and sampling points and the frequency of groundwater sampling events will be determined following the initial baseline monitoring event.

The baseline monitoring event will be used to:

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

- Undertake an on-site audit on the condition of monitoring bores and identify any boreholes that have been damaged, destroyed or decommissioned
- Collect samples to assess baseline water quality and identify where risks associated with groundwater contamination may be present
- Retrieve existing dataloggers, download available data and reprogram loggers where necessary
- Review the proposed monitoring network and assess whether additional or alternative monitoring points are required

Additional bores not listed in Table 6 that are available will also be sampled as part of the initial baseline sampling event.

Table 6: Indicative Baseline and Construction Stage Groundwater Monitoring Network – Westmead to Sydney Olympic Park

Rep. Site	Bore ID	GW Level Measure	Sample	Screen Interval (m bgl)	Target Unit
Westmead	SMW_BH001_s	Manual	TBA	0.6-1.49	Silty clay
	SMW_BH001	Logger	Yes	6.7-11.7	Siltstone
	SMW_WTP_BH32 A	Manual	No	3.5-10.1	Siltstone
	SMW_WTP_BH03 A	Logger	No	13.1-22.0	Siltstone
	SMW_WTP_BH31 A	Manual	No	3.8-8.5	Siltstone
	SMW_WTP_BH01 A	Manual	No	2.5-7.1	Clay and
	SMW_BH008	Logger	Yes	13.0-18.0	Siltstone
	SMW_BH701	Manual	Yes	4.0 – 9.0	Siltstone
	SMW_WTP_BH02	Logger	Yes	14.0-20.0	Siltstone
	SMW_BH013	Logger	Yes	Unknown	Unknown
Parramatta	SMW_BH002	Logger	Yes	26.5-32.4	Sandstone
	SMW_BH003	Manual	No	13.0-18.0	Clay/ Siltstone
	SMW_BH003_s	Manual	No	8.4-11.0	Clayey Sand
	SMW_BH004_s	Logger	Yes	5.7-11.5	Sand
	SMW_BH004	Logger	Yes	20.6-23.6	Sandstone
	SMW_BH048_s	Manual	No	4.0-7.5	Sand
	SMW_BH048	Manual	No	19.6-22.6	Sandstone
	SMW_BH049	Logger	No	1.6-6.0	Silty clay
	SMW_BH049_s	Logger	No	16.9-22.1	Sandstone
Clyde and Rosehill	SMW_BH707	Logger	TBA	Unknown	Sandstone
	SMW_BH007_s	Logger *	Yes	4.15-7.0	Clayey sand
	SMW_BH007	Manual	Yes	15-22.4	Sandstone
	SMW_ADD_BH02	Logger	Yes	13.0-20.5	Siltstone
	SMW_BH057_s	Manual	No	1.0-5.3	Sand
	SMW_BH057	Manual	No	23.3-26.3	Sandstone
	SMW_ENV011	Manual	No	3.0-7.0	Clayey sand
	SMW_ENV010	Manual	No	3.2-6.6	Sandy clay
	SMW_ENV009	Logger	Yes	2.7-7.3	Clayey sand
	SMW_BH043	Logger	Yes	6.5-12.5	Siltstone
	SMW_BH064	Manual	No	5.9-8.9	Siltstone
	SMW_ENV078	Manual	No	8.5-14.5	Clay
	SMW_ENV077	Manual	No	6.0-9.0	Clay
	SMW_ENV039	Logger	Yes	7.3-10.3	Clay
	SMW_ENV283_s	Logger *	Yes	2.0-5.0	Clay
	SMW_ENV283	Manual	No	19.0-25.0	Siltstone
	SMW_ENV293	Manual	No	1.2-6.0	Clay
	SMW_ENV083	Logger *	Yes	1.5-6.0	Clay
	SMW_ENV076	Manual	No	Unknown	Unknown
	SMW_ENV089	Manual	No	3.0-6.0	Fill

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Rep. Site	Bore ID	GW Level Measure	Sample	Screen Interval (m bgl)	Target Unit
	SMW_ENV088	Manual	No	2.5-6.0	Clay
	SMW_ENV090D	Logger	Yes	3.2-6.0	Clay
	SMW_ENV090S	Manual	No	1.0-3.0	Fill
	SMW_BH010	Manual	TBA	Unknown	Unknown
	SMW_ENV042	Logger	TBA	Unknown	Unknown
	SMW_ENV145	Manual	No	11.0-14.0	Clay
	SMW_BH070	Logger	TBA	Unknown	Unknown
	SMW_WTP_BH16	Logger	TBA	10.0-16.0	Clay, Sandy
	SMW_WTP_BH15 A	Manual	TBA	13.0-15.95	Clay
	SMW_ENV801	Manual	No	Unknown	Unknown
	SMW_WTP_BH13	Logger	Yes	1.3-7.3	Clay
	SMW_ENV814	Logger	No	2.0-10.0	Clay
	SMW_ENV811	Manual	No	1.0-6.0	Clay
	SMW_ENV812	Manual	No	2.0-9.0	Fill, Clay
	SMW_ENV813	Logger	Yes	2.0-8.0	Clay
	SMW_WTP_BH17	Logger	Yes	1.2-5.7	Clay
	SMW_WTP_BH18	Logger	Yes	3.0-9.0	Sand, clay
Clyde MSF	SMW_WTP_BH25	Logger	Yes	7.2-10.5	Clay
	SMW_ENV045	Logger	Yes	9.5-12.5	Clay
	SMW_ENV149	Logger	Yes	6.0-9.0	Clay
	SMW_ENV280	Logger	Yes	4.0-7.0	Clay
	SMW_WTP_BH30_s	Logger	Yes	2.5-5.4	Clay
	SMW_WTP_BH30	Logger	Yes	6.0-9.0	Clay
Clyde tunnel	SMW_BH709	Logger	Yes	Unknown	Unknown
	SMW_BH709_s	Logger	Yes	Unknown	Unknown
	SMW_BH121	Logger	Yes	Unknown	Unknown

* Transducer to include sensor for electrical conductivity as (sentinel) saltwater intrusion monitoring bore.

Table 7: Summary of Vibrating Wire Piezometers – Westmead to Sydney Olympic Park

Rep. Site	Bore ID	Data Download	Additional Comments
Westmead	SMW_BH013	Monthly	No additional VWPs required.
	SMW_BH013	Monthly	
Parramatta	Non-Available	Monthly	VWPs proposed for consideration to north and south of station to monitor pressure in consolidated sediments and Alluvium.
Clyde	SMW_BH045	Monthly	Additional VWPs proposed for consideration to east and west of station to monitor pressure in consolidated sediments and Alluvium.
	SMW_BH111	Monthly	
	SMW-BH722	Monthly	
	SMW-BH722	Monthly	
	SMW-BH722	Monthly	
Rosehill to Olympic Park	SMW_BH022	Monthly	No additional VWPs required.
	SMW_BH063	Monthly	
	SMW_BH115	Monthly	

The following sections present the methodology for groundwater monitoring as part of the baseline and construction stage monitoring for the Project including collection of information on groundwater levels, groundwater quality and salinity.

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Procedures for the collection of continuous and discrete groundwater monitoring data are provided, including all quality assurance / quality control requirements. Specifically, this methodology provides an approach for collection and assessment of the following environmental datasets:

- Groundwater level as mBTOC groundwater and mAHD (measurement and datalogger download)
- Groundwater salinity as electrical conductivity (measurement and datalogger download)
- Groundwater quality at key locations (field measurement and sample collection)

The groundwater sampling methodology has been developed for compliance with the following Australian and International Standards and Guidance:

- AS/NZS 5667.11:1998: Water Quality – Sampling Part 11: Guidance on Sampling of Groundwaters (Reconfirmed 2016).
- AS/NZS 5667.1:1998: Water Quality – Sampling Part 1: Guidance on the Design of Sampling Programs, Sampling Techniques and the Preservation and Handling of Samples (Reconfirmed 2016).
- Sundaram, B., Feitz, A., Caritat, P. de, Plazinska, A., Brodie, R., Coram, J. and Ransley, T., 2009. Groundwater Sampling and Analysis – A Field Guide. Geoscience Australia, Record 2009/27 95 pp.

The methodology also provides quality assurance / quality control procedures for collecting and managing environmental datasets. All monitoring and sampling will be documented and transferred to a central electronic database under the responsibility of the Construction Environment and Sustainability Manager.

7.6 Groundwater Level and Drawdown Monitoring

7.6.1 Monitoring Program

The standpipe piezometers and vibrating wire piezometers that have been nominated as part of the project construction stage monitoring program (including initial baseline monitoring) have been specified in Table 6 and Table 7.

The monitoring methodology for nominated standpipe piezometers and vibrating wire piezometers are discussed in the following sections, including methods to be adopted for data collection. Water levels from the network will be monitored monthly.

7.6.2 Monitoring Methodology

7.6.2.1 Standpipe Piezometers

Pressure transducers with digital dataloggers will be installed (or maintained from the baseline monitoring phase) in selected standpipe piezometers within and around the predicted radius of drawdown for the project to provide continuous data collection. The dataloggers will be programmed to record at hourly intervals.

Selected standpipe piezometers will include transducers with fitted with EC sensors to record groundwater salinity for monitoring of potential saline intrusion where potential risks exist.

All pressure transducers will be set at a depth lower than the predicted minimum water table elevation, accounting for natural variations and artificially induced drawdown. Any transducers with

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

EC sensors shall be set within the screened interval for accurate assessment of groundwater salinity.

Data loggers will be checked and maintained as necessary before being re-calibrated, decontaminated and then returned to the monitoring bore at a known depth below the top of casing.

The data loggers will be either telemetered or downloaded monthly. The readings from dataloggers will be calibrated with manual depth to water measurements as part of the monthly monitoring program.

The static groundwater level will be measured and recorded at each standpipe piezometer each month using an oil/water interface probe to verify the continuous data recorded by dataloggers and identify any non-aqueous phase liquid (NAPL) contamination. Recorded data will be compensated for barometric pressure and converted to a groundwater level measurement.

Measurements will be recorded in metres below top of casing (mbTOC) and converted to metres below ground level (mBGL) and metres Australian Height Datum (mAHD).

Groundwater monitoring will be overseen by personnel with appropriate qualifications and experience. Trained field personnel will complete monitoring rounds using appropriate personal protective equipment (PPE) and calibrated monitoring equipment.

All groundwater level data will be compared to local rainfall records to assess recharge response and identify any potential adverse effects from construction activities.

7.6.2.2 Vibrating Wire Piezometers

VWPs are used to monitor porewater pressure. They can also be used to monitor water levels. The VW piezometer converts water pressure to a frequency signal via a diaphragm, a tensioned steel wire, and an electromagnetic coil.

The piezometer is designed so that a change in pressure on the diaphragm causes a change in tension of the wire. An electro-magnetic coil is used to excite the wire, which then vibrates at its natural frequency. The vibration of the wire in the proximity of the coil generates a frequency signal that is transmitted to the readout device.

The readout or data logger stores the reading in Hz. Modern data logger readouts may also automatically convert the reading in Hz to a pressure or level reading when a suitable pre-calibration is used. For non-vented piezometers, barometric pressure corrections are required because the space inside the piezometer isolated and disconnected from the atmosphere. Vented piezometers designed to eliminate barometric effects, and as such barometric pressure corrections are not required.

Further details on using piezometers to monitor water pressure (level) can be found in USBR 6515, along with available instruction manuals for specific VWP sensors.

VWPs will be set to record data at a maximum interval of once every six (6) hours. VWP monitoring data will be downloaded and reviewed on a monthly basis to assess changes in groundwater levels during the construction stages of the project. Monitoring events and data downloads will be downloaded directly from the readouts by manual collection.

If significant trends in data are observed indicating drawdown outside the predicted ranges, monitoring will be increased to monthly events to plan appropriate management actions.

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Results from repeat monitoring rounds will be collated into continuous data graphs to show any trends in groundwater levels over time and infer any trends that may be attributable to construction activities.

7.6.3 Data Analysis

All groundwater level data from standpipe piezometers and vibrating wire piezometers will be uploaded to a central database that will be continuously updated over the course of the baseline and construction stage monitoring program.

Groundwater level data will be converted into digital graphs for each standpipe piezometer and vibrating wire piezometer, which will include predicted maximum drawdown levels from groundwater modelling and NSW Aquifer Interference Policy (AIP) (DPI, 2012) minimal impact considerations as trigger values (performance criteria).

Manual dip measurements will be included for all continuous logging data in standpipe piezometers to ensure no drift or errors have occurred in digital records.

Barometric data loggers will be installed in select monitoring bores to allow for post-correction of water level data from continuous loggers to atmospheric fluctuations.

Atmospheric correction of water level data should be conducted as per the following example:

$$WL_{corr} = WL_{abs} - P_{atm}$$

Where:

WL_{corr} = corrected SWL

WL_{abs} = absolute water level as recorded by the data logger) barometric pressure plus water pressure)

P_{atm} = atmospheric pressure as recorded by the barometric logger

Note that due to the variable salinity (density) of groundwater measured across the Project, measured water level will require correction to account for this difference in fluid density a per the following:

$$hf \times \rho f = hm \times \rho m$$

Where:

hm = measured water column in bore

ρm = density of groundwater in bore based on measured TDS

hf = equivalent freshwater column in the bore

ρf is freshwater density

VWPs are equipped with data loggers, which are to be programmed to record pore pressures at six-hourly intervals. Data will be collected monthly and converted to equivalent metres of head

7.6.4 Performance Criteria

Seasonal fluctuation considered within the EIS and supplementary reports will facilitate the assessment and comparison between groundwater level decrease and the predicted drawdown from the Project.

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

The groundwater level monitoring data will be compared to the trigger levels identified by the Revised Groundwater Modelling Report(s) to determine whether the observed decrease is attributable to the Project and, if so, whether it aligns with approved predictions. The Revised Groundwater Modelling Report(s) will be provided to relevant stakeholder where there is potential for interaction with existing groundwater management / monitoring programs.

Management actions outlined in the GWMP will be initiated If drawdown is identified outside of model predictions through the data analysis process, or if there is evidence of an unacceptable impact to or potential for unacceptable impact to groundwater resource under the AIP.

Management actions may include further investigation including (but not limited to) a review of baseline groundwater levels in surrounding monitoring bores and comparison of results against model predictions, and assessment of potential impacts as a result of the observed drawdown.

If the observed groundwater levels indicate potential for unacceptable impacts to the environment, human health, or built infrastructure then appropriate management measures to remedy the effect will be implemented. Appropriate remedial actions may include measures such as additional grouting or alternative inflow management measures to limit inflows to excavations and reduce dewatering effects.

In accordance with the AIP minimal impact considerations, groundwater level and pore pressures will be assessed against the following criteria where appropriate:

- Less than or equal to 10 % cumulative variation in the water table, allowing for typical climatic 'post-water sharing plan' variations, 40 m from any:
    - high priority groundwater dependent ecosystem; or
    - high priority culturally significant site

      listed in the schedule of the relevant water sharing plan.
- A cumulative maximum of 2 m decline in water level or pore pressure at any water supply bore (as per REMM SG02).

If more than 10 % cumulative variation in the water table, allowing for typical climatic 'post-water sharing plan' variations, 40 metres from any:

- high priority groundwater dependent ecosystem; or
- high priority culturally significant site

  listed in the schedule of the relevant water sharing plan.

If registered groundwater users are impacted by a material decline in groundwater supply levels (i.e., >2m), quality or quantity, make good provisions will be provided to those groundwater users in accordance with the GWMP.

The predicted groundwater drawdowns are used for settlement analysis and predicted effects assessment. Where found to be governing, particularly near sensitive structures with thick alluvium, the groundwater monitoring plan will be updated and incorporated into the report in future revisions, as part of the adaptive management approach to monitoring.

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

7.7 Groundwater Quality Monitoring

7.7.1 Monitoring Program

Groundwater quality monitoring will be undertaken as an initial event prior to construction and on a quarterly (3 month) basis thereafter at the monitoring bores identified in Table 6.

The quarterly sampling programme will retain all parameters listed in Table 8 as part of the ongoing construction groundwater quality monitoring strategy, to provide ongoing monitoring of groundwater conditions and assess any potential changes in groundwater quality which may have occurred as a result of the construction activities or other local events.

Sampling frequencies for water quality parameters will be increased to monthly sampling in the event that laboratory testing results identify any exceedances of the trigger values from the initial baseline monitoring event or during quarterly sampling rounds. The NEPM (2013) GILs and ANZG (2018) DGVs for 95% and 99% species protection have been adopted as trigger values on which monthly sampling requirements will be based. It is noted that NEPM (2013) GILs are based on Australian water quality guidelines as presented at Attachment 6 and as such are not repeated.

Water quality monitoring at the nominated groundwater bores is intended to identify where contaminants are potentially migrating to the station boxes as a result of drawdown and to inform whether contamination has occurred as a result of site activities or local events. Both factors will inform to inform potential risks to compliance with construction water treatment plants and risks to sensitive environmental or human health receivers.

Monthly sampling for all parameters exceeding the adopted NEPM / ANZG 2018 trigger criteria will continue unless parameters are measured at concentrations consistently below the trigger values for a period of at least 3 months.

All samples will be submitted for testing at the appropriate limit of reporting (LoR) for comparison against the relevant NEPM / ANZG 2018 trigger criteria.

Table 8: Proposed quarterly groundwater sampling regime

Initial Baseline and Quarterly Groundwater Sampling Suite	Rationale
General water quality parameters: electrical conductivity, total dissolved solids, alkalinity, hardness.	Assessment of groundwater physico-chemical parameters will be conducted to assess impacts to the beneficial use of the aquifer. Selection of this analytical suite will improve on-going understanding of groundwater conditions and complement the other analytical suites selected.
Major Ions: calcium, magnesium, potassium, bicarbonate, sodium, chloride, sulfate.	ASS have been identified in select sites within the Project area. On-going monitoring of this analytical suite will allow for assessment of groundwater quality with respect to the potential reactivation of ASS.
Heavy metals: Al, As III, As V, Cd, Cr III, Cr VI, Cu, Hg, Pb, Ni, Zn, Mn, Fe.	Concentrations of dissolved metals have been reported in groundwater in excess of the ANZG, 2018 (total metals) guidelines for both fresh and marine water quality. On-going monitoring of these selected metals will be conducted to identify and assess vertical and/or horizontal migration as a result of dewatering and construction activities.

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Initial Baseline and Quarterly Groundwater Sampling Suite	Rationale
Nutrients: total nitrogen, total oxidized nitrogen, nitrate, nitrite, total ammonia, ammonium, total phosphorous, total reactive phosphorous, total Kjeldahl nitrogen.	Concentrations of nutrients have been reported in groundwater in excess of the ANZG, 2018. Ongoing monitoring of these COPC will be conducted to identify and assess vertical and/or horizontal migration as a result of dewatering activities.
Total petroleum hydrocarbons	Ongoing monitoring of these COPC will be conducted to identify and assess vertical and/or horizontal migration as a result of dewatering activities.
Aromatic hydrocarbons: benzene, toluene, ethylbenzene, xylene, naphthalene	
Polycyclic aromatic hydrocarbons (list of compounds per method USEPA 8270)	
Pesticides including organochlorine pesticides / organophosphorus pesticides (list of compounds per methods for OCP US EPA8081/8270 and OPP USEPA 8082/8270)	
Herbicides (list of compounds for phenoxy acid herbicides per USEPA 8151A and triazine herbicides USEPA 8270)	
Volatile organic compounds / semi-volatile organic compounds (list of compounds for VOCs per method USEPA 8260B and SVOCs per USEPA 8270)	
Per- and poly-fluoroalkyl substances (PFAS) (list of compounds per USEPA 527, ASTM X7968)	

Dedicated dataloggers with specifications allowing the measurement of pressure, temperature, and electrical conductivity (EC) will be installed in sentinel monitoring bores identified in Table 6. These monitoring bores have been selected due to their relative positioning between estuarine sections of local waterways and the radius of drawdown for excavations.

Further adjustments to salinity monitoring bores may be necessary as part of an adaptive management strategy for the project. Electrical conductivity (EC) results will be assessed to detect changes in water quality that may indicate the intrusion of saline water towards the station boxes and shafts.

It is noted that recent assessments undertaken by GLC as part of the Hydrogeological Interpretive Report have not identified any risk of saline intrusion as a result of the project activities.

7.7.2 Monitoring Methodology

Groundwater quality sampling will be carried out by suitably qualified personnel, in accordance with AS/NZS 5667.11:1998 (Water quality–Sampling), and will follow these general principles:

- Sampling equipment should not change the water quality in any way; particular effort should be made to avoid cross contamination between bores and sampling equipment
- Sufficient water should be removed to ensure the sample is newly derived from the aquifer itself rather than from water that is potentially stagnant in the bore
- Methods of collection, storage bottles and transportation to the laboratory should suit the type of analysis required

Groundwater sampling may produce a potentially large volume of purged water. This water will be captured in containers and treated in the constructions water treatment plant or disposed of in accordance with the Waste Management Plan.

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

The groundwater monitoring program will adopt a low-flow sampling methodology for the collection of all groundwater samples at all sites identified in Section 7.5. The low-flow sampling methodology employs specifically designed sample pumps. ASTM D6771-21 provides the standard practice for low-flow purging and sampling used for groundwater monitoring.

A Standard Operating Procedure (SOP) that is compliant with AS/NZS 5667.11:1998 shall be developed and adhered to for all low-flow sampling operations. The SOP will include requirement for positioning the intake of the low-flow tubing at the depth of the aquifer that is contributing formation water to the standpipe piezometer.

7.7.2.1 Sample Collection

In general, groundwater sampling will align with the following procedure:

- All monitoring bores will be gauged to obtain SWL and total depth of each well (prior to purging) using a cleaned / decontaminated electric water level probe. This will provide information regarding purge volumes required for ensuring the collection of representative groundwater samples when using the low-flow method.
- A low-flow Standard operating procedure compliant with AS/NZ 5667.11.1998 will be developed for the project to ensure that samples are taken consistently in the same way and at the same depth.
- Field measurements for physical groundwater parameters will be taken using a calibrated water quality meter fitted with a multi-sensor probe to collect field quality parameters (pH, EC, dissolved oxygen (DO), temperature, and redox potential (Eh)) during purging.
- Groundwater samples will be collected after confirmation of aquifer parameter stabilisation (refer Table 9).
- A physical description of the sample, including colour, turbidity (visual), odour, and presence of film, sheen or foam will be recorded on standardised field sheets.
- Groundwater samples will be stored in clean laboratory prepared bottles containing the appropriate preservatives.
- Samples for dissolved metal analysis will be filtered through a 0.45 µm in-line filter and stored in laboratory prepared bottles containing nitric acid preservative.
- All groundwater samples will be labelled accordingly and placed immediately into an esky containing ice.
- Chain of custody (CoC) documentation will be completed at the time of sampling and will accompany the samples to the laboratory.
- One rinsate blank will be collected from the water level probe and the pump (or other sampling equipment) during each day of sampling. Rinsate samples will be analysed for the same analytes as primary samples to ensure cross-contamination has not occurred.
- Samples will be submitted to a National Association of Testing Authorities (NATA)- accredited laboratory for analysis.

Some physicochemical parameters cannot be reliably measured in the laboratory as their characteristics change over a very short time scale. Parameters that should thus be measured in the field include pH, electrical conductivity (EC), temperature, dissolved oxygen (DO), redox potential (Eh) and alkalinity.

Other observations including odour, colour and indications of gross contamination will also be recorded on field logging sheets.

Field parameters should be measured in a flow cell using a multiparameter probe (water quality metre) to avoid contact between the groundwater and the atmosphere. Readings of field parameters should be recorded at a minimum of every three (3) minutes (where sampling rate is

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

100 ml/minute or more) or five minutes (if flow rate is less than 100 ml/minute) until parameters have stabilised.

Once the SWL stabilises wait for three successive stable parameter readings (at 3-to-5-minute interval between each successive reading) before sampling. Criteria for the acceptance of stable water quality parameters are summarised in Table 9.

Table 9: Example Criteria Defining Stabilisation of Water Quality Parameters

Field Parameter	Control limit
Dissolved Oxygen	±10% of reading or ±0.2mg/L
Temperature	±0.2°C
pH	±0.2 pH units
Electrical Conductivity	±3% of reading
Redox Potential	±20 mV

The pump tubing should be disconnected from the flow-through-cell, following stabilisation and prior to sample collection, so that the samples are collected from the pump's discharge tubing without contact with the flow-through-cell. Air pressure on the gas cylinder can be turned down so samples can be filled with minimal turbulence (if applicable).

A Standard Operating Procedure (SOP) that is compliant with AS/NZS 5667.11:1998 shall be developed and adhered to for all low flow sampling operations, including the collection of field parameters.

7.7.2.2 Sample Filtration and Preservation

Sample Filtration and Preservative Requirements

The proposed sample filtration and preservative requirements for the laboratory testing parameters are presented in Table 10. Filtration should be carried out in the field for all samples unless otherwise specified so that results are representative of dissolved concentrations. All samples should be maintained at approximately 4 degrees C as part of the preservation protocols before being transferred to the laboratory.

Table 10: Sample Filtration and Preservative Requirements

Analyte Suite	Field Filtration	Chemical Preservative
General Water Quality	Not Required	Not required
Nutrients	0.45µm	Sulfuric acid (H_2SO_4)
Dissolved Metals	0.45µm	Not required
Dissolved Iron Species	0.45µm	Hydrochloric acid (HCl)
Dissolved Arsenic Species	0.45µm	Hydrochloric acid (HCl)
Dissolved Hexavalent Chromium	0.45µm	Sodium hydroxide
Petroleum Hydrocarbons	Not Required	Not required
Aromatic hydrocarbons (BTEXN)	Not Required	Not required
Polycyclic aromatic hydrocarbons	Not Required	Not required
Volatile organic compounds	Not Required	Sulfuric acid
Semi-volatile organic compounds	Not Required	Not required
Organochlorine pesticides	Not Required	Not required
Organophosphorus pesticides	Not Required	Not required
PFAS	Not Required	Not required

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

7.7.2.3 Salinity Measurement

As described in Section 7.6 dedicated water level data loggers, which can measure both depth-to-water and EC, will be installed in select standpipe piezometers between the project and the closest saline water bodies.

EC results will be assessed to detect changes in water quality that may indicate the intrusion of saline water towards the project. Where groundwater quality monitoring is also proposed, the field EC data will be assessed in conjunction with the laboratory data. Performance criteria for assessment of saline intrusion is included in Section 7.7.4.

7.7.2.4 Quality Assurance and Control Samples

The following quality assurance and control samples are proposed for the monitoring program. It is noted that per the PFAS NEMP (HEPA, 2020), where PFAS samples are collected, the frequency of analysis for QA/QC samples should be increased from what is defined in ASC NEPM (NEPC, 2013). This has been considered below.

7.7.2.4.1 Rinsate Blanks

Rinsate blanks are used to estimate the amount of contamination introduced during the re-use of sampling equipment. Rinsate blank samples are obtained by pouring laboratory supplied deionised water over decontaminated sampling equipment (e.g., groundwater interface probe) and collecting the water in laboratory supplied bottles. Rinsate blank sample should be included at a rate of one per day of sampling or wherever uncertainty may arise regarding the potential for contamination. Where PFAS is proposed for analysis, rinsate blanks should be collected at a rate of at least for every ten primary samples (10%).

7.7.2.4.2 Intra-Laboratory Duplicates

Intra-laboratory (blind) duplicate samples used to identify variation in the analyte concentration between samples from the same sampling point. Intra-laboratory duplicates should be analysed at a rate of one per ten primary samples (10%).

7.7.2.4.3 Inter-Laboratory Duplicates (Triplicates)

Inter-laboratory (split) duplicate samples provide an indication of the repeatability of the results between laboratories. Inter-laboratory duplicates should be analysed at a rate of one per ten primary samples (10%).

7.7.2.4.4 Trip Blanks / Trip Spikes

A sample of laboratory supplied deionised water should accompany the primary samples over the course of the fieldworks and should be submitted to the laboratory for analysis. Trip blanks provide an indication of contamination introduced during sample transport and handling, and also ensure that the testing laboratory is not reporting “false positives”. Trip blanks should not indicate concentrations of the contaminants of potential concern (CoPC) above the laboratory detection limits. A trip blank sample should be included at a rate of one per batch.

Similarly, a laboratory provided trip spike should be submitted at a rate of one per batch. The trip spike will provide an indication of whether contaminant loss was possible during sample transport and handling. The results be used to identify the potential for false negatives.

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

7.7.2.5 Sampling Records

Results for each quality sample will be recorded on appropriate field sheets (hard copy or digital) using unique sampling identification nomenclature consisting of the sample identification, parent sample identification, sample date, location, and sampler details.

Details of all quality samples will be recorded on an internal database.

7.7.2.6 Decontamination

Equipment will need to be cleaned periodically and between sampling locations to prevent a build-up of dirt and cross-contamination.

The following methodology will be followed:

- Rinse the equipment in tap water
- Clean with Decon 90 (a phosphate free detergent), or Liquinox (or similar) where PFAS is analysed for
- Rinse with tap water
- Thorough rinse with laboratory supplied de-ionised water
- Allow to dry away from dust and direct sunlight

De-ionised and tap water will be available for washing equipment in the field, if required.

7.7.2.7 Laboratory Analysis

Laboratory analysis procedures for groundwater samples are discussed in Section 10.

7.7.3 Data Analysis

The groundwater monitoring program will be used to assess any changes in groundwater quality over the course of the construction period. The key performance criteria for groundwater quality are discussed in the following section. Monitoring frequency will be increased from quarterly to monthly for any parameter identified as having a significant / reportable change based on the performance criteria.

Data analysis procedures for groundwater quality will involve collating and assessing results from the following sources:

- Stabilised readings from field parameter measurements
- Laboratory testing results
- Transducers fitted with salinity sensors

Field and laboratory data will be collated into a master database that will be updated with new information on completion of each monitoring event to include raw data and statistical summaries. Raw data results and statistical summary data collated in spreadsheets will be compared against the performance criteria for groundwater quality and salinity to assess whether further investigations or management responses are required.

7.7.4 Performance Criteria

Trigger levels comprising NEPM Groundwater Investigation Levels (GILs) and ANZECC (2000) / ANZG (2018) 95% and 99% species protection criteria have been adopted as the indicator values

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

of the performance criteria for groundwater quality (refer Attachment 6). Any changes in groundwater quality will be measured relative to these performance criteria.

A significant / reportable change in groundwater quality will be defined as:

- A parameter exceeding trigger values, which has been recorded during baseline monitoring as non-detect or below trigger value criteria, or
- A parameter increasing in concentration over a sustained period (i.e., for at least 2 months) to more than 2x its baseline value in any monitoring bore, where the baseline value exceeds the NEPM GIL trigger value
- A parameter increasing in concentration over a sustained period (i.e., for at least 2 months) to more than 2x its baseline value in monitoring bores adjacent to excavations, where the baseline value exceeds the ANZECC (2000) or ANZG (2018) trigger value.

Results from sampling events and continuous loggers fitted with salinity sensors will be used to assess against performance criteria for potential saline intrusion. A significant or reportable change in the salinity of groundwater will be defined as:

- An increase of salinity (as EC) to more than 2x the recorded 95th percentile value prior to construction

If trigger values for groundwater quality and salinity are exceeded, then further investigation and management responses will be implemented as necessary. Where the 2x multiplier is exceeded, this will trigger a further targeted sampling event. Where the further targeted sampling event indicates exceedance of the 2x multiplier again, or the concentration increases further, an investigation will be triggered.

A management response would be initiated for groundwater quality if any of the following occurs:

- The contaminant concentrations present a significant immediate risk to human health or the environment requiring immediate response, or
- The contaminants have been introduced to groundwater directly as a result of construction activities (e.g., on site leaks and spills), or
- Contaminant migration is occurring resulting in degradation of groundwater quality within and around sensitive receptors (including GDEs and groundwater supply bores)

A management response would be initiated for groundwater salinity if any of the following occurs:

- The EC or water quality data continuously exceeds the trigger value over a period of three monitoring periods and depicts a rising trend, or
- The EC or water quality data exceeds the trigger value at any time by more than 3x the recorded 95th percentile value prior to construction

If triggers are exceeded a review will be initiated to determine the significance of the exceedance(s) and possible causes. The review will assess the historical and surrounding monitoring bore data, and modelling predictions.

It should be noted that saline intrusion has not been identified as a significant risk factor for groundwater quality in the context of the project activities. Despite this performance criteria to assess potential for saline intrusion have been adopted as part of a best management practice approach. Assessment of the activation of Acid Sulfate Soils (ASS) will involve plotting major anion and cation compositions and pH on a Schoeller diagram to identify deviations in the concentration of base cations before (i.e., baseline conditions) and during dewatering. Total alkalinity decreasing below 30 mg/l as CaCO3 is considered to represent a reduction in the acid buffering capacity of

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

the soil. If pH reduces by a unit as compared to the baseline pH range prior to excavation, this indicates that ASS have been activated.

The estimated groundwater aggressivity (tendency for corrosion) pre- and during construction will be assessed following the Langlier Saturation Index (LSI). The following definitions for interpretation of LSI will be used to determine groundwater aggressivity and implementation of mitigation measures:

- LSI <0.5 (potential for scaling)
- Log Cl/CO3 >2 (potentially corrosive)
- pH (for bedrock) = 4.5 – 5.5 (moderately aggressive)
- pH (for bedrock) = 5.5 – 6.0 (mildly aggressive)
- SO4 (for bedrock) = 0 – 1,000 mg/l (mildly aggressive)
- SO4 (for bedrock) = 1,000 – 3,000 mg/l (moderately aggressive)
- Cl (for bedrock) = 0 – 3,000 mg/l (non-aggressive)
- Cl (for bedrock) = 3,000 – 6,000 mg/l (mildly aggressive)

In addition to ecosystems risk due to discharge of groundwater, volatile organic compounds (VOCs) in groundwater can also present a potential vapour intrusion risk in an urban environment. Assessment of the existing data identified that there is limited data available for shallow groundwater along much of the alignment. Additional analysis for VOCs along the alignment in existing and proposed groundwater monitoring bores is proposed where data is currently unavailable to provide the baseline conditions.

If VOCs are detected and assessed as a potential risk based on the additional baseline data collected, a risk monitoring framework for vapour intrusion will be adopted and SSTVs developed to identify where existing conditions have been changed by project activities, and an adverse change in risk may have occurred.

No existing potential vapour intrusion risks have been identified based on baseline data previously collected, and therefore no SSTVs for VOCs have been developed.

Any SSTVs developed will include three response levels:

- Alert – increase in monitoring frequency
- Action – adverse trend due to construction activity, with action and/or additional assessment of risk required
- Not to exceed level

Should unexpected groundwater conditions be encountered, or groundwater monitoring indicate groundwater quality alteration due to contaminant migration then the following corrective actions / measures could be evaluated and implemented as appropriate:

- Reduction in the open area being dewatered, to reduce the rate of groundwater ingress, groundwater gradients (towards the tunnel(s)) and contaminant migration potential
- Pump and treat from the vertical groundwater bores, to allow for the capture of possible contaminants migrating in groundwater prior to entering Project work areas.
- Groundwater will then be treated, to meet discharge criteria, before disposal
- Preparation of a Remedial Management Plan
- If activation of ASS occurs the immediate response should be to investigate further to confirm change in conditions and assess the need to dose with lime or to determine if action needs to be taken (e.g., commence groundwater recharge, alter dewatering practice etc / continue monitoring)

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

- Make good provisions for groundwater users will be provided in the event of a material decline in water supply levels, quality or quantity from registered existing bores associated with groundwater changes from either construction and/or ongoing operational dewatering caused by the Project

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

8 EXCAVATIONS / TUNNEL INFLOWS

8.1 Excavations

Station boxes are expected to be open for extended periods of time with variable inflow rates dependent on hydrogeological conditions and inflow control measures.

During construction groundwater inflows to excavations will be collected in sumps / collection points and transferred via pumping to the construction water treatment plants located at:

- Rosehill
- Clyde
- Parramatta
- Westmead

Volume 4B (Particular Specification) Sydney Metro West Western Tunnelling Package Schedule C1 (Version 6 Sydney Metro, 2022b) provides the design criteria for the assessment on inflow and drawdown. The inflow criteria are discussed further in Section 8.2.4.

The specification (Sydney Metro 2022a) Section 4.2.2 (n) requires the provision of two sumps for groundwater and stormwater collection at the base of each station excavation. One sump is expected to be required at each end of the station and each of the sumps will collect both groundwater and surface water.

At Clyde MSF groundwater is expected to be intersected by the retention basin. While inflows are expected to be low due to the presence of predominantly low permeability clays they will need to be managed accordingly. Given the location of the retention basin in an industrial area there is likely to be groundwater contamination management issues associated with the groundwater seepage. Estimation of inflows will support the design and construction planning and will be completed for following stages of works.

Groundwater will also be intersected during the construction of the water conveyance structures on A'Becketts Creek and Duck Creek.

8.1.1 Monitoring Program

Groundwater inflow monitoring will be undertaken at all excavations for station boxes.

Observations of inflows during construction will be undertaken to characterise contributions from surface water and groundwater into the excavations and to meet CoA C17 (e) and (j). Assessment of relative inputs from rainfall/ runoff and groundwater would be supported by the installation of a site-specific rain gauge.

8.1.2 Monitoring Methodology

The inflow volume will be determined through the use of flow meters on the intake into each of the construction water treatment plants when they are established. Flow meters can also be installed on individual pumps within excavations where more focused inflow data is required.

Assessment of relative inputs from surface water and groundwater would be supported by the installation of a site-specific rain gauge.

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

8.1.3 Data Analysis

The groundwater inflow monitoring register will be compiled quarterly to account for groundwater take from the Sydney Basin Central Groundwater Source in accordance with MCoA C17(j). Results of this accounting will be included in the six-monthly monitoring reports.

8.1.4 Performance Criteria

The tunnelling contractor must comply with the following for the drainage of stations, junctions, shafts, and non-tunnel structures / assets:

- Station caverns– undrained
- Station excavations – drained
- Shaft excavations – drained
- Clyde Junction – undrained
- Portal structure – drained
- Clyde Dive Structure – drained
- Parramatta Station Excavation above the soil retention system toe level – undrained
- Parramatta Station Excavation below the soil retention system toe level – drained
- Rosehill Excavation – drained
- Rosehill Structure – undrained structure with drained base

The groundwater seepage within each station excavation must not exceed:

- 15,000 Litres in any 24-hour period, measured over any square with an area of 10 m_2, at any and all locations within the sides and bases of the excavations; and
- The volumes identified below in any 24-hour period:
    - Westmead Station Excavation – 100,000 litres
    - Parramatta Station Excavation – 134,000 litres
    - Further, the groundwater seepage through the drained base slab of the Rosehill Structure must not exceed 45,000 litres in any 24-hour period.

There is also a requirement to ensure groundwater seepage through the Clyde Dive structure does not exceed 5.0 ml per hour per m^2 of wall and base surfaces. As the Clyde Dive will be permanently drained and the permanent structure will be handed over to Sydney Metro by GLC, this criterion relates to the design of the permanent structure which is outside the scope of this investigation. The predicted total inflows for this assessment does, inform the design of the permanent infrastructure for this specification.

The above drainage criteria relates to the condition of the infrastructure at ‘handover’ to Sydney Metro for subsequent construction on internal station features. Handover is expected to approximate a period of two years (at Westmead and Parramatta) after commencement of the construction works as indicated in the final tender program (dated 16 Feb 2022).

Where inflows are found to exceed the above inflow criteria, targeted grouting and/or alternative management measures may be undertaken to reduce inflow rates to excavations and achieve the required inflow criteria. A reduction in inflow rates over time is expected due to the gradual loss of storage in connected surface aquifers over the course of the construction period.

In the event of adverse inflows being encountered, management measures may be required to minimise long term groundwater inflows. The Rosehill Services Facility shaft structure is to be constructed with its perimeter walls socketed into the sandstone. As such there will be limited groundwater ingress through the embedded walls below the D-Wall and through the drained base

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

of the excavation. One sump is provided for this excavation, with long term discharge flows expected to be monitored with flow meters.

The specification (Sydney Metro 2022a) Section 4.2.2 (n) requires the provision of two sumps for groundwater and stormwater collection at the base of each Station excavation, in contrast to other ancillary structures. One sump is expected to be required at each end of the station and each of the sumps will collect both groundwater and surface water. Where suitable pumps will be fitted with flowmeters to record the flow rates from station excavations to construction water treatment plants to ensure design criteria on inflows are achieved.

The construction process adopted at Clyde MSF for water conveyance structures will provide the primary means of reducing inflows. After diversion of surface water flows from the excavation, options that could be considered to manage groundwater seepage include:

- Wet construction techniques.
- Methods that reduce inflows such as impermeable/low permeability walls (such as piles) or the use of small excavation areas.
- Dewatering systems such as effective sump/well abstractions systems within the excavation or spear dewatering systems outside the perimeter of the excavation.

Given the location of the retention basin in an industrial area there is likely to be groundwater contamination management issues associated with the groundwater seepage.

8.2 Tunnels

TBM tunnelling is proposed from Rosehill to the Sydney Olympic Park Station initially. The TBMs will then be relocated to Rosehill and tunnelling to proceed westwards to Westmead.

As a result of the tunnelling methodology (double shield TBM), generally the internal tunnel wall will only be exposed for a very short time period (i.e., less than one hour) before being enclosed (i.e., sealed to groundwater inflow) behind pre-cast concrete units.

During tunnel construction groundwater inflows will be collected in sumps / collection points at regular intervals within the tunnel. Collected water will be transferred via pumping or gravity drains to the construction water treatment plant located at Rosehill.

The estimated inflows at the tunnel boring machine face are presented on the hydrogeological long section in Attachment 1 of the revised Hydrogeological Interpretive Report. The inflows rely on bulk formation hydraulic conductivities. Localised high hydraulic conductivity rock features may be encountered that result in higher incidental inflow.

Tunnelling towards Parramatta is more likely to experience conditions of delamination, opening of fractures and therefore a greater potential for higher initial inflows.

Mean inflow rates approximate 9 m^3/day for open (unlined) 17 m assumed section of tunnel prior to placement of the permanent lining, as the TBM progresses. The highest and lowest rates estimated are 50 m^3/day and 2 m^3/day respectively.

8.2.1 Monitoring Program

Groundwater inflow monitoring is required in tunnels during progression of the tunnelling sections. The inflow monitoring program will continue throughout the construction period with cumulative flow records from the main tunnel sump being used to provide information on groundwater inflow conditions for overall tunnel progression.

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

8.2.2 Monitoring Methodology

The inflow volume will be determined through the use of flow meters on the intake into each of the construction water treatment plants when they are established. Flow meters can also be installed on individual pumps throughout the tunnel where more focused inflow data is required.

8.2.3 Data Analysis

The groundwater inflow monitoring register will be compiled quarterly to account for groundwater take from the Sydney Basin Central Groundwater Source in accordance with MCoA C17(j). Results of this accounting will be included in the six-monthly monitoring reports.

8.2.4 Performance Criteria

Volume 4B (Particular Specification) Sydney Metro West Western Tunnelling Package Schedule C1 (Version 6 Sydney Metro, 2022b) provides the design criteria for the assessment on inflow and drawdown.

The potential for groundwater drawdown impacts is relatively low compared to other tunnelling methodologies (i.e., primary use of roadheaders), noting that roadheaders are being used for caverns, spur tunnels and stub tunnels. Due to the short timeframe between the tunnel excavation and sealing, the inflow rates and resulting drawdown is not anticipated to be a significant issue for the WTP.

There are criteria specified for watertightness, which relate to the seepage of groundwater through finished internal walls of infrastructure that is undrained at handover. The tunnelling contractor must comply with the following for the drainage of tunnel assets:

- Running tunnels – undrained
- Cross-passages – undrained
- Cross-passages with sump – undrained
- Nozzle enlargements – undrained
- Cross-over caverns – undrained

As the spur tunnel access shaft was not detailed in the particular specification, it has been assumed to be drained up until lining of the spur tunnel at which time it will be backfilled such that it will be undrained.

The above drainage criteria relates to the condition of the infrastructure at ‘handover’ to Sydney Metro for subsequent construction on internal station features. Handover is expected to approximate a period of two years (at Westmead and Parramatta) after commencement of the construction works as indicated in the final tender program (dated 16 Feb 2022). The handover timeframes differ slightly for Clyde (2.6 years) and are detailed in Section 7.4.4 of the technical memorandum (SMWSTWTP-GLO-TJ550-GE-MEM-001101 Rev A.1).

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

9 WATER TREATMENT PLANTS

9.1 Water Treatment Plant Monitoring

9.1.1 Monitoring Methodology

9.1.1.1 In-Line Monitoring

The construction water treatment plant will be designed to include in-line monitoring sensors to monitor pH and turbidity prior to every discharge. The in-line sensors will be set-up to stop discharge if either parameter is out of range, and an alert will be sent to the water treatment plant operator. Where either parameter is out of range, water will be re-treated, and discharge won't recommence until the water is within range for these parameters.

9.1.1.2 Sample Collection

Grab samples will be collected manually from the water treatment plant locations once a month to verify that water from the treatment plants remain below the trigger values for parameters. The volume of sample to be collected will need to be sufficient for the required physio-chemical (field) parameter analysis set by the EPL using a multi-probe water quality meter(s).

9.1.1.3 Field Measurements

Field physico-chemical parameters including temperature, EC, pH, DO, and turbidity will be measured at each sampling location using a fully calibrated multi-probe hand-held water quality meter at the same time that lab samples are taken. Other observations including odour and colour will also be recorded.

The multi-probe field water quality meter(s) will be calibrated against known standards (that are within the use-by date), as supplied by the manufacturer, at the start of each sampling round of water quality sampling. Calibration records will be maintained in accordance with the appropriate standard.

9.1.1.4 Recording of Field Results

Results for each monitoring location will be recorded on appropriate field sheets (hard copy or digital) using unique sampling identification nomenclature consisting of the sample identification, sample date, location, and sampler details.

9.1.2 Data Analysis

Monthly water quality samples from the water treatment plants will be analysed, along with an overview of corrective actions. Analytes to be monitored will be determined through the Discharge Impact Assessment (water pollution impact assessment) process for the EPL with reference to identified CoPC (and as a minimum as per those listed in Table 3) and associated ANZECC/ARMCANZ (2000), ANZG (2018) and draft ANZG (2020) default guidelines for 95% species protection and 99% species protection (refer Attachment 6). If water quality monitoring from water treatment plants identifies a potential compliance issue with the relevant performance criteria, the following actions will be taken:

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

- Higher frequency (daily) monitoring will be undertaken to verify the compliance issue is persistent and not a result of a transient event or reporting error
- If compliance issues persist, then
    - A pollution incident will be reported to NSW EPA
    - Appropriate management actions will be taken, including but not limited to discharge to sewer under a trade waste agreement, and/or transport of effluent by tanker to an offsite licenced liquid waste disposal facility.

Field and laboratory data will be collated into a master database that will be updated with new information on completion of each monitoring event to include raw data and statistical summaries. Raw data results and statistical summary data collated in spreadsheets will be compared against the performance criteria for water treatment plants (EPL and ANZG / ANZECC criteria) to assess whether further investigations or management responses are required.

All data from construction water treatment plants will be reported in the six-monthly water monitoring report.

9.1.3 Performance Criteria

Water quality parameters identified in the Water Quality Objectives would be adopted for groundwater as it is proposed that intercepted groundwater be discharged into local waterways after treatment. Details around the surface water quality monitoring are included in the SWQMP.

Water treatment plants will be sized to meet predicted inflows to ensure groundwater is not required to be stored in excavations or the tunnels, which would otherwise affect the progress of the excavation. Contingency within the water treatment plants will be built in, where practical and feasible, otherwise additional measures such as water tanks may be used to store water where additional contingency is required.

In line with CoA D118 and REMM SSWQ5, Groundwater discharges must be compliant with the ANZECC/ARMCANZ (2000), ANZG (2018) and draft ANZG (2020) default guidelines for 95% species protection and 99% species protection (for toxicants that bioaccumulate, with the exception of PFAS), unless other discharge criteria are agreed with relevant authorities as part of the Environment Protection Licence for the WTP. Where this is not achievable, groundwater will be removed from site as liquid waste in accordance with NSW EPA's Waste Classification Guidelines.

9.1.4 Water Treatment Plant Commissioning

During commissioning of each of the water treatment plants, a minimum of two rounds of commissioning sampling will be undertaken to confirm their efficacy at removing contaminants. All of the parameters listed in Table 8 will be tested during this commissioning phase. The main objectives of the commissioning testing will be to determine:

- If the water treatment plants perform to meet the proposed discharge criteria of 95% species protection for toxicants and 99% species protection for bioaccumulating toxicants and what (if any) design or operational modifications may be required in order for each treatment plant to meet the required specifications
- Whether an environmental protection licence with alternative pollutant concentration limits is required in accordance with practical limitations of the construction water treatment plant and Section 45 of the POEO Act.
- The relationship between TSS and turbidity to allow turbidity to be measured as a proxy for TSS — this will require more samples than for the other parameters and may continue into the post-commissioning phase

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

The water treatment plant will not be deemed “commissioned” until two subsequent rounds of testing confirm compliance with the criteria and the water treatment plant is operating at the correct performance level.

9.1.5 Water Treatment Plant Post Commissioning

In addition to the commissioning sampling, the water treatment plant discharge will be sampled for the parameters listed in Table 8. Sampling will be undertaken in accordance with the EPL requirements. The results will be reviewed by trained personnel to ensure that the discharged water meets discharge criteria.

Monthly sampling of the design performance criteria will be undertaken to ensure that each of the water treatment plants continue to meet design specifications.

Where in-line sensors or monitoring identify treatment plant performance drift outside of the required criteria, the treatment plant may be shut down (if necessary) and/or measures will be implemented to return the plant performance back into the required range. In these instances, water will be discharged to trade waste (where permitted), recycled or disposed offsite at an appropriate licenced liquid waste facility. Once measures are implemented to return the treatment plant performance back to the required range, the treatment plant will be re-commissioned as per the steps outlined in Section 9.1.5 before the water treatment plant is considered to be operational again.

If a water treatment plant is shutdown due to a result that is out of range, this will be treated as an incident and managed in accordance with the incident management procedure outlined in the CEMP. Once the incident investigation has been completed, the water treatment plant will be recommissioned in accordance with the process described in Section 9.1.5.

Water quality results and an overview of corrective actions will be reported in the six-monthly monitoring report.

9.1.6 Water Treatment Plant Discharge Volumes

The volume of water discharged from the construction water treatment plants will be recorded using flow metres at the discharge point.

The volume of water discharged will be recorded daily and included in the water discharge records. The volume of water discharged will also be compared to the Water Reuse Strategy (water balance study) that will be developed in accordance with CoA D79 (as detailed in the Soil and Water Management Plan). The Water Balance Study will be updated regularly during construction, where real values differ greatly to the predicted values.

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

10 LABORATORY TESTING – WATER QUALITY

10.1 Quality Assurance / Quality Control

The ASC NEPM (NEPC 2013) and PFAS NEMP (HEPA, 2020) outline the approaches to be adopted for QC verification of field procedures.

Field results will be checked for accuracy before leaving the site and errors or discrepancies will be cross-checked and further investigation initiated if required.

10.2 Laboratory Selection and Water Quality Testing Parameters

10.2.1 Laboratory Selection

The primary and secondary laboratories used for this project will be NATA-accredited for the analyses being undertaken.

Laboratory Testing Parameters

All water quality samples will be scheduled for analysis of the parameters at the nominated NATA accredited testing laboratory, at the specified testing frequency. Sampling frequencies for quarterly parameters will be increased to monthly sampling in the event that laboratory testing results identify any exceedances of the adopted trigger values. Increased sampling frequencies will only apply to boreholes where the criteria exceedances are recorded.

Quality assurance / quality control samples will be scheduled for testing of all parameters except for the general water quality suite and major ions.

10.2.2 Laboratory Quality Assurance / Quality Control

Laboratory methods to be used by the primary and secondary laboratories are to be suitable for environmental contaminant analysis and are based on established internationally recognised procedures. The laboratories will be NATA accredited for the proposed analyses.

Laboratory Data Quality Indicators

Laboratory duplicate samples

Laboratory duplicate sample analysis is the analysis of a laboratory derived duplicate sample from the process batch, at a rate equivalent to one in 10 samples per analytical batch, or one sample per batch if less than 10 samples are analysed in a batch. A laboratory duplicate provides data on the analytical precision and reproducibility of the analytical results.

The permitted ranges for the RPD of laboratory duplicates are dependent on the magnitude of the results in comparison to the level of reporting as summarised below:

- Result is < 10 x limit of reporting (LOR): No limits
- Result is 10 - 20 x LOR: 0% - 50%
- Result is > 20 x LOR: 0% - 20%

Method blank samples

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Method or blank sample analysis are the analyses of a sample that is as free as possible of the analyte(s) of interest, but has been prepared the same as the samples under investigation. The analysis is to ascertain if laboratory reagents, glassware and other laboratory consumables contribute to the observed concentration of analytes in the process batch. If below the maximum acceptable method blank (below practical quantification limit), the contribution is subtracted from the gross analytical signal for each analysis before calculating the sample analyte concentration. The method blank should return analyte concentrations as 'not detected'.

Laboratory control samples

Laboratory control spike analysis is the analysis of either a reference material or a control matrix fortified with analytes representative of the analyte class. The purpose of laboratory control spike samples is to monitor method precision and accuracy independent of the sample matrix. Typically, the percentage recovery of the laboratory control spike sample is compared to the dynamic recovery limits based on the statistical analysis of the processed laboratory control spike sample analysis. Recoveries should lie between 70% and 130%.

Matrix spike samples

Matrix spike sample analysis is the analysis of one or more replicate portions of samples from the batch, after fortifying the additional portion(s) with known quantities of the analyte(s) of interest. The percentage recovery of target analyte(s) from matrix spike samples is used to determine the bias of the method in the specific sample matrix. Recoveries should lie between 70% and 130%.

Surrogate spike samples

Surrogate spike samples are samples with known additions of known amounts of compounds, which are similar to the analytes of interests in terms of extractability, recovery through clean-up procedures and response to chromatographic or other measurement. Surrogate compounds may be alkylated or halogenated analogues or structural isomers of analytes of interest. The purpose of surrogate spikes, which are added immediately before the sample extraction step, is to provide a check for every analysis that no gross processing errors have occurred, which could have led to significant analyte loss or faulty calculation. Recoveries should lie between 50% and 150%.

Internal standards

Internal standards are known additions of known amounts of compounds which are not found in real samples, will not interfere with quantification of analytes of interest and may be separately and independently quantified. The purpose of internal standards in instrumental techniques is to provide independent signals, which serve to check the consistency of the analytical step.

10.3 Suitability of Sampling Results

10.3.1 Duplicate RPDs

Blind and split duplicate samples are assessed by calculating the relative percentage difference (RPD) between the primary, blind and split samples.

RPD values are calculated using the following equation.

$$RPD(\%) = \frac{(C_o - C_s)}{\left(\frac{C_o + C_s}{2}\right)} \times 100$$

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Where C_0 = reported concentration from primary sample
C_S = reported concentration from duplicate sample

According to AS 4482.1 – 2005 (Standards Australia, 2005), typical RPDs are expected to range between 30% and 50%; however, this may be higher for concentrations which are close to the laboratory LOR. Considering this, the following RPD limits are acceptable, based on standard industry practice:

- 200% for concentrations within one to ten times the analyte LOR
- 50% for concentrations within ten to 30 times the analyte LOR
- 30% for concentrations greater than 30 times the analyte LOR

10.3.2 Suitably Qualified Staff

Specific targeted training will be developed by the Environmental Manager to ensure that officers involved in water quality monitoring are appropriately trained in sample collection, decontamination procedures, quality assurance sampling, and the correct use of equipment.

Refer to the CEMP for full details on environmental training.

10.3.3 Calibration Records

All instruments will be calibrated in accordance with manufacturers specifications or relevant Australian Standards. Records of monitoring equipment calibration will be maintained by GLC throughout delivery of the Project.

Monitoring and calibration records will be maintained in accordance with the appropriate standard.

10.3.4 Monitoring Program

10.3.4.1 Flow Rates and Water Quality

Inflows to the construction water treatment plants will be derived primarily through groundwater inflows to excavations that extend below the water table, minor inflows into tunnels and cross passages, incidental rainfall over the excavation footprints, process water from tunnelling activities, and any washdown activities within the catchment of the water treatment plants.

Water treatment plants will be located at each station excavation. Rosehill water treatment plant will treat inflows to the Rosehill excavation along with inflows and process water associated with construction of the mainline tunnels.

The anticipated discharge rates from construction water treatment plants will be between 0.1 megalitres per day (ML/d) during early stages of construction and approximately 3 ML/d during later stages of construction in response to increased inflow rates to excavations and tunnels.

The water treatment plants will include multiple processes to treat water quality back to EPL pollutant limits for discharge.

Further details on the inflow volumes to construction water treatment plants is provided in the Discharge Impact Assessment (water pollution impact assessment) for the Project.

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

GLC are proposing to undertake a program of ongoing water quality monitoring at each construction water treatment plant to provide an ongoing assessment of effluent water quality and potential risks to the Water Quality Objectives in receiving waterways.

The proposed monitoring program will provide monitoring data for effluent water quality retained within the storage tank prior to discharge, including:

- Live continuous monitoring of pH and Turbidity
- Field monitoring of electrical conductivity
- Monthly and quarterly sampling and laboratory testing for the parameters listed in Table 8 against the relevant ANZECC/ARMCANZ (2000) / ANZG (2018) 95% and 99% species protection criteria.

All laboratory testing will be undertaken to quantify contaminants at levels commensurate with comparison against the adopted discharge criteria and ANZECC/ARMCANZ (2000) and ANZG (2018) default guideline values. Contaminants for which practical quantification limits (PQL) are greater than default guideline values will be noted within each monitoring report.

The water discharged from the water treatment plants will be recorded on a daily basis using flow meters at the discharge point. The data will be recorded in water discharge records and compared with assumptions made within the Water Balance Study required by the MCoA.

10.4 Calibration, Quality Assurance and Competency

Specific targeted training will be developed by the Environmental Manager to ensure that officers involved in water quality monitoring are appropriately trained. Refer to the CEMP for full details on environmental training.

All instruments will be calibrated in accordance with manufacturers specifications or relevant Australian Standards. Records of monitoring equipment calibration will be maintained by GLC throughout delivery of the Project.

Field results will be checked for accuracy before leaving the site and errors or discrepancies will be cross-checked, and further investigation initiated if required.

Monitoring and calibration records will be maintained in accordance with the appropriate standard.

Quality assurance and control protocols during sampling and recording of physio-chemical (field) parameters will be undertaken monthly (each sampling event) in accordance with ANZECC/ARMCANZ (2000) to ensure the integrity of each dataset.

As part of sampling the following will be undertaken:

- Rinsate blanks (one per sampling event only)
- Blind duplicates (at a rate not less than 20% of total samples)
- Split duplicates (at a rate not less than 20% of total samples)

Samples are to be transported to a NATA-accredited laboratory under documented chain-of custody protocols.

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

11 GROUNDWATER MANAGEMENT STRATEGIES

The majority of groundwater on the project will be collected and treated at project construction water treatment plants and discharged into local waterways. This will be undertaken in consultation with relevant stakeholders where there is potential for interaction with existing groundwater management programs.

Where this is not possible, groundwater will also be reused on site or disposed of as liquid waste in line with the waste classification guidelines.

If groundwater is proposed to be reused on site, the water will be tested to ensure the water is suitable for reuse and does not result in a human health or environmental risk from any contaminants of concern.

A full discussion on groundwater management strategies is provided in the project Groundwater Management Plan. The performance criteria for beneficial reuse of groundwater are discussed in the SWMP.

If groundwater is proposed to be reused on site, the water will be tested to ensure the water is suitable for reuse and does not result in a human health or environmental risk from any contaminants of concern.

The performance criteria for beneficial reuse of groundwater are discussed in the SWMP.

Groundwater reinjection is not currently being considered as a groundwater disposal option or management strategy.

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

12 COMPLIANCE MANAGEMENT

12.1 Roles and Responsibility

The GLC Project Team's organisational structure and overall roles and responsibilities are outlined in Section 7 of the WTP CEMP. Specific responsibilities for the implementation of environmental controls relevant to groundwater are detailed in Table 11.

Table 11: Responsibility Matrix

Role	Authority and Responsibility
Environmental Manager	• Develop and implement the Groundwater Monitoring Program • Oversee water quality and groundwater monitoring in accordance with this program • Oversee compliance reporting and tracking • Oversee the keeping of all environment records • Engage suitably qualified consultants to support implementation of this program • Regularly engage with key stakeholders and other interface contractors to achieve environmental alignment (e.g., discharge points and premises areas) in according with the interface management plan
Senior Environmental Advisor	• Prepare ECMs to outline the controls in this program relevant to each work activity • Delivery toolbox/prestart presentation (or other specific training) to inform work crews of the controls documented in the ECMs • Respond to environmental incidents and non-conformances
Environmental Advisor	• Prepare site-specific action management plans for Groundwater inflow, groundwater recharge, surface water impacts, GDE impact and groundwater quality
Construction Manager	• Review and provide resources to implement the controls identified in the ECMs
Project Hydrogeologist	• Prepare and update groundwater management control plans in accordance with this program and the GWMP including calculations for groundwater inflow, drawdown and quality
Site Supervisor	• Install and maintain environmental control in accordance with ESCPs and ECMs • Attend inspections with the Environmental Coordinator, Sydney Metro/ER or other stakeholders • Implement corrective actions raised during Environmental inspections in agreed timeframes • Obtain and comply with Water Discharge Permits prior to any groundwater discharge from the site • Work in conjunction with the Soil and Water Quality Management Plan within the CEMP to notify the environmental coordinator of any observations in water quality or any signs of potential groundwater contaminants

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Role	Authority and Responsibility
All personnel	• Notify Site Supervisor of any observations of visual difference in groundwater quality in conjunction with the Soil and Water Quality Management Plan

12.2 Monitoring Records

All monitoring records will be kept on-file in a central electronic water quality monitoring register that will be stored on the Project file management system.

Data from the in-line monitoring sensors will be reviewed daily by the water treatment plant operators and all monitoring data will be kept in the water quality monitoring register.

Field measurement results for each monitoring location will be recorded on appropriate field sheets (hard copy or digital) using unique sampling identification nomenclature consisting of the sample date, location, and sampler details.

For each monitoring event, the following information shall be recorded:

- Date and time of measurements
- Name of person undertaking the measurements
- Type and model number of instruments and relevant calibration certificates
- Time of sample collection
- Map of area showing measurement location
- Measurement location details and number of measurements at each location
- Weather Conditions including rainfall in the past 24 hours

Laboratory samples will be collected at the same time as the field measurements are taken.

Laboratory results will be kept on-file and recorded in the water quality monitoring register

12.3 Auditing

Audits (both internal and external) will be undertaken to assess the effectiveness of environmental controls, compliance with this program, MCoA and other relevant approvals, licenses, and guidelines. These audits will be undertaken at planned intervals to provide information on whether the Project:

- Is meeting its compliance obligations
- Conforms to this program
- Determines if this program is effectively implemented and maintained.

The approach to internal and independent audits, including auditing schedule, is outlined further in Section 11.3 of the CEMP.

12.4 Reporting

During construction, groundwater monitoring data will be collected, tabulated and assessed against baseline conditions and performance criteria. Reporting requirements associated with the Projects construction phase are summarised below.

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Pre-construction Groundwater Monitoring Data

- Groundwater monitoring data to be provided to the NSW EPA and DPE and the Natural Resources Access Regulator (NRAR)
- To be submitted prior to construction that would interact with groundwater

Groundwater Monitoring Reports (every six months)

- Data summary reports presenting tabulated groundwater monitoring data collected during the reporting period including water quality data, groundwater levels, inflow and any actions and responses. Groundwater levels, quality, and inflow results will be presented, and performance criteria exceedances will be highlighted. Additionally, water treatment plant discharge results would also be presented.
- Applicable management responses will also be documented
- Six monthly monitoring reports will be provided to the relevant authorities (SOPA, EPA (if requested), DPE Water and NRAR) within 60 business days of the end of the monitoring period

In line with MCoA B11, a copy of the Construction Monitoring Report will be published on the GLC project website within ten days following submission to the DPE via the Major Projects Portal. The monitoring reports will also be submitted to the Planning Secretary, the ER and regulatory agencies for information.

Separate from the Construction Monitoring Report, additional records relating to groundwater monitoring training, toolbox talks, monitoring results and audit results will be prepared, maintained, and stored in line with the CEMP. The complaints management and reporting procedure is described in the CEMP.

Where the Project EPL has additional requirements for reporting results, these will be added to the Monitoring Program, once available.

Where Sydney Water assets are required to be used to receive discharged water from the Project, as part of a trade waste agreement or similar, monitoring and reporting requirements would be agreed with Sydney Water. Where required, these monitoring and reporting requirements will be included in this Monitoring Program.

Groundwater Modelling Report

In accordance with MCoA D122, a stand-alone Groundwater Modelling Report will be produced for the WTP. GLC will submit a revised Groundwater Modelling Report in association with Stage 1 of the CSSI to the Planning Secretary for information before bulk excavation at the relevant construction location. The Groundwater Modelling Report will assess all construction sites requiring bulk excavation.

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

13 REVIEW AND IMPROVEMENT

13.1 Continuous Improvement

Continuous improvement of this GMP will be achieved by the ongoing evaluation of environmental management performance against environmental policies, objectives, and targets for the purpose of identifying opportunities for improvement.

The continuous improvement process will be designed to:

- Identify areas of opportunity for improvement of environmental management and performance
- Determine the cause or causes of non-conformances and deficiencies
- Develop and implement a plan of corrective and preventative action to address any nonconformances and deficiencies
- Verify the effectiveness of the corrective and preventative actions
- Document any changes in procedures resulting from process improvement
- Make comparisons with objectives and targets.

13.2 Document Updates

The processes described above may result in the need to update or revise this GMP. This GMP will be reviewed and updated as needed or annually as a minimum, and may only be approved by the Environment and Sustainability Director, or their delegate.

Where minor amendments are required to this GMP, the revised GMP will be issued to the ER for review and endorsement in accordance with MCoA A30(j).

13.3 Distribution

A copy of the updated Program and changes will be distributed to all relevant stakeholders in accordance with the approved document control procedure, detailed in the CEMP.

All GLC personnel and contractors will have access to this GMP via the project document control management system. The approved GMP will be published on the GLC website within one week of being approved and be publicly available until the end of the Construction Period.

A copy of the GMP will be published and maintained on the Project website, in accordance with MCoA B11. The GMP will be published within one week of its approval or before the commencement of any work to which they relate or before their implementation.

The document is uncontrolled when printed.

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

ATTACHMENTS

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Attachment 1 – Compliance Matrix

The MCoA, REMMs, CEMF requirements and EPL requirements that relate to this GMP are detailed in the following tables.

MCoAs

ID	Conditions of Approval	Document Reference
C14 (c)	C14 The following Construction Monitoring Programs must be prepared in consultation with the relevant government agencies identified for each to compare actual performance of construction of Stage 1 of the CSSI against the performance predicted in the documents listed in Condition A1 of this schedule or in the CEMP: c) Groundwater – In consultation with: DPE Water and SOPA (in respect of Sydney Olympic Park)	This GMP Section 1.4
C15	Each Construction Monitoring Program must provide:	
	(a) details of baseline data available including the period of baseline monitoring	Section 7.2 - 7.3
	(b) details of baseline data to be obtained and when	Section 7.5 – 7.7
	(c) details of all monitoring of the project to be undertaken	Section 7.5 – 7.7
	(d) the parameters of the project to be monitored	Section 7.5 – 7.7
	(e) the frequency of monitoring to be undertaken	Section 7.5 – 7.7
	(f) the location of monitoring	Section 7.5 – 7.7
	(g) the reporting of monitoring results and analysis results against relevant criteria	Section 7.5 – 7.7
	(h) details of the methods that will be used to analyse the monitoring data	Section 7.5 – 7.7
	(i) procedures to identify and implement additional mitigation measures where the results of the monitoring indicated unacceptable project impacts	Section 7.5 – 7.7
	(j) a consideration of SMART principles	Section 4.3
	(k) any consultation to be undertaken in relation to the monitoring programs; and	Section 1.4
	(l) any specific requirements as required by Conditions C16 to C17 of this schedule.	Section 7.5 – 7.7

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

ID	Conditions of Approval	Document Reference
C17	Groundwater Construction Monitoring Program must include:	
	(a) groundwater monitoring networks at each construction excavation site	Section 7.5 – 7.7
	b) detail of the location of all monitoring bores with nested sites to monitor both shallow and deep groundwater levels and quality	Section 7.5 – 7.7, Attachment 3
	(c) define the location of saltwater interception monitoring where sentinel groundwater monitoring bores will be installed between the saline sources of the estuary or river and that of the stations or shafts	Section 7.5 – 7.7
	d) results from existing monitoring bores	Attachment 5
	(e) monitoring and gauging of groundwater inflow to the excavations, appropriate trigger action response plan for all predicted groundwater impacts upon each noted neighbouring groundwater system component for each excavation construction site	Section 8
	(f) trigger levels for groundwater quality, salinity and groundwater drawdown in monitoring bores and / or other groundwater users	Section 7.5 – 7.7
	(g) daily measurement of the amount of water discharged from the water treatment plants	Section 9
	(h) water quality testing of the water discharged from treatment plants	Section 9
	(i) management and mitigation measures and criteria	Section 7.5 – 7.7 Section 8 Section 9
	(j) groundwater inflow to the excavations to enable a full accounting of the groundwater take from the Sydney Basin Central Groundwater Source	Section 8
	(k) reporting of groundwater gauging at excavations, groundwater monitoring, groundwater trigger events and action responses	Section 8 Section 12
	(l) methods for providing the data collected to Sydney Water where discharges are directed to their assets.	Section 12
C18	With the exception of any Construction Monitoring Programs expressly nominated by the Planning Secretary to be endorsed by the ER, all Construction Monitoring Programs must be submitted to the Planning Secretary for approval.	Section 1.5

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

ID	Conditions of Approval	Document Reference
C19	The Construction Monitoring Programs not requiring the Planning Secretary's approval must obtain the endorsement of the ER as being in accordance with the conditions of approval and all undertakings made in the documents listed in Condition A1 of this schedule. Any of these Construction Monitoring Programs must be submitted to the ER for endorsement at least one (1) month before the commencement of construction or where construction is phased no later than one (1) month before the commencement of that phase.	Section 1.5
C20	Any of the Construction Monitoring Programs which require Planning Secretary approval must be endorsed by the ER and then submitted to the Planning Secretary for approval at least one (1) month before the commencement of construction or where construction is phased no later than one (1) month before the commencement of that phase.	Section 1.5
C21	Unless otherwise agreed with the Planning Secretary, construction must not commence until the Planning Secretary has approved, or the ER has endorsed (whichever is applicable), all of the required Construction Monitoring Programs and all relevant baseline data for the specific construction activity has been collected.	Section 1.5, the CEMP
C22	The Construction Monitoring Programs, as approved by the Planning Secretary or the ER has endorsed (whichever is applicable), including any minor amendments approved by the ER, must be implemented for the duration of construction and for any longer period set out in the monitoring program or specified by the Planning Secretary or the ER (whichever is applicable), whichever is the greater.	Section 1.5, Section 12.4, Section 13.2
C23	The results of the Construction Monitoring Programs must be submitted to the Planning Secretary, ER and relevant regulatory agencies, for information in the form of a Construction Monitoring Report at the frequency identified in the relevant Construction Monitoring Program.	Section 12.4, Section 13.2
D117	Stage 1 of the CSSI must be designed and constructed so as to maintain the NSW Water Quality Objectives (NSW WQO) where they are being achieved as at the date of this approval and contribute towards achievement of the NSW WQO over time where they are not being achieved as at the date of this approval, unless an EPL in force in respect of the CSSI contains different requirements in relation to the NSW WQO, in which case those requirements must be complied with.	Section 9
D121	Make good provisions for groundwater users must be provided in the event of a material decline in water supply levels, quality or quantity from registered existing bores associated with groundwater changes from construction.	Section 7.6

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

ID	Conditions of Approval	Document Reference
D122	The Proponent must submit a revised Groundwater Modelling Report in association with Stage 1 of the CSSI to the Planning Secretary for information before bulk excavation at the relevant construction location. The Groundwater Modelling Report must include: (a) for each construction site where excavation will be undertaken, cumulative (additive) impacts from nearby developments, parallel transport projects and nearby excavation associated with the CSSI (b) predicted incidental groundwater take (dewatering) including cumulative project effects (c) potential impacts for all latter stages of the CSSI or detail and demonstrate why these later stages of the CSSI will not have lasting impacts to the groundwater system, ongoing groundwater incidental take and groundwater level drawdown effects (d) actions required after Stage 1 to minimise the risk of inflows (including in the event latter stages of the CSSI are delayed or do not progress) and a strategy for accounting for any water taken beyond the life of the operation of the CSSI (e) saltwater intrusion modelling analysis, from estuarine and saline groundwater in shale, into The Bays metro station site and other relevant metro station sties; and (f) a schematic of the conceptual hydrogeological model.	The information requested in found within the standalone Groundwater Modelling Report Referred to in Sections 7.6, 7.9.2, 8.1, 9.1, 9.3, 10.3 and 10.5

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

REMMs

ID	Revised Environmental Management Measure	Document Reference
SSQW5	The water treatment plants would be designed so that wastewater is treated to a level that is compliant with the ANZECC/ARMCANZ (2000) and ANZG (2018) and draft ANZG (2020) default guidelines for 95% species protection and 99% species protection and 99% species protection for toxicants that bioaccumulate unless other discharge criteria are agreed with relevant authorities.	Section 9
GW4	Monitoring of groundwater levels and quality at the site area would occur before, during and after construction. This would also include monitoring of potential contaminants of concern. Groundwater level data would be regularly reviewed during and after construction by a qualified hydrogeologist. Groundwater monitoring data would be provided to the NSW Environment Protection Authority and Department of Planning, Industry, Environment, Water and the Natural Resources Access Regulator for information prior to commencement of construction.	Section 7.6 Section 7.7 Section 12

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

CEMF Requirements

Clause	Requirement	Document Reference
7.2 (b)	Principal Contractors will develop and implement a Groundwater Management Plan for their scope of works. The Groundwater Management plan will include as a minimum:	
i.	The groundwater mitigation measures as detailed in the environmental approval documentation	Detailed in the Groundwater Management Plan
ii.	The requirements of any applicable licence conditions	Detailed in the Groundwater Management Plan
iii.	Details of proposed extraction, use and disposal of groundwater, and measures to mitigate potential impacts to groundwater sources, incorporating monitoring, impact trigger definition and response actions for all groundwater sources potentially impacted by the SSI	Detailed in the Groundwater Management Plan
iv.	Evidence of consultation with relevant government agencies	The Groundwater Monitoring Program has undergone consultation in accordance with MCoA C14(d). Evidence of consultation has been included in Attachment 2.
v.	The responsibilities of key project personnel with respect to the implementation of the plan	
vi.	Procedures for the treatment, testing and discharge of the groundwater from the site	
vii.	Compliance record generation and management	
viii.	Details of groundwater monitoring if required	

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Environment Protection Licence

An Environmental Protection License (EPL) will apply for the Project. The EPL typically prescribes water quality parameters to be measured and associated discharge criteria from licensed discharge points. They also detail the monitoring and analytical requirements by reference to authority publications (e.g., Methods for sampling and analysis of water pollutants in NSW (EPA 2004).

In some cases, a trade waste agreement may be sought from Sydney Water for disposal of wastewater into the sewer system, however this is currently not the preferred method of groundwater management, and no agreement has been sought at this time.

Section 5.23 of the EP&A Act states that a water use approval under Section 89, a water management work approval under section 90 or an activity approval (other than an aquifer interference approval) under section 91 of the Water Management Act 2000 is not required for approved State Significant Infrastructure. As such, water supply works approvals and water use approvals would not be required for Stage 1. However, an aquifer interference approval may still be required. GLC will continue to consult with DPE - Water on the need for an aquifer interference approval. If required, an aquifer interference approval will be sought prior to affecting groundwater during the excavation of the station boxes. The Revised Groundwater Modelling Reports (Section 6.2 of the GWMP) as required by MCoA D122 will confirm the anticipated extent of any aquifer interference that may occur as a result of the Project. The Revised Modelling Report will be completed prior to discussing the requirements of an aquifer interference approval with DPE-Water.

The Project construction activities are designated as '***Railway activities—railway infrastructure construction'*** under Schedule 1 of the POEO Act. Scheduled activities under clause 48 of the POEO Act, require an Environmental Protection Licence (EPL) for the premise at which a scheduled activity is carried on. The EPL typically regulates the emissions of potentially offensive odours and dust.

The GMP will address the following EPL requirements (**placeholder**):

ID	EPL Condition	Document Reference

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Attachment 2 – Stakeholder Consultation

Engagement Log

Stakeholder	Date of Engagement/ Attempted Engagement
DPE Water	• Sydney Metro sent DPE Water an invitation to review and comment on the GMP on 02/05/2022, which included a cover letter and the GMP as a PDF document • DPE Water did not provide comments within the 21-day consultation period • DPE Water comments were provided to Sydney Metro on 02/06/2022.
SOPA	• Sydney Metro sent SOPA an invitation to review and comment on the GMP on 29/04/2022, which included a cover letter and the GMP as a PDF document • SOPA provided comments on 18/5/2022

Comments Register

Stakeholder	Comment Raised	GLC Response	Where Addressed
DPE (Water)	Additional information is required in the Construction Groundwater Monitoring Program (CGMP) to address the requirement of condition of consent C17 for groundwater trigger levels and a Trigger Action Response Plan.	**Comment was made on Rev A.** Additional details regarding groundwater trigger levels and proposed response mechanisms have been incorporated. The revised Groundwater Modelling Report(s) will further inform this.	Section 7.6
	Attachment 1 of the CGMP states that condition of consent D122 has been addressed in this report; however no revised groundwater modelling has been provided. This may be provided as a separate report rather than in the CGMP.	**Comment was made on Rev A.** The program outlined herein is based on currently available information including the Hydrogeological Interpretive Report (HIR) and associated monitoring and modelling. Revised Groundwater Modelling Report(s) are required prior to bulk excavation in accordance with MCoA D122. This	Section 12.4

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Stakeholder	Comment Raised	GLC Response	Where Addressed
		plan commits to that and as such is addressed within this report. The revised Groundwater Modelling Report(s) will be provided as a separate report(s) as completed.	
	It is understood final decisions on groundwater monitoring locations and trigger levels will be made based on updated groundwater modelling. As this is likely to result in further revisions of the CGMP, it is recommended the revised groundwater modelling is completed and the CGMP updated for further comment.	**Comment was made on Rev A.** Locations and trigger levels for groundwater monitoring program will be further informed by several factors including initial baseline monitoring events and ongoing technical investigations and reporting including the revised Groundwater Modelling Report(s) required prior to bulk excavation in accordance with MCoA D122. GLC have committed to an adaptive monitoring strategy with updates to this Groundwater Monitoring Program where required and as a result of additional revised Groundwater Modelling Report(s).	Section 7.5, 7.6, 12.4 and 13.
	Further detail is needed on the nature on make good provisions under condition of consent D121.	**Comment was made on Rev A.** Based on currently available information, material decline in water supply levels, quality or quantity at registered existing bores is not anticipated as a result of project construction. Where monitoring or revised Groundwater Modelling Report(s) indicate potential for material decline, make good provisions will be implemented on a case-by-case basis in consultation with the affected party with reference to the NSW Department of Primary Industries Office of Water (2012) Aquifer Interference Policy (AIP).	Currently addresses at Section 7.6.4 and 7.7.4.

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Stakeholder	Comment Raised	GLC Response	Where Addressed
SOPA	s7.9.1, it affirms that groundwater will be treated and discharged to the local waterways. Here is the need for ensuring that such waterways should be decided in consultation with SOPA because many waterways/wetlands are sensitive habitats (eg Northern Water Feature or Lake Belvedere). Also, given the presence of landfills and leachate, groundwater monitoring and management will have to be of high standard.	**Comment was made on Rev A.** Added: "This will be undertaken in consultation with relevant stakeholders where there is potential for interaction with existing groundwater management programs." It is noted that No waterways that are within SOPA management will receive discharge from the project.	Section 11.
	Tunnelling under the landfill may create pathways for Kronos Hill landfill gas ingress into the tunnel presenting a risk to workers. Gas generation can be low flow but high concentration, and may occur within the lower explosive limits. The risk must be addressed as part of both the tunnelling and box excavation CEMPs and include landfill gas monitoring within the tunnel and appropriate response protocols. – Where will this be captured?	**Comment was made on Rev A.** Gas monitoring is not part of this groundwater management plan. This will be covered under a separate appropriate safety management plan, developed by a suitably qualified and experienced professional as part of the tunnelling risk assessment and in accordance with WorkCover NSW (2006) Tunnels Under Construction Code of Practice. The risk assessment process will be informed by noise and vibration assessment (as required) and an appropriate ground gas monitoring program will be developed and implemented. This process is outlined within the Project Work Health and Safety System documentation. Where the gas monitoring program and / or this groundwater monitoring program indicates potential pathways of landfill gas / leachate ingress mechanisms exists within the Deed and Project CEMP and associated subplans for the investigation and management of contamination where it is caused by the Project.	N/A

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Stakeholder	Comment Raised	GLC Response	Where Addressed
	Section 7.9.2 0- Groundwater Level and Drawdown - lowering of ground water levels may result in an increase in landfill gas generation which may travel outside the waste containment area either laterally and / or vertically including into the tunnelling and box excavation works. Where will this risk be assessed and addressed? It should also be included as part of the Revised Groundwater Modelling Report assessment for the SOP Station box exaction with appropriate monitoring, and mitigation measures identified / developed as part of the relevant section of the CEMP.	**Comment was made on Rev A.** It is beyond the scope of a groundwater monitoring program to address landfill gas risk. Where there is overlap between the two disciplines, the groundwater monitoring plan will only inform the amount of groundwater drawdown as a comparison against performance criteria and whether the performance criteria have been exceeded. The performance criteria will be set out in the Hydrogeological Interpretive Report and included in this management plan when they become available. Refer previous comments regarding the identification and management of landfill gas ingress risk. Refer subsequent comments regarding future stakeholder review of the HIR.	N/A
	Section 7.7 – Groundwater Quality – does not appear to include any data loggers / key monitoring locations within SOP. Groundwater quality monitoring along this section of the alignment should be included to monitor for any change in groundwater quality that may indicating a possible connection between the waste containment cells and the surrounding groundwater.	**Comment was made on Rev A.** BH070 and BH121 have been nominated as part of the groundwater monitoring network (section 7.5). These both include loggers and sampling. The status and construction details of these bores is currently unknown.	Section 7.5
	Section 7.6 – Groundwater Level and Drawdown - The revised Groundwater Modelling Report to be developed for the Sydney Olympic Park station box excavation should be provided to SOPA for review / comment as groundwater drawdown may	**Comment was made on Rev A.** Added “The Revised Groundwater Modelling Report(s) will be provided to relevant stakeholder (e.g. SOPA) where there is potential for interaction with existing groundwater management programs.”	Section 7.6.4.

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Stakeholder	Comment Raised	GLC Response	Where Addressed
	directly impact the Authority's ability to manage the remediated landfill. Groundwater drawdown impacts must address potential impacts on natural estuarine areas north of Kronos Hill Landfill, Former Gold Driving Range and Bicentennial Park Landfills.	Updated Groundwater Modelling Report will be included in the Hydrogeological Interpretive Report. It is important that this is addressed, and feedback will be provided to modeller (GHD) for further consideration.	
	Section 6 Environmental Impacts summary – Must include consideration of the potential impacts (including risk that the vibrations from tunnelling works may result in a connection between the existing waste containment and surrounding groundwater through fractures in rock and/or collapse of gravity drains) specific to tunnelling under SOP and the Kronos remediated landfill.	**Comment was made on Rev A.** Added Sydney Olympic Park and discussed potential risks. Note above comments regarding Landfill Gas Risk not being addressed within this plan.	Table 3.
	Table 3 – Characteristics of the groundwater – does not include Sydney Olympic Park. As the site is a former uncontrolled landfilling site and the tunnelling package includes the section of the alignment beneath SOP Kronos Hill Landfill the groundwater condition around SOP and potential contaminates should be included and considered in the groundwater monitoring program. The risk associated with the tunnelling works beneath SOP landfills need to be specifically addressed and be considered as part of the tunnelling Groundwater Management Plan for the WTP.	**Comment was made on Rev A.** Added Sydney Olympic Park and discussed potential risks. Note above comments regarding Landfill Gas Risk not being addressed within this plan.	Table 2.
	Section 4.1 – legislation – as the tunnelling alignment is directly beneath the regulated landfills the Contaminated Lands Management Act should be included as relevant legislation and the relevant	**Comment was made on Rev A.** The following has been incorporated: • (NSW) Contaminated Land Management Act 1997 (CLM Act)	Section 4.1.

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Stakeholder	Comment Raised	GLC Response	Where Addressed
	guidelines should include the remediated Lands Management Plan. The tunnelling package goes under the Kronos Hill landfill and residual waste are known to occur outside waste containment areas across the site. Tunnelling works may result in a connection between the groundwater of the waste containment cell and surrounding groundwater and consequently present a risk of leachate intrusion into the tunnel. All groundwater that comes into contact with waste is leachate and must be managed as such in accordance with the POEO Waste Regulations, CLM Act Notice No 28040 issued in relation to the remediated landfills and the RLMP referenced by the Notice. The POEO should also be referenced as relevant legislation relevant to the project works.	• (NSW) Protection of the Environment Operations (Waste) Regulation 2014 (the Waste Regulation) • Maintenance of remediation notice 28040 (EPA 2009) • Remediated Lands Management Plan (SOPA, 2009) (or revisions that have been accepted by the EPA)	

Comments Register – Outstanding Issues

Stakeholder	Comment Raised	GLC Response	Proposed Action
		N/A	

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Meeting Minutes

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Document Transmittal

Transmittal No:	SMWSTWTP-GLO-TX-000090
Contract No:	WTP - 00013/13065 - Western Tunnelling Works Design and Construction Deed
Sub Contract:	WTP
Date:	14 April 2022, 07:58 AM

Issued	Name
By	Liem Ngo (Gamuda Laing O'Rourke Consortium)

Issued	Name
To	Andrew Hendy (Sydney Metro) ; Alicia Hatton (Sydney Metro) ; Kate Brooks (Sydney Metro)
Cc	Hayley Young (Gamuda Laing O'Rourke Consortium) ; Steph Mifsud (Gamuda Laing O'Rourke Consortium) ; Andy Thompson (Gamuda Laing O'Rourke Consortium) ; Huw Griffiths (Gamuda Laing O'Rourke Consortium) ; Tom Olorenshaw (Gamuda Laing O'Rourke Consortium)

Reason for Issue	Issued for Information
Subject	**Cumberland Council Meeting Minutes - 7 April 2022**

Dear all

Please find attached for your information, minutes for the meeting with Cumberland City Council on 7 April 2022.

Regards

Liem Ngo

Stakeholder and Community Engagement Manager
Sydney Metro West – Western Tunnelling Package
Gamuda Australia Laing O'Rourke Consortium

Click here to download all Transmittal files.

Item	Document No	Title	Rev	Sts	Type	Design Lots	Alt Doc No
1	SMWSTWTP-GLO-WMD-CY-MIN-000001	Meeting Minutes - Cumberland City Council - 7 April 2022 - Project introduction and environmental management plans	A.01	S2	MIN		

Generated by InEight Document © 2001-2022 InEight Inc

Attachment(s):

MEETING MINUTES

Meeting details		
Meeting title	Briefing for Cumberland City Council - Sydney Metro West Western Tunnelling Package Project and Environmental Management Plan consultation introduction	
Date | Time	7 April 2022, 15:30-16:15	
Location	MS Teams (online)	
Attendees	Gamuda Australia Laing O'Rourke (GLC):	Simon Hussey, Andy Thompson, Hayley Young, Huw Griffiths, Tom Olorenshaw, Liem Ngo, Stephanie Mifsud
	Sydney Metro (SM)	Andrew Hendy, Kate Brooks, Nikita Cullum
	Cumberland City Council (CCC)	Daniel Cavallo, Shona Porter, Daniel Anderson

Item	Information
1	Introductions and welcome
	Introductions of meeting participants were conducted
2	**Western Tunnelling Package & CEMP Consultation**
2.1	**Andy Thompson delivered a presentation to provide an overview of the Sydney Metro West Western Tunnelling Package (WTP) including:** • Introduction about Gamuda Australia and Laing O'Rourke • Introducing the project team and key providers • A construction overview, including project staging
2.2	**Tom Olorenshaw provided an overview of key construction, which will include:** • HV trenching to bring in power supply for plant equipment will commence mid-2022 and will last 3-5 months • Local area works to facilitate deliveries. Changes to kerbs, traffic lights and installation of pedestrian fencing to improve road safety are currently still in design. CCC will be consulted on proposed designs. • Excavation works will start in 2023 and continue into 2024. This includes for the excavation of the station box, stub tunnels and cross over cavern. An acoustic shed will be built to mitigate noise from excavation. • Tunnel Boring Machine (TBM) removal will from Westmead site will take approximately 6-8 weeks. **Andy Thompson noted that Sydney Metro by changing the TBM launch site from Westmead to Rosehill, has substantially reduced the impact on Westmead due to the tunnel segments no longer needing to be delivered regularly to the Westmead site.**
2.3	**Liem Ngo provided an overview of potential stakeholder impacts, mitigation and engagement**
2.4	**Stephanie Mifsud presented the WTP Project's environmental approvals framework, including:** • The environmental approvals process, including the Construction Environmental Management Plans. • WTP Environmental Management plans framework and their interconnectedness with a range of WTP

Item	Information
	procedures and strategies • CEMP relationship with the WTP project's environmental management systems • Inviting feedback on the various tranches of the CEMP, with the first tranches to submitted shortly to SOPA and other key stakeholders for consultation, with a 4-week consultation process proposed, involving: • Step 1. 2-weeks for written feedback, Step 2 - in week 3, a comment review workshop for subject matter experts to address CCC feedback, Step 3 - in week 4, CEMPS to be amended to address comments discussed in the workshop
3	**Questions and Answers (CCC questions, GLC or SM answers)**
	Q. What is the depth of the tunnels? A. Station box is between 30 and 37m from surface, stub tunnels are 25 metres from surface and the crown of the cross cavern tunnel is 15m from the surface. **Q. Does tunnel depth limit basement depth for future developments?** A. (GLC) Potentially. There will be restrictions on depth from operating rail lines which may impact future developments. Action: GLC, via Sydney Metro/TfNSW will provide CCC with depth restrictions for future development. **Q. With respect to the environmental management plans, is GLC seeking technical advice or fact-checking?** A. Both. If the Council has feedback on technical issues GLC welcomes those issues being raised at this early stage so it can be discussed. GLC suggests that any feedback clearly identify the particular sections of a plan and clearly states the outcome CCC wants. Action: Sydney Metro, when sending plans to CCC for review and feedback should address to Daniel Cavallo and copied to his EA, Sarah Hussein, to coordinate input from CCC.
	Meeting finish
4	**Next meeting**
	Date: Consultation workshop date to be determined Time: TBD Location: TBD

Document Transmittal

Transmittal No:	SMWSTWTP-GLO-TX-000072
Contract No:	WTP - Western Tunnelling Package
Sub Contract:	WTP
Date:	07 April 2022, 09:47 AM

Issued	Name
By	Liem Ngo (Gamuda Laing O'Rourke JV)

Issued	Name
To	Alicia Hatton (Sydney Metro) ; Andrew Hendy (Sydney Metro) ; Nick Nathans (Sydney Metro) ; Kate Brooks (Sydney Metro)
Cc	Hayley Young (Gamuda Laing O'Rourke JV) ; Steph Mifsud (Gamuda Laing O'Rourke JV)

Reason for Issue	Issued for Information
Subject	**SOPA Project & CEMP briefing - Meeting Minutes - 1 April 2022**

Dear all

Please find attached for your information, meeting minutes for the 1 April 2022 meeting with SOPA.

Regards
Liem Ngo

Click here to download all Transmittal files.

Item	Document No	Title	Rev	Sts	Type	Design Lots	Alt Doc No
1	SMWSTWTP-GLO-OLP-SK-MIN-000001	SOPA Project & CEMP briefing - Meeting Minutes - 1 April 2022	-.01	S2	MIN		

Generated by InEight Document © 2001-2022 InEight Inc
Attachment(s):

MEETING MINUTES

Meeting details		
Meeting title	Briefing for SOPA - Sydney Metro West Western Tunnelling Package Project and Environmental Management Plan consultation introduction	
Date | Time	1 April 2022	
Location	MS Teams (online)	
Attendees	Gamuda Australia Laing O'Rourke (GLC):	Simon Hussey, Andy Thompson, Hayley Young, Huw Griffiths, Liem Ngo, Stephanie Mifsud
	Sydney Metro (SM)	Nick Nathan (Facilitator/Chair), Andrew Hendy, Alicia Hatton, Sarah Lepre, Nikkita Cullum, Ian Subramanian
	Sydney Olympic Park Authority (SOPA)	Sally Hamilton, John Ferguson, Vivienne Albin, Julie Currey

Item	Information
1	Introductions and welcome
	Introductions of meeting participants were conducted Nick Nathan (SM) provided an overview of the Sydney Metro West Project, including the three tunnelling packages and of the Stage 3 EIS currently open for public consultation. Alicia Hutton (SM) introduced the GLC team, including Andy Thompson (GLC) to provide details about the Western Tunnelling Package (WTP)
2	**Western Tunnelling Package & CEMP Consultation**
2.1	**Andy Thompson delivered a presentation to provide an overview of the Sydney Metro West Western Tunnelling Package (WTP) including:** • Introduction about Gamuda Australia and Laing O'Rourke • Introducing the project team and key providers • A construction overview, including project staging • Explanation of the combined Sydney Metro West construction site, including the WTP and the Central Tunnelling Package (CTP) sections • The stages for the TBM retrieval and nozzle construction, site demobilisation and handover to CTP contractor
2.2	**Liem Ngo provided an overview of potential stakeholder impacts, mitigation and engagement**
2.3	**Stephanie Mifsud presented the WTP Project's environmental approvals framework, including:** • The environmental approvals process, including the Construction Environmental Management Plans. • WTP Environmental Management plans framework and their interconnectedness with a range of WTP procedures and strategies • CEMP relationship with the WTP project's environmental management systems • Inviting feedback on the various tranches of the CEMP, with the first tranches to submitted shortly to

Item	Information
	SOPA and other key stakeholders for consultation, with a 4-week consultation process proposed, involving: • Step 1. 2-weeks for written feedback, Step 2 - in week 3, a comment review workshop for subject matter experts to address SOPA feedback, Step 3 - in week 4, CEMPS to be amended to address comments discussed in the workshop
3	**Questions and Answers (SOPA questions, GLC or SM answers)**
	Q. Will the WTP project tunnel under Haslams Creek? A. Yes **Q. Is a site auditor involved and will a meeting be setup with SOPA?** A. (GLC) Yes, Kylie Lloyd has been appointed the WTP site auditor and a meeting can be set up. It was noted that CTP will have a separate site auditor. Action: GLC to set up meeting between the site auditor and SOPA. **Q. Will the issues raised by SOPA during the CEMP consultation be addressed and closed out?** A. (GLC) Yes. The workshop is designed to have the subject matter experts present to address SOPA's feedback and ensure any necessary changes to the CEMPs to reflect the discussions. **Q. When will more detailed stakeholder engagement occur?** A. (GLC) Since GLC is not planning to take possession of the site until December 2023 or early 2024. More detailed stakeholder engagement is likely to commence in first half of 2023. Although it was noted that both parties welcome dialogue on any issues that may emerge in the meantime. **Q. How will the CEMPs be transmitted for consultation** A. (GLC) GLC will submit to Andrew Hendy at Sydney Metro who will then distribute to respective stakeholder and interface managers to send to SOPA and other key stakeholders for consultation. **Q. Is there an unexpected finds protocol?** A. (GLC) Yes, there is. **Q. Can the feedback given to CTP be shared with the WTP team?** A. (SM) Feedback from consultation on CTP plans should be included within the respective plans which are now publicly available. Andrew Hendy will provide links to the GLC Environment and Planning team. **Q. How with Sydney Metro coordinate WTP and CTP activities?** A. (SM) Nick Nathan will coordinate CTP and WTP teams for SOP interface, via joint SOPA meetings or meet separately with each contract teams, as required.
	Meeting finish
10	**Next meeting**
	Date: Consultation workshop date to be determined (late April/early May) Time: TBD Location: TBD

Meeting Summary

Total Number of Participants	20
Meeting Title	SMW Introduction and CEMP Sub-Plans Briefing
Meeting Start Time	3/24/2022, 3:59:12 PM
Meeting End Time	3/24/2022, 4:46:41 PM
Meeting Id	18d00fea-6311-4935-8a5d-d89b04fb3722

Full Name	Join Time	Leave Time	Duration
Tania Page	3/24/2022, 3:59:12 PM	3/24/2022, 4:46:41 PM	47m 29s
Andy Thompson (GAB)	3/24/2022, 3:59:20 PM	3/24/2022, 4:46:37 PM	47m 17s
Sarah Lepre	3/24/2022, 3:59:51 PM	3/24/2022, 4:46:35 PM	46m 44s
Andrea Giusa	3/24/2022, 3:59:55 PM	3/24/2022, 4:46:41 PM	46m 45s
Ngo, Liem	3/24/2022, 4:00:04 PM	3/24/2022, 4:46:37 PM	46m 33s
Steph Mifsud (GAB)	3/24/2022, 4:00:09 PM	3/24/2022, 4:46:37 PM	46m 28s
Griffiths, Huw	3/24/2022, 4:00:25 PM	3/24/2022, 4:46:38 PM	46m 13s
Andrew Hendy	3/24/2022, 4:00:26 PM	3/24/2022, 4:46:38 PM	46m 11s
Bishwanand Mishra	3/24/2022, 4:00:30 PM	3/24/2022, 4:46:36 PM	46m 6s
Nikkita Cullum	3/24/2022, 4:00:32 PM	3/24/2022, 4:46:36 PM	46m 4s
Jim Tsom	3/24/2022, 4:00:34 PM	3/24/2022, 4:46:39 PM	46m 4s
Hayley Young (GAB)	3/24/2022, 4:01:17 PM	3/24/2022, 4:46:36 PM	45m 19s
Pino Todarello	3/24/2022, 4:01:22 PM	3/24/2022, 4:46:35 PM	45m 12s
Phillip Kelly	3/24/2022, 4:01:35 PM	3/24/2022, 4:46:36 PM	45m
Ian Subramaniam	3/24/2022, 4:01:35 PM	3/24/2022, 4:46:35 PM	45m
Simon Hussey (GAB)	3/24/2022, 4:01:55 PM	3/24/2022, 4:46:36 PM	44m 41s
Adrian Mihaila	3/24/2022, 4:03:52 PM	3/24/2022, 4:46:36 PM	42m 44s
Stuart Pike	3/24/2022, 4:04:52 PM	3/24/2022, 4:46:36 PM	41m 43s
Matthew Marrinan	3/24/2022, 4:05:05 PM	3/24/2022, 4:46:36 PM	41m 30s
Sasi Kumar	3/24/2022, 4:06:28 PM	3/24/2022, 4:46:36 PM	40m 8s

Email	Role
Tania.Page2@transport.nsw.gov.au	SM, Snr Project Manager Interfaces West
andy.thompson@gamuda.com.au	GALC, Surface Works Construction Manager
Sarah.Lepre@transport.nsw.gov.au	SM, Project Officer Environment
agiusa@cityofparramatta.nsw.gov.au	CoPC, Heritage Advisor
LNgo@laingorourke.com.au	GALC, Stakeholder & Engagement Manager
steph.mifsud@gamuda.com.au	GALC, Environmental Manager
HuwGriffiths@Laingorourke.com.au	GALC,
Andrew.Hendy@transport.nsw.gov.au	SM, Manager Environment
BMishra@cityofparramatta.nsw.gov.au	CoPC, Senior Catchment Referral Engineer
Nikkita.Cullum@transport.nsw.gov.au	SM, Graduate
JTsom@cityofparramatta.nsw.gov.au	CoPC, Supervisor Catchment Management
hayley.young@gamuda.com.au	GALC, Environment & Sustainability Lead
PTodarello@cityofparramatta.nsw.gov.au	CoPC, Supervisor Open Space & Natural Resources
Phillip.Kelly2@transport.nsw.gov.au	SM, Stakeholder & Engagement Manager
Ian.Subramaniam@transport.nsw.gov.au	SM, Project Manager Interfaces West
simonhussey@gamuda.com.au	GALC, Deputy Project Director
AMihaila@cityofparramatta.nsw.gov.au	CoPC, Health & Building Services Manager
SPike@cityofparramatta.nsw.gov.au	CoPC, Team Leader Evironmental Health Compliance
Matthew.Marrinan@transport.nsw.gov.au	SM, Snr Manager Environment
SKumar@cityofparramatta.nsw.gov.au	CoPC, Development Manager Sydney Metro

Copies of Correspondence

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

27 April 2022

Department of Planning and Environment - Water
Locked Bag 5022
PARRAMATTA NSW 2124

To whom it may concern,

Sydney Metro SSI 10038 – Western Tunnelling Package – Gamuda Australia and Laing O'Rourke Consortium – Construction Groundwater Monitoring Program

The Western Tunnelling Package (WTP) Package was recently awarded to Gamuda Australia and Laing O'Rourke Consortium (GALC). These works form part of the Sydney Metro West – Concept and Stage 1 (major civil construction between Westmead and The Bays) planning approval.

The planning approval requires the preparation of environmental management plans prior to construction commencing. Please find attached the Western Tunnelling Package (WTP) Construction Groundwater Monitoring Program, issued to the Department of Planning and Environment – Water for consultation in accordance with CSSI 10038 Condition of Approval C5.

Accompanying this letter is the following document:

- WTP Groundwater Monitoring Program

We are commencing a 3-week consultation process with you as of 27 April 2022 with this submission. During this period, we can hold an initial briefing session next week (week commencing 2 May 2022) at a time suitable to you. We can also hold a comment workshop in the third week (towards end of week commencing 9 May 2022). Your attendance is not mandatory, but highly advised to ensure you get the most out of the opportunity.

As the comment workshop is intended to respond to your comments, we would also like to receive comments prior to the workshop date, preferably by 11 May 2022. Please provide any comments via a comments register.

The consultation process will conclude on the date of the final workshop.

Should you have any questions or comments on the attached, please do not hesitate to contact Matthew Marrinan, Senior Manager Environment on Matthew.Marrinan@transport.nsw.gov.au or 0475 966 938.

Sydney Metro
Level 43, 680 George Street, Sydney NSW 2000 | PO Box K659, Haymarket NSW 1240
T 02 8265 9400 | sydneymetro.info | ABN 12 354 063 515

Yours sincerely



Stuart Hodgson
Director Sustainability, Environment & Planning
Metro West
Sydney Metro

27 April 2022

Attn: Sally Hamilton
Director, Environment and Planning
Sydney Olympic Park Authority
Locked Bag 3
SYDNEY OLYMPIC PARK NSW 2127

Dear Sally,

Sydney Metro SSI 10038 – Western Tunnelling Package – Gamuda Australia and Laing O'Rourke Consortium – Construction Groundwater Monitoring Program

The Western Tunnelling Package (WTP) Package was recently awarded to Gamuda Australia and Laing O'Rourke Consortium (GALC). These works form part of the Sydney Metro West – Concept and Stage 1 (major civil construction between Westmead and The Bays) planning approval.

An introductory presentation was arranged by Sydney Metro and provided by GALC on 1 April 2022.

The planning approval requires the preparation of environmental management plans prior to construction commencing. Please find attached the Western Tunnelling Package (WTP) Construction Groundwater Monitoring Program, issued to the Sydney Olympic Park Authority (SOPA) for consultation in accordance with CSSI 10038 Condition of Approval C5.

Accompanying this letter is the following document:

- WTP Groundwater Monitoring Program

Consultation on this document(s) is required under condition C5 of SSI 10038 and we are commencing a 3-week consultation process with you as of 27 April 2022 with this submission. During this period, we will hold a comment workshop in the third week (week commencing 9 May 2022). Your attendance is not mandatory, but highly advised to ensure you get the most out of the opportunity.

As the comment workshop is intended to respond to your comments, we would also like to receive comments prior to the workshop date, preferably by 11 May 2022. Please provide any comments via a comments register.

The consultation process will conclude on the date of the final workshop.

Sydney Metro
Level 43, 680 George Street, Sydney NSW 2000 | PO Box K659, Haymarket NSW 1240
T 02 8265 9400 | sydneymetro.info | ABN 12 354 063 515

Should you have any questions or comments on the attached, please do not hesitate to contact Matthew Marrinan, Senior Manager Environment on Matthew.Marrinan@transport.nsw.gov.au or 0475 966 938.

Yours sincerely



Stuart Hodgson
Director Sustainability, Environment & Planning
Metro West
Sydney Metro

Attachment 3 – Proposed Monitoring Locations

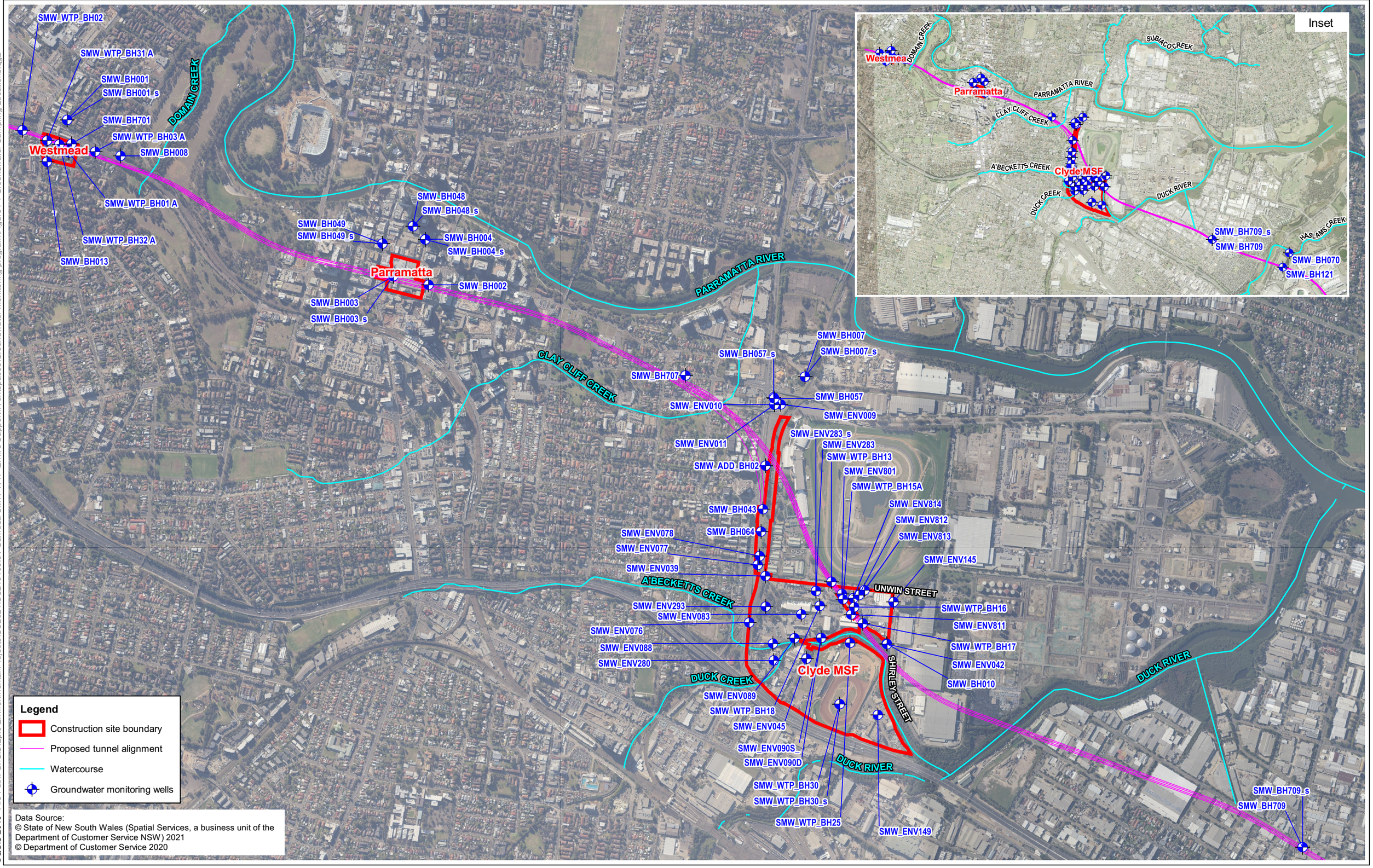
Rep. Site	Bore ID	GW Level Measure	Sample	Screen Interval (m bgl)	Target Unit
Westmead	SMW_BH001_s	Manual	TBA	0.6-1.49	Silty clay
	SMW_BH001	Logger	Yes	6.7-11.7	Siltstone
	SMW_WTP_BH32 A	Manual	No	3.5-10.1	Siltstone
	SMW_WTP_BH03 A	Logger	No	13.1-22.0	Siltstone
	SMW_WTP_BH31 A	Manual	No	3.8-8.5	Siltstone
	SMW_WTP_BH01 A	Manual	No	2.5-7.1	Clay and
	SMW_BH008	Logger	Yes	13.0-18.0	Siltstone
	SMW_BH701	Manual	Yes	4.0 – 9.0	Siltstone
	SMW_WTP_BH02	Logger	Yes	14.0-20.0	Siltstone
	SMW_BH013	Logger	Yes	Unknown	Unknown
Parramatta	SMW_BH002	Logger	Yes	26.5-32.4	Sandstone
	SMW_BH003	Manual	No	13.0-18.0	Clay/ Siltstone
	SMW_BH003_s	Manual	No	8.4-11.0	Clayey Sand
	SMW_BH004_s	Logger	Yes	5.7-11.5	Sand
	SMW_BH004	Logger	Yes	20.6-23.6	Sandstone
	SMW_BH048_s	Manual	No	4.0-7.5	Sand
	SMW_BH048	Manual	No	19.6-22.6	Sandstone
	SMW_BH049	Logger	No	1.6-6.0	Silty clay
	SMW_BH049_s	Logger	No	16.9-22.1	Sandstone
Clyde and Rosehill	SMW_BH707	Logger	TBA	Unknown	Sandstone
	SMW_BH007_s	Logger *	Yes	4.15-7.0	Clayey sand
	SMW_BH007	Manual	Yes	15-22.4	Sandstone
	SMW_ADD_BH02	Logger	Yes	13.0-20.5	Siltstone
	SMW_BH057_s	Manual	No	1.0-5.3	Sand
	SMW_BH057	Manual	No	23.3-26.3	Sandstone
	SMW_ENV011	Manual	No	3.0-7.0	Clayey sand
	SMW_ENV010	Manual	No	3.2-6.6	Sandy clay
	SMW_ENV009	Logger	Yes	2.7-7.3	Clayey sand
	SMW_BH043	Logger	Yes	6.5-12.5	Siltstone
	SMW_BH064	Manual	No	5.9-8.9	Siltstone
	SMW_ENV078	Manual	No	8.5-14.5	Clay
	SMW_ENV077	Manual	No	6.0-9.0	Clay
	SMW_ENV039	Logger	Yes	7.3-10.3	Clay
	SMW_ENV283_s	Logger *	Yes	2.0-5.0	Clay
	SMW_ENV283	Manual	No	19.0-25.0	Siltstone
	SMW_ENV293	Manual	No	1.2-6.0	Clay
	SMW_ENV083	Logger *	Yes	1.5-6.0	Clay
	SMW_ENV076	Manual	No	Unknown	Unknown
	SMW_ENV089	Manual	No	3.0-6.0	Fill
	SMW_ENV088	Manual	No	2.5-6.0	Clay
	SMW_ENV090D	Logger	Yes	3.2-6.0	Clay
	SMW_ENV090S_	Manual	No	1.0-3.0	Fill
	SMW_BH010	Manual	TBA	Unknown	Unknown
	SMW_ENV042	Logger	TBA	Unknown	Unknown
	SMW_ENV145	Manual	No	11.0-14.0	Clay
	SMW_BH070	Logger	TBA	Unknown	Unknown
	SMW_WTP_BH16	Logger	TBA	10.0-16.0	Clay, Sandy
	SMW_WTP_BH15 A	Manual	TBA	13.0-15.95	Clay
	SMW_ENV801	Manual	No	Unknown	Unknown
	SMW_WTP_BH13	Logger	Yes	1.3-7.3	Clay
	SMW_ENV814	Logger	No	2.0-10.0	Clay
	SMW_ENV811	Manual	No	1.0-6.0	Clay
	SMW_ENV812	Manual	No	2.0-9.0	Fill, Clay

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Rep. Site	Bore ID	GW Level Measure	Sample	Screen Interval (m bgl)	Target Unit
	SMW_ENV813	Logger	Yes	2.0-8.0	Clay
	SMW_WTP_BH17	Logger	Yes	1.2-5.7	Clay
	SMW_WTP_BH18	Logger	Yes	3.0-9.0	Sand, clay
Clyde MSF	SMW_WTP_BH25	Logger	Yes	7.2-10.5	Clay
	SMW_ENV045	Logger	Yes	9.5-12.5	Clay
	SMW_ENV149	Logger	Yes	6.0-9.0	Clay
	SMW_ENV280	Logger	Yes	4.0-7.0	Clay
	SMW_WTP_BH30_s	Logger	Yes	2.5-5.4	Clay
	SMW_WTP_BH30	Logger	Yes	6.0-9.0	Clay
Clyde tunnel	SMW_BH709	Logger	Yes	Unknown	Unknown
	SMW_BH709_s	Logger	Yes	Unknown	Unknown
	SMW_BH121	Logger	Yes	Unknown	Unknown

Rep. Site	Bore ID	Data Download	Additional Comments
Westmead	SMW_BH013	Monthly	No additional VWPs required.
	SMW_BH013	Monthly	
Parramatta	Non-Available	Monthly	VWPs proposed for consideration to north and south of station to monitor pressure in consolidated sediments and Alluvium.
Clyde	SMW_BH045	Monthly	Additional VWPs proposed for consideration to east and west of station to monitor pressure in consolidated sediments and Alluvium.
	SMW_BH111	Monthly	
	SMW-BH722	Monthly	
	SMW-BH722	Monthly	
	SMW-BH722	Monthly	
Rosehill to Olympic Park	SMW_BH022	Monthly	No additional VWPs required.
	SMW_BH063	Monthly	
	SMW_BH115	Monthly	

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY



©QGIS 2019 File Path: G:\GIS\Epic Environmental\Projects\SC2021\SC210108.01 Gamuda SMW WTP Enviro Support\Workspaces\Groundwater monitoring program\Figure F1 Groundwater Sampling Locations.qgz

0 200 400 600 800 m

Scale: 1: 15,000@ A3

Datum: GDA2020 Projection: MGA zone 56

Draft

Gamuda Australia Laing O'Rourke Consortium
Western Tunnelling Package
Groundwater Monitoring Program

Figure F1
Groundwater Sampling Locations

Attachment 4 – Project Borehole Network

Borehole ID	Easting (MGA 2020 zone 56)	Northing (MGA 2020 zone 56)	Ground Level (mAHD)	Project Chainage (km)	Groundwater Level Record	Standpipe Installed	VWP Installed	Packer Testing	Slug Testing	Hydrograph
3103-104	314669.479	6256590.419	14	23.06				Y		
3103-105	315011.479	6256506.419	10	22.74				Y		
3103-106	315307.479	6256449.419	10	22.44				Y		
3103-107	315408.479	6256407.419	13	22.33				Y		
3103-109	315794.479	6256288.418	8	21.92				Y		
3103-111	316764.479	6255738.418	16	20.68				Y		
3103-112	316908.479	6255726.418	16	20.57				Y		
3103-113	317271.479	6255520.418	7	20.23				Y		
3103-114	317455.479	6255229.418	5	19.84				Y		
3103-118	318600.478	6254254.418	6	18.27				Y		
3103-119	319042.478	6253958.418	4	17.71				Y		
3103-121	319397.478	6253835.418	12	17.35				Y		
3103-122	320212.478	6253741.418	3	16.57				Y		
3103-124	320715.478	6253599.418	9	16.05				Y		
402	315361.9	6256494.7	10.39	22.4	Y	Y			Y	
601	315218.2	6256401.1	10.99	22.52	Y	Y			Y	
604	315203.7	6256455.5	10.76	22.54	Y	Y			Y	
606	315234.2	6256450.3	10.52	22.51	Y	Y			Y	
610	315235	6256398.4	10.99	22.5	Y	Y			Y	
611	315237.3	6256426.4	11.17	22.5	Y	Y			Y	
613	315376.6	6256416	11.3	22.37	Y	Y			Y	
615	315371.2	6256387.1	12.28	22.36	Y	Y			Y	
617	315337.8	6256402.9	11.56	22.4	Y	Y			Y	
622	315357	6256356.3	13.12	22.37	Y	Y			Y	
623	315320.6	6256385.1	12.1	22.41	Y	Y			Y	
624	315289.8	6256400.1	10.68	22.45	Y	Y			Y	
601A	315217.6	6256402	11	22.52	Y	Y			Y	
604A	315203.3	6256454.8	10.81	22.54	Y	Y			Y	
606A	315262.4	6256439.7	10.02	22.48	Y	Y			Y	
610A	315233.6	6256398.9	11.01	22.5	Y	Y			Y	
611A	315236.4	6256425.8	11.121	22.5	Y	Y			Y	
613A	315376.1	6256416.4	11.3	22.37	Y	Y			Y	
615A	315371.2	6256387.1	12.27	22.36	Y	Y			Y	
617A	315338.3	6256401.3	11.52	22.4	Y	Y			Y	
622A	315357	6256355	13.12	22.37	Y	Y			Y	
623A	315321.7	6256384.9	12.1	22.41	Y	Y			Y	
624A	315289.6	6256399.1	10.77	22.45	Y	Y			Y	
BH02	313746.976	6257246.598	29.564	24.17				Y		
SMW_ADD_BH01	316929.9	6255847.6	10.6	20.66						
SMW_ADD_BH01 A	316927.8	6255847.7	10.46	20.66		Y		Y		
SMW_ADD_BH02	316919.4	6255766.5	13.56	20.6	Y	Y		Y		
SMW_BH001	313798.979	6257313.419	31.13	24.14	Y	Y		Y		Y
SMW_BH001_s	313797.779	6257311.919	31.12	24.15	Y	Y				Y
SMW_BH002	315414.179	6256577.419	8.99	22.37	Y	Y		Y		
SMW_BH003	315256.979	6256615.019	10.67	22.53	Y	Y		Y		Y
SMW_BH003_s	315255.979	6256615.319	10.67	22.53	Y	Y				Y
SMW_BH004	315399.179	6256779.519	8.68	22.43	Y	Y		Y		Y
SMW_BH004_s	315398.979	6256778.319	8.72	22.43	Y	Y				Y
SMW_BH005	313717.179	6257231.019	35.63	24.2				Y		
SMW_BH006	313724.679	6257307.219	34.98	24.21				Y		
SMW_BH007	317095.879	6256165.318	6.49	20.77	Y	Y		Y		Y
SMW_BH007_s	317096.279	6256164.918	6.49	20.77	Y	Y				Y
SMW_BH008	314037.479	6257153.619	21.28	23.87	Y	Y		Y		
SMW_BH010	317461.678	6254973.518	4.35	19.63	Y	Y		Y		
SMW_BH011	318261.179	6255102.018	3.85	18.88	Y	Y		Y		Y
SMW_BH011_s	318261.279	6255102.818	3.85	18.88	Y	Y				Y
SMW_BH012	314829.679	6257048.419	7.73	23.11				Y		
SMW_BH013	313708.479	6257125.919	39.11	24.18	Y			Y		
SMW_BH015	321381.478	6252898.317	22.94	15.17	Y	Y				Y
SMW_BH015_s	321381.078	6252899.017	22.92	15.17	Y	Y				Y
SMW_BH016	313975.479	6257134.419	23.88	23.92				Y		
SMW_BH022	318603.078	6254882.618	2.38	18.48			Y			Y
SMW_BH022_s	318601.978	6254883.218	2.39	18.48	Y					Y
SMW_BH026	314644.779	6257620.419	15	23.57				Y		
SMW_BH030	320330.078	6254018.118	3.83	16.55	Y					
SMW_BH031	320501.578	6253883.018	4.69	16.34	Y					
SMW_BH043	316908.279	6255573.218	12.78	20.41	Y	Y		Y		Y
SMW_BH045	316499.079	6256061.218	4.54	21.15	Y		Y	Y		
SMW_BH048	315343.279	6256837.819	6.95	22.5	Y	Y				Y
SMW_BH048_s	315344.079	6256837.619	6.96	22.5	Y	Y				Y
SMW_BH049	315207.679	6256760.319	8.99	22.61	N	Y		Y		
SMW_BH049_s	315207.679	6256760.319	8.99	22.61	N	Y				
SMW_BH057	316958.779	6256068.418	3.84	20.8	Y	Y		Y		Y
SMW_BH057_s	316956.179	6256072.418	3.84	20.8	Y	Y				Y

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Borehole ID	Easting (MGA 2020 zone 56)	Northing (MGA 2020 zone 56)	Ground Level (mAHD)	Project Chainage (km)	Groundwater Level Record	Standpipe Installed	VWP Installed	Packer Testing	Slug Testing	Hydrograph
SMW_BH060	318454.678	6254506.818	5.29	18.49				Y		
SMW_BH063	318071.978	6254562.618	5.05	18.87	Y		Y	Y		
SMW_BH064	316900.279	6255474.818	9.5	20.32	Y	Y				Y
SMW_BH071	321034.178	6253355.118	13.5	15.66				Y		
SMW_BH072	316887.079	6255335.618	6.12	20.2						
SMW_BH111	316791.879	6255908.318	9.74	20.8	Y		Y	Y		Y
SMW_BH115	318839.178	6254308.418	5.54	18.06	Y		Y	Y		Y
SMW_BH120	321260.178	6253046.018	17.38	15.27	Y	Y		Y		Y
SMW_BH121	320533.578	6253587.118	4.51	16.22	Y	Y		Y		Y
SMW_BH122	317399.778	6254769.018	1.94	19.53						
SMW_BH123	317103.878	6254908.418	4.63	19.78						
SMW_BH124	317466.478	6254546.318	3.61	19.37						
SMW_BH600	316847.078	6255067.618	5.15	20.04						
SMW_BH700	313633.979	6257251.919	38.25	24.28				Y		
SMW_BH701	313818.379	6257207.219	29.38	24.09	Y	Y		Y		Y
SMW_BH702	316915.679	6255642.418	15.13	20.48						
SMW_BH702a	316895.279	6255400.218	7.13	20.25						
SMW_BH703	315050.379	6256616.419	8.85	22.73				Y		
SMW_BH704	315324.479	6256610.319	10.31	22.46				Y		
SMW_BH705	315335.779	6256561.319	10.14	22.44				Y		
SMW_BH707	316562.079	6256170.918	4.57	21.15	Y	Y				Y
SMW_BH708	316547.979	6256169.818	4.76	21.16				Y		
SMW_BH709	319319.978	6254062.718	5.44	17.52	Y	Y		Y		Y
SMW_BH709_s	319320.078	6254063.418	5.44	17.52	Y	Y				Y
SMW_ENV009	316988.4786	6256043.418	4.28	20.76	Y	Y				Y
SMW_ENV010	316959.4786	6256040.418	4.28	20.78	Y	Y				Y
SMW_ENV011	316959.4786	6256040.418	3.81	20.78	Y	Y				
SMW_ENV039	316919.4	6255274.5	6.41	20.15	Y	Y			Y	
SMW_ENV042	317462.9	6254970.2	4.43	19.62	Y	Y			Y	Y
SMW_ENV044	317364.2	6254691	3.51	19.5	Y	Y			Y	
SMW_ENV045	317102.8	6254905.7	4.62	19.78	Y	Y			Y	Y
SMW_ENV076	316846.8	6255066.9	5.3	20.04	Y	Y			Y	
SMW_ENV077	316884	6255323	6.03	20.2	Y	Y			Y	
SMW_ENV078	316893	6255363	6.38	20.22	Y	Y			Y	
SMW_BH709	319319.978	6254062.718	5.44	17.52	Y	Y		Y		Y
SMW_BH709_s	319320.078	6254063.418	5.44	17.52	Y	Y				Y
SMW_ENV009	316988.4786	6256043.418	4.28	20.76	Y	Y				Y
SMW_ENV010	316959.4786	6256040.418	4.28	20.78	Y	Y				Y
SMW_ENV011	316959.4786	6256040.418	3.81	20.78	Y	Y				
SMW_ENV039	316919.4	6255274.5	6.41	20.15	Y	Y			Y	
SMW_ENV042	317462.9	6254970.2	4.43	19.62	Y	Y			Y	Y
SMW_ENV044	317364.2	6254691	3.51	19.5	Y	Y			Y	
SMW_ENV045	317102.8	6254905.7	4.62	19.78	Y	Y			Y	Y
SMW_ENV076	316846.8	6255066.9	5.3	20.04	Y	Y			Y	
SMW_ENV077	316884	6255323	6.03	20.2	Y	Y			Y	
SMW_ENV078	316893	6255363	6.38	20.22	Y	Y			Y	
SMW_ENV083	317079.278	6255103.518	5.03	19.96	Y	Y				
SMW_ENV088	316952.578	6254972.918	4.85	19.92	Y	Y				
SMW_ENV089	317049.478	6254996.718	4.96	19.88	Y	Y				
SMW_ENV090	317170.078	6254998.118	4.58	19.82	Y	Y				
SMW_ENV090S_w	317168.278	6254997.918	4.57	19.82	Y	Y				
SMW_ENV144	317395.4	6254688.7	3.52	19.48	Y	Y			Y	Y
SMW_ENV145	317491.8	6255159	4.74	19.77	Y	Y			Y	Y
SMW_ENV146	317021.5	6254853.1	4.28	19.78	Y	Y			Y	
SMW_ENV148	317466.9	6254543.7	3.47	19.37	Y	Y			Y	
SMW_ENV149	317418.7	6254656.7	3.4	19.45	Y	Y			Y	
SMW_ENV150_S	317399.2	6254768.6	1.95	19.53	Y	Y				Y
SMW_ENV150_w	317399.2	6254768.6	1.95	19.53	Y	Y			Y	
SMW_ENV151	316902.6	6254875	3.96	19.87	Y	Y			Y	
SMW_ENV200	317057.2	6254941.9	4.52	19.84	Y	Y				
SMW_ENV201	317080.7	6254966.2	4.11	19.84	Y	Y				
SMW_ENV202	317100	6254962.1	4.3	19.83	Y	Y				
SMW_ENV204	317350.8	6254641.9	4.09	19.48	Y	Y				
SMW_ENV206	317359.5	6254662.2	4.01	19.49	Y	Y				
SMW_ENV207	317378.5	6254697.6	3.74	19.5	Y	Y				
SMW_ENV208	317391.7	6254678.2	3.86	19.48	Y	Y				
SMW_ENV209	317392.5	6254650.9	3.93	19.46	Y	Y				
SMW_ENV210	317385.1	6254637.4	3.99	19.46	Y	Y				
SMW_ENV218	316862.2	6254930.5	4.37	19.94	Y	Y				
SMW_ENV219	316912.7	6254927.1	4.78	19.91	Y	Y				
SMW_ENV220	316961.7	6254943.4	4.64	19.89	Y	Y				
SMW_ENV221	316999.1	6254954.4	4.46	19.88	Y	Y				
SMW_ENV222	317258.4	6254921	5.72	19.71	Y	Y				
SMW_ENV222_s	317258.4	6254921	5.72	19.71	Y	Y				
SMW_ENV223	317337.4	6254898.7	4.61	19.65	Y	Y				
SMW_ENV223_s	317337.5	6254898.4	4.6	19.65	Y	Y				

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Borehole ID	Easting (MGA 2020 zone 56)	Northing (MGA 2020 zone 56)	Ground Level (mAHD)	Project Chainage (km)	Groundwater Level Record	Standpipe Installed	VWP Installed	Packer Testing	Slug Testing	Hydrograph
SMW_ENV226	317273.3	6254986.8	5.77	19.75	Y	Y				
SMW_ENV226_s	317273.4	6254987.4	5.73	19.75	Y	Y				
SMW_ENV227	317274.578	6254965.418	5.71	19.73	Y	Y				
SMW_ENV229	317322.778	6254966.418	5.85	19.7	Y	Y				
SMW_ENV231	317371.4	6254951.3	6.45	19.67	Y	Y				
SMW_ENV232A	317335.4	6254974.9	5.93	19.7	Y	Y				
SMW_ENV234	317419.2	6254762.9	2.16	19.51	Y	Y				
SMW_ENV238	317433.1	6254575.9	3.93	19.4	Y	Y				
SMW_ENV241	317398.5	6254719.1	2.86	19.5	Y	Y				
SMW_ENV242	317380	6254694.2	3.62	19.5	Y	Y				
SMW_ENV243	317384.9	6254664.5	3.82	19.48	Y	Y				
SMW_ENV244	317361.9	6254560.5	4.19	19.44	Y	Y				
SMW_ENV247	317216.278	6254646.818	4.37	19.56	Y	Y				
SMW_ENV250	317055.3	6254713.8	4.86	19.67	Y	Y				
SMW_ENV258	317307.1	6254764.7	3.86	19.58	Y	Y				
SMW_ENV262	317280	6254871.8	4.35	19.66	Y	Y				
SMW_ENV263	317331.6	6254848.1	4.61	19.62	Y	Y				
SMW_ENV264	317253.7	6254935.6	5.68	19.72	Y	Y				
SMW_ENV264_s	317252.8	6254934.1	5.82	19.72	Y	Y				
SMW_ENV266	317327.578	6254922.818	4.6	19.67	Y	Y				
SMW_ENV269	317311.2	6254869.3	4.73	19.64	Y	Y				
SMW_ENV271	317236	6254852.5	5.88	19.67	Y	Y				
SMW_ENV272	316980.8	6254846.5	4.28	19.8	Y	Y				
SMW_ENV275	316926.2	6254790.2	5	19.79	Y	Y				
SMW_ENV276	316932.2	6254850.4	4.53	19.83	Y	Y				
SMW_ENV279	317009.2	6254899.2	4.75	19.83	Y	Y				
SMW_ENV280	316956.4	6254897.6	4.44	19.86	Y	Y				
SMW_ENV282	317055.7	6255217.1	5.14	20.05	Y	Y				
SMW_ENV283	317145.2	6255207.8	5.73	20	Y	Y				
SMW_ENV283_s	317144.7	6255207.9	5.73	20	Y	Y				
SMW_ENV284	317142.4	6255142.5	5.02	19.95	Y	Y				
SMW_ENV287	317337.1	6254912.7	4.6	19.66	Y	Y				
SMW_ENV287_s	317338	6254912.1	4.59	19.66	Y	Y				
SMW_ENV292	318098.3	6254544.1	6.87	18.84	Y	Y				
SMW_ENV293	316920.7	6255138.2	5.47	20.06	Y	Y				
SMW_ENV294	313832.9	6257182.2	29.41	24.07	Y	Y				
SMW_ENV295	313820.3	6257185.8	29.76	24.09	Y	Y				
SMW_ENV297	313813.5	6257167	30.91	24.09	N	Y				
SMW_ENV299	313820.8	6257180.2	30	24.08	Y	Y				
SMW_ENV300	313829.8	6257171.4	30.06	24.07	N	Y				
SMW_ENV300_s	313829.7	6257170.9	30.1	24.07	Y	Y				
SMW_ENV301	313801.2	6257177.3	30.59	24.1	Y	Y				
SMW_ENV301_s	313801	6257176.8	30.63	24.1	Y	Y				
SMW_ENV712	321334.878	6252998.717	19.72	15.19	Y	Y				Y
SMW_ENV712_s	321334.178	6252998.017	19.71	15.19	Y	Y				Y
SMW_ENV715B	321763.778	6252490.417	14.62	15.17	Y	Y				Y
SMW_ENV801	317261	6255194.9	5.83	19.93	Y	Y				
SMW_ENV801_s	317262.4	6255194.7	5.86	19.93	N	Y				
SMW_ENV806	317302	6255127.4	5.3	19.85	Y	Y				
SMW_ENV808	317280.4	6255155.6	4.92	19.88	Y	Y				
SMW_ENV809	317306.5	6255134.8	5.21	19.85	Y	Y				
SMW_ENV811	317302.5	6255102.4	5.06	19.83	Y	Y				
SMW_ENV812	317336.9	6255189.3	5.52	19.88	Y	Y				
SMW_ENV813	317362	6255210.3	5.5	19.88	Y	Y				
SMW_ENV814	317311.4	6255174.1	5.47	19.88	Y	Y				
SMW_WTP_BH01	313807.3	6257167.6	30.8	24.09					Y	
SMW_WTP_BH01A	313806.4	6257167.2	30.95	24.09	Y	Y				
SMW_WTP_BH02	313599.2	6257266.7	35.76	24.32	Y	Y			Y	
SMW_WTP_BH03	313922.9	6257171	26.49	23.98					Y	
SMW_WTP_BH03A	313923.9	6257170.8	26.37	23.98	Y	Y				
SMW_WTP_BH11	316270.7	6256285.5	6.4	21.46					Y	
SMW_WTP_BH13	317214.3	6255249.1	5.39	20	Y	Y			Y	
SMW_WTP_BH14	317252.1	6255195.9	5.76	19.93	Y	Y			Y	
SMW_WTP_BH15	317265.5	6255170.2	5.54	19.9					Y	
SMW_WTP_BH15A	317265.9	6255170.6	5.54	19.9	Y	Y				
SMW_WTP_BH16	317315.9	6255135.8	5.19	19.85	Y	Y			Y	
SMW_WTP_BH17	317354.1	6255063.2	5.1	19.77	Y	Y			Y	
SMW_WTP_BH18	317161.7	6255141.4	5.09	19.94	N		Y		Y	
SMW_WTP_BH18_w	317164.4	6255141.2	5.07	19.94	Y	Y				
SMW_WTP_BH19	317937.2	6254629.4	5.62	19.02	Y	Y			Y	
SMW_WTP_BH20	319008.4	6254160.1	3.32	17.85					Y	
SMW_WTP_BH21	319919.1	6253770.5	12.02	16.86					Y	
SMW_WTP_BH22	320365.4	6253645.9	3.04	16.39	Y	Y			Y	

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Borehole ID	Easting (MGA 2020 zone 56)	Northing (MGA 2020 zone 56)	Ground Level (mAHD)	Project Chainage (km)	Groundwater Level Record	Standpipe Installed	VWP Installed	Packer Testing	Slug Testing	Hydrograph
SMW_WTP_BH23	320830.5	6253497	10.26	15.91	Y	Y		Y		
SMW_WTP_BH24	321181.5	6253222.8	15.69	15.46	N			Y		
SMW_WTP_BH25	317297	6254975.6	5.56	19.73	Y	Y				
SMW_WTP_BH25_s	317296.6	6254976.2	5.56	19.73	Y	Y				
SMW_WTP_BH26	317173.778	6254833.718	5.01	19.69	Y	Y				
SMW_WTP_BH27	317112.6	6254822.2	5.02	19.71	Y	Y				
SMW_WTP_BH29	316920.2	6254923	4.52	19.9	Y	Y				
SMW_WTP_BH30	317250.178	6254701.518	4.27	19.57	Y	Y				
SMW_WTP_BH30_s	317250.778	6254701.218	4.24	19.57	Y	Y				
SMW_WTP_BH31	313706.4	6257221.1	36.58	24.21				Y		
SMW_WTP_BH31A	313708.7	6257220.6	36.55	24.2	Y	Y				
SMW_WTP_BH32	313763.7	6257203.1	32.08	24.15				Y		
SMW_WTP_BH32A	313763.4	6257203.2	32.09	24.15	Y	Y				
SMW_WTP_BH33	313754	6257229.6	32.81	24.16				Y		
SMW_WTP_BH35	317421.6	6254891.8	5.81	19.59	Y	Y				
SMW_WTP_BH38	317314.8	6254574.1	4.13	19.47	N	Y				
SMW_WTP_BH40	317148.6	6254633.1	10.64	19.58	Y	Y				
SMW_WTP_BH41A	317031.4	6254715.8	5.07	19.68	Y	Y				
SMW_WTP_Site01_BH01	315402.6	6256558.1	9.07	22.37					Y	
SMW_WTP_Site01_BH02	315403.4	6256561.9	9.12	22.37					Y	
SMW_WTP_Site01_BH03	315404	6256564.2	9.11	22.37					Y	
SMW_WTP_BH41	317031.4	6254715.8	5.07	19.68	Y	Y				

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Attachment 5 – Background Groundwater Quality Monitoring Data

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

					Inorganics				Major Ions												Minor Ions			Nutrients													

						Metals										BTEXN								TRH - NEPM 2013								TRH - NEPM 2013 - SG Cl			
						Chromium (III+VI) (Filtered)	Chromium (hexavalent) (Filtered)	Cobalt (Filtered)	Copper (Filtered)	Iron (Filtered)	Lead (Filtered)	Manganese (Filtered)	Mercury (Filtered)	Nickel (Filtered)	Zinc (Filtered)	Benzene	Toluene	Ethylbenzene	Xylene (o)	Xylene (m & p)	Xylene Total	BTEX (Sum of Total) - Lab Calc	Naphthalene	F1 (C6-C10 minus BTEX)	C6-C10 Fraction	F2 (>C10-C16 minus Naphthalene)	>C10-C16 Fraction	F3 (>C16-C34 Fraction)	F4 (>C34-C40 Fraction)	>C10-C40 (Sum of Total)	>C10-C40 (Sum of Total) - Calc	F2 (>C10-C16 minus Naphthalene) SG Cleanup	>C10-C16 SG Cleanup	>C16-C34 SG Cleanup	>C34-C40 SG Cleanup
						mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/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	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL						0.001	0.01	0.001	0.001	0.05	0.001	0.001	0.0001	0.001	0.005	1	2	2	2	2	2	1	1	20	20	100	100	100	100	100		100	100	100	100
ADWG 2011 Recreational (v3.6 updated 2021)							**0.5**		**20**		**0.1**	**5**	**0.01**	**0.2**		**10**	**8000**	**3000**			**6000**															
ANZECC 2000 Slightly disturbed ecosystems in SE Australia - Lowland rivers																																			
ANZG (2018) - FW - 95% (updated 26 July 2021)						0.001[#6]	0.001		0.0014		0.0034	1.9	0.0006	0.011	0.008	950	180	80	350				16													
PFAS NEMP 2.0 2020 Freshwater - 99% - high conservation value systems																																			
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																																
Clyde Dive Site	SMW_ENV077	SMW_ENV077	13/11/2019	Normal	Ashfield Shale	<0.001	<0.01	0.011	<0.001	0.45	<0.001	0.143	<0.0001	0.003	0.018	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100	-	<100	<100	<100	-	-	-	-	-
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Normal	Ashfield Shale	<0.001	<0.01	0.012	<0.001	1.56	<0.001	0.849	<0.0001	0.006	0.015	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100	-	<100	<100	<100	-	-	-	-	-
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Field_D	Ashfield Shale	0.001	<0.01	0.013	<0.001	1.53	<0.001	0.848	<0.0001	0.007	0.016	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100	-	<100	<100	<100	-	-	-	-	-
Silverwater	FD14	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	<0.001	<0.01	0.001	<0.001	4.54	<0.001	0.337	<0.0001	<0.001	<0.005	<1	3	<2	<2	<2	<2	3	<5	<20	<20	<100	<100	<100	<100	<100	-	-	-	-	-
Silverwater	FD16	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	<0.001	<0.01	<0.001	<0.001	4.59	<0.001	0.35	<0.0001	<0.001	<0.005	<1	3	<2	<2	<2	<2	3	<5	<20	<20	<100	<100	<100	<100	<100	-	-	-	-	-
Silverwater	MW10D	MW10D	25/08/2011	Normal	Ashfield Shale	<0.001	-	-	<0.001	-	<0.001	-	<0.0001	<0.001	<0.001	<1	<1	<1	<1	<2	<3	-	<1	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW12D	MW12D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<2	<3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/07/2011	Normal	Ashfield Shale	<0.001	-	-	<0.001	-	<0.001	-	<0.0001	0.021	0.016	<1	<1	<1	<1	<2	<3	-	<1	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<2	<3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	SMW_BH709	SMW_BH709	26/03/2021	Normal	Ashfield Shale	<0.001	<0.01	0.001	<0.001	4.63	<0.001	0.339	<0.0001	<0.001	<0.005	<1	3	<2	<2	<2	<2	3	<5	<20	<20	<100	<100	<100	<100	<100	-	-	-	-	-
Tunnel SW/SOP	SMW_BH121	SMW_BH121	10/03/2019	Normal	Ashfield Shale	<0.01	<0.01	<0.01	<0.01	10.6	<0.01	3.1	<0.0001	<0.01	<0.05	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100	-	<100	<100	<100	-	-	-	-	-
Westmead Station	SMW_BH701	SMW_BH701	1/04/2021	Normal	Ashfield Shale	0.005	<0.01	0.004	0.012	0.55	<0.001	0.582	<0.0001	0.008	0.019	<1	3	<2	<2	<2	<2	3	<1	<20	<20	<100	<100	<100	<100	<100	-	-	-	-	-
Clyde Dive Site	SMW_BH043	SMW_BH043	20/08/2020	Normal	Ashfield Shale	<0.001	<0.01	0.001	0.001	<0.05	<0.001	1.23	<0.0001	0.001	0.01	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100	-	<100	<100	<100	-	-	-	-	-
Clyde Dive Site	SMW_BH064	SMW_BH064	13/11/2019	Normal	Ashfield Shale	<0.001	<0.01	0.07	<0.001	14.1	<0.001	0.376	0.0001	0.049	0.278	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100	-	<100	<100	<100	-	-	-	-	-
Outside Buffer - Clyde Refinery	SMW_BH011	SMW_BH011	18/09/2018	Normal	Ashfield Shale	<0.001	<0.01	0.004	<0.001	59.7	<0.001	1.54	<0.0001	0.008	<0.005	<1	51	<2	<2	<2	<2	51	<5	<20	70	<100	-	<100	<100	<100	-	-	-	-	-
Outside Buffer - Clyde Refinery	SMW_BH021	SMW_BH021	18/09/2018	Normal	Ashfield Shale	<0.001	<0.01	0.002	<0.001	37.3	<0.001	1.51	<0.0001	0.002	0.022	<1	<2	<2	<2	<2	<2	<1	<5	<20	<20	<100	-	<100	<100	<100	-	-	-	-	-
Silverwater	Dup1 (MW1D)	MW1D	25/07/2011	Field_D	Ashfield Shale	<0.001	-	-	<0.001	-	<0.001	-	<0.0001	0.003	0.003	<1	<1	<1	<1	<2	<3	-	<1	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/07/2011	Normal	Ashfield Shale	<0.001	-	-	<0.001	-	<0.001	-	<0.0001	0.002	0.003	<1	<1	<1	<1	<2	<3	-	<1	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<2	<3	-	<1	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale	<0.001	-	-	<0.001	-	<0.001	-	<0.0001	0.011	0.02	<1	<1	<1	<1	<2	<3	-	<1	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<2	<3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale	0.001	-	0.008	<0.001	12	<0.001	0.523	<0.0001	0.002	<0.005	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100	-	<100	<100	<100	-	-	-	-	-
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation	<0.001	-	<0.001	0.006	1.47	<0.001	0.154	<0.0001	<0.001	<0.005	<1	14	<2	<2	<2	<2	14	<5	<20	30	<100	-	<100	<100	<100	-	-	-	-	-
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation	<0.001	-	<0.001	<0.001	2.56	<0.001	0.142	<0.0001	<0.001	<0.005	<1	<2	<2	<2	<2	<2	<1	<5	<20	<20	<100	-	<100	<100	-	<100	<100	<100	<100	<100	<100
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation	0.001	<0.01	0.001	0.001	1.27	<0.001	0.384	<0.0001	0.002	<0.005	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100	-	<100	<100	<100	-	-	-	-	-
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation	<0.001	-	<0.001	<0.001	1.24	<0.001	0.072	<0.0001	0.002	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Westmead Station	SMW_BH001	SMW_BH001	3/09/2018	Normal	Residual	<0.001	-	0.003	<0.001	<0.05	<0.001	0.176	<0.0001	0.003	0.011	<1	<2	<2	<2	<2	<2	<1	<5	<20	<20	<100	-	<100	<100	<100	-	-	-	-	-
Statistical Summary																																			
Number of Results						23	13	18	23	18	23	18	23	23	23	26	26	26	26	26	26	17	23	17	17	17	4	17	17	16	1	1	1	1	1
Number of Detects						4	0	13	4	16	0	18	1	16	12	0	6	0	0	0	0	6	0	0	2	0	0	0	0	0	0	0	0	0	0
Minimum Concentration						<0.001	<0.01	<0.001	<0.001	<0.05	<0.001	0.072	<0.0001	<0.001	<0.001	<1	<1	<1	<1	<2	<2	<1	<1	<20	<20	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Minimum Detect						0.001	ND	0.001	0.001	0.45	ND	0.072	0.0001	0.001	0.003	ND	3	ND	ND	ND	ND	3	ND	ND	30	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration						<0.01	<0.01	0.07	0.012	59.7	<0.01	3.1	0.0001	0.049	0.278	<1	51	<2	<2	<2	<3	51	<5	<20	70	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Maximum Detect						0.005	ND	0.07	0.012	59.7	ND	3.1	0.0001	0.049	0.278	ND	51	ND	ND	ND	ND	51	ND	ND	70	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration						0.0016	0.01	0.0081	0.0021	8.8	0.0014	0.7	0.0001	0.0063	0.023	1	4.2	1.7	1.7	2	2.3	5.2	2.4	20	24	100	100	100	100	100					
Median Concentration						0.001	0.01	0.0025	0.001	2.06	0.001	0.38	0.0001	0.002	0.005	1	2	2	2	2	2	1	1	20	20	100	100	100	100	100	100	100	100	100	100
Standard Deviation						0.002	0	0.016	0.003	16	0.0019	0.75	0	0.01	0.057	0	9.9	0.49	0.49	0	0.49	12	1.9	0	12	0	0	0	0	0					
Number of Guideline Exceedances						5	13	0	3	0	1	1	0	3	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)						4	0	0	2	0	0	1	0	3	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL (exceeds adopted criteria)						0.0034			0.0048			1.1		0.0158	0.0744																					

Env Stds Comments

#1:Not specifically guideline value: >500mg/L can have purgative effects
#2:Guideline value calculated by dividing Nitrate (as Nitrate) value (50 mg/L) by 4.427
#3:Guideline value calculated by dividing Nitrite (as Nitrite) value (30 mg/L) by molecular weight (3.2967033).
#4:assumed same as NH4
#5:Measured as NH3-N at pH 8
#6:Values taken from "Updating nitrate toxicity effects on freshwater aquatic species, 2013"
#7:In absence of total As guideline, As (V) guideline has been adopted.
#8:In absence of total Cr guideline, Cr (VI) guideline has been adopted.
#9:Ammonia as total ammonia, measured as [NH3-N] at pH 8.

Data Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Draft

| | | |

	genated			Phenols - Non-Halogenated					Phenols - total	OC Pesticides																					OP Pesticides						
	2,6-Dichlorophenol	4-Chloro-3-methylphenol	Pentachlorophenol	Phenol	2-Nitrophenol	2-Methylphenol (o-Cresol)	3,4-Methylphenol (m,p-cresol)	2,4-Dimethylphenol	Phenolics Total	DDT (total)	4,4'-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC	d-BHC	4,4 DDD	DDE	DDT+DDE+DDD - Lab Calc	Dieldrin	Endosulfan I (alpha)	Endosulfan II (beta)	Endosulfan Sulfate	Endrin	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion
	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	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	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	2	2	4	2	2	2	4	2			2	2	2	4	2	2	2		4	2	2	2	2	2	2	2	2	4	2	2	2	2	2	2	2
ADWG 2011 Recreational (v3.6 updated 2021)			**100**								**2**			**3**											**100**	**3**			**20**	**100**		**40**	**50**	**70**	**40**
ANZECC 2000 Slightly disturbed ecosystems in SE Australia - Lowland rivers																																			
ANZG (2018) - FW - 95% (updated 26 July 2021)			10	320																				0.02	0.2	0.09		0.1		0.01		0.01		0.15	
PFAS NEMP 2.0 2020 Freshwater - 99% - high conservation value systems																																			

Monitoring_Zone	Field_ID	Location_Code	Sampled_Date_Time	Sample_Type	Alternative_Name																																	
Clyde Dive Site	SMW_ENV077	SMW_ENV077	13/11/2019	Normal	Ashfield Shale	<2	<2	<4	<2	<2	<2	<4	<2	-	<4	-	<2	<2	<4	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Normal	Ashfield Shale	<2	<2	<4	<2	<2	<2	<4	<2	-	<4	-	<2	<2	<4	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Field_D	Ashfield Shale	<2	<2	<4	<2	<2	<2	<4	<2	-	<4	-	<2	<2	<4	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2
Silverwater	FD14	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	<2	<2	<4	<2	<2	<2	<4	<2	-	<4	<2	<2	<2	<4	<2	<2	<2	-	<4	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2
Silverwater	FD16	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	<2	<2	<4	<2	<2	<2	<4	<2	-	<4	<2	<2	<2	<4	<2	<2	<2	-	<4	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2
Silverwater	MW10D	MW10D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW12D	MW12D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	SMW_BH709	SMW_BH709	26/03/2021	Normal	Ashfield Shale	<2	<2	<4	<2	<2	<2	<4	<2	-	<4	<2	<2	<2	<4	<2	<2	<2	-	<4	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2
Tunnel SW/SOP	SMW_BH121	SMW_BH121	10/03/2019	Normal	Ashfield Shale	<2	<2	<4	<2	<2	<2	<4	<2	-	<4	-	<2	<2	<4	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2
Westmead Station	SMW_BH701	SMW_BH701	1/04/2021	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	<4	<2	<2	<2	<4	<2	<2	<2	-	<4	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2
Clyde Dive Site	SMW_BH043	SMW_BH043	20/08/2020	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clyde Dive Site	SMW_BH064	SMW_BH064	13/11/2019	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Clyde Refinery	SMW_BH011	SMW_BH011	18/09/2018	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Clyde Refinery	SMW_BH021	SMW_BH021	18/09/2018	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	<50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	Dup1 (MW1D)	MW1D	25/07/2011	Field_D	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale	<2	<2	<4	<2	<2	<2	<4	<2	-	<4	-	<2	<2	<4	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	<50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation	<2	<2	<4	<2	<2	<2	<4	<2	-	<4	-	<2	<2	<4	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Westmead Station	SMW_BH001	SMW_BH001	3/09/2018	Normal	Residual	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Statistical Summary

Number of Results	9	9	9	9	9	9	9	9	2	10	4	10	10	10	10	10	10	6	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<2	<2	<4	<2	<2	<2	<4	<2	<50	<4	<2	<2	<2	<4	<2	<2	<2	<2	<4	<2	<2	<2	<2	<4	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<2	<2	<4	<2	<2	<2	<4	<2	<50	<4	<2	<2	<2	<4	<2	<2	<2	<2	<4	<2	<2	<2	<2	<4	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration	2	2	4	2	2	2	4	2		4	2	2	2	4	2	2	2	2	4	2	2	2	2	2	2	2	2	2	4	2	2	2	2	2	2	2	2	2
Median Concentration	2	2	4	2	2	2	4	2	50	4	2	2	2	4	2	2	2	2	4	2	2	2	2	2	2	2	2	2	4	2	2	2	2	2	2	2	2	2
Standard Deviation	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	10	10	10	0	10	0	10	0	10	0	10	0	10	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL (exceeds adopted criteria)																																						

Env Stds Comments

#1:Not specifically guideline value: >500mg/L can have purgative effects
#2:Guideline value calculated by dividing Nitrate (as Nitrate) value (50 mg/L) by 4.427
#3:Guideline value calculated by dividing Nitrite (as Nitrite) value (30 mg/L) by molecular weight (3.2967033).
#4:assumed same as NH4
#5:Measured as NH3-N at pH 8
#6:Values taken from "Updating nitrate toxicity effects on freshwater aquatic species, 2013"
#7:In absence of total As guideline, As (V) guideline has been adopted.
#8:In absence of total Cr guideline, Cr (VI) guideline has been adopted.
#9:Ammonia as total ammonia, measured as [NH3-N] at pH 8.

Data Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Draft

| | | |

| | | |

| | | |

| | | |

						alkyl Sulfonic Acids			PFAS - Perfluoroalkyl Sulfonamide					S - Fluorotelomer Sulfonic Ac							PFAS
						Perfluorooctane sulfonic acid (PFOS)	Perfluorodecanesulfonic acid (PFDS)	Perfluorodecane sulfonic acid ammonium salt	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamidoethanol (MEFOSE)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FTS)	6:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	PFAS (Sum of Total)	PFAS (Sum of Total)(WA DER List)	PFOS/PFHxS (Sum of Total) - Auto Calc	Perfluoroheptanesulfonic acid
						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	µg/L
EQL						0.01	0.02		0.02	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.01	0.01	
ADWG 2011 Recreational (v3.6 updated 2021)																				**0.7**	
ANZECC 2000 Slightly disturbed ecosystems in SE Australia - Lowland rivers																					
ANZG (2018) - FW - 95% (updated 26 July 2021)																					
PFAS NEMP 2.0 2020 Freshwater - 99% - high conservation value systems						0.00023															
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																
Clyde Dive Site	SMW_ENV077	SMW_ENV077	13/11/2019	Normal	Ashfield Shale	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Normal	Ashfield Shale	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Field_D	Ashfield Shale	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silverwater	FD14	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	<0.01	-	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.02
Silverwater	FD16	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	<0.01	-	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.02
Silverwater	MW10D	MW10D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW12D	MW12D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	SMW_BH709	SMW_BH709	26/03/2021	Normal	Ashfield Shale	<0.01	-	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.02
Tunnel SW/SOP	SMW_BH121	SMW_BH121	10/03/2019	Normal	Ashfield Shale	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Westmead Station	SMW_BH701	SMW_BH701	1/04/2021	Normal	Ashfield Shale	<0.01	-	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.02
Clyde Dive Site	SMW_BH043	SMW_BH043	20/08/2020	Normal	Ashfield Shale	<0.01	-	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.02
Clyde Dive Site	SMW_BH064	SMW_BH064	13/11/2019	Normal	Ashfield Shale	<0.01	-	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	3.43	3.43	<0.01	<0.02
Outside Buffer - Clyde Refinery	SMW_BH011	SMW_BH011	18/09/2018	Normal	Ashfield Shale	<0.05	<0.05	-	<0.05	<0.12	<0.12	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	<0.05
Outside Buffer - Clyde Refinery	SMW_BH021	SMW_BH021	18/09/2018	Normal	Ashfield Shale	<0.05	<0.05	-	<0.05	<0.12	<0.12	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	<0.05
Silverwater	Dup1 (MW1D)	MW1D	25/07/2011	Field_D	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale	<0.05	-	<0.05	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	-
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation	<0.05	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	-
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Westmead Station	SMW_BH001	SMW_BH001	3/09/2018	Normal	Residual	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Statistical Summary																					
Number of Results						14	2	10	12	12	12	12	12	14	14	14	14	10	12	14	12
Number of Detects						0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0
Minimum Concentration						<0.01	<0.05	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.02
Minimum Detect						ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.43	3.43	ND	ND
Maximum Concentration						<0.05	<0.05	<0.05	<0.05	<0.12	<0.12	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	3.43	3.43	<0.05	<0.05
Maximum Detect						ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.43	3.43	ND	ND
Average Concentration						0.033		0.032	0.035	0.057	0.057	0.085	0.085	0.05	0.05	0.05	0.05	0.37	0.32	0.033	0.035
Median Concentration						0.05	0.05	0.02	0.035	0.05	0.05	0.085	0.085	0.05	0.05	0.05	0.05	0.03	0.05	0.05	0.035
Standard Deviation						0.021		0.015	0.016	0.032	0.032	0.037	0.037	0	0	0	0	1.1	0.98	0.021	0.016
Number of Guideline Exceedances						14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL (exceeds adopted criteria)																					

Env Stds Comments

#1:Not specifically guideline value: >500mg/L can have purgative effects
#2:Guideline value calculated by dividing Nitrate (as Nitrate) value (50 mg/L) by 4.427
#3:Guideline value calculated by dividing Nitrite (as Nitrite) value (30 mg/L) by molecular weight (3.2967033).
#4:assumed same as NH4
#5:Measured as NH3-N at pH 8
#6:Values taken from "Updating nitrate toxicity effects on freshwater aquatic species, 2013"
#7:In absence of total As guideline, As (V) guideline has been adopted.
#8:In absence of total Cr guideline, Cr (VI) guideline has been adopted.
#9:Ammonia as total ammonia, measured as [NH3-N] at pH 8.

Data Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Draft

				Inorganics					Major Ions												Minor Ions			Nutrients							
	Filtered Total Phosphorus as P	pH (Lab)	Electrical conductivity (lab)	Total Dissolved Solids @ 180°C	Alkalinity (Hydroxide as CaCO3)	Alkalinity (total as CaCO3)	Calcium (Filtered)	Magnesium (Filtered)	Potassium (Filtered)	Sodium (Filtered)	Chloride	Sulfate	Fluoride	Cations Total	Anions Total	Ionic Balance	Bicarbonate ion (HCO3-)	Carbonate ion	Sulfide (Filtered)	Ammonia as N	Nitrate (as N)	Nitrite (as N)	Nitrogen (Total Oxidised) (as N)	Nitrogen (Total)	Kjeldahl Nitrogen Total
	mg/L	pH units	µS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	%	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL		0.01	1		1	1	1	1	1	1	1		0.1	0.01	0.01	0.01				0.01	0.01	0.01	0.01	0.1	0.1
ADWG 2011 Recreational (v3.6 updated 2021)												**5000**[#1]	**15**								**112.9**[#2]	**9.1**[#3]				
ANZECC 2000 Slightly disturbed ecosystems in SE Australia - Lowland rivers	*0.05*	*6.5-8.0*	*2200*																	*0.02*			*0.04*	*0.5*	
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine	*0.03*	*7-8.5*																		*0.015*[#4]			*0.015*	*0.3*	
ANZG (2018) - FW - 95% (updated 26 July 2021)																				0.9[#5]	2.4[#6]				
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																				0.91[#9]					
PFAS NEMP 2.0 2020 Freshwater - 99% - high conservation value systems_																									
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																									
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																										
Parramatta Station	SMW_BH003_s	SMW_BH003_s	4/09/2018	Normal	Alluvial sand	*0.24*	7.24	754	1690	<1	160	17	5	4	132	43	154	-	7.1	7.62	3.48	160	<1	-	*0.28*	3.53	0.06	*3.59*	*5.7*	2.1
Parramatta Station	SMW_BH003s	SMW_BH003_s	6/12/2018	Normal	Alluvial sand	*0.17*	*6.88*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*0.9*	3.26	0.03	*3.29*	*4.4*	1.1
Parramatta Station	SMW_BH004_s	SMW_BH004_s	3/11/2020	Normal	Alluvial sand	*0.14*	*6.79*	339	202	<1	92	6	8	2	56	26	31	0.2	3.44	3.22	3.42	92	<1	-	<0.01	1.42	0.02	*1.42*	*1.8*	0.4
Parramatta Station	SMW_BH048_s	SMW_BH048_s	3/11/2020	Normal	Alluvial sand	*0.2*	7.25	494	-	<1	122	12	13	3	66	50	49	0.1	4.62	4.87	2.66	122	<1	-	*0.12*	-	-	<0.01	0.2	0.2
Parramatta Station	SMW_BH048_s	SMW_BH048_s	3/11/2020	Field_D	Alluvial sand	<0.01	7.19	502	-	<1	121	12	13	4	66	50	49	0.1	4.64	4.85	2.17	121	<1	-	*0.12*	-	-	<0.01	0.1	0.1
Parramatta Station	SMW_BH048_s	SMW_BH048_s	3/11/2020	Interlab_D	Alluvial sand	*<0.05*	*6.9*	490	51	<5	110	12	47	10	3.7	51	-	-	-	-	-	110	<5	-	*0.14*	<0.005	<0.005	-	0.1	-
Clyde Dive Site	SMW_ENV077	SMW_ENV077	13/11/2019	Normal	Ashfield Shale	*0.04*	*6.73*	*19,200*	13,000	<1	213	98	477	9	3410	5680	1890	<0.1	193	204	2.8	213	<1	-	*0.15*	<0.01	<0.01	<0.01	<0.2	<0.2
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Normal	Ashfield Shale	*0.09*	7.3	*21,300*	13,900	<1	683	258	596	50	3540	7040	794	0.8	217	229	2.6	683	<1	-	*1.13*	0.02	<0.01	*0.02*	*1.8*	1.8
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Field_D	Ashfield Shale	*0.05*	7.36	*21,200*	13,900	<1	634	260	603	51	3600	6940	781	0.8	220	225	0.94	634	<1	-	*1.14*	0.01	<0.01	0.01	*1.7*	1.7
Silverwater	FD14	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	*<0.1*	7.68	*19,400*	12,800	<1	551	282	484	29	3070	5990	-	0.4	188	189	0.29	551	<1	447	*2.34*	0.01	<0.01	-	*2.4*	2.4
Silverwater	FD16	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	*<0.1*	7.68	*19,500*	13,100	<1	501	284	490	30	3080	6130	-	0.4	189	192	0.83	501	<1	456	*2.39*	<0.01	<0.01	-	*2.4*	2.4
Silverwater	MW10D	MW10D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW12D	MW12D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	SMW_BH709	SMW_BH709	26/03/2021	Normal	Ashfield Shale	*<0.1*	7.55	*19,400*	12,800	<1	538	284	487	29	3120	6030	-	0.4	191	190	0.14	538	<1	448	*2.41*	<0.01	<0.01	-	*2.4*	2.4
Tunnel SW/SOP	SMW_BH121	SMW_BH121	10/03/2019	Normal	Ashfield Shale	*0.16*	7.22	*48,700*	37,000	<1	230	1310	1310	100	9400	21,400	2160	0.2	585	653	5.54	230	<1	-	*3.43*	<0.05	<0.05	*0.05*	*3.4*	3.4
Westmead Station	SMW_BH701	SMW_BH701	1/04/2021	Normal	Ashfield Shale	<0.02	7.56	*8410*	5010	<1	955	54	149	34	1580	1840	-	2.4	84.6	81.1	2.08	955	<1	486	*0.06*	<0.01	<0.01	-	<0.2	<0.2
Clyde Dive Site	SMW_BH043	SMW_BH043	20/08/2020	Normal	Ashfield Shale	0.02	7.55	*2550*	1440	<1	374	56	32	11	463	57	852	0.9	25.8	26.8	1.84	374	<1	-	*0.03*	0.52	<0.01	*0.52*	*0.8*	0.2
Clyde Dive Site	SMW_BH064	SMW_BH064	13/11/2019	Normal	Ashfield Shale	0.02	*6.17*	*6810*	3410	<1	50	16	81	3	1170	1760	418	0.9	58.4	59.3	0.78	50	<1	-	*0.16*	<0.01	<0.01	<0.01	0.2	0.2
Outside Buffer - Clyde Refinery	SMW_BH011	SMW_BH011	18/09/2018	Normal	Ashfield Shale	*0.21*	*6.23*	*10,500*	5380	<1	708	516	151	36	1320	3270	590	<0.1	96.5	119	10.3	708	<1	-	*1.82*	<0.05	<0.05	*<0.05*	*4.6*	4.6
Outside Buffer - Clyde Refinery	SMW_BH021	SMW_BH021	18/09/2018	Normal	Ashfield Shale	*0.23*	*6.63*	*17,700*	11,500	<1	476	375	319	26	2590	6520	305	<0.1	158	200	11.6	476	<1	-	*2.5*	<0.1	<0.1	*<0.1*	*2.6*	2.6
Silverwater	Dup1 (MW1D)	MW1D	25/07/2011	Field_D	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale	*<0.05*	*6.96*	*33,200*	25,200	<1	603	1040	1050	75	5060	11,900	864	0.3	360	366	0.74	603	<1	-	*6.89*	<0.01	<0.01	<0.01	*7*	7
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation	0.01	7.44	*7440*	3880	<1	331	129	67	19	1260	2350	307	0.1	67.2	79.3	8.22	331	<1	-	*0.71*	<0.01	<0.01	<0.01	*0.8*	0.8
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation	*0.03*	7.79	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*0.87*	0.05	<0.01	*0.05*	*0.6*	0.6
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation	<0.02	7.45	*25,100*	18,700	<1	393	983	626	73	3860	8460	592	0.2	270	259	2.18	393	<1	-	*5.66*	<0.01	<0.01	<0.01	*6.1*	6.1
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation	<0.02	7.3	*17,400*	12,900	<1	1080	294	515	54	3540	6680	369	0.5	212	218	1.23	1080	<1	-	*3.38*	<0.01	0.02	*0.02*	*3.3*	3.3
Clyde MSF	SMW_BH707	SMW_BH707	7/05/2021	Normal	Hawkesbury Sandstone	*0.05*	*8.66*	*2620*	1500	<1	749	45	57	10	480	479	-	1.2	28.1	30.2	3.73	670	79	85	*0.28*	0.05	<0.01	-	*0.4*	0.3
Outside - Rosehill	SMW_BH007	SMW_BH007	4/09/2018	Normal	Hawkesbury Sandstone	*0.42*	*6.92*	*10,700*	6740	<1	787	377	279	30	1520	3420	196	-	109	116	3.39	787	<1	-	*1.58*	0.02	<0.01	*0.02*	*1.7*	1.7
Outside Buffer - Clyde Refinery	SMW_BH020	SMW_BH020	18/09/2018	Normal	Hawkesbury Sandstone	*0.29*	*6.93*	*7400*	4390	<1	282	108	132	7	1260	1800	1040	0.1	71.2	78.1	4.57	282	<1	-	*0.23*	0.12	<0.01	*0.12*	*0.8*	0.7
Outside Buffer - Parramatta	SMW_BH014	SMW_BH014	9/03/2018	Normal	Hawkesbury Sandstone	*0.04*	*5.45*	*6610*	5310	<1	102	380	161	25	854	845	3190	0.2	99.5	92.3	3.75	102	<1	-	*1.31*	0.2	<0.01	*0.2*	*2.1*	1.9
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	3/09/2018	Normal	Hawkesbury Sandstone	*0.68*	7.45	*13,100*	7880	<1	949	151	353	28	1950	4470	125	0.4	122	148	9.46	949	<1	-	*1.91*	0.06	<0.01	*0.06*	*3.7*	3.6
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	4/08/2020	Normal	Hawkesbury Sandstone	*0.31*	7.36	*13,800*	8270	<1	786	306	295	28	2250	4620	120	0.3	138	148	3.62	786	<1	-	*3.09*	<0.01	0.04	*0.04*	*3.5*	3.5
Outside Buffer - Silverwater	SMW_BH027	SMW_BH027	9/04/2018	Normal	Hawkesbury Sandstone	0.02	7.01	*12,800*	7280	<1	478	355	336	26	1870	4500	245	-	127	142	5.28	478	<1	-	*2.16*	0.12	<0.01	*0.12*	*2.6*	2.5
Outside Buffer - Silverwater	SMW_BH029	SMW_BH029	9/12/2018	Normal	Hawkesbury Sandstone	<0.01	7.22	*9340*	5580	<1	399	180	192	41	1480	3120	279	0.6	90.2	102	6.03	399	<1	-	*1.04*	0.14	<0.01	*0.14*	*1.9*	1.8
Parramatta Station	SMW_BH002	SMW_BH002	4/09/2018	Normal	Hawkesbury Sandstone	0.01	*6.74*	*7680*	5310	<1	631	386	102	40	1030	2480	8	-	73.5	82.7	5.92	631	<1	-	*3.45*	0.1	<0.01	*0.1*	*3.5*	3.4
Parramatta Station	SMW_BH004_w	SMW_BH004_w	3/11/2020	Normal	Hawkesbury Sandstone	*0.09*	7.83	*3960*	2180	<1	408	108	56	21	592	1040	11	0.2	36.3	37.7	1.94	408	<1	-	*0.16*	0.16	<0.01	*0.16*	*0.4*	0.2
Parramatta Station	SMW_BH048_w	SMW_BH048_w	3/11/2020	Normal	Hawkesbury Sandstone	*0.03*	7.67	1590	-	<1	407	59	20	11	271	362	24	0.3	16.6	18.8	6.15	407	<1	-	*0.61*	-	-	<0.01	*0.7*	0.7
Tunnel CJ/RCRB	SMW_BH057	SMW_BH057	11/12/2019	Normal	Hawkesbury Sandstone	*0.04*	7.25	*11,600*	6490	<1	1000	366	297	45	1880	3510	4	0.6	126	119	2.68	1000	<1	-	*2.3*	<0.01	<0.01	<0.01	*2.4*	2.4

DRAFT

		Inorganics					Major Ions										Minor Ions			Nutrients					
	Filtered Total Phosphorus as P	pH (Lab)	Electrical conductivity (lab)	Total Dissolved Solids @ 180°C	Alkalinity (Hydroxide as CaCO3)	Alkalinity (total as CaCO3)	Calcium (Filtered)	Magnesium (Filtered)	Potassium (Filtered)	Sodium (Filtered)	Chloride	Sulfate	Fluoride	Cations Total	Anions Total	Ionic Balance	Bicarbonate ion (HCO3-)	Carbonate ion	Sulfide (Filtered)	Ammonia as N	Nitrate (as N)	Nitrite (as N)	Nitrogen (Total Oxidised) (as N)	Nitrogen (Total)	Kjeldahl Nitrogen Total
	mg/L	pH units	µS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	%	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL		0.01	1		1	1	1	1	1	1	1		0.1	0.01	0.01	0.01				0.01	0.01	0.01	0.01	0.1	0.1
ADWG 2011 Recreational (v3.6 updated 2021)												**5000**[#1]	**15**								**112.9**[#2]	**9.1**[#3]			
ANZECC 2000 Slightly disturbed ecosystems in SE Australia - Lowland rivers	*0.05*	*6.5-8.0*	*2200*																	*0.02*			*0.04*	*0.5*	
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine	*0.03*	*7-8.5*																		*0.015*[#4]			*0.015*	*0.3*	
ANZG (2018) - FW - 95% (updated 26 July 2021)																				0.9[#5]	2.4[#6]				
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																				0.91[#9]					
PFAS NEMP 2.0 2020 Freshwater - 99% - high conservation value systems																									
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																									
Monitoring_Zone **Field_ID** **Location_Code** **Sampled_Date_Time** **Sample_Type** **Alternative_Name**																									
Statistical Summary																									
Number of Results	35	35	33	30	33	33	33	33	33	33	33	27	28	32	32	32	33	33	5	35	32	32	29	35	34
Number of Detects	25	35	33	30	0	33	33	33	33	33	33	27	25	32	32	32	33	1	5	34	17	5	18	33	32
Minimum Concentration	<0.01	5.45	339	51	<1	50	6	5	2	3.7	26	4	<0.1	3.44	3.22	0.14	50	<1	85	<0.01	<0.005	<0.005	<0.01	0.1	0.1
Minimum Detect	0.01	5.45	339	51	ND	50	6	5	2	3.7	26	4	0.1	3.44	3.22	0.14	50	79	85	0.03	0.01	0.02	0.01	0.1	0.1
Maximum Concentration	0.68	8.66	48700	37000	<5	1080	1310	1310	100	9400	21400	3190	2.4	585	653	11.6	1080	79	486	6.89	3.53	<0.1	3.59	7	7
Maximum Detect	0.68	8.66	48700	37000	ND	1080	1310	1310	100	9400	21400	3190	2.4	585	653	11.6	1080	79	486	6.89	3.53	0.06	3.59	7	7
Average Concentration	0.12	7.2	12169	8893	1.1	482	276	297	29	1995	4028	572	0.46	130	138	3.8	480	3.5	384	1.6	0.32	0.019	0.35	2.2	2
Median Concentration	0.05	7.25	10500	6615	1	476	258	192	28	1520	3270	305	0.3	104.3	117.5	3.1	476	1	448	1.13	0.035	0.01	0.05	1.9	1.8
Standard Deviation	0.14	0.56	10567	7889	0.7	291	307	305	23	1891	4302	755	0.48	120	129	2.9	289	14	168	1.6	0.85	0.02	0.9	1.8	1.7
Number of Guideline Exceedances	25	13	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34	2	0	19	29	0
Number of Guideline Exceedances(Detects Only)	20	13	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34	2	0	17	29	0
95% UCL (exceeds adopted criteria)	0.21	7.3	15285																	2.3	0.97		1.1	2.7	

Env Stds Comments

#1:Not specifically guideline value: >500mg/L can have purgative effects
#2:Guideline value calculated by dividing Nitrate (as Nitrate) value (50 mg/L) by 4.427
#3:Guideline value calculated by dividing Nitrite (as Nitrite) value (30 mg/L) by molecular weight (3.2967033).
#4:assumed same as NH4
#5:Measured as NH3-N at pH 8
#6:Values taken from "Updating nitrate toxicity effects on freshwater aquatic species, 2013"
#7:In absence of total As guideline, As (V) guideline has been adopted.
#8:In absence of total Cr guideline, Cr (VI) guideline has been adopted.
#9:Ammonia as total ammonia, measured as [NH3-N] at pH 8.

Data Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Draft

							Metals												BTEXN										TR		
							Reactive Phosphorus as P	Arsenic (Filtered)	Cadmium (Filtered)	Chromium (III+VI) (Filtered)	Chromium (hexavalent) (Filtered)	Cobalt (Filtered)	Copper (Filtered)	Iron (Filtered)	Lead (Filtered)	Manganese (Filtered)	Mercury (Filtered)	Nickel (Filtered)	Zinc (Filtered)	Benzene	Toluene	Ethylbenzene	Xylene (o)	Xylene (m & p)	Xylene Total	BTEX (Sum of Total) - Lab Calc	Naphthalene	F1 (C6-C10 minus BTEX)	C6-C10 Fraction	F2 (>C10-C16 minus Naphthalene)
							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/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
EQL							0.01	0.001	0.0001	0.001	0.01	0.001	0.001	0.05	0.001	0.001	0.0001	0.001	0.005	1	2	2	2	2	2	1	1	20	20	100		
ADWG 2011 Recreational (v3.6 updated 2021)								**0.1**	**0.02**		**0.5**		**20**		**0.1**	**5**	**0.01**	**0.2**		**10**	**8000**	**3000**			**6000**							
ANZECC 2000 Slightly disturbed ecosystems in SE Australia - Lowland rivers							*0.02*																								
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine							*0.005*																								
ANZG (2018) - FW - 95% (updated 26 July 2021)								0.013[#7]	0.0002	0.001[#8]	0.001		0.0014		0.0034	1.9	0.0006	0.011	0.008	950	180	80	350				16				
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)									0.0055	0.0044[#8]	0.0044	0.001	0.0013		0.0044		0.0004	0.07	0.015	700	180	80					70				
PFAS NEMP 2.0 2020 Freshwater - 99% - high conservation value systems_																															
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																															
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																										
Parramatta Station	SMW_BH003_s	SMW_BH003_s	4/09/2018	Normal	Alluvial sand		<0.01	<0.001	<0.0001	<0.001	-	<0.001	<0.001	0.1	<0.001	0.054	<0.0001	<0.001	<0.005	<1	<2	<2	<2	<2	<2	<1	<5	<20	<20	<100		
Parramatta Station	SMW_BH003s	SMW_BH003_s	6/12/2018	Normal	Alluvial sand		<0.01	<0.001	<0.0001	<0.001	-	<0.001	<0.001	<0.05	<0.001	0.041	<0.0001	<0.001	<0.005	<1	<2	<2	<2	<2	<2	<1	<5	<20	<20	<100		
Parramatta Station	SMW_BH004_s	SMW_BH004_s	3/11/2020	Normal	Alluvial sand		<0.01	<0.001	<0.0001	<0.001	-	0.013	0.001	2.15	<0.001	0.073	<0.0001	0.007	0.026	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100		
Parramatta Station	SMW_BH048_s	SMW_BH048_s	3/11/2020	Normal	Alluvial sand		<0.01	0.005	<0.0001	<0.001	-	0.005	<0.001	3.78	<0.001	0.165	<0.0001	0.003	0.016	<1	<2	<2	<2	<2	<2	-	<1	<20	<20	<100		
Parramatta Station	SMW_BH048_s	SMW_BH048_s	3/11/2020	Field_D	Alluvial sand		<0.01	0.005	<0.0001	<0.001	-	0.005	<0.001	3.88	<0.001	0.171	<0.0001	0.003	0.015	<1	<2	<2	<2	<2	<2	-	<1	<20	<20	<100		
Parramatta Station	SMW_BH048_s	SMW_BH048_s	3/11/2020	Interlab_D	Alluvial sand		-	0.005	<0.0001	<0.001	-	0.005	<0.001	0.0042	<0.001	0.15	<0.00005	0.003	0.014	<1	<1	<1	<1	<2	-	-	-	<10	<10	<50		
Clyde Dive Site	SMW_ENV077	SMW_ENV077	13/11/2019	Normal	Ashfield Shale		<0.01	<0.001	<0.0001	<0.001	<0.01	0.011	<0.001	0.45	<0.001	0.143	<0.0001	0.003	0.018	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100		
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Normal	Ashfield Shale		<0.01	<0.001	<0.0001	<0.001	<0.01	0.012	<0.001	1.56	<0.001	0.849	<0.0001	0.006	0.015	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100		
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Field_D	Ashfield Shale		<0.01	0.002	<0.0001	0.001	<0.01	0.013	<0.001	1.53	<0.001	0.848	<0.0001	0.007	0.016	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100		
Silverwater	FD14	SMW_BH709	26/03/2021	Field_D	Ashfield Shale		<0.1	0.004	<0.0001	<0.001	<0.01	0.001	<0.001	4.54	<0.001	0.337	<0.0001	<0.001	<0.005	<1	3	<2	<2	<2	<2	3	<5	<20	<20	<100		
Silverwater	FD16	SMW_BH709	26/03/2021	Field_D	Ashfield Shale		<0.1	0.004	<0.0001	<0.001	<0.01	<0.001	<0.001	4.59	<0.001	0.35	<0.0001	<0.001	<0.005	<1	3	<2	<2	<2	<2	3	<5	<20	<20	<100		
Silverwater	MW10D	MW10D	25/08/2011	Normal	Ashfield Shale		-	<0.001	<0.0001	<0.001	-	-	<0.001	-	<0.001	-	<0.0001	<0.001	<0.001	<1	<1	<1	<1	<2	<3	-	<1	-	-	-		
Silverwater	MW12D	MW12D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<2	<3	-	-	-	-	-		
Silverwater	MW4D	MW4D	25/07/2011	Normal	Ashfield Shale		-	<0.001	<0.0001	<0.001	-	-	<0.001	-	<0.001	-	<0.0001	0.021	0.016	<1	<1	<1	<1	<2	<3	-	<1	-	-	-		
Silverwater	MW4D	MW4D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<2	<3	-	-	-	-	-		
Silverwater	SMW_BH709	SMW_BH709	26/03/2021	Normal	Ashfield Shale		<0.1	0.004	<0.0001	<0.001	<0.01	0.001	<0.001	4.63	<0.001	0.339	<0.0001	<0.001	<0.005	<1	3	<2	<2	<2	<2	3	<5	<20	<20	<100		
Tunnel SW/SOP	SMW_BH121	SMW_BH121	10/03/2019	Normal	Ashfield Shale		<0.05	<0.01	<0.001	<0.01	<0.01	<0.01	<0.01	10.6	<0.01	3.1	<0.0001	<0.01	<0.05	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100		
Westmead Station	SMW_BH701	SMW_BH701	1/04/2021	Normal	Ashfield Shale		<0.01	<0.001	<0.0001	0.005	<0.01	0.004	0.012	0.55	<0.001	0.582	<0.0001	0.008	0.019	<1	3	<2	<2	<2	<2	3	<1	<20	<20	<100		
Clyde Dive Site	SMW_BH043	SMW_BH043	20/08/2020	Normal	Ashfield Shale		<0.01	<0.001	0.0006	<0.001	<0.01	0.001	0.001	<0.05	<0.001	1.23	<0.0001	0.001	0.01	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100		
Clyde Dive Site	SMW_BH064	SMW_BH064	13/11/2019	Normal	Ashfield Shale		<0.01	<0.001	<0.0001	<0.001	<0.01	0.07	<0.001	14.1	<0.001	0.376	0.0001	0.049	0.278	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100		
Outside Buffer - Clyde Refinery	SMW_BH011	SMW_BH011	18/09/2018	Normal	Ashfield Shale		<0.05	<0.001	<0.0001	<0.001	<0.01	0.004	<0.001	59.7	<0.001	1.54	<0.0001	0.008	<0.005	<1	51	<2	<2	<2	<2	51	<5	<20	70	<100		
Outside Buffer - Clyde Refinery	SMW_BH021	SMW_BH021	18/09/2018	Normal	Ashfield Shale		<0.1	0.02	<0.0001	<0.001	<0.01	0.002	<0.001	37.3	<0.001	1.51	<0.0001	0.002	0.022	<1	<2	<2	<2	<2	<2	<1	<5	<20	<20	<100		
Silverwater	Dup1 (MW1D)	MW1D	25/07/2011	Field_D	Ashfield Shale		-	<0.001	<0.0001	<0.001	-	-	<0.001	-	<0.001	-	<0.0001	0.003	0.003	<1	<1	<1	<1	<2	<3	-	<1	-	-	-		
Silverwater	MW1D	MW1D	25/07/2011	Normal	Ashfield Shale		-	<0.001	<0.0001	<0.001	-	-	<0.001	-	<0.001	-	<0.0001	0.002	0.003	<1	<1	<1	<1	<2	<3	-	<1	-	-	-		
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<2	<3	-	<1	-	-	-		
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale		-	<0.001	<0.0001	<0.001	-	-	<0.001	-	<0.001	-	<0.0001	0.011	0.02	<1	<1	<1	<1	<2	<3	-	<1	-	-	-		
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<2	<3	-	-	-	-	-		
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale		<0.01	0.004	<0.0001	0.001	-	0.008	<0.001	12	<0.001	0.523	<0.0001	0.002	<0.005	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100		
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation		<0.01	0.001	<0.0001	<0.001	-	<0.001	0.006	1.47	<0.001	0.154	<0.0001	<0.001	<0.005	<1	14	<2	<2	<2	<2	14	<5	<20	30	<100		
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation		<0.01	0.002	<0.0001	<0.001	-	<0.001	<0.001	2.56	<0.001	0.142	<0.0001	<0.001	<0.005	<1	<2	<2	<2	<2	<2	<1	<5	<20	<20	<100		
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation		<0.01	0.001	<0.0001	0.001	<0.01	0.001	0.001	1.27	<0.001	0.384	<0.0001	0.002	<0.005	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100		
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation		<0.01	0.006	<0.0001	<0.001	-	<0.001	<0.001	1.24	<0.001	0.072	<0.0001	0.002	<0.005	-	-	-	-	-	-	-	-	-	-	-		
Clyde MSF	SMW_BH707	SMW_BH707	7/05/2021	Normal	Hawkesbury Sandstone		<0.01	0.01	<0.0001	<0.001	<0.01	0.003	0.002	<0.05	<0.001	0.174	<0.0001	0.012	0.007	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100		
Outside - Rosehill	SMW_BH007	SMW_BH007	4/09/2018	Normal	Hawkesbury Sandstone		<0.01	0.001	<0.0001	<0.001	<0.01	0.001	<0.001	12.3	<0.001	0.625	<0.0001	0.001	0.005	<1	<2	<2	<2	<2	<2	<1	<5	<20	<20	<100		
Outside Buffer - Clyde Refinery	SMW_BH020	SMW_BH020	18/09/2018	Normal	Hawkesbury Sandstone		<0.01	<0.001	<0.0001	<0.001	<0.01	0.008	0.002	0.53	<0.001	0.555	<0.0001	0.002	<0.005	<1	4	<2	<2	<2	<2	4	<5	<20	20	<100		
Outside Buffer - Parramatta	SMW_BH014	SMW_BH014	9/03/2018	Normal	Hawkesbury Sandstone		<0.01	0.019	<0.0001	0.002	-	0.06	<0.001	556	0.01	14.4	<0.0001	0.117	0.064	<1	53	<2	<2	<2	<2	53	<5	30	80	<100		
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	3/09/2018	Normal	Hawkesbury Sandstone		<0.01	0.014	<0.0001	<0.001	-	0.002	<0.001	<0.05	<0.001	0.22	<0.0001	0.003	<0.005	<1	9	<2	<2	3	3	12	<5	<20	30	100		
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	4/08/2020	Normal	Hawkesbury Sandstone		<0.01	0.002	<0.0001	<0.001	-	<0.001	<0.001	2.9	<0.001	0.299	<0.0001	0.001	<0.005	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100		
Outside Buffer - Silverwater	SMW_BH027	SMW_BH027	9/04/2018	Normal	Hawkesbury Sandstone		<0.01	<0.001	<0.0001	<0.001	-	0.006	<0.001	6.71	<0.001	0.541	<0.0001	0.008	0.006	<1	10	<2	<2	<2	<2	10	<5	20	30	<100		
Outside Buffer - Silverwater	SMW_BH029	SMW_BH029	9/12/2018	Normal	Hawkesbury Sandstone		<0.01	0.002	<0.0001	<0.001	-	0.018	<0.001	4.38	<0.001	2.04	<0.0001	0.01	0.014	<1	3	<2	<2	<2	<2	3	<5	<20	<20	<100		
Parramatta Station	SMW_BH002	SMW_BH002	4/09/2018	Normal	Hawkesbury Sandstone		0.04	<0.001	<0.0001	<0.001	-	<0.001	<0.001	1.28	<0.001	0.478	<0.0001	<0.001	<0.005	<1	<2	<2	<2	<2	<2	<1	<5	<20	<20	<100		
Parramatta Station	SMW_BH004_w	SMW_BH004_w	3/11/2020	Normal	Hawkesbury Sandstone		0.01	<0.001	<0.0001	<0.001	-	<0.001	0.001	<0.05	<0.001	0.029	<0.0001	0.182	0.013	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100		
Parramatta Station	SMW_BH048_w	SMW_BH048_w	3/11/2020	Normal	Hawkesbury Sandstone		<0.01	<0.001	<0.0001	<0.001	-	<0.001	<0.001	0.63	<0.001	0.173	<0.0001	<0.001	<0.005	<1	<2	<2	<2	<2	<2	-	<1	<20	<20	<100		
Tunnel CJ/RCRB	SMW_BH057	SMW_BH057	11/12/2019	Normal	Hawkesbury Sandstone		<0.01	0.017	<0.0001	<0.001	<0.05	0.004	<0.001	4	<0.001	0.658	<0.0001	0.002	<0.005	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100		

Draft

		Metals													BTEXN									TR		
	Reactive Phosphorus as P	Arsenic (Filtered)	Cadmium (Filtered)	Chromium (III+VI) (Filtered)	Chromium (hexavalent) (Filtered)	Cobalt (Filtered)	Copper (Filtered)	Iron (Filtered)	Lead (Filtered)	Manganese (Filtered)	Mercury (Filtered)	Nickel (Filtered)	Zinc (Filtered)	Benzene	Toluene	Ethylbenzene	Xylene (o)	Xylene (m & p)	Xylene Total	BTEX (Sum of Total) - Lab Calc	Naphthalene	F1 (C6-C10 minus BTEX)	C6-C10 Fraction	F2 (>C10-C16 minus Naphthalene)
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.01	0.001	0.0001	0.001	0.01	0.001	0.001	0.05	0.001	0.001	0.0001	0.001	0.005	1	2	2	2	2	2	1	1	20	20	100
ADWG 2011 Recreational (v3.6 updated 2021)		0.1	0.02		0.5		20		0.1	5	0.01	0.2		10	8000	3000			6000					
ANZECC 2000 Slightly disturbed ecosystems in SE Australia - Lowland rivers	*0.02*																							
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine	*0.005*																							
ANZG (2018) - FW - 95% (updated 26 July 2021)		0.013[#7]	0.0002	0.001[#8]	0.001		0.0014		0.0034	1.9	0.0006	0.011	0.008	950	180	80	350				16			
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)			0.0055	0.0044[#8]	0.0044	0.001	0.0013		0.0044		0.0004	0.07	0.015	700	180	80					70			
PFAS NEMP 2.0 2020 Freshwater - 99% - high conservation value systems																								
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																								

Monitoring_Zone	Field_ID	Location_Code	Sampled_Date_Time	Sample_Type	Alternative_Name																							
Statistical Summary																												
Number of Results						34	40	40	40	17	35	40	35	40	35	40	40	40	43	43	43	43	43	42	30	39	34	34	34
Number of Detects						2	20	1	5	0	24	8	30	1	35	1	29	21	0	11	0	0	1	1	11	0	2	6	1
Minimum Concentration						<0.01	<0.001	<0.0001	<0.001	<0.01	<0.001	<0.001	0.0042	<0.001	0.029	<0.00005	<0.001	<0.001	<1	<1	<1	<1	<2	<2	<1	<1	<10	<10	<50
Minimum Detect						0.01	0.001	0.0006	0.001	ND	0.001	0.001	0.0042	0.01	0.029	0.0001	0.001	0.003	ND	3	ND	ND	3	3	3	ND	20	20	100
Maximum Concentration						<0.1	0.02	<0.001	<0.01	<0.05	0.07	0.012	556	0.01	14.4	0.0001	0.182	0.278	<1	53	<2	<2	3	3	53	<5	30	80	100
Maximum Detect						0.04	0.02	0.0006	0.005	ND	0.07	0.012	556	0.01	14.4	0.0001	0.182	0.278	ND	53	ND	ND	3	3	53	ND	30	80	100
Average Concentration						0.024	0.0039	0.00014	0.0014	0.012	0.0079	0.0017	22	0.0015	0.95	0.000099	0.013	0.018	1	4.9	1.8	1.8	2	2.2	5.9	2.6	20	24	99
Median Concentration						0.01	0.001	0.0001	0.001	0.01	0.003	0.001	2.15	0.001	0.35	0.0001	0.0025	0.005	1	2	2	2	2	2	1	1	20	20	100
Standard Deviation						0.03	0.0052	0.00016	0.0015	0.0097	0.015	0.0023	94	0.002	2.4	7.9E-06	0.034	0.044	0	11	0.43	0.43	0.15	0.43	13	2	2.5	13	8.6
Number of Guideline Exceedances						34	4	2	6	17	25	5	0	2	3	0	6	17	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)						2	4	1	5	0	24	4	0	1	3	0	6	16	0	0	0	0	0	0	0	0	0	0	0
95% UCL	(exceeds adopted criteria)					0.05	0.0075	1.8E-04	0.0018		0.019	0.0033		0.0028	1.5		0.0357	0.0486											

Env Stds Comments

#1:Not specifically guideline value: >500mg/L can have purgative effects
#2:Guideline value calculated by dividing Nitrate (as Nitrate) value (50 mg/L) by 4.427
#3:Guideline value calculated by dividing Nitrite (as Nitrite) value (30 mg/L) by molecular weight (3.2967033).
#4:assumed same as NH4
#5:Measured as NH3-N at pH 8
#6:Values taken from "Updating nitrate toxicity effects on freshwater aquatic species, 2013"
#7:In absence of total As guideline, As (V) guideline has been adopted.
#8:In absence of total Cr guideline, Cr (VI) guideline has been adopted.
#9:Ammonia as total ammonia, measured as [NH3-N] at pH 8.

Data Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Draft

							TRH - NEPM 2013					TRH - NEPM 2013 - SG Cleanup					TRH - NEPM 1999						NEPM 1999 - SG C			TPH	PAHs - standard 1									
							>C10-C16 Fraction	F3 (>C16-C34 Fraction)	F4 (>C34-C40 Fraction)	>C10-C40 (Sum of Total)	>C10-C40 (Sum of Total) - Calc	F2 (>C10-C16 minus Naphthalene) SG Cleanup	>C10-C16 SG Cleanup	>C16-C34 SG Cleanup	>C34-C40 SG Cleanup	>C10-C40 (sum) SG Cleanup	C6-C9 Fraction	C10-C14 Fraction	C15-C28 Fraction	C29-C36 Fraction	C10-C36 (Sum of Total)	C10-C36 (Sum of Total) - Calc	C10-C14 SG Cleanup	C15-C28 SG Cleanup	C29-C36 SG Cleanup	TPH C6-C36 Fraction (Sum of Total) - Calc	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo[b+j]fluoranthene	Benzo(k)fluoranthene	Benzo(g,h,i)perylene	Chrysene	Dibenz(a,h)anthracene
							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	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
EQL							100	100	100	100		100	100	100	100	100	20	50	100	50	50		50	100	50		1	1	1	1	0.5	1	1	1	1	1
ADWG 2011 Recreational (v3.6 updated 2021)																															**0.1**					
ANZECC 2000 Slightly disturbed ecosystems in SE Australia - Lowland rivers																																			
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																																			
ANZG (2018) - FW - 95% (updated 26 July 2021)																													0.4		0.2				
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																															0.2				
PFAS NEMP 2.0 2020 Freshwater - 99% - high conservation value systems_																																			
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																																			
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																														
Parramatta Station	SMW_BH003_s	SMW_BH003_s	4/09/2018	Normal	Alluvial sand	-	<100	<100	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-	-	-	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1
Parramatta Station	SMW_BH003s	SMW_BH003_s	6/12/2018	Normal	Alluvial sand	-	<100	<100	-	<100	<100	<100	<100	<100	<100	<20	<50	<100	<50	-	<50	<50	<100	<50	<50	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH004_s	SMW_BH004_s	3/11/2020	Normal	Alluvial sand	-	<100	<100	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-	-	-	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1
Parramatta Station	SMW_BH048_s	SMW_BH048_s	3/11/2020	Normal	Alluvial sand	-	<100	<100	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-	-	-	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1
Parramatta Station	SMW_BH048_s	SMW_BH048_s	3/11/2020	Field_D	Alluvial sand	-	<100	<100	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-	-	-	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1
Parramatta Station	SMW_BH048_s	SMW_BH048_s	3/11/2020	Interlab_D	Alluvial sand	-	<100	<100	<100	-	-	-	-	-	-	<10	<0.05	<100	<100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clyde Dive Site	SMW_ENV077	SMW_ENV077	13/11/2019	Normal	Ashfield Shale	-	<100	<100	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-	-	-	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Normal	Ashfield Shale	-	<100	<100	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-	-	-	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Field_D	Ashfield Shale	-	<100	<100	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-	-	-	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1
Silverwater	FD14	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	<100	<100	<100	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	FD16	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	<100	<100	<100	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW10D	MW10D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	<10	<50	<100	<100	<250	-	-	-	-	-	<1	<1	<1	<1	<1	-	-	<1	<1	<1
Silverwater	MW12D	MW12D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	14	<50	<100	<100	<250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	<10	<50	<100	<100	<250	-	-	-	-	-	<1	<1	<1	<1	<1	-	-	<1	<1	<1
Silverwater	MW4D	MW4D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	<10	<50	<100	<100	<250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	SMW_BH709	SMW_BH709	26/03/2021	Normal	Ashfield Shale	<100	<100	<100	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunnel SW/SOP	SMW_BH121	SMW_BH121	10/03/2019	Normal	Ashfield Shale	-	<100	<100	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-	-	-	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1
Westmead Station	SMW_BH701	SMW_BH701	1/04/2021	Normal	Ashfield Shale	<100	<100	<100	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-	-	-	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1
Clyde Dive Site	SMW_BH043	SMW_BH043	20/08/2020	Normal	Ashfield Shale	-	<100	<100	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-	-	-	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1
Clyde Dive Site	SMW_BH064	SMW_BH064	13/11/2019	Normal	Ashfield Shale	-	<100	<100	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-	-	-	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1
Outside Buffer - Clyde Refinery	SMW_BH011	SMW_BH011	18/09/2018	Normal	Ashfield Shale	-	<100	<100	<100	-	-	-	-	-	-	70	<50	<100	<50	<50	-	-	-	-	-	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1
Outside Buffer - Clyde Refinery	SMW_BH021	SMW_BH021	18/09/2018	Normal	Ashfield Shale	-	<100	<100	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-	-	-	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1
Silverwater	Dup1 (MW1D)	MW1D	25/07/2011	Field_D	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	<10	<50	<100	<100	<250	-	-	-	-	-	<1	<1	<1	<1	<1	-	-	<1	<1	<1
Silverwater	MW1D	MW1D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	<10	<50	<100	<100	<250	-	-	-	-	-	<1	<1	<1	<1	<1	-	-	<1	<1	<1
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	<10	<50	<100	<100	<250	-	-	-	-	-	<1	<1	<1	<1	<1	-	-	<1	<1	<1
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	<10	<50	<100	<100	<250	-	-	-	-	-	<1	<1	<1	<1	<1	-	-	<1	<1	<1
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	<10	<50	<100	<100	<250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale	-	<100	<100	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-	-	-	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation	-	<100	<100	<100	-	-	-	-	-	-	30	<50	<100	<50	<50	-	-	-	-	-	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation	-	<100	<100	-	<100	<100	<100	<100	<100	<100	<20	<50	<100	<50	-	<50	<50	<100	<50	<50	-	-	-	-	-	-	-	-	-	-
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation	-	<100	<100	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-	-	-	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clyde MSF	SMW_BH707	SMW_BH707	7/05/2021	Normal	Hawkesbury Sandstone	<100	<100	<100	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-	-	-	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1
Outside - Rosehill	SMW_BH007	SMW_BH007	4/09/2018	Normal	Hawkesbury Sandstone	-	<100	<100	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-	-	-	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1
Outside Buffer - Clyde Refinery	SMW_BH020	SMW_BH020	18/09/2018	Normal	Hawkesbury Sandstone	-	<100	<100	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-	-	-	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1
Outside Buffer - Parramatta	SMW_BH014	SMW_BH014	9/03/2018	Normal	Hawkesbury Sandstone	-	240	<100	240	-	-	-	-	-	-	80	<50	220	<50	220	-	-	-	-	-	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	3/09/2018	Normal	Hawkesbury Sandstone	-	960	<100	1060	-	-	-	-	-	-	30	90	770	210	1070	-	-	-	-	-	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	4/08/2020	Normal	Hawkesbury Sandstone	-	170	<100	170	-	-	-	-	-	-	<20	<50	150	<50	150	-	-	-	-	-	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1
Outside Buffer - Silverwater	SMW_BH027	SMW_BH027	9/04/2018	Normal	Hawkesbury Sandstone	-	<100	<100	<100	-	-	-	-	-	-	20	<50	<100	<50	<50	-	-	-	-	-	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1
Outside Buffer - Silverwater	SMW_BH029	SMW_BH029	9/12/2018	Normal	Hawkesbury Sandstone	-	<100	<100	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-	-	-	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1
Parramatta Station	SMW_BH002	SMW_BH002	4/09/2018	Normal	Hawkesbury Sandstone	-	<100	<100	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-	-	-	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1
Parramatta Station	SMW_BH004_w	SMW_BH004_w	3/11/2020	Normal	Hawkesbury Sandstone	-	<100	<100	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-	-	-	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1
Parramatta Station	SMW_BH048_w	SMW_BH048_w	3/11/2020	Normal	Hawkesbury Sandstone	-	<100	<100	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-	-	-	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1
Tunnel CJ/RCRB	SMW_BH057	SMW_BH057	11/12/2019	Normal	Hawkesbury Sandstone	-	<100	<100	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-	-	-	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1

DRAFT

	TRH - NEPM 2013					TRH - NEPM 2013 - SG Cleanup					TRH - NEPM 1999						NEPM 1999 - SG C			TPH	PAHs - standard 1									
	>C10-C16 Fraction	F3 (>C16-C34 Fraction)	F4 (>C34-C40 Fraction)	>C10-C40 (Sum of Total)	>C10-C40 (Sum of Total) - Calc	F2 (>C10-C16 minus Naphthalene) SG Cleanup	>C10-C16 SG Cleanup	>C16-C34 SG Cleanup	>C34-C40 SG Cleanup	>C10-C40 (sum) SG Cleanup	C6-C9 Fraction	C10-C14 Fraction	C15-C28 Fraction	C29-C36 Fraction	C10-C36 (Sum of Total)	C10-C36 (Sum of Total) - Calc	C10-C14 SG Cleanup	C15-C28 SG Cleanup	C29-C36 SG Cleanup	TPH C6-C36 Fraction (Sum of Total) - Calc	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo[b+j]fluoranthene	Benzo(k)fluoranthene	Benzo(g,h,i)perylene	Chrysene	Dibenz(a,h)anthracene
	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	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
EQL	100	100	100	100		100	100	100	100	100	20	50	100	50	50		50	100	50		1	1	1	1	0.5	1	1	1	1	1
ADWG 2011 Recreational (v3.6 updated 2021)																									**0.1**					
ANZECC 2000 Slightly disturbed ecosystems in SE Australia - Lowland rivers																														
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																														
ANZG (2018) - FW - 95% (updated 26 July 2021)																							0.4		0.2					
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																									0.2					
PFAS NEMP 2.0 2020 Freshwater - 99% - high conservation value systems																														
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																														

Monitoring_Zone	Field_ID	Location_Code	Sampled_Date_Time	Sample_Type	Alternative_Name

Statistical Summary																														
Number of Results	5	34	34	32	2	2	2	2	2	2	43	43	43	43	40	2	2	2	2	2	34	34	34	34	34	28	28	34	34	34
Number of Detects	0	3	0	3	0	0	0	0	0	0	6	1	3	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<10	<0.05	<100	<50	<50	<50	<50	<100	<50	<50	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1
Minimum Detect	ND	170	ND	170	ND	ND	ND	ND	ND	ND	14	90	150	210	150	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<100	960	<100	1060	<100	<100	<100	<100	<100	<100	80	90	770	210	1070	<50	<50	<100	<50	<50	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Maximum Detect	ND	960	ND	1060	ND	ND	ND	ND	ND	ND	80	90	770	210	1070	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration	100	131	100	137							21	50	120	65	127						1	1	1	1	0.59	1	1	1	1	1
Median Concentration	100	100	100	100	100	100	100	100	100	100	20	50	100	50	50	50	50	100	50	50	1	1	1	1	0.5	1	1	1	1	1
Standard Deviation	0	149	0	171							13	9.9	103	31	175						0	0	0	0	0.19	0	0	0	0	0
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34	0	34	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL (exceeds adopted criteria)																														

Env Stds Comments

#1:Not specifically guideline value: >500mg/L can have purgative effects
#2:Guideline value calculated by dividing Nitrate (as Nitrate) value (50 mg/L) by 4.427
#3:Guideline value calculated by dividing Nitrite (as Nitrite) value (30 mg/L) by molecular weight (3.2967033).
#4:assumed same as NH4
#5:Measured as NH3-N at pH 8
#6:Values taken from "Updating nitrate toxicity effects on freshwater aquatic species, 2013"
#7:In absence of total As guideline, As (V) guideline has been adopted.
#8:In absence of total Cr guideline, Cr (VI) guideline has been adopted.
#9:Ammonia as total ammonia, measured as [NH3-N] at pH 8.

Data Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Draft

								6							PAHs - extended				Phenols - Halogenated							Phenols - Non-Halogenated						Phenols - total						
								Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Total 8 PAHs (as BaP TEQ)(zero LOR) - Lab Calc	PAHs (Sum of Total) - Calc	2-methylnaphthalene	3-methylcholanthrene	7,12-dimethylbenz(a)anthracene	Benzo(b&k)fluoranthene	2-Chlorophenol	2,4-Dichlorophenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,6-Dichlorophenol	4-Chloro-3-methylphenol	Pentachlorophenol	Phenol	2-Nitrophenol	2-Methylphenol (o-Cresol)	3,4-Methylphenol (m,p-cresol)	2,4-Dimethylphenol	Phenolics Total	DDT (total)	4,4'-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC
								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	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
EQL								1	1	1	1	1	0.5		2	2	2		2	2	2	2	2	2	4	2	2	2	4	2			2	2	2	4	2
ADWG 2011 Recreational (v3.6 updated 2021)																			**3000**	**2000**		**200**			**100**											**3**	
ANZECC 2000 Slightly disturbed ecosystems in SE Australia - Lowland rivers																																				
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																																				
ANZG (2018) - FW - 95% (updated 26 July 2021)								1.4			2								490	160		20			10	320											
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)								1.4			2														22	400											
PFAS NEMP 2.0 2020 Freshwater - 99% - high conservation value systems_																																				
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																																				
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																																
Parramatta Station	SMW_BH003_s	SMW_BH003_s	4/09/2018	Normal	Alluvial sand	<1	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<50	-	-	-	-	-	-
Parramatta Station	SMW_BH003s	SMW_BH003_s	6/12/2018	Normal	Alluvial sand	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH004_s	SMW_BH004_s	3/11/2020	Normal	Alluvial sand	<1	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH048_s	SMW_BH048_s	3/11/2020	Normal	Alluvial sand	<1	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH048_s	SMW_BH048_s	3/11/2020	Field_D	Alluvial sand	<1	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH048_s	SMW_BH048_s	3/11/2020	Interlab_D	Alluvial sand	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clyde Dive Site	SMW_ENV077	SMW_ENV077	13/11/2019	Normal	Ashfield Shale	<1	<1	<1	<1	<1	<0.5	<0.5	<2	<2	<2	-	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<4	<2	-	<4	-	<2	<2	<4	<2
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Normal	Ashfield Shale	<1	<1	<1	<1	<1	<0.5	<0.5	<2	<2	<2	-	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<4	<2	-	<4	-	<2	<2	<4	<2
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Field_D	Ashfield Shale	<1	<1	<1	<1	<1	<0.5	<0.5	<2	-	-	-	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<4	<2	-	<4	-	<2	<2	<4	<2
Silverwater	FD14	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	-	-	-	-	-	-	-	<2	<2	<2	-	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<4	<2	-	<4	<2	<2	<2	<4	<2
Silverwater	FD16	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	-	-	-	-	-	-	-	<2	<2	<2	-	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<4	<2	-	<4	<2	<2	<2	<4	<2
Silverwater	MW10D	MW10D	25/08/2011	Normal	Ashfield Shale	<1	<1	<1	<1	<1	-	-	-	-	-	<2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW12D	MW12D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/07/2011	Normal	Ashfield Shale	<1	<1	<1	<1	<1	-	-	-	-	-	<2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	SMW_BH709	SMW_BH709	26/03/2021	Normal	Ashfield Shale	-	-	-	-	-	-	-	<2	<2	<2	-	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<4	<2	-	<4	<2	<2	<2	<4	<2
Tunnel SW/SOP	SMW_BH121	SMW_BH121	10/03/2019	Normal	Ashfield Shale	<1	<1	<1	<1	<1	<0.5	<0.5	<2	<2	<2	-	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<4	<2	-	<4	-	<2	<2	<4	<2
Westmead Station	SMW_BH701	SMW_BH701	1/04/2021	Normal	Ashfield Shale	<1	<1	<1	<1	<1	<0.5	<0.5	<2	<2	<2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clyde Dive Site	SMW_BH043	SMW_BH043	20/08/2020	Normal	Ashfield Shale	<1	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clyde Dive Site	SMW_BH064	SMW_BH064	13/11/2019	Normal	Ashfield Shale	<1	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Clyde Refinery	SMW_BH011	SMW_BH011	18/09/2018	Normal	Ashfield Shale	<1	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Clyde Refinery	SMW_BH021	SMW_BH021	18/09/2018	Normal	Ashfield Shale	<1	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	Dup1 (MW1D)	MW1D	25/07/2011	Field_D	Ashfield Shale	<1	<1	<1	<1	<1	-	-	-	-	-	<2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/07/2011	Normal	Ashfield Shale	<1	<1	<1	<1	<1	-	-	-	-	-	<2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale	<1	<1	<1	<1	<1	-	-	-	-	-	<2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale	<1	<1	<1	<1	<1	-	-	-	-	-	<2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale	<1	<1	<1	<1	<1	<0.5	<0.5	<2	<2	<2	-	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<4	<2	-	<4	-	<2	<2	<4	<2
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation	<1	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<50	-	-	-	-	-	-
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation	<1	<1	<1	<1	<1	<0.5	<0.5	<2	<2	<2	-	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<4	<2	-	<4	-	<2	<2	<4	<2
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clyde MSF	SMW_BH707	SMW_BH707	7/05/2021	Normal	Hawkesbury Sandstone	<1	<1	<1	<1	<1	<0.5	<0.5	<2	<2	<2	-	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<4	<2	-	<4	<2	<2	<2	<4	<2
Outside - Rosehill	SMW_BH007	SMW_BH007	4/09/2018	Normal	Hawkesbury Sandstone	<1	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Clyde Refinery	SMW_BH020	SMW_BH020	18/09/2018	Normal	Hawkesbury Sandstone	<1	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<50	-	-	-	-	-	-
Outside Buffer - Parramatta	SMW_BH014	SMW_BH014	9/03/2018	Normal	Hawkesbury Sandstone	<1	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	300	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	3/09/2018	Normal	Hawkesbury Sandstone	<1	<1	<1	<1	<1	<0.5	1.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<50	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	4/08/2020	Normal	Hawkesbury Sandstone	<1	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH027	SMW_BH027	9/04/2018	Normal	Hawkesbury Sandstone	<1	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<50	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH029	SMW_BH029	9/12/2018	Normal	Hawkesbury Sandstone	<1	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<50	-	-	-	-	-	-
Parramatta Station	SMW_BH002	SMW_BH002	4/09/2018	Normal	Hawkesbury Sandstone	<1	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<50	-	-	-	-	-	-
Parramatta Station	SMW_BH004_w	SMW_BH004_w	3/11/2020	Normal	Hawkesbury Sandstone	<1	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH048_w	SMW_BH048_w	3/11/2020	Normal	Hawkesbury Sandstone	<1	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunnel CJ/RCRB	SMW_BH057	SMW_BH057	11/12/2019	Normal	Hawkesbury Sandstone	<1	<1	<1	<1	<1	<0.5	<0.5	<2	<2	<2	-	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<4	<2	-	<4	-	<2	<2	<4	<2

DRAFT

	6							PAHs - extended				Phenols - Halogenated							Phenols - Non-Halogenated					Phenols - total						
	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Total 8 PAHs (as BaP TEQ)(zero LOR) - Lab Calc	PAHs (Sum of Total) - Calc	2-methylnaphthalene	3-methylcholanthrene	7,12-dimethylbenz(a)anthracene	Benzo(b)&(k)fluoranthene	2-Chlorophenol	2,4-Dichlorophenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,6-Dichlorophenol	4-Chloro-3-methylphenol	Pentachlorophenol	Phenol	2-Nitrophenol	2-Methylphenol (o-Cresol)	3,4-Methylphenol (m,p-cresol)	2,4-Dimethylphenol	Phenolics Total	DDT (total)	4,4'-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC
	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	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
EQL	1	1	1	1	1	0.5		2	2	2		2	2	2	2	2	2	4	2	2	2	4	2			2	2	2	4	2
ADWG 2011 Recreational (v3.6 updated 2021)												**3000**	**2000**		**200**			**100**											**3**	
ANZECC 2000 Slightly disturbed ecosystems in SE Australia - Lowland rivers																														
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																														
ANZG (2018) - FW - 95% (updated 26 July 2021)	1.4			2								490	160		20			10	320											
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)	1.4			2														22	400											
PFAS NEMP 2.0 2020 Freshwater - 99% - high conservation value systems																														
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																														
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																									
Statistical Summary																														
Number of Results	34	34	34	34	34	28	28	12	11	11	6	11	11	11	11	11	11	11	11	11	11	11	11	9	12	5	12	12	12	12
Number of Detects	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Minimum Concentration	<1	<1	<1	<1	<1	<0.5	<0.5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<4	<2	<50	<4	<2	<2	<2	<4	<2
Minimum Detect	ND	ND	ND	ND	ND	ND	1.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	300	ND	ND	ND	ND	ND	ND
Maximum Concentration	<1	<1	<1	<1	<1	<0.5	1.9	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<4	<2	300	<4	<2	<2	<2	<4	<2
Maximum Detect	ND	ND	ND	ND	ND	ND	1.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	300	ND	ND	ND	ND	ND	ND
Average Concentration	1	1	1	1	1	0.5	0.55	2	2	2	2	2	2	2	2	2	2	4	2	2	2	4	2	78	4	2	2	2	4	2
Median Concentration	1	1	1	1	1	0.5	0.5	2	2	2	2	2	2	2	2	2	2	4	2	2	2	4	2	50	4	2	2	2	4	2
Standard Deviation	0	0	0	0	0	0	0.26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	83	0	0	0	0	0	0
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL (exceeds adopted criteria)																														

Env Stds Comments

#1:Not specifically guideline value: >500mg/L can have purgative effects
#2:Guideline value calculated by dividing Nitrate (as Nitrate) value (50 mg/L) by 4.427
#3:Guideline value calculated by dividing Nitrite (as Nitrite) value (30 mg/L) by molecular weight (3.2967033).
#4:assumed same as NH4
#5:Measured as NH3-N at pH 8
#6:Values taken from "Updating nitrate toxicity effects on freshwater aquatic species, 2013"
#7:In absence of total As guideline, As (V) guideline has been adopted.
#8:In absence of total Cr guideline, Cr (VI) guideline has been adopted.
#9:Ammonia as total ammonia, measured as [NH3-N] at pH 8.

Data Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Draft

				OC Pesticides													OP Pesticides																							
				d-BHC	4,4 DDD	DDE	DDT+DDE+DDD - Lab Calc	Dieldrin	Endosulfan I (alpha)	Endosulfan II (beta)	Endosulfan Sulfate	Endrin	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion	Fenthion	Malathion	Monocrotophos	Pirimphos-ethyl	Prothiofos	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethene	1,1-dichloropropene						
				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	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						
EQL				2	2		4	2	2	2	2	2	2	2	2	4	2	2	2	2	2	2	2	2		2	2	5	5	5	5	5	5						
ADWG 2011 Recreational (v3.6 updated 2021)													**100**	**3**			**20**	**100**		**40**	**50**	**70**	**40**	**70**	**700**	**20**	**5**						**300**						
ANZECC 2000 Slightly disturbed ecosystems in SE Australia - Lowland rivers																																							
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																																							
ANZG (2018) - FW - 95% (updated 26 July 2021)												0.02	0.2	0.09		0.1		0.01		0.01		0.15			0.05					270	400	6500	700						
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)												0.008				0.1		0.009												270	400	1900	700						
PFAS NEMP 2.0 2020 Freshwater - 99% - high conservation value systems_																																							
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																																							
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																																				
Parramatta Station	SMW_BH003_s	SMW_BH003_s	4/09/2018	Normal	Alluvial sand	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5						
Parramatta Station	SMW_BH003s	SMW_BH003_s	6/12/2018	Normal	Alluvial sand	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Parramatta Station	SMW_BH004_s	SMW_BH004_s	3/11/2020	Normal	Alluvial sand	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Parramatta Station	SMW_BH048_s	SMW_BH048_s	3/11/2020	Normal	Alluvial sand	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Parramatta Station	SMW_BH048_s	SMW_BH048_s	3/11/2020	Field_D	Alluvial sand	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Parramatta Station	SMW_BH048_s	SMW_BH048_s	3/11/2020	Interlab_D	Alluvial sand	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Clyde Dive Site	SMW_ENV077	SMW_ENV077	13/11/2019	Normal	Ashfield Shale	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2	-	<2	<2	<5	<5	<5	<5	<5	<5						
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Normal	Ashfield Shale	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2	-	<2	<2	<5	<5	<5	<5	<5	<5						
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Field_D	Ashfield Shale	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2	-	<2	<2	<5	<5	<5	<5	<5	<5						
Silverwater	FD14	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	<2	<2	-	<4	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2	-	<2	<2	<5	<5	<5	<5	<5	<5						
Silverwater	FD16	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	<2	<2	-	<4	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2	-	<2	<2	<5	<5	<5	<5	<5	<5						
Silverwater	MW10D	MW10D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<1	<1						
Silverwater	MW12D	MW12D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<1	<1						
Silverwater	MW4D	MW4D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Silverwater	MW4D	MW4D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<1	<1						
Silverwater	SMW_BH709	SMW_BH709	26/03/2021	Normal	Ashfield Shale	<2	<2	-	<4	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2	-	<2	<2	<5	<5	<5	<5	<5	<5						
Tunnel SW/SOP	SMW_BH121	SMW_BH121	10/03/2019	Normal	Ashfield Shale	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	-	<2	<5	<5	<5	<5	<5	<5						
Westmead Station	SMW_BH701	SMW_BH701	1/04/2021	Normal	Ashfield Shale	<2	<2	-	<4	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2	-	<2	<2	<5	<5	<5	<5	<5	<5						
Clyde Dive Site	SMW_BH043	SMW_BH043	20/08/2020	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5						
Clyde Dive Site	SMW_BH064	SMW_BH064	13/11/2019	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5						
Outside Buffer - Clyde Refinery	SMW_BH011	SMW_BH011	18/09/2018	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5						
Outside Buffer - Clyde Refinery	SMW_BH021	SMW_BH021	18/09/2018	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5						
Silverwater	Dup1 (MW1D)	MW1D	25/07/2011	Field_D	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Silverwater	MW1D	MW1D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<1	<1						
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<1	<1						
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<1	<1						
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	-	<2	<5	<5	<5	<5	<5	<5						
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5						
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	-	<2	<5	<5	<5	<5	<5	<5						
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Clyde MSF	SMW_BH707	SMW_BH707	7/05/2021	Normal	Hawkesbury Sandstone	<2	<2	-	<4	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2	-	<2	<2	<5	<5	<5	<5	<5	<5						
Outside - Rosehill	SMW_BH007	SMW_BH007	4/09/2018	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5						
Outside Buffer - Clyde Refinery	SMW_BH020	SMW_BH020	18/09/2018	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5						
Outside Buffer - Parramatta	SMW_BH014	SMW_BH014	9/03/2018	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	3/09/2018	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5						
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	4/08/2020	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Outside Buffer - Silverwater	SMW_BH027	SMW_BH027	9/04/2018	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5						
Outside Buffer - Silverwater	SMW_BH029	SMW_BH029	9/12/2018	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5						
Parramatta Station	SMW_BH002	SMW_BH002	4/09/2018	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5						
Parramatta Station	SMW_BH004_w	SMW_BH004_w	3/11/2020	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Parramatta Station	SMW_BH048_w	SMW_BH048_w	3/11/2020	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Tunnel CJ/RCRB	SMW_BH057	SMW_BH057	11/12/2019	Normal	Hawkesbury Sandstone	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	-	<2	<5	<5	<5	<5	<5	<5						

DRAFT

| | | |

| | | |

							Nitroaromatics and Keytone					Solvents				Light Hydrocarbons	Phthalates						MAH															
							2-Picoline	4-aminobiphenyl	Acetophenone	N-Nitrosodiphenyl & Diphenylamine	Pentachloronitrobenzene	2-hexanone (MBK)	Carbon disulfide	Isophorone	Vinyl acetate	Methane	Bis(2-ethylhexyl) phthalate	Butyl benzyl phthalate	Diethylphthalate	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	Styrene	n-butylbenzene	n-propylbenzene	sec-butylbenzene	tert-butylbenzene	p-isopropyltoluene	1-naphthylamine	2-(acetylamino) fluorene	2-nitroaniline
							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	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	µg/L	µg/L
EQL							2	2	2	4	2	50	5	2	50	10	10	2	2	2	2	2	5	5	5	5	5	5	5	5	5	2	2	4
ADWG 2011 Recreational (v3.6 updated 2021)											**300**						**100**									**300**											
ANZECC 2000 Slightly disturbed ecosystems in SE Australia - Lowland rivers																																					
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																																					
ANZG (2018) - FW - 95% (updated 26 July 2021)																			1000	3700	26				30												
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																									30												
PFAS NEMP 2.0 2020 Freshwater - 99% - high conservation value systems_																																					
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																																					
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																																
Parramatta Station	SMW_BH003_s	SMW_BH003_s	4/09/2018	Normal	Alluvial sand	-	-	-	-	-	<50	<5	-	<50	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	-	-
Parramatta Station	SMW_BH003s	SMW_BH003_s	6/12/2018	Normal	Alluvial sand	-	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH004_s	SMW_BH004_s	3/11/2020	Normal	Alluvial sand	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH048_s	SMW_BH048_s	3/11/2020	Normal	Alluvial sand	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH048_s	SMW_BH048_s	3/11/2020	Field_D	Alluvial sand	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH048_s	SMW_BH048_s	3/11/2020	Interlab_D	Alluvial sand	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clyde Dive Site	SMW_ENV077	SMW_ENV077	13/11/2019	Normal	Ashfield Shale	<2	<2	<2	<4	<2	<50	<5	<2	<50	<10	<10	<2	<2	<2	<2	<2	<5	<5	<5	<5	<5	<5	<5	<5	<5	<2	<2	<4
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Normal	Ashfield Shale	<2	<2	<2	<4	<2	<50	<5	<2	<50	<10	<10	<2	<2	<2	<2	<2	<5	<5	<5	<5	<5	<5	<5	<5	<5	<2	<2	<4
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Field_D	Ashfield Shale	-	-	-	-	-	<50	<5	<2	<50	<10	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	-	-
Silverwater	FD14	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	<2	<2	<2	<4	<2	<50	<5	<2	<50	-	<10	<2	<2	<2	<2	<2	<5	<5	<5	<5	<5	<5	<5	<5	<5	<2	<2	<4
Silverwater	FD16	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	<2	<2	<2	<4	<2	<50	<5	<2	<50	-	<10	<2	<2	<2	<2	<2	<5	<5	<5	<5	<5	<5	<5	<5	<5	<2	<2	<4
Silverwater	MW10D	MW10D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-	-
Silverwater	MW12D	MW12D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-	-
Silverwater	MW4D	MW4D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-	-
Silverwater	SMW_BH709	SMW_BH709	26/03/2021	Normal	Ashfield Shale	<2	<2	<2	<4	<2	<50	<5	<2	<50	-	<10	<2	<2	<2	<2	<2	<5	<5	<5	<5	<5	<5	<5	<5	<5	<2	<2	<4
Tunnel SW/SOP	SMW_BH121	SMW_BH121	10/03/2019	Normal	Ashfield Shale	<2	<2	<2	<4	<2	<50	<5	<2	<50	<10	<10	<2	<2	<2	<2	<2	<5	<5	<5	<5	<5	<5	<5	<5	<5	<2	<2	<4
Westmead Station	SMW_BH701	SMW_BH701	1/04/2021	Normal	Ashfield Shale	<2	<2	<2	<4	<2	<50	<5	<2	<50	-	<10	<2	2	<2	<2	<2	<5	<5	<5	<5	<5	<5	<5	<5	<5	<2	<2	<4
Clyde Dive Site	SMW_BH043	SMW_BH043	20/08/2020	Normal	Ashfield Shale	-	-	-	-	-	<50	<5	<2	<50	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	-	-
Clyde Dive Site	SMW_BH064	SMW_BH064	13/11/2019	Normal	Ashfield Shale	-	-	-	-	-	<50	<5	-	<50	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	-	-
Outside Buffer - Clyde Refinery	SMW_BH011	SMW_BH011	18/09/2018	Normal	Ashfield Shale	-	-	-	-	-	<50	<5	-	<50	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	-	-
Outside Buffer - Clyde Refinery	SMW_BH021	SMW_BH021	18/09/2018	Normal	Ashfield Shale	-	-	-	-	-	<50	<5	-	<50	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	-	-
Silverwater	Dup1 (MW1D)	MW1D	25/07/2011	Field_D	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	-	<1	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-	-
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-	-
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale	<2	<2	<2	<4	<2	<50	<5	<2	<50	<10	<10	<2	<2	<2	<2	<2	<5	<5	<5	<5	<5	<5	<5	<5	<5	<2	<2	<4
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	<50	<5	-	<50	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	-	-
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation	<2	<2	<2	<4	<2	<50	<5	<2	<50	-	<10	<2	<2	<2	<2	<2	<5	<5	<5	<5	<5	<5	<5	<5	<5	<2	<2	<4
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clyde MSF	SMW_BH707	SMW_BH707	7/05/2021	Normal	Hawkesbury Sandstone	<2	<2	<2	<4	<2	<50	<5	<2	<50	-	<10	<2	22	<2	<2	<2	<5	<5	<5	<5	<5	<5	<5	<5	<5	<2	<2	<4
Outside - Rosehill	SMW_BH007	SMW_BH007	4/09/2018	Normal	Hawkesbury Sandstone	-	-	-	-	-	<50	<5	-	<50	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	-	-
Outside Buffer - Clyde Refinery	SMW_BH020	SMW_BH020	18/09/2018	Normal	Hawkesbury Sandstone	-	-	-	-	-	<50	<5	-	<50	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	-	-
Outside Buffer - Parramatta	SMW_BH014	SMW_BH014	9/03/2018	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	3/09/2018	Normal	Hawkesbury Sandstone	-	-	-	-	-	<50	8	-	<50	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	-	-
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	4/08/2020	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH027	SMW_BH027	9/04/2018	Normal	Hawkesbury Sandstone	-	-	-	-	-	<50	<5	-	<50	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	-	-
Outside Buffer - Silverwater	SMW_BH029	SMW_BH029	9/12/2018	Normal	Hawkesbury Sandstone	-	-	-	-	-	<50	<5	-	<50	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	-	-
Parramatta Station	SMW_BH002	SMW_BH002	4/09/2018	Normal	Hawkesbury Sandstone	-	-	-	-	-	<50	<5	-	<50	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	-	-
Parramatta Station	SMW_BH004_w	SMW_BH004_w	3/11/2020	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH048_w	SMW_BH048_w	3/11/2020	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunnel CJ/RCRB	SMW_BH057	SMW_BH057	11/12/2019	Normal	Hawkesbury Sandstone	<2	<2	<2	<4	<2	<50	<5	<2	<50	-	<10	<2	<2	<2	<2	<2	<5	<5	<5	<5	<5	<5	<5	<5	<5	<2	<2	<4

Draft

	Nitroaromatics and Keytone					Solvents				Light Hydrocarbons	Phthalates						MAH											
	2-Picoline	4-aminobiphenyl	Acetophenone	N-Nitrosodiphenyl & Diphenylamine	Pentachloronitrobenzene	2-hexanone (MBK)	Carbon disulfide	Isophorone	Vinyl acetate	Methane	Bis(2-ethylhexyl) phthalate	Butyl benzyl phthalate	Diethylphthalate	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	Styrene	n-butylbenzene	n-propylbenzene	sec-butylbenzene	tert-butylbenzene	p-isopropyltoluene	1-naphthylamine	2-(acetylamino) fluorene	2-nitroaniline
	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	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
EQL	2	2	2	4	2	50	5	2	50	10	10	2	2	2	2	2	5	5	5	5	5	5	5	5	5	2	2	4
ADWG 2011 Recreational (v3.6 updated 2021)					300						100									300								
ANZECC 2000 Slightly disturbed ecosystems in SE Australia - Lowland rivers																												
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																												
ANZG (2018) - FW - 95% (updated 26 July 2021)													1000	3700	26				30									
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																			30									
PFAS NEMP 2.0 2020 Freshwater - 99% - high conservation value systems																												
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																												
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																							
Statistical Summary																												
Number of Results	11	11	11	11	11	24	24	13	24	7	11	11	11	11	11	11	29	29	30	30	29	30	29	29	29	11	11	11
Number of Detects	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<2	<2	<2	<4	<2	<50	<5	<2	<50	<10	<10	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<2	<4
Minimum Detect	ND	ND	ND	ND	ND	ND	8	ND	ND	ND	ND	ND	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<2	<2	<2	<4	<2	<50	8	<2	<50	<10	<10	<2	22	<2	<2	<2	<5	<5	<5	<5	<5	<5	<5	<5	<5	<2	<2	<4
Maximum Detect	ND	ND	ND	ND	ND	ND	8	ND	ND	ND	ND	ND	22	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration	2	2	2	4	2	50	5.1	2	50	10	10	2	3.8	2	2	2	4.3	4.3	4.2	4.2	4.3	4.2	4.3	4.3	4.3	2	2	4
Median Concentration	2	2	2	4	2	50	5	2	50	10	10	2	2	2	2	2	5	5	5	5	5	5	5	5	5	2	2	4
Standard Deviation	0	0	0	0	0	0	0.61	0	0	0	0	0	6	0	0	0	1.5	1.5	1.6	1.6	1.5	1.6	1.5	1.5	1.5	0	0	0
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL (exceeds adopted criteria)																												

Env Stds Comments

#1:Not specifically guideline value: >500mg/L can have purgative effects
#2:Guideline value calculated by dividing Nitrate (as Nitrate) value (50 mg/L) by 4.427
#3:Guideline value calculated by dividing Nitrite (as Nitrite) value (30 mg/L) by molecular weight (3.2967033).
#4:assumed same as NH4
#5:Measured as NH3-N at pH 8
#6:Values taken from "Updating nitrate toxicity effects on freshwater aquatic species, 2013"
#7:In absence of total As guideline, As (V) guideline has been adopted.
#8:In absence of total Cr guideline, Cr (VI) guideline has been adopted.
#9:Ammonia as total ammonia, measured as [NH3-N] at pH 8.

Data Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Draft

| | | | | | | | | | | | SVOCs | | | | | | | | | | |

| | SVOCs | | |

														VOCs																PFAS - Perfluoroalkyl Carboxy			
	1,2-dibromoethane	1,3-dichlorobenzene	2-butanone (MEK)	4-methyl-2-pentanone (MIBK)	Bromodichloromethane	Bromoform	Chlorodibromomethane	Chloroethane	cis-1,3-dichloropropene	cis-1,4-Dichloro-2-butene	Cyclohexane	Dibromomethane	Iodomethane	Pentachloroethane	Trichloroethene	Tetrachloroethene	trans-1,3-dichloropropene	trans-1,2-dichloroethene	trans-1,4-Dichloro-2-butene	Trichlorofluoromethane	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)
	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	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	5	2	50	50	5	5	5	50	5	5		5	5	5	5	5	5	5	5	50	0.1	0.02	0.02	0.02	0.01	0.02	0.02
ADWG 2011 Recreational (v3.6 updated 2021)	**10**															**500**									**5.6**		
ANZECC 2000 Slightly disturbed ecosystems in SE Australia - Lowland rivers																											
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																											
ANZG (2018) - FW - 95% (updated 26 July 2021)		260												80	330	70											
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)														80	330	70											
PFAS NEMP 2.0 2020 Freshwater - 99% - high conservation value systems																									19		
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																									19		

Monitoring_Zone	Field_ID	Location_Code	Sampled_Date_Time	Sample_Type	Alternative_Name																											
Parramatta Station	SMW_BH003_s	SMW_BH003_s	4/09/2018	Normal	Alluvial sand	<5	<5	<50	<50	<5	<5	<5	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	-	-	-	-	-	-	-
Parramatta Station	SMW_BH003s	SMW_BH003_s	6/12/2018	Normal	Alluvial sand	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH004_s	SMW_BH004_s	3/11/2020	Normal	Alluvial sand	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.02	<0.02	<0.02	0.02	<0.02	<0.02
Parramatta Station	SMW_BH048_s	SMW_BH048_s	3/11/2020	Normal	Alluvial sand	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.02	<0.02	<0.02	0.01	<0.02	<0.02
Parramatta Station	SMW_BH048_s	SMW_BH048_s	3/11/2020	Field_D	Alluvial sand	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.02	<0.02	<0.02	0.01	<0.02	<0.02
Parramatta Station	SMW_BH048_s	SMW_BH048_s	3/11/2020	Interlab_D	Alluvial sand	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.01	-	-	-
Clyde Dive Site	SMW_ENV077	SMW_ENV077	13/11/2019	Normal	Ashfield Shale	<5	<2	<50	<50	<5	<5	<5	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Normal	Ashfield Shale	<5	<2	<50	<50	<5	<5	<5	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Field_D	Ashfield Shale	<5	<2	<50	<50	<5	<5	<5	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silverwater	FD14	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	<5	<2	<50	<50	<5	<5	<5	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02
Silverwater	FD16	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	<5	<2	<50	<50	<5	<5	<5	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02
Silverwater	MW10D	MW10D	25/08/2011	Normal	Ashfield Shale	<1	<1	-	-	<1	<1	<1	<10	<1	-	<1	<1	-	-	<1	<1	<1	<1	-	<10	-	-	-	-	-	-	-
Silverwater	MW12D	MW12D	25/08/2011	Normal	Ashfield Shale	<1	<1	-	-	<1	<1	<1	<10	<1	-	<1	<1	-	-	2	<1	<1	<1	-	<10	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/08/2011	Normal	Ashfield Shale	<1	<1	-	-	<1	<1	<1	<10	<1	-	<1	<1	-	-	<1	<1	<1	<1	-	<10	-	-	-	-	-	-	-
Silverwater	SMW_BH709	SMW_BH709	26/03/2021	Normal	Ashfield Shale	<5	<2	<50	<50	<5	<5	<5	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02
Tunnel SW/SOP	SMW_BH121	SMW_BH121	10/03/2019	Normal	Ashfield Shale	<5	<2	<50	<50	<5	<5	<5	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Westmead Station	SMW_BH701	SMW_BH701	1/04/2021	Normal	Ashfield Shale	<5	<2	<50	<50	<5	<5	<5	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02
Clyde Dive Site	SMW_BH043	SMW_BH043	20/08/2020	Normal	Ashfield Shale	<5	<2	<50	<50	<5	<5	<5	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02
Clyde Dive Site	SMW_BH064	SMW_BH064	13/11/2019	Normal	Ashfield Shale	<5	<5	<50	<50	<5	<5	<5	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	0.3	2.07	1.02	0.04	<0.01	<0.02	<0.02
Outside Buffer - Clyde Refinery	SMW_BH011	SMW_BH011	18/09/2018	Normal	Ashfield Shale	<5	<5	<50	<50	<5	<5	<5	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Outside Buffer - Clyde Refinery	SMW_BH021	SMW_BH021	18/09/2018	Normal	Ashfield Shale	<5	<5	<50	<50	<5	<5	<5	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silverwater	Dup1 (MW1D)	MW1D	25/07/2011	Field_D	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/07/2011	Normal	Ashfield Shale	<1	-	-	-	<1	<1	<1	<10	<1	-	<1	21	-	-	<1	<1	<1	<1	-	<10	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale	<1	<1	-	-	<1	<1	<1	<10	<1	-	<1	<1	-	-	16	<1	<1	<1	-	<10	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale	<1	<1	-	-	<1	<1	<1	<10	<1	-	<1	<1	-	-	<1	<1	<1	<1	-	<10	-	-	-	-	-	-	-
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale	<5	<2	<50	<50	<5	<5	<5	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.25	<0.05	<0.05	<0.05	<0.05	-	-
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation	<5	<5	<50	<50	<5	<5	<5	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	-	-	-	-	-	-	-
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation	<5	<2	<50	<50	<5	<5	<5	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	-	-
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clyde MSF	SMW_BH707	SMW_BH707	7/05/2021	Normal	Hawkesbury Sandstone	<5	<2	<50	<50	<5	<5	<5	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02
Outside - Rosehill	SMW_BH007	SMW_BH007	4/09/2018	Normal	Hawkesbury Sandstone	<5	<5	<50	<50	<5	<5	<5	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Outside Buffer - Clyde Refinery	SMW_BH020	SMW_BH020	18/09/2018	Normal	Hawkesbury Sandstone	<5	<5	<50	<50	<5	<5	<5	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Outside Buffer - Parramatta	SMW_BH014	SMW_BH014	9/03/2018	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	3/09/2018	Normal	Hawkesbury Sandstone	<5	<5	<50	<50	<5	<5	<5	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	4/08/2020	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH027	SMW_BH027	9/04/2018	Normal	Hawkesbury Sandstone	<5	<5	<50	<50	<5	<5	<5	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Outside Buffer - Silverwater	SMW_BH029	SMW_BH029	9/12/2018	Normal	Hawkesbury Sandstone	<5	<5	<50	<50	<5	<5	<5	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.1	<0.02	<0.02	<0.02	<0.01	-	-
Parramatta Station	SMW_BH002	SMW_BH002	4/09/2018	Normal	Hawkesbury Sandstone	<5	<5	<50	<50	<5	<5	<5	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	-	-	-	-	-	-	-
Parramatta Station	SMW_BH004_w	SMW_BH004_w	3/11/2020	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02
Parramatta Station	SMW_BH048_w	SMW_BH048_w	3/11/2020	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	0.04	0.04	<0.02	0.03	<0.02	<0.02
Tunnel CJ/RCRB	SMW_BH057	SMW_BH057	11/12/2019	Normal	Hawkesbury Sandstone	<5	<2	<50	<50	<5	<5	<5	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

DRAFT

	VOCs																				PFAS - Perfluoroalkyl Carboxy						
	1,2-dibromoethane	1,3-dichlorobenzene	2-butanone (MEK)	4-methyl-2-pentanone (MIBK)	Bromodichloromethane	Bromoform	Chlorodibromomethane	Chloroethane	cis-1,3-dichloropropene	cis-1,4-Dichloro-2-butene	Cyclohexane	Dibromomethane	Iodomethane	Pentachloroethane	Trichloroethene	Tetrachloroethene	trans-1,3-dichloropropene	trans-1,2-dichloroethene	trans-1,4-Dichloro-2-butene	Trichlorofluoromethane	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)
	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	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	5	2	50	50	5	5	5	50	5	5		5	5	5	5	5	5	5	5	50	0.1	0.02	0.02	0.02	0.01	0.02	0.02
ADWG 2011 Recreational (v3.6 updated 2021)	10															500									5.6		
ANZECC 2000 Slightly disturbed ecosystems in SE Australia - Lowland rivers																											
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																											
ANZG (2018) - FW - 95% (updated 26 July 2021)		260												80	330	70											
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)														80	330	70											
PFAS NEMP 2.0 2020 Freshwater - 99% - high conservation value systems																									19		
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																									19		
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																						
Statistical Summary																											
Number of Results	30	29	24	24	30	30	30	30	30	24	6	30	24	24	30	30	30	30	24	30	26	26	26	27	26	23	23
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	1	2	2	2	4	0	0
Minimum Concentration	<1	<1	<50	<50	<1	<1	<1	<10	<1	<5	<1	<1	<5	<5	<1	<1	<1	<1	<5	<10	<0.1	<0.02	<0.02	0.01	<0.01	<0.02	<0.02
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	21	ND	ND	2	ND	ND	ND	ND	ND	0.3	0.04	0.04	0.01	0.01	ND	ND
Maximum Concentration	<5	<5	<50	<50	<5	<5	<5	<50	<5	<5	<1	21	<5	<5	16	<5	<5	<5	<5	<50	0.3	2.07	1.02	<0.05	<0.05	<0.05	<0.05
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	21	ND	ND	16	ND	ND	ND	ND	ND	0.3	2.07	1.02	0.04	0.03	ND	ND
Average Concentration	4.2	3	50	50	4.2	4.2	4.2	42	4.2	5	1	4.9	5	5	4.7	4.2	4.2	4.2	5	42	0.16	0.11	0.073	0.034	0.03	0.033	0.033
Median Concentration	5	2	50	50	5	5	5	50	5	5	1	5	5	5	5	5	5	5	5	50	0.15	0.045	0.045	0.02	0.025	0.02	0.02
Standard Deviation	1.6	1.7	0	0	1.6	1.6	1.6	16	1.6	0	0	3.4	0	0	2.6	1.6	1.6	1.6	0	16	0.061	0.4	0.19	0.015	0.02	0.015	0.015
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL (exceeds adopted criteria)																											

Env Stds Comments

#1:Not specifically guideline value: >500mg/L can have purgative effects
#2:Guideline value calculated by dividing Nitrate (as Nitrate) value (50 mg/L) by 4.427
#3:Guideline value calculated by dividing Nitrite (as Nitrite) value (30 mg/L) by molecular weight (3.2967033).
#4:assumed same as NH4
#5:Measured as NH3-N at pH 8
#6:Values taken from "Updating nitrate toxicity effects on freshwater aquatic species, 2013"
#7:In absence of total As guideline, As (V) guideline has been adopted.
#8:In absence of total Cr guideline, Cr (VI) guideline has been adopted.
#9:Ammonia as total ammonia, measured as [NH3-N] at pH 8.

Data Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Draft

					lic Acids				PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Sulfonamide					\S - Fluorotelomer Sulfonic Ac							PFAS
					Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecanesulfonic acid (PFDS)	Perfluorodecane sulfonic acid ammonium salt	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamidoethanol (MEFOSE)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	PFAS (Sum of Total)	PFAS (Sum of Total)(WA DER List)	PFOS/PFHxS (Sum of Total) - Auto Calc	Perfluoroheptanesulfonic acid
					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	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL					0.02	0.02	0.02	0.05	0.02	0.02	0.02	0.01	0.02		0.02	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.01	0.01		
ADWG 2011 Recreational (v3.6 updated 2021)																										0.7	
ANZECC 2000 Slightly disturbed ecosystems in SE Australia - Lowland rivers																											
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																											
ANZG (2018) - FW - 95% (updated 26 July 2021)																											
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																											
PFAS NEMP 2.0 2020 Freshwater - 99% - high conservation value systems_												0.00023															
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system												0.00023															
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																						
Parramatta Station	SMW_BH003_s	SMW_BH003_s	4/09/2018	Normal	Alluvial sand	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH003s	SMW_BH003_s	6/12/2018	Normal	Alluvial sand	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH004_s	SMW_BH004_s	3/11/2020	Normal	Alluvial sand	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	0.03	-	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	0.05	0.03	<0.02
Parramatta Station	SMW_BH048_s	SMW_BH048_s	3/11/2020	Normal	Alluvial sand	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	0.01	-	-	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	0.02	0.01	<0.02
Parramatta Station	SMW_BH048_s	SMW_BH048_s	3/11/2020	Field_D	Alluvial sand	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	0.01	-	-	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	0.02	0.01	<0.02
Parramatta Station	SMW_BH048_s	SMW_BH048_s	3/11/2020	Interlab_D	Alluvial sand	-	-	-	-	-	-	<0.01	0.02	-	-	-	-	-	-	-	-	<0.01	<0.01	-	0.03	-	0.02	-
Clyde Dive Site	SMW_ENV077	SMW_ENV077	13/11/2019	Normal	Ashfield Shale	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Normal	Ashfield Shale	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Field_D	Ashfield Shale	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silverwater	FD14	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.01	-	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.02
Silverwater	FD16	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.01	-	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.02
Silverwater	MW10D	MW10D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW12D	MW12D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	SMW_BH709	SMW_BH709	26/03/2021	Normal	Ashfield Shale	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.01	-	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.02
Tunnel SW/SOP	SMW_BH121	SMW_BH121	10/03/2019	Normal	Ashfield Shale	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Westmead Station	SMW_BH701	SMW_BH701	1/04/2021	Normal	Ashfield Shale	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.01	-	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.02
Clyde Dive Site	SMW_BH043	SMW_BH043	20/08/2020	Normal	Ashfield Shale	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.01	-	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.02
Clyde Dive Site	SMW_BH064	SMW_BH064	13/11/2019	Normal	Ashfield Shale	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.01	-	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	3.43	3.43	<0.01	<0.02
Outside Buffer - Clyde Refinery	SMW_BH011	SMW_BH011	18/09/2018	Normal	Ashfield Shale	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.12	<0.12	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	<0.05
Outside Buffer - Clyde Refinery	SMW_BH021	SMW_BH021	18/09/2018	Normal	Ashfield Shale	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.12	<0.12	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	<0.05
Silverwater	Dup1 (MW1D)	MW1D	25/07/2011	Field_D	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale	-	-	-	-	<0.05	-	<0.05	<0.05	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	-
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	<0.05	-	<0.05	<0.05	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	-
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clyde MSF	SMW_BH707	SMW_BH707	7/05/2021	Normal	Hawkesbury Sandstone	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.01	-	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.02
Outside - Rosehill	SMW_BH007	SMW_BH007	4/09/2018	Normal	Hawkesbury Sandstone	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.12	<0.12	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	<0.05
Outside Buffer - Clyde Refinery	SMW_BH020	SMW_BH020	18/09/2018	Normal	Hawkesbury Sandstone	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.12	<0.12	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	<0.05
Outside Buffer - Parramatta	SMW_BH014	SMW_BH014	9/03/2018	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	3/09/2018	Normal	Hawkesbury Sandstone	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.01	-	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	<0.01	<0.02
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	4/08/2020	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH027	SMW_BH027	9/04/2018	Normal	Hawkesbury Sandstone	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.12	<0.12	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	<0.05
Outside Buffer - Silverwater	SMW_BH029	SMW_BH029	9/12/2018	Normal	Hawkesbury Sandstone	-	-	-	-	<0.02	-	<0.02	<0.01	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.01	-
Parramatta Station	SMW_BH002	SMW_BH002	4/09/2018	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH004_w	SMW_BH004_w	3/11/2020	Normal	Hawkesbury Sandstone	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.01	-	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.02
Parramatta Station	SMW_BH048_w	SMW_BH048_w	3/11/2020	Normal	Hawkesbury Sandstone	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	0.01	-	-	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.36	0.12	0.01	<0.02
Tunnel CJ/RCRB	SMW_BH057	SMW_BH057	11/12/2019	Normal	Hawkesbury Sandstone	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

DRAFT

	lic Acids				PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Sulfonamide					\S - Fluorotelomer Sulfonic Ac							PFAS
	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecanesulfonic acid (PFDS)	Perfluorodecane sulfonic acid ammonium salt	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamidoethanol (MEFOSE)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	PFAS (Sum of Total)	PFAS (Sum of Total)(WA DER List)	PFOS/PFHxS (Sum of Total) - Auto Calc	Perfluoroheptanesulfonic acid
	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	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.02	0.02	0.02	0.05	0.02	0.02	0.02	0.01	0.02		0.02	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.01	0.01		
ADWG 2011 Recreational (v3.6 updated 2021)																							0.7	
ANZECC 2000 Slightly disturbed ecosystems in SE Australia - Lowland rivers																								
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																								
ANZG (2018) - FW - 95% (updated 26 July 2021)																								
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																								
PFAS NEMP 2.0 2020 Freshwater - 99% - high conservation value systems								0.00023																
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system								0.00023																

Monitoring_Zone	Field_ID	Location_Code	Sampled_Date_Time	Sample_Type	Alternative_Name

Statistical Summary																								
Number of Results	23	23	23	23	26	23	27	27	3	17	23	23	23	23	23	26	27	27	26	18	19	27	23
Number of Detects	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	6	5	5	0
Minimum Concentration	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.01	<0.01	<0.05	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.02
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	0.01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.02	0.02	0.01	ND
Maximum Concentration	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.12	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	3.43	3.43	<0.05	<0.05
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	0.03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.43	3.43	0.03	ND
Average Concentration	0.033	0.033	0.033	0.08	0.034	0.033	0.033	0.029	0.05	0.032	0.033	0.056	0.056	0.08	0.08	0.05	0.049	0.049	0.05	0.24	0.21	0.029	0.033
Median Concentration	0.02	0.02	0.02	0.05	0.02	0.02	0.02	0.02	0.05	0.02	0.02	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.025	0.05	0.02	0.02
Standard Deviation	0.015	0.015	0.015	0.035	0.015	0.015	0.016	0.02	0	0.015	0.015	0.037	0.037	0.035	0.035	0	0.008	0.0077	0	0.8	0.78	0.02	0.015
Number of Guideline Exceedances	0	0	0	0	0	0	0	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL (exceeds adopted criteria)								0.045															

Env Stds Comments

#1:Not specifically guideline value: >500mg/L can have purgative effects
#2:Guideline value calculated by dividing Nitrate (as Nitrate) value (50 mg/L) by 4.427
#3:Guideline value calculated by dividing Nitrite (as Nitrite) value (30 mg/L) by molecular weight (3.2967033).
#4:assumed same as NH4
#5:Measured as NH3-N at pH 8
#6:Values taken from "Updating nitrate toxicity effects on freshwater aquatic species, 2013"
#7:In absence of total As guideline, As (V) guideline has been adopted.
#8:In absence of total Cr guideline, Cr (VI) guideline has been adopted.
#9:Ammonia as total ammonia, measured as [NH3-N] at pH 8.

Data Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Draft

EQL
ADWG 2011 Recreational (v3.6 updated 2021)
ANZECC 2000 Slightly disturbed ecosystems in SE Australia - Lowland rivers
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine
ANZG (2018) - FW - 95% (updated 26 July 2021)
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)
PFAS NEMP 2.0 2020 Freshwater - 99% - high conservation value systems_
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system

Monitoring_Zone	Field_ID	Location_Code	Sampled_Date_Time	Sample_Type	Alternative_Name
Parramatta Station	SMW_BH003_s	SMW_BH003_s	4/09/2018	Normal	Alluvial sand
Parramatta Station	SMW_BH003s	SMW_BH003_s	6/12/2018	Normal	Alluvial sand
Parramatta Station	SMW_BH004_s	SMW_BH004_s	3/11/2020	Normal	Alluvial sand
Parramatta Station	SMW_BH048_s	SMW_BH048_s	3/11/2020	Normal	Alluvial sand
Parramatta Station	SMW_BH048_s	SMW_BH048_s	3/11/2020	Field_D	Alluvial sand
Parramatta Station	SMW_BH048_s	SMW_BH048_s	3/11/2020	Interlab_D	Alluvial sand
Clyde Dive Site	SMW_ENV077	SMW_ENV077	13/11/2019	Normal	Ashfield Shale
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Normal	Ashfield Shale
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Field_D	Ashfield Shale
Silverwater	FD14	SMW_BH709	26/03/2021	Field_D	Ashfield Shale
Silverwater	FD16	SMW_BH709	26/03/2021	Field_D	Ashfield Shale
Silverwater	MW10D	MW10D	25/08/2011	Normal	Ashfield Shale
Silverwater	MW12D	MW12D	25/08/2011	Normal	Ashfield Shale
Silverwater	MW4D	MW4D	25/07/2011	Normal	Ashfield Shale
Silverwater	MW4D	MW4D	25/08/2011	Normal	Ashfield Shale
Silverwater	SMW_BH709	SMW_BH709	26/03/2021	Normal	Ashfield Shale
Tunnel SW/SOP	SMW_BH121	SMW_BH121	10/03/2019	Normal	Ashfield Shale
Westmead Station	SMW_BH701	SMW_BH701	1/04/2021	Normal	Ashfield Shale
Clyde Dive Site	SMW_BH043	SMW_BH043	20/08/2020	Normal	Ashfield Shale
Clyde Dive Site	SMW_BH064	SMW_BH064	13/11/2019	Normal	Ashfield Shale
Outside Buffer - Clyde Refinery	SMW_BH011	SMW_BH011	18/09/2018	Normal	Ashfield Shale
Outside Buffer - Clyde Refinery	SMW_BH021	SMW_BH021	18/09/2018	Normal	Ashfield Shale
Silverwater	Dup1 (MW1D)	MW1D	25/07/2011	Field_D	Ashfield Shale
Silverwater	MW1D	MW1D	25/07/2011	Normal	Ashfield Shale
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation
Clyde MSF	SMW_BH707	SMW_BH707	7/05/2021	Normal	Hawkesbury Sandstone
Outside - Rosehill	SMW_BH007	SMW_BH007	4/09/2018	Normal	Hawkesbury Sandstone
Outside Buffer - Clyde Refinery	SMW_BH020	SMW_BH020	18/09/2018	Normal	Hawkesbury Sandstone
Outside Buffer - Parramatta	SMW_BH014	SMW_BH014	9/03/2018	Normal	Hawkesbury Sandstone
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	3/09/2018	Normal	Hawkesbury Sandstone
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	4/08/2020	Normal	Hawkesbury Sandstone
Outside Buffer - Silverwater	SMW_BH027	SMW_BH027	9/04/2018	Normal	Hawkesbury Sandstone
Outside Buffer - Silverwater	SMW_BH029	SMW_BH029	9/12/2018	Normal	Hawkesbury Sandstone
Parramatta Station	SMW_BH002	SMW_BH002	4/09/2018	Normal	Hawkesbury Sandstone
Parramatta Station	SMW_BH004_w	SMW_BH004_w	3/11/2020	Normal	Hawkesbury Sandstone
Parramatta Station	SMW_BH048_w	SMW_BH048_w	3/11/2020	Normal	Hawkesbury Sandstone
Tunnel CJ/RCRB	SMW_BH057	SMW_BH057	11/12/2019	Normal	Hawkesbury Sandstone

Draft

EQL					
ADWG 2011 Recreational (v3.6 updated 2021)					
ANZECC 2000 Slightly disturbed ecosystems in SE Australia - Lowland rivers					
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine					
ANZG (2018) - FW - 95% (updated 26 July 2021)					
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)					
PFAS NEMP 2.0 2020 Freshwater - 99% - high conservation value systems					
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system					
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**
Statistical Summary					
Number of Results					
Number of Detects					
Minimum Concentration					
Minimum Detect					
Maximum Concentration					
Maximum Detect					
Average Concentration					
Median Concentration					
Standard Deviation					
Number of Guideline Exceedances					
Number of Guideline Exceedances(Detects Only)					
95% UCL	(exceeds adopted criteria)				

Env Stds Comments

#1:Not specifically guideline value: >500mg/L can have purgative effects
#2:Guideline value calculated by dividing Nitrate (as Nitrate) value (50 mg/L) by 4.427
#3:Guideline value calculated by dividing Nitrite (as Nitrite) value (30 mg/L) by molecular weight (3.2967033).
#4:assumed same as NH4
#5:Measured as NH3-N at pH 8
#6:Values taken from "Updating nitrate toxicity effects on freshwater aquatic species, 2013"
#7:In absence of total As guideline, As (V) guideline has been adopted.
#8:In absence of total Cr guideline, Cr (VI) guideline has been adopted.
#9:Ammonia as total ammonia, measured as [NH3-N] at pH 8.

Data Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Draft

| | | |

						Inorganics			Biological			Major Ions										Minor Ions			Nutrients													
						pH (Lab)	Electrical conductivity (lab)	Total Dissolved Solids @ 180°C	Pseudomonas aeruginosa	Alkalinity (Hydroxide as CaCO3)	Alkalinity (total as CaCO3)	Calcium (Filtered)	Magnesium (Filtered)	Potassium (Filtered)	Sodium (Filtered)	Chloride	Sulfate	Fluoride	Cations Total	Anions Total	Ionic Balance	Bicarbonate Ion (HCO3-)	Carbonate Ion	Sulfide (Filtered)	Ammonia as N	Nitrate (as N)	Nitrite (as N)	Nitrogen (Total Oxidised) (as N)	Nitrogen (Total)	Kjeldahl Nitrogen Total	Reactive Phosphorus as P	Phosphorus (Total)	Arsenic (Filtered)	Cadmium (Filtered)	Chromium (III+VI) (Filtered)
						pH units	µS/cm	mg/L	CFU/100mL	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	%	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL						0.01	1			1	1	1	1	1	1	1		0.1	0.01	0.01	0.01				0.01	0.01	0.01	0.01	0.1	0.1	0.01	0.01	0.001	0.0001	0.001
ADWG 2011 Recreational (v3.6 updated 2021)																	**5000**[#1]	**15**							**112.9**[#2]	**9.1**[#3]						**0.1**	**0.02**	
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine						*7-8.5*																		*0.015*[#4]			*0.015*	*0.3*		*0.005*	*0.03*			
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																								0.91[#9]									0.0055	0.0044[#6]
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																																				
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																																
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale	*6.96*	33,200	25,200	-	<1	603	1040	**1050**	**75**	5060	11,900	**864**	0.3	360	366	0.74	603	<1	-	*6.89*	<0.01	<0.01	<0.01	*7*	7	<0.01	<0.05	0.004	<0.0001	0.001
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation	7.44	7440	3880	-	<1	331	129	67	**19**	**1260**	2350	**307**	0.1	67.2	79.3	8.22	331	<1	-	*0.71*	<0.01	<0.01	<0.01	*0.8*	0.8	<0.01	0.01	0.001	<0.0001	<0.001
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation	7.79	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*0.87*	0.05	<0.01	*0.05*	*0.6*	0.6	<0.01	*0.03*	0.002	<0.0001	<0.001
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation	7.45	25,100	**18,700**	-	<1	**393**	**983**	626	**73**	**3860**	**8460**	592	0.2	270	259	2.18	393	<1	-	*5.66*	<0.01	<0.01	<0.01	*6.1*	6.1	<0.01	<0.02	0.001	<0.0001	0.001
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation	7.3	17,400	**12,900**	-	<1	**1080**	294	515	54	**3540**	**6680**	369	0.5	212	218	1.23	1080	<1	-	*3.38*	<0.01	0.02	*0.02*	*3.3*	3.3	<0.01	<0.02	0.006	<0.0001	<0.001
Clyde MSF	SMW_ENV150_s	SMW_ENV150_s	20/11/2019	Normal	Fill	*3.84*	30,400	**26,500**	-	<1	<1	608	**1250**	84	**5570**	6510	**12,200**	0.3	378	438	7.36	<1	<1	-	*8.1*	0.44	<0.1	*0.44*	*7.4*	7	<0.01	*0.04*	0.069	0.0084	0.06
Outside - Rosehill	SMW_ENV090_S	SMW_ENV090_S	16/03/2020	Normal	Fill	7.23	**1070**	**773**	-	<1	**319**	32	**18**	12	159	165	34	1.1	10.3	11.7	6.51	319	<1	-	*2.82*	0.04	<0.01	*0.04*	*6.4*	6.4	*0.01*	*1.9*	0.006	<0.0001	<0.001
Clyde MSF	SMW_BH707	SMW_BH707	7/05/2021	Normal	Hawkesbury Sandstone	*8.66*	**2620**	**1500**	-	<1	749	**45**	**57**	10	480	479	-	1.2	28.1	30.2	3.73	670	79	85	*0.28*	0.05	<0.01	-	*0.4*	0.3	<0.01	*0.05*	0.01	<0.0001	<0.001
Outside - Rosehill	SMW_BH007	SMW_BH007	4/09/2018	Normal	Hawkesbury Sandstone	*6.92*	**10,700**	**6740**	-	<1	787	**377**	**279**	30	1520	3420	196	-	109	116	3.39	787	<1	-	*1.58*	0.02	<0.01	*0.02*	*1.7*	1.7	<0.01	*0.42*	0.001	<0.0001	<0.001
Outside Buffer - Clyde Refinery	SMW_BH020	SMW_BH020	18/09/2018	Normal	Hawkesbury Sandstone	*6.93*	**7400**	**4390**	-	<1	282	**108**	**132**	7	1260	1800	1040	0.1	71.2	78.1	4.57	282	<1	-	*0.23*	0.12	<0.01	*0.12*	*0.8*	0.7	<0.01	*0.29*	<0.001	<0.0001	<0.001
Outside Buffer - Parramatta	SMW_BH014	SMW_BH014	9/03/2018	Normal	Hawkesbury Sandstone	*5.45*	**6610**	**5310**	-	<1	102	**380**	**161**	25	854	845	3190	0.2	99.5	92.3	3.75	102	<1	-	*1.31*	0.2	<0.01	*0.2*	*2.1*	1.9	<0.01	*0.04*	0.019	<0.0001	0.002
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	3/09/2018	Normal	Hawkesbury Sandstone	**7.45**	**13,100**	7880	-	<1	949	151	353	28	1950	4470	125	0.4	122	148	9.46	949	<1	-	*1.91*	0.06	<0.01	*0.06*	*3.7*	3.6	<0.01	*0.68*	0.014	<0.0001	<0.001
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	4/08/2020	Normal	Hawkesbury Sandstone	**7.36**	**13,800**	**8270**	-	<1	**786**	306	295	28	2250	4620	120	0.3	138	148	3.62	786	<1	-	*3.09*	<0.01	0.04	*0.04*	*3.5*	3.5	<0.01	*0.31*	0.002	<0.0001	<0.001
Outside Buffer - Silverwater	SMW_BH027	SMW_BH027	9/04/2018	Normal	Hawkesbury Sandstone	7.01	**12,800**	**7280**	-	<1	**478**	**355**	336	26	1870	4500	245	-	127	142	5.28	478	<1	-	*2.16*	0.12	<0.01	*0.12*	*2.6*	2.5	<0.01	0.02	<0.001	<0.0001	<0.001
Outside Buffer - Silverwater	SMW_BH029	SMW_BH029	9/12/2018	Normal	Hawkesbury Sandstone	*7.22*	9340	**5580**	-	<1	**399**	**180**	192	41	1480	3120	279	0.6	90.2	102	6.03	399	<1	-	*1.04*	0.14	<0.01	*0.14*	*1.9*	1.8	<0.01	<0.01	0.002	<0.0001	<0.001
Parramatta Station	SMW_BH002	SMW_BH002	4/09/2018	Normal	Hawkesbury Sandstone	*6.74*	7680	**5310**	-	<1	**631**	386	102	40	1030	2480	8	-	73.5	82.7	5.92	631	<1	-	*3.45*	0.1	<0.01	*0.1*	*3.5*	3.4	*0.04*	0.01	<0.001	<0.0001	<0.001
Parramatta Station	SMW_BH004_w	SMW_BH004_w	3/11/2020	Normal	Hawkesbury Sandstone	**7.83**	3960	2180	-	<1	**408**	108	56	21	592	1040	11	0.2	36.3	37.7	1.94	408	<1	-	*0.16*	0.16	<0.01	*0.16*	*0.4*	0.2	*0.01*	*0.09*	<0.001	<0.0001	<0.001
Parramatta Station	SMW_BH048_w	SMW_BH048_w	3/11/2020	Normal	Hawkesbury Sandstone	**7.67**	**1590**	-	-	<1	**407**	59	20	11	271	362	24	0.3	16.6	18.8	6.15	407	<1	-	*0.61*	-	-	<0.01	*0.7*	0.7	<0.01	*0.03*	<0.001	<0.0001	<0.001
Tunnel CJ/RCRB	SMW_BH057	SMW_BH057	11/12/2019	Normal	Hawkesbury Sandstone	**7.25**	**11,600**	6490	-	<1	1000	366	297	45	1880	3510	4	0.6	126	119	2.68	1000	<1	-	*2.3*	<0.01	<0.01	<0.01	*2.4*	2.4	<0.01	*0.04*	0.017	<0.0001	<0.001
Clyde Dive Site	SMW_ENV039_w	SMW_ENV039_w	29/11/2019	Normal	Residual	*5.95*	**33,200**	25,800	-	<1	460	403	1060	23	5960	11,400	1770	0.2	367	368	0.06	460	<1	-	*1.19*	<0.01	<0.01	<0.01	*1.7*	1.7	<0.1	*0.12*	<0.01	<0.001	<0.01
Outside - Rosehill	SMW_BH007s	SMW_BH007_s	4/09/2018	Normal	Residual	*6.82*	**1020**	832	-	<1	251	62	8	4	141	40	237	-	9.99	11.1	5.17	251	<1	-	*0.02*	1.32	0.03	*1.35*	*3.2*	1.9	<0.01	*0.16*	<0.001	<0.0001	<0.001
Tunnel CJ/RCRB	SMW_BH057_s	SMW_BH057_s	11/12/2019	Normal	Residual	*6.98*	**588**	**366**	-	<1	162	21	20	12	75	43	70	0.1	6.26	5.91	2.92	162	<1	-	<0.01	0.1	<0.01	*0.1*	*0.3*	0.2	<0.01	*0.09*	<0.001	<0.0001	<0.001
Tunnel CJ/RCRB	SMW_ENV009_w	SMW_ENV009_w	21/11/2019	Normal	Residual	**7.43**	**1210**	620	-	<1	400	100	37	14	94	171	<5	1	12.5	12.8	1.32	400	<1	-	*6.35*	0.01	<0.01	0.01	*7.9*	7.9	<0.05	*0.64*	0.002	<0.0001	<0.001
Tunnel CJ/RCRB	SMW_ENV010	SMW_ENV010	11/12/2019	Normal	Residual	**7.12**	**1020**	540	-	<1	444	103	24	13	86	62	<1	0.5	11.2	10.6	2.6	444	<1	-	*5.8*	<0.01	<0.01	<0.01	*6.6*	6.6	<0.1	*0.14*	0.049	<0.0001	<0.001
Tunnel CJ/RCRB	SMW_ENV011_w	SMW_ENV011_w	21/11/2019	Normal	Residual	*5.46*	**1340**	673	-	<1	179	13	30	26	192	171	279	0.2	12.1	14.2	7.88	179	<1	-	*3.32*	0.01	<0.01	0.01	*5.1*	5.1	<0.05	*0.03*	0.013	<0.0001	<0.001
Statistical Summary																																					
Number of Results						62	61	60	3	61	61	61	61	61	61	61	58	56	60	60	61	61	61	5	62	63	61	56	62	61	62	62	67	67	67
Number of Detects						62	61	60	0	0	58	61	61	61	61	61	55	44	60	60	61	57	1	5	61	27	6	28	55	54	4	41	39	2	13
Minimum Concentration						3.84	588	366	<1	<1	<1	13	8	3	75	40	<1	<0.1	6.26	5.91	0.06	<1	<1	85	<0.01	<0.01	<0.005	<0.01	<0.2	<0.2	<0.005	<0.01	<0.001	<0.0001	<0.001
Minimum Detect						3.84	588	366	ND	ND	6	13	8	3	75	40	4	0.1	6.26	5.91	0.06	6	79	85	0.02	0.01	0.02	0.01	0.2	0.2	0.01	0.01	0.001	0.0006	0.001
Maximum Concentration						8.66	59000	43600	<1	<5	1080	1320	1580	305	11400	21400	12200	2.4	695	653	21	1080	79	486	8.1	1.32	0.68	1.35	11.7	11.7	<0.1	1.9	0.074	0.0084	0.06
Maximum Detect						8.66	59000	43600	ND	ND	1080	1320	1580	305	11400	21400	12200	2.4	695	653	21	1080	79	486	8.1	1.32	0.68	1.35	11.7	11.7	0.04	1.9	0.074	0.0084	0.06
Average Concentration						6.9	16252	11191	1	1.1	413	298	409	39	2777	5306	952	0.37	170	177	4.6	408	2.3	384	1.7	0.078	0.034	0.1	2.6	2.5	0.025	0.12	0.0071	0.0003	0.0027
Median Concentration						7.125	13800	10340	1	1	393	214	319	23	2410	4710	545.5	0.2	132.5	150.5	3.75	393	1	448	1.14	0.01	0.01	0.02	1.7	1.7	0.01	0.05	0.002	0.0001	0.001
Standard Deviation						0.85	12195	9074	0	0.51	280	300	369	54	2307	4515	1744	0.39	141	142	3.7	282	10	168	1.8	0.18	0.09	0.23	2.7	2.7	0.029	0.26	0.014	0.001	0.0075
Number of Guideline Exceedances						29	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	61	0	0	30	58	0	61	46	0	1	7
Number of Guideline Exceedances(Detects Only)						29	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	61	0	0	24	54	0	4	36	0	1	2
95% UCL (exceeds adopted criteria)						7.1											1951								2.20			0.24	3.2		0.041	0.27		8.5E-04	0.0067

Env Stds Comments

#1:Not specifically guideline value: >500mg/L can have purgative effects
#2:Guideline value calculated by dividing Nitrate (as Nitrate) value (50 mg/L) by 4.427
#3:Guideline value calculated by dividing Nitrite (as Nitrite) value (30 mg/L) by molecular weight (3.2967033).
#4:assumed same as NH4
#5:Measured as NH3-N at pH 8
#6:Values taken from "Updating nitrate toxicity effects on freshwater aquatic species, 2013"
#7:In absence of total As guideline, As (V) guideline has been adopted.
#8:In absence of total Cr guideline, Cr (VI) guideline has been adopted.
#9:Ammonia as total ammonia, measured as [NH3-N] at pH 8.

Data Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Draft

| | | |

| | | |

	- NEPM 1999				- NEPM 1999 - SG Clea				TPH	PAHs - standard 16																		PAHs - extended					Phenols - Halogenated						
	C15-C28 Fraction	C29-C36 Fraction	C10-C36 (Sum of Total)	C10-C36 (Sum of Total) - Calc	C10-C14 SG Cleanup	C15-C28 SG Cleanup	C29-C36 SG Cleanup	C10-C36 (sum) SG Cleanup	TPH C8-C36 Fraction (Sum of Total) - Calc	Acenaphthene	Acenaphthylene	Anthracene	Benz[a]anthracene	Benzo(a)pyrene	Benzo[b+j]fluoranthene	Benzo(k)fluoranthene	Benzo(g,h,i)perylene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Sum of standard 16 PAHs	PAHs (Sum of total) - Lab calc	Total 8 PAHs (as BaP TEQ)(zero LOR) - Lab Calc	Benzo(a)pyrene TEQ - ESdat Calc	PAHs (Sum of Total) - Calc	2-methylnaphthalene	3-methylcholanthrene	7,12-dimethylbenz(a)anthracene	Benzo(b+j+k)fluoranthene	Benzo(b)&(k)fluoranthene	2-Chlorophenol	2,4-Dichlorophenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,6-Dichlorophenol	4-Chloro-3-methylphenol	Pentachlorophenol
	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	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	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	100	50	50		50	100	50	50		1	1	1	1	0.5	1	1	1	1	1	1	1	1	1	1	1	0.5	0.5	0.5			2	2	2	4		2	2	2	2	2	2	4
ADWG 2011 Recreational (v3.6 updated 2021)														0.1																					3000	2000		200			100
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																																								
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)														0.2						1.4			2																	22
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																																								

| Monitoring_Zone | Field_ID | Location_Code | Sampled_Date_Time | Sample_Type | Alternative_Name | | | | | | | | | | | | | | | | | | |

						- NEPM 1999				- NEPM 1999 - SG Cleanup				TPH	PAHs - standard 16																			PAHs - extended							Phenols - Halogenated							
						C15-C28 Fraction	C29-C36 Fraction	C10-C36 (Sum of Total)	C10-C36 (Sum of Total) - Calc	C10-C14 SG Cleanup	C15-C28 SG Cleanup	C29-C36 SG Cleanup	C10-C36 (sum) SG Cleanup	TPH C6-C36 Fraction (Sum of Total) - Calc	Acenaphthene	Acenaphthylene	Anthracene	Benz[a]anthracene	Benzo(a)pyrene	Benzo[b+j]fluoranthene	Benzo(k)fluoranthene	Benzo(g,h,i)perylene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Sum of standard 16 PAHs	PAHs (Sum of total) - Lab calc	Total 8 PAHs (as BaP TEQ)(zero LOR) - Lab Calc	Benzo(a)pyrene TEQ - ESdat Calc	PAHs (Sum of Total) - Calc	2-methylnaphthalene	3-methylcholanthrene	7,12-dimethylbenz(a)anthracene	Benzo(b+j+k)fluoranthene	Benzo(b)&(k)fluoranthene	2-Chlorophenol	2,4-Dichlorophenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,6-Dichlorophenol	4-Chloro-3-methylphenol	Pentachlorophenol
						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	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	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL						100	50	50		50	100	50	50		1	1	1	1	0.5	1	1	1	1	1	1	1	1	1	1	0.5	0.5	0.5			2	2	2	4		2	2	2	2	2	2	4
ADWG 2011 Recreational (v3.6 updated 2021)																			**0.1**																				**3000**	**2000**		**200**			**100**
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																																													
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																			0.2						1.4			2																	22
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																																													
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																																										
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale	<100	<100	<250	-	-	-	-	-	-	<1	<1	<1	<1	**<1**	-	-	<1	<1	<1	<1	<1	<1	<1	-	-	-	-	-	-	-	-	-	<2	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale	<100	<100	<250	-	-	-	-	-	-	<1	<1	<1	<1	**<1**	-	-	<1	<1	<1	<1	<1	<1	<1	-	-	-	-	-	-	-	-	-	<2	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale	<100	<100	<250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale	<100	<50	<50	-	-	-	-	-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-	<0.5	-	<0.5	<2	<2	<2	-	-	<2	<2	<2	<2	<2	<2	<4
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation	<100	<50	<50	-	-	-	-	-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-	<0.5	-	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation	<100	<50	-	<50	<50	<100	<50	-	<50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation	<100	<50	<50	-	-	-	-	-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-	<0.5	-	<0.5	<2	<2	<2	-	-	<2	<2	<2	<2	<2	<2	<4
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clyde MSF	SMW_ENV150_s	SMW_ENV150_s	20/11/2019	Normal	Fill	<100	<50	**220**	-	-	-	-	-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-	<0.5	-	<0.5	<2	<2	<2	-	-	<2	<2	<2	<2	<2	<2	<4
Outside - Rosehill	SMW_ENV090_S	SMW_ENV090_S	16/03/2020	Normal	Fill	500	**270**	**770**	-	<50	<100	<50	<50	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<0.5	<0.5	-	-	<2	<2	<2	<4	-	<2	<2	<2	<2	<2	<2	<4
Clyde MSF	SMW_BH707	SMW_BH707	7/05/2021	Normal	Hawkesbury Sandstone	<100	<50	<50	-	-	-	-	-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-	<0.5	-	<0.5	<2	<2	<2	-	-	<2	<2	<2	<2	<2	<2	<4
Outside - Rosehill	SMW_BH007	SMW_BH007	4/09/2018	Normal	Hawkesbury Sandstone	<100	<50	<50	-	-	-	-	-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-	<0.5	-	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Clyde Refinery	SMW_BH020	SMW_BH020	18/09/2018	Normal	Hawkesbury Sandstone	<100	<50	<50	-	-	-	-	-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-	<0.5	-	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Parramatta	SMW_BH014	SMW_BH014	9/03/2018	Normal	Hawkesbury Sandstone	**220**	<50	**220**	-	-	-	-	-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-	<0.5	-	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	3/09/2018	Normal	Hawkesbury Sandstone	**770**	**210**	**1070**	-	-	-	-	-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-	<0.5	-	1.9	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	4/08/2020	Normal	Hawkesbury Sandstone	**150**	<50	**150**	-	-	-	-	-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-	<0.5	-	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH027	SMW_BH027	9/04/2018	Normal	Hawkesbury Sandstone	<100	<50	<50	-	-	-	-	-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-	<0.5	-	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH029	SMW_BH029	9/12/2018	Normal	Hawkesbury Sandstone	<100	<50	<50	-	-	-	-	-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-	<0.5	-	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH002	SMW_BH002	4/09/2018	Normal	Hawkesbury Sandstone	<100	<50	<50	-	-	-	-	-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-	<0.5	-	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH004_w	SMW_BH004_w	3/11/2020	Normal	Hawkesbury Sandstone	<100	<50	<50	-	-	-	-	-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-	<0.5	-	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH048_w	SMW_BH048_w	3/11/2020	Normal	Hawkesbury Sandstone	<100	<50	<50	-	-	-	-	-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-	<0.5	-	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
Tunnel CJ/RCRB	SMW_BH057	SMW_BH057	11/12/2019	Normal	Hawkesbury Sandstone	<100	<50	<50	-	-	-	-	-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-	<0.5	-	<0.5	<2	<2	<2	-	-	<2	<2	<2	<2	<2	<2	<4
Clyde Dive Site	SMW_ENV039_w	SMW_ENV039_w	29/11/2019	Normal	Residual	<100	<50	<50	-	-	-	-	-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-	<0.5	-	<0.5	<2	<2	<2	-	-	<2	<2	<2	<2	<2	<2	<4
Outside - Rosehill	SMW_BH007s	SMW_BH007_s	4/09/2018	Normal	Residual	<100	<50	<50	-	-	-	-	-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-	<0.5	-	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
Tunnel CJ/RCRB	SMW_BH057_s	SMW_BH057_s	11/12/2019	Normal	Residual	<100	<50	<50	-	-	-	-	-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-	<0.5	-	<0.5	<2	<2	<2	-	-	<2	<2	<2	<2	<2	<2	<4
Tunnel CJ/RCRB	SMW_ENV009_w	SMW_ENV009_w	21/11/2019	Normal	Residual	<100	<50	<50	-	-	-	-	-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-	<0.5	-	<0.5	<2	<2	<2	-	-	<2	<2	<2	<2	<2	<2	<4
Tunnel CJ/RCRB	SMW_ENV010	SMW_ENV010	11/12/2019	Normal	Residual	<100	<50	<50	-	-	-	-	-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-	<0.5	-	<0.5	<2	<2	<2	-	-	<2	<2	<2	<2	<2	<2	<4
Tunnel CJ/RCRB	SMW_ENV011_w	SMW_ENV011_w	21/11/2019	Normal	Residual	<100	<50	<50	-	-	-	-	-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-	<0.5	-	<0.5	<2	<2	<2	-	-	<2	<2	<2	<2	<2	<2	<4
Statistical Summary																																														
Number of Results						70	70	68	1	5	5	5	4	1	63	63	63	63	63	56	56	63	63	63	63	63	63	63	7	8	55	1	49	38	37	37	8	6	37	37	37	37	37	37	37
Number of Detects						11	2	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration						<100	<50	<50	<50	<50	<100	<50	<50	<50	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	0	<0.5	<0.5	<5	<0.5	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<4
Minimum Detect						150	210	150	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration						770	270	1070	<50	<50	<100	<50	<50	<50	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<2	<0.5	<5	1.9	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<4
Maximum Detect						770	270	1070	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration						135	63	134		50	100	50	50		1	1	1	1	0.56	1	1	1	1	1	1	1	1	1	0.43	1.6	0.5		0.54	2	2	2	4	2	2	2	2	2	2	2	2	4
Median Concentration						100	50	50	50	50	100	50	50	50	1	1	1	1	0.5	1	1	1	1	1	1	1	1	1	0.5	2	0.5	5	0.5	2	2	2	4	2	2	2	2	2	2	2	2	4
Standard Deviation						105	36	173		0	0	0	0		0	0	0	0	0.16	0	0	0	0	0	0	0	0	0	0.19	0.69	0		0.21	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances						0	0	0	0	0	0	0	0	0	0	0	0	0	63	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL	(exceeds adopted criteria)																																													

Env Stds Comments
#1:Not specifically guideline value: >500mg/L can have purgative effects
#2:Guideline value calculated by dividing Nitrate (as Nitrate) value (50 mg/L) by 4.427
#3:Guideline value calculated by dividing Nitrite (as Nitrite) value (30 mg/L) by molecular weight (3.2967033).
#4:assumed same as NH4
#5:Measured as NH3-N at pH 8
#6:Values taken from "Updating nitrate toxicity effects on freshwater aquatic species, 2013"
#7:In absence of total As guideline, As (V) guideline has been adopted.
#8:In absence of total Cr guideline, Cr (VI) guideline has been adopted.
#9:Ammonia as total ammonia, measured as [NH3-N] at pH 8.

Data Comments
#1 Reported Analyte LOR is higher than Requested Analyte LOR

Draft

| | | |

| | | |

| | | |

| | | |

| | | |

| | | |

| | | |

| | | |

				PFAS - Perfluoroalkyl Carboxylic Acids												PFAS - Perfluoroalkyl Sulfonic Acids							PFAS - Perfluoroalkyl Sulfonamide							FTS - Fluorotelomer Sulfonic Ac			
	trans-1,2-dichloroethene	trans-1,4-Dichloro-2-butene	Trichlorofluoromethane	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecanesulfonic acid (PFDS)	Perfluorodecane sulfonic acid ammonium salt	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-Methyl perfluorooctane sulfonamidoethanol (MEFOSE)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)
	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	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	µg/L	µg/L
EQL	5	5	50	0.1	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.05	0.02	0.02	0.02	0.02	0.01	0.02		0.02	0.05	0.05	0.02	0.05	0.05	0.02	0.05	0.05	0.05	0.05
ADWG 2011 Recreational (v3.6 updated 2021)								5.6																								
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																																
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																																
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system								19											0.00023													

Monitoring_Zone	Field_ID	Location_Code	Sampled_Date_Time	Sample_Type	Alternative_Name																																		
Clyde MSF	SMW_ENV044_w	SMW_ENV044_w	20/11/2019	Normal	Alluvial	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	-	<0.12	<0.12	-	<0.05	<0.05	<0.05	<0.05
Clyde MSF	SMW_ENV044_w	SMW_ENV044_w	23/03/2020	Normal	Alluvial	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clyde MSF	SMW_ENV045	SMW_ENV045	20/09/2019	Normal	Alluvial	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	-	<0.12	<0.12	-	<0.05	<0.05	<0.05	<0.05
Clyde MSF	SMW_ENV076	SMW_ENV076	26/11/2019	Normal	Alluvial	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	<0.05	-	<0.05	-	<0.05	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05
Clyde MSF	SMW_ENV087_14/02/2020	SMW_ENV087	14/02/2020	Normal	Alluvial	<5	<5	<50	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	0.13	<0.02	-	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05
Clyde MSF	SMW_ENV088_14/02/2020	SMW_ENV088	14/02/2020	Normal	Alluvial	<5	<5	<50	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	-	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05
Clyde MSF	SMW_ENV144	SMW_ENV144	25/11/2019	Normal	Alluvial	<5	<5	<50	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	-	<0.01	-	<0.02	<0.02	<0.02	<0.02	-	<0.05	<0.05	-	<0.05	0.28	0.05	<0.05
Clyde MSF	SMW_ENV144	SMW_ENV144	20/03/2020	Normal	Alluvial	<5	<5	<50	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	-	<0.01	-	<0.02	<0.02	<0.02	<0.02	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Clyde MSF	SMW_ENV146	SMW_ENV146	23/09/2019	Normal	Alluvial	<5	<5	<50	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	-	<0.01	-	<0.02	<0.02	<0.02	<0.02	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Clyde MSF	SMW_ENV148_w	SMW_ENV148_w	21/11/2019	Normal	Alluvial	<5	<5	<50	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	-	<0.01	-	<0.02	<0.02	<0.02	<0.02	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Clyde MSF	SMW_ENV149_w	SMW_ENV149_w	20/11/2019	Normal	Alluvial	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	-	<0.12	<0.12	-	<0.05	<0.05	<0.05	<0.05
Clyde MSF	SMW_ENV149_w	SMW_ENV149_w	20/03/2020	Normal	Alluvial	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clyde MSF	SMW_ENV150_w	SMW_ENV150_w	20/11/2019	Normal	Alluvial	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	-	<0.12	<0.12	-	<0.05	<0.05	<0.05	<0.05
Clyde MSF	SMW_ENV151	SMW_ENV151	20/09/2019	Normal	Alluvial	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	0.1	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	-	<0.12	<0.12	-	<0.05	<0.05	<0.05	<0.05
Outside - Rosehill	QC100	SMW_ENV084	14/02/2020	Field_D	Alluvial	<5	<5	<50	<0.1	0.07	0.47	0.12	0.12	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	0.18	0.13	0.61	0.02	<0.01	<0.02	-	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05
Outside - Rosehill	SMW_ENV083_14/02/2020	SMW_ENV083	14/02/2020	Normal	Alluvial	<5	<5	<50	<0.1	0.08	0.49	0.11	0.12	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	0.2	0.13	0.58	0.04	0.23	<0.02	-	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05
Outside - Rosehill	SMW_ENV084_14/02/2020	SMW_ENV084	14/02/2020	Normal	Alluvial	<5	<5	<50	<0.1	0.07	0.44	0.11	0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	0.16	0.12	0.53	<0.02	0.06	<0.02	-	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05
Outside - Rosehill	SMW_ENV089_14/02/2020	SMW_ENV089	14/02/2020	Normal	Alluvial	<5	<5	<50	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.02	<0.02	0.06	<0.02	-	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05
Outside - Rosehill	SMW_ENV090_D	SMW_ENV090_D	16/03/2020	Normal	Alluvial	<5	<5	<50	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	-	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05
Outside Buffer - Clyde Refinery	SMW_BH011s	SMW_BH011_s	18/09/2018	Normal	Alluvial	<5	<5	<50	<0.2	0.05	0.1	0.24	0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.12	<0.12	-	<0.12	<0.12	-	<0.05	<0.05	<0.05	<0.05
Outside Buffer - Clyde Refinery	SMW_BH020s	SMW_BH020_s	18/09/2018	Normal	Alluvial	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.12	<0.12	-	<0.12	<0.12	-	<0.05	<0.05	<0.05	<0.05
Outside Buffer - Clyde Refinery	SMW_BH021s	SMW_BH021_s	18/09/2018	Normal	Alluvial	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.12	<0.12	-	<0.12	<0.12	-	<0.05	<0.05	<0.05	<0.05
Outside Buffer - Clyde Refinery	SMW_BH022s	SMW_BH022_s	18/09/2018	Normal	Alluvial	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.12	<0.12	-	<0.12	<0.12	-	<0.05	<0.05	<0.05	<0.05
Outside Buffer - Clyde Refinery	SMW_BH700 8	SMW_BH021_s	18/09/2018	Field_D	Alluvial	<5	<5	<50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Clyde Refinery	SMW_BH800 9	SMW_BH021_s	18/09/2018	Field_D	Alluvial	<1	-	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSF	SMW_ENV042	SMW_ENV042	26/11/2019	Normal	Alluvial	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	<0.05	-	<0.05	-	<0.05	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05
RSF	SMW_ENV145	SMW_ENV145	26/11/2019	Normal	Alluvial	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	<0.05	-	<0.05	-	<0.05	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05
Clyde Dive Site	SMW_ENV077	SMW_ENV077	13/11/2019	Normal	Ashfield Shale	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	-	<0.12	<0.12	-	<0.05	<0.05	<0.05	<0.05
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Normal	Ashfield Shale	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	-	<0.12	<0.12	-	<0.05	<0.05	<0.05	<0.05
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Field_D	Ashfield Shale	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	-	<0.12	<0.12	-	<0.05	<0.05	<0.05	<0.05
Silverwater	FD14	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	<5	<5	<50	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	-	<0.01	-	<0.02	<0.02	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Silverwater	FD16	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	<5	<5	<50	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	-	<0.01	-	<0.02	<0.02	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Silverwater	MW10D	MW10D	25/08/2011	Normal	Ashfield Shale	<1	-	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW12D	MW12D	25/08/2011	Normal	Ashfield Shale	<1	-	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/08/2011	Normal	Ashfield Shale	<1	-	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	SMW_BH709	SMW_BH709	26/03/2021	Normal	Ashfield Shale	<5	<5	<50	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	-	<0.01	-	<0.02	<0.02	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Tunnel SW/SOP	SMW_BH121	SMW_BH121	10/03/2019	Normal	Ashfield Shale	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	-	<0.12	<0.12	-	<0.05	<0.05	<0.05	<0.05
Westmead Station	SMW_BH701	SMW_BH701	1/04/2021	Normal	Ashfield Shale	<5	<5	<50	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	-	<0.01	-	<0.02	<0.02	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Clyde Dive Site	SMW_BH043	SMW_BH043	20/08/2020	Normal	Ashfield Shale	<5	<5	<50	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	-	<0.01	-	<0.02	<0.02	<0.02	<0.02	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Clyde Dive Site	SMW_BH064	SMW_BH064	13/11/2019	Normal	Ashfield Shale	<5	<5	<50	0.3	2.07	1.02	0.04	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	-	<0.01	-	<0.02	<0.02	<0.02	<0.02	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Outside Buffer - Clyde Refinery	SMW_BH011	SMW_BH011	18/09/2018	Normal	Ashfield Shale	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.12	<0.12	-	<0.12	<0.12	-	<0.05	<0.05	<0.05	<0.05
Outside Buffer - Clyde Refinery	SMW_BH021	SMW_BH021	18/09/2018	Normal	Ashfield Shale	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.12	<0.12	-	<0.12	<0.12	-	<0.05	<0.05	<0.05	<0.05
Silverwater	Dup1 (MW1D)	MW1D	25/07/2011	Field_D	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/07/2011	Normal	Ashfield Shale	<1	-	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

DRAFT

				PFAS - Perfluoroalkyl Carboxylic Acids											PFAS - Perfluoroalkyl Sulfonic Acids							PFAS - Perfluoroalkyl Sulfonamide							FTS - Fluorotelomer Sulfonic Ac			
				trans-1,2-dichloroethene	trans-1,4-Dichloro-2-butene	Trichlorofluoromethane	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecanesulfonic acid (PFDS)	Perfluorodecane sulfonic acid ammonium salt	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-Methyl perfluorooctane sulfonamidoethanol (MEFOSE)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)
				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	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
EQL				5	5	50	0.1	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.05	0.02	0.02	0.02	0.02	0.01	0.02		0.02	0.05	0.05	0.02	0.05	0.05	0.02	0.05	0.05	0.05	0.05
ADWG 2011 Recreational (v3.6 updated 2021)											5.6																						
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																																	
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																																	
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system											19											0.00023										
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																												
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale	<1	-	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale	<1	-	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale	<5	<5	<50	<0.25	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	<0.05	-	<0.05	-	<0.05	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation	<5	<5	<50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	<0.05	-	<0.05	-	<0.05	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clyde MSF	SMW_ENV150_s	SMW_ENV150_s	20/11/2019	Normal	Fill	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	0.08	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	-	<0.12	<0.12	-	<0.05	<0.05	<0.05	<0.05
Outside - Rosehill	SMW_ENV090_S	SMW_ENV090_S	16/03/2020	Normal	Fill	<5	<5	<50	<0.1	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.09	<0.02	0.09	<0.02	-	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05
Clyde MSF	SMW_BH707	SMW_BH707	7/05/2021	Normal	Hawkesbury Sandstone	<5	<5	<50	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	-	<0.01	-	<0.02	<0.02	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Outside - Rosehill	SMW_BH007	SMW_BH007	4/09/2018	Normal	Hawkesbury Sandstone	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	<0.12	<0.12	-	<0.12	<0.12	-	<0.05	<0.05	<0.05	<0.05
Outside Buffer - Clyde Refinery	SMW_BH020	SMW_BH020	18/09/2018	Normal	Hawkesbury Sandstone	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.12	<0.12	-	<0.12	<0.12	-	<0.05	<0.05	<0.05	<0.05
Outside Buffer - Parramatta	SMW_BH014	SMW_BH014	9/03/2018	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	3/09/2018	Normal	Hawkesbury Sandstone	<5	<5	<50	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	-	<0.01	-	<0.02	<0.02	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	4/08/2020	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH027	SMW_BH027	9/04/2018	Normal	Hawkesbury Sandstone	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	<0.12	<0.12	-	<0.12	<0.12	-	<0.05	<0.05	<0.05	<0.05
Outside Buffer - Silverwater	SMW_BH029	SMW_BH029	9/12/2018	Normal	Hawkesbury Sandstone	<5	<5	<50	<0.1	<0.02	<0.02	<0.02	<0.01	-	-	-	-	-	-	<0.02	-	<0.02	-	<0.01	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05
Parramatta Station	SMW_BH002	SMW_BH002	4/09/2018	Normal	Hawkesbury Sandstone	<5	<5	<50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH004_w	SMW_BH004_w	3/11/2020	Normal	Hawkesbury Sandstone	-	-	-	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	-	<0.01	-	<0.02	<0.02	<0.02	<0.02	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Parramatta Station	SMW_BH048_w	SMW_BH048_w	3/11/2020	Normal	Hawkesbury Sandstone	-	-	-	<0.1	0.04	0.04	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	-	0.01	-	-	<0.02	<0.02	<0.02	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Tunnel CJ/RCRB	SMW_BH057	SMW_BH057	11/12/2019	Normal	Hawkesbury Sandstone	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	-	<0.12	<0.12	-	<0.05	<0.05	<0.05	<0.05
Clyde Dive Site	SMW_ENV039_w	SMW_ENV039_w	29/11/2019	Normal	Residual	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	-	<0.12	<0.12	-	<0.05	<0.05	<0.05	<0.05
Outside - Rosehill	SMW_BH007s	SMW_BH007_s	4/09/2018	Normal	Residual	<5	<5	<50	<0.1	<0.02	0.02	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	0.05	-	0.03	-	<0.02	<0.02	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Tunnel CJ/RCRB	SMW_BH057_s	SMW_BH057_s	11/12/2019	Normal	Residual	<5	<5	<50	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	-	0.03	-	<0.02	<0.02	<0.02	<0.02	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Tunnel CJ/RCRB	SMW_ENV009_w	SMW_ENV009_w	21/11/2019	Normal	Residual	<5	<5	<50	<0.1	0.03	0.03	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.05	0.09	<0.02	<0.02	<0.02	-	<0.01	-	<0.02	<0.02	<0.02	<0.02	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Tunnel CJ/RCRB	SMW_ENV010	SMW_ENV010	11/12/2019	Normal	Residual	<5	<5	<50	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	-	<0.01	-	<0.02	<0.02	<0.02	<0.02	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Tunnel CJ/RCRB	SMW_ENV011_w	SMW_ENV011_w	21/11/2019	Normal	Residual	<5	<5	<50	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	-	<0.01	-	<0.02	<0.02	<0.02	<0.02	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Statistical Summary																																			
Number of Results				62	55	62	54	54	54	54	54	48	48	48	48	48	48	54	48	54	8	54	15	32	48	48	48	8	48	48	8	54	54	54	54
Number of Detects				0	0	0	1	7	8	5	8	0	0	0	0	0	0	4	3	9	2	8	0	0	0	0	0	0	0	0	0	0	1	1	0
Minimum Concentration				<1	<5	<10	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05
Minimum Detect				ND	ND	ND	0.3	0.03	0.02	0.04	0.01	ND	ND	ND	ND	ND	ND	0.09	0.12	0.02	0.02	0.01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.28	0.05	ND
Maximum Concentration				<5	<5	<50	0.3	2.07	1.02	0.24	0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	0.2	0.13	0.61	0.04	0.23	<0.05	<0.05	<0.05	<0.12	<0.12	<0.02	<0.12	<0.12	<0.02	<0.05	0.28	0.05	<0.05
Maximum Detect				ND	ND	ND	0.3	2.07	1.02	0.24	0.12	ND	ND	ND	ND	ND	ND	0.2	0.13	0.61	0.04	0.23	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.28	0.05	ND
Average Concentration				4.5	5	45	0.15	0.076	0.079	0.044	0.036	0.033	0.033	0.033	0.033	0.033	0.081	0.045	0.04	0.069	0.023	0.04	0.034	0.033	0.033	0.056	0.056	0.02	0.081	0.081	0.02	0.05	0.054	0.05	0.05
Median Concentration				5	5	50	0.15	0.05	0.05	0.05	0.05	0.02	0.02	0.02	0.02	0.02	0.05	0.05	0.035	0.05	0.02	0.05	0.02	0.02	0.02	0.05	0.05	0.02	0.05	0.05	0.02	0.05	0.05	0.05	0.05
Standard Deviation				1.3	0	13	0.055	0.28	0.16	0.036	0.028	0.015	0.015	0.015	0.015	0.015	0.035	0.037	0.027	0.13	0.0071	0.036	0.015	0.015	0.015	0.034	0.034	0	0.035	0.035	0	0	0.031	0	0
Number of Guideline Exceedances				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL	(exceeds adopted criteria)																					0.061													

Env Stds Comments
#1:Not specifically guideline value: >500mg/L can have purgative effects
#2:Guideline value calculated by dividing Nitrate (as Nitrate) value (50 mg/L) by 4.427
#3:Guideline value calculated by dividing Nitrite (as Nitrite) value (30 mg/L) by molecular weight (3.2967033).
#4:assumed same as NH4
#5:Measured as NH3-N at pH 8
#6:Values taken from "Updating nitrate toxicity effects on freshwater aquatic species, 2013"
#7:In absence of total As guideline, As (V) guideline has been adopted.
#8:In absence of total Cr guideline, Cr (VI) guideline has been adopted.
#9:Ammonia as total ammonia, measured as [NH3-N] at pH 8.

Data Comments
#1 Reported Analyte LOR is higher than Requested Analyte LOR

Draft

						PFAS - Sums				PFAS	Hydrocarbon Tolerant Bacteria
						Sum of PFHxS and PFOS	PFAS (Sum of Total)	PFAS (Sum of Total)(WA DER List)	PFOS/PFHxS (Sum of Total) - Auto Calc	Perfluoroheptanesulfonic acid	Hydrocarbon Utilising Bacteria
						µg/L	µg/L	µg/L	µg/L	µg/L	-
EQL						0.01	0.01	0.01			
ADWG 2011 Recreational (v3.6 updated 2021)						**0.7**			**0.7**		
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine											
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)											
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system											
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**						
Clyde MSF	SMW_ENV044_w	SMW_ENV044_w	20/11/2019	Normal	Alluvial	-	<0.05	<0.05	<0.05	<0.05	-
Clyde MSF	SMW_ENV044_w	SMW_ENV044_w	23/03/2020	Normal	Alluvial	-	-	-	-	-	-
Clyde MSF	SMW_ENV045	SMW_ENV045	20/09/2019	Normal	Alluvial	-	<0.05	<0.05	<0.05	<0.05	-
Clyde MSF	SMW_ENV076	SMW_ENV076	26/11/2019	Normal	Alluvial	-	-	<0.05	<0.05	-	-
Clyde MSF	SMW_ENV087_14/02/2020	SMW_ENV087	14/02/2020	Normal	Alluvial	0.17	**0.17**	**0.17**	-	-	-
Clyde MSF	SMW_ENV088_14/02/2020	SMW_ENV088	14/02/2020	Normal	Alluvial	<0.01	<0.01	<0.01	-	-	-
Clyde MSF	SMW_ENV144	SMW_ENV144	25/11/2019	Normal	Alluvial	-	**0.33**	**0.33**	<0.01	<0.02	<10
Clyde MSF	SMW_ENV144	SMW_ENV144	20/03/2020	Normal	Alluvial	-	<0.01	<0.01	<0.01	<0.02	-
Clyde MSF	SMW_ENV146	SMW_ENV146	23/09/2019	Normal	Alluvial	-	<0.01	<0.01	<0.01	<0.02	-
Clyde MSF	SMW_ENV148_w	SMW_ENV148_w	21/11/2019	Normal	Alluvial	-	<0.01	<0.01	<0.01	<0.02	-
Clyde MSF	SMW_ENV149_w	SMW_ENV149_w	20/11/2019	Normal	Alluvial	-	<0.05	<0.05	<0.05	<0.05	-
Clyde MSF	SMW_ENV149_w	SMW_ENV149_w	20/03/2020	Normal	Alluvial	-	-	-	-	-	-
Clyde MSF	SMW_ENV150_w	SMW_ENV150_w	20/11/2019	Normal	Alluvial	-	<0.05	<0.05	<0.05	<0.05	-
Clyde MSF	SMW_ENV151	SMW_ENV151	20/09/2019	Normal	Alluvial	-	0.1	0.1	0.1	<0.05	-
Outside - Rosehill	QC100	SMW_ENV084	14/02/2020	Field_D	Alluvial	**0.61**	**1.72**	**1.57**	-	-	-
Outside - Rosehill	SMW_ENV083_14/02/2020	SMW_ENV083	14/02/2020	Normal	Alluvial	**0.81**	**1.98**	**1.81**	-	-	-
Outside - Rosehill	SMW_ENV084_14/02/2020	SMW_ENV084	14/02/2020	Normal	Alluvial	**0.59**	**1.59**	**1.47**	-	-	-
Outside - Rosehill	SMW_ENV089_14/02/2020	SMW_ENV089	14/02/2020	Normal	Alluvial	**0.08**	**0.08**	**0.08**	-	-	-
Outside - Rosehill	SMW_ENV090_D	SMW_ENV090_D	16/03/2020	Normal	Alluvial	<0.01	<0.01	<0.01	-	-	-
Outside Buffer - Clyde Refinery	SMW_BH011s	SMW_BH011_s	18/09/2018	Normal	Alluvial	-	-	-	<0.05	<0.05	-
Outside Buffer - Clyde Refinery	SMW_BH020s	SMW_BH020_s	18/09/2018	Normal	Alluvial	-	-	-	<0.05	<0.05	-
Outside Buffer - Clyde Refinery	SMW_BH021s	SMW_BH021_s	18/09/2018	Normal	Alluvial	-	-	-	<0.05	<0.05	-
Outside Buffer - Clyde Refinery	SMW_BH022s	SMW_BH022_s	18/09/2018	Normal	Alluvial	-	-	-	<0.05	<0.05	-
Outside Buffer - Clyde Refinery	SMW_BH700 8	SMW_BH021_s	18/09/2018	Field_D	Alluvial	-	-	-	-	-	-
Outside Buffer - Clyde Refinery	SMW_BH800 9	SMW_BH021_s	18/09/2018	Field_D	Alluvial	-	-	-	-	-	-
RSF	SMW_ENV042	SMW_ENV042	26/11/2019	Normal	Alluvial	-	-	<0.05	<0.05	-	<10
RSF	SMW_ENV145	SMW_ENV145	26/11/2019	Normal	Alluvial	-	-	<0.05	<0.05	-	-
Clyde Dive Site	SMW_ENV077	SMW_ENV077	13/11/2019	Normal	Ashfield Shale	-	<0.05	<0.05	<0.05	<0.05	-
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Normal	Ashfield Shale	-	<0.05	<0.05	<0.05	<0.05	-
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Field_D	Ashfield Shale	-	<0.05	<0.05	<0.05	<0.05	-
Silverwater	FD14	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	-	<0.01	<0.01	<0.01	<0.02	-
Silverwater	FD16	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	-	<0.01	<0.01	<0.01	<0.02	-
Silverwater	MW10D	MW10D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-
Silverwater	MW12D	MW12D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-
Silverwater	SMW_BH709	SMW_BH709	26/03/2021	Normal	Ashfield Shale	-	<0.01	<0.01	<0.01	<0.02	-
Tunnel SW/SOP	SMW_BH121	SMW_BH121	10/03/2019	Normal	Ashfield Shale	-	<0.05	<0.05	<0.05	<0.05	-
Westmead Station	SMW_BH701	SMW_BH701	1/04/2021	Normal	Ashfield Shale	-	<0.01	<0.01	<0.01	<0.02	-
Clyde Dive Site	SMW_BH043	SMW_BH043	20/08/2020	Normal	Ashfield Shale	-	<0.01	<0.01	<0.01	<0.02	-
Clyde Dive Site	SMW_BH064	SMW_BH064	13/11/2019	Normal	Ashfield Shale	-	3.43	3.43	<0.01	<0.02	-
Outside Buffer - Clyde Refinery	SMW_BH011	SMW_BH011	18/09/2018	Normal	Ashfield Shale	-	-	-	<0.05	<0.05	-
Outside Buffer - Clyde Refinery	SMW_BH021	SMW_BH021	18/09/2018	Normal	Ashfield Shale	-	-	-	<0.05	<0.05	-
Silverwater	Dup1 (MW1D)	MW1D	25/07/2011	Field_D	Ashfield Shale	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-

Draft

							PFAS - Sums				PFAS	Hydrocarbon Tolerant Bacteria
							Sum of PFHxS and PFOS	PFAS (Sum of Total)	PFAS (Sum of Total)(WA DER List)	PFOS/PFHxS (Sum of Total) - Auto Calc	Perfluoroheptanesulfonic acid	Hydrocarbon Utilising Bacteria
							µg/L	µg/L	µg/L	µg/L	µg/L	-
EQL							0.01	0.01	0.01			
ADWG 2011 Recreational (v3.6 updated 2021)							**0.7**			**0.7**		
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine												
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)												
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system												
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**							
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale		-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale		-	-	<0.05	<0.05	-	-
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation		-	-	-	-	-	-
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation		-	-	-	-	-	-
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation		-	-	<0.05	<0.05	-	-
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation		-	-	-	-	-	-
Clyde MSF	SMW_ENV150_s	SMW_ENV150_s	20/11/2019	Normal	Fill		-	0.08	0.08	0.08	<0.05	-
Outside - Rosehill	SMW_ENV090_S	SMW_ENV090_S	16/03/2020	Normal	Fill		0.18	0.2	0.2	-	-	-
Clyde MSF	SMW_BH707	SMW_BH707	7/05/2021	Normal	Hawkesbury Sandstone		-	<0.01	<0.01	<0.01	<0.02	-
Outside - Rosehill	SMW_BH007	SMW_BH007	4/09/2018	Normal	Hawkesbury Sandstone		-	-	-	<0.05	<0.05	-
Outside Buffer - Clyde Refinery	SMW_BH020	SMW_BH020	18/09/2018	Normal	Hawkesbury Sandstone		-	-	-	<0.05	<0.05	-
Outside Buffer - Parramatta	SMW_BH014	SMW_BH014	9/03/2018	Normal	Hawkesbury Sandstone		-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	3/09/2018	Normal	Hawkesbury Sandstone		-	-	-	<0.01	<0.02	-
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	4/08/2020	Normal	Hawkesbury Sandstone		-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH027	SMW_BH027	9/04/2018	Normal	Hawkesbury Sandstone		-	-	-	<0.05	<0.05	-
Outside Buffer - Silverwater	SMW_BH029	SMW_BH029	9/12/2018	Normal	Hawkesbury Sandstone		-	-	-	<0.01	-	-
Parramatta Station	SMW_BH002	SMW_BH002	4/09/2018	Normal	Hawkesbury Sandstone		-	-	-	-	-	-
Parramatta Station	SMW_BH004_w	SMW_BH004_w	3/11/2020	Normal	Hawkesbury Sandstone		-	<0.01	<0.01	<0.01	<0.02	-
Parramatta Station	SMW_BH048_w	SMW_BH048_w	3/11/2020	Normal	Hawkesbury Sandstone		-	0.36	0.12	0.01	<0.02	-
Tunnel CJ/RCRB	SMW_BH057	SMW_BH057	11/12/2019	Normal	Hawkesbury Sandstone		-	<0.05	<0.05	<0.05	<0.05	-
Clyde Dive Site	SMW_ENV039_w	SMW_ENV039_w	29/11/2019	Normal	Residual		-	<0.05	<0.05	<0.05	<0.05	<10
Outside - Rosehill	SMW_BH007s	SMW_BH007_s	4/09/2018	Normal	Residual		-	-	-	0.08	<0.02	-
Tunnel CJ/RCRB	SMW_BH057_s	SMW_BH057_s	11/12/2019	Normal	Residual		-	0.03	0.03	0.03	<0.02	-
Tunnel CJ/RCRB	SMW_ENV009_w	SMW_ENV009_w	21/11/2019	Normal	Residual		-	0.16	0.16	<0.01	<0.02	-
Tunnel CJ/RCRB	SMW_ENV010	SMW_ENV010	11/12/2019	Normal	Residual		-	<0.01	<0.01	<0.01	<0.02	-
Tunnel CJ/RCRB	SMW_ENV011_w	SMW_ENV011_w	21/11/2019	Normal	Residual		-	<0.01	<0.01	<0.01	<0.02	-
Statistical Summary												
Number of Results							8	37	42	46	40	3
Number of Detects							6	13	13	5	0	0
Minimum Concentration							<0.01	<0.01	<0.01	<0.01	<0.02	<10
Minimum Detect							0.08	0.03	0.03	0.01	ND	ND
Maximum Concentration							0.81	3.43	3.43	0.1	<0.05	<10
Maximum Detect							0.81	3.43	3.43	0.1	ND	ND
Average Concentration							0.31	0.29	0.25	0.036	0.036	10
Median Concentration							0.175	0.05	0.05	0.05	0.05	10
Standard Deviation							0.31	0.71	0.65	0.024	0.015	0
Number of Guideline Exceedances							1	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)							1	0	0	0	0	0
95% UCL	(exceeds adopted criteria)						0.52					

Env Stds Comments

#1:Not specifically guideline value; >500mg/L can have purgative effects
#2:Guideline value calculated by dividing Nitrate (as Nitrate) value (50 mg/L) by 4.427
#3:Guideline value calculated by dividing Nitrite (as Nitrite) value (30 mg/L) by molecular weight (3.2967033).
#4:assumed same as NH4
#5:Measured as NH3-N at pH 8
#6:Values taken from "Updating nitrate toxicity effects on freshwater aquatic species, 2013"
#7:In absence of total As guideline, As (V) guideline has been adopted.
#8:In absence of total Cr guideline, Cr (VI) guideline has been adopted.
#9:Ammonia as total ammonia, measured as [NH3-N] at pH 8.

Data Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Draft

				Inorganics					Major Ions										Minor Ions			Nutrients						
				pH (Lab)	Electrical conductivity (lab)	Total Dissolved Solids @ 180°C	Alkalinity (Hydroxide as CaCO3)	Alkalinity (total as CaCO3)	Calcium (Filtered)	Magnesium (Filtered)	Potassium (Filtered)	Sodium (Filtered)	Chloride	Sulfate	Fluoride	Cations Total	Anions Total	Ionic Balance	Bicarbonate ion (HCO3-)	Carbonate ion	Sulfide (Filtered)	Ammonia as N	Nitrate (as N)	Nitrite (as N)	Nitrogen (Total Oxidised) (as N)	Nitrogen (Total)	Kjeldahl Nitrogen Total	Reactive Phosphorus as P
				pH units	µS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	%	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL				0.01	1		1	1	1	1	1	1	1		0.1	0.01	0.01	0.01				0.01	0.01	0.01	0.01	0.1	0.1	0.01
ADWG 2011 Recreational (v3.6 updated 2021)														**5000**[#1]	**15**													
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine				*7-8.5*																		*0.015*[#4]				*0.015*	*0.3*		*0.005*
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																						0.91[#3]							
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																													
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Lithology - screened**																								
Clyde Dive Site	SMW_ENV077	SMW_ENV077	13/11/2019	Normal	Ashfield Shale	*6.73*	19,200	13,000	<1	213	98	477	9	3410	5680	1890	<0.1	193	204	2.8	213	<1	-	*0.15*	<0.01	<0.01	<0.01	<0.2	<0.2	*<0.01*
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Normal	Ashfield Shale	7.3	21,300	13,900	<1	683	258	596	50	3540	7040	794	0.8	217	229	2.6	683	<1	-	*1.13*	0.02	<0.01	*0.02*	*1.8*	1.8	*<0.01*
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Field_D	Ashfield Shale	7.36	21,200	13,900	<1	634	260	603	51	3600	6940	781	0.8	220	225	0.94	634	<1	-	*1.14*	0.01	<0.01	0.01	*1.7*	1.7	*<0.01*
Silverwater	FD14	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	7.68	19,400	12,800	<1	551	282	484	29	3070	5990	-	0.4	188	189	0.29	551	<1	447	*2.34*	0.01	<0.01	-	*2.4*	2.4	*<0.1*
Silverwater	FD16	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	7.68	19,500	13,100	<1	501	284	490	30	3080	6130	-	0.4	189	192	0.83	501	<1	456	*2.39*	<0.01	<0.01	-	*2.4*	2.4	*<0.1*
Silverwater	MW10D	MW10D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW12D	MW12D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	SMW_BH709	SMW_BH709	26/03/2021	Normal	Ashfield Shale	7.55	19,400	12,800	<1	538	284	487	29	3120	6030	-	0.4	191	190	0.14	538	<1	448	*2.41*	<0.01	<0.01	-	*2.4*	2.4	*<0.1*
Tunnel SW/SOP	SMW_BH121	SMW_BH121	10/03/2019	Normal	Ashfield Shale	7.22	48,700	37,000	<1	230	1310	1310	100	9400	21,400	2160	0.2	585	653	5.54	230	<1	-	*3.43*	<0.05	<0.05	*0.05*	*3.4*	3.4	*<0.05*
Westmead Station	SMW_BH701	SMW_BH701	1/04/2021	Normal	Ashfield Shale	7.56	8410	5010	<1	955	54	149	34	1580	1840	-	2.4	84.6	81.1	2.08	955	<1	486	*0.06*	<0.01	<0.01	-	<0.2	<0.2	*<0.01*
Clyde Dive Site	SMW_BH043	SMW_BH043	20/08/2020	Normal	Ashfield Shale	7.55	2550	1440	<1	374	56	32	11	463	57	852	0.9	25.8	26.8	1.84	374	<1	-	*0.03*	0.52	<0.01	*0.52*	*0.8*	0.2	*<0.01*
Clyde Dive Site	SMW_BH064	SMW_BH064	13/11/2019	Normal	Ashfield Shale	*6.17*	6810	3410	<1	50	16	81	3	1170	1760	418	0.9	58.4	59.3	0.78	50	<1	-	*0.16*	<0.01	<0.01	<0.01	0.2	0.2	*<0.01*
Outside Buffer - Clyde Refinery	SMW_BH011	SMW_BH011	18/09/2018	Normal	Ashfield Shale	*6.23*	10,500	5380	<1	708	516	151	36	1320	3270	590	<0.1	96.5	119	10.3	708	<1	-	*1.82*	<0.05	<0.05	*<0.05*	*4.6*	4.6	*<0.05*
Outside Buffer - Clyde Refinery	SMW_BH021	SMW_BH021	18/09/2018	Normal	Ashfield Shale	*6.63*	17,700	11,500	<1	476	375	319	26	2590	6520	305	<0.1	158	200	11.6	476	<1	-	*2.5*	<0.1	<0.1	*<0.1*	*2.6*	2.6	*<0.1*
Silverwater	Dup1 (MW1D)	MW1D	25/07/2011	Field_D	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale	*6.96*	33,200	25,200	<1	603	1040	1050	75	5060	11,900	864	0.3	360	366	0.74	603	<1	-	*6.89*	<0.01	<0.01	<0.01	*7*	7	*<0.01*
Statistical Summary																													
Number of Results							13	13	13	13	13	13	13	13	13	9	13	13	13	13	13	13	4	13	13	13	9	13	13	13
Number of Detects							13	13	13	0	13	13	13	13	13	9	10	13	13	13	13	0	4	13	4	0	4	11	11	0
Minimum Concentration							6.17	2550	1440	<1	50	16	32	3	463	57	305	<0.1	25.8	26.8	0.14	50	<1	447	0.03	<0.01	<0.01	<0.01	<0.2	<0.2	<0.01
Minimum Detect							6.17	2550	1440	ND	50	16	32	3	463	57	305	0.2	25.8	26.8	0.14	50	ND	447	0.03	0.01	ND	0.01	0.2	0.2	ND
Maximum Concentration							7.68	48700	37000	<1	955	1310	1310	100	9400	21400	2160	2.4	585	653	11.6	955	<1	486	6.89	0.52	<0.1	0.52	7	7	<0.1
Maximum Detect							7.68	48700	37000	ND	955	1310	1310	100	9400	21400	2160	2.4	585	653	11.6	955	ND	486	6.89	0.52	ND	0.52	7	7	ND
Average Concentration							7.1	19067	12957	1	501	372	479	37	3185	6504	962	0.6	197	210	3.1	501	1	459	1.9	0.063	0.023	0.087	2.3	2.2	0.044
Median Concentration							7.3	19400	12800	1	538	282	484	30	3080	6030	794	0.4	189	192	1.84	538	1	452	1.82	0.01	0.01	0.02	2.4	2.4	0.01
Standard Deviation							0.53	11901	9470	0	240	387	370	27	2243	5393	637	0.62	145	159	3.8	240	0	18	1.9	0.14	0.028	0.17	1.9	2	0.042
Number of Guideline Exceedances							5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	0	0	5	10	0	13
Number of Guideline Exceedances(Detects Only)							5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	0	0	3	10	0	0
95% UCL	(exceeds adopted criteria)						7.388																		2.81			0.308	3.24		

Env Stds Comments

Data Comments

Draft

							Metals														BTEXN									TRH -		
							Phosphorus (Total)	Arsenic (Filtered)	Cadmium (Filtered)	Chromium (III+VI) (Filtered)	Chromium (hexavalent) (Filtered)	Cobalt (Filtered)	Copper (Filtered)	Iron (Filtered)	Lead (Filtered)	Manganese (Filtered)	Mercury (Filtered)	Nickel (Filtered)	Zinc (Filtered)	Benzene	Toluene	Ethylbenzene	Xylene (o)	Xylene (m & p)	Xylene Total	BTEX (Sum of Total) - Lab Calc	Naphthalene	F1 (C6-C10 minus BTEX)	C6-C10 Fraction	F2 (>C10-C16 minus Naphthalene)
							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/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
EQL							0.01	0.001	0.0001	0.001	0.01	0.001	0.001	0.05	0.001	0.001	0.0001	0.001	0.005	1	2	2	2	2	2	1	1	20	20	100
ADWG 2011 Recreational (v3.6 updated 2021)								**0.1**	**0.02**		**0.5**		**20**		**0.1**	**5**	**0.01**	**0.2**		**10**	**8000**	**3000**			**6000**							
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine							*0.03*																									
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)									0.0055	0.0044[40]	0.0044	0.001	0.0013		0.0044		0.0004	0.07	0.015	700	180	80					70					
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																																
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Lithology - screened**																											
Clyde Dive Site	SMW_ENV077	SMW_ENV077	13/11/2019	Normal	Ashfield Shale		*0.04*	<0.001	<0.0001	<0.001	<0.01	0.011	<0.001	0.45	<0.001	0.143	<0.0001	0.003	0.018	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Normal	Ashfield Shale		*0.09*	<0.001	<0.0001	<0.001	<0.01	0.012	<0.001	1.56	<0.001	0.849	<0.0001	0.006	0.015	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Field_D	Ashfield Shale		*0.05*	0.002	<0.0001	0.001	<0.01	0.013	<0.001	1.53	<0.001	0.848	<0.0001	0.007	0.016	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100
Silverwater	FD14	SMW_BH709	26/03/2021	Field_D	Ashfield Shale		*<0.1*	0.004	<0.0001	<0.001	<0.01	0.001	<0.001	4.54	<0.001	0.337	<0.0001	<0.001	<0.005	<1	3	<2	<2	<2	<2	3	<5	<20	<20	<100
Silverwater	FD16	SMW_BH709	26/03/2021	Field_D	Ashfield Shale		*<0.1*	0.004	<0.0001	<0.001	<0.01	<0.001	<0.001	4.59	<0.001	0.35	<0.0001	<0.001	<0.005	<1	3	<2	<2	<2	<2	3	<5	<20	<20	<100
Silverwater	MW10D	MW10D	25/08/2011	Normal	Ashfield Shale		-	<0.001	<0.0001	<0.001	-	-	<0.001	-	<0.001	-	<0.0001	<0.001	<0.001	<1	<1	<1	<1	<2	<3	-	<1	-	-	-
Silverwater	MW12D	MW12D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<2	<3	-	-	-	-	-
Silverwater	MW4D	MW4D	25/07/2011	Normal	Ashfield Shale		-	<0.001	<0.0001	<0.001	-	-	<0.001	-	<0.001	-	<0.0001	0.021	0.016	<1	<1	<1	<1	<2	<3	-	<1	-	-	-
Silverwater	MW4D	MW4D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<2	<3	-	-	-	-	-
Silverwater	SMW_BH709	SMW_BH709	26/03/2021	Normal	Ashfield Shale		*<0.1*	0.004	<0.0001	<0.001	<0.01	0.001	<0.001	4.63	<0.001	0.339	<0.0001	<0.001	<0.005	<1	3	<2	<2	<2	<2	3	<5	<20	<20	<100
Tunnel SW/SOP	SMW_BH121	SMW_BH121	10/03/2019	Normal	Ashfield Shale		*0.16*	<0.01	<0.001	<0.01	<0.01	<0.01	<0.01	10.6	<0.01	3.1	<0.0001	<0.01	<0.05	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100
Westmead Station	SMW_BH701	SMW_BH701	1/04/2021	Normal	Ashfield Shale		<0.02	<0.001	<0.0001	0.005	<0.01	0.004	0.012	0.55	<0.001	0.582	<0.0001	0.008	0.019	<1	3	<2	<2	<2	<2	3	<1	<20	<20	<100
Clyde Dive Site	SMW_BH043	SMW_BH043	20/08/2020	Normal	Ashfield Shale		0.02	<0.001	0.0006	<0.001	<0.01	0.001	0.001	<0.05	<0.001	1.23	<0.0001	0.001	0.01	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100
Clyde Dive Site	SMW_BH064	SMW_BH064	13/11/2019	Normal	Ashfield Shale		0.02	<0.001	<0.0001	<0.001	<0.01	0.07	<0.001	14.1	<0.001	0.376	0.0001	0.049	0.278	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100
Outside Buffer - Clyde Refinery	SMW_BH011	SMW_BH011	18/09/2018	Normal	Ashfield Shale		*0.21*	<0.001	<0.0001	<0.001	<0.01	0.004	<0.001	59.7	<0.001	1.54	<0.0001	0.008	<0.005	<1	51	<2	<2	<2	<2	51	<5	<20	70	<100
Outside Buffer - Clyde Refinery	SMW_BH021	SMW_BH021	18/09/2018	Normal	Ashfield Shale		*0.23*	0.02	<0.0001	<0.001	<0.01	0.002	<0.001	37.3	<0.001	1.51	<0.0001	0.002	0.022	<1	<2	<2	<2	<2	<2	<1	<5	<20	<20	<100
Silverwater	Dup1 (MW1D)	MW1D	25/07/2011	Field_D	Ashfield Shale		-	<0.001	<0.0001	<0.001	-	-	<0.001	-	<0.001	-	<0.0001	0.003	0.003	<1	<1	<1	<1	<2	<3	-	<1	-	-	-
Silverwater	MW1D	MW1D	25/07/2011	Normal	Ashfield Shale		-	<0.001	<0.0001	<0.001	-	-	<0.001	-	<0.001	-	<0.0001	0.002	0.003	<1	<1	<1	<1	<2	<3	-	<1	-	-	-
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<2	<3	-	<1	-	-	-
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale		-	<0.001	<0.0001	<0.001	-	-	<0.001	-	<0.001	-	<0.0001	0.011	0.02	<1	<1	<1	<1	<2	<3	-	<1	-	-	-
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<2	<3	-	-	-	-	-
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale		*<0.05*	0.004	<0.0001	0.001	-	0.008	<0.001	12	<0.001	0.523	<0.0001	0.002	<0.005	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100
Statistical Summary																																
Number of Results							13	18	18	18	12	13	18	13	18	13	18	18	18	22	22	22	22	22	22	13	19	13	13	13		
Number of Detects							8	6	1	3	0	11	2	12	0	13	1	13	11	0	5	0	0	0	0	5	0	0	1	0		
Minimum Concentration							<0.02	<0.001	<0.0001	<0.001	<0.01	<0.001	<0.001	<0.05	<0.001	0.143	<0.0001	<0.001	<0.001	<1	<1	<1	<1	<2	<2	<1	<1	<20	<20	<100		
Minimum Detect							0.02	0.002	0.0006	0.001	ND	0.001	0.001	0.45	ND	0.143	0.0001	0.001	0.003	ND	3	ND	ND	ND	ND	3	ND	ND	70	ND		
Maximum Concentration							0.23	0.02	<0.001	<0.01	<0.01	0.07	0.012	59.7	<0.01	3.1	0.0001	0.049	0.278	<1	51	<2	<2	<2	<3	51	<5	<20	70	<100		
Maximum Detect							0.23	0.02	0.0006	0.005	ND	0.07	0.012	59.7	ND	3.1	0.0001	0.049	0.278	ND	51	ND	ND	ND	ND	51	ND	ND	70	ND		
Average Concentration							0.092	0.0033	0.00018	0.0017	0.01	0.011	0.0021	12	0.0015	0.9	0.0001	0.0076	0.028	1	4	1.6	1.6	2	2.4	5.5	2.1	20	24	100		
Median Concentration							0.09	0.001	0.0001	0.001	0.01	0.004	0.001	4.59	0.001	0.582	0.0001	0.003	0.0125	1	2	2	2	2	2	1	1	20	20	100		
Standard Deviation							0.07	0.0048	0.00024	0.0023	0	0.018	0.0033	18	0.0021	0.8	0	0.012	0.064	0	11	0.5	0.5	0	0.5	14	1.8	0	14	0		
Number of Guideline Exceedances							10	0	0	2	12	12	2	0	1	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0		
Number of Guideline Exceedances(Detects Only)							6	0	0	1	0	11	1	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0		
95% UCL	(exceeds adopted criteria)						0.126			0.00405		0.0241	0.0055						0.0929													

Env Stds Comments

Data Comments

Draft

						NEPM 2013				TRH - NEPM 1999					PAHs - standard 16																PAHs - extended				
						>C10-C16 Fraction	F3 (>C16-C34 Fraction)	F4 (>C34-C40 Fraction)	>C10-C40 (Sum of Total)	C6-C9 Fraction	C10-C14 Fraction	C15-C28 Fraction	C29-C36 Fraction	C10-C36 (Sum of Total)	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo[b+j]fluoranthene	Benzo(k)fluoranthene	Benzo(g,h,i)perylene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Total 8 PAHs (as BaP TEQ)(zero LOR) - Lab Calc	PAHs (Sum of Total) - Calc	2-methylnaphthalene	3-methylcholanthrene	7,12-dimethylbenz(a)anthracene	Benzo(b)&(k)fluoranthene	2-Chlorophenol
						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	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	µg/L
EQL						100	100	100	100	20	50	100	50	50	1	1	1	1	0.5	1	1	1	1	1	1	1	1	1	1	1	0.5		2	2	2		2
ADWG 2011 Recreational (v3.6 updated 2021)																			**0.1**																	**3000**
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																																				
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																			0.2						1.4			2							
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																																				
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Lithology - screened**																															
Clyde Dive Site	SMW_ENV077	SMW_ENV077	13/11/2019	Normal	Ashfield Shale	-	<100	<100	<100	<20	<50	<100	<50	<50	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<2	<2	<2	-	<2
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Normal	Ashfield Shale	-	<100	<100	<100	<20	<50	<100	<50	<50	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<2	<2	<2	-	<2
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Field_D	Ashfield Shale	-	<100	<100	<100	<20	<50	<100	<50	<50	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<2	-	-	-	<2
Silverwater	FD14	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	<100	<100	<100	<100	<20	<50	<100	<50	<50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2	<2	-	<2
Silverwater	FD16	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	<100	<100	<100	<100	<20	<50	<100	<50	<50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2	<2	-	<2
Silverwater	MW10D	MW10D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	<10	<50	<100	<100	<250	<1	<1	<1	<1	**<1**	-	-	<1	<1	<1	<1	<1	<1	<1	-	-	-	-	-	-	-	-	<2	-
Silverwater	MW12D	MW12D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	14	<50	<100	<100	<250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	<10	<50	<100	<100	<250	<1	<1	<1	<1	**<1**	-	-	<1	<1	<1	<1	<1	<1	<1	-	-	-	-	-	-	-	-	<2	-
Silverwater	MW4D	MW4D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	<10	<50	<100	<100	<250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	SMW_BH709	SMW_BH709	26/03/2021	Normal	Ashfield Shale	<100	<100	<100	<100	<20	<50	<100	<50	<50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2	<2	-	<2
Tunnel SW/SOP	SMW_BH121	SMW_BH121	10/03/2019	Normal	Ashfield Shale	-	<100	<100	<100	<20	<50	<100	<50	<50	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<2	<2	<2	-	<2
Westmead Station	SMW_BH701	SMW_BH701	1/04/2021	Normal	Ashfield Shale	<100	<100	<100	<100	<20	<50	<100	<50	<50	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<2	<2	<2	-	-
Clyde Dive Site	SMW_BH043	SMW_BH043	20/08/2020	Normal	Ashfield Shale	-	<100	<100	<100	<20	<50	<100	<50	<50	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-
Clyde Dive Site	SMW_BH064	SMW_BH064	13/11/2019	Normal	Ashfield Shale	-	<100	<100	<100	<20	<50	<100	<50	<50	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-
Outside Buffer - Clyde Refinery	SMW_BH011	SMW_BH011	18/09/2018	Normal	Ashfield Shale	-	<100	<100	<100	70	<50	<100	<50	<50	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-
Outside Buffer - Clyde Refinery	SMW_BH021	SMW_BH021	18/09/2018	Normal	Ashfield Shale	-	<100	<100	<100	<20	<50	<100	<50	<50	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-
Silverwater	Dup1 (MW1D)	MW1D	25/07/2011	Field_D	Ashfield Shale	-	-	-	-	<10	<50	<100	<100	<250	<1	<1	<1	<1	**<1**	-	-	<1	<1	<1	<1	<1	<1	<1	-	-	-	-	-	-	-	-	<2	-
Silverwater	MW1D	MW1D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	<10	<50	<100	<100	<250	<1	<1	<1	<1	**<1**	-	-	<1	<1	<1	<1	<1	<1	<1	-	-	-	-	-	-	-	-	<2	-
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	<10	<50	<100	<100	<250	<1	<1	<1	<1	**<1**	-	-	<1	<1	<1	<1	<1	<1	<1	-	-	-	-	-	-	-	-	<2	-
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	<10	<50	<100	<100	<250	<1	<1	<1	<1	**<1**	-	-	<1	<1	<1	<1	<1	<1	<1	-	-	-	-	-	-	-	-	<2	-
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	<10	<50	<100	<100	<250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale	-	<100	<100	<100	<20	<50	<100	<50	<50	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<2	<2	<2	-	<2
Statistical Summary																																				
Number of Results						4	13	13	13	22	22	22	22	22	16	16	16	16	16	10	10	16	16	16	16	16	16	16	16	10	10	9	8	8	6	8
Number of Detects						0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration						<100	<100	<100	<100	<10	<50	<100	<50	<50	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<2	<2	<2	<2	<2
Minimum Detect						ND	ND	ND	ND	14	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration						<100	<100	<100	<100	70	<50	<100	<100	<250	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<2	<2	<2	<2	<2
Maximum Detect						ND	ND	ND	ND	70	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration						100	100	100	100	18	50	100	70	132	1	1	1	1	0.69	1	1	1	1	1	1	1	1	1	1	1	0.5	0.5	2	2	2	2	2
Median Concentration						100	100	100	100	20	50	100	50	50	1	1	1	1	0.5	1	1	1	1	1	1	1	1	1	1	1	0.5	0.5	2	2	2	2	2
Standard Deviation						0	0	0	0	12	0	0	25	101	0	0	0	0	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances						0	0	0	0	0	0	0	0	0	0	0	0	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL	(exceeds adopted criteria)																																			

Env Stds Comments

Data Comments

Draft

| | | |

| | | |

												Explosives				enated Hydroca		Herbicides	Nitroaromatics and Keytone					Solvents									
												1,3,5-Trinitrobenzene	2,4-Dinitrotoluene	2,6-dinitrotoluene	Nitrobenzene	Bromomethane	Dichlorodifluoromethane	Pronamide	2-Picoline	4-aminobiphenyl	Acetophenone	N-Nitrosodiphenyl & Diphenylamine	Pentachloronitrobenzene	2-hexanone (MBK)	Carbon disulfide	Isophorone	Vinyl acetate						
						Bromobenzene	Bromochloromethane	Carbon tetrachloride	Chlorobenzene	Chloroform	Chloromethane	cis-1,2-dichloroethene	Hexachlorobutadiene	Vinyl chloride																					
						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	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
EQL						5		5	5	5	50	5	2	50	2	4	4	2	50	50	2	2	2	2	4	2	50	5	2	50				
ADWG 2011 Recreational (v3.6 updated 2021)								30	3000				7	3					10		700					300								
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																																	
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)								240	55	770				100																			
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																																	
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Lithology - screened**																												
Clyde Dive Site	SMW_ENV077	SMW_ENV077	13/11/2019	Normal	Ashfield Shale	<5	-	<5	<5	<5	<50	<5	<2	<50	<2	<4	<4	<2	<50	<50	<2	<2	<2	<2	<4	<2	<50	<5	<2	<50				
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Normal	Ashfield Shale	<5	-	<5	<5	<5	<50	<5	<2	<50	<2	<4	<4	<2	<50	<50	<2	<2	<2	<2	<4	<2	<50	<5	<2	<50				
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Field_D	Ashfield Shale	<5	-	<5	<5	<5	<50	<5	<2	<50	-	-	-	-	<50	<50	-	-	-	-	-	-	<50	<5	<2	<50				
Silverwater	FD14	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	<5	-	<5	<5	<5	<50	<5	<2	<50	<2	<4	<4	<2	<50	<50	<2	<2	<2	<2	<4	<2	<50	<5	<2	<50				
Silverwater	FD16	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	<5	-	<5	<5	<5	<50	<5	<2	<50	<2	<4	<4	<2	<50	<50	<2	<2	<2	<2	<4	<2	<50	<5	<2	<50				
Silverwater	MW10D	MW10D	25/08/2011	Normal	Ashfield Shale	<1	<1	<1	<1	<1	<10	<1	<1	<10	-	-	-	-	<10	<10	-	-	-	-	-	-	-	-	-	-				
Silverwater	MW12D	MW12D	25/08/2011	Normal	Ashfield Shale	<1	<1	<1	<1	<1	<10	11	<1	<10	-	-	-	-	<10	<10	-	-	-	-	-	-	-	-	-	-				
Silverwater	MW4D	MW4D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Silverwater	MW4D	MW4D	25/08/2011	Normal	Ashfield Shale	<1	<1	<1	<1	<1	<10	<1	<1	<10	-	-	-	-	<10	<10	-	-	-	-	-	-	-	-	-	-				
Silverwater	SMW_BH709	SMW_BH709	26/03/2021	Normal	Ashfield Shale	<5	-	<5	<5	<5	<50	<5	<2	<50	<2	<4	<4	<2	<50	<50	<2	<2	<2	<2	<4	<2	<50	<5	<2	<50				
Tunnel SW/SOP	SMW_BH121	SMW_BH121	10/03/2019	Normal	Ashfield Shale	<5	-	<5	<5	<5	<50	<5	<2	<50	<2	<4	<4	<2	<50	<50	<2	<2	<2	<2	<4	<2	<50	<5	<2	<50				
Westmead Station	SMW_BH701	SMW_BH701	1/04/2021	Normal	Ashfield Shale	<5	-	<5	<5	<5	<50	<5	<2	<50	<2	<4	<4	<2	<50	<50	<2	<2	<2	<2	<4	<2	<50	<5	<2	<50				
Clyde Dive Site	SMW_BH043	SMW_BH043	20/08/2020	Normal	Ashfield Shale	<5	-	<5	<5	<5	<50	<5	<2	<50	-	-	-	-	<50	<50	-	-	-	-	-	-	<50	<5	<2	<50				
Clyde Dive Site	SMW_BH064	SMW_BH064	13/11/2019	Normal	Ashfield Shale	<5	-	<5	<5	<5	<50	<5	<5	<50	-	-	-	-	<50	<50	-	-	-	-	-	-	<50	<5	-	<50				
Outside Buffer - Clyde Refinery	SMW_BH011	SMW_BH011	18/09/2018	Normal	Ashfield Shale	<5	-	<5	<5	<5	<50	<5	<5	<50	-	-	-	-	<50	<50	-	-	-	-	-	-	<50	<5	-	<50				
Outside Buffer - Clyde Refinery	SMW_BH021	SMW_BH021	18/09/2018	Normal	Ashfield Shale	<5	-	<5	<5	<5	<50	<5	<5	<50	-	-	-	-	<50	<50	-	-	-	-	-	-	<50	<5	-	<50				
Silverwater	Dup1 (MW1D)	MW1D	25/07/2011	Field_D	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Silverwater	MW1D	MW1D	25/07/2011	Normal	Ashfield Shale	<1	<1	<1	<1	<1	<10	2	-	<10	-	-	-	-	<10	<10	-	-	-	-	-	-	-	-	-	-				
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale	<1	<1	<1	<1	<1	<10	1	<1	<10	-	-	-	-	<10	<10	-	-	-	-	-	-	-	-	-	-				
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale	<1	<1	<1	<1	<1	<10	<1	<1	<10	-	-	-	-	<10	<10	-	-	-	-	-	-	-	-	-	-				
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale	<5	-	<5	<5	<5	<50	<5	<2	<50	<2	<4	<4	<2	<50	<50	<2	<2	<2	<2	<4	<2	<50	<5	<2	<50				
Statistical Summary																																	
Number of Results						19	6	19	19	19	19	19	18	19	8	8	8	8	19	19	8	8	8	8	8	8	13	13	10	13				
Number of Detects						0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
Minimum Concentration						<1	<1	<1	<1	<1	<10	<1	<1	<10	<2	<4	<4	<2	<10	<10	<2	<2	<2	<2	<4	<2	<50	<5	<2	<50				
Minimum Detect						ND	ND	ND	ND	ND	ND	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND				
Maximum Concentration						<5	<1	<5	<5	<5	<50	11	<5	<50	<2	<4	<4	<2	<50	<50	<2	<2	<2	<2	<4	<2	<50	<5	<2	<50				
Maximum Detect						ND	ND	ND	ND	ND	ND	11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND				
Average Concentration						3.7	1	3.7	3.7	3.7	37	4.3	2.2	37	2	4	4	2	37	37	2	2	2	2	4	2	50	5	2	50				
Median Concentration						5	1	5	5	5	50	5	2	50	2	4	4	2	50	50	2	2	2	2	4	2	50	5	2	50				
Standard Deviation						1.9	0	1.9	1.9	1.9	19	2.4	1.4	19	0	0	0	0	19	19	0	0	0	0	0	0	0	0	0	0				
Number of Guideline Exceedances						0	0	0	0	0	0	0	0	19	0	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0				
Number of Guideline Exceedances(Detects Only)						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
95% UCL	(exceeds adopted criteria)																																

Env Stds Comments

Data Comments

Draft

| | | | | | | | | Light Hydrocarbons | Phthalates | | | | | | MAH | | | | | | | |

| | | | | | | | | SVOCs | | | | | | | |

										VOCs														PFAS - Perfluoroalkyl Carboxylic Acids											PFAS - Pe	
										Chloroethane	cis-1,3-dichloropropene	cis-1,4-Dichloro-2-butene	Cyclohexane	Dibromomethane	Iodomethane	Pentachloroethane	Trichloroethene	Tetrachloroethene	trans-1,3-dichloropropene	trans-1,2-dichloroethene	trans-1,4-Dichloro-2-butene	Trichlorofluoromethane	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)
										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	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL										50	5	5		5	5	5	5	5	5	5	5	50	0.1	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.05	0.02	0.02
ADWG 2011 Recreational (v3.6 updated 2021)																		**500**									**5.6**								
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																																		
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																80	330	70																
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																											19							
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Lithology - screened**																													
Clyde Dive Site	SMW_ENV077	SMW_ENV077	13/11/2019	Normal	Ashfield Shale	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Normal	Ashfield Shale	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Field_D	Ashfield Shale	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05
Silverwater	FD14	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02
Silverwater	FD16	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02
Silverwater	MW10D	MW10D	25/08/2011	Normal	Ashfield Shale	<10	<1	-	<1	<1	-	-	<1	<1	<1	<1	-	<10	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW12D	MW12D	25/08/2011	Normal	Ashfield Shale	<10	<1	-	<1	<1	-	-	2	<1	<1	<1	-	<10	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/08/2011	Normal	Ashfield Shale	<10	<1	-	<1	<1	-	-	<1	<1	<1	<1	-	<10	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	SMW_BH709	SMW_BH709	26/03/2021	Normal	Ashfield Shale	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02
Tunnel SW/SOP	SMW_BH121	SMW_BH121	10/03/2019	Normal	Ashfield Shale	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05
Westmead Station	SMW_BH701	SMW_BH701	1/04/2021	Normal	Ashfield Shale	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02
Clyde Dive Site	SMW_BH043	SMW_BH043	20/08/2020	Normal	Ashfield Shale	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02
Clyde Dive Site	SMW_BH064	SMW_BH064	13/11/2019	Normal	Ashfield Shale	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	0.3	2.07	1.02	0.04	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02
Outside Buffer - Clyde Refinery	SMW_BH011	SMW_BH011	18/09/2018	Normal	Ashfield Shale	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05
Outside Buffer - Clyde Refinery	SMW_BH021	SMW_BH021	18/09/2018	Normal	Ashfield Shale	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05
Silverwater	Dup1 (MW1D)	MW1D	25/07/2011	Field_D	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/07/2011	Normal	Ashfield Shale	<10	<1	-	<1	21	-	-	<1	<1	<1	<1	-	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale	<10	<1	-	<1	<1	-	-	16	<1	<1	<1	-	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale	<10	<1	-	<1	<1	-	-	<1	<1	<1	<1	-	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.25	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	<0.05	-
Statistical Summary																																		
Number of Results						19	19	13	6	19	13	13	19	19	19	19	13	19	13	13	13	13	13	12	12	12	12	12	12	13	12
Number of Detects						0	0	0	0	1	0	0	2	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0
Minimum Concentration						<10	<1	<5	<1	<1	<5	<5	<1	<1	<1	<1	<5	<10	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02
Minimum Detect						ND	ND	ND	ND	21	ND	ND	2	ND	ND	ND	ND	ND	0.3	2.07	1.02	0.04	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration						<50	<5	<5	<1	21	<5	<5	16	<5	<5	<5	<5	<50	0.3	2.07	1.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05
Maximum Detect						ND	ND	ND	ND	21	ND	ND	16	ND	ND	ND	ND	ND	0.3	2.07	1.02	0.04	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration						37	3.7	5	1	4.8	5	5	4.6	3.7	3.7	3.7	5	37	0.17	0.19	0.11	0.038	0.032	0.035	0.035	0.035	0.035	0.035	0.085	0.036	0.035
Median Concentration						50	5	5	1	5	5	5	5	5	5	5	5	50	0.2	0.05	0.05	0.05	0.05	0.035	0.035	0.035	0.035	0.035	0.085	0.05	0.035
Standard Deviation						19	1.9	0	0	4.3	0	0	3.3	1.9	1.9	1.9	0	19	0.067	0.56	0.27	0.015	0.021	0.016	0.016	0.016	0.016	0.016	0.037	0.016	0.016
Number of Guideline Exceedances						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL	(exceeds adopted criteria)																															

Env Stds Comments

Data Comments

Draft

						rfluoroalkyl Sulfonic Acids				PFAS - Perfluoroalkyl Sulfonamide					\S - Fluorotelomer Sulfonic Ac							PFAS
						Perfluorohexane sulfonic acid (PFHxS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecanesulfonic acid (PFDS)	Perfluorododecane sulfonic acid ammonium salt	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamidoethanol (MEFOSE)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	PFAS (Sum of Total)	PFAS (Sum of Total)WA DER List)	PFOS/PFHxS (Sum of Total) - Auto Calc	Perfluoroheptanesulfonic acid
						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	µg/L	µg/L
EQL						0.02	0.01	0.02		0.02	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.01	0.01		
ADWG 2011 Recreational (v3.6 updated 2021)																					**0.7**	
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																						
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																						
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system							0.00023															
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Lithology - screened**																	
Clyde Dive Site	SMW_ENV077	SMW_ENV077	13/11/2019	Normal	Ashfield Shale	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Normal	Ashfield Shale	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Field_D	Ashfield Shale	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silverwater	FD14	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	<0.02	<0.01	-	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.02
Silverwater	FD16	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	<0.02	<0.01	-	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.02
Silverwater	MW10D	MW10D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW12D	MW12D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	SMW_BH709	SMW_BH709	26/03/2021	Normal	Ashfield Shale	<0.02	<0.01	-	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.02
Tunnel SW/SOP	SMW_BH121	SMW_BH121	10/03/2019	Normal	Ashfield Shale	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Westmead Station	SMW_BH701	SMW_BH701	1/04/2021	Normal	Ashfield Shale	<0.02	<0.01	-	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.02
Clyde Dive Site	SMW_BH043	SMW_BH043	20/08/2020	Normal	Ashfield Shale	<0.02	<0.01	-	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.02
Clyde Dive Site	SMW_BH064	SMW_BH064	13/11/2019	Normal	Ashfield Shale	<0.02	<0.01	-	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	3.43	3.43	<0.01	<0.02
Outside Buffer - Clyde Refinery	SMW_BH011	SMW_BH011	18/09/2018	Normal	Ashfield Shale	<0.05	<0.05	<0.05	-	<0.05	<0.12	<0.12	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	<0.05
Outside Buffer - Clyde Refinery	SMW_BH021	SMW_BH021	18/09/2018	Normal	Ashfield Shale	<0.05	<0.05	<0.05	-	<0.05	<0.12	<0.12	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	<0.05
Silverwater	Dup1 (MW1D)	MW1D	25/07/2011	Field_D	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale	<0.05	<0.05	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	-
Statistical Summary																						
Number of Results						13	13	2	10	12	12	12	12	12	13	13	13	13	10	11	13	12
Number of Detects						0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0
Minimum Concentration						<0.02	<0.01	<0.05	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.02
Minimum Detect						ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.43	3.43	ND	ND
Maximum Concentration						<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.12	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	3.43	3.43	<0.05	<0.05
Maximum Detect						ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.43	3.43	ND	ND
Average Concentration						0.036	0.032		0.032	0.035	0.057	0.057	0.085	0.085	0.05	0.05	0.05	0.05	0.37	0.34	0.032	0.035
Median Concentration						0.05	0.05	0.05	0.02	0.035	0.05	0.05	0.085	0.085	0.05	0.05	0.05	0.05	0.03	0.05	0.05	0.035
Standard Deviation						0.016	0.021		0.015	0.016	0.032	0.032	0.037	0.037	0	0	0	0	1.1	1	0.021	0.016
Number of Guideline Exceedances						0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL	(exceeds adopted criteria)																					

Env Stds Comments

Data Comments

Draft

							Inorganics					Major Ions										Minor Ions			Nutrients						
							pH (Lab)	Electrical conductivity (lab)	Total Dissolved Solids @ 180°C	Alkalinity (Hydroxide as CaCO3)	Alkalinity (total as CaCO3)	Calcium (Filtered)	Magnesium (Filtered)	Potassium (Filtered)	Sodium (Filtered)	Chloride	Sulfate	Fluoride	Cations Total	Anions Total	Ionic Balance	Bicarbonate ion (HCO3-)	Carbonate ion	Sulfide (Filtered)	Ammonia as N	Nitrate (as N)	Nitrite (as N)	Nitrogen (Total Oxidised) (as N)	Nitrogen (Total)	Kjeldahl Nitrogen Total	Reactive Phosphorus as P
							pH units	µS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	%	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL							0.01	1		1	1	1	1	1	1	1		0.1	0.01	0.01	0.01				0.01	0.01	0.01	0.01	0.1	0.1	0.01
ADWG 2011 Recreational (v3.6 updated 2021)																	**5000**[#1]	**15**												
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine							*7-8.5*																	*0.015*[#4]				*0.015*	*0.3*		*0.005*
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																								0.91[#3]							
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																														
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																									
Clyde Dive Site	SMW_ENV077	SMW_ENV077	13/11/2019	Normal	Ashfield Shale		*6.73*	19,200	13,000	<1	213	98	477	9	3410	5680	1890	<0.1	193	204	2.8	213	<1	-	*0.15*	<0.01	<0.01	<0.01	<0.2	<0.2	*<0.01*
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Normal	Ashfield Shale		7.3	21,300	13,900	<1	683	258	596	50	3540	7040	794	0.8	217	229	2.6	683	<1	-	*1.13*	0.02	<0.01	*0.02*	*1.8*	1.8	*<0.01*
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Field_D	Ashfield Shale		7.36	21,200	13,900	<1	634	260	603	51	3600	6940	781	0.8	220	225	0.94	634	<1	-	*1.14*	0.01	<0.01	0.01	*1.7*	1.7	*<0.01*
Silverwater	FD14	SMW_BH709	26/03/2021	Field_D	Ashfield Shale		7.68	19,400	12,800	<1	551	282	484	29	3070	5990	-	0.4	188	189	0.29	551	<1	447	*2.34*	0.01	<0.01	-	*2.4*	2.4	*<0.1*
Silverwater	FD16	SMW_BH709	26/03/2021	Field_D	Ashfield Shale		7.68	19,500	13,100	<1	501	284	490	30	3080	6130	-	0.4	189	192	0.83	501	<1	456	*2.39*	<0.01	<0.01	-	*2.4*	2.4	*<0.1*
Silverwater	MW10D	MW10D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW12D	MW12D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/07/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	SMW_BH709	SMW_BH709	26/03/2021	Normal	Ashfield Shale		7.55	19,400	12,800	<1	538	284	487	29	3120	6030	-	0.4	191	190	0.14	538	<1	448	*2.41*	<0.01	<0.01	-	*2.4*	2.4	*<0.1*
Tunnel SW/SOP	SMW_BH121	SMW_BH121	10/03/2019	Normal	Ashfield Shale		7.22	48,700	37,000	<1	230	1310	1310	100	9400	21,400	2160	0.2	585	653	5.54	230	<1	-	*3.43*	<0.05	<0.05	*0.05*	*3.4*	3.4	*<0.05*
Westmead Station	SMW_BH701	SMW_BH701	1/04/2021	Normal	Ashfield Shale		7.56	8410	5010	<1	955	54	149	34	1580	1840	-	2.4	84.6	81.1	2.08	955	<1	486	*0.06*	<0.01	<0.01	-	<0.2	<0.2	*<0.01*
Clyde Dive Site	SMW_BH043	SMW_BH043	20/08/2020	Normal	Ashfield Shale		7.55	2550	1440	<1	374	56	32	11	463	57	852	0.9	25.8	26.8	1.84	374	<1	-	*0.03*	0.52	<0.01	*0.52*	*0.8*	0.2	*<0.01*
Clyde Dive Site	SMW_BH064	SMW_BH064	13/11/2019	Normal	Ashfield Shale		*6.17*	6810	3410	<1	50	16	81	3	1170	1760	418	0.9	58.4	59.3	0.78	50	<1	-	*0.16*	<0.01	<0.01	<0.01	0.2	0.2	*<0.01*
Outside Buffer - Clyde Refinery	SMW_BH011	SMW_BH011	18/09/2018	Normal	Ashfield Shale		*6.23*	10,500	5380	<1	708	516	151	36	1320	3270	590	<0.1	96.5	119	10.3	708	<1	-	*1.82*	<0.05	<0.05	*<0.05*	*4.6*	4.6	*<0.05*
Outside Buffer - Clyde Refinery	SMW_BH021	SMW_BH021	18/09/2018	Normal	Ashfield Shale		*6.63*	17,700	11,500	<1	476	375	319	26	2590	6520	305	<0.1	158	200	11.6	476	<1	-	*2.5*	<0.1	<0.1	*<0.1*	*2.6*	2.6	*<0.1*
Silverwater	Dup1 (MW1D)	MW1D	25/07/2011	Field_D	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/07/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale		*6.96*	33,200	25,200	<1	603	1040	1050	75	5060	11,900	864	0.3	360	366	0.74	603	<1	-	*6.89*	<0.01	<0.01	<0.01	7	7	*<0.01*
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation		7.44	7440	3880	<1	331	129	67	19	1260	2350	307	0.1	67.2	79.3	8.22	331	<1	-	*0.71*	<0.01	<0.01	<0.01	*0.8*	0.8	*<0.01*
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation		7.79	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*0.87*	0.05	<0.01	*0.05*	*0.6*	0.6	*<0.01*
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation		7.45	25,100	18,700	<1	393	983	626	73	3860	8460	592	0.2	270	259	2.18	393	<1	-	*5.66*	<0.01	<0.01	<0.01	*6.1*	6.1	*<0.01*
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation		7.3	17,400	12,900	<1	1080	294	515	54	3540	6680	369	0.5	212	218	1.23	1080	<1	-	*3.38*	<0.01	0.02	*0.02*	*3.3*	3.3	*<0.01*
Statistical Summary																														
Number of Results							17	16	16	16	16	16	16	16	16	16	12	16	16	16	16	16	16	4	17	17	17	13	17	17	17
Number of Detects							17	16	16	0	16	16	16	16	16	16	12	13	16	16	16	16	0	4	17	5	1	6	15	15	0
Minimum Concentration							6.17	2550	1440	<1	50	16	32	3	463	57	305	<0.1	25.8	26.8	0.14	50	<1	447	0.03	<0.01	<0.01	<0.01	<0.2	<0.2	<0.01
Minimum Detect							6.17	2550	1440	ND	50	16	32	3	463	57	305	0.1	25.8	26.8	0.14	50	ND	447	0.03	0.01	0.02	0.01	0.2	0.2	ND
Maximum Concentration							7.79	48700	37000	<1	1080	1310	1310	100	9400	21400	2160	2.4	585	653	11.6	1080	<1	486	6.89	0.52	<0.1	0.52	7	7	<0.1
Maximum Detect							7.79	48700	37000	ND	1080	1310	1310	100	9400	21400	2160	2.4	585	653	11.6	1080	ND	486	6.89	0.52	0.02	0.52	7	7	ND
Average Concentration							7.2	18613	12745	1	520	390	465	39	3129	6378	827	0.54	195	206	3.3	520	1	459	2.1	0.053	0.021	0.067	2.4	2.3	0.036
Median Concentration							7.36	19300	12850	1	520	283	486	32	3100	6080	686.5	0.4	190	196	1.96	519.5	1	452	1.82	0.01	0.01	0.02	2.4	2.4	0.01
Standard Deviation							0.5	11168	8910	0	266	386	350	26	2076	4966	599	0.58	135	147	3.7	266	0	18	1.9	0.12	0.024	0.14	2	2.1	0.039
Number of Guideline Exceedances							5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	0	0	7	14	0	17
Number of Guideline Exceedances(Detects Only)							5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	0	0	5	14	0	0
95% UCL	(exceeds adopted criteria)						7.422																		2.888			0.235	3.24		
Env Stds Comments																														
Data Comments																														

Draft

							Metals														BTEXN										
							Phosphorus (Total)	Arsenic (Filtered)	Cadmium (Filtered)	Chromium (III+VI) (Filtered)	Chromium (hexavalent)	Chromium (hexavalent) (Filtered)	Cobalt (Filtered)	Copper (Filtered)	Iron (Filtered)	Lead (Filtered)	Manganese (Filtered)	Mercury (Filtered)	Nickel (Filtered)	Zinc (Filtered)	Benzene	Toluene	Ethylbenzene	Xylene (o)	Xylene (m & p)	Xylene Total	BTEX (Sum of Total) - Lab Calc	Naphthalene	F1 (C6-C10 minus BTEX)	C6-C10 Fraction
							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL							0.01	0.001	0.0001	0.001	0.01	0.01	0.001	0.001	0.05	0.001	0.001	0.0001	0.001	0.005	1	2	2	2	2	2	1	1	20	20
ADWG 2011 Recreational (v3.6 updated 2021)								0.1	0.02		0.5	0.5		20		0.1	5	0.01	0.2		10	8000	3000			6000				
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine							0.03																							
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)									0.0055	0.0044[#8]	0.0044	0.0044	0.001	0.0013		0.0044		0.0004	0.07	0.015	700	180	80					70		
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																														
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																									
Clyde Dive Site	SMW_ENV077	SMW_ENV077	13/11/2019	Normal	Ashfield Shale		*0.04*	<0.001	<0.0001	<0.001	-	<0.01	0.011	<0.001	0.45	<0.001	0.143	<0.0001	0.003	0.018	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Normal	Ashfield Shale		*0.09*	<0.001	<0.0001	<0.001	-	<0.01	0.012	<0.001	1.56	<0.001	0.849	<0.0001	0.006	0.015	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Field_D	Ashfield Shale		*0.05*	0.002	<0.0001	0.001	-	<0.01	0.013	<0.001	1.53	<0.001	0.848	<0.0001	0.007	0.016	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20
Silverwater	FD14	SMW_BH709	26/03/2021	Field_D	Ashfield Shale		*<0.1*	0.004	<0.0001	<0.001	-	<0.01	0.001	<0.001	4.54	<0.001	0.337	<0.0001	<0.001	<0.005	<1	3	<2	<2	<2	<2	3	<5	<20	<20
Silverwater	FD16	SMW_BH709	26/03/2021	Field_D	Ashfield Shale		*<0.1*	0.004	<0.0001	<0.001	-	<0.01	<0.001	<0.001	4.59	<0.001	0.35	<0.0001	<0.001	<0.005	<1	3	<2	<2	<2	<2	3	<5	<20	<20
Silverwater	MW10D	MW10D	25/08/2011	Normal	Ashfield Shale		-	<0.001	<0.0001	<0.001	-	-	-	<0.001	-	<0.001	-	<0.0001	<0.001	<0.001	<1	<1	<1	<1	<2	<3	-	<1	-	-
Silverwater	MW12D	MW12D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<2	<3	-	-	-	-
Silverwater	MW4D	MW4D	25/07/2011	Normal	Ashfield Shale		-	<0.001	<0.0001	<0.001	-	-	-	<0.001	-	<0.001	-	<0.0001	0.021	0.016	<1	<1	<1	<1	<2	<3	-	<1	-	-
Silverwater	MW4D	MW4D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<2	<3	-	-	-	-
Silverwater	SMW_BH709	SMW_BH709	26/03/2021	Normal	Ashfield Shale		*<0.1*	0.004	<0.0001	<0.001	-	<0.01	0.001	<0.001	4.63	<0.001	0.339	<0.0001	<0.001	<0.005	<1	3	<2	<2	<2	<2	3	<5	<20	<20
Tunnel SW/SOP	SMW_BH121	SMW_BH121	10/03/2019	Normal	Ashfield Shale		*0.16*	<0.01	<0.001	<0.01	-	<0.01	<0.01	<0.01	10.6	<0.01	3.1	<0.0001	<0.01	<0.05	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20
Westmead Station	SMW_BH701	SMW_BH701	1/04/2021	Normal	Ashfield Shale		<0.02	<0.001	<0.0001	0.005	-	<0.01	0.004	0.012	0.55	<0.001	0.582	<0.0001	0.008	0.019	<1	3	<2	<2	<2	<2	3	<1	<20	<20
Clyde Dive Site	SMW_BH043	SMW_BH043	20/08/2020	Normal	Ashfield Shale		0.02	<0.001	0.0006	<0.001	-	<0.01	0.001	0.001	<0.05	<0.001	1.23	<0.0001	0.001	0.01	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20
Clyde Dive Site	SMW_BH064	SMW_BH064	13/11/2019	Normal	Ashfield Shale		0.02	<0.001	<0.0001	<0.001	-	<0.01	0.07	<0.001	14.1	<0.001	0.376	0.0001	0.049	0.278	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20
Outside Buffer - Clyde Refinery	SMW_BH011	SMW_BH011	18/09/2018	Normal	Ashfield Shale		*0.21*	<0.001	<0.0001	<0.001	-	<0.01	0.004	<0.001	59.7	<0.001	1.54	<0.0001	0.008	<0.005	<1	51	<2	<2	<2	<2	51	<5	<20	70
Outside Buffer - Clyde Refinery	SMW_BH021	SMW_BH021	18/09/2018	Normal	Ashfield Shale		*0.23*	0.02	<0.0001	<0.001	-	<0.01	0.002	<0.001	37.3	<0.001	1.51	<0.0001	0.002	0.022	<1	<2	<2	<2	<2	<2	<1	<5	<20	<20
Silverwater	Dup1 (MW1D)	MW1D	25/07/2011	Field_D	Ashfield Shale		-	<0.001	<0.0001	<0.001	-	-	-	<0.001	-	<0.001	-	<0.0001	0.003	0.003	<1	<1	<1	<1	<2	<3	-	<1	-	-
Silverwater	MW1D	MW1D	25/07/2011	Normal	Ashfield Shale		-	<0.001	<0.0001	<0.001	-	-	-	<0.001	-	<0.001	-	<0.0001	0.002	0.003	<1	<1	<1	<1	<2	<3	-	<1	-	-
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<2	<3	-	<1	-	-
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale		-	<0.001	<0.0001	<0.001	-	-	-	<0.001	-	<0.001	-	<0.0001	0.011	0.02	<1	<1	<1	<1	<2	<3	-	<1	-	-
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<2	<3	-	-	-	-
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale		*<0.05*	0.004	<0.0001	0.001	-	-	0.008	<0.001	12	<0.001	0.523	<0.0001	0.002	<0.005	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation		0.01	0.001	<0.0001	<0.001	-	-	<0.001	0.006	1.47	<0.001	0.154	<0.0001	<0.001	<0.005	<1	14	<2	<2	<2	<2	14	<5	<20	30
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation		*0.03*	0.002	<0.0001	<0.001	-	-	<0.001	<0.001	2.56	<0.001	0.142	<0.0001	<0.001	<0.005	<1	<2	<2	<2	<2	<2	<1	<5	<20	<20
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation		<0.02	0.001	<0.0001	0.001	-	<0.01	0.001	0.001	1.27	<0.001	0.384	<0.0001	0.002	<0.005	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation		<0.02	0.006	<0.0001	<0.001	-	-	<0.001	<0.001	1.24	<0.001	0.072	<0.0001	0.002	<0.005	-	-	-	-	-	-	-	-	-	-
Statistical Summary																														
Number of Results							17	22	22	22	0	13	17	22	17	22	17	22	22	22	25	25	25	25	25	25	16	22	16	16
Number of Detects							10	10	1	4	0	0	12	4	16	0	17	1	15	11	0	6	0	0	0	0	6	0	0	2
Minimum Concentration							0.01	<0.001	<0.0001	<0.001	99999	<0.01	<0.001	<0.001	<0.05	<0.001	0.072	<0.0001	<0.001	<0.001	<1	<1	<1	<1	<2	<2	<1	<1	<20	<20
Minimum Detect							0.01	0.001	0.0006	0.001	ND	ND	0.001	0.001	0.45	ND	0.072	0.0001	0.001	0.003	ND	3	ND	ND	ND	ND	3	ND	ND	30
Maximum Concentration							0.23	0.02	<0.001	<0.01	0	<0.01	0.07	0.012	59.7	<0.01	3.1	0.0001	0.049	0.278	<1	51	<2	<2	<2	<3	51	<5	<20	70
Maximum Detect							0.23	0.02	0.0006	0.005	ND	ND	0.07	0.012	59.7	ND	3.1	0.0001	0.049	0.278	ND	51	ND	ND	ND	ND	51	ND	ND	70
Average Concentration							0.075	0.0031	0.00016	0.0016		0.01	0.0084	0.0021	9.3	0.0014	0.73	0.0001	0.0065	0.023	1	4.2	1.6	1.6	2	2.4	5.4	2.3	20	24
Median Concentration							0.05	0.001	0.0001	0.001		0.01	0.002	0.001	2.56	0.001	0.384	0.0001	0.002	0.005	1	2	2	2	2	2	1	1	20	20
Standard Deviation							0.069	0.0044	0.00022	0.0021		0	0.016	0.0031	16	0.0019	0.77	0	0.011	0.058	0	10	0.49	0.49	0	0.49	13	1.9	0	13
Number of Guideline Exceedances							11	0	0	2	0	13	13	3	0	1	0	0	0	9	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)							7	0	0	1	0	0	12	2	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0
95% UCL	(exceeds adopted criteria)						0.118			0.00351			0.0258	0.005						0.0772										
Env Stds Comments																														
Data Comments																														

DRAFT

| | | |

| | | |

| | | |

																Chlorinated Hydrocarbons																Explosives				nated Hydroca	
																1,1-dichloropropene	1,2,4-trichlorobenzene	1,2-dibromo-3-chloropropane	1,2-dichlorobenzene	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	1,4-dichlorobenzene	2,2-dichloropropane	2-chloronaphthalene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Bromochloromethane	Carbon tetrachloride	Chlorobenzene	Chloroform	Chloromethane	cis-1,2-dichloroethene	Hexachlorobutadiene	Vinyl chloride	1,3,5-Trinitrobenzene	2,4-Dinitrotoluene	2,6-dinitrotoluene	Nitrobenzene	Bromomethane	Dichlorodifluoromethane
																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	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL																5	2	5	2	5	5	5	2	5	2	5	5	5		5	5	5	50	5	2	50	2	4	4	2	50	50
ADWG 2011 Recreational (v3.6 updated 2021)																			15000	30			400							30	3000				7	3					10	
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																																									
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																	80			1900	1100									240	55	770				100						
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																																									
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																																				
Clyde Dive Site	SMW_ENV077	SMW_ENV077	13/11/2019	Normal	Ashfield Shale	<5	<2	<5	<2	<5	<5	<5	<2	<5	<2	<5	<5	<5	-	<5	<5	<5	<50	<5	<2	<50	<2	<4	<4	<2	<50	<50
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Normal	Ashfield Shale	<5	<2	<5	<2	<5	<5	<5	<2	<5	<2	<5	<5	<5	-	<5	<5	<5	<50	<5	<2	<50	<2	<4	<4	<2	<50	<50
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Field_D	Ashfield Shale	<5	<2	<5	<2	<5	<5	<5	<2	<5	-	<5	<5	<5	-	<5	<5	<5	<50	<5	<2	<50	-	-	-	-	<50	<50
Silverwater	FD14	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	<5	<2	<5	<2	<5	<5	<5	<2	<5	<2	<5	<5	<5	-	<5	<5	<5	<50	<5	<2	<50	<2	<4	<4	<2	<50	<50
Silverwater	FD16	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	<5	<2	<5	<2	<5	<5	<5	<2	<5	<2	<5	<5	<5	-	<5	<5	<5	<50	<5	<2	<50	<2	<4	<4	<2	<50	<50
Silverwater	MW10D	MW10D	25/08/2011	Normal	Ashfield Shale	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<10	-	-	-	-	<10	<10
Silverwater	MW12D	MW12D	25/08/2011	Normal	Ashfield Shale	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<10	11	<1	<10	-	-	-	-	<10	<10
Silverwater	MW4D	MW4D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/08/2011	Normal	Ashfield Shale	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<10	-	-	-	-	<10	<10
Silverwater	SMW_BH709	SMW_BH709	26/03/2021	Normal	Ashfield Shale	<5	<2	<5	<2	<5	<5	<5	<2	<5	<2	<5	<5	<5	-	<5	<5	<5	<50	<5	<2	<50	<2	<4	<4	<2	<50	<50
Tunnel SW/SOP	SMW_BH121	SMW_BH121	10/03/2019	Normal	Ashfield Shale	<5	<2	<5	<2	<5	<5	<5	<2	<5	<2	<5	<5	<5	-	<5	<5	<5	<50	<5	<2	<50	<2	<4	<4	<2	<50	<50
Westmead Station	SMW_BH701	SMW_BH701	1/04/2021	Normal	Ashfield Shale	<5	<2	<5	<2	<5	<5	<5	<2	<5	<2	<5	<5	<5	-	<5	<5	<5	<50	<5	<2	<50	<2	<4	<4	<2	<50	<50
Clyde Dive Site	SMW_BH043	SMW_BH043	20/08/2020	Normal	Ashfield Shale	<5	<2	<5	<2	<5	<5	<5	<2	<5	-	<5	<5	<5	-	<5	<5	<5	<50	<5	<2	<50	-	-	-	-	<50	<50
Clyde Dive Site	SMW_BH064	SMW_BH064	13/11/2019	Normal	Ashfield Shale	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	-	<5	<5	<5	<50	<5	<5	<50	-	-	-	-	<50	<50
Outside Buffer - Clyde Refinery	SMW_BH011	SMW_BH011	18/09/2018	Normal	Ashfield Shale	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	-	<5	<5	<5	<50	<5	<5	<50	-	-	-	-	<50	<50
Outside Buffer - Clyde Refinery	SMW_BH021	SMW_BH021	18/09/2018	Normal	Ashfield Shale	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	-	<5	<5	<5	<50	<5	<5	<50	-	-	-	-	<50	<50
Silverwater	Dup1 (MW1D)	MW1D	25/07/2011	Field_D	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/07/2011	Normal	Ashfield Shale	<1	-	-	-	<1	<1	<1	-	<1	-	-	-	<1	<1	<1	<1	<1	<10	2	-	<10	-	-	-	-	<10	<10
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<10	1	<1	<10	-	-	-	-	<10	<10
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<10	-	-	-	-	<10	<10
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale	<5	<2	<5	<2	<5	<5	<5	<2	<5	<2	<5	<5	<5	-	<5	<5	<5	<50	<5	<2	<50	<2	<4	<4	<2	<50	<50
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	-	<5	<5	<5	<50	<5	<5	<50	-	-	-	-	<50	<50
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation	<5	<2	<5	<2	<5	<5	<5	<2	<5	<2	<5	<5	<5	-	<5	<5	<5	<50	<5	<2	<50	<2	<4	<4	<2	<50	<50
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Statistical Summary																																									
Number of Results						21	20	20	20	21	21	21	20	21	9	20	20	21	6	21	21	21	21	21	20	21	9	9	9	9	21	21
Number of Detects						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0
Minimum Concentration						<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<10	<2	<4	<4	<2	<10	<10
Minimum Detect						ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration						<5	<5	<5	<5	<5	<5	<5	<5	<5	<2	<5	<5	<5	<1	<5	<5	<5	<50	11	<5	<50	<2	<4	<4	<2	<50	<50
Maximum Detect						ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	11	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration						3.9	2.4	4	2.4	3.9	3.9	3.9	2.4	3.9	2	4	4	3.9	1	3.9	3.9	3.9	39	4.4	2.4	39	2	4	4	2	39	39
Median Concentration						5	2	5	2	5	5	5	2	5	2	5	5	5	1	5	5	5	50	5	2	50	2	4	4	2	50	50
Standard Deviation						1.9	1.4	1.8	1.4	1.9	1.9	1.9	1.4	1.9	0	1.8	1.8	1.9	0	1.9	1.9	1.9	19	2.2	1.4	19	0	0	0	0	19	19
Number of Guideline Exceedances						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21	0	0	0	0	15	0
Number of Guideline Exceedances(Detects Only)						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL	(exceeds adopted criteria)																																		

Env Stds Comments

Data Comments

Draft

							Herbicides	Nitroaromatics and Ketone					Solvents				Light Hydrocarbons	Phthalates						MAH								
							Pronamide	2-Picoline	4-aminobiphenyl	Acetophenone	N-Nitrosodiphenyl & Diphenylamine	Pentachloronitrobenzene	2-hexanone (MBK)	Carbon disulfide	Isophorone	Vinyl acetate	Methane	Bis(2-ethylhexyl) phthalate	Butyl benzyl phthalate	Diethylphthalate	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	Styrene	n-butylbenzene	n-propylbenzene	sec-butylbenzene	tert-butylbenzene	p-isopropyltoluene
							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	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL							2	2	2	2	4	2	50	5	2	50	10	10	2	2	2	2	2	5	5	5	5	5	5	5	5	5
ADWG 2011 Recreational (v3.6 updated 2021)							**700**					**300**						**100**									**300**					
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																																
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																										30						
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																																
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																											
Clyde Dive Site	SMW_ENV077	SMW_ENV077	13/11/2019	Normal	Ashfield Shale		<2	<2	<2	<2	<4	<2	<50	<5	<2	<50	<10	<10	<2	<2	<2	<2	<2	<5	<5	<5	<5	<5	<5	<5	<5	<5
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Normal	Ashfield Shale		<2	<2	<2	<2	<4	<2	<50	<5	<2	<50	<10	<10	<2	<2	<2	<2	<2	<5	<5	<5	<5	<5	<5	<5	<5	<5
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Field_D	Ashfield Shale		-	-	-	-	-	-	<50	<5	<2	<50	<10	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5	<5	<5	<5
Silverwater	FD14	SMW_BH709	26/03/2021	Field_D	Ashfield Shale		<2	<2	<2	<2	<4	<2	<50	<5	<2	<50	-	<10	<2	<2	<2	<2	<2	<5	<5	<5	<5	<5	<5	<5	<5	<5
Silverwater	FD16	SMW_BH709	26/03/2021	Field_D	Ashfield Shale		<2	<2	<2	<2	<4	<2	<50	<5	<2	<50	-	<10	<2	<2	<2	<2	<2	<5	<5	<5	<5	<5	<5	<5	<5	<5
Silverwater	MW10D	MW10D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	<1
Silverwater	MW12D	MW12D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	<1
Silverwater	MW4D	MW4D	25/07/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	<1
Silverwater	SMW_BH709	SMW_BH709	26/03/2021	Normal	Ashfield Shale		<2	<2	<2	<2	<4	<2	<50	<5	<2	<50	-	<10	<2	<2	<2	<2	<2	<5	<5	<5	<5	<5	<5	<5	<5	<5
Tunnel SW/SOP	SMW_BH121	SMW_BH121	10/03/2019	Normal	Ashfield Shale		<2	<2	<2	<2	<4	<2	<50	<5	<2	<50	<10	<10	<2	<2	<2	<2	<2	<5	<5	<5	<5	<5	<5	<5	<5	<5
Westmead Station	SMW_BH701	SMW_BH701	1/04/2021	Normal	Ashfield Shale		<2	<2	<2	<2	<4	<2	<50	<5	<2	<50	-	<10	<2	2	<2	<2	<2	<5	<5	<5	<5	<5	<5	<5	<5	<5
Clyde Dive Site	SMW_BH043	SMW_BH043	20/08/2020	Normal	Ashfield Shale		-	-	-	-	-	-	<50	<5	<2	<50	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5	<5	<5	<5
Clyde Dive Site	SMW_BH064	SMW_BH064	13/11/2019	Normal	Ashfield Shale		-	-	-	-	-	-	<50	<5	-	<50	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5	<5	<5	<5
Outside Buffer - Clyde Refinery	SMW_BH011	SMW_BH011	18/09/2018	Normal	Ashfield Shale		-	-	-	-	-	-	<50	<5	-	<50	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5	<5	<5	<5
Outside Buffer - Clyde Refinery	SMW_BH021	SMW_BH021	18/09/2018	Normal	Ashfield Shale		-	-	-	-	-	-	<50	<5	-	<50	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5	<5	<5	<5
Silverwater	Dup1 (MW1D)	MW1D	25/07/2011	Field_D	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/07/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	-	<1	-	-	-
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	<1
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale		<2	<2	<2	<2	<4	<2	<50	<5	<2	<50	<10	<10	<2	<2	<2	<2	<2	<5	<5	<5	<5	<5	<5	<5	<5	<5
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation		-	-	-	-	-	-	<50	<5	-	<50	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5	<5	<5	<5
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation		-	-	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation		<2	<2	<2	<2	<4	<2	<50	<5	<2	<50	-	<10	<2	<2	<2	<2	<2	<5	<5	<5	<5	<5	<5	<5	<5	<5
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Statistical Summary																																
Number of Results							9	9	9	9	9	9	15	15	11	15	6	9	9	9	9	9	9	20	20	21	21	20	21	20	20	20
Number of Detects							0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration							<2	<2	<2	<2	<4	<2	<50	<5	<2	<50	<10	<10	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1
Minimum Detect							ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration							<2	<2	<2	<2	<4	<2	<50	<5	<2	<50	<10	<10	<2	2	<2	<2	<2	<5	<5	<5	<5	<5	<5	<5	<5	<5
Maximum Detect							ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration							2	2	2	2	4	2	50	5	2	50	10	10	2	2	2	2	2	4	4	3.9	3.9	4	3.9	4	4	4
Median Concentration							2	2	2	2	4	2	50	5	2	50	10	10	2	2	2	2	2	5	5	5	5	5	5	5	5	5
Standard Deviation							0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.8	1.8	1.9	1.9	1.8	1.9	1.8	1.8	1.8
Number of Guideline Exceedances							0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)							0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL	(exceeds adopted criteria)																															

Env Stds Comments

Data Comments

Draft

| | | | | | | | | SVOCs | | | | | | | |

						VOCs																						PFAS - F			
						Benzo(b+j) & Benzo(k)fluoranthene EP075-EM	1,1-dichloroethane	1,2,3-trichlorobenzene	1,2,3-trichloropropane	1,2-dibromoethane	1,3-dichlorobenzene	2-butanone (MEK)	4-methyl-2-pentanone (MIBK)	Bromodichloromethane	Bromoform	Chlorodibromomethane	Chloroethane	cis-1,3-dichloropropene	cis-1,4-Dichloro-2-butene	Cyclohexane	Dibromomethane	Iodomethane	Pentachloroethane	Trichloroethene	Tetrachloroethene	trans-1,3-dichloropropene	trans-1,2-dichloroethene	trans-1,4-Dichloro-2-butene	Trichlorofluoromethane	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)
						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	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
EQL							5	5	5	5	2	50	50	5	5	5	50	5	5		5	5	5	5	5	5	5	5	50	0.1	0.02	0.02	0.02
ADWG 2011 Recreational (v3.6 updated 2021)										10														500								
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																																
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																						80	330	70								
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																																
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																											
Clyde Dive Site	SMW_ENV077	SMW_ENV077	13/11/2019	Normal	Ashfield Shale	<4	<5	<5	<5	<5	<2	<50	<50	<5	<5	<5	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.2	<0.05	<0.05	<0.05
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Normal	Ashfield Shale	<4	<5	<5	<5	<5	<2	<50	<50	<5	<5	<5	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.2	<0.05	<0.05	<0.05
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Field_D	Ashfield Shale	<4	<5	<5	<5	<5	<2	<50	<50	<5	<5	<5	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.2	<0.05	<0.05	<0.05
Silverwater	FD14	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	-	<5	<5	<5	<5	<2	<50	<50	<5	<5	<5	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.1	<0.02	<0.02	<0.02
Silverwater	FD16	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	-	<5	<5	<5	<5	<2	<50	<50	<5	<5	<5	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.1	<0.02	<0.02	<0.02
Silverwater	MW10D	MW10D	25/08/2011	Normal	Ashfield Shale	-	<1	<1	<1	<1	<1	-	-	<1	<1	<1	<10	<1	-	<1	<1	-	-	<1	<1	<1	<1	-	<10	-	-	-	-
Silverwater	MW12D	MW12D	25/08/2011	Normal	Ashfield Shale	-	<1	<1	<1	<1	<1	-	-	<1	<1	<1	<10	<1	-	<1	<1	-	-	2	<1	<1	<1	-	<10	-	-	-	-
Silverwater	MW4D	MW4D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/08/2011	Normal	Ashfield Shale	-	<1	<1	<1	<1	<1	-	-	<1	<1	<1	<10	<1	-	<1	<1	-	-	<1	<1	<1	<1	-	<10	-	-	-	-
Silverwater	SMW_BH709	SMW_BH709	26/03/2021	Normal	Ashfield Shale	-	<5	<5	<5	<5	<2	<50	<50	<5	<5	<5	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.1	<0.02	<0.02	<0.02
Tunnel SW/SOP	SMW_BH121	SMW_BH121	10/03/2019	Normal	Ashfield Shale	<4	<5	<5	<5	<5	<2	<50	<50	<5	<5	<5	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.2	<0.05	<0.05	<0.05
Westmead Station	SMW_BH701	SMW_BH701	1/04/2021	Normal	Ashfield Shale	-	<5	<5	<5	<5	<2	<50	<50	<5	<5	<5	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.1	<0.02	<0.02	<0.02
Clyde Dive Site	SMW_BH043	SMW_BH043	20/08/2020	Normal	Ashfield Shale	-	<5	<5	<5	<5	<2	<50	<50	<5	<5	<5	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.1	<0.02	<0.02	<0.02
Clyde Dive Site	SMW_BH064	SMW_BH064	13/11/2019	Normal	Ashfield Shale	-	<5	<5	<5	<5	<5	<50	<50	<5	<5	<5	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	0.3	2.07	1.02	0.04
Outside Buffer - Clyde Refinery	SMW_BH011	SMW_BH011	18/09/2018	Normal	Ashfield Shale	-	<5	<5	<5	<5	<5	<50	<50	<5	<5	<5	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.2	<0.05	<0.05	<0.05
Outside Buffer - Clyde Refinery	SMW_BH021	SMW_BH021	18/09/2018	Normal	Ashfield Shale	-	<5	<5	<5	<5	<5	<50	<50	<5	<5	<5	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.2	<0.05	<0.05	<0.05
Silverwater	Dup1 (MW1D)	MW1D	25/07/2011	Field_D	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/07/2011	Normal	Ashfield Shale	-	<1	-	<1	<1	-	-	-	<1	<1	<1	<10	<1	-	<1	21	-	-	<1	<1	<1	<1	-	<10	-	-	-	-
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale	-	<1	<1	<1	<1	<1	-	-	<1	<1	<1	<10	<1	-	<1	<1	-	-	16	<1	<1	<1	-	<10	-	-	-	-
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale	-	<1	<1	<1	<1	<1	-	-	<1	<1	<1	<10	<1	-	<1	<1	-	-	<1	<1	<1	<1	-	<10	-	-	-	-
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale	-	<5	<5	<5	<5	<2	<50	<50	<5	<5	<5	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.25	<0.05	<0.05	<0.05
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation	-	<5	<5	<5	<5	<5	<50	<50	<5	<5	<5	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	-	-	-	-
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation	<4	<5	<5	<5	<5	<2	<50	<50	<5	<5	<5	<50	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.2	<0.05	<0.05	<0.05
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Statistical Summary																																	
Number of Results						5	21	20	21	21	20	15	15	21	21	21	21	21	15	6	21	15	15	21	21	21	21	15	21	14	14	14	14
Number of Detects						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	1	1	1	1
Minimum Concentration						<4	<1	<1	<1	<1	<1	<50	<50	<1	<1	<1	<10	<1	<5	<1	<1	<5	<5	<1	<1	<1	<1	<5	<10	<0.1	<0.02	<0.02	<0.02
Minimum Detect						ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	21	ND	ND	2	ND	ND	ND	ND	ND	0.3	2.07	1.02	0.04
Maximum Concentration						<4	<5	<5	<5	<5	<5	<50	<50	<5	<5	<5	<50	<5	<5	<1	21	<5	<5	16	<5	<5	<5	<5	<50	0.3	2.07	1.02	<0.05
Maximum Detect						ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	21	ND	ND	16	ND	ND	ND	ND	ND	0.3	2.07	1.02	0.04
Average Concentration						4	3.9	4	3.9	3.9	2.4	50	50	3.9	3.9	3.9	39	3.9	5	1	4.8	5	5	4.6	3.9	3.9	3.9	5	39	0.18	0.18	0.11	0.039
Median Concentration						4	5	5	5	5	2	50	50	5	5	5	50	5	5	1	5	5	5	5	5	5	5	5	50	0.2	0.05	0.05	0.05
Standard Deviation						0	1.9	1.8	1.9	1.9	1.4	0	0	1.9	1.9	1.9	19	1.9	0	0	4.1	0	0	3.1	1.9	1.9	1.9	0	19	0.064	0.54	0.26	0.015
Number of Guideline Exceedances						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL	(exceeds adopted criteria)																																

Env Stds Comments

Data Comments

Draft

								Perfluoroalkyl Carboxylic Acids							PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Sulfonamide					S - Fluorotelomer Sulfonic Ac						
								Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecanesulfonic acid (PFDS)	Perfluorodecane sulfonic acid ammonium salt	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamidoethanol (MEFOSE)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	PFAS (Sum of Total)	PFAS (Sum of Total)(WA DER List)
								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	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL								0.01	0.02	0.02	0.02	0.02	0.02	0.05	0.02	0.02	0.02	0.01	0.02		0.02	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.01	0.01
ADWG 2011 Recreational (v3.6 updated 2021)								5.6																							
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																															
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																															
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system								19										0.00023													
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																										
Clyde Dive Site	SMW_ENV077	SMW_ENV077	13/11/2019	Normal	Ashfield Shale			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Normal	Ashfield Shale			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Field_D	Ashfield Shale			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silverwater	FD14	SMW_BH709	26/03/2021	Field_D	Ashfield Shale			<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.01	-	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
Silverwater	FD16	SMW_BH709	26/03/2021	Field_D	Ashfield Shale			<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.01	-	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
Silverwater	MW10D	MW10D	25/08/2011	Normal	Ashfield Shale			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW12D	MW12D	25/08/2011	Normal	Ashfield Shale			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/07/2011	Normal	Ashfield Shale			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/08/2011	Normal	Ashfield Shale			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	SMW_BH709	SMW_BH709	26/03/2021	Normal	Ashfield Shale			<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.01	-	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
Tunnel SW/SOP	SMW_BH121	SMW_BH121	10/03/2019	Normal	Ashfield Shale			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Westmead Station	SMW_BH701	SMW_BH701	1/04/2021	Normal	Ashfield Shale			<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.01	-	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
Clyde Dive Site	SMW_BH043	SMW_BH043	20/08/2020	Normal	Ashfield Shale			<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.01	-	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
Clyde Dive Site	SMW_BH064	SMW_BH064	13/11/2019	Normal	Ashfield Shale			<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.01	-	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	3.43	3.43
Outside Buffer - Clyde Refinery	SMW_BH011	SMW_BH011	18/09/2018	Normal	Ashfield Shale			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.12	<0.12	<0.12	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	-	-
Outside Buffer - Clyde Refinery	SMW_BH021	SMW_BH021	18/09/2018	Normal	Ashfield Shale			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.12	<0.12	<0.12	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	-	-
Silverwater	Dup1 (MW1D)	MW1D	25/07/2011	Field_D	Ashfield Shale			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/07/2011	Normal	Ashfield Shale			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale			<0.05	-	-	-	-	-	-	<0.05	-	<0.05	<0.05	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	-	<0.05
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation			<0.05	-	-	-	-	-	-	<0.05	-	<0.05	<0.05	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	-	<0.05
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Statistical Summary																															
Number of Results								14	12	12	12	12	12	12	14	12	14	14	2	10	12	12	12	12	12	14	14	14	14	10	12
Number of Detects								0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Minimum Concentration								<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.01	<0.05	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01
Minimum Detect								ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.43	3.43
Maximum Concentration								<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.12	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	3.43	3.43
Maximum Detect								ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.43	3.43
Average Concentration								0.033	0.035	0.035	0.035	0.035	0.035	0.085	0.037	0.035	0.037	0.033		0.032	0.035	0.057	0.057	0.085	0.085	0.05	0.05	0.05	0.05	0.37	0.32
Median Concentration								0.05	0.035	0.035	0.035	0.035	0.035	0.085	0.05	0.035	0.05	0.05	0.05	0.02	0.035	0.05	0.05	0.085	0.085	0.05	0.05	0.05	0.05	0.03	0.05
Standard Deviation								0.021	0.016	0.016	0.016	0.016	0.016	0.037	0.015	0.016	0.015	0.021		0.015	0.016	0.032	0.032	0.037	0.037	0	0	0	0	1.1	0.98
Number of Guideline Exceedances								0	0	0	0	0	0	0	0	0	0	14	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)								0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL	(exceeds adopted criteria)																														
Env Stds Comments																															
Data Comments																															

Draft

						PFAS	
						PFOS/PFHxS (Sum of Total) - Auto Calc	Perfluoroheptanesulfonic acid
						µg/L	µg/L
EQL							
ADWG 2011 Recreational (v3.6 updated 2021)						**0.7**	
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine							
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)							
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system							
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**		
Clyde Dive Site	SMW_ENV077	SMW_ENV077	13/11/2019	Normal	Ashfield Shale	<0.05	<0.05
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Normal	Ashfield Shale	<0.05	<0.05
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Field_D	Ashfield Shale	<0.05	<0.05
Silverwater	FD14	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	<0.01	<0.02
Silverwater	FD16	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	<0.01	<0.02
Silverwater	MW10D	MW10D	25/08/2011	Normal	Ashfield Shale	-	-
Silverwater	MW12D	MW12D	25/08/2011	Normal	Ashfield Shale	-	-
Silverwater	MW4D	MW4D	25/07/2011	Normal	Ashfield Shale	-	-
Silverwater	MW4D	MW4D	25/08/2011	Normal	Ashfield Shale	-	-
Silverwater	SMW_BH709	SMW_BH709	26/03/2021	Normal	Ashfield Shale	<0.01	<0.02
Tunnel SW/SOP	SMW_BH121	SMW_BH121	10/03/2019	Normal	Ashfield Shale	<0.05	<0.05
Westmead Station	SMW_BH701	SMW_BH701	1/04/2021	Normal	Ashfield Shale	<0.01	<0.02
Clyde Dive Site	SMW_BH043	SMW_BH043	20/08/2020	Normal	Ashfield Shale	<0.01	<0.02
Clyde Dive Site	SMW_BH064	SMW_BH064	13/11/2019	Normal	Ashfield Shale	<0.01	<0.02
Outside Buffer - Clyde Refinery	SMW_BH011	SMW_BH011	18/09/2018	Normal	Ashfield Shale	<0.05	<0.05
Outside Buffer - Clyde Refinery	SMW_BH021	SMW_BH021	18/09/2018	Normal	Ashfield Shale	<0.05	<0.05
Silverwater	Dup1 (MW1D)	MW1D	25/07/2011	Field_D	Ashfield Shale	-	-
Silverwater	MW1D	MW1D	25/07/2011	Normal	Ashfield Shale	-	-
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale	-	-
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale	-	-
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale	-	-
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale	<0.05	-
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation	-	-
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation	-	-
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation	<0.05	-
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation	-	-

Statistical Summary

Number of Results		14	12
Number of Detects		0	0
Minimum Concentration		<0.01	<0.02
Minimum Detect		ND	ND
Maximum Concentration		<0.05	<0.05
Maximum Detect		ND	ND
Average Concentration		0.033	0.035
Median Concentration		0.05	0.035
Standard Deviation		0.021	0.016
Number of Guideline Exceedances		0	0
Number of Guideline Exceedances(Detects Only)		0	0
95% UCL	(exceeds adopted criteria)		

Env Stds Comments

Data Comments

Draft

							Inorganics					Major Ions								
							pH (Lab)	Electrical conductivity (lab)	Total Dissolved Solids @ 180°C	Alkalinity (Hydroxide as CaCO3)	Alkalinity (total as CaCO3)	Calcium (Filtered)	Magnesium (Filtered)	Potassium (Filtered)	Sodium (Filtered)	Chloride	Sulfate	Fluoride	Cations Total
							pH units	µS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L
EQL							0.01	1		1	1	1	1	1	1	1		0.1	0.01
ADWG 2011 Recreational (v3.6 updated 2021)																	**5000**[#1]	**15**	
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine							*7-8.5*												
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																			
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																			
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**														
Clyde Dive Site	SMW_ENV077	SMW_ENV077	13/11/2019	Normal	Ashfield Shale		*6.73*	19,200	13,000	<1	213	98	477	9	3410	5680	1890	<0.1	193
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Normal	Ashfield Shale		7.3	21,300	13,900	<1	683	258	596	50	3540	7040	794	0.8	217
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Field_D	Ashfield Shale		7.36	21,200	13,900	<1	634	260	603	51	3600	6940	781	0.8	220
Silverwater	FD14	SMW_BH709	26/03/2021	Field_D	Ashfield Shale		7.68	19,400	12,800	<1	551	282	484	29	3070	5990	-	0.4	188
Silverwater	FD16	SMW_BH709	26/03/2021	Field_D	Ashfield Shale		7.68	19,500	13,100	<1	501	284	490	30	3080	6130	-	0.4	189
Silverwater	MW10D	MW10D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW12D	MW12D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/07/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	SMW_BH709	SMW_BH709	26/03/2021	Normal	Ashfield Shale		7.55	19,400	12,800	<1	538	284	487	29	3120	6030	-	0.4	191
Tunnel SW/SOP	SMW_BH121	SMW_BH121	10/03/2019	Normal	Ashfield Shale		7.22	48,700	37,000	<1	230	1310	1310	100	9400	21,400	2160	0.2	585
Westmead Station	SMW_BH701	SMW_BH701	1/04/2021	Normal	Ashfield Shale		7.56	8410	5010	<1	955	54	149	34	1580	1840	-	2.4	84.6
Clyde Dive Site	SMW_BH043	SMW_BH043	20/08/2020	Normal	Ashfield Shale		7.55	2550	1440	<1	374	56	32	11	463	57	852	0.9	25.8
Clyde Dive Site	SMW_BH064	SMW_BH064	13/11/2019	Normal	Ashfield Shale		*6.17*	6810	3410	<1	50	16	81	3	1170	1760	418	0.9	58.4
Outside Buffer - Clyde Refinery	SMW_BH011	SMW_BH011	18/09/2018	Normal	Ashfield Shale		*6.23*	10,500	5380	<1	708	516	151	36	1320	3270	590	<0.1	96.5
Outside Buffer - Clyde Refinery	SMW_BH021	SMW_BH021	18/09/2018	Normal	Ashfield Shale		*6.63*	17,700	11,500	<1	476	375	319	26	2590	6520	305	<0.1	158
Silverwater	Dup1 (MW1D)	MW1D	25/07/2011	Field_D	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/07/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale		*6.96*	33,200	25,200	<1	603	1040	1050	75	5060	11,900	864	0.3	360
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation		7.44	7440	3880	<1	331	129	67	19	1260	2350	307	0.1	67.2
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation		7.79	-	-	-	-	-	-	-	-	-	-	-	-
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation		7.45	25,100	18,700	<1	393	983	626	73	3860	8460	592	0.2	270
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation		7.3	17,400	12,900	<1	1080	294	515	54	3540	6680	369	0.5	212
Clyde MSF	SMW_BH707	SMW_BH707	7/05/2021	Normal	Hawkesbury Sandstone		*8.66*	2620	1500	<1	749	45	57	10	480	479	-	1.2	28.1
Outside - Rosehill	SMW_BH007	SMW_BH007	4/09/2018	Normal	Hawkesbury Sandstone		*6.92*	10,700	6740	<1	787	377	279	30	1520	3420	196	-	109

Draft

						Inorganics					Major Ions							
						pH (Lab)	Electrical conductivity (lab)	Total Dissolved Solids @ 180°C	Alkalinity (Hydroxide as CaCO3)	Alkalinity (total as CaCO3)	Calcium (Filtered)	Magnesium (Filtered)	Potassium (Filtered)	Sodium (Filtered)	Chloride	Sulfate	Fluoride	Cations Total
						pH units	µS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L
EQL						0.01	1		1	1	1	1	1	1	1		0.1	0.01
ADWG 2011 Recreational (v3.6 updated 2021)																5000[#1]	15	
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine						*7-8.5*												
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																		
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																		
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**													
Outside Buffer - Clyde Refinery	SMW_BH020	SMW_BH020	18/09/2018	Normal	Hawkesbury Sandstone	*6.93*	7400	4390	<1	282	108	132	7	1260	1800	1040	0.1	71.2
Outside Buffer - Parramatta	SMW_BH014	SMW_BH014	9/03/2018	Normal	Hawkesbury Sandstone	*5.45*	6610	5310	<1	102	380	161	25	854	845	3190	0.2	99.5
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	3/09/2018	Normal	Hawkesbury Sandstone	7.45	13,100	7880	<1	949	151	353	28	1950	4470	125	0.4	122
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	4/08/2020	Normal	Hawkesbury Sandstone	7.36	13,800	8270	<1	786	306	295	28	2250	4620	120	0.3	138
Outside Buffer - Silverwater	SMW_BH027	SMW_BH027	9/04/2018	Normal	Hawkesbury Sandstone	7.01	12,800	7280	<1	478	355	336	26	1870	4500	245	-	127
Outside Buffer - Silverwater	SMW_BH029	SMW_BH029	9/12/2018	Normal	Hawkesbury Sandstone	7.22	9340	5580	<1	399	180	192	41	1480	3120	279	0.6	90.2
Parramatta Station	SMW_BH002	SMW_BH002	4/09/2018	Normal	Hawkesbury Sandstone	*6.74*	7680	5310	<1	631	386	102	40	1030	2480	8	-	73.5
Parramatta Station	SMW_BH004_w	SMW_BH004_w	3/11/2020	Normal	Hawkesbury Sandstone	7.83	3960	2180	<1	408	108	56	21	592	1040	11	0.2	36.3
Parramatta Station	SMW_BH048_w	SMW_BH048_w	3/11/2020	Normal	Hawkesbury Sandstone	7.67	1590	-	<1	407	59	20	11	271	362	24	0.3	16.6
Tunnel CJ/RCRB	SMW_BH057	SMW_BH057	11/12/2019	Normal	Hawkesbury Sandstone	7.25	11,600	6490	<1	1000	366	297	45	1880	3510	4	0.6	126
Statistical Summary																		
Number of Results						29	28	27	28	28	28	28	28	28	28	23	25	28
Number of Detects						29	28	27	0	28	28	28	28	28	28	23	22	28
Minimum Concentration						5.45	1590	1440	<1	50	16	20	3	271	57	4	<0.1	16.6
Minimum Detect						5.45	1590	1440	ND	50	16	20	3	271	57	4	0.1	16.6
Maximum Concentration						8.66	48700	37000	<1	1080	1310	1310	100	9400	21400	3190	2.4	585
Maximum Detect						8.66	48700	37000	ND	1080	1310	1310	100	9400	21400	3190	2.4	585
Average Concentration						7.2	14250	9809	1	546	324	347	34	2339	4739	659	0.5	148
Median Concentration						7.3	12200	7280	1	520	283	296	29	1875	3990	369	0.4	124
Standard Deviation						0.61	10134	7787	0	268	311	305	22	1851	4298	787	0.5	117
Number of Guideline Exceedances						10	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)						10	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL	(exceeds adopted criteria)					7.401												

Env Stds Comments

Data Comments

Draft

									Minor Ions			Nutrients								
							Anions Total	Ionic Balance	Bicarbonate ion (HCO3-)	Carbonate ion	Sulfide (Filtered)	Ammonia as N	Nitrate (as N)	Nitrite (as N)	Nitrogen (Total Oxidised) (as N)	Nitrogen (Total)	Kjeldahl Nitrogen Total	Reactive Phosphorus as P	Phosphorus (Total)
							meq/L	%	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL							0.01	0.01				0.01	0.01	0.01	0.01	0.1	0.1	0.01	0.01
ADWG 2011 Recreational (v3.6 updated 2021)													**112.9**[#2]	**9.1**[#3]					
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine												*0.015*[#4]			*0.015*	*0.3*		*0.005*	*0.03*
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)												0.91[#9]							
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																			
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**														
Clyde Dive Site	SMW_ENV077	SMW_ENV077	13/11/2019	Normal	Ashfield Shale		204	2.8	213	<1	-	*0.15*	<0.01	<0.01	<0.01	<0.2	<0.2	*<0.01*	*0.04*
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Normal	Ashfield Shale		229	2.6	683	<1	-	*1.13*	0.02	<0.01	*0.02*	*1.8*	1.8	*<0.01*	*0.09*
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Field_D	Ashfield Shale		225	0.94	634	<1	-	*1.14*	0.01	<0.01	0.01	*1.7*	1.7	*<0.01*	*0.05*
Silverwater	FD14	SMW_BH709	26/03/2021	Field_D	Ashfield Shale		189	0.29	551	<1	447	*2.34*	0.01	<0.01	-	*2.4*	2.4	*<0.1*	*<0.1*
Silverwater	FD16	SMW_BH709	26/03/2021	Field_D	Ashfield Shale		192	0.83	501	<1	456	*2.39*	<0.01	<0.01	-	*2.4*	2.4	*<0.1*	*<0.1*
Silverwater	MW10D	MW10D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW12D	MW12D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/07/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	SMW_BH709	SMW_BH709	26/03/2021	Normal	Ashfield Shale		190	0.14	538	<1	448	*2.41*	<0.01	<0.01	-	*2.4*	2.4	*<0.1*	*<0.1*
Tunnel SW/SOP	SMW_BH121	SMW_BH121	10/03/2019	Normal	Ashfield Shale		653	5.54	230	<1	-	*3.43*	<0.05	<0.05	*0.05*	*3.4*	3.4	*<0.05*	*0.16*
Westmead Station	SMW_BH701	SMW_BH701	1/04/2021	Normal	Ashfield Shale		81.1	2.08	955	<1	486	*0.06*	<0.01	<0.01	-	<0.2	<0.2	*<0.01*	<0.02
Clyde Dive Site	SMW_BH043	SMW_BH043	20/08/2020	Normal	Ashfield Shale		26.8	1.84	374	<1	-	*0.03*	0.52	<0.01	*0.52*	*0.8*	0.2	*<0.01*	0.02
Clyde Dive Site	SMW_BH064	SMW_BH064	13/11/2019	Normal	Ashfield Shale		59.3	0.78	50	<1	-	*0.16*	<0.01	<0.01	<0.01	0.2	0.2	*<0.01*	0.02
Outside Buffer - Clyde Refinery	SMW_BH011	SMW_BH011	18/09/2018	Normal	Ashfield Shale		119	10.3	708	<1	-	*1.82*	<0.05	<0.05	*<0.05*	*4.6*	4.6	*<0.05*	*0.21*
Outside Buffer - Clyde Refinery	SMW_BH021	SMW_BH021	18/09/2018	Normal	Ashfield Shale		200	11.6	476	<1	-	*2.5*	<0.1	<0.1	*<0.1*	*2.6*	2.6	*<0.1*	*0.23*
Silverwater	Dup1 (MW1D)	MW1D	25/07/2011	Field_D	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/07/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale		366	0.74	603	<1	-	*6.89*	<0.01	<0.01	<0.01	*7*	7	*<0.01*	*<0.05*
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation		79.3	8.22	331	<1	-	*0.71*	<0.01	<0.01	<0.01	*0.8*	0.8	*<0.01*	0.01
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation		-	-	-	-	-	*0.87*	0.05	<0.01	*0.05*	*0.6*	0.6	*<0.01*	*0.03*
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation		259	2.18	393	<1	-	*5.66*	<0.01	<0.01	<0.01	*6.1*	6.1	*<0.01*	<0.02
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation		218	1.23	1080	<1	-	*3.38*	<0.01	0.02	*0.02*	*3.3*	3.3	*<0.01*	<0.02
Clyde MSF	SMW_BH707	SMW_BH707	7/05/2021	Normal	Hawkesbury Sandstone		30.2	3.73	670	79	85	*0.28*	0.05	<0.01	-	*0.4*	0.3	*<0.01*	*0.05*
Outside - Rosehill	SMW_BH007	SMW_BH007	4/09/2018	Normal	Hawkesbury Sandstone		116	3.39	787	<1	-	*1.58*	0.02	<0.01	*0.02*	*1.7*	1.7	*<0.01*	*0.42*

Draft

								Minor Ions			Nutrients							
							Anions Total	Ionic Balance	Bicarbonate ion (HCO3-)	Carbonate ion	Sulfide (Filtered)	Ammonia as N	Nitrate (as N)	Nitrite (as N)	Nitrogen (Total Oxidised) (as N)	Nitrogen (Total)	Kjeldahl Nitrogen Total	Reactive Phosphorus as P	Phosphorus (Total)
							meq/L	%	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL							0.01	0.01				0.01	0.01	0.01	0.01	0.1	0.1	0.01	0.01
ADWG 2011 Recreational (v3.6 updated 2021)													**112.9**[#2]	**9.1**[#3]					
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine												*0.015*[#4]			*0.015*	*0.3*		*0.005*	*0.03*
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)												0.91[#9]							
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																			
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**														
Outside Buffer - Clyde Refinery	SMW_BH020	SMW_BH020	18/09/2018	Normal	Hawkesbury Sandstone		78.1	4.57	282	<1	-	*0.23*	0.12	<0.01	*0.12*	*0.8*	0.7	*<0.01*	*0.29*
Outside Buffer - Parramatta	SMW_BH014	SMW_BH014	9/03/2018	Normal	Hawkesbury Sandstone		92.3	3.75	102	<1	-	*1.31*	0.2	<0.01	*0.2*	*2.1*	1.9	*<0.01*	*0.04*
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	3/09/2018	Normal	Hawkesbury Sandstone		148	9.46	949	<1	-	*1.91*	0.06	<0.01	*0.06*	*3.7*	3.6	*<0.01*	*0.68*
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	4/08/2020	Normal	Hawkesbury Sandstone		148	3.62	786	<1	-	*3.09*	<0.01	0.04	*0.04*	*3.5*	3.5	*<0.01*	*0.31*
Outside Buffer - Silverwater	SMW_BH027	SMW_BH027	9/04/2018	Normal	Hawkesbury Sandstone		142	5.28	478	<1	-	*2.16*	0.12	<0.01	*0.12*	*2.6*	2.5	*<0.01*	0.02
Outside Buffer - Silverwater	SMW_BH029	SMW_BH029	9/12/2018	Normal	Hawkesbury Sandstone		102	6.03	399	<1	-	*1.04*	0.14	<0.01	*0.14*	*1.9*	1.8	*<0.01*	<0.01
Parramatta Station	SMW_BH002	SMW_BH002	4/09/2018	Normal	Hawkesbury Sandstone		82.7	5.92	631	<1	-	*3.45*	0.1	<0.01	*0.1*	*3.5*	3.4	*0.04*	0.01
Parramatta Station	SMW_BH004_w	SMW_BH004_w	3/11/2020	Normal	Hawkesbury Sandstone		37.7	1.94	408	<1	-	*0.16*	0.16	<0.01	*0.16*	*0.4*	0.2	*0.01*	*0.09*
Parramatta Station	SMW_BH048_w	SMW_BH048_w	3/11/2020	Normal	Hawkesbury Sandstone		18.8	6.15	407	<1	-	*0.61*	-	-	<0.01	*0.7*	0.7	*<0.01*	*0.03*
Tunnel CJ/RCRB	SMW_BH057	SMW_BH057	11/12/2019	Normal	Hawkesbury Sandstone		119	2.68	1000	<1	-	*2.3*	<0.01	<0.01	<0.01	*2.4*	2.4	*<0.01*	*0.04*
Statistical Summary																			
Number of Results							28	28	28	28	5	29	28	28	24	29	29	29	29
Number of Detects							28	28	28	1	5	29	14	2	15	27	27	2	21
Minimum Concentration							18.8	0.14	50	<1	85	0.03	<0.01	<0.01	<0.01	<0.2	<0.2	<0.01	<0.01
Minimum Detect							18.8	0.14	50	79	85	0.03	0.01	0.02	0.01	0.2	0.2	0.01	0.01
Maximum Concentration							653	11.6	1080	79	486	6.89	0.52	<0.1	0.52	7	7	<0.1	0.68
Maximum Detect							653	11.6	1080	79	486	6.89	0.52	0.04	0.52	7	7	0.04	0.68
Average Concentration							157	3.9	544	3.8	384	1.8	0.068	0.018	0.077	2.2	2.2	0.026	0.11
Median Concentration							130.5	3.1	519.5	1	448	1.58	0.02	0.01	0.045	2.1	1.9	0.01	0.05
Standard Deviation							127	3.1	266	15	168	1.7	0.1	0.02	0.11	1.7	1.7	0.032	0.15
Number of Guideline Exceedances							0	0	0	0	0	29	0	0	16	26	0	29	20
Number of Guideline Exceedances(Detects Only)							0	0	0	0	0	29	0	0	14	26	0	2	16
95% UCL	(exceeds adopted criteria)											2.356			0.175	2.76		0.0522	0.206
Env Stds Comments																			
Data Comments																			

Draft

						Metals										
						Arsenic (Filtered)	Cadmium (Filtered)	Chromium (III+VI) (Filtered)	Chromium (hexavalent) (Filtered)	Cobalt (Filtered)	Copper (Filtered)	Iron (Filtered)	Lead (Filtered)	Manganese (Filtered)	Mercury (Filtered)	Nickel (Filtered)
						mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL						0.001	0.0001	0.001	0.01	0.001	0.001	0.05	0.001	0.001	0.0001	0.001
ADWG 2011 Recreational (v3.6 updated 2021)						**0.1**	**0.02**		**0.5**		**20**		**0.1**	**5**	**0.01**	**0.2**
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)							0.0055	0.0044[#8]	0.0044	0.001	0.0013		0.0044		0.0004	0.07
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**											
Clyde Dive Site	SMW_ENV077	SMW_ENV077	13/11/2019	Normal	Ashfield Shale	<0.001	<0.0001	<0.001	<0.01	0.011	<0.001	0.45	<0.001	0.143	<0.0001	0.003
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Normal	Ashfield Shale	<0.001	<0.0001	<0.001	<0.01	0.012	<0.001	1.56	<0.001	0.849	<0.0001	0.006
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Field_D	Ashfield Shale	0.002	<0.0001	0.001	<0.01	0.013	<0.001	1.53	<0.001	0.848	<0.0001	0.007
Silverwater	FD14	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	0.004	<0.0001	<0.001	<0.01	0.001	<0.001	4.54	<0.001	0.337	<0.0001	<0.001
Silverwater	FD16	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	0.004	<0.0001	<0.001	<0.01	<0.001	<0.001	4.59	<0.001	0.35	<0.0001	<0.001
Silverwater	MW10D	MW10D	25/08/2011	Normal	Ashfield Shale	<0.001	<0.0001	<0.001	-	-	<0.001	-	<0.001	-	<0.0001	<0.001
Silverwater	MW12D	MW12D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/07/2011	Normal	Ashfield Shale	<0.001	<0.0001	<0.001	-	-	<0.001	-	<0.001	-	<0.0001	0.021
Silverwater	MW4D	MW4D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-
Silverwater	SMW_BH709	SMW_BH709	26/03/2021	Normal	Ashfield Shale	0.004	<0.0001	<0.001	<0.01	0.001	<0.001	4.63	<0.001	0.339	<0.0001	<0.001
Tunnel SW/SOP	SMW_BH121	SMW_BH121	10/03/2019	Normal	Ashfield Shale	<0.01	<0.001	<0.01	<0.01	<0.01	<0.01	10.6	<0.01	3.1	<0.0001	<0.01
Westmead Station	SMW_BH701	SMW_BH701	1/04/2021	Normal	Ashfield Shale	<0.001	<0.0001	0.005	<0.01	0.004	0.012	0.55	<0.001	0.582	<0.0001	0.008
Clyde Dive Site	SMW_BH043	SMW_BH043	20/08/2020	Normal	Ashfield Shale	<0.001	0.0006	<0.001	<0.01	0.001	0.001	<0.05	<0.001	1.23	<0.0001	0.001
Clyde Dive Site	SMW_BH064	SMW_BH064	13/11/2019	Normal	Ashfield Shale	<0.001	<0.0001	<0.001	<0.01	0.07	<0.001	14.1	<0.001	0.376	0.0001	0.049
Outside Buffer - Clyde Refinery	SMW_BH011	SMW_BH011	18/09/2018	Normal	Ashfield Shale	<0.001	<0.0001	<0.001	<0.01	0.004	<0.001	59.7	<0.001	1.54	<0.0001	0.008
Outside Buffer - Clyde Refinery	SMW_BH021	SMW_BH021	18/09/2018	Normal	Ashfield Shale	0.02	<0.0001	<0.001	<0.01	0.002	<0.001	37.3	<0.001	1.51	<0.0001	0.002
Silverwater	Dup1 (MW1D)	MW1D	25/07/2011	Field_D	Ashfield Shale	<0.001	<0.0001	<0.001	-	-	<0.001	-	<0.001	-	<0.0001	0.003
Silverwater	MW1D	MW1D	25/07/2011	Normal	Ashfield Shale	<0.001	<0.0001	<0.001	-	-	<0.001	-	<0.001	-	<0.0001	0.002
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale	<0.001	<0.0001	<0.001	-	-	<0.001	-	<0.001	-	<0.0001	0.011
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale	0.004	<0.0001	0.001	-	0.008	<0.001	12	<0.001	0.523	<0.0001	0.002
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation	0.001	<0.0001	<0.001	-	<0.001	0.006	1.47	<0.001	0.154	<0.0001	<0.001
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation	0.002	<0.0001	<0.001	-	<0.001	<0.001	2.56	<0.001	0.142	<0.0001	<0.001
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation	0.001	<0.0001	0.001	<0.01	0.001	0.001	1.27	<0.001	0.384	<0.0001	0.002
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation	0.006	<0.0001	<0.001	-	<0.001	<0.001	1.24	<0.001	0.072	<0.0001	0.002
Clyde MSF	SMW_BH707	SMW_BH707	7/05/2021	Normal	Hawkesbury Sandstone	0.01	<0.0001	<0.001	<0.01	0.003	0.002	<0.05	<0.001	0.174	<0.0001	0.012
Outside - Rosehill	SMW_BH007	SMW_BH007	4/09/2018	Normal	Hawkesbury Sandstone	0.001	<0.0001	<0.001	<0.01	0.001	<0.001	12.3	<0.001	0.625	<0.0001	0.001

Draft

						Metals										
						Arsenic (Filtered)	Cadmium (Filtered)	Chromium (III+VI) (Filtered)	Chromium (hexavalent) (Filtered)	Cobalt (Filtered)	Copper (Filtered)	Iron (Filtered)	Lead (Filtered)	Manganese (Filtered)	Mercury (Filtered)	Nickel (Filtered)
						mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL						0.001	0.0001	0.001	0.01	0.001	0.001	0.05	0.001	0.001	0.0001	0.001
ADWG 2011 Recreational (v3.6 updated 2021)						**0.1**	**0.02**		**0.5**		**20**		**0.1**	**5**	**0.01**	**0.2**
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)							0.0055	0.0044[#8]	0.0044	0.001	0.0013		0.0044		0.0004	0.07
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**											
Outside Buffer - Clyde Refinery	SMW_BH020	SMW_BH020	18/09/2018	Normal	Hawkesbury Sandstone	<0.001	<0.0001	<0.001	<0.01	0.008	0.002	0.53	<0.001	0.555	<0.0001	0.002
Outside Buffer - Parramatta	SMW_BH014	SMW_BH014	9/03/2018	Normal	Hawkesbury Sandstone	0.019	<0.0001	0.002	-	0.06	<0.001	556	0.01	14.4	<0.0001	0.117
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	3/09/2018	Normal	Hawkesbury Sandstone	0.014	<0.0001	<0.001	-	0.002	<0.001	<0.05	<0.001	0.22	<0.0001	0.003
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	4/08/2020	Normal	Hawkesbury Sandstone	0.002	<0.0001	<0.001	-	<0.001	<0.001	2.9	<0.001	0.299	<0.0001	0.001
Outside Buffer - Silverwater	SMW_BH027	SMW_BH027	9/04/2018	Normal	Hawkesbury Sandstone	<0.001	<0.0001	<0.001	-	0.006	<0.001	6.71	<0.001	0.541	<0.0001	0.008
Outside Buffer - Silverwater	SMW_BH029	SMW_BH029	9/12/2018	Normal	Hawkesbury Sandstone	0.002	<0.0001	<0.001	-	0.018	<0.001	4.38	<0.001	2.04	<0.0001	0.01
Parramatta Station	SMW_BH002	SMW_BH002	4/09/2018	Normal	Hawkesbury Sandstone	<0.001	<0.0001	<0.001	-	<0.001	<0.001	1.28	<0.001	0.478	<0.0001	<0.001
Parramatta Station	SMW_BH004_w	SMW_BH004_w	3/11/2020	Normal	Hawkesbury Sandstone	<0.001	<0.0001	<0.001	-	<0.001	0.001	<0.05	<0.001	0.029	<0.0001	0.182
Parramatta Station	SMW_BH048_w	SMW_BH048_w	3/11/2020	Normal	Hawkesbury Sandstone	<0.001	<0.0001	<0.001	-	<0.001	<0.001	0.63	<0.001	0.173	<0.0001	<0.001
Tunnel CJ/RCRB	SMW_BH057	SMW_BH057	11/12/2019	Normal	Hawkesbury Sandstone	0.017	<0.0001	<0.001	<0.05	0.004	<0.001	4	<0.001	0.658	<0.0001	0.002
Statistical Summary																
Number of Results						34	34	34	17	29	34	29	34	29	34	34
Number of Detects						17	1	5	0	20	7	25	1	29	1	25
Minimum Concentration						<0.001	<0.0001	<0.001	<0.01	<0.001	<0.001	<0.05	<0.001	0.029	<0.0001	<0.001
Minimum Detect						0.001	0.0006	0.001	ND	0.001	0.001	0.45	0.01	0.029	0.0001	0.001
Maximum Concentration						0.02	<0.001	<0.01	<0.05	0.07	0.012	556	0.01	14.4	0.0001	0.182
Maximum Detect						0.02	0.0006	0.005	ND	0.07	0.012	556	0.01	14.4	0.0001	0.182
Average Concentration						0.0041	0.00014	0.0014	0.012	0.0086	0.0018	26	0.0015	1.1	0.0001	0.014
Median Concentration						0.001	0.0001	0.001	0.01	0.002	0.001	2.56	0.001	0.478	0.0001	0.002
Standard Deviation						0.0055	0.00017	0.0017	0.0097	0.016	0.0025	103	0.0021	2.6	0	0.036
Number of Guideline Exceedances						0	0	2	17	21	5	0	2	1	0	2
Number of Guideline Exceedances(Detects Only)						0	0	1	0	20	4	0	1	1	0	2
95% UCL	(exceeds adopted criteria)							0.0019		0.0218	0.0037		0.0031	1.796		0.0414
Env Stds Comments																
Data Comments																

Draft

									BTEXN							TRH - NEPM 2013					
							Zinc (Filtered)	Benzene	Toluene	Ethylbenzene	Xylene (o)	Xylene (m & p)	Xylene Total	BTEX (Sum of Total) - Lab Calc	Naphthalene	F1 (C6-C10 minus BTEX)	C6-C10 Fraction	F2 (>C10-C16 minus Naphthalene)	>C10-C16 Fraction	F3 (>C16-C34 Fraction)	F4 (>C34-C40 Fraction)
							mg/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
EQL							0.005	1	2	2	2	2	2	1	1	20	20	100	100	100	100
ADWG 2011 Recreational (v3.6 updated 2021)								**10**	**8000**	**3000**			**6000**								
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																					
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)							0.015	700	180	80					70						
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																					
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																
Clyde Dive Site	SMW_ENV077	SMW_ENV077	13/11/2019	Normal	Ashfield Shale		0.018	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100	-	<100	<100
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Normal	Ashfield Shale		0.015	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100	-	<100	<100
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Field_D	Ashfield Shale		0.016	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100	-	<100	<100
Silverwater	FD14	SMW_BH709	26/03/2021	Field_D	Ashfield Shale		<0.005	<1	3	<2	<2	<2	<2	3	<5	<20	<20	<100	<100	<100	<100
Silverwater	FD16	SMW_BH709	26/03/2021	Field_D	Ashfield Shale		<0.005	<1	3	<2	<2	<2	<2	3	<5	<20	<20	<100	<100	<100	<100
Silverwater	MW10D	MW10D	25/08/2011	Normal	Ashfield Shale		<0.001	<1	<1	<1	<1	<2	<3	-	<1	-	-	-	-	-	-
Silverwater	MW12D	MW12D	25/08/2011	Normal	Ashfield Shale		-	<1	<1	<1	<1	<2	<3	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/07/2011	Normal	Ashfield Shale		0.016	<1	<1	<1	<1	<2	<3	-	<1	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/08/2011	Normal	Ashfield Shale		-	<1	<1	<1	<1	<2	<3	-	-	-	-	-	-	-	-
Silverwater	SMW_BH709	SMW_BH709	26/03/2021	Normal	Ashfield Shale		<0.005	<1	3	<2	<2	<2	<2	3	<5	<20	<20	<100	<100	<100	<100
Tunnel SW/SOP	SMW_BH121	SMW_BH121	10/03/2019	Normal	Ashfield Shale		<0.05	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100	-	<100	<100
Westmead Station	SMW_BH701	SMW_BH701	1/04/2021	Normal	Ashfield Shale		0.019	<1	3	<2	<2	<2	<2	3	<1	<20	<20	<100	<100	<100	<100
Clyde Dive Site	SMW_BH043	SMW_BH043	20/08/2020	Normal	Ashfield Shale		0.01	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100	-	<100	<100
Clyde Dive Site	SMW_BH064	SMW_BH064	13/11/2019	Normal	Ashfield Shale		0.278	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100	-	<100	<100
Outside Buffer - Clyde Refinery	SMW_BH011	SMW_BH011	18/09/2018	Normal	Ashfield Shale		<0.005	<1	51	<2	<2	<2	<2	51	<5	<20	70	<100	-	<100	<100
Outside Buffer - Clyde Refinery	SMW_BH021	SMW_BH021	18/09/2018	Normal	Ashfield Shale		0.022	<1	<2	<2	<2	<2	<2	<1	<5	<20	<20	<100	-	<100	<100
Silverwater	Dup1 (MW1D)	MW1D	25/07/2011	Field_D	Ashfield Shale		0.003	<1	<1	<1	<1	<2	<3	-	<1	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/07/2011	Normal	Ashfield Shale		0.003	<1	<1	<1	<1	<2	<3	-	<1	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale		-	<1	<1	<1	<1	<2	<3	-	<1	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale		0.02	<1	<1	<1	<1	<2	<3	-	<1	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale		-	<1	<1	<1	<1	<2	<3	-	-	-	-	-	-	-	-
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale		<0.005	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100	-	<100	<100
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation		<0.005	<1	14	<2	<2	<2	<2	14	<5	<20	30	<100	-	<100	<100
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation		<0.005	<1	<2	<2	<2	<2	<2	<1	<5	<20	<20	<100	-	<100	<100
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation		<0.005	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100	-	<100	<100
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation		<0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clyde MSF	SMW_BH707	SMW_BH707	7/05/2021	Normal	Hawkesbury Sandstone		0.007	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100	<100	<100	<100
Outside - Rosehill	SMW_BH007	SMW_BH007	4/09/2018	Normal	Hawkesbury Sandstone		0.005	<1	<2	<2	<2	<2	<2	<1	<5	<20	<20	<100	-	<100	<100

Draft

											BTEXN						TRH - NEPM 2013					
							Zinc (Filtered)	Benzene	Toluene	Ethylbenzene	Xylene (o)	Xylene (m & p)	Xylene Total	BTEX (Sum of Total) - Lab Calc	Naphthalene	F1 (C6-C10 minus BTEX)	C6-C10 Fraction	F2 (>C10-C16 minus Naphthalene)	>C10-C16 Fraction	F3 (>C16-C34 Fraction)	F4 (>C34-C40 Fraction)
							mg/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
EQL							0.005	1	2	2	2	2	2	1	1	20	20	100	100	100	100
ADWG 2011 Recreational (v3.6 updated 2021)								**10**	**8000**	**3000**			**6000**								
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																					
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)							0.015	700	180	80					70						
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																					
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																
Outside Buffer - Clyde Refinery	SMW_BH020	SMW_BH020	18/09/2018	Normal	Hawkesbury Sandstone		<0.005	<1	4	<2	<2	<2	<2	4	<5	<20	20	<100	-	<100	<100
Outside Buffer - Parramatta	SMW_BH014	SMW_BH014	9/03/2018	Normal	Hawkesbury Sandstone		0.064	<1	53	<2	<2	<2	<2	53	<5	30	80	<100	-	240	<100
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	3/09/2018	Normal	Hawkesbury Sandstone		<0.005	<1	9	<2	<2	3	3	12	<5	<20	30	100	-	960	<100
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	4/08/2020	Normal	Hawkesbury Sandstone		<0.005	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100	-	170	<100
Outside Buffer - Silverwater	SMW_BH027	SMW_BH027	9/04/2018	Normal	Hawkesbury Sandstone		0.006	<1	10	<2	<2	<2	<2	10	<5	20	30	<100	-	<100	<100
Outside Buffer - Silverwater	SMW_BH029	SMW_BH029	9/12/2018	Normal	Hawkesbury Sandstone		0.014	<1	3	<2	<2	<2	<2	3	<5	<20	<20	<100	-	<100	<100
Parramatta Station	SMW_BH002	SMW_BH002	4/09/2018	Normal	Hawkesbury Sandstone		<0.005	<1	<2	<2	<2	<2	<2	<1	<5	<20	<20	<100	-	<100	<100
Parramatta Station	SMW_BH004_w	SMW_BH004_w	3/11/2020	Normal	Hawkesbury Sandstone		0.013	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100	-	<100	<100
Parramatta Station	SMW_BH048_w	SMW_BH048_w	3/11/2020	Normal	Hawkesbury Sandstone		<0.005	<1	<2	<2	<2	<2	<2	-	<1	<20	<20	<100	-	<100	<100
Tunnel CJ/RCRB	SMW_BH057	SMW_BH057	11/12/2019	Normal	Hawkesbury Sandstone		<0.005	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100	-	<100	<100
Statistical Summary																					
Number of Results							34	37	37	37	37	37	37	27	34	28	28	28	5	28	28
Number of Detects							17	0	11	0	0	1	1	11	0	2	6	1	0	3	0
Minimum Concentration							<0.001	<1	<1	<1	<1	<2	<2	<1	<1	<20	<20	<100	<100	<100	<100
Minimum Detect							0.003	ND	3	ND	ND	3	3	3	ND	20	20	100	ND	170	ND
Maximum Concentration							0.278	<1	53	<2	<2	3	3	53	<5	30	80	100	<100	960	<100
Maximum Detect							0.278	ND	53	ND	ND	3	3	53	ND	30	80	100	ND	960	ND
Average Concentration							0.019	1	5.4	1.8	1.8	2	2.3	6.5	2.6	20	25	100	100	138	100
Median Concentration							0.005	1	2	2	2	2	2	1	1	20	20	100	100	100	100
Standard Deviation							0.048	0	12	0.43	0.43	0.16	0.45	14	2	1.9	15	0	0	164	0
Number of Guideline Exceedances							10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)							9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL	(exceeds adopted criteria)						0.0548														
Env Stds Comments																					
Data Comments																					

Draft

								TRH - NEPM 2013 - SG Cleanup							TRH - NEPM 1999						NEPM 1999 -
								>C10-C40 (Sum of Total)	>C10-C40 (Sum of Total) - Calc	F2 (>C10-C16 minus Naphthalene) SG Cleanup	>C10-C16 SG Cleanup	>C16-C34 SG Cleanup	>C34-C40 SG Cleanup	>C10-C40 (sum) SG Cleanup	C6-C9 Fraction	C10-C14 Fraction	C15-C28 Fraction	C29-C36 Fraction	C10-C36 (Sum of Total)	C10-C36 (Sum of Total) - Calc	C10-C14 SG Cleanup	C15-C28 SG Cleanup
								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
EQL								100		100	100	100	100	100	20	50	100	50	50		50	100
ADWG 2011 Recreational (v3.6 updated 2021)																						
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																						
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																						
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																						
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																	
Clyde Dive Site	SMW_ENV077	SMW_ENV077	13/11/2019	Normal	Ashfield Shale	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Normal	Ashfield Shale	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Field_D	Ashfield Shale	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-
Silverwater	FD14	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-
Silverwater	FD16	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-
Silverwater	MW10D	MW10D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	<10	<50	<100	<100	<250	-	-	-
Silverwater	MW12D	MW12D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	14	<50	<100	<100	<250	-	-	-
Silverwater	MW4D	MW4D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	<10	<50	<100	<100	<250	-	-	-
Silverwater	MW4D	MW4D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	<10	<50	<100	<100	<250	-	-	-
Silverwater	SMW_BH709	SMW_BH709	26/03/2021	Normal	Ashfield Shale	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-
Tunnel SW/SOP	SMW_BH121	SMW_BH121	10/03/2019	Normal	Ashfield Shale	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-
Westmead Station	SMW_BH701	SMW_BH701	1/04/2021	Normal	Ashfield Shale	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-
Clyde Dive Site	SMW_BH043	SMW_BH043	20/08/2020	Normal	Ashfield Shale	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-
Clyde Dive Site	SMW_BH064	SMW_BH064	13/11/2019	Normal	Ashfield Shale	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-
Outside Buffer - Clyde Refinery	SMW_BH011	SMW_BH011	18/09/2018	Normal	Ashfield Shale	<100	-	-	-	-	-	-	70	<50	<100	<50	<50	-	-	-
Outside Buffer - Clyde Refinery	SMW_BH021	SMW_BH021	18/09/2018	Normal	Ashfield Shale	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-
Silverwater	Dup1 (MW1D)	MW1D	25/07/2011	Field_D	Ashfield Shale	-	-	-	-	-	-	-	<10	<50	<100	<100	<250	-	-	-
Silverwater	MW1D	MW1D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	<10	<50	<100	<100	<250	-	-	-
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	<10	<50	<100	<100	<250	-	-	-
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	<10	<50	<100	<100	<250	-	-	-
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	<10	<50	<100	<100	<250	-	-	-
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation	<100	-	-	-	-	-	-	30	<50	<100	<50	<50	-	-	-
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation	-	<100	<100	<100	<100	<100	<100	<20	<50	<100	<50	-	<50	<50	<100
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clyde MSF	SMW_BH707	SMW_BH707	7/05/2021	Normal	Hawkesbury Sandstone	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-
Outside - Rosehill	SMW_BH007	SMW_BH007	4/09/2018	Normal	Hawkesbury Sandstone	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-

Draft

									TRH - NEPM 2013 - SG Cleanup							TRH - NEPM 1999							NEPM 1999 -
									>C10-C40 (Sum of Total)	>C10-C40 (Sum of Total) - Calc	F2 (>C10-C16 minus Naphthalene) SG Cleanup	>C10-C16 SG Cleanup	>C16-C34 SG Cleanup	>C34-C40 SG Cleanup	>C10-C40 (sum) SG Cleanup	C6-C9 Fraction	C10-C14 Fraction	C15-C28 Fraction	C29-C36 Fraction	C10-C36 (Sum of Total)	C10-C36 (Sum of Total) - Calc	C10-C14 SG Cleanup	C15-C28 SG Cleanup
									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
EQL									100		100	100	100	100	100	20	50	100	50	50		50	100
ADWG 2011 Recreational (v3.6 updated 2021)																							
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																							
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																							
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																							
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																		
Outside Buffer - Clyde Refinery	SMW_BH020	SMW_BH020	18/09/2018	Normal	Hawkesbury Sandstone	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-			
Outside Buffer - Parramatta	SMW_BH014	SMW_BH014	9/03/2018	Normal	Hawkesbury Sandstone	240	-	-	-	-	-	-	80	<50	220	<50	220	-	-	-			
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	3/09/2018	Normal	Hawkesbury Sandstone	1060	-	-	-	-	-	-	30	90	770	210	1070	-	-	-			
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	4/08/2020	Normal	Hawkesbury Sandstone	170	-	-	-	-	-	-	<20	<50	150	<50	150	-	-	-			
Outside Buffer - Silverwater	SMW_BH027	SMW_BH027	9/04/2018	Normal	Hawkesbury Sandstone	<100	-	-	-	-	-	-	20	<50	<100	<50	<50	-	-	-			
Outside Buffer - Silverwater	SMW_BH029	SMW_BH029	9/12/2018	Normal	Hawkesbury Sandstone	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-			
Parramatta Station	SMW_BH002	SMW_BH002	4/09/2018	Normal	Hawkesbury Sandstone	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-			
Parramatta Station	SMW_BH004_w	SMW_BH004_w	3/11/2020	Normal	Hawkesbury Sandstone	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-			
Parramatta Station	SMW_BH048_w	SMW_BH048_w	3/11/2020	Normal	Hawkesbury Sandstone	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-			
Tunnel CJ/RCRB	SMW_BH057	SMW_BH057	11/12/2019	Normal	Hawkesbury Sandstone	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-			
Statistical Summary																							
Number of Results						27	1	1	1	1	1	1	37	37	37	37	36	1	1	1			
Number of Detects						3	0	0	0	0	0	0	6	1	3	1	3	0	0	0			
Minimum Concentration						<100	<100	<100	<100	<100	<100	<100	<10	<50	<100	<50	<50	<50	<50	<100			
Minimum Detect						170	ND	ND	ND	ND	ND	ND	14	90	150	210	150	ND	ND	ND			
Maximum Concentration						1060	<100	<100	<100	<100	<100	<100	80	90	770	210	1070	<50	<50	<100			
Maximum Detect						1060	ND	ND	ND	ND	ND	ND	80	90	770	210	1070	ND	ND	ND			
Average Concentration						143							21	51	123	66	136						
Median Concentration						100	100	100	100	100	100	100	20	50	100	50	50	50	50	100			
Standard Deviation						186							14	6.6	111	33	183						
Number of Guideline Exceedances						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Number of Guideline Exceedances(Detects Only)						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
95% UCL	(exceeds adopted criteria)																						
Env Stds Comments																							
Data Comments																							

Draft

							SG C	TPH	PAHs - standard 16															
							C29-C36 SG Cleanup	TPH C6-C36 Fraction (Sum of Total) - Calc	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo[b+j]fluoranthene	Benzo(k)fluoranthene	Benzo(g,h,i)perylene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene
							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	µg/L	µg/L
EQL							50		1	1	1	1	0.5	1	1	1	1	1	1	1	1	1	1
ADWG 2011 Recreational (v3.6 updated 2021)													**0.1**										
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																							
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)													0.2						1.4			2	
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																							
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																		
Clyde Dive Site	SMW_ENV077	SMW_ENV077	13/11/2019	Normal	Ashfield Shale		-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Normal	Ashfield Shale		-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Field_D	Ashfield Shale		-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Silverwater	FD14	SMW_BH709	26/03/2021	Field_D	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	FD16	SMW_BH709	26/03/2021	Field_D	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW10D	MW10D	25/08/2011	Normal	Ashfield Shale		-	-	<1	<1	<1	<1	**<1**	-	-	<1	<1	<1	<1	<1	<1	<1	<1
Silverwater	MW12D	MW12D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/07/2011	Normal	Ashfield Shale		-	-	<1	<1	<1	<1	**<1**	-	-	<1	<1	<1	<1	<1	<1	<1	<1
Silverwater	MW4D	MW4D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	SMW_BH709	SMW_BH709	26/03/2021	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunnel SW/SOP	SMW_BH121	SMW_BH121	10/03/2019	Normal	Ashfield Shale		-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Westmead Station	SMW_BH701	SMW_BH701	1/04/2021	Normal	Ashfield Shale		-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Clyde Dive Site	SMW_BH043	SMW_BH043	20/08/2020	Normal	Ashfield Shale		-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Clyde Dive Site	SMW_BH064	SMW_BH064	13/11/2019	Normal	Ashfield Shale		-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Outside Buffer - Clyde Refinery	SMW_BH011	SMW_BH011	18/09/2018	Normal	Ashfield Shale		-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Outside Buffer - Clyde Refinery	SMW_BH021	SMW_BH021	18/09/2018	Normal	Ashfield Shale		-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Silverwater	Dup1 (MW1D)	MW1D	25/07/2011	Field_D	Ashfield Shale		-	-	<1	<1	<1	<1	**<1**	-	-	<1	<1	<1	<1	<1	<1	<1	<1
Silverwater	MW1D	MW1D	25/07/2011	Normal	Ashfield Shale		-	-	<1	<1	<1	<1	**<1**	-	-	<1	<1	<1	<1	<1	<1	<1	<1
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale		-	-	<1	<1	<1	<1	**<1**	-	-	<1	<1	<1	<1	<1	<1	<1	<1
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale		-	-	<1	<1	<1	<1	**<1**	-	-	<1	<1	<1	<1	<1	<1	<1	<1
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale		-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation		-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation		<50	<50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation		-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clyde MSF	SMW_BH707	SMW_BH707	7/05/2021	Normal	Hawkesbury Sandstone		-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Outside - Rosehill	SMW_BH007	SMW_BH007	4/09/2018	Normal	Hawkesbury Sandstone		-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

Draft

						SG C	TPH	PAHs - standard 16														
						C29-C36 SG Cleanup	TPH C6-C36 Fraction (Sum of Total) - Calc	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo[b+j]fluoranthene	Benzo(k)fluoranthene	Benzo(g,h,i)perylene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene
						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	µg/L	µg/L
EQL						50		1	1	1	1	0.5	1	1	1	1	1	1	1	1	1	1
ADWG 2011 Recreational (v3.6 updated 2021)												**0.1**										
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																						
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)												0.2						1.4			2	
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																						
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																	
Outside Buffer - Clyde Refinery	SMW_BH020	SMW_BH020	18/09/2018	Normal	Hawkesbury Sandstone	-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Outside Buffer - Parramatta	SMW_BH014	SMW_BH014	9/03/2018	Normal	Hawkesbury Sandstone	-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	3/09/2018	Normal	Hawkesbury Sandstone	-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	4/08/2020	Normal	Hawkesbury Sandstone	-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Outside Buffer - Silverwater	SMW_BH027	SMW_BH027	9/04/2018	Normal	Hawkesbury Sandstone	-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Outside Buffer - Silverwater	SMW_BH029	SMW_BH029	9/12/2018	Normal	Hawkesbury Sandstone	-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Parramatta Station	SMW_BH002	SMW_BH002	4/09/2018	Normal	Hawkesbury Sandstone	-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Parramatta Station	SMW_BH004_w	SMW_BH004_w	3/11/2020	Normal	Hawkesbury Sandstone	-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Parramatta Station	SMW_BH048_w	SMW_BH048_w	3/11/2020	Normal	Hawkesbury Sandstone	-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tunnel CJ/RCRB	SMW_BH057	SMW_BH057	11/12/2019	Normal	Hawkesbury Sandstone	-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Statistical Summary																						
Number of Results						1	1	30	30	30	30	30	24	24	30	30	30	30	30	30	30	30
Number of Detects						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration						<50	<50	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Minimum Detect						ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration						<50	<50	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Maximum Detect						ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration								1	1	1	1	0.6	1	1	1	1	1	1	1	1	1	1
Median Concentration						50	50	1	1	1	1	0.5	1	1	1	1	1	1	1	1	1	1
Standard Deviation								0	0	0	0	0.2	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances						0	0	0	0	0	0	30	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL	(exceeds adopted criteria)																					

Env Stds Comments

Data Comments

Draft

						PAHs - extended				Phenols - Halogenated							Phenols - Non-Halogen			
						Total 8 PAHs (as BaP TEQ)(zero LOR) - Lab Calc	PAHs (Sum of Total) - Calc	2-methylnaphthalene	3-methylcholanthrene	7,12-dimethylbenz(a)anthracene	Benzo(b)&(k)fluoranthene	2-Chlorophenol	2,4-Dichlorophenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,6-Dichlorophenol	4-Chloro-3-methylphenol	Pentachlorophenol	Phenol	2-Nitrophenol	2-Methylphenol (o-Cresol)	3,4-Methylphenol (m,p-cresol)
						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	µg/L	µg/L
EQL						0.5		2	2	2		2	2	2	2	2	2	4	2	2	2	4
ADWG 2011 Recreational (v3.6 updated 2021)												**3000**	**2000**		**200**			**100**				
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																						
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																		22	400			
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																						
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																	
Clyde Dive Site	SMW_ENV077	SMW_ENV077	13/11/2019	Normal	Ashfield Shale	<0.5	<0.5	<2	<2	<2	-	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<4
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Normal	Ashfield Shale	<0.5	<0.5	<2	<2	<2	-	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<4
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Field_D	Ashfield Shale	<0.5	<0.5	<2	-	-	-	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<4
Silverwater	FD14	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	-	-	<2	<2	<2	-	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<4
Silverwater	FD16	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	-	-	<2	<2	<2	-	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<4
Silverwater	MW10D	MW10D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	<2	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW12D	MW12D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	<2	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	SMW_BH709	SMW_BH709	26/03/2021	Normal	Ashfield Shale	-	-	<2	<2	<2	-	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<4
Tunnel SW/SOP	SMW_BH121	SMW_BH121	10/03/2019	Normal	Ashfield Shale	<0.5	<0.5	<2	<2	<2	-	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<4
Westmead Station	SMW_BH701	SMW_BH701	1/04/2021	Normal	Ashfield Shale	<0.5	<0.5	<2	<2	<2	-	-	-	-	-	-	-	-	-	-	-	-
Clyde Dive Site	SMW_BH043	SMW_BH043	20/08/2020	Normal	Ashfield Shale	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clyde Dive Site	SMW_BH064	SMW_BH064	13/11/2019	Normal	Ashfield Shale	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Clyde Refinery	SMW_BH011	SMW_BH011	18/09/2018	Normal	Ashfield Shale	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Clyde Refinery	SMW_BH021	SMW_BH021	18/09/2018	Normal	Ashfield Shale	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	Dup1 (MW1D)	MW1D	25/07/2011	Field_D	Ashfield Shale	-	-	-	-	-	<2	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	<2	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	<2	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	<2	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale	<0.5	<0.5	<2	<2	<2	-	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<4
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation	<0.5	<0.5	<2	<2	<2	-	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<4
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clyde MSF	SMW_BH707	SMW_BH707	7/05/2021	Normal	Hawkesbury Sandstone	<0.5	<0.5	<2	<2	<2	-	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<4
Outside - Rosehill	SMW_BH007	SMW_BH007	4/09/2018	Normal	Hawkesbury Sandstone	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Draft

								PAHs - extended				Phenols - Halogenated							Phenols - Non-Halogen			
							Total 8 PAHs (as BaP TEQ)(zero LOR) - Lab Calc	PAHs (Sum of Total) - Calc	2-methylnaphthalene	3-methylcholanthrene	7,12-dimethylbenz(a)anthracene	Benzo(b)&(k)fluoranthene	2-Chlorophenol	2,4-Dichlorophenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,6-Dichlorophenol	4-Chloro-3-methylphenol	Pentachlorophenol	Phenol	2-Nitrophenol	2-Methylphenol (o-Cresol)	3,4-Methylphenol (m,p-cresol)
							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	µg/L	µg/L
EQL							0.5		2	2	2		2	2	2	2	2	2	4	2	2	2	4
ADWG 2011 Recreational (v3.6 updated 2021)													**3000**	**2000**		**200**			**100**				
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																							
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																			22	400			
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																							
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																		
Outside Buffer - Clyde Refinery	SMW_BH020	SMW_BH020	18/09/2018	Normal	Hawkesbury Sandstone		<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Parramatta	SMW_BH014	SMW_BH014	9/03/2018	Normal	Hawkesbury Sandstone		<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	3/09/2018	Normal	Hawkesbury Sandstone		<0.5	1.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	4/08/2020	Normal	Hawkesbury Sandstone		<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH027	SMW_BH027	9/04/2018	Normal	Hawkesbury Sandstone		<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH029	SMW_BH029	9/12/2018	Normal	Hawkesbury Sandstone		<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH002	SMW_BH002	4/09/2018	Normal	Hawkesbury Sandstone		<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH004_w	SMW_BH004_w	3/11/2020	Normal	Hawkesbury Sandstone		<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH048_w	SMW_BH048_w	3/11/2020	Normal	Hawkesbury Sandstone		<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunnel CJ/RCRB	SMW_BH057	SMW_BH057	11/12/2019	Normal	Hawkesbury Sandstone		<0.5	<0.5	<2	<2	<2	-	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<4
Statistical Summary																							
Number of Results							24	24	12	11	11	6	11	11	11	11	11	11	11	11	11	11	11
Number of Detects							0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration							<0.5	<0.5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<4
Minimum Detect							ND	1.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration							<0.5	1.9	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<4
Maximum Detect							ND	1.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration							0.5	0.56	2	2	2	2	2	2	2	2	2	2	4	2	2	2	4
Median Concentration							0.5	0.5	2	2	2	2	2	2	2	2	2	2	4	2	2	2	4
Standard Deviation							0	0.29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances							0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)							0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL	(exceeds adopted criteria)																						
Env Stds Comments																							
Data Comments																							

Draft

						ıated	Phenols - total	OC Pesticides													
						2,4-Dimethylphenol	Phenolics Total	DDT (total)	4,4'-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC	d-BHC	4,4 DDD	DDE	DDT+DDE+DDD - Lab Calc	Dieldrin	Endosulfan I (alpha)	Endosulfan II (beta)
						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
EQL						2			2	2	2	4	2	2	2		4	2	2	2
ADWG 2011 Recreational (v3.6 updated 2021)												3								
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																				
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																				
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																				
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**															
Clyde Dive Site	SMW_ENV077	SMW_ENV077	13/11/2019	Normal	Ashfield Shale	<2	-	<4	-	<2	<2	<4	<2	<2	<2	<2	<4	<2	<2	<2
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Normal	Ashfield Shale	<2	-	<4	-	<2	<2	<4	<2	<2	<2	<2	<4	<2	<2	<2
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Field_D	Ashfield Shale	<2	-	<4	-	<2	<2	<4	<2	<2	<2	<2	<4	<2	<2	<2
Silverwater	FD14	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	<2	-	<4	<2	<2	<2	<4	<2	<2	<2	-	<4	<2	<2	<2
Silverwater	FD16	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	<2	-	<4	<2	<2	<2	<4	<2	<2	<2	-	<4	<2	<2	<2
Silverwater	MW10D	MW10D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW12D	MW12D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	SMW_BH709	SMW_BH709	26/03/2021	Normal	Ashfield Shale	<2	-	<4	<2	<2	<2	<4	<2	<2	<2	-	<4	<2	<2	<2
Tunnel SW/SOP	SMW_BH121	SMW_BH121	10/03/2019	Normal	Ashfield Shale	<2	-	<4	-	<2	<2	<4	<2	<2	<2	<2	<4	<2	<2	<2
Westmead Station	SMW_BH701	SMW_BH701	1/04/2021	Normal	Ashfield Shale	-	-	<4	<2	<2	<2	<4	<2	<2	<2	-	<4	<2	<2	<2
Clyde Dive Site	SMW_BH043	SMW_BH043	20/08/2020	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clyde Dive Site	SMW_BH064	SMW_BH064	13/11/2019	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Clyde Refinery	SMW_BH011	SMW_BH011	18/09/2018	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Clyde Refinery	SMW_BH021	SMW_BH021	18/09/2018	Normal	Ashfield Shale	-	<50	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	Dup1 (MW1D)	MW1D	25/07/2011	Field_D	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale	<2	-	<4	-	<2	<2	<4	<2	<2	<2	<2	<4	<2	<2	<2
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation	-	<50	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation	<2	-	<4	-	<2	<2	<4	<2	<2	<2	<2	<4	<2	<2	<2
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clyde MSF	SMW_BH707	SMW_BH707	7/05/2021	Normal	Hawkesbury Sandstone	<2	-	<4	<2	<2	<2	<4	<2	<2	<2	-	<4	<2	<2	<2
Outside - Rosehill	SMW_BH007	SMW_BH007	4/09/2018	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Draft

						nated	Phenols - total	OC Pesticides													
						2,4-Dimethylphenol	Phenolics Total	DDT (total)	4,4'-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC	d-BHC	4,4 DDD	DDE	DDT+DDE+DDD - Lab Calc	Dieldrin	Endosulfan I (alpha)	Endosulfan II (beta)
						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
EQL						2			2	2	2	4	2	2	2		4	2	2	2
ADWG 2011 Recreational (v3.6 updated 2021)												3								
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																				
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																				
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																				
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**															
Outside Buffer - Clyde Refinery	SMW_BH020	SMW_BH020	18/09/2018	Normal	Hawkesbury Sandstone	-	<50	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Parramatta	SMW_BH014	SMW_BH014	9/03/2018	Normal	Hawkesbury Sandstone	-	300	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	3/09/2018	Normal	Hawkesbury Sandstone	-	<50	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	4/08/2020	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH027	SMW_BH027	9/04/2018	Normal	Hawkesbury Sandstone	-	<50	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH029	SMW_BH029	9/12/2018	Normal	Hawkesbury Sandstone	-	<50	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH002	SMW_BH002	4/09/2018	Normal	Hawkesbury Sandstone	-	<50	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH004_w	SMW_BH004_w	3/11/2020	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH048_w	SMW_BH048_w	3/11/2020	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunnel CJ/RCRB	SMW_BH057	SMW_BH057	11/12/2019	Normal	Hawkesbury Sandstone	<2	-	<4	-	<2	<2	<4	<2	<2	<2	<2	<4	<2	<2	<2
Statistical Summary																				
Number of Results						11	8	12	5	12	12	12	12	12	12	7	12	12	12	12
Number of Detects						0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration						<2	<50	<4	<2	<2	<2	<4	<2	<2	<2	<2	<4	<2	<2	<2
Minimum Detect						ND	300	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration						<2	300	<4	<2	<2	<2	<4	<2	<2	<2	<2	<4	<2	<2	<2
Maximum Detect						ND	300	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration						2	81	4	2	2	2	4	2	2	2	2	4	2	2	2
Median Concentration						2	50	4	2	2	2	4	2	2	2	2	4	2	2	2
Standard Deviation						0	88	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances						0	0	0	0	0	0	12	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL	(exceeds adopted criteria)																			

Env Stds Comments

Data Comments

Draft

									OP Pesticides											
								Endosulfan Sulfate	Endrin	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion	Fenthion	Malathion	Monocrotophos	Pirimphos-ethyl
								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	µg/L	µg/L
EQL								2	2	2	2	2	4	2	2	2	2	2	2	2	2	2		2
ADWG 2011 Recreational (v3.6 updated 2021)										**100**	**3**			**20**	**100**		**40**	**50**	**70**	**40**	**70**	**700**	**20**	**5**
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																								
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)									0.008				0.1		0.009									
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																								
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																			
Clyde Dive Site	SMW_ENV077	SMW_ENV077	13/11/2019	Normal	Ashfield Shale			<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2	-	<2
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Normal	Ashfield Shale			<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2	-	<2
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Field_D	Ashfield Shale			<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2	-	<2
Silverwater	FD14	SMW_BH709	26/03/2021	Field_D	Ashfield Shale			<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2	-	<2
Silverwater	FD16	SMW_BH709	26/03/2021	Field_D	Ashfield Shale			<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2	-	<2
Silverwater	MW10D	MW10D	25/08/2011	Normal	Ashfield Shale			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW12D	MW12D	25/08/2011	Normal	Ashfield Shale			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/07/2011	Normal	Ashfield Shale			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/08/2011	Normal	Ashfield Shale			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	SMW_BH709	SMW_BH709	26/03/2021	Normal	Ashfield Shale			<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2	-	<2
Tunnel SW/SOP	SMW_BH121	SMW_BH121	10/03/2019	Normal	Ashfield Shale			<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	-
Westmead Station	SMW_BH701	SMW_BH701	1/04/2021	Normal	Ashfield Shale			<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2	-	<2
Clyde Dive Site	SMW_BH043	SMW_BH043	20/08/2020	Normal	Ashfield Shale			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clyde Dive Site	SMW_BH064	SMW_BH064	13/11/2019	Normal	Ashfield Shale			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Clyde Refinery	SMW_BH011	SMW_BH011	18/09/2018	Normal	Ashfield Shale			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Clyde Refinery	SMW_BH021	SMW_BH021	18/09/2018	Normal	Ashfield Shale			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	Dup1 (MW1D)	MW1D	25/07/2011	Field_D	Ashfield Shale			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/07/2011	Normal	Ashfield Shale			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale			<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	-
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation			<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	-
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clyde MSF	SMW_BH707	SMW_BH707	7/05/2021	Normal	Hawkesbury Sandstone			<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2	-	<2
Outside - Rosehill	SMW_BH007	SMW_BH007	4/09/2018	Normal	Hawkesbury Sandstone			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Draft

										OP Pesticides											
										Endosulfan Sulfate	Endrin	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion	Fenthion	Malathion	Monocrotophos	Pirimphos-ethyl
										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	µg/L	µg/L
EQL										2	2	2	2	2	4	2	2	2	2	2	2	2	2	2		2
ADWG 2011 Recreational (v3.6 updated 2021)												**100**	**3**			**20**	**100**		**40**	**50**	**70**	**40**	**70**	**700**	**20**	**5**
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																										
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)											0.008				0.1		0.009									
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																										
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																					
Outside Buffer - Clyde Refinery	SMW_BH020	SMW_BH020	18/09/2018	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Parramatta	SMW_BH014	SMW_BH014	9/03/2018	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	3/09/2018	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	4/08/2020	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH027	SMW_BH027	9/04/2018	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH029	SMW_BH029	9/12/2018	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH002	SMW_BH002	4/09/2018	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH004_w	SMW_BH004_w	3/11/2020	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH048_w	SMW_BH048_w	3/11/2020	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunnel CJ/RCRB	SMW_BH057	SMW_BH057	11/12/2019	Normal	Hawkesbury Sandstone	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	-
Statistical Summary																										
Number of Results						12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	4	8	
Number of Detects						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Minimum Concentration						<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
Minimum Detect						ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Maximum Concentration						<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
Maximum Detect						ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Average Concentration						2	2	2	2	2	4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Median Concentration						2	2	2	2	2	4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Standard Deviation						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances						0	12	0	0	0	12	0	12	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances(Detects Only)						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
95% UCL	(exceeds adopted criteria)																									

Env Stds Comments

Data Comments

Draft

																				Chlorinated Hydrocarbc
							Prothiofos	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,4-trichlorobenzene	1,2-dibromo-3-chloropropane	1,2-dichlorobenzene	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	1,4-dichlorobenzene	2,2-dichloropropane	2-chloronaphthalene
							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	µg/L
EQL							2	5	5	5	5	5	5	2	5	2	5	5	5	2	5	2
ADWG 2011 Recreational (v3.6 updated 2021)												**300**				**15000**	**30**			**400**		
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																						
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)									270	400	1900	700		80			1900	1100				
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																						
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																	
Clyde Dive Site	SMW_ENV077	SMW_ENV077	13/11/2019	Normal	Ashfield Shale		<2	<5	<5	<5	<5	<5	<5	<2	<5	<2	<5	<5	<5	<2	<5	<2
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Normal	Ashfield Shale		<2	<5	<5	<5	<5	<5	<5	<2	<5	<2	<5	<5	<5	<2	<5	<2
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Field_D	Ashfield Shale		<2	<5	<5	<5	<5	<5	<5	<2	<5	<2	<5	<5	<5	<2	<5	-
Silverwater	FD14	SMW_BH709	26/03/2021	Field_D	Ashfield Shale		<2	<5	<5	<5	<5	<5	<5	<2	<5	<2	<5	<5	<5	<2	<5	<2
Silverwater	FD16	SMW_BH709	26/03/2021	Field_D	Ashfield Shale		<2	<5	<5	<5	<5	<5	<5	<2	<5	<2	<5	<5	<5	<2	<5	<2
Silverwater	MW10D	MW10D	25/08/2011	Normal	Ashfield Shale		-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-
Silverwater	MW12D	MW12D	25/08/2011	Normal	Ashfield Shale		-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-
Silverwater	MW4D	MW4D	25/07/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/08/2011	Normal	Ashfield Shale		-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-
Silverwater	SMW_BH709	SMW_BH709	26/03/2021	Normal	Ashfield Shale		<2	<5	<5	<5	<5	<5	<5	<2	<5	<2	<5	<5	<5	<2	<5	<2
Tunnel SW/SOP	SMW_BH121	SMW_BH121	10/03/2019	Normal	Ashfield Shale		<2	<5	<5	<5	<5	<5	<5	<2	<5	<2	<5	<5	<5	<2	<5	<2
Westmead Station	SMW_BH701	SMW_BH701	1/04/2021	Normal	Ashfield Shale		<2	<5	<5	<5	<5	<5	<5	<2	<5	<2	<5	<5	<5	<2	<5	<2
Clyde Dive Site	SMW_BH043	SMW_BH043	20/08/2020	Normal	Ashfield Shale		-	<5	<5	<5	<5	<5	<5	<2	<5	<2	<5	<5	<5	<2	<5	-
Clyde Dive Site	SMW_BH064	SMW_BH064	13/11/2019	Normal	Ashfield Shale		-	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-
Outside Buffer - Clyde Refinery	SMW_BH011	SMW_BH011	18/09/2018	Normal	Ashfield Shale		-	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-
Outside Buffer - Clyde Refinery	SMW_BH021	SMW_BH021	18/09/2018	Normal	Ashfield Shale		-	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-
Silverwater	Dup1 (MW1D)	MW1D	25/07/2011	Field_D	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/07/2011	Normal	Ashfield Shale		-	<1	<1	<1	<1	<1	<1	-	-	-	<1	<1	<1	-	<1	-
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale		-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale		-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale		<2	<5	<5	<5	<5	<5	<5	<2	<5	<2	<5	<5	<5	<2	<5	<2
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation		-	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation		<2	<5	<5	<5	<5	<5	<5	<2	<5	<2	<5	<5	<5	<2	<5	<2
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clyde MSF	SMW_BH707	SMW_BH707	7/05/2021	Normal	Hawkesbury Sandstone		<2	<5	<5	<5	<5	<5	<5	<2	<5	<2	<5	<5	<5	<2	<5	<2
Outside - Rosehill	SMW_BH007	SMW_BH007	4/09/2018	Normal	Hawkesbury Sandstone		-	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-

Draft

																						Chlorinated Hydrocarbo
						Prothiofos	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,4-trichlorobenzene	1,2-dibromo-3-chloropropane	1,2-dichlorobenzene	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	1,4-dichlorobenzene	2,2-dichloropropane	2-chloronaphthalene
						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	µg/L	µg/L
EQL						2	5	5	5	5	5	5	2	5	2	5	5	5	2	5	2
ADWG 2011 Recreational (v3.6 updated 2021)											300				15000	30			400		
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																					
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)								270	400	1900	700		80			1900	1100				
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																					
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																
Outside Buffer - Clyde Refinery	SMW_BH020	SMW_BH020	18/09/2018	Normal	Hawkesbury Sandstone	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-
Outside Buffer - Parramatta	SMW_BH014	SMW_BH014	9/03/2018	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	3/09/2018	Normal	Hawkesbury Sandstone	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	4/08/2020	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH027	SMW_BH027	9/04/2018	Normal	Hawkesbury Sandstone	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-
Outside Buffer - Silverwater	SMW_BH029	SMW_BH029	9/12/2018	Normal	Hawkesbury Sandstone	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-
Parramatta Station	SMW_BH002	SMW_BH002	4/09/2018	Normal	Hawkesbury Sandstone	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-
Parramatta Station	SMW_BH004_w	SMW_BH004_w	3/11/2020	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH048_w	SMW_BH048_w	3/11/2020	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunnel CJ/RCRB	SMW_BH057	SMW_BH057	11/12/2019	Normal	Hawkesbury Sandstone	<2	<5	<5	<5	<5	<5	<5	<2	<5	<2	<5	<5	<5	<2	<5	<2
Statistical Summary																					
Number of Results						12	29	29	29	29	29	29	28	28	28	29	29	29	28	29	11
Number of Detects						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration						<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2
Minimum Detect						ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration						<2	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<2
Maximum Detect						ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration						2	4.2	4.2	4.2	4.2	4.2	4.2	2.9	4.3	2.9	4.2	4.2	4.2	2.9	4.2	2
Median Concentration						2	5	5	5	5	5	5	2	5	2	5	5	5	2	5	2
Standard Deviation						0	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	0
Number of Guideline Exceedances						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL	(exceeds adopted criteria)																				

Env Stds Comments

Data Comments

Draft

						ons										Explosives			
						2-chlorotoluene	4-chlorotoluene	Bromobenzene	Bromochloromethane	Carbon tetrachloride	Chlorobenzene	Chloroform	Chloromethane	cis-1,2-dichloroethene	Hexachlorobutadiene	Vinyl chloride	1,3,5-Trinitrobenzene	2,4-Dinitrotoluene	2,6-dinitrotoluene	Nitrobenzene
						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
EQL						5	5	5		5	5	5	50	5	2	50	2	4	4	2
ADWG 2011 Recreational (v3.6 updated 2021)										**30**	**3000**				**7**	**3**				
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																				
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)										240	55	770				100				
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																				
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**															
Clyde Dive Site	SMW_ENV077	SMW_ENV077	13/11/2019	Normal	Ashfield Shale	<5	<5	<5	-	<5	<5	<5	<50	<5	<2	<50	<2	<4	<4	<2
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Normal	Ashfield Shale	<5	<5	<5	-	<5	<5	<5	<50	<5	<2	<50	<2	<4	<4	<2
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Field_D	Ashfield Shale	<5	<5	<5	-	<5	<5	<5	<50	<5	<2	<50	-	-	-	-
Silverwater	FD14	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	<5	<5	<5	-	<5	<5	<5	<50	<5	<2	<50	<2	<4	<4	<2
Silverwater	FD16	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	<5	<5	<5	-	<5	<5	<5	<50	<5	<2	<50	<2	<4	<4	<2
Silverwater	MW10D	MW10D	25/08/2011	Normal	Ashfield Shale	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<10	-	-	-	-
Silverwater	MW12D	MW12D	25/08/2011	Normal	Ashfield Shale	<1	<1	<1	<1	<1	<1	<1	<10	11	<1	<10	-	-	-	-
Silverwater	MW4D	MW4D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/08/2011	Normal	Ashfield Shale	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<10	-	-	-	-
Silverwater	SMW_BH709	SMW_BH709	26/03/2021	Normal	Ashfield Shale	<5	<5	<5	-	<5	<5	<5	<50	<5	<2	<50	<2	<4	<4	<2
Tunnel SW/SOP	SMW_BH121	SMW_BH121	10/03/2019	Normal	Ashfield Shale	<5	<5	<5	-	<5	<5	<5	<50	<5	<2	<50	<2	<4	<4	<2
Westmead Station	SMW_BH701	SMW_BH701	1/04/2021	Normal	Ashfield Shale	<5	<5	<5	-	<5	<5	<5	<50	<5	<2	<50	<2	<4	<4	<2
Clyde Dive Site	SMW_BH043	SMW_BH043	20/08/2020	Normal	Ashfield Shale	<5	<5	<5	-	<5	<5	<5	<50	<5	<2	<50	-	-	-	-
Clyde Dive Site	SMW_BH064	SMW_BH064	13/11/2019	Normal	Ashfield Shale	<5	<5	<5	-	<5	<5	<5	<50	<5	<5	<50	-	-	-	-
Outside Buffer - Clyde Refinery	SMW_BH011	SMW_BH011	18/09/2018	Normal	Ashfield Shale	<5	<5	<5	-	<5	<5	<5	<50	<5	<5	<50	-	-	-	-
Outside Buffer - Clyde Refinery	SMW_BH021	SMW_BH021	18/09/2018	Normal	Ashfield Shale	<5	<5	<5	-	<5	<5	<5	<50	<5	<5	<50	-	-	-	-
Silverwater	Dup1 (MW1D)	MW1D	25/07/2011	Field_D	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/07/2011	Normal	Ashfield Shale	-	-	<1	<1	<1	<1	<1	<10	2	-	<10	-	-	-	-
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale	<1	<1	<1	<1	<1	<1	<1	<10	1	<1	<10	-	-	-	-
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<10	-	-	-	-
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale	<5	<5	<5	-	<5	<5	<5	<50	<5	<2	<50	<2	<4	<4	<2
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation	<5	<5	<5	-	<5	<5	<5	<50	<5	<5	<50	-	-	-	-
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation	<5	<5	<5	-	<5	<5	<5	<50	<5	<2	<50	<2	<4	<4	<2
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clyde MSF	SMW_BH707	SMW_BH707	7/05/2021	Normal	Hawkesbury Sandstone	<5	<5	<5	-	<5	<5	<5	<50	<5	<2	<50	<2	<4	<4	<2
Outside - Rosehill	SMW_BH007	SMW_BH007	4/09/2018	Normal	Hawkesbury Sandstone	<5	<5	<5	-	<5	<5	<5	<50	<5	<5	<50	-	-	-	-

Draft

						enated Hydroca		Herbicides	Nitroaromatics and Keytones					Solvents			
						Bromomethane	Dichlorodifluoromethane	Pronamide	2-Picoline	4-aminobiphenyl	Acetophenone	N-Nitrosodiphenyl & Diphenylamine	Pentachloronitrobenzene	2-hexanone (MBK)	Carbon disulfide	Isophorone	Vinyl acetate
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL						50	50	2	2	2	2	4	2	50	5	2	50
ADWG 2011 Recreational (v3.6 updated 2021)						**10**		**700**					**300**				
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																	
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																	
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																	
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**												
Clyde Dive Site	SMW_ENV077	SMW_ENV077	13/11/2019	Normal	Ashfield Shale	<50	<50	<2	<2	<2	<2	<4	<2	<50	<5	<2	<50
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Normal	Ashfield Shale	<50	<50	<2	<2	<2	<2	<4	<2	<50	<5	<2	<50
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Field_D	Ashfield Shale	<50	<50	-	-	-	-	-	-	<50	<5	<2	<50
Silverwater	FD14	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	<50	<50	<2	<2	<2	<2	<4	<2	<50	<5	<2	<50
Silverwater	FD16	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	<50	<50	<2	<2	<2	<2	<4	<2	<50	<5	<2	<50
Silverwater	MW10D	MW10D	25/08/2011	Normal	Ashfield Shale	<10	<10	-	-	-	-	-	-	-	-	-	-
Silverwater	MW12D	MW12D	25/08/2011	Normal	Ashfield Shale	<10	<10	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/08/2011	Normal	Ashfield Shale	<10	<10	-	-	-	-	-	-	-	-	-	-
Silverwater	SMW_BH709	SMW_BH709	26/03/2021	Normal	Ashfield Shale	<50	<50	<2	<2	<2	<2	<4	<2	<50	<5	<2	<50
Tunnel SW/SOP	SMW_BH121	SMW_BH121	10/03/2019	Normal	Ashfield Shale	<50	<50	<2	<2	<2	<2	<4	<2	<50	<5	<2	<50
Westmead Station	SMW_BH701	SMW_BH701	1/04/2021	Normal	Ashfield Shale	<50	<50	<2	<2	<2	<2	<4	<2	<50	<5	<2	<50
Clyde Dive Site	SMW_BH043	SMW_BH043	20/08/2020	Normal	Ashfield Shale	<50	<50	-	-	-	-	-	-	<50	<5	<2	<50
Clyde Dive Site	SMW_BH064	SMW_BH064	13/11/2019	Normal	Ashfield Shale	<50	<50	-	-	-	-	-	-	<50	<5	-	<50
Outside Buffer - Clyde Refinery	SMW_BH011	SMW_BH011	18/09/2018	Normal	Ashfield Shale	<50	<50	-	-	-	-	-	-	<50	<5	-	<50
Outside Buffer - Clyde Refinery	SMW_BH021	SMW_BH021	18/09/2018	Normal	Ashfield Shale	<50	<50	-	-	-	-	-	-	<50	<5	-	<50
Silverwater	Dup1 (MW1D)	MW1D	25/07/2011	Field_D	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/07/2011	Normal	Ashfield Shale	<10	<10	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale	<10	<10	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale	<10	<10	-	-	-	-	-	-	-	-	-	-
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale	<50	<50	<2	<2	<2	<2	<4	<2	<50	<5	<2	<50
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation	<50	<50	-	-	-	-	-	-	<50	<5	-	<50
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	-	-	-	-
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation	<50	<50	<2	<2	<2	<2	<4	<2	<50	<5	<2	<50
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	-	-	-	-
Clyde MSF	SMW_BH707	SMW_BH707	7/05/2021	Normal	Hawkesbury Sandstone	<50	<50	<2	<2	<2	<2	<4	<2	<50	<5	<2	<50
Outside - Rosehill	SMW_BH007	SMW_BH007	4/09/2018	Normal	Hawkesbury Sandstone	<50	<50	-	-	-	-	-	-	<50	<5	-	<50

Draft

						enated Hydroca		Herbicides	Nitroaromatics and Keytones					Solvents			
						Bromomethane	Dichlorodifluoromethane	Pronamide	2-Picoline	4-aminobiphenyl	Acetophenone	N-Nitrosodiphenyl & Diphenylamine	Pentachloronitrobenzene	2-hexanone (MBK)	Carbon disulfide	Isophorone	Vinyl acetate
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL						50	50	2	2	2	2	4	2	50	5	2	50
ADWG 2011 Recreational (v3.6 updated 2021)						**10**		**700**					**300**				
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																	
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																	
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																	
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**												
Outside Buffer - Clyde Refinery	SMW_BH020	SMW_BH020	18/09/2018	Normal	Hawkesbury Sandstone	<50	<50	-	-	-	-	-	-	<50	<5	-	<50
Outside Buffer - Parramatta	SMW_BH014	SMW_BH014	9/03/2018	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	3/09/2018	Normal	Hawkesbury Sandstone	<50	<50	-	-	-	-	-	-	<50	8	-	<50
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	4/08/2020	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH027	SMW_BH027	9/04/2018	Normal	Hawkesbury Sandstone	<50	<50	-	-	-	-	-	-	<50	<5	-	<50
Outside Buffer - Silverwater	SMW_BH029	SMW_BH029	9/12/2018	Normal	Hawkesbury Sandstone	<50	<50	-	-	-	-	-	-	<50	<5	-	<50
Parramatta Station	SMW_BH002	SMW_BH002	4/09/2018	Normal	Hawkesbury Sandstone	<50	<50	-	-	-	-	-	-	<50	<5	-	<50
Parramatta Station	SMW_BH004_w	SMW_BH004_w	3/11/2020	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH048_w	SMW_BH048_w	3/11/2020	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-
Tunnel CJ/RCRB	SMW_BH057	SMW_BH057	11/12/2019	Normal	Hawkesbury Sandstone	<50	<50	<2	<2	<2	<2	<4	<2	<50	<5	<2	<50
Statistical Summary																	
Number of Results						29	29	11	11	11	11	11	11	23	23	13	23
Number of Detects						0	0	0	0	0	0	0	0	0	1	0	0
Minimum Concentration						<10	<10	<2	<2	<2	<2	<4	<2	<50	<5	<2	<50
Minimum Detect						ND	ND	ND	ND	ND	ND	ND	ND	ND	8	ND	ND
Maximum Concentration						<50	<50	<2	<2	<2	<2	<4	<2	<50	8	<2	<50
Maximum Detect						ND	ND	ND	ND	ND	ND	ND	ND	ND	8	ND	ND
Average Concentration						42	42	2	2	2	2	4	2	50	5.1	2	50
Median Concentration						50	50	2	2	2	2	4	2	50	5	2	50
Standard Deviation						16	16	0	0	0	0	0	0	0	0.63	0	0
Number of Guideline Exceedances						23	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)						0	0	0	0	0	0	0	0	0	0	0	0
95% UCL	(exceeds adopted criteria)																

Env Stds Comments

Data Comments

Draft

		Light Hydrocarbons	Phthalates						MAH					
		Methane	Bis(2-ethylhexyl) phthalate	Butyl benzyl phthalate	Diethylphthalate	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	Styrene	n-butylbenzene	n-propylbenzene
		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
EQL		10	10	2	2	2	2	2	5	5	5	5	5	5
ADWG 2011 Recreational (v3.6 updated 2021)			**100**									**300**		
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine														
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)											30			
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system														
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**											
Clyde Dive Site	SMW_ENV077	SMW_ENV077	13/11/2019	Normal	Ashfield Shale	<10	<10	<2	<2	<2	<2	<2	<5	<5	<5	<5	<5	<5
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Normal	Ashfield Shale	<10	<10	<2	<2	<2	<2	<2	<5	<5	<5	<5	<5	<5
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Field_D	Ashfield Shale	<10	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5
Silverwater	FD14	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	-	<10	<2	<2	<2	<2	<2	<5	<5	<5	<5	<5	<5
Silverwater	FD16	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	-	<10	<2	<2	<2	<2	<2	<5	<5	<5	<5	<5	<5
Silverwater	MW10D	MW10D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	<1	<1	<1	<1	<1	<1
Silverwater	MW12D	MW12D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	<1	<1	<1	<1	<1	<1
Silverwater	MW4D	MW4D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	<1	<1	<1	<1	<1	<1
Silverwater	SMW_BH709	SMW_BH709	26/03/2021	Normal	Ashfield Shale	-	<10	<2	<2	<2	<2	<2	<5	<5	<5	<5	<5	<5
Tunnel SW/SOP	SMW_BH121	SMW_BH121	10/03/2019	Normal	Ashfield Shale	<10	<10	<2	<2	<2	<2	<2	<5	<5	<5	<5	<5	<5
Westmead Station	SMW_BH701	SMW_BH701	1/04/2021	Normal	Ashfield Shale	-	<10	<2	2	<2	<2	<2	<5	<5	<5	<5	<5	<5
Clyde Dive Site	SMW_BH043	SMW_BH043	20/08/2020	Normal	Ashfield Shale	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5
Clyde Dive Site	SMW_BH064	SMW_BH064	13/11/2019	Normal	Ashfield Shale	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5
Outside Buffer - Clyde Refinery	SMW_BH011	SMW_BH011	18/09/2018	Normal	Ashfield Shale	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5
Outside Buffer - Clyde Refinery	SMW_BH021	SMW_BH021	18/09/2018	Normal	Ashfield Shale	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5
Silverwater	Dup1 (MW1D)	MW1D	25/07/2011	Field_D	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	<1	<1	-	<1
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	<1	<1	<1	<1	<1	<1
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	<1	<1	<1	<1	<1	<1
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale	<10	<10	<2	<2	<2	<2	<2	<5	<5	<5	<5	<5	<5
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation	<10	-	-	-	-	-	-	-	-	-	-	-	-
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation	-	<10	<2	<2	<2	<2	<2	<5	<5	<5	<5	<5	<5
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	-	-	-	-	-
Clyde MSF	SMW_BH707	SMW_BH707	7/05/2021	Normal	Hawkesbury Sandstone	-	<10	<2	22	<2	<2	<2	<5	<5	<5	<5	<5	<5
Outside - Rosehill	SMW_BH007	SMW_BH007	4/09/2018	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5

Draft

						Light Hydrocarbons	Phthalates						MAH					
						Methane	Bis(2-ethylhexyl) phthalate	Butyl benzyl phthalate	Diethylphthalate	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	Styrene	n-butylbenzene	n-propylbenzene
						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
EQL						10	10	2	2	2	2	2	5	5	5	5	5	5
ADWG 2011 Recreational (v3.6 updated 2021)							**100**									**300**		
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																		
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)															30			
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																		
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**													
Outside Buffer - Clyde Refinery	SMW_BH020	SMW_BH020	18/09/2018	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5
Outside Buffer - Parramatta	SMW_BH014	SMW_BH014	9/03/2018	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	3/09/2018	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	4/08/2020	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH027	SMW_BH027	9/04/2018	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5
Outside Buffer - Silverwater	SMW_BH029	SMW_BH029	9/12/2018	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5
Parramatta Station	SMW_BH002	SMW_BH002	4/09/2018	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5
Parramatta Station	SMW_BH004_w	SMW_BH004_w	3/11/2020	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH048_w	SMW_BH048_w	3/11/2020	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunnel CJ/RCRB	SMW_BH057	SMW_BH057	11/12/2019	Normal	Hawkesbury Sandstone	-	<10	<2	<2	<2	<2	<2	<5	<5	<5	<5	<5	<5
Statistical Summary																		
Number of Results						6	11	11	11	11	11	11	28	28	29	29	28	29
Number of Detects						0	0	0	2	0	0	0	0	0	0	0	0	0
Minimum Concentration						<10	<10	<2	<2	<2	<2	<2	<1	<1	<1	<1	<1	<1
Minimum Detect						ND	ND	ND	2	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration						<10	<10	<2	22	<2	<2	<2	<5	<5	<5	<5	<5	<5
Maximum Detect						ND	ND	ND	22	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration						10	10	2	3.8	2	2	2	4.3	4.3	4.2	4.2	4.3	4.2
Median Concentration						10	10	2	2	2	2	2	5	5	5	5	5	5
Standard Deviation						0	0	0	6	0	0	0	1.6	1.6	1.6	1.6	1.6	1.6
Number of Guideline Exceedances						0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)						0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL	(exceeds adopted criteria)																	
Env Stds Comments																		
Data Comments																		

Draft

| | | |

						sec-butylbenzene	tert-butylbenzene	p-isopropyltoluene	1-naphthylamine	2-(acetylamino) fluorene	2-nitroaniline	3,3-Dichlorobenzidine	3-nitroaniline	4-(dimethylamino) azobenzene	4-bromophenyl phenyl ether	4-chloroaniline	4-chlorophenyl phenyl ether	4-nitroaniline	4-Nitroquinoline-N-oxide	5-nitro-o-toluidine	Aniline	Azobenzene
						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	µg/L	µg/L
EQL						5	5	5	2	2	4	2	4	2	2	2	2	2	2	2	2	2
ADWG 2011 Recreational (v3.6 updated 2021)																						
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																						
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																						
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																						
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																	
Outside Buffer - Clyde Refinery	SMW_BH020	SMW_BH020	18/09/2018	Normal	Hawkesbury Sandstone	<5	<5	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Parramatta	SMW_BH014	SMW_BH014	9/03/2018	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	3/09/2018	Normal	Hawkesbury Sandstone	<5	<5	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	4/08/2020	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH027	SMW_BH027	9/04/2018	Normal	Hawkesbury Sandstone	<5	<5	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH029	SMW_BH029	9/12/2018	Normal	Hawkesbury Sandstone	<5	<5	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH002	SMW_BH002	4/09/2018	Normal	Hawkesbury Sandstone	<5	<5	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH004_w	SMW_BH004_w	3/11/2020	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH048_w	SMW_BH048_w	3/11/2020	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunnel CJ/RCRB	SMW_BH057	SMW_BH057	11/12/2019	Normal	Hawkesbury Sandstone	<5	<5	<5	<2	<2	<4	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2
Statistical Summary																						
Number of Results						28	28	28	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Number of Detects						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration						<1	<1	<1	<2	<2	<4	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2
Minimum Detect						ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration						<5	<5	<5	<2	<2	<4	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2
Maximum Detect						ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration						4.3	4.3	4.3	2	2	4	2	4	2	2	2	2	2	2	2	2	2
Median Concentration						5	5	5	2	2	4	2	4	2	2	2	2	2	2	2	2	2
Standard Deviation						1.6	1.6	1.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL	(exceeds adopted criteria)																					
Env Stds Comments																						
Data Comments																						

Draft

							SVOCs															
							Bis(2-chloroethoxy) methane	Bis(2-chloroethyl)ether	Carbazole	Chlorobenzilate	Dibenzofuran	Hexachlorocyclopentadiene	Hexachloroethane	Hexachloropropene	Methapyrilene	N-nitrosodiethylamine	N-nitrosodi-n-butylamine	N-nitrosodi-n-propylamine	N-Nitrosomethylethylamine	N-nitrosomorpholine	N-nitrosopiperidine	N-nitrosopyrrolidine	Pentachlorobenzene
							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	µg/L	µg/L
EQL							2	2	2	2	2	10	2	2	2	2	2	2	2	2	2	4	2
ADWG 2011 Recreational (v3.6 updated 2021)																							
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																							
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																							2
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																							
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																		
Clyde Dive Site	SMW_ENV077	SMW_ENV077	13/11/2019	Normal	Ashfield Shale		<2	<2	<2	<2	<2	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Normal	Ashfield Shale		<2	<2	<2	<2	<2	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Field_D	Ashfield Shale		-	-	-	-	-	-	<2	-	-	-	-	-	-	-	-	-	-
Silverwater	FD14	SMW_BH709	26/03/2021	Field_D	Ashfield Shale		<2	<2	<2	<2	<2	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2
Silverwater	FD16	SMW_BH709	26/03/2021	Field_D	Ashfield Shale		<2	<2	<2	<2	<2	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2
Silverwater	MW10D	MW10D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW12D	MW12D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/07/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	SMW_BH709	SMW_BH709	26/03/2021	Normal	Ashfield Shale		<2	<2	<2	<2	<2	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2
Tunnel SW/SOP	SMW_BH121	SMW_BH121	10/03/2019	Normal	Ashfield Shale		<2	<2	<2	<2	<2	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2
Westmead Station	SMW_BH701	SMW_BH701	1/04/2021	Normal	Ashfield Shale		<2	<2	<2	<2	<2	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2
Clyde Dive Site	SMW_BH043	SMW_BH043	20/08/2020	Normal	Ashfield Shale		-	-	-	-	-	-	<2	-	-	-	-	-	-	-	-	-	-
Clyde Dive Site	SMW_BH064	SMW_BH064	13/11/2019	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Clyde Refinery	SMW_BH011	SMW_BH011	18/09/2018	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Clyde Refinery	SMW_BH021	SMW_BH021	18/09/2018	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	Dup1 (MW1D)	MW1D	25/07/2011	Field_D	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/07/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale		<2	<2	<2	<2	<2	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation		<2	<2	<2	<2	<2	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clyde MSF	SMW_BH707	SMW_BH707	7/05/2021	Normal	Hawkesbury Sandstone		<2	<2	<2	<2	<2	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2
Outside - Rosehill	SMW_BH007	SMW_BH007	4/09/2018	Normal	Hawkesbury Sandstone		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Draft

							SVOCs													
							Bis(2-chloroethoxy) methane	Bis(2-chloroethyl)ether	Carbazole	Chlorobenzilate	Dibenzofuran	Hexachlorocyclopentadiene	Hexachloroethane	Hexachloropropene	Methapyrilene	N-nitrosodiethylamine	N-nitrosodi-n-butylamine	N-nitrosodi-n-propylamine	N-Nitrosomethylethylamine	N-nitrosomorpholine	N-nitrosopiperidine	N-nitrosopyrrolidine	Pentachlorobenzene
							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	µg/L	µg/L
EQL							2	2	2	2	2	10	2	2	2	2	2	2	2	2	2	4	2
ADWG 2011 Recreational (v3.6 updated 2021)																							
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																							
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																							2
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																							
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																		
Outside Buffer - Clyde Refinery	SMW_BH020	SMW_BH020	18/09/2018	Normal	Hawkesbury Sandstone		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Parramatta	SMW_BH014	SMW_BH014	9/03/2018	Normal	Hawkesbury Sandstone		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	3/09/2018	Normal	Hawkesbury Sandstone		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	4/08/2020	Normal	Hawkesbury Sandstone		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH027	SMW_BH027	9/04/2018	Normal	Hawkesbury Sandstone		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH029	SMW_BH029	9/12/2018	Normal	Hawkesbury Sandstone		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH002	SMW_BH002	4/09/2018	Normal	Hawkesbury Sandstone		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH004_w	SMW_BH004_w	3/11/2020	Normal	Hawkesbury Sandstone		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH048_w	SMW_BH048_w	3/11/2020	Normal	Hawkesbury Sandstone		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunnel CJ/RCRB	SMW_BH057	SMW_BH057	11/12/2019	Normal	Hawkesbury Sandstone		<2	<2	<2	<2	<2	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2
Statistical Summary																							
Number of Results							11	11	11	11	11	11	13	11	11	11	11	11	11	11	11	11	11
Number of Detects							0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration							<2	<2	<2	<2	<2	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2
Minimum Detect							ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration							<2	<2	<2	<2	<2	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2
Maximum Detect							ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration							2	2	2	2	2	10	2	2	2	2	2	2	2	2	2	4	2
Median Concentration							2	2	2	2	2	10	2	2	2	2	2	2	2	2	2	4	2
Standard Deviation							0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances							0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)							0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL	(exceeds adopted criteria)																						

Env Stds Comments

Data Comments

Draft

																				VOCs
							Phenacetin	Benzo(b+j) & Benzo(k)fluoranthene EP075-EM	1,1-dichloroethane	1,2,3-trichlorobenzene	1,2,3-trichloropropane	1,2-dibromoethane	1,3-dichlorobenzene	2-butanone (MEK)	4-methyl-2-pentanone (MIBK)	Bromodichloromethane	Bromoform	Chlorodibromomethane	Chloroethane	cis-1,3-dichloropropene	cis-1,4-Dichloro-2-butene
							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
EQL							2		5	5	5	5	2	50	50	5	5	5	50	5	5
ADWG 2011 Recreational (v3.6 updated 2021)												10								
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																				
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																				
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																				
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**															
Clyde Dive Site	SMW_ENV077	SMW_ENV077	13/11/2019	Normal	Ashfield Shale		<2	<4	<5	<5	<5	<5	<2	<50	<50	<5	<5	<5	<50	<5	<5
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Normal	Ashfield Shale		<2	<4	<5	<5	<5	<5	<2	<50	<50	<5	<5	<5	<50	<5	<5
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Field_D	Ashfield Shale		-	<4	<5	<5	<5	<5	<2	<50	<50	<5	<5	<5	<50	<5	<5
Silverwater	FD14	SMW_BH709	26/03/2021	Field_D	Ashfield Shale		<2	-	<5	<5	<5	<5	<2	<50	<50	<5	<5	<5	<50	<5	<5
Silverwater	FD16	SMW_BH709	26/03/2021	Field_D	Ashfield Shale		<2	-	<5	<5	<5	<5	<2	<50	<50	<5	<5	<5	<50	<5	<5
Silverwater	MW10D	MW10D	25/08/2011	Normal	Ashfield Shale		-	-	<1	<1	<1	<1	<1	-	-	<1	<1	<1	<10	<1	-
Silverwater	MW12D	MW12D	25/08/2011	Normal	Ashfield Shale		-	-	<1	<1	<1	<1	<1	-	-	<1	<1	<1	<10	<1	-
Silverwater	MW4D	MW4D	25/07/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/08/2011	Normal	Ashfield Shale		-	-	<1	<1	<1	<1	<1	-	-	<1	<1	<1	<10	<1	-
Silverwater	SMW_BH709	SMW_BH709	26/03/2021	Normal	Ashfield Shale		<2	-	<5	<5	<5	<5	<2	<50	<50	<5	<5	<5	<50	<5	<5
Tunnel SW/SOP	SMW_BH121	SMW_BH121	10/03/2019	Normal	Ashfield Shale		<2	<4	<5	<5	<5	<5	<2	<50	<50	<5	<5	<5	<50	<5	<5
Westmead Station	SMW_BH701	SMW_BH701	1/04/2021	Normal	Ashfield Shale		<2	-	<5	<5	<5	<5	<2	<50	<50	<5	<5	<5	<50	<5	<5
Clyde Dive Site	SMW_BH043	SMW_BH043	20/08/2020	Normal	Ashfield Shale		-	-	<5	<5	<5	<5	<2	<50	<50	<5	<5	<5	<50	<5	<5
Clyde Dive Site	SMW_BH064	SMW_BH064	13/11/2019	Normal	Ashfield Shale		-	-	<5	<5	<5	<5	<5	<50	<50	<5	<5	<5	<50	<5	<5
Outside Buffer - Clyde Refinery	SMW_BH011	SMW_BH011	18/09/2018	Normal	Ashfield Shale		-	-	<5	<5	<5	<5	<5	<50	<50	<5	<5	<5	<50	<5	<5
Outside Buffer - Clyde Refinery	SMW_BH021	SMW_BH021	18/09/2018	Normal	Ashfield Shale		-	-	<5	<5	<5	<5	<5	<50	<50	<5	<5	<5	<50	<5	<5
Silverwater	Dup1 (MW1D)	MW1D	25/07/2011	Field_D	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/07/2011	Normal	Ashfield Shale		-	-	<1	-	<1	<1	-	-	-	<1	<1	<1	<10	<1	-
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale		-	-	<1	<1	<1	<1	<1	-	-	<1	<1	<1	<10	<1	-
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale		-	-	<1	<1	<1	<1	<1	-	-	<1	<1	<1	<10	<1	-
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale		<2	-	<5	<5	<5	<5	<2	<50	<50	<5	<5	<5	<50	<5	<5
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation		-	-	<5	<5	<5	<5	<5	<50	<50	<5	<5	<5	<50	<5	<5
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation		<2	<4	<5	<5	<5	<5	<2	<50	<50	<5	<5	<5	<50	<5	<5
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clyde MSF	SMW_BH707	SMW_BH707	7/05/2021	Normal	Hawkesbury Sandstone		<2	<4	<5	<5	<5	<5	<2	<50	<50	<5	<5	<5	<50	<5	<5
Outside - Rosehill	SMW_BH007	SMW_BH007	4/09/2018	Normal	Hawkesbury Sandstone		-	-	<5	<5	<5	<5	<5	<50	<50	<5	<5	<5	<50	<5	<5

Draft

| | | |

													PFAS - F			
							Cyclohexane	Dibromomethane	Iodomethane	Pentachloroethane	Trichloroethene	Tetrachloroethene	trans-1,3-dichloropropene	trans-1,2-dichloroethene	trans-1,4-Dichloro-2-butene	Trichlorofluoromethane	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)
							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
EQL								5	5	5	5	5	5	5	5	50	0.1	0.02	0.02	0.02
ADWG 2011 Recreational (v3.6 updated 2021)												**500**								
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																				
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)										80	330	70								
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																				
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**															
Clyde Dive Site	SMW_ENV077	SMW_ENV077	13/11/2019	Normal	Ashfield Shale		-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.2	<0.05	<0.05	<0.05
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Normal	Ashfield Shale		-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.2	<0.05	<0.05	<0.05
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Field_D	Ashfield Shale		-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.2	<0.05	<0.05	<0.05
Silverwater	FD14	SMW_BH709	26/03/2021	Field_D	Ashfield Shale		-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.1	<0.02	<0.02	<0.02
Silverwater	FD16	SMW_BH709	26/03/2021	Field_D	Ashfield Shale		-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.1	<0.02	<0.02	<0.02
Silverwater	MW10D	MW10D	25/08/2011	Normal	Ashfield Shale		<1	<1	-	-	<1	<1	<1	<1	-	<10	-	-	-	-
Silverwater	MW12D	MW12D	25/08/2011	Normal	Ashfield Shale		<1	<1	-	-	2	<1	<1	<1	-	<10	-	-	-	-
Silverwater	MW4D	MW4D	25/07/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/08/2011	Normal	Ashfield Shale		<1	<1	-	-	<1	<1	<1	<1	-	<10	-	-	-	-
Silverwater	SMW_BH709	SMW_BH709	26/03/2021	Normal	Ashfield Shale		-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.1	<0.02	<0.02	<0.02
Tunnel SW/SOP	SMW_BH121	SMW_BH121	10/03/2019	Normal	Ashfield Shale		-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.2	<0.05	<0.05	<0.05
Westmead Station	SMW_BH701	SMW_BH701	1/04/2021	Normal	Ashfield Shale		-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.1	<0.02	<0.02	<0.02
Clyde Dive Site	SMW_BH043	SMW_BH043	20/08/2020	Normal	Ashfield Shale		-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.1	<0.02	<0.02	<0.02
Clyde Dive Site	SMW_BH064	SMW_BH064	13/11/2019	Normal	Ashfield Shale		-	<5	<5	<5	<5	<5	<5	<5	<5	<50	0.3	2.07	1.02	0.04
Outside Buffer - Clyde Refinery	SMW_BH011	SMW_BH011	18/09/2018	Normal	Ashfield Shale		-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.2	<0.05	<0.05	<0.05
Outside Buffer - Clyde Refinery	SMW_BH021	SMW_BH021	18/09/2018	Normal	Ashfield Shale		-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.2	<0.05	<0.05	<0.05
Silverwater	Dup1 (MW1D)	MW1D	25/07/2011	Field_D	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/07/2011	Normal	Ashfield Shale		<1	21	-	-	<1	<1	<1	<1	-	<10	-	-	-	-
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale		<1	<1	-	-	16	<1	<1	<1	-	<10	-	-	-	-
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale		<1	<1	-	-	<1	<1	<1	<1	-	<10	-	-	-	-
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale		-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.25	<0.05	<0.05	<0.05
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation		-	<5	<5	<5	<5	<5	<5	<5	<5	<50	-	-	-	-
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation		-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation		-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.2	<0.05	<0.05	<0.05
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clyde MSF	SMW_BH707	SMW_BH707	7/05/2021	Normal	Hawkesbury Sandstone		-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.1	<0.02	<0.02	<0.02
Outside - Rosehill	SMW_BH007	SMW_BH007	4/09/2018	Normal	Hawkesbury Sandstone		-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.2	<0.05	<0.05	<0.05

Draft

													PFAS - F			
							Cyclohexane	Dibromomethane	Iodomethane	Pentachloroethane	Trichloroethene	Tetrachloroethene	trans-1,3-dichloropropene	trans-1,2-dichloroethene	trans-1,4-Dichloro-2-butene	Trichlorofluoromethane	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)
							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
EQL								5	5	5	5	5	5	5	5	50	0.1	0.02	0.02	0.02
ADWG 2011 Recreational (v3.6 updated 2021)												**500**								
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																				
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)										80	330	70								
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																				
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**															
Outside Buffer - Clyde Refinery	SMW_BH020	SMW_BH020	18/09/2018	Normal	Hawkesbury Sandstone	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.2	<0.05	<0.05	<0.05
Outside Buffer - Parramatta	SMW_BH014	SMW_BH014	9/03/2018	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	3/09/2018	Normal	Hawkesbury Sandstone	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.1	<0.02	<0.02	<0.02
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	4/08/2020	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH027	SMW_BH027	9/04/2018	Normal	Hawkesbury Sandstone	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.2	<0.05	<0.05	<0.05
Outside Buffer - Silverwater	SMW_BH029	SMW_BH029	9/12/2018	Normal	Hawkesbury Sandstone	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.1	<0.02	<0.02	<0.02
Parramatta Station	SMW_BH002	SMW_BH002	4/09/2018	Normal	Hawkesbury Sandstone	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	-	-	-	-
Parramatta Station	SMW_BH004_w	SMW_BH004_w	3/11/2020	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	<0.1	<0.02	<0.02	<0.02
Parramatta Station	SMW_BH048_w	SMW_BH048_w	3/11/2020	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	<0.1	0.04	0.04	<0.02
Tunnel CJ/RCRB	SMW_BH057	SMW_BH057	11/12/2019	Normal	Hawkesbury Sandstone	-	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.2	<0.05	<0.05	<0.05
Statistical Summary																				
Number of Results						6	29	23	23	29	29	29	29	23	29	23	23	23	23
Number of Detects						0	1	0	0	2	0	0	0	0	0	1	2	2	1
Minimum Concentration						<1	<1	<5	<5	<1	<1	<1	<1	<5	<10	<0.1	<0.02	<0.02	<0.02
Minimum Detect						ND	21	ND	ND	2	ND	ND	ND	ND	ND	0.3	0.04	0.04	0.04
Maximum Concentration						<1	21	<5	<5	16	<5	<5	<5	<5	<50	0.3	2.07	1.02	<0.05
Maximum Detect						ND	21	ND	ND	16	ND	ND	ND	ND	ND	0.3	2.07	1.02	0.04
Average Concentration						1	4.9	5	5	4.7	4.2	4.2	4.2	5	42	0.16	0.13	0.08	0.037
Median Concentration						1	5	5	5	5	5	5	5	5	50	0.2	0.05	0.05	0.05
Standard Deviation						0	3.5	0	0	2.6	1.6	1.6	1.6	0	16	0.061	0.42	0.21	0.015
Number of Guideline Exceedances						0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)						0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL	(exceeds adopted criteria)																			

Env Stds Comments

Data Comments

Draft

						Perfluoroalkyl Carboxylic Acids							PFAS - Perfluoroalkyl Sulfonic Acids					
						Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecanesulfonic acid (PFDS)	Perfluorodecane sulfonic acid ammonium salt
						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
EQL						0.01	0.02	0.02	0.02	0.02	0.02	0.05	0.02	0.02	0.02	0.01	0.02	
ADWG 2011 Recreational (v3.6 updated 2021)						5.6												
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																		
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																		
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system						19										0.00023		
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**													
Clyde Dive Site	SMW_ENV077	SMW_ENV077	13/11/2019	Normal	Ashfield Shale	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	-	<0.05
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Normal	Ashfield Shale	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	-	<0.05
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Field_D	Ashfield Shale	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	-	<0.05
Silverwater	FD14	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.01	-	<0.02
Silverwater	FD16	SMW_BH709	26/03/2021	Field_D	Ashfield Shale	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.01	-	<0.02
Silverwater	MW10D	MW10D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW12D	MW12D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	SMW_BH709	SMW_BH709	26/03/2021	Normal	Ashfield Shale	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.01	-	<0.02
Tunnel SW/SOP	SMW_BH121	SMW_BH121	10/03/2019	Normal	Ashfield Shale	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	-	<0.05
Westmead Station	SMW_BH701	SMW_BH701	1/04/2021	Normal	Ashfield Shale	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.01	-	<0.02
Clyde Dive Site	SMW_BH043	SMW_BH043	20/08/2020	Normal	Ashfield Shale	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.01	-	<0.02
Clyde Dive Site	SMW_BH064	SMW_BH064	13/11/2019	Normal	Ashfield Shale	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.01	-	<0.02
Outside Buffer - Clyde Refinery	SMW_BH011	SMW_BH011	18/09/2018	Normal	Ashfield Shale	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	-
Outside Buffer - Clyde Refinery	SMW_BH021	SMW_BH021	18/09/2018	Normal	Ashfield Shale	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	-
Silverwater	Dup1 (MW1D)	MW1D	25/07/2011	Field_D	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale	<0.05	-	-	-	-	-	-	<0.05	-	<0.05	<0.05	-	-
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	-	-	-	-	-
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation	<0.05	-	-	-	-	-	-	<0.05	-	<0.05	<0.05	-	-
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	-	-	-	-	-
Clyde MSF	SMW_BH707	SMW_BH707	7/05/2021	Normal	Hawkesbury Sandstone	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.01	-	<0.02
Outside - Rosehill	SMW_BH007	SMW_BH007	4/09/2018	Normal	Hawkesbury Sandstone	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	-	<0.05

Draft

						Perfluoroalkyl Carboxylic Acids							PFAS - Perfluoroalkyl Sulfonic Acids					
						Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecanesulfonic acid (PFDS)	Perfluorodecane sulfonic acid ammonium salt
						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
EQL						0.01	0.02	0.02	0.02	0.02	0.02	0.05	0.02	0.02	0.02	0.01	0.02	
ADWG 2011 Recreational (v3.6 updated 2021)						**5.6**												
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																		
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																		
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system						19										0.00023		
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**													
Outside Buffer - Clyde Refinery	SMW_BH020	SMW_BH020	18/09/2018	Normal	Hawkesbury Sandstone	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	-
Outside Buffer - Parramatta	SMW_BH014	SMW_BH014	9/03/2018	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	3/09/2018	Normal	Hawkesbury Sandstone	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.01	-	<0.02
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	4/08/2020	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH027	SMW_BH027	9/04/2018	Normal	Hawkesbury Sandstone	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	-	<0.05
Outside Buffer - Silverwater	SMW_BH029	SMW_BH029	9/12/2018	Normal	Hawkesbury Sandstone	<0.01	-	-	-	-	-	-	<0.02	-	<0.02	<0.01	-	-
Parramatta Station	SMW_BH002	SMW_BH002	4/09/2018	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH004_w	SMW_BH004_w	3/11/2020	Normal	Hawkesbury Sandstone	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.01	-	<0.02
Parramatta Station	SMW_BH048_w	SMW_BH048_w	3/11/2020	Normal	Hawkesbury Sandstone	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	0.01	-	-
Tunnel CJ/RCRB	SMW_BH057	SMW_BH057	11/12/2019	Normal	Hawkesbury Sandstone	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	-	<0.05
Statistical Summary																		
Number of Results						23	20	20	20	20	20	20	23	20	23	23	3	16
Number of Detects						1	0	0	0	0	0	0	0	0	0	1	0	0
Minimum Concentration						<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.01	<0.05	<0.02
Minimum Detect						0.03	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.01	ND	ND
Maximum Concentration						<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Maximum Detect						0.03	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.01	ND	ND
Average Concentration						0.032	0.035	0.035	0.035	0.035	0.035	0.085	0.036	0.035	0.036	0.031	0.05	0.033
Median Concentration						0.05	0.035	0.035	0.035	0.035	0.035	0.085	0.05	0.035	0.05	0.05	0.05	0.02
Standard Deviation						0.02	0.015	0.015	0.015	0.015	0.015	0.036	0.015	0.015	0.015	0.02	0	0.015
Number of Guideline Exceedances						0	0	0	0	0	0	0	0	0	0	23	0	0
Number of Guideline Exceedances(Detects Only)						0	0	0	0	0	0	0	0	0	0	1	0	0
95% UCL	(exceeds adopted criteria)															0.0494		

Env Stds Comments

Data Comments

Draft

							PFAS - Perfluoroalkyl Sulfonamide					AS - Fluorotelomer Sulfonic Ac								PFAS
							Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamidoethanol (MEFOSE)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	PFAS (Sum of Total)	PFAS (Sum of Total)(WA DER List)	PFOS/PFHxS (Sum of Total) - Auto Calc	Perfluoroheptanesulfonic acid
							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
EQL							0.02	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.01	0.01		
ADWG 2011 Recreational (v3.6 updated 2021)																		0.7	
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																			
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																			
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																			
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**														
Clyde Dive Site	SMW_ENV077	SMW_ENV077	13/11/2019	Normal	Ashfield Shale		<0.05	<0.05	<0.05	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Normal	Ashfield Shale		<0.05	<0.05	<0.05	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Field_D	Ashfield Shale		<0.05	<0.05	<0.05	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silverwater	FD14	SMW_BH709	26/03/2021	Field_D	Ashfield Shale		<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.02
Silverwater	FD16	SMW_BH709	26/03/2021	Field_D	Ashfield Shale		<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.02
Silverwater	MW10D	MW10D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW12D	MW12D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/07/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW4D	MW4D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	SMW_BH709	SMW_BH709	26/03/2021	Normal	Ashfield Shale		<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.02
Tunnel SW/SOP	SMW_BH121	SMW_BH121	10/03/2019	Normal	Ashfield Shale		<0.05	<0.05	<0.05	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Westmead Station	SMW_BH701	SMW_BH701	1/04/2021	Normal	Ashfield Shale		<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.02
Clyde Dive Site	SMW_BH043	SMW_BH043	20/08/2020	Normal	Ashfield Shale		<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.02
Clyde Dive Site	SMW_BH064	SMW_BH064	13/11/2019	Normal	Ashfield Shale		<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	3.43	3.43	<0.01	<0.02
Outside Buffer - Clyde Refinery	SMW_BH011	SMW_BH011	18/09/2018	Normal	Ashfield Shale		<0.05	<0.12	<0.12	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	<0.05
Outside Buffer - Clyde Refinery	SMW_BH021	SMW_BH021	18/09/2018	Normal	Ashfield Shale		<0.05	<0.12	<0.12	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	<0.05
Silverwater	Dup1 (MW1D)	MW1D	25/07/2011	Field_D	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/07/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale		-	-	-	-	-	-	-	-	-	-	-	-	-
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale		-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	-
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation		-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation		-	-	-	-	-	-	-	-	-	-	-	-	-
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation		-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	-
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation		-	-	-	-	-	-	-	-	-	-	-	-	-
Clyde MSF	SMW_BH707	SMW_BH707	7/05/2021	Normal	Hawkesbury Sandstone		<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.02
Outside - Rosehill	SMW_BH007	SMW_BH007	4/09/2018	Normal	Hawkesbury Sandstone		<0.05	<0.12	<0.12	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	<0.05

Draft

							PFAS - Perfluoroalkyl Sulfonamide					\S - Fluorotelomer Sulfonic Ac							PFAS
							Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamidoethanol (MEFOSE)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	PFAS (Sum of Total)	PFAS (Sum of Total)(WA DER List)	PFOS/PFHxS (Sum of Total) - Auto Calc	Perfluoroheptanesulfonic acid
							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
EQL							0.02	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.01	0.01		
ADWG 2011 Recreational (v3.6 updated 2021)																		0.7	
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																			
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																			
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																			
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**														
Outside Buffer - Clyde Refinery	SMW_BH020	SMW_BH020	18/09/2018	Normal	Hawkesbury Sandstone		<0.05	<0.12	<0.12	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	<0.05
Outside Buffer - Parramatta	SMW_BH014	SMW_BH014	9/03/2018	Normal	Hawkesbury Sandstone		-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	3/09/2018	Normal	Hawkesbury Sandstone		<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	<0.01	<0.02
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	4/08/2020	Normal	Hawkesbury Sandstone		-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH027	SMW_BH027	9/04/2018	Normal	Hawkesbury Sandstone		<0.05	<0.12	<0.12	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	<0.05
Outside Buffer - Silverwater	SMW_BH029	SMW_BH029	9/12/2018	Normal	Hawkesbury Sandstone		-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.01	-
Parramatta Station	SMW_BH002	SMW_BH002	4/09/2018	Normal	Hawkesbury Sandstone		-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH004_w	SMW_BH004_w	3/11/2020	Normal	Hawkesbury Sandstone		<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.02
Parramatta Station	SMW_BH048_w	SMW_BH048_w	3/11/2020	Normal	Hawkesbury Sandstone		<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.36	0.12	0.01	<0.02
Tunnel CJ/RCRB	SMW_BH057	SMW_BH057	11/12/2019	Normal	Hawkesbury Sandstone		<0.05	<0.05	<0.05	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Statistical Summary																			
Number of Results							20	20	20	20	20	23	23	23	23	14	16	23	20
Number of Detects							0	0	0	0	0	0	0	0	0	2	2	1	0
Minimum Concentration							<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.02
Minimum Detect							ND	ND	ND	ND	ND	ND	ND	ND	ND	0.36	0.12	0.01	ND
Maximum Concentration							<0.05	<0.12	<0.12	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	3.43	3.43	<0.05	<0.05
Maximum Detect							ND	ND	ND	ND	ND	ND	ND	ND	ND	3.43	3.43	0.01	ND
Average Concentration							0.035	0.062	0.062	0.085	0.085	0.05	0.05	0.05	0.05	0.29	0.25	0.031	0.035
Median Concentration							0.035	0.05	0.05	0.085	0.085	0.05	0.05	0.05	0.05	0.03	0.05	0.05	0.035
Standard Deviation							0.015	0.037	0.037	0.036	0.036	0	0	0	0	0.91	0.85	0.02	0.015
Number of Guideline Exceedances							0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)							0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL	(exceeds adopted criteria)																		

Env Stds Comments

Data Comments

Draft

EQL
ADWG 2011 Recreational (v3.6 updated 2021)
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system

Monitoring_Zone	Field_ID	Location_Code	Sampled_Date_Time	Sample_Type	Alternative_Name
Clyde Dive Site	SMW_ENV077	SMW_ENV077	13/11/2019	Normal	Ashfield Shale
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Normal	Ashfield Shale
Clyde Dive Site	SMW_ENV078	SMW_ENV078	13/11/2019	Field_D	Ashfield Shale
Silverwater	FD14	SMW_BH709	26/03/2021	Field_D	Ashfield Shale
Silverwater	FD16	SMW_BH709	26/03/2021	Field_D	Ashfield Shale
Silverwater	MW10D	MW10D	25/08/2011	Normal	Ashfield Shale
Silverwater	MW12D	MW12D	25/08/2011	Normal	Ashfield Shale
Silverwater	MW4D	MW4D	25/07/2011	Normal	Ashfield Shale
Silverwater	MW4D	MW4D	25/08/2011	Normal	Ashfield Shale
Silverwater	SMW_BH709	SMW_BH709	26/03/2021	Normal	Ashfield Shale
Tunnel SW/SOP	SMW_BH121	SMW_BH121	10/03/2019	Normal	Ashfield Shale
Westmead Station	SMW_BH701	SMW_BH701	1/04/2021	Normal	Ashfield Shale
Clyde Dive Site	SMW_BH043	SMW_BH043	20/08/2020	Normal	Ashfield Shale
Clyde Dive Site	SMW_BH064	SMW_BH064	13/11/2019	Normal	Ashfield Shale
Outside Buffer - Clyde Refinery	SMW_BH011	SMW_BH011	18/09/2018	Normal	Ashfield Shale
Outside Buffer - Clyde Refinery	SMW_BH021	SMW_BH021	18/09/2018	Normal	Ashfield Shale
Silverwater	Dup1 (MW1D)	MW1D	25/07/2011	Field_D	Ashfield Shale
Silverwater	MW1D	MW1D	25/07/2011	Normal	Ashfield Shale
Silverwater	MW1D	MW1D	25/08/2011	Normal	Ashfield Shale
Silverwater	MW3D	MW3D	25/07/2011	Normal	Ashfield Shale
Silverwater	MW3D	MW3D	25/08/2011	Normal	Ashfield Shale
Tunnel SW/SOP	SMW_BH070	SMW_BH070	12/04/2019	Normal	Ashfield Shale
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation
Clyde MSF	SMW_BH707	SMW_BH707	7/05/2021	Normal	Hawkesbury Sandstone
Outside - Rosehill	SMW_BH007	SMW_BH007	4/09/2018	Normal	Hawkesbury Sandstone

Draft

Draft

EQL					
ADWG 2011 Recreational (v3.6 updated 2021)					
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine					
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)					
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system					
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**
Outside Buffer - Clyde Refinery	SMW_BH020	SMW_BH020	18/09/2018	Normal	Hawkesbury Sandstone
Outside Buffer - Parramatta	SMW_BH014	SMW_BH014	9/03/2018	Normal	Hawkesbury Sandstone
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	3/09/2018	Normal	Hawkesbury Sandstone
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	4/08/2020	Normal	Hawkesbury Sandstone
Outside Buffer - Silverwater	SMW_BH027	SMW_BH027	9/04/2018	Normal	Hawkesbury Sandstone
Outside Buffer - Silverwater	SMW_BH029	SMW_BH029	9/12/2018	Normal	Hawkesbury Sandstone
Parramatta Station	SMW_BH002	SMW_BH002	4/09/2018	Normal	Hawkesbury Sandstone
Parramatta Station	SMW_BH004_w	SMW_BH004_w	3/11/2020	Normal	Hawkesbury Sandstone
Parramatta Station	SMW_BH048_w	SMW_BH048_w	3/11/2020	Normal	Hawkesbury Sandstone
Tunnel CJ/RCRB	SMW_BH057	SMW_BH057	11/12/2019	Normal	Hawkesbury Sandstone

Statistical Summary	
Number of Results	
Number of Detects	
Minimum Concentration	
Minimum Detect	
Maximum Concentration	
Maximum Detect	
Average Concentration	
Median Concentration	
Standard Deviation	
Number of Guideline Exceedances	
Number of Guideline Exceedances(Detects Only)	
95% UCL	(exceeds adopted criteria)

Env Stds Comments

Data Comments

				Inorganics					Major Ions												Minor Ions			Nutrients							
				pH (Lab)	Electrical conductivity (lab)	Total Dissolved Solids @ 180°C	Alkalinity (Hydroxide as CaCO3)	Alkalinity (total as CaCO3)	Calcium (Filtered)	Magnesium (Filtered)	Potassium (Filtered)	Sodium (Filtered)	Chloride	Sulfate	Fluoride	Cations Total	Anions Total	Ionic Balance	Bicarbonate ion (HCO3-)	Carbonate ion	Sulfide (Filtered)	Ammonia as N	Nitrate (as N)	Nitrite (as N)	Nitrogen (Total Oxidised) (as N)	Nitrogen (Total)	Kjeldahl Nitrogen Total	Reactive Phosphorus as P
				pH units	µS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	%	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL				0.01	1	1	1	1	1	1	1	1	1		0.1	0.01	0.01	0.01				0.01	0.01	0.01	0.01	0.1	0.1	0.01
ADWG 2011 Recreational (v3.6 updated 2021)														**5000**[#1]	**15**							**112.9**[#2]	**9.1**[#3]					
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine				*7-8.5*																	*0.015*[#4]			*0.015*	*0.3*		*0.005*
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																					0.91[#9]						
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																											
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																								
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation	7.44	7440	3880	<1	331	129	67	19	1260	2350	307	0.1	67.2	79.3	8.22	331	<1	-	*0.71*	<0.01	<0.01	<0.01	*0.8*	0.8	<0.01
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation	7.79	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*0.87*	0.05	<0.01	*0.05*	*0.6*	0.6	<0.01
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation	7.45	25,100	18,700	<1	393	983	626	73	3860	8460	592	0.2	270	259	2.18	393	<1	-	*5.66*	<0.01	<0.01	<0.01	*6.1*	6.1	<0.01
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation	7.3	17,400	12,900	<1	1080	294	515	54	3540	6680	369	0.5	212	218	1.23	1080	<1	-	*3.38*	<0.01	0.02	*0.02*	*3.3*	3.3	<0.01
Clyde MSF	SMW_BH707	SMW_BH707	7/05/2021	Normal	Hawkesbury Sandstone	*8.66*	2620	1500	<1	749	45	57	10	480	479	-	1.2	28.1	30.2	3.73	670	79	85	*0.28*	0.05	<0.01	-	*0.4*	0.3	<0.01
Outside - Rosehill	SMW_BH007	SMW_BH007	4/09/2018	Normal	Hawkesbury Sandstone	*6.92*	10,700	6740	<1	787	377	279	30	1520	3420	196	-	109	116	3.39	787	<1	-	*1.58*	0.02	<0.01	*0.02*	*1.7*	1.7	<0.01
Outside Buffer - Clyde Refinery	SMW_BH020	SMW_BH020	18/09/2018	Normal	Hawkesbury Sandstone	*6.93*	7400	4390	<1	282	108	132	7	1260	1800	1040	0.1	71.2	78.1	4.57	282	<1	-	*0.23*	0.12	<0.01	*0.12*	*0.8*	0.7	<0.01
Outside Buffer - Parramatta	SMW_BH014	SMW_BH014	9/03/2018	Normal	Hawkesbury Sandstone	*5.45*	6610	5310	<1	102	380	161	25	854	845	3190	0.2	99.5	92.3	3.75	102	<1	-	*1.31*	0.2	<0.01	*0.2*	*2.1*	1.9	<0.01
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	3/09/2018	Normal	Hawkesbury Sandstone	7.45	13,100	7880	<1	949	151	353	28	1950	4470	125	0.4	122	148	9.46	949	<1	-	*1.91*	0.06	<0.01	*0.06*	*3.7*	3.6	<0.01
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	4/08/2020	Normal	Hawkesbury Sandstone	7.36	13,800	8270	<1	786	306	295	28	2250	4620	120	0.3	138	148	3.62	786	<1	-	*3.09*	<0.01	0.04	*0.04*	*3.5*	3.5	<0.01
Outside Buffer - Silverwater	SMW_BH027	SMW_BH027	9/04/2018	Normal	Hawkesbury Sandstone	7.01	12,800	7280	<1	478	355	336	26	1870	4500	245	-	127	142	5.28	478	<1	-	*2.16*	0.12	<0.01	*0.12*	*2.6*	2.5	<0.01
Outside Buffer - Silverwater	SMW_BH029	SMW_BH029	9/12/2018	Normal	Hawkesbury Sandstone	7.22	9340	5580	<1	399	180	192	41	1480	3120	279	0.6	90.2	102	6.03	399	<1	-	*1.04*	0.14	<0.01	*0.14*	*1.9*	1.8	<0.01
Parramatta Station	SMW_BH002	SMW_BH002	4/09/2018	Normal	Hawkesbury Sandstone	*6.74*	7680	5310	<1	631	386	102	40	1030	2480	8	-	73.5	82.7	5.92	631	<1	-	*3.45*	0.1	<0.01	*0.1*	*3.5*	3.4	*0.04*
Parramatta Station	SMW_BH004_w	SMW_BH004_w	3/11/2020	Normal	Hawkesbury Sandstone	7.83	3960	2180	<1	408	108	56	21	592	1040	11	0.2	36.3	37.7	1.94	408	<1	-	*0.16*	0.16	<0.01	*0.16*	*0.4*	0.2	*0.01*
Parramatta Station	SMW_BH048_w	SMW_BH048_w	3/11/2020	Normal	Hawkesbury Sandstone	7.67	1590	-	<1	407	59	20	11	271	362	24	0.3	16.6	18.8	6.15	407	<1	-	*0.61*	-	-	<0.01	*0.7*	0.7	<0.01
Tunnel CJ/RCRB	SMW_BH057	SMW_BH057	11/12/2019	Normal	Hawkesbury Sandstone	7.25	11,600	6490	<1	1000	366	297	45	1880	3510	4	0.6	126	119	2.68	1000	<1	-	*2.3*	<0.01	<0.01	<0.01	*2.4*	2.4	<0.01
Statistical Summary																														
Number of Results						16	15	14	15	15	15	15	15	15	15	14	12	15	15	15	15	15	1	16	15	15	15	16	16	16
Number of Detects						16	15	14	0	15	15	15	15	15	15	14	12	15	15	15	15	1	1	16	10	2	11	16	16	2
Minimum Concentration						5.45	1590	1500	<1	102	45	20	7	271	362	4	0.1	16.6	18.8	1.23	102	<1	85	0.16	<0.01	<0.01	<0.01	0.4	0.2	<0.01
Minimum Detect						5.45	1590	1500	ND	102	45	20	7	271	362	4	0.1	16.6	18.8	1.23	102	79	85	0.16	0.02	0.02	0.02	0.4	0.2	0.01
Maximum Concentration						8.66	25100	18700	<1	1080	983	626	73	3860	8460	3190	1.2	270	259	9.46	1080	79	85	5.66	0.2	0.04	0.2	6.1	6.1	0.04
Maximum Detect						8.66	25100	18700	ND	1080	983	626	73	3860	8460	3190	1.2	270	259	9.46	1080	79	85	5.66	0.2	0.04	0.2	6.1	6.1	0.04
Average Concentration						7.3	10076	6886	1	585	282	233	31	1606	3209	465	0.39	106	111	4.5	580	6.2		1.8	0.071	0.013	0.071	2.2	2.1	0.012
Median Concentration						7.33	9340	6035	1	478	294	192	28	1480	3120	220.5	0.3	99.5	102	3.75	478	1	85	1.445	0.05	0.01	0.05	2	1.85	0.01
Standard Deviation						0.67	6035	4403	0	292	232	177	18	1026	2301	833	0.31	67	66	2.3	290	20		1.5	0.064	0.008	0.064	1.6	1.6	0.0075
Number of Guideline Exceedances						5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	0	0	11	16	0	16
Number of Guideline Exceedances(Detects Only)						5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	0	0	11	16	0	2
95% UCL	(exceeds adopted criteria)					7.572																		2.456			0.1	2.85		0.0152
Env Stds Comments																														
Data Comments																														

Draft

							Metals											BTEXN								TR		
							Phosphorus (Total)	Arsenic (Filtered)	Cadmium (Filtered)	Chromium (III+VI) (Filtered)	Chromium (hexavalent) (Filtered)	Cobalt (Filtered)	Copper (Filtered)	Iron (Filtered)	Lead (Filtered)	Manganese (Filtered)	Mercury (Filtered)	Nickel (Filtered)	Zinc (Filtered)	Benzene	Toluene	Ethylbenzene	Xylene (o)	Xylene (m & p)	Xylene Total	BTEX (Sum of Total) - Lab Calc	Naphthalene	F1 (C6-C10 minus BTEX)	C6-C10 Fraction	F2 (>C10-C16 minus Naphthalene)
							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL							0.01	0.001	0.0001	0.001	0.01	0.001	0.001	0.05	0.001	0.001	0.0001	0.001	0.005	1	2	2	2	2	2	1	1	20	20	100
ADWG 2011 Recreational (v3.6 updated 2021)								0.1	0.02		0.5		20		0.1	5	0.01	0.2		10	8000	3000			6000				
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine							0.03																						
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)									0.0055	0.0044[48]	0.0044	0.001	0.0013		0.0044		0.0004	0.07	0.015	700	180	80						70			
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																													
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																								
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation		0.01	0.001	<0.0001	<0.001	-	<0.001	0.006	1.47	<0.001	0.154	<0.0001	<0.001	<0.005	<1	14	<2	<2	<2	<2	14	<5	<20	30	<100
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation		0.03	0.002	<0.0001	<0.001	-	<0.001	<0.001	2.56	<0.001	0.142	<0.0001	<0.001	<0.005	<1	<2	<2	<2	<2	<2	<1	<5	<20	<20	<100
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation		<0.02	0.001	<0.0001	0.001	<0.01	0.001	0.001	1.27	<0.001	0.384	<0.0001	0.002	<0.005	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation		<0.02	0.006	<0.0001	<0.001	-	<0.001	<0.001	1.24	<0.001	0.072	<0.0001	0.002	<0.005	-	-	-	-	-	-	-	-	-	-	-
Clyde MSF	SMW_BH707	SMW_BH707	7/05/2021	Normal	Hawkesbury Sandstone		0.05	0.01	<0.0001	<0.001	<0.01	0.003	0.002	<0.05	<0.001	0.174	<0.0001	0.012	0.007	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100
Outside - Rosehill	SMW_BH007	SMW_BH007	4/09/2018	Normal	Hawkesbury Sandstone		0.42	0.001	<0.0001	<0.001	<0.01	0.001	<0.001	12.3	<0.001	0.625	<0.0001	0.001	0.005	<1	<2	<2	<2	<2	<2	<1	<5	<20	<20	<100
Outside Buffer - Clyde Refinery	SMW_BH020	SMW_BH020	18/09/2018	Normal	Hawkesbury Sandstone		0.29	<0.001	<0.0001	<0.001	<0.01	0.008	0.002	0.53	<0.001	0.555	<0.0001	0.002	<0.005	<1	4	<2	<2	<2	<2	4	<5	<20	20	<100
Outside Buffer - Parramatta	SMW_BH014	SMW_BH014	9/03/2018	Normal	Hawkesbury Sandstone		0.04	0.019	<0.0001	0.002	-	0.06	<0.001	556	0.01	14.4	<0.0001	0.117	0.064	<1	53	<2	<2	<2	<2	53	<5	30	80	<100
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	3/09/2018	Normal	Hawkesbury Sandstone		0.68	0.014	<0.0001	<0.001	-	0.002	<0.001	<0.05	<0.001	0.22	<0.0001	0.003	<0.005	<1	9	<2	<2	3	3	12	<5	<20	30	100
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	4/08/2020	Normal	Hawkesbury Sandstone		0.31	0.002	<0.0001	<0.001	-	<0.001	<0.001	2.9	<0.001	0.299	<0.0001	0.001	<0.005	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100
Outside Buffer - Silverwater	SMW_BH027	SMW_BH027	9/04/2018	Normal	Hawkesbury Sandstone		0.02	<0.001	<0.0001	<0.001	-	0.006	<0.001	6.71	<0.001	0.541	<0.0001	0.008	0.006	<1	10	<2	<2	<2	<2	10	<5	20	30	<100
Outside Buffer - Silverwater	SMW_BH029	SMW_BH029	9/12/2018	Normal	Hawkesbury Sandstone		<0.01	0.002	<0.0001	<0.001	-	0.018	<0.001	4.38	<0.001	2.04	<0.0001	0.01	0.014	<1	3	<2	<2	<2	<2	3	<5	<20	<20	<100
Parramatta Station	SMW_BH002	SMW_BH002	4/09/2018	Normal	Hawkesbury Sandstone		0.01	<0.001	<0.0001	<0.001	-	<0.001	<0.001	1.28	<0.001	0.478	<0.0001	<0.001	<0.005	<1	<2	<2	<2	<2	<2	<1	<5	<20	<20	<100
Parramatta Station	SMW_BH004_w	SMW_BH004_w	3/11/2020	Normal	Hawkesbury Sandstone		0.09	<0.001	<0.0001	<0.001	-	<0.001	0.001	<0.05	<0.001	0.029	<0.0001	0.182	0.013	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100
Parramatta Station	SMW_BH048_w	SMW_BH048_w	3/11/2020	Normal	Hawkesbury Sandstone		0.03	<0.001	<0.0001	<0.001	-	<0.001	<0.001	0.63	<0.001	0.173	<0.0001	<0.001	<0.005	<1	<2	<2	<2	<2	<2	-	<1	<20	<20	<100
Tunnel CJ/RCRB	SMW_BH057	SMW_BH057	11/12/2019	Normal	Hawkesbury Sandstone		0.04	0.017	<0.0001	<0.001	<0.05	0.004	<0.001	4	<0.001	0.658	<0.0001	0.002	<0.005	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100
Statistical Summary																													
Number of Results							16	16	16	16	5	16	16	16	16	16	16	16	16	15	15	15	15	15	15	14	15	15	15
Number of Detects							13	11	0	2	0	9	5	13	1	16	0	12	6	0	6	0	0	1	1	6	0	2	5	1
Minimum Concentration							<0.01	<0.001	<0.0001	<0.001	<0.01	<0.001	<0.001	<0.05	<0.001	0.029	<0.0001	<0.001	<0.005	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100
Minimum Detect							0.01	0.001	ND	0.001	ND	0.001	0.001	0.53	0.01	0.029	ND	0.001	0.005	ND	3	ND	ND	3	3	3	ND	20	20	100
Maximum Concentration							0.68	0.019	<0.0001	0.002	<0.05	0.06	0.006	556	0.01	14.4	<0.0001	0.182	0.064	<1	53	<2	<2	3	3	53	<5	30	80	100
Maximum Detect							0.68	0.019	ND	0.002	ND	0.06	0.006	556	0.01	14.4	ND	0.182	0.064	ND	53	ND	ND	3	3	53	ND	30	80	100
Average Concentration							0.13	0.005	0.0001	0.0011	0.018	0.0069	0.0014	37	0.0016	1.3	0.0001	0.022	0.0099	1	7.4	2	2	2.1	2.1	7.4	3.4	21	26	100
Median Concentration							0.035	0.0015	0.0001	0.001	0.01	0.001	0.001	1.375	0.001	0.3415	0.0001	0.002	0.005	1	2	2	2	2	2	1	5	20	20	100
Standard Deviation							0.19	0.0063	0	0.00025	0.018	0.015	0.0013	138	0.0023	3.5	0	0.051	0.015	0	13	0	0	0.26	0.26	14	2	2.6	15	0
Number of Guideline Exceedances							10	0	0	0	5	9	3	0	1	1	0	2	1	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)							10	0	0	0	0	9	3	0	1	1	0	2	1	0	0	0	0	0	0	0	0	0	0	0
95% UCL	(exceeds adopted criteria)						0.341					0.0231	0.002		0.004	5.148		0.15	0.026											
Env Stds Comments																													
Data Comments																													

DRAFT

							TRH - NEPM 2013					TRH - NEPM 2013 - SG Cleanup					TRH - NEPM 1999						NEPM 1999 - SG C			TPH	PAHs - standard 1								
							>C10-C16 Fraction	F3 (>C16-C34 Fraction)	F4 (>C34-C40 Fraction)	>C10-C40 (Sum of Total)	>C10-C40 (Sum of Total) - Calc	F2 (>C10-C16 minus Naphthalene) SG Cleanup	>C10-C16 SG Cleanup	>C16-C34 SG Cleanup	>C34-C40 SG Cleanup	>C10-C40 (sum) SG Cleanup	C6-C9 Fraction	C10-C14 Fraction	C15-C28 Fraction	C29-C36 Fraction	C10-C36 (Sum of Total)	C10-C36 (Sum of Total) - Calc	C10-C14 SG Cleanup	C15-C28 SG Cleanup	C29-C36 SG Cleanup	TPH C6-C36 Fraction (Sum of Total) - Calc	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo[b+j]fluoranthene	Benzo(k)fluoranthene	Benzo(g,h,i)perylene	Chrysene	Dibenz(a,h)anthracene
							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	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
EQL							100	100	100	100		100	100	100	100	100	20	50	100	50	50		50	100	50		1	1	1	1	0.5	1	1	1	1	1
ADWG 2011 Recreational (v3.6 updated 2021)																															**0.1**					
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																																				
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																															0.2					
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																																				
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																															
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation	-	<100	<100	<100	-	-	-	-	-	-	30	<50	<100	<50	<50	-	-	-	-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation	-	<100	<100	-	<100	<100	<100	<100	<100	<100	<20	<50	<100	<50	-	<50	<50	<100	<50	<50	-	-	-	-	-	-	-	-	-	-
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation	-	<100	<100	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-	-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clyde MSF	SMW_BH707	SMW_BH707	7/05/2021	Normal	Hawkesbury Sandstone	<100	<100	<100	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-	-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1
Outside - Rosehill	SMW_BH007	SMW_BH007	4/09/2018	Normal	Hawkesbury Sandstone	-	<100	<100	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-	-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1
Outside Buffer - Clyde Refinery	SMW_BH020	SMW_BH020	18/09/2018	Normal	Hawkesbury Sandstone	-	<100	<100	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-	-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1
Outside Buffer - Parramatta	SMW_BH014	SMW_BH014	9/03/2018	Normal	Hawkesbury Sandstone	-	240	<100	240	-	-	-	-	-	-	80	<50	220	<50	220	-	-	-	-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	3/09/2018	Normal	Hawkesbury Sandstone	-	960	<100	1060	-	-	-	-	-	-	30	90	770	210	1070	-	-	-	-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	4/08/2020	Normal	Hawkesbury Sandstone	-	170	<100	170	-	-	-	-	-	-	<20	<50	150	<50	150	-	-	-	-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1
Outside Buffer - Silverwater	SMW_BH027	SMW_BH027	9/04/2018	Normal	Hawkesbury Sandstone	-	<100	<100	<100	-	-	-	-	-	-	20	<50	<100	<50	<50	-	-	-	-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1
Outside Buffer - Silverwater	SMW_BH029	SMW_BH029	9/12/2018	Normal	Hawkesbury Sandstone	-	<100	<100	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-	-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1
Parramatta Station	SMW_BH002	SMW_BH002	4/09/2018	Normal	Hawkesbury Sandstone	-	<100	<100	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-	-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1
Parramatta Station	SMW_BH004_w	SMW_BH004_w	3/11/2020	Normal	Hawkesbury Sandstone	-	<100	<100	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-	-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1
Parramatta Station	SMW_BH048_w	SMW_BH048_w	3/11/2020	Normal	Hawkesbury Sandstone	-	<100	<100	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-	-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1
Tunnel CJ/RCRB	SMW_BH057	SMW_BH057	11/12/2019	Normal	Hawkesbury Sandstone	-	<100	<100	<100	-	-	-	-	-	-	<20	<50	<100	<50	<50	-	-	-	-	-	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1
Statistical Summary																																				
Number of Results						1	15	15	14	1	1	1	1	1	1	15	15	15	15	14	1	1	1	1	1	14	14	14	14	14	14	14	14	14	14
Number of Detects						0	3	0	3	0	0	0	0	0	0	4	1	3	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration						<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<20	<50	<100	<50	<50	<50	<50	<100	<50	<50	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1
Minimum Detect						ND	170	ND	170	ND	ND	ND	ND	ND	ND	20	90	150	210	150	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration						<100	960	<100	1060	<100	<100	<100	<100	<100	<100	80	90	770	210	1070	<50	<50	<100	<50	<50	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1
Maximum Detect						ND	960	ND	1060	ND	ND	ND	ND	ND	ND	80	90	770	210	1070	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration							171	100	184							25	53	156	61	142						1	1	1	1	0.5	1	1	1	1	1
Median Concentration						100	100	100	100	100	100	100	100	100	100	20	50	100	50	50	50	50	100	50	50	1	1	1	1	0.5	1	1	1	1	1
Standard Deviation							222	0	255							16	10	173	41	272						0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL	(exceeds adopted criteria)																																			
Env Stds Comments																																				
Data Comments																																				

Draft

							6							PAHs - extended			Phenols - Halogenated								Phenols - Non-Halogenated					Phenols - total							
							Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Total 8 PAHs (as BaP TEQ)(zero LOR) - Lab Calc	PAHs (Sum of Total) - Calc	2-methylnaphthalene	3-methylcholanthrene	7,12-dimethylbenz(a)anthracene	2-Chlorophenol	2,4-Dichlorophenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,6-Dichlorophenol	4-Chloro-3-methylphenol	Pentachlorophenol	Phenol	2-Nitrophenol	2-Methylphenol (o-Cresol)	3,4-Methylphenol (m,p-cresol)	2,4-Dimethylphenol	Phenolics Total	DDT (total)	4,4'-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC	d-BHC
							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	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
EQL							1	1	1	1	1	0.5		2	2	2	2	2	2	2	2	2	2	4	2	2	2	4	2			2	2	2	4	2	2
ADWG 2011 Recreational (v3.6 updated 2021)																	**3000**	**2000**		**200**				**100**										**3**		
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																																			
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)							1.4			2													22	400											
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																																			
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																														
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation	<1	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<50	-	-	-	-	-	-	-
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation	<1	<1	<1	<1	<1	<0.5	<0.5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<4	<2	-	<4	-	<2	<2	<4	<2	<2
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clyde MSF	SMW_BH707	SMW_BH707	7/05/2021	Normal	Hawkesbury Sandstone	<1	<1	<1	<1	<1	<0.5	<0.5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<4	<2	-	<4	<2	<2	<2	<4	<2	<2
Outside - Rosehill	SMW_BH007	SMW_BH007	4/09/2018	Normal	Hawkesbury Sandstone	<1	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Clyde Refinery	SMW_BH020	SMW_BH020	18/09/2018	Normal	Hawkesbury Sandstone	<1	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<50	-	-	-	-	-	-	-
Outside Buffer - Parramatta	SMW_BH014	SMW_BH014	9/03/2018	Normal	Hawkesbury Sandstone	<1	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	300	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	3/09/2018	Normal	Hawkesbury Sandstone	<1	<1	<1	<1	<1	<0.5	1.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<50	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	4/08/2020	Normal	Hawkesbury Sandstone	<1	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH027	SMW_BH027	9/04/2018	Normal	Hawkesbury Sandstone	<1	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<50	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH029	SMW_BH029	9/12/2018	Normal	Hawkesbury Sandstone	<1	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<50	-	-	-	-	-	-	-
Parramatta Station	SMW_BH002	SMW_BH002	4/09/2018	Normal	Hawkesbury Sandstone	<1	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<50	-	-	-	-	-	-	-
Parramatta Station	SMW_BH004_w	SMW_BH004_w	3/11/2020	Normal	Hawkesbury Sandstone	<1	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH048_w	SMW_BH048_w	3/11/2020	Normal	Hawkesbury Sandstone	<1	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunnel CJ/RCRB	SMW_BH057	SMW_BH057	11/12/2019	Normal	Hawkesbury Sandstone	<1	<1	<1	<1	<1	<0.5	<0.5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<4	<2	-	<4	-	<2	<2	<4	<2	<2
Statistical Summary																																			
Number of Results							14	14	14	14	14	14	14	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	7	3	1	3	3	3	3	3
Number of Detects							0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Minimum Concentration							<1	<1	<1	<1	<1	<0.5	<0.5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<4	<2	<50	<4	<2	<2	<2	<4	<2	<2
Minimum Detect							ND	ND	ND	ND	ND	ND	1.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	300	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration							<1	<1	<1	<1	<1	<0.5	1.9	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<4	<2	300	<4	<2	<2	<2	<4	<2	<2
Maximum Detect							ND	ND	ND	ND	ND	ND	1.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	300	ND	ND	ND	ND	ND	ND	ND
Average Concentration							1	1	1	1	1	0.5	0.6	2	2	2	2	2	2	2	2	2	2	4	2	2	2	4	2	86	4		2	2	4	2	2
Median Concentration							1	1	1	1	1	0.5	0.5	2	2	2	2	2	2	2	2	2	2	4	2	2	2	4	2	50	4	2	2	2	4	2	2
Standard Deviation							0	0	0	0	0	0	0.37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	94	0		0	0	0	0	0
Number of Guideline Exceedances							0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0
Number of Guideline Exceedances(Detects Only)							0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL	(exceeds adopted criteria)																																		
Env Stds Comments																																			
Data Comments																																			

DRAFT

| | | |

							Chlorinated Hydrocarbons																Explosives						Herbicides	Nitroaromatics ar		
							1,2-dibromo-3-chloropropane	1,2-dichlorobenzene	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	1,4-dichlorobenzene	2,2-dichloropropane	2-chloronaphthalene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Carbon tetrachloride	Chlorobenzene	Chloroform	Chloromethane	cis-1,2-dichloroethene	Hexachlorobutadiene	Vinyl chloride	1,3,5-Trinitrobenzene	2,4-Dinitrotoluene	2,6-dinitrotoluene	Nitrobenzene	Bromomethane	Dichlorodifluoromethane	Pronamide	2-Picoline	4-aminobiphenyl	Acetophenone
							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	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
EQL							5	2	5	5	5	2	5	2	5	5	5	5	5	5	50	5	2	50	2	4	4	2	50	50	2	2	2	2
ADWG 2011 Recreational (v3.6 updated 2021)								**15000**	**30**			**400**						**30**	**3000**				**7**	**3**					**10**		**700**			
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																																		
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)									1900	1100								240	55	770				100										
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																																		
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																													
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation		<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<5	<5	<50	<5	<5	<50	-	-	-	-	<50	<50	-	-	-	-
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation		<5	<2	<5	<5	<5	<2	<5	<2	<5	<5	<5	<5	<5	<5	<50	<5	<2	<50	<2	<4	<4	<2	<50	<50	<2	<2	<2	<2
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clyde MSF	SMW_BH707	SMW_BH707	7/05/2021	Normal	Hawkesbury Sandstone		<5	<2	<5	<5	<5	<2	<5	<2	<5	<5	<5	<5	<5	<5	<50	<5	<2	<50	<2	<4	<4	<2	<50	<50	<2	<2	<2	<2
Outside - Rosehill	SMW_BH007	SMW_BH007	4/09/2018	Normal	Hawkesbury Sandstone		<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<5	<5	<50	<5	<5	<50	-	-	-	-	<50	<50	-	-	-	-
Outside Buffer - Clyde Refinery	SMW_BH020	SMW_BH020	18/09/2018	Normal	Hawkesbury Sandstone		<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<5	<5	<50	<5	<5	<50	-	-	-	-	<50	<50	-	-	-	-
Outside Buffer - Parramatta	SMW_BH014	SMW_BH014	9/03/2018	Normal	Hawkesbury Sandstone		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	3/09/2018	Normal	Hawkesbury Sandstone		<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<5	<5	<50	<5	<5	<50	-	-	-	-	<50	<50	-	-	-	-
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	4/08/2020	Normal	Hawkesbury Sandstone		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH027	SMW_BH027	9/04/2018	Normal	Hawkesbury Sandstone		<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<5	<5	<50	<5	<5	<50	-	-	-	-	<50	<50	-	-	-	-
Outside Buffer - Silverwater	SMW_BH029	SMW_BH029	9/12/2018	Normal	Hawkesbury Sandstone		<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<5	<5	<50	<5	<5	<50	-	-	-	-	<50	<50	-	-	-	-
Parramatta Station	SMW_BH002	SMW_BH002	4/09/2018	Normal	Hawkesbury Sandstone		<5	<5	<5	<5	<5	<5	<5	-	<5	<5	<5	<5	<5	<5	<50	<5	<5	<50	-	-	-	-	<50	<50	-	-	-	-
Parramatta Station	SMW_BH004_w	SMW_BH004_w	3/11/2020	Normal	Hawkesbury Sandstone		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH048_w	SMW_BH048_w	3/11/2020	Normal	Hawkesbury Sandstone		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunnel CJ/RCRB	SMW_BH057	SMW_BH057	11/12/2019	Normal	Hawkesbury Sandstone		<5	<2	<5	<5	<5	<2	<5	<2	<5	<5	<5	<5	<5	<5	<50	<5	<2	<50	<2	<4	<4	<2	<50	<50	<2	<2	<2	<2
Statistical Summary																																		
Number of Results							10	10	10	10	10	10	10	3	10	10	10	10	10	10	10	10	10	10	3	3	3	3	10	10	3	3	3	3
Number of Detects							0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration							<5	<2	<5	<5	<5	<2	<5	<2	<5	<5	<5	<5	<5	<5	<50	<5	<2	<50	<2	<4	<4	<2	<50	<50	<2	<2	<2	<2
Minimum Detect							ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration							<5	<5	<5	<5	<5	<5	<5	<2	<5	<5	<5	<5	<5	<5	<50	<5	<5	<50	<2	<4	<4	<2	<50	<50	<2	<2	<2	<2
Maximum Detect							ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration							5	4.1	5	5	5	4.1	5	2	5	5	5	5	5	5	50	5	4.1	50	2	4	4	2	50	50	2	2	2	2
Median Concentration							5	5	5	5	5	5	5	2	5	5	5	5	5	5	50	5	5	50	2	4	4	2	50	50	2	2	2	2
Standard Deviation							0	1.4	0	0	0	1.4	0	0	0	0	0	0	0	0	0	0	1.4	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances							0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	10	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)							0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL	(exceeds adopted criteria)																																	
Env Stds Comments																																		
Data Comments																																		

DRAFT

| | | |

| | | |

																			VOCs										PFAS - Perfluoroalkyl Carboxylic Acids								
																			2-butanone (MEK)	4-methyl-2-pentanone (MIBK)	Bromodichloromethane	Bromoform	Chlorodibromomethane	Chloroethane	cis-1,3-dichloropropene	cis-1,4-Dichloro-2-butene	Dibromomethane	Iodomethane	Pentachloroethane	Trichloroethene	Tetrachloroethene	trans-1,3-dichloropropene	trans-1,2-dichloroethene	trans-1,4-Dichloro-2-butene	Trichlorofluoromethane	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)
																			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	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL																			50	50	5	5	5	50	5	5	5	5	5	5	5	5	5	50	0.1	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02
ADWG 2011 Recreational (v3.6 updated 2021)																													500									5.6				
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																																										
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																																80	330	70								
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																																						19				
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																																					
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation	<50	<50	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation	<50	<50	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	-	-	-	-
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clyde MSF	SMW_BH707	SMW_BH707	7/05/2021	Normal	Hawkesbury Sandstone	<50	<50	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02
Outside - Rosehill	SMW_BH007	SMW_BH007	4/09/2018	Normal	Hawkesbury Sandstone	<50	<50	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Outside Buffer - Clyde Refinery	SMW_BH020	SMW_BH020	18/09/2018	Normal	Hawkesbury Sandstone	<50	<50	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Outside Buffer - Parramatta	SMW_BH014	SMW_BH014	9/03/2018	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	3/09/2018	Normal	Hawkesbury Sandstone	<50	<50	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	4/08/2020	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH027	SMW_BH027	9/04/2018	Normal	Hawkesbury Sandstone	<50	<50	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Outside Buffer - Silverwater	SMW_BH029	SMW_BH029	9/12/2018	Normal	Hawkesbury Sandstone	<50	<50	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.1	<0.02	<0.02	<0.02	<0.01	-	-	-	-
Parramatta Station	SMW_BH002	SMW_BH002	4/09/2018	Normal	Hawkesbury Sandstone	<50	<50	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH004_w	SMW_BH004_w	3/11/2020	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02
Parramatta Station	SMW_BH048_w	SMW_BH048_w	3/11/2020	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	0.04	0.04	<0.02	0.03	<0.02	<0.02	<0.02	<0.02
Tunnel CJ/RCRB	SMW_BH057	SMW_BH057	11/12/2019	Normal	Hawkesbury Sandstone	<50	<50	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Statistical Summary																																										
Number of Results						10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	8	8	8	8
Number of Detects						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0
Minimum Concentration						<50	<50	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02
Minimum Detect						ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.04	0.04	ND	0.03	ND	ND	ND	ND
Maximum Concentration						<50	<50	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Maximum Detect						ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.04	0.04	ND	0.03	ND	ND	ND	ND
Average Concentration						50	50	5	5	5	50	5	5	5	5	5	5	5	5	5	5	5	50	0.15	0.037	0.037	0.035	0.032	0.035	0.035	0.035	0.035
Median Concentration						50	50	5	5	5	50	5	5	5	5	5	5	5	5	5	5	5	50	0.15	0.045	0.045	0.035	0.04	0.035	0.035	0.035	0.035
Standard Deviation						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.053	0.015	0.015	0.016	0.02	0.016	0.016	0.016	0.016
Number of Guideline Exceedances						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL	(exceeds adopted criteria)																																									
Env Stds Comments																																										
Data Comments																																										

Draft

							PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Sulfonamide						\S - Fluorotelomer Sulfonic Ac								PFAS
							Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecanesulfonic acid (PFDS)	Perfluorodecane sulfonic acid ammonium salt	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamidoethanol (MEFOSE)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	PFAS (Sum of Total)	PFAS (Sum of Total)(WA DER List)	PFOS/PFHxS (Sum of Total) - Auto Calc	Perfluoroheptanesulfonic acid
							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	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL							0.02	0.05	0.02	0.02	0.02	0.01	0.02		0.02	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.01	0.01		
ADWG 2011 Recreational (v3.6 updated 2021)																										0.7	
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																											
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																											
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system												0.00023															
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																						
Parramatta Station	SMW_BH003	SMW_BH003	18/09/2018	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH003	SMW_BH003	6/12/2018	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSF	SMW_BH010	SMW_BH010	26/11/2019	Normal	Ashfield Shale / Mittagong Formation	-	-	<0.05	-	<0.05	<0.05	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-
Westmead Station	SMW_BH008	SMW_BH008	25/06/2020	Normal	Ashfield Shale / Mittagong Formation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clyde MSF	SMW_BH707	SMW_BH707	7/05/2021	Normal	Hawkesbury Sandstone	<0.02	<0.05	<0.02	<0.02	<0.02	<0.01	-	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.02
Outside - Rosehill	SMW_BH007	SMW_BH007	4/09/2018	Normal	Hawkesbury Sandstone	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.12	<0.12	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	<0.05	
Outside Buffer - Clyde Refinery	SMW_BH020	SMW_BH020	18/09/2018	Normal	Hawkesbury Sandstone	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.12	<0.12	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	<0.05	
Outside Buffer - Parramatta	SMW_BH014	SMW_BH014	9/03/2018	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	3/09/2018	Normal	Hawkesbury Sandstone	<0.02	<0.05	<0.02	<0.02	<0.02	<0.01	-	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	<0.01	<0.02	
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	4/08/2020	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH027	SMW_BH027	9/04/2018	Normal	Hawkesbury Sandstone	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.12	<0.12	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	<0.05	
Outside Buffer - Silverwater	SMW_BH029	SMW_BH029	9/12/2018	Normal	Hawkesbury Sandstone	-	-	<0.02	-	<0.02	<0.01	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.01	-	
Parramatta Station	SMW_BH002	SMW_BH002	4/09/2018	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH004_w	SMW_BH004_w	3/11/2020	Normal	Hawkesbury Sandstone	<0.02	<0.05	<0.02	<0.02	<0.02	<0.01	-	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.02
Parramatta Station	SMW_BH048_w	SMW_BH048_w	3/11/2020	Normal	Hawkesbury Sandstone	<0.02	<0.05	<0.02	<0.02	<0.02	0.01	-	-	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.36	0.12	0.01	<0.02	
Tunnel CJ/RCRB	SMW_BH057	SMW_BH057	11/12/2019	Normal	Hawkesbury Sandstone	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Statistical Summary																											
Number of Results							8	8	10	8	10	10	1	6	8	8	8	8	8	10	10	10	10	4	5	10	8
Number of Detects							0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0
Minimum Concentration							<0.02	<0.05	<0.02	<0.02	<0.02	<0.01	<0.05	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.02
Minimum Detect							ND	ND	ND	ND	ND	0.01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.36	0.12	0.01	ND
Maximum Concentration							<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.12	<0.12	<0.12	<0.05	<0.05	<0.05	<0.05	0.36	0.12	<0.05	<0.05
Maximum Detect							ND	ND	ND	ND	ND	0.01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.36	0.12	0.01	ND
Average Concentration							0.035	0.085	0.035	0.035	0.035	0.03		0.035	0.035	0.069	0.069	0.085	0.085	0.05	0.05	0.05	0.05	0.11	0.048	0.03	0.035
Median Concentration							0.035	0.085	0.035	0.035	0.035	0.03	0.05	0.035	0.035	0.05	0.05	0.085	0.085	0.05	0.05	0.05	0.05	0.03	0.05	0.03	0.035
Standard Deviation							0.016	0.037	0.016	0.016	0.016	0.021		0.016	0.016	0.044	0.044	0.037	0.037	0	0	0	0	0.17	0.045	0.021	0.016
Number of Guideline Exceedances							0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)							0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL	(exceeds adopted criteria)											0.0591															

Env Stds Comments

Data Comments

Draft

							Inorganics					Major Ions										Minor Ions			Nutrients						
							pH (Lab)	Electrical conductivity (lab)	Total Dissolved Solids @ 180°C	Alkalinity (Hydroxide as CaCO3)	Alkalinity (total as CaCO3)	Calcium (Filtered)	Magnesium (Filtered)	Potassium (Filtered)	Sodium (Filtered)	Chloride	Sulfate	Fluoride	Cations Total	Anions Total	Ionic Balance	Bicarbonate ion (HCO3-)	Carbonate ion	Sulfide (Filtered)	Ammonia as N	Nitrate (as N)	Nitrite (as N)	Nitrogen (Total Oxidised) (as N)	Nitrogen (Total)	Kjeldahl Nitrogen Total	Reactive Phosphorus as P
							pH units	µS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	%	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL							0.01	1		1	1	1	1	1	1	1		0.1	0.01	0.01	0.01				0.01	0.01	0.01	0.01	0.1	0.1	0.01
ADWG 2011 Recreational (v3.6 updated 2021)																	**5000**[#1]	**15**							**112.9**[#2]	**9.1**[#3]					
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine							*7-8.5*																	*0.015*[#4]			*0.015*	*0.3*		*0.005*
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																								0.91[#9]						
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																														
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																										
Clyde MSF	SMW_BH707	SMW_BH707	7/05/2021	Normal	Hawkesbury Sandstone		*8.66*	**2620**	1500	<1	749	45	57	10	480	479	-	1.2	28.1	30.2	3.73	670	79	85	*0.28*	0.05	<0.01	-	*0.4*	0.3	<0.01
Outside - Rosehill	SMW_BH007	SMW_BH007	4/09/2018	Normal	Hawkesbury Sandstone		*6.92*	**10,700**	**6740**	<1	787	377	279	30	1520	3420	196	-	109	116	3.39	787	<1	-	*1.58*	0.02	<0.01	*0.02*	*1.7*	1.7	<0.01
Outside Buffer - Clyde Refinery	SMW_BH020	SMW_BH020	18/09/2018	Normal	Hawkesbury Sandstone		*6.93*	**7400**	**4390**	<1	282	108	132	7	1260	1800	1040	0.1	71.2	78.1	4.57	282	<1	-	*0.23*	0.12	<0.01	*0.12*	*0.8*	0.7	<0.01
Outside Buffer - Parramatta	SMW_BH014	SMW_BH014	9/03/2018	Normal	Hawkesbury Sandstone		*5.45*	**6610**	**5310**	<1	102	380	161	25	854	845	3190	0.2	99.5	92.3	3.75	102	<1	-	*1.31*	0.2	<0.01	*0.2*	*2.1*	1.9	<0.01
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	3/09/2018	Normal	Hawkesbury Sandstone		7.45	**13,100**	**7880**	<1	949	151	353	28	1950	4470	125	0.4	122	148	9.46	949	<1	-	*1.91*	0.06	<0.01	*0.06*	*3.7*	3.6	<0.01
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	4/08/2020	Normal	Hawkesbury Sandstone		7.36	**13,800**	**8270**	<1	786	306	295	28	2250	4620	120	0.3	138	148	3.62	786	<1	-	*3.09*	<0.01	0.04	*0.04*	*3.5*	3.5	<0.01
Outside Buffer - Silverwater	SMW_BH027	SMW_BH027	9/04/2018	Normal	Hawkesbury Sandstone		7.01	**12,800**	**7280**	<1	478	355	336	26	1870	4500	245	-	127	142	5.28	478	<1	-	*2.16*	0.12	<0.01	*0.12*	*2.6*	2.5	<0.01
Outside Buffer - Silverwater	SMW_BH029	SMW_BH029	9/12/2018	Normal	Hawkesbury Sandstone		7.22	**9340**	5580	<1	399	180	192	41	1480	3120	279	0.6	90.2	102	6.03	399	<1	-	*1.04*	0.14	<0.01	*0.14*	*1.9*	1.8	<0.01
Parramatta Station	SMW_BH002	SMW_BH002	4/09/2018	Normal	Hawkesbury Sandstone		*6.74*	**7680**	5310	<1	631	386	102	40	1030	2480	8	-	73.5	82.7	5.92	631	<1	-	*3.45*	0.1	<0.01	*0.1*	*3.5*	3.4	*0.04*
Parramatta Station	SMW_BH004_w	SMW_BH004_w	3/11/2020	Normal	Hawkesbury Sandstone		7.83	3960	2180	<1	408	108	56	21	592	1040	11	0.2	36.3	37.7	1.94	408	<1	-	*0.16*	0.16	<0.01	*0.16*	*0.4*	0.2	*0.01*
Parramatta Station	SMW_BH048_w	SMW_BH048_w	3/11/2020	Normal	Hawkesbury Sandstone		7.67	1590	-	<1	407	59	20	11	271	362	24	0.3	16.6	18.8	6.15	407	<1	-	*0.61*	-	-	<0.01	*0.7*	0.7	<0.01
Tunnel CJ/RCRB	SMW_BH057	SMW_BH057	11/12/2019	Normal	Hawkesbury Sandstone		7.25	11,600	6490	<1	1000	366	297	45	1880	3510	4	0.6	126	119	2.68	1000	<1	-	*2.3*	<0.01	<0.01	<0.01	*2.4*	2.4	<0.01
Statistical Summary																															
Number of Results							12	12	11	12	12	12	12	12	12	12	11	9	12	12	12	12	12	1	12	11	11	11	12	12	12
Number of Detects							12	12	11	0	12	12	12	12	12	12	11	9	12	12	12	12	1	1	12	9	1	9	12	12	2
Minimum Concentration							5.45	1590	1500	<1	102	45	20	7	271	362	4	0.1	16.6	18.8	1.94	102	<1	85	0.16	<0.01	<0.01	<0.01	0.4	0.2	<0.01
Minimum Detect							5.45	1590	1500	ND	102	45	20	7	271	362	4	0.1	16.6	18.8	1.94	102	79	85	0.16	0.02	0.04	0.02	0.4	0.2	0.01
Maximum Concentration							8.66	13800	8270	<1	1000	386	353	45	2250	4620	3190	1.2	138	148	9.46	1000	79	85	3.45	0.2	0.04	0.2	3.7	3.6	0.04
Maximum Detect							8.66	13800	8270	ND	1000	386	353	45	2250	4620	3190	1.2	138	148	9.46	1000	79	85	3.45	0.2	0.04	0.2	3.7	3.6	0.04
Average Concentration							7.2	8433	5539	1	582	235	190	26	1286	2554	477	0.43	86	93	4.7	575	7.5		1.5	0.09	0.013	0.089	2	1.9	0.013
Median Concentration							7.235	8510	5580	1	555	243	177	27	1370	2800	125	0.3	94.85	97.15	4.16	554.5	1	85	1.445	0.1	0.01	0.1	2	1.85	0.01
Standard Deviation							0.76	4169	2176	0	278	138	119	12	645	1613	947	0.34	42	45	2	274	23		1.1	0.064	0.009	0.065	1.2	1.2	0.0087
Number of Guideline Exceedances							5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0	0	9	12	0	12
Number of Guideline Exceedances(Detects Only)							5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0	0	9	12	0	2
95% UCL	(exceeds adopted criteria)						7.6																		2.085			0.125	2.61		0.017
Env Stds Comments																															
Data Comments																															

Draft

							Metals														BTEXN									TRH -		
							Phosphorus (Total)	Arsenic (Filtered)	Cadmium (Filtered)	Chromium (III+VI) (Filtered)	Chromium (hexavalent) (Filtered)	Cobalt (Filtered)	Copper (Filtered)	Iron (Filtered)	Lead (Filtered)	Manganese (Filtered)	Mercury (Filtered)	Nickel (Filtered)	Zinc (Filtered)	Benzene	Toluene	Ethylbenzene	Xylene (o)	Xylene (m & p)	Xylene Total	BTEX (Sum of Total) - Lab Calc	Naphthalene	F1 (C6-C10 minus BTEX)	C6-C10 Fraction	F2 (>C10-C16 minus Naphthalene)
							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/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
EQL							0.01	0.001	0.0001	0.001	0.01	0.001	0.001	0.05	0.001	0.001	0.0001	0.001	0.005	1	2	2	2	2	2	1	1	20	20	100		
ADWG 2011 Recreational (v3.6 updated 2021)								**0.1**	**0.02**		**0.5**		**20**		**0.1**	**5**	**0.01**	**0.2**		**10**	**8000**	**3000**			**6000**							
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine							*0.03*																								
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)									0.0055	0.0044[88]	0.0044	0.001	0.0013		0.0044		0.0004	0.07	0.015	700	180	80					70				
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																															
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																										
Clyde MSF	SMW_BH707	SMW_BH707	7/05/2021	Normal	Hawkesbury Sandstone		*0.05*	0.01	<0.0001	<0.001	<0.01	0.003	0.002	<0.05	<0.001	0.174	<0.0001	0.012	0.007	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100		
Outside - Rosehill	SMW_BH007	SMW_BH007	4/09/2018	Normal	Hawkesbury Sandstone		*0.42*	0.001	<0.0001	<0.001	<0.01	0.001	<0.001	12.3	<0.001	0.625	<0.0001	0.001	0.005	<1	<2	<2	<2	<2	<2	<1	<5	<20	<20	<100		
Outside Buffer - Clyde Refinery	SMW_BH020	SMW_BH020	18/09/2018	Normal	Hawkesbury Sandstone		*0.29*	<0.001	<0.0001	<0.001	<0.01	0.008	0.002	0.53	<0.001	0.555	<0.0001	0.002	<0.005	<1	4	<2	<2	<2	<2	4	<5	<20	20	<100		
Outside Buffer - Parramatta	SMW_BH014	SMW_BH014	9/03/2018	Normal	Hawkesbury Sandstone		*0.04*	0.019	<0.0001	0.002	-	0.06	<0.001	556	0.01	**14.4**	<0.0001	0.117	0.064	<1	53	<2	<2	<2	<2	53	<5	30	80	<100		
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	3/09/2018	Normal	Hawkesbury Sandstone		*0.68*	0.014	<0.0001	<0.001	-	0.002	<0.001	<0.05	<0.001	0.22	<0.0001	0.003	<0.005	<1	9	<2	<2	3	3	12	<5	<20	30	100		
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	4/08/2020	Normal	Hawkesbury Sandstone		*0.31*	0.002	<0.0001	<0.001	-	<0.001	<0.001	2.9	<0.001	0.299	<0.0001	0.001	<0.005	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100		
Outside Buffer - Silverwater	SMW_BH027	SMW_BH027	9/04/2018	Normal	Hawkesbury Sandstone		0.02	<0.001	<0.0001	<0.001	-	0.006	<0.001	6.71	<0.001	0.541	<0.0001	0.008	0.006	<1	10	<2	<2	<2	<2	10	<5	20	30	<100		
Outside Buffer - Silverwater	SMW_BH029	SMW_BH029	9/12/2018	Normal	Hawkesbury Sandstone		<0.01	0.002	<0.0001	<0.001	-	0.018	<0.001	4.38	<0.001	2.04	<0.0001	0.01	0.014	<1	3	<2	<2	<2	<2	3	<5	<20	<20	<100		
Parramatta Station	SMW_BH002	SMW_BH002	4/09/2018	Normal	Hawkesbury Sandstone		0.01	<0.001	<0.0001	<0.001	-	<0.001	<0.001	1.28	<0.001	0.478	<0.0001	<0.001	<0.005	<1	<2	<2	<2	<2	<2	<1	<5	<20	<20	<100		
Parramatta Station	SMW_BH004_w	SMW_BH004_w	3/11/2020	Normal	Hawkesbury Sandstone		*0.09*	<0.001	<0.0001	<0.001	-	<0.001	0.001	<0.05	<0.001	0.029	<0.0001	0.182	0.013	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100		
Parramatta Station	SMW_BH048_w	SMW_BH048_w	3/11/2020	Normal	Hawkesbury Sandstone		*0.03*	<0.001	<0.0001	<0.001	-	<0.001	<0.001	0.63	<0.001	0.173	<0.0001	<0.001	<0.005	<1	<2	<2	<2	<2	<2	-	<1	<20	<20	<100		
Tunnel CJ/RCRB	SMW_BH057	SMW_BH057	11/12/2019	Normal	Hawkesbury Sandstone		*0.04*	0.017	<0.0001	<0.001	<0.05	0.004	<0.001	4	<0.001	0.658	<0.0001	0.002	<0.005	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100		
Statistical Summary																															
Number of Results							12	12	12	12	4	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	12	12		
Number of Detects							11	7	0	1	0	8	3	9	1	12	0	10	6	0	5	0	0	1	1	5	0	2	4	1	
Minimum Concentration							<0.01	<0.001	<0.0001	<0.001	<0.01	<0.001	<0.001	<0.05	<0.001	0.029	<0.0001	<0.001	<0.005	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20	<100		
Minimum Detect							0.01	0.001	ND	0.002	ND	0.001	0.001	0.53	0.01	0.029	ND	0.001	0.005	ND	3	ND	ND	3	3	3	ND	20	20	100	
Maximum Concentration							0.68	0.019	<0.0001	0.002	<0.05	0.06	0.002	556	0.01	14.4	<0.0001	0.182	0.064	<1	53	<2	<2	3	3	53	<5	30	80	100		
Maximum Detect							0.68	0.019	ND	0.002	ND	0.06	0.002	556	0.01	14.4	ND	0.182	0.064	ND	53	ND	ND	3	3	53	ND	30	80	100	
Average Concentration							0.17	0.0058	0.0001	0.0011	0.02	0.0088	0.0012	49	0.0018	1.7	0.0001	0.028	0.012	1	7.8	2	2	2.1	2.1	8	3.3	21	27	100		
Median Concentration							0.045	0.0015	0.0001	0.001	0.01	0.0025	0.001	2.09	0.001	0.5095	0.0001	0.0025	0.005	1	2	2	2	2	2	1	5	20	20	100		
Standard Deviation							0.21	0.0071	0	0.00029	0.02	0.017	0.0004	160	0.0026	4	0	0.058	0.017	0	15	0	0	0.29	0.29	15	2.1	2.9	17	0		
Number of Guideline Exceedances							9	0	0	0	4	8	2	0	1	1	0	2	1	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances(Detects Only)							9	0	0	0	0	8	2	0	1	1	0	2	1	0	0	0	0	0	0	0	0	0	0	0	
95% UCL	(exceeds adopted criteria)						0.404					0.0229	0.0014		0.005	6.764		0.196	0.0327												
Env Stds Comments																															
Data Comments																															

Draft

						NEPM 2013				TRH - NEPM 1999					PAHs - standard 16														PAHs - extended			Phe	
						>C10-C16 Fraction	F3 (>C16-C34 Fraction)	F4 (>C34-C40 Fraction)	>C10-C40 (Sum of Total)	C6-C9 Fraction	C10-C14 Fraction	C15-C28 Fraction	C29-C36 Fraction	C10-C36 (Sum of Total)	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b+j)fluoranthene	Benzo(k)fluoranthene	Benzo(g,h,i)perylene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Total 8 PAHs (as BaP TEQ)(zero LOR) - Lab Calc	PAHs (Sum of Total) - Calc	2-methylnaphthalene	3-methylcholanthrene	7,12-dimethylbenz(a)anthracene	2-Chlorophenol	2,4-Dichlorophenol
						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	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
EQL						100	100	100	100	20	50	100	50	50	1	1	1	1	0.5	1	1	1	1	1	1	1	1	1	1	0.5		2	2	2	2	2
ADWG 2011 Recreational (v3.6 updated 2021)																			**0.1**																**3000**	**2000**
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																																				
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																			0.2					1.4			2							
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																																				
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																															
Clyde MSF	SMW_BH707	SMW_BH707	7/05/2021	Normal	Hawkesbury Sandstone	<100	<100	<100	<100	<20	<50	<100	<50	<50	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<2	<2	<2	<2	<2
Outside - Rosehill	SMW_BH007	SMW_BH007	4/09/2018	Normal	Hawkesbury Sandstone	-	<100	<100	<100	<20	<50	<100	<50	<50	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-
Outside Buffer - Clyde Refinery	SMW_BH020	SMW_BH020	18/09/2018	Normal	Hawkesbury Sandstone	-	<100	<100	<100	<20	<50	<100	<50	<50	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-
Outside Buffer - Parramatta	SMW_BH014	SMW_BH014	9/03/2018	Normal	Hawkesbury Sandstone	-	240	<100	**240**	80	<50	220	<50	220	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	3/09/2018	Normal	Hawkesbury Sandstone	-	960	<100	**1060**	30	90	770	210	1070	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	1.9	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	4/08/2020	Normal	Hawkesbury Sandstone	-	170	<100	**170**	<20	<50	150	<50	150	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH027	SMW_BH027	9/04/2018	Normal	Hawkesbury Sandstone	-	<100	<100	<100	20	<50	<100	<50	<50	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH029	SMW_BH029	9/12/2018	Normal	Hawkesbury Sandstone	-	<100	<100	<100	<20	<50	<100	<50	<50	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-
Parramatta Station	SMW_BH002	SMW_BH002	4/09/2018	Normal	Hawkesbury Sandstone	-	<100	<100	<100	<20	<50	<100	<50	<50	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-
Parramatta Station	SMW_BH004_w	SMW_BH004_w	3/11/2020	Normal	Hawkesbury Sandstone	-	<100	<100	<100	<20	<50	<100	<50	<50	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-
Parramatta Station	SMW_BH048_w	SMW_BH048_w	3/11/2020	Normal	Hawkesbury Sandstone	-	<100	<100	<100	<20	<50	<100	<50	<50	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	-	-	-	-	-
Tunnel CJ/RCRB	SMW_BH057	SMW_BH057	11/12/2019	Normal	Hawkesbury Sandstone	-	<100	<100	<100	<20	<50	<100	<50	<50	<1	<1	<1	<1	**<0.5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<2	<2	<2	<2	<2
Statistical Summary																																				
Number of Results						1	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	2	2	2	2	2
Number of Detects						0	3	0	3	3	1	3	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Minimum Concentration						<100	<100	<100	<100	<20	<50	<100	<50	<50	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<2	<2	<2	<2	<2
Minimum Detect						ND	170	ND	170	20	90	150	210	150	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.9	ND	ND	ND	ND	ND
Maximum Concentration						<100	960	<100	1060	80	90	770	210	1070	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	1.9	<2	<2	<2	<2	<2
Maximum Detect						ND	960	ND	1060	80	90	770	210	1070	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.9	ND	ND	ND	ND	ND
Average Concentration							189	100	198	26	53	170	63	158	1	1	1	1	0.5	1	1	1	1	1	1	1	1	1	1	0.5	0.62					
Median Concentration						100	100	100	100	20	50	100	50	50	1	1	1	1	0.5	1	1	1	1	1	1	1	1	1	1	0.5	0.5	2	2	2	2	2
Standard Deviation							247	0	275	17	12	192	46	292	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4					
Number of Guideline Exceedances						0	0	0	0	0	0	0	0	0	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL	(exceeds adopted criteria)																																			
Env Stds Comments																																				
Data Comments																																				

Draft

							Phenols - Halogenated					Phenols - Non-Halogenated					Phenols - total	OC Pesticides																
							2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,6-Dichlorophenol	4-Chloro-3-methylphenol	Pentachlorophenol	Phenol	2-Nitrophenol	2-Methylphenol (o-Cresol)	3,4-Methylphenol (m,p-cresol)	2,4-Dimethylphenol	Phenolics Total	DDT (total)	4,4'-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC	d-BHC	4,4 DDD	DDE	DDT+DDE+DDD - Lab Calc	Dieldrin	Endosulfan I (alpha)	Endosulfan II (beta)	Endosulfan Sulfate	Endrin	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Hexachlorobenzene
							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	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
EQL							2	2	2	2	4	2	2	2	4	2			2	2	2	4	2	2	2		4	2	2	2	2	2	2	2	4
ADWG 2011 Recreational (v3.6 updated 2021)								200			100											3											100	3		
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																																			
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)											22	400																			0.008				0.1
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																																			
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																														
Clyde MSF	SMW_BH707	SMW_BH707	7/05/2021	Normal	Hawkesbury Sandstone		<2	<2	<2	<2	<4	<2	<2	<2	<4	<2	-	<4	<2	<2	<2	<4	<2	<2	<2	-	<4	<2	<2	<2	<2	<2	<2	<2	<2	<4
Outside - Rosehill	SMW_BH007	SMW_BH007	4/09/2018	Normal	Hawkesbury Sandstone		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Clyde Refinery	SMW_BH020	SMW_BH020	18/09/2018	Normal	Hawkesbury Sandstone		-	-	-	-	-	-	-	-	-	-	<50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Parramatta	SMW_BH014	SMW_BH014	9/03/2018	Normal	Hawkesbury Sandstone		-	-	-	-	-	-	-	-	-	-	300	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	3/09/2018	Normal	Hawkesbury Sandstone		-	-	-	-	-	-	-	-	-	-	<50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	4/08/2020	Normal	Hawkesbury Sandstone		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH027	SMW_BH027	9/04/2018	Normal	Hawkesbury Sandstone		-	-	-	-	-	-	-	-	-	-	<50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH029	SMW_BH029	9/12/2018	Normal	Hawkesbury Sandstone		-	-	-	-	-	-	-	-	-	-	<50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH002	SMW_BH002	4/09/2018	Normal	Hawkesbury Sandstone		-	-	-	-	-	-	-	-	-	-	<50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH004_w	SMW_BH004_w	3/11/2020	Normal	Hawkesbury Sandstone		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH048_w	SMW_BH048_w	3/11/2020	Normal	Hawkesbury Sandstone		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunnel CJ/RCRB	SMW_BH057	SMW_BH057	11/12/2019	Normal	Hawkesbury Sandstone		<2	<2	<2	<2	<4	<2	<2	<2	<4	<2	-	<4	-	<2	<2	<4	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<4
Statistical Summary																																			
Number of Results							2	2	2	2	2	2	2	2	2	2	6	2	1	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2
Number of Detects							0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration							<2	<2	<2	<2	<4	<2	<2	<2	<4	<2	<50	<4	<2	<2	<2	<4	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<4
Minimum Detect							ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	300	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration							<2	<2	<2	<2	<4	<2	<2	<2	<4	<2	300	<4	<2	<2	<2	<4	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<4
Maximum Detect							ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	300	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration																	92																			
Median Concentration							2	2	2	2	4	2	2	2	4	2	50	4	2	2	2	4	2	2	2	2	4	2	2	2	2	2	2	2	2	4
Standard Deviation																	102																			
Number of Guideline Exceedances							0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2	0	0	2
Number of Guideline Exceedances(Detects Only)							0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL	(exceeds adopted criteria)																																		
Env Stds Comments																																			
Data Comments																																			

Draft

| | | | | | | | | | | | | | | OP Pesticides | | | | | | | | | | | | | | | | | | | Chlorinated Hydrocarbons | | | | | | | | | | | | | | | | | | |

| | | |

						MAH						SVOCs																					
						Di-n-octyl phthalate	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	Styrene	n-butylbenzene	n-propylbenzene	sec-butylbenzene	tert-butylbenzene	p-isopropyltoluene	1-naphthylamine	2-(acetylamino) fluorene	2-nitroaniline	3,3-Dichlorobenzidine	3-nitroaniline	4-(dimethylamino) azobenzene	4-bromophenyl phenyl ether	4-chloroaniline	4-chlorophenyl phenyl ether	4-nitroaniline	4-Nitroquinoline-N-oxide	5-nitro-o-toluidine	Aniline	Azobenzene	Bis(2-chloroethoxy) methane	Bis(2-chloroethyl)ether	Carbazole	Chlorobenzilate	Dibenzofuran	Hexachlorocyclopentadiene	Hexachloroethane	Hexachloropropene
						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	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	µg/L	µg/L
EQL						2	5	5	5	5	5	5	5	5	5	2	2	4	2	4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	10	2	2
ADWG 2011 Recreational (v3.6 updated 2021)										300																											
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																																					
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)									30																												
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																																					
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																																
Clyde MSF	SMW_BH707	SMW_BH707	7/05/2021	Normal	Hawkesbury Sandstone	<2	<5	<5	<5	<5	<5	<5	<5	<5	<5	<2	<2	<4	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<10	<2	<2
Outside - Rosehill	SMW_BH007	SMW_BH007	4/09/2018	Normal	Hawkesbury Sandstone	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Clyde Refinery	SMW_BH020	SMW_BH020	18/09/2018	Normal	Hawkesbury Sandstone	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Parramatta	SMW_BH014	SMW_BH014	9/03/2018	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	3/09/2018	Normal	Hawkesbury Sandstone	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	4/08/2020	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH027	SMW_BH027	9/04/2018	Normal	Hawkesbury Sandstone	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH029	SMW_BH029	9/12/2018	Normal	Hawkesbury Sandstone	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH002	SMW_BH002	4/09/2018	Normal	Hawkesbury Sandstone	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH004_w	SMW_BH004_w	3/11/2020	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH048_w	SMW_BH048_w	3/11/2020	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunnel CJ/RCRB	SMW_BH057	SMW_BH057	11/12/2019	Normal	Hawkesbury Sandstone	<2	<5	<5	<5	<5	<5	<5	<5	<5	<5	<2	<2	<4	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<10	<2	<2
Statistical Summary																																					
Number of Results						2	8	8	8	8	8	8	8	8	8	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Number of Detects						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration						<2	<5	<5	<5	<5	<5	<5	<5	<5	<5	<2	<2	<4	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<10	<2	<2
Minimum Detect						ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration						<2	<5	<5	<5	<5	<5	<5	<5	<5	<5	<2	<2	<4	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<10	<2	<2
Maximum Detect						ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration							5	5	5	5	5	5	5	5	5																							
Median Concentration						2	5	5	5	5	5	5	5	5	5	2	2	4	2	4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	10	2	2
Standard Deviation							0	0	0	0	0	0	0	0	0																							
Number of Guideline Exceedances						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL	(exceeds adopted criteria)																																				
Env Stds Comments																																					
Data Comments																																					

Draft

| | | | | | | | | | | | | | VOCs | | | | | | | | | | | | |

									PFAS - Perfluoroalkyl Carboxylic Acids													PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Sulfon			
									trans-1,3-dichloropropene	trans-1,2-dichloroethene	trans-1,4-Dichloro-2-butene	Trichlorofluoromethane	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecanesulfonic acid (PFDS)	Perfluorodecane sulfonic acid ammonium salt	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamidoethanol (MEFOSE)
									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	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL									5	5	5	50	0.1	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.05	0.02	0.02	0.02	0.01	0.02		0.02	0.05	0.05	0.05
ADWG 2011 Recreational (v3.6 updated 2021)																	5.6															
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																																
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																																
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																	19										0.00023					
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																											
Clyde MSF	SMW_BH707	SMW_BH707	7/05/2021	Normal	Hawkesbury Sandstone	<5	<5	<5	<50	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.01	-	<0.02	<0.02	<0.05	<0.05	<0.05
Outside - Rosehill	SMW_BH007	SMW_BH007	4/09/2018	Normal	Hawkesbury Sandstone	<5	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.12	<0.12	<0.12
Outside Buffer - Clyde Refinery	SMW_BH020	SMW_BH020	18/09/2018	Normal	Hawkesbury Sandstone	<5	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.12	<0.12	<0.12
Outside Buffer - Parramatta	SMW_BH014	SMW_BH014	9/03/2018	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	3/09/2018	Normal	Hawkesbury Sandstone	<5	<5	<5	<50	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.01	-	<0.02	<0.02	<0.05	<0.05	<0.05
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	4/08/2020	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH027	SMW_BH027	9/04/2018	Normal	Hawkesbury Sandstone	<5	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.12	<0.12	<0.12
Outside Buffer - Silverwater	SMW_BH029	SMW_BH029	9/12/2018	Normal	Hawkesbury Sandstone	<5	<5	<5	<50	<0.1	<0.02	<0.02	<0.02	<0.01	-	-	-	-	-	-	<0.02	-	<0.02	<0.01	-	-	-	-	-	-
Parramatta Station	SMW_BH002	SMW_BH002	4/09/2018	Normal	Hawkesbury Sandstone	<5	<5	<5	<50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH004_w	SMW_BH004_w	3/11/2020	Normal	Hawkesbury Sandstone	-	-	-	-	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.01	-	<0.02	<0.02	<0.02	<0.02	<0.05
Parramatta Station	SMW_BH048_w	SMW_BH048_w	3/11/2020	Normal	Hawkesbury Sandstone	-	-	-	-	<0.1	0.04	0.04	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	0.01	-	-	<0.02	<0.02	<0.02	<0.05
Tunnel CJ/RCRB	SMW_BH057	SMW_BH057	11/12/2019	Normal	Hawkesbury Sandstone	<5	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.12
Statistical Summary																																
Number of Results						8	8	8	8	9	9	9	9	9	8	8	8	8	8	8	9	8	9	9	1	6	8	8	8	8
Number of Detects						0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Minimum Concentration						<5	<5	<5	<50	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.01	<0.05	<0.02	<0.02	<0.02	<0.02	<0.05
Minimum Detect						ND	ND	ND	ND	ND	0.04	0.04	ND	0.03	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.01	ND	ND	ND	ND	ND	ND
Maximum Concentration						<5	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.12	<0.12
Maximum Detect						ND	ND	ND	ND	ND	0.04	0.04	ND	0.03	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.01	ND	ND	ND	ND	ND	ND
Average Concentration						5	5	5	50	0.14	0.036	0.036	0.033	0.03	0.035	0.035	0.035	0.035	0.035	0.085	0.033	0.035	0.033	0.028		0.035	0.035	0.069	0.069	0.085
Median Concentration						5	5	5	50	0.1	0.04	0.04	0.02	0.03	0.035	0.035	0.035	0.035	0.035	0.085	0.02	0.035	0.02	0.01	0.05	0.035	0.035	0.05	0.05	0.085
Standard Deviation						0	0	0	0	0.053	0.015	0.015	0.016	0.02	0.016	0.016	0.016	0.016	0.016	0.037	0.016	0.016	0.016	0.021		0.016	0.016	0.044	0.044	0.037
Number of Guideline Exceedances						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
95% UCL	(exceeds adopted criteria)																							0.0584						

Env Stds Comments

Data Comments

Draft

	amide	S - Fluorotelomer Sulfonic Ac							PFAS
	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	PFAS (Sum of Total)	PFAS (Sum of Total)(WA DER List)	PFOS/PFHxS (Sum of Total) - Auto Calc	Perfluoroheptanesulfonic acid
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.05	0.05	0.05	0.05	0.05	0.01	0.01		
ADWG 2011 Recreational (v3.6 updated 2021)								0.7	
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine									
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)									
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system									

Monitoring_Zone	Field_ID	Location_Code	Sampled_Date_Time	Sample_Type	Alternative_Name								
Clyde MSF	SMW_BH707	SMW_BH707	7/05/2021	Normal	Hawkesbury Sandstone	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.02
Outside - Rosehill	SMW_BH007	SMW_BH007	4/09/2018	Normal	Hawkesbury Sandstone	<0.12	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	<0.05
Outside Buffer - Clyde Refinery	SMW_BH020	SMW_BH020	18/09/2018	Normal	Hawkesbury Sandstone	<0.12	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	<0.05
Outside Buffer - Parramatta	SMW_BH014	SMW_BH014	9/03/2018	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	3/09/2018	Normal	Hawkesbury Sandstone	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	<0.01	<0.02
Outside Buffer - Silverwater	SMW_BH024	SMW_BH024	4/08/2020	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-
Outside Buffer - Silverwater	SMW_BH027	SMW_BH027	9/04/2018	Normal	Hawkesbury Sandstone	<0.12	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	<0.05
Outside Buffer - Silverwater	SMW_BH029	SMW_BH029	9/12/2018	Normal	Hawkesbury Sandstone	-	<0.05	<0.05	<0.05	<0.05	-	-	<0.01	-
Parramatta Station	SMW_BH002	SMW_BH002	4/09/2018	Normal	Hawkesbury Sandstone	-	-	-	-	-	-	-	-	-
Parramatta Station	SMW_BH004_w	SMW_BH004_w	3/11/2020	Normal	Hawkesbury Sandstone	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.02
Parramatta Station	SMW_BH048_w	SMW_BH048_w	3/11/2020	Normal	Hawkesbury Sandstone	<0.05	<0.05	<0.05	<0.05	<0.05	0.36	0.12	0.01	<0.02
Tunnel CJ/RCRB	SMW_BH057	SMW_BH057	11/12/2019	Normal	Hawkesbury Sandstone	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Statistical Summary

Number of Results	8	9	9	9	9	4	4	9	8
Number of Detects	0	0	0	0	0	1	1	1	0
Minimum Concentration	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.02
Minimum Detect	ND	ND	ND	ND	ND	0.36	0.12	0.01	ND
Maximum Concentration	<0.12	<0.05	<0.05	<0.05	<0.05	0.36	0.12	<0.05	<0.05
Maximum Detect	ND	ND	ND	ND	ND	0.36	0.12	0.01	ND
Average Concentration	0.085	0.05	0.05	0.05	0.05	0.11	0.048	0.028	0.035
Median Concentration	0.085	0.05	0.05	0.05	0.05	0.03	0.03	0.01	0.035
Standard Deviation	0.037	0	0	0	0	0.17	0.052	0.021	0.016
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0
95% UCL (exceeds adopted criteria)									

Env Stds Comments

Data Comments

Draft

	Inorganics			Biological			Major Ions											Minor Ions		Nutrients					
	pH (Lab)	Electrical conductivity (lab)	Total Dissolved Solids @ 180°C	Pseudomonas aeruginosa	Alkalinity (Hydroxide as CaCO3)	Alkalinity (total as CaCO3)	Calcium (Filtered)	Magnesium (Filtered)	Potassium (Filtered)	Sodium (Filtered)	Chloride	Sulfate	Fluoride	Cations Total	Anions Total	Ionic Balance	Bicarbonate ion (HCO3-)	Carbonate ion	Ammonia as N	Nitrate (as N)	Nitrite (as N)	Nitrogen (Total Oxidised) (as N)	Nitrogen (Total)	Kjeldahl Nitrogen Total
	pH units	µS/cm	mg/L	CFU/100mL	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	%	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL	0.01	1			1	1	1	1	1	1	1		0.1	0.01	0.01	0.01			0.01	0.01	0.01	0.01	0.1	0.1
ADWG 2011 Recreational (v3.6 updated 2021)												**5000**[#1]	**15**							**112.9**[#2]	**9.1**[#3]			
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine	*7-8.5*																		*0.015*[#4]			*0.015*	*0.3*	
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																			0.91[#5]					
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																								

Monitoring_Zone	Field_ID	Location_Code	Sampled_Date_Time	Sample_Type	Alternative_Name																				
Clyde MSF	SMW_ENV044_w	SMW_ENV044_w	20/11/2019	Normal	Alluvial	7.18	25,200	16,400	-	<1	947	957	709	44	3940	8380	<1	0.3	279	255	4.36	947	<1	*3.57*	<0.01	0.02	*0.02*	*3.8*	3.8
Clyde MSF	SMW_ENV044_w	SMW_ENV044_w	23/03/2020	Normal	Alluvial	-	-	-	<1	-	-	-	-	-	-	-	58	-	-	-	-	-	-	-	<0.01	-	-	-	-
Clyde MSF	SMW_ENV144	SMW_ENV144	25/11/2019	Normal	Alluvial	7.83	25,400	15,700	-	<1	567	529	644	17	3980	8260	292	-	253	250	0.5	567	<1	*1.27*	<0.01	<0.01	<0.01	*1.3*	1.3
Clyde MSF	SMW_ENV144	SMW_ENV144	20/03/2020	Normal	Alluvial	7.15	26,700	21,300	<1	<1	502	468	683	15	3990	9150	364	0.4	254	276	4.2	502	<1	*1.14*	<0.1	<0.1	*<0.1*	*1*	1
Clyde MSF	SMW_ENV146	SMW_ENV146	23/09/2019	Normal	Alluvial	6.96	37,800	26,100	-	<1	223	518	1140	16	6220	12,100	2030	<0.1	391	388	0.33	<1	<1	*0.1*	<0.01	<0.01	<0.01	*<0.5*	<0.5
Clyde MSF	SMW_ENV148_w	SMW_ENV148_w	21/11/2019	Normal	Alluvial	7.14	29,200	16,300	-	<1	259	354	803	10	4740	10,900	667	0.2	290	326	5.89	259	<1	*0.35*	0.01	<0.01	0.01	*<0.5*	<0.5
Clyde MSF	SMW_ENV149_w	SMW_ENV149_w	20/11/2019	Normal	Alluvial	7.07	25,200	15,400	-	<1	307	290	722	10	4500	8420	638	0.4	270	257	2.46	307	<1	*0.72*	0.02	<0.01	*0.02*	*0.8*	0.8
Clyde MSF	SMW_ENV149_w	SMW_ENV149_w	20/03/2020	Normal	Alluvial	-	-	-	<1	-	-	-	-	-	-	-	622	-	-	-	-	-	-	-	<0.01	-	-	-	-
Clyde MSF	SMW_ENV150_s	SMW_ENV150_s	20/11/2019	Normal	Fill	*3.84*	30,400	26,500	-	<1	<1	608	1250	84	5570	6510	**12,200**	0.3	378	438	7.36	<1	<1	*8.1*	0.44	<0.1	*0.44*	*7.4*	7
Clyde MSF	SMW_ENV150_w	SMW_ENV150_w	20/11/2019	Normal	Alluvial	7.53	59,000	43,600	-	<1	147	1320	1580	117	11,400	18,900	4590	0.2	695	632	4.76	147	<1	*0.7*	0.27	0.68	*0.95*	*1.2*	0.3

Statistical Summary

Number of Results	8	8	8	3	8	8	8	8	8	8	8	10	7	8	8	8	8	8	8	10	8	8	8	8
Number of Detects	8	8	8	0	0	7	8	8	8	8	8	9	6	8	8	8	6	0	8	4	2	5	6	6
Minimum Concentration	3.84	25200	15400	<1	<1	<1	290	644	10	3940	6510	<1	<0.1	253	250	0.33	<1	<1	0.1	<0.01	<0.01	<0.01	<0.5	0.3
Minimum Detect	3.84	25200	15400	ND	ND	147	290	644	10	3940	6510	58	0.2	253	250	0.33	147	ND	0.1	0.01	0.02	0.01	0.8	0.3
Maximum Concentration	7.83	59000	43600	<1	<1	947	1320	1580	117	11400	18900	12200	0.4	695	632	7.36	947	<1	8.1	0.44	0.68	0.95	7.4	7
Maximum Detect	7.83	59000	43600	ND	ND	947	1320	1580	117	11400	18900	12200	0.4	695	632	7.36	947	ND	8.1	0.44	0.68	0.95	7.4	7
Average Concentration	6.8	32363	22663	1	1	369	631	941	39	5543	10328	2146	0.27	351	353	3.7	341	1	2	0.089	0.12	0.2	2.1	1.9
Median Concentration	7.145	27950	18850	1	1	283	523.5	763	16.5	4620	8785	630	0.3	284.5	301	4.28	283	1	0.93	0.01	0.015	0.02	1.1	0.9
Standard Deviation	1.2	11564	9619	0	0	296	343	342	40	2505	3866	3792	0.11	149	132	2.5	321	0	2.7	0.15	0.23	0.34	2.4	2.3
Number of Guideline Exceedances	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	8	0	0	5	8	0
Number of Guideline Exceedances(Detects Only)	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	8	0	0	4	6	0
95% UCL (exceeds adopted criteria)	7.67											8663							6.84			0.717	5.46	

Env Stds Comments

#1:Not specifically guideline value: >500mg/L can have purgative effects
#2:Guideline value calculated by dividing Nitrate (as Nitrate) value (50 mg/L) by 4.427
#3:Guideline value calculated by dividing Nitrite (as Nitrite) value (30 mg/L) by molecular weight (3.2967033).
#4:assumed same as NH4
#5:Measured as NH3-N at pH 8
#6:Values taken from "Updating nitrate toxicity effects on freshwater aquatic species, 2013"
#7:In absence of total As guideline, As (V) guideline has been adopted.
#8:In absence of total Cr guideline, Cr (VI) guideline has been adopted.
#9:Ammonia as total ammonia, measured as [NH3-N] at pH 8.

Data Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Draft

						Metals											BTEXN								TR	
						Reactive Phosphorus as P	Phosphorus (Total)	Arsenic (Filtered)	Cadmium (Filtered)	Chromium (III+VI) (Filtered)	Chromium (hexavalent) (Filtered)	Cobalt (Filtered)	Copper (Filtered)	Iron (Filtered)	Lead (Filtered)	Manganese (Filtered)	Mercury (Filtered)	Nickel (Filtered)	Zinc (Filtered)	Benzene	Toluene	Ethylbenzene	Xylene (o)	Xylene (m & p)	Xylene Total	BTEX (Sum of Total) - Lab Calc	Naphthalene	F1 (C6-C10 minus BTEX)	C6-C10 Fraction
						mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL						0.01	0.01	0.001	0.0001	0.001	0.01	0.001	0.001	0.05	0.001	0.001	0.0001	0.001	0.005	1	2	2	2	2	2	1	1	20	20
ADWG 2011 Recreational (v3.6 updated 2021)								0.1	0.02		0.5		20		0.1	5	0.01	0.2		10	8000	3000			6000				
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine						*0.005*	*0.03*																						
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)									0.0055	0.0044[#8]	0.0044	0.001	0.0013		0.0044		0.0004	0.07	0.015	700	180	80					70		
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																													
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																								
Clyde MSF	SMW_ENV044_w	SMW_ENV044_w	20/11/2019	Normal	Alluvial	*0.04*	*0.03*	<0.001	<0.0001	<0.001	<0.01	<0.001	<0.001	2.99	<0.001	1.22	<0.0001	<0.001	0.016	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20
Clyde MSF	SMW_ENV044_w	SMW_ENV044_w	23/03/2020	Normal	Alluvial	-	-	-	-	-	-	-	-	-	-	1.11	-	-	-	-	-	-	-	-	-	-	-	-	-
Clyde MSF	SMW_ENV144	SMW_ENV144	25/11/2019	Normal	Alluvial	*<0.01*	<0.02	0.002	<0.0001	<0.001	<0.01	-	0.003	-	<0.001	0.416	<0.0001	0.009	0.026	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20
Clyde MSF	SMW_ENV144	SMW_ENV144	20/03/2020	Normal	Alluvial	*<0.05*	*0.15*	0.004	<0.0001	<0.001	-	0.016	<0.001	14.6	<0.001	0.397	<0.0001	0.008	0.013	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20
Clyde MSF	SMW_ENV146	SMW_ENV146	23/09/2019	Normal	Alluvial	*<0.01*	*<0.05*	<0.01	<0.001	<0.01	<0.01	0.014	<0.01	<0.1	<0.01	0.6	0.0004	0.011	<0.05	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20
Clyde MSF	SMW_ENV148_w	SMW_ENV148_w	21/11/2019	Normal	Alluvial	*<0.01*	*<0.05*	0.001	<0.0001	<0.001	<0.01	0.026	0.002	0.88	<0.001	0.511	<0.0001	0.004	0.01	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20
Clyde MSF	SMW_ENV149_w	SMW_ENV149_w	20/11/2019	Normal	Alluvial	*<0.01*	<0.01	0.002	<0.0001	<0.001	<0.01	0.038	0.001	16.6	<0.001	0.323	<0.0001	0.012	0.016	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20
Clyde MSF	SMW_ENV149_w	SMW_ENV149_w	20/03/2020	Normal	Alluvial	-	-	-	-	-	-	-	-	21	-	0.309	-	-	-	-	-	-	-	-	-	-	-	-	-
Clyde MSF	SMW_ENV150_s	SMW_ENV150_s	20/11/2019	Normal	Fill	*<0.01*	*0.04*	0.069	0.0084	0.06	<0.01	0.637	0.051	550	0.172	24.8	0.0002	1.11	3.38	<1	3	<2	5	6	11	14	<1	30	40
Clyde MSF	SMW_ENV150_w	SMW_ENV150_w	20/11/2019	Normal	Alluvial	*<0.01*	*0.08*	<0.01	<0.001	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	0.076	<0.0001	<0.01	<0.05	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20
Statistical Summary																													
Number of Results						8	8	8	8	8	7	7	8	8	8	10	8	8	8	8	8	8	8	8	8	8	8	8	8
Number of Detects						1	4	5	1	1	0	5	4	6	1	10	2	6	6	0	1	0	1	1	1	1	0	1	1
Minimum Concentration						<0.01	<0.01	<0.001	<0.0001	<0.001	<0.01	<0.001	<0.001	<0.1	<0.001	0.076	<0.0001	<0.001	0.01	<1	<2	<2	<2	<2	<2	<1	<1	<20	<20
Minimum Detect						0.04	0.03	0.001	0.0084	0.06	ND	0.014	0.001	0.88	0.172	0.076	0.0002	0.004	0.01	ND	3	ND	5	6	11	14	ND	30	40
Maximum Concentration						<0.05	0.15	0.069	0.0084	0.06	<0.01	0.637	0.051	550	0.172	24.8	0.0004	1.11	3.38	<1	3	<2	5	6	11	14	<1	30	40
Maximum Detect						0.04	0.15	0.069	0.0084	0.06	ND	0.637	0.051	550	0.172	24.8	0.0004	1.11	3.38	ND	3	ND	5	6	11	14	ND	30	40
Average Concentration						0.019	0.054	0.012	0.0014	0.011	0.01	0.11	0.0099	76	0.025	3	0.00015	0.15	0.45	1	2.1	2	2.4	2.5	3.1	2.6	1	21	23
Median Concentration						0.01	0.045	0.003	0.0001	0.001	0.01	0.016	0.0025	8.795	0.001	0.4635	0.0001	0.0095	0.021	1	2	2	2	2	2	1	1	20	20
Standard Deviation						0.016	0.044	0.023	0.0029	0.02	0	0.23	0.017	192	0.06	7.7	0.00011	0.39	1.2	0	0.35	0	1.1	1.4	3.2	4.6	0	3.5	7.1
Number of Guideline Exceedances						8	6	0	1	3	7	6	5	0	3	1	1	1	6	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)						1	4	0	1	1	0	5	3	0	1	1	1	1	4	0	0	0	0	0	0	0	0	0	0
95% UCL	(exceeds adopted criteria)					0.0441	0.084		0.00579	0.042		0.988	0.0416		0.117	13.6	0.000315	0.75	2.27										

Env Stds Comments

#1:Not specifically guideline value: >500mg/L can have purgative effects
#2:Guideline value calculated by dividing Nitrate (as Nitrate) value (50 mg/L) by 4.427
#3:Guideline value calculated by dividing Nitrite (as Nitrite) value (30 mg/L) by molecular weight (3.2967033).
#4:assumed same as NH4
#5:Measured as NH3-N at pH 8
#6:Values taken from "Updating nitrate toxicity effects on freshwater aquatic species, 2013"
#7:In absence of total As guideline, As (V) guideline has been adopted.
#8:In absence of total Cr guideline, Cr (VI) guideline has been adopted.
#9:Ammonia as total ammonia, measured as [NH3-N] at pH 8.

Data Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

DRAFT

| | | |

																Phenols - Halogenated					Phenols - Non-Halogenated					OC Pesticides																	
																2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,6-Dichlorophenol	4-Chloro-3-methylphenol	Pentachlorophenol	Phenol	2-Nitrophenol	2-Methylphenol (o-Cresol)	3,4-Methylphenol (m,p-cresol)	2,4-Dimethylphenol	DDT (total)	4,4'-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC	d-BHC	4,4 DDD	DDE	DDT+DDE+DDD - Lab Calc	Dieldrin	Endosulfan I (alpha)	Endosulfan II (beta)	Endosulfan Sulfate	Endrin	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl
																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	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
EQL																2	2	2	2	4	2	2	2	4	2		2	2	2	4	2	2	2	2	2	2	2	2	4	2	2	2
ADWG 2011 Recreational (v3.6 updated 2021)																	**200**			**100**										**3**									**100**			
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																																									
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																				22	400																0.008				0.1		0.009	
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																																									
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																																					
Clyde MSF	SMW_ENV044_w	SMW_ENV044_w	20/11/2019	Normal	Alluvial	<2	<2	<2	<2	<4	<2	<2	<2	<4	<2	<4	-	<2	<2	<4	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2				
Clyde MSF	SMW_ENV044_w	SMW_ENV044_w	23/03/2020	Normal	Alluvial	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clyde MSF	SMW_ENV144	SMW_ENV144	25/11/2019	Normal	Alluvial	<2	<2	<2	<2	<4	<2	<2	<2	<4	<2	<4	<2	<2	<2	<4	<2	<2	<2	-	<4	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2				
Clyde MSF	SMW_ENV144	SMW_ENV144	20/03/2020	Normal	Alluvial	<2	<2	<2	<2	<4	<2	<2	<2	<4	<2	<4	<2	<2	<2	<4	<2	<2	<2	-	<4	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2				
Clyde MSF	SMW_ENV146	SMW_ENV146	23/09/2019	Normal	Alluvial	<2	<2	<2	<2	<4	<2	<2	<2	<4	<2	<4	-	<2	<2	<4	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2				
Clyde MSF	SMW_ENV148_w	SMW_ENV148_w	21/11/2019	Normal	Alluvial	<2	<2	<2	<2	<4	<2	<2	<2	<4	<2	<4	-	<2	<2	<4	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2				
Clyde MSF	SMW_ENV149_w	SMW_ENV149_w	20/11/2019	Normal	Alluvial	<2	<2	<2	<2	<4	<2	<2	<2	<4	<2	<4	-	<2	<2	<4	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2				
Clyde MSF	SMW_ENV149_w	SMW_ENV149_w	20/03/2020	Normal	Alluvial	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clyde MSF	SMW_ENV150_s	SMW_ENV150_s	20/11/2019	Normal	Fill	<2	<2	<2	<2	<4	<2	<2	<2	<4	<2	<4	-	<2	<2	<4	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2				
Clyde MSF	SMW_ENV150_w	SMW_ENV150_w	20/11/2019	Normal	Alluvial	<2	<2	<2	<2	<4	<2	<2	<2	<4	<2	<4	-	<2	<2	<4	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2				
Statistical Summary																																										
Number of Results						8	8	8	8	8	8	8	8	8	8	8	2	8	8	8	8	8	8	6	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Number of Detects						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration						<2	<2	<2	<2	<4	<2	<2	<2	<4	<2	<4	<2	<2	<2	<4	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<4	<2	<2	<2
Minimum Detect						ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration						<2	<2	<2	<2	<4	<2	<2	<2	<4	<2	<4	<2	<2	<2	<4	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<4	<2	<2	<2
Maximum Detect						ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration						2	2	2	2	4	2	2	2	4	2	4		2	2	4	2	2	2	2	4	2	2	2	2	2	2	2	2	4	2	2	2				
Median Concentration						2	2	2	2	4	2	2	2	4	2	4	2	2	2	4	2	2	2	2	4	2	2	2	2	2	2	2	2	4	2	2	2				
Standard Deviation						0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
Number of Guideline Exceedances						0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0				
Number of Guideline Exceedances(Detects Only)						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
95% UCL	(exceeds adopted criteria)																																								

Env Stds Comments

#1:Not specifically guideline value: >500mg/L can have purgative effects
#2:Guideline value calculated by dividing Nitrate (as Nitrate) value (50 mg/L) by 4.427
#3:Guideline value calculated by dividing Nitrite (as Nitrite) value (30 mg/L) by molecular weight (3.2967033).
#4:assumed same as NH4
#5:Measured as NH3-N at pH 8
#6:Values taken from "Updating nitrate toxicity effects on freshwater aquatic species, 2013"
#7:In absence of total As guideline, As (V) guideline has been adopted.
#8:In absence of total Cr guideline, Cr (VI) guideline has been adopted.
#9:Ammonia as total ammonia, measured as [NH3-N] at pH 8.

Data Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

DRAFT

| | | |

						Explosives				Chlorinated Hydrocarbons		Herbicides	Nitroaromatics and Ketones					Solvents				Light Hydrocarbons	Phthalates					
						cis-1,2-dichloroethene	Hexachlorobutadiene	Vinyl chloride	1,3,5-Trinitrobenzene	2,4-Dinitrotoluene	2,6-dinitrotoluene	Nitrobenzene	Bromomethane	Dichlorodifluoromethane	Pronamide	2-Picoline	4-aminobiphenyl	Acetophenone	N-Nitrosodiphenyl & Diphenylamine	Pentachloronitrobenzene	2-hexanone (MBK)	Carbon disulfide	Isophorone	Vinyl acetate	Methane	Bis(2-ethylhexyl) phthalate	Butyl benzyl phthalate	Diethylphthalate	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate
						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	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL						5	2	50	2	4	4	2	50	50	2	2	2	2	4	2	50	5	2	50	10	10	2	2	2	2	2
ADWG 2011 Recreational (v3.6 updated 2021)							7	3					10		700					300						100					
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																														
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)								100																						
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system																														
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																									
Clyde MSF	SMW_ENV044_w	SMW_ENV044_w	20/11/2019	Normal	Alluvial	<5	<2	<50	<2	<4	<4	<2	<50	<50	<2	<2	<2	<2	<4	<2	<50	<5	<2	<50	10,900	<10	<2	<2	<2	<2	<2
Clyde MSF	SMW_ENV044_w	SMW_ENV044_w	23/03/2020	Normal	Alluvial	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4300	-	-	-	-	-	-
Clyde MSF	SMW_ENV144	SMW_ENV144	25/11/2019	Normal	Alluvial	<5	<2	<50	<2	<4	<4	<2	<50	<50	<2	<2	<2	<2	<4	<2	<50	<5	<50	<5	12	<10	<2	<2	<2	<2	<2
Clyde MSF	SMW_ENV144	SMW_ENV144	20/03/2020	Normal	Alluvial	<5	<2	<50	<2	<4	<4	<2	<50	<50	<2	<2	<2	<2	<4	<2	<50	<5	<50	<5	<10	<10	<2	<2	<2	<2	<2
Clyde MSF	SMW_ENV146	SMW_ENV146	23/09/2019	Normal	Alluvial	10	<2	<50	<2	<4	<4	<2	<50	<50	<2	<2	<2	<2	<4	<2	<50	<5	<2	<50	<10	<10	<2	<2	<2	<2	<2
Clyde MSF	SMW_ENV148_w	SMW_ENV148_w	21/11/2019	Normal	Alluvial	<5	<2	<50	<2	<4	<4	<2	<50	<50	<2	<2	<2	<2	<4	<2	<50	<5	<2	<50	<10	<10	<2	<2	<2	<2	<2
Clyde MSF	SMW_ENV149_w	SMW_ENV149_w	20/11/2019	Normal	Alluvial	<5	<2	<50	<2	<4	<4	<2	<50	<50	<2	<2	<2	<2	<4	<2	<50	<5	<2	<50	<10	<10	<2	<2	<2	<2	<2
Clyde MSF	SMW_ENV149_w	SMW_ENV149_w	20/03/2020	Normal	Alluvial	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-
Clyde MSF	SMW_ENV150_s	SMW_ENV150_s	20/11/2019	Normal	Fill	<5	<2	<50	<2	<4	<4	<2	<50	<50	<2	<2	<2	<2	<4	<2	<50	<5	<2	<50	-	<10	<2	<2	<2	<2	<2
Clyde MSF	SMW_ENV150_w	SMW_ENV150_w	20/11/2019	Normal	Alluvial	<5	<2	<50	<2	<4	<4	<2	<50	<50	<2	<2	<2	<2	<4	<2	<50	<5	<2	<50	<10	<10	<2	<2	<2	<2	<2
Statistical Summary																														
Number of Results						8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	9	8	8	8	8	8	8
Number of Detects						1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0
Minimum Concentration						<5	<2	<50	<2	<4	<4	<2	<50	<50	<2	<2	<2	<2	<4	<2	<50	<5	<2	<5	<10	<10	<2	<2	<2	<2	<2
Minimum Detect						10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	12	ND	ND	ND	ND	ND	ND
Maximum Concentration						10	<2	<50	<2	<4	<4	<2	<50	<50	<2	<2	<2	<2	<4	<2	<50	<5	<50	<50	10900	<10	<2	<2	<2	<2	<2
Maximum Detect						10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10900	ND	ND	ND	ND	ND	ND
Average Concentration						5.6	2	50	2	4	4	2	50	50	2	2	2	2	4	2	50	5	14	39	1697	10	2	2	2	2	2
Median Concentration						5	2	50	2	4	4	2	50	50	2	2	2	2	4	2	50	5	2	50	10	10	2	2	2	2	2
Standard Deviation						1.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	21	3731	0	0	0	0	0	0
Number of Guideline Exceedances						0	0	8	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL	(exceeds adopted criteria)																														

Env Stds Comments

#1:Not specifically guideline value: >500mg/L can have purgative effects
#2:Guideline value calculated by dividing Nitrate (as Nitrate) value (50 mg/L) by 4.427
#3:Guideline value calculated by dividing Nitrite (as Nitrite) value (30 mg/L) by molecular weight (3.2967033).
#4:assumed same as NH4
#5:Measured as NH3-N at pH 8
#6:Values taken from "Updating nitrate toxicity effects on freshwater aquatic species, 2013"
#7:In absence of total As guideline, As (V) guideline has been adopted.
#8:In absence of total Cr guideline, Cr (VI) guideline has been adopted.
#9:Ammonia as total ammonia, measured as [NH3-N] at pH 8.

Data Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Draft

| | | |

| | | | | | | | | | | | | VOCs | | | | | | | | | | | |

				PFAS - Perfluoroalkyl Carboxylic Acids												PFAS - Perfluoroalkyl Sulfonic Acids					PFAS - Perfluoroalkyl Sulfonamide						
	trans-1,2-dichloroethene	trans-1,4-Dichloro-2-butene	Trichlorofluoromethane	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid ammonium salt	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamidoethanol (MEFOSE)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)
	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	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	5	5	50	0.1	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.05	0.02	0.02	0.02	0.01		0.02	0.05	0.05	0.05	0.05	0.05
ADWG 2011 Recreational (v3.6 updated 2021)								5.6																		
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine																										
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)																										
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system								19											0.00023							
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**																						
Clyde MSF	SMW_ENV044_w	SMW_ENV044_w	20/11/2019	Normal	Alluvial	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Clyde MSF	SMW_ENV044_w	SMW_ENV044_w	23/03/2020	Normal	Alluvial	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clyde MSF	SMW_ENV144	SMW_ENV144	25/11/2019	Normal	Alluvial	<5	<5	<50	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05
Clyde MSF	SMW_ENV144	SMW_ENV144	20/03/2020	Normal	Alluvial	<5	<5	<50	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05
Clyde MSF	SMW_ENV146	SMW_ENV146	23/09/2019	Normal	Alluvial	<5	<5	<50	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05
Clyde MSF	SMW_ENV148_w	SMW_ENV148_w	21/11/2019	Normal	Alluvial	<5	<5	<50	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05
Clyde MSF	SMW_ENV149_w	SMW_ENV149_w	20/11/2019	Normal	Alluvial	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.12	<0.05
Clyde MSF	SMW_ENV149_w	SMW_ENV149_w	20/03/2020	Normal	Alluvial	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clyde MSF	SMW_ENV150_s	SMW_ENV150_s	20/11/2019	Normal	Fill	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	0.08	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.12	<0.05
Clyde MSF	SMW_ENV150_w	SMW_ENV150_w	20/11/2019	Normal	Alluvial	<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.12	<0.05
Statistical Summary																													
Number of Results				8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Number of Detects				0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration				<5	<5	<50	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05
Minimum Detect				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.08	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration				<5	<5	<50	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.12	<0.05	<0.05
Maximum Detect				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.08	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration				5	5	50	0.15	0.035	0.035	0.035	0.03	0.035	0.035	0.035	0.035	0.035	0.085	0.035	0.035	0.039	0.03	0.035	0.035	0.035	0.035	0.085	0.085	0.05	0.05
Median Concentration				5	5	50	0.15	0.035	0.035	0.035	0.03	0.035	0.035	0.035	0.035	0.035	0.085	0.035	0.035	0.035	0.03	0.035	0.035	0.035	0.035	0.085	0.085	0.05	0.05
Standard Deviation				0	0	0	0.053	0.016	0.016	0.016	0.021	0.016	0.016	0.016	0.016	0.016	0.037	0.016	0.016	0.022	0.021	0.016	0.016	0.016	0.016	0.037	0.037	0	0
Number of Guideline Exceedances				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL (exceeds adopted criteria)																													

Env Stds Comments

#1:Not specifically guideline value: >500mg/L can have purgative effects
#2:Guideline value calculated by dividing Nitrate (as Nitrate) value (50 mg/L) by 4.427
#3:Guideline value calculated by dividing Nitrite (as Nitrite) value (30 mg/L) by molecular weight (3.2967033).
#4:assumed same as NH4
#5:Measured as NH3-N at pH 8
#6:Values taken from "Updating nitrate toxicity effects on freshwater aquatic species, 2013"
#7:In absence of total As guideline, As (V) guideline has been adopted.
#8:In absence of total Cr guideline, Cr (VI) guideline has been adopted.
#9:Ammonia as total ammonia, measured as [NH3-N] at pH 8.

Data Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

Draft

						PFAS - Fluorotelomer Sulfonic Acids						PFAS	Hydrocarbon Tolerant Bacteria
						6:2 Fluorotelomer Sulfonate (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	PFAS (Sum of Total)	PFAS (Sum of Total)(WA DER List)	PFOS/PFHxS (Sum of Total) - Auto Calc	Perfluoroheptanesulfonic acid	Hydrocarbon Utilising Bacteria
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	-
EQL						0.05	0.05	0.05	0.01	0.01			
ADWG 2011 Recreational (v3.6 updated 2021)											0.7		
ANZECC 2000 South-east Australia (table 3.3.2) Estuarine													
ANZG (2018) - MW - 95% species protection (updated 15/10/2019)													
PFAS NEMP 2.0 2020 Interim marine - 99% - high conservation value system													
Monitoring_Zone	**Field_ID**	**Location_Code**	**Sampled_Date_Time**	**Sample_Type**	**Alternative_Name**								
Clyde MSF	SMW_ENV044_w	SMW_ENV044_w	20/11/2019	Normal	Alluvial	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-
Clyde MSF	SMW_ENV044_w	SMW_ENV044_w	23/03/2020	Normal	Alluvial	-	-	-	-	-	-	-	-
Clyde MSF	SMW_ENV144	SMW_ENV144	25/11/2019	Normal	Alluvial	0.28	0.05	<0.05	0.33	0.33	<0.01	<0.02	<10
Clyde MSF	SMW_ENV144	SMW_ENV144	20/03/2020	Normal	Alluvial	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.02	-
Clyde MSF	SMW_ENV146	SMW_ENV146	23/09/2019	Normal	Alluvial	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.02	-
Clyde MSF	SMW_ENV148_w	SMW_ENV148_w	21/11/2019	Normal	Alluvial	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.02	-
Clyde MSF	SMW_ENV149_w	SMW_ENV149_w	20/11/2019	Normal	Alluvial	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-
Clyde MSF	SMW_ENV149_w	SMW_ENV149_w	20/03/2020	Normal	Alluvial	-	-	-	-	-	-	-	-
Clyde MSF	SMW_ENV150_s	SMW_ENV150_s	20/11/2019	Normal	Fill	<0.05	<0.05	<0.05	0.08	0.08	0.08	<0.05	-
Clyde MSF	SMW_ENV150_w	SMW_ENV150_w	20/11/2019	Normal	Alluvial	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-
Statistical Summary													
Number of Results						8	8	8	8	8	8	8	1
Number of Detects						1	1	0	2	2	1	0	0
Minimum Concentration						<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.02	<10
Minimum Detect						0.28	0.05	ND	0.08	0.08	0.08	ND	ND
Maximum Concentration						0.28	0.05	<0.05	0.33	0.33	0.08	<0.05	<10
Maximum Detect						0.28	0.05	ND	0.33	0.33	0.08	ND	ND
Average Concentration						0.079	0.05	0.05	0.074	0.074	0.034	0.035	
Median Concentration						0.05	0.05	0.05	0.05	0.05	0.03	0.035	10
Standard Deviation						0.081	0	0	0.11	0.11	0.027	0.016	
Number of Guideline Exceedances						0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)						0	0	0	0	0	0	0	0
95% UCL	(exceeds adopted criteria)												

Env Stds Comments

#1:Not specifically guideline value: >500mg/L can have purgative effects
#2:Guideline value calculated by dividing Nitrate (as Nitrate) value (50 mg/L) by 4.427
#3:Guideline value calculated by dividing Nitrite (as Nitrite) value (30 mg/L) by molecular weight (3.2967033).
#4:assumed same as NH4
#5:Measured as NH3-N at pH 8
#6:Values taken from "Updating nitrate toxicity effects on freshwater aquatic species, 2013"
#7:In absence of total As guideline, As (V) guideline has been adopted.
#8:In absence of total Cr guideline, Cr (VI) guideline has been adopted.
#9:Ammonia as total ammonia, measured as [NH3-N] at pH 8.

Data Comments

#1 Reported Analyte LOR is higher than Requested Analyte LOR

DRAFT

Attachment 6 – Default Guideline Values for Discharges to Waterways and Groundwater Quality

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Pollutant Group	Pollutant	Default Guideline Values for aquatic ecosystems (ANZG, 2018, ANZECC, 2000)*	Freshwater % Species Protection	Default Guideline Values for marine ecosystems (ANZG, 2018, ANZECC, 2000)*	Marine Water% Species Protection
Physical and Chemical Stressors (µg/L)	pH (units)	6.5 - 8.0	-	7.0 - 8.5	-
	Turbidity (NTU)	6 - 50	-	0.5 - 10	-
	Dissolved oxygen (%)	85 - 110	-	80 - 110	-
	Electrical conductivity (µS/cm)	125 - 2,200	-	-	-
	Nitrogen (total oxidised)	40	-	15	-
	Ammonia (as N)	20	-	15	-
	Nitrogen (Total)	350	-	300	-
	Reactive Phosphorous (as P)	20	-	5	-
	Total Phosphorus (as P)	25	-	30	-
Non-Metallic Inorganic (µg/L)	Ammonia	900	95	910	95
	Chlorine	3	95	3	Unknown
	Cyanide	7	95	4	95
	Hydrogen sulfide	1	95	1	Unknown
Trace Metals (µg/L)	Aluminium (pH >6.5)	55	95	24	Unknown
	Antimony	9	Unknown	270	Unknown
	Arsenic (III)	24	95	2.3	Unknown
	Arsenic (V)	13	95	4.5	Unknown
	Cadmium (B-Mw)	0.2	95	0.7	99
	Chromium (CrIII)	3.3	Unknown	27	95
	Chromium (CrVI)	1	95	4.4	95
	Cobalt	1.4	Unknown	1	95
	Copper	1.4	95	1.3	95
	Iron	300	Unknown	300	Unknown
	Lead	3.4	95	4.4	95
	Manganese	1900	95	80	Unknown
	Mercury (inorganic) (B)	0.06	99	0.1	99

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Pollutant Group	Pollutant	Default Guideline Values for aquatic ecosystems (ANZG, 2018, ANZECC, 2000)*	Freshwater % Species Protection	Default Guideline Values for marine ecosystems (ANZG, 2018, ANZECC, 2000)*	Marine Water% Species Protection
	Nickel	11	95	70	95
	Zinc	8	95	8	95
Organochlorine Pesticides (µg/L)	Aldrin (B)	0.001	Unknown	0.003	Unknown
	Chlordane (B)	0.03	99	0.001	Unknown
	DDT (B)	0.006	99	0.0004	Unknown
	Dicofol (B)	0.5	Unknown	0.1	Unknown
	Dieldrin (B)	0.01	Unknown	0.01	Unknown
	Endosulfan (B)	0.03	99	0.005	99
	Endrin (B)	0.01	99	0.004	99
	Heptachlor (B-Fw)	0.01	99	0.0004	Unknown
	Lindane	0.2	95	0.007	Unknown
	Methoxychlor (B)	0.005	Unknown	0.004	Unknown
	Mirex (B)	0.04	Unknown	0.04	Unknown
	Toxaphene (B-Fw)	0.1	99	0.0006	Unknown
Organophosphate Pesticides (µg/L)	Azinphos methyl	0.02	95	0.01	Unknown
	Chlorpyrifos	0.01	95	0.009	95
	Diazinon	0.01	95	0.01	Unknown
	Dimethoate	0.15	95	0.15	Unknown
	Fenitrothion	0.2	95	0.001	Unknown
	Malathion	0.05	95	0.05	Unknown
	Parathion	0.004	95	0.004	Unknown
	Profenofos	0.02	Unknown	0.002	Unknown
	Temephos	0.05	Unknown	0.05	95
Other Pesticides (µg/L)	Carbofuran	1.2	95	0.06	Unknown
	Deltamethrin	0.0001	Unknown	0.0001	Unknown
	Esfenvalerate	0.001	Unknown	0.001	Unknown

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Pollutant Group	Pollutant	Default Guideline Values for aquatic ecosystems (ANZG, 2018, ANZECC, 2000)*	Freshwater % Species Protection	Default Guideline Values for marine ecosystems (ANZG, 2018, ANZECC, 2000)*	Marine Water% Species Protection
	Methomyl	3.5	95	3.5	Unknown
	S-Methoprene	0.2	Unknown	0.2	Unknown
Herbicides (µg/L)	2,4,5-T	36	95	36	Unknown
	Acrolein	0.01	Unknown	0.01	Unknown
	Atrazine	13	95	13	Unknown
	Diquat	1.4	95	1.4	Unknown
	Diuron	0.2	Unknown	0.2	Unknown
	Glyphosate	320	95	320	Unknown
	MCPA	1.4	Unknown	1.4	Unknown
	Metolachlor	0.46	95	0.46	Unknown
	Metsulfuron-methyl	0.018	95	0.018	Unknown
	Molinate	3.4	95	3.4	Unknown
	Paraquat	0.5	Unknown	0.5	Unknown
	Simazine	3.2	95	3.2	Unknown
	Tebuthiuron	2.2	95	2.2	Unknown
	Thiobencarb	2.8	95	2.8	Unknown
	Thiram	0.2	95	0.2	Unknown
	Trifluralin (B-Fw)	2.6	99	2.6	Unknown
Perfluorinated Compounds (µg/L)	Perfluorooctane sulphonate (PFOS)	0.13	95%	0.13	95%
	Perfluorooctanoic acid (PFOA)	220	Unknown	220	Unknown
Phenols and Xylenols (µg/L)	2,3,4,6-Tetrachlorophenol (B-Fw)	10	99	20	Unknown
	2,3,5,6-Tetrachlorophenol	0.2	Unknown	0.2	Unknown
	2,3-Dichlorophenol	31	Unknown	31	Unknown
	2,4,6-Trichlorophenol (B-Fw)	3	99	3	Unknown
	2,4-Dichlorophenol	160	95	160	Unknown

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Pollutant Group	Pollutant	Default Guideline Values for aquatic ecosystems (ANZG, 2018, ANZECC, 2000)*	Freshwater % Species Protection	Default Guideline Values for marine ecosystems (ANZG, 2018, ANZECC, 2000)*	Marine Water% Species Protection
	2,4-Dimethylphenol	2	Unknown	2	Unknown
	2,6-Dichlorophenol	34	Unknown	34	Unknown
	2-Chlorophenol	490	95	490	Unknown
	4-Chlorophenol	220	95	280	Unknown
	Pentachlorophenol (B)	3.6	99	11	99
	Phenol	320	95	400	95
	2,4,6-Trinitrophenol	250	Unknown	250	Unknown
	2,4-Dinitrophenol	45	95	45	Unknown
	4-Nitrophenol	58	Unknown	58	Unknown
Chlorobenzenes and Nitrobenzenes (µg/L)	1,2,3,4-Tetrachlorobenzene (B)	2	99	2	99
	1,2,3,5-Tetrachlorobenzene (B)	3	99	3	99
	1,2,3-Trichlorobenzene (B)	3	99	10	Unknown
	1,2,4,5-Tetrachloro-3-nitrobenzene	0.3	Unknown	0.3	Unknown
	1,2,4,5-Tetrachlorobenzene (B)	5	99	3	99
	1,2,4-Trichlorobenzene (B)	85	99	20	99
	1,2-Dichlorobenzene	160	95	160	95
	1,3,5-Trichlorobenzene (B)	8	99	8	99
	1,3,5-Trinitrobenzene	4	Unknown	4	Unknown
	1,3-Dichlorobenzene	260	95	350	Unknown
	1,4-Dichlorobenzene	60	95	75	Unknown
	1,3-Dinitrobenzene	13	Unknown	13	Unknown
	1,4-Dinitrobenzene	0.6	Unknown	0.6	Unknown
	1-Chloro-3-nitrobenzene	12	Unknown	12	Unknown
	1-Methoxy-2-nitrobenzene	130	Unknown	130	Unknown
	Hexachlorobenzene (B)	0.05	99	0.05	99
	Monochlorobenzene (B-Fw)	55	95	55	95

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Pollutant Group	Pollutant	Default Guideline Values for aquatic ecosystems (ANZG, 2018, ANZECC, 2000)*	Freshwater % Species Protection	Default Guideline Values for marine ecosystems (ANZG, 2018, ANZECC, 2000)*	Marine Water% Species Protection
	Pentachlorobenzene (B)	1.5	99	1.5	99
	Nitrobenzene	550	95	550	Unknown
Nitrotoluenes and Nitroanilines	2,4,6-Trinitrotoluene	140	95	140	Unknown
	2,4-D	280	95	280	Unknown
	2,4-Dichloroaniline	7	95	7	Unknown
	2,4-Dinitrotoluene	65	95	65	Unknown
	2-Nitrotoluene	110	Unknown	110	Unknown
	3,4-Dichloroaniline	3	95	150	95
	3-Nitrotoluene	75	Unknown	75	Unknown
	4-Nitrotoluene	120	Unknown	120	Unknown
Polycyclic Aromatic Hydrocarbons (µg/L)	Anthracene (B)	0.01	99	0.01	99
	Benzo(alpha)pyrene (B)	0.1	99	0.1	99
	Fluoranthene (B)	1	99	1	99
	Naphthalene	16	95	70	95
	Phenanthrene (B)	0.6	99	0.6	99
Total Petroleum Hydrocarbons (µg/L)	TPH C10-C36 Fraction	600	Unknown	600	Unknown
	TPH C6-C9 Fraction	150	Unknown	150	Unknown
Chloroethanes and Chloropropanes (µg/L)	1,1,1-Trichloroethane	270	95	270	95
	1,1,2,2-Tetrachloroethane	400	95	400	95
	1,1,2-Trichloroethane	6500	95	1900	95
	1,2-Dichloroethane	1900	95	1900	95
	Hexachloroethane (B-Fw)	290	99	360	Unknown
	Pentachloroethane	80	95	80	95
	Carbon Tetrachloride	240	95	240	95
	Chloroform	770	95	770	95
	Dichloromethane	4000	95	4000	95

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Pollutant Group	Pollutant	Default Guideline Values for aquatic ecosystems (ANZG, 2018, ANZECC, 2000)*	Freshwater % Species Protection	Default Guideline Values for marine ecosystems (ANZG, 2018, ANZECC, 2000)*	Marine Water% Species Protection
Chloropropanes and Chloropropenes (µg/L)	1,1-Dichloropropane	500	95	500	95
	1,2-Dichloropropane	900	95	900	95
	1,3-Dichloropropane	1100	95	1100	95
	3-Chloropropene	3	Unknown	3	Unknown
Chlorinated Alkenes	Chloroethylene	100	95	100	95
	1,1,2,2-Tetrachloroethylene	70	95	70	95
	1,1,2-Trichloroethylene	330	95	330	95
	1,1-Dichloroethylene	700	95	700	95
Anilines (µg/L)	Aniline	250	95	250	Unknown
Phthalates (µg/L)	Di(2-ethylhexyl)phthalate	1	Unknown	1	Unknown
	Dibutylphthalate (B-Fw)	10	99	10	Unknown
	Diethylphthalate	1000	95	1000	Unknown
	Dimethylphthalate	3700	95	3700	Unknown
Polychlorinated Biphenyls (PCBs) & Dioxins (µg/L)	Aroclor 1242 (B-Fw)	0.3	99	0.3	Unknown
	Aroclor 1254 (B-Fw)	0.01	99	0.01	Unknown
Aromatic Hydrocarbons (µg/L)	Benzene	950	95	700	95
	Toluene	180	95	180	95
	Ethylbenzene	80	95	80	95
	m-Xylene	75	95	75	95
	o-Xylene	350	95	350	Unknown
	Cumene (isopropylbenzene)	30	95	30	95
	p-Xylene	200	95	200	Unknown

* Default Guideline Values adopt 95% species protection, and 99% species protection for bioaccumulating toxicants.

(B-Mw) – Marine bioaccumulation risk; (B) – Freshwater and marine bioaccumulation risk; (B-Fw) – Freshwater bioaccumulation risk

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY