



ANNUAL ENVIRONMENTAL MONITORING RESULTS 2017-2018

WEST NOWRA RECYCLING & WASTE FACILITY
120 Flatrock Road
Mundamia, NSW, 2540

Environment Protection Licence (EPL) 5877

Prepared For: **Shoalhaven City Council**
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ENVIRONMENT & NATURAL RESOURCE SOLUTIONS
ENRS PTY LTD ABN 68 600 154 596
25 River Road, Shoalhaven Heads, NSW, 2535
T/F 02 9037 4708 M: 0401 518 443
E: projects@enrs.com.au www.enrs.com.au

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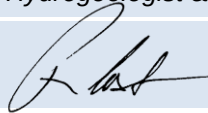
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Author and Document Control

Written/Submitted by:	Reviewed / Approved by:
Matt Lemcke <i>Geologist & Environmental Consultant</i>	Rohan Last <i>Hydrogeologist & Environmental Scientist</i>
	

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EXECUTIVE SUMMARY

Environment & Natural Resource Solutions (ENRS) were commissioned as independent environmental consultants by Shoalhaven City Council (SCC) to prepare the Annual Environmental Monitoring Report for the West Nowra Recycling and Waste Facility (*herein referred to as the Site*). This Report summarises the results of field testing and laboratory analysis conducted by ALS Environmental and provided by SCC to ENRS for the 2017 to 2018 monitoring period. The Annual Report provides the necessary data assessment and analysis to meet requirements of the Site's Environment Protection Licence (EPL) 5877.

The objectives of this Annual Environmental Monitoring Report are to:

- Meet the monitoring requirements of EPL 5877;
- Assess and analyse the environmental monitoring data for the Site against EPA endorsed criteria;
- Identify any on-site or off-site impacts associated with operation of the Site;
- Advise SCC if the current environmental monitoring program is providing adequate information to identify potential environmental impacts from existing operations (if any) and provide recommendations on improvement to the monitoring program if required; and
- Document monitoring results in an Annual Environmental Monitoring Report.

The scope of work for this Annual Environmental Monitoring Report comprised the collation, assessment and reporting of Site data made available to ENRS from the 2017-2018 monitoring period in regard to the following tasks:

- Review previous reports and document the hydrogeological setting;
- Tabulate results of all monitoring data required to be collected by the EPL for the respective reporting period;
- Analysis and interpretation of all monitoring data, including graphical presentation of data from the last four (4) years (if available) in order to show variability/and or trends;
- Identification of any deficiencies in environmental performance identified by the monitoring data, trends or environmental incidents, and identification of remedial actions taken or proposed to be taken to address these deficiencies; and
- Recommendations on improving the environmental performance of the facility including improvement to the monitoring program.

Based on the reviewed site data and results of the 2017-2018 monitoring program the following conclusions are provided:

- A total of three (3) surface water, two (2) leachate, and twenty-one (21) groundwater monitoring points were inspected quarterly (for select parameters) and annually for sampling between 30 October 2017 and 29 October 2018 in accordance with the site EPL 5877. Samples were collected and analysed by Council's preferred contractor, ALS Environmental, a NATA accredited laboratory;
- Shallow groundwater flow is expected to mimic topography with low hydraulic gradients flowing west-northwest towards Sandy Creek. The nearest sensitive receptors are likely to include; recreational users of the Sandy Creek and

Shoalhaven River environs; down gradient stakeholders; and Groundwater Dependent Ecosystems near discharge zones;

- Salinity in surface water was generally reported below the adopted Trigger Values (2,200 $\mu\text{S}/\text{cm}$ or 1,500 mg/L). Minor exceedances are within historical values. Groundwater salinity is elevated across the Site with levels of TDS reported within the range of historical values likely associated with the Site geology which comprises marine sedimentary rocks and residual clays;
- Results for pH in groundwater at the Site generally reported low pH levels which are within the range of historical data. Sampling should ensure adequate purging or use of low flow sampling techniques. The pH in raw leachate is recorded between 4.3-8.3 which indicates low pH in groundwater is likely the result of in-ground process and not direct connection with leachate;
- Concentrations of nutrients in surface water and groundwater were generally identified within the range of historical values and below the adopted Trigger Values;
- Total concentrations in groundwater of Barium, Cadmium, Cobalt, Hexavalent Chromium (CrVI), Magnesium, Manganese and Mercury were reported below the laboratory limit of reporting (LOR) and/or the adopted Trigger Value. Similar to previous results exceedances of the adopted TV and Hardness Modified TV were reported for Aluminium, Arsenic, Copper, Total Chromium, Lead and Zinc. The elevated concentrations of selected metals are likely associated with increased mobility from low pH. It is also noted that metals such as Aluminium, Arsenic, Copper and Zinc occur naturally in Site aquifers and results may reflect background conditions due to mineral dissolution. It is recommended that future monitoring include field filtering and analysis for dissolved concentrations to support assessment of any potential risk from metals mobility in groundwater;
- Reported concentrations of Total Organic Carbon (TOC) have generally remained similar to the previous reporting period, which indicates stable environmental conditions at the Site;
- Concentrations of TRH and BTEX were reported below the laboratory LOR and/or the Site Assessment Criteria (SAC). Minor detections of light and heavy fraction hydrocarbons were identified in BH20 and BH21. It is recommended that concentrations of TRH be continued to be reviewed after the next round of sampling in February 2019;
- Results for all tested PAH's in groundwater were reported below the LOR ($<0.001\text{mg}/\text{L}$);
- The existing monitoring locations and sampling regime (specified in EPL 5877) is generally considered to provide suitable assessment of surface water, leachate and groundwater conditions; and
- Based on this review of the 2017-2018 environmental monitoring results, for each surface water, leachate and groundwater monitoring point, ENRS conclude that there is unlikely to be any significant off-site impacts from site operations.

Based on the findings obtained during this Annual Environmental Monitoring assessment the following recommendations are provided:

- Sampling and Laboratory procedures to continue to include:
 - Low flow sampling where bore yields permit. Alternatively, bores should be purged dry and allowed to recharge before sampling within 24 hours;
 - Where sample points are dry, re-sample after the next rainfall event or during the next scheduled event;

- Field measurements during purging and sampling to include; Temperature, pH, Dissolved Oxygen (DO), Electrical Conductivity (EC) and Redox. Scanned field sheets to be reported with the laboratory COA; and
- Results for metals and metalloids to be reported as total concentrations for surface water and dissolved concentrations for groundwater. Consider testing for both total and dissolved concentrations in groundwater, to provide for comparison.
- Consider the following upgrades to the monitoring network:
 - Maintain vehicle access to all bores;
 - Install high visibility standpipe marker posts to provide for ready identification by sample staff and reduce risk of damage by plant;
 - Install water level staff gauges at surface water and leachate sampling points to facilitate water level records and comparison of site conditions between events;
 - Deepen or relocate bores which are reported as dry over more than 3 successive sampling events. Bores BH11, BH19 and BH23 have been reported as being dry for more than ten (10) quarterly monitoring events. Bores BH2 and BH18 were reported as being dry for three (3) of the four (4) quarterly inspections during the 2017-2018 monitoring period;
 - Install additional bores at suitable distance from the landfill to assess for background groundwater quality, namely pH and metals concentrations.
- Drainage and detention structures be inspected annually by a suitably qualified environmental professional to assess their structural integrity and identify the need for any maintenance (such as removal of deep rooted vegetation, sediment, and re-lining);
- Should future monitoring report significant increases in analyte concentrations the need for additional monitoring locations, including groundwater bores, should be reviewed. Additional monitoring bores may be required up-gradient to characterise background conditions and down gradient to assess potential impacts to surrounding environment (if any);
- Water quality results continue to be sent directly to a suitably qualified environmental professional to compare against relevant guidelines and identify any irregularities so that additional testing may be conducted within the laboratory holding time;
- Continue carrying out the sampling, testing and analysis in accordance with the EPL;
- Consider varying the EPL to:
 - Remove the following analytes from the monitoring regime supported by consistent results below the laboratory level of detection since 2008: OCPs, OPPs;
 - Revise EPL to test for Dissolved Organic Carbon in groundwater not Total concentrations which can be influenced by in-bore conditions;

Should any change in Site conditions or incident occur which causes a potential environmental impact, ENRS should be notified to further assess the Site and consider requirements for any additional monitoring.

TABLE OF CONTENTS

EXECUTIVE SUMMARY	II
1.0 INTRODUCTION	8
1.1 Project Background	8
1.1.1 Site History	8
1.1.2 Legislation and Planning Requirements	8
1.2 Objectives	8
1.3 Scope of Work	9
2.0 SITE DESCRIPTION	9
2.1 Location	9
2.2 Surrounding Landuse	10
2.3 Topography.....	10
2.4 Soil Landscape	10
2.5 Geology	11
2.6 Hydrogeology.....	11
2.7 Surface Water	11
2.8 Water Management Structures.....	12
3.0 WATER QUALITY ASSESSMENT CRITERIA.....	12
3.1 POTENTIAL Contaminants of Concern	12
3.2 Water Quality Guidelines	12
3.2.1 ANZECC Guidelines	13
4.0 SAMPLING METHODOLOGY.....	14
4.1 Groundwater Sampling Locations.....	14
4.2 Leachate Sampling Locations.....	15
4.3 Surface Water Sampling Locations.....	15
4.4 Sample Collection	15
4.5 Sampling Frequency	15
4.6 Laboratory Analysis	15
5.0 QUALITY ASSURANCE & QUALITY CONTROL DISCUSSION	15
5.1 QA/QC Procedures.....	15
5.2 EPL Non-Compliance	16
6.0 WATER QUALITY RESULTS	16
6.1 Overflow Results.....	16
6.2 Field Testing	16
6.3 Physical Indicators.....	17
6.3.1 Salinity (EC & TDS).....	17
6.3.2 Dissolved Oxygen	17

6.3.3	Oxidation Reduction Potential (Redox).....	17
6.3.4	Hardness.....	18
6.3.5	pH.....	19
6.3.6	Total Suspended Solids	19
6.4	Inorganic Analytes	20
6.4.1	Nutrients.....	20
6.4.2	Total Phenolics.....	21
6.4.3	Metals & Metalloids	21
6.5	Organic Analytes	24
6.5.1	Total Organic Carbon (TOC)	24
6.5.2	Total Recoverable Hydrocarbons (TRH).....	24
6.5.3	Benzene, Toluene, Ethylbenzene and Xylenes (BTEX).....	25
6.5.4	Polycyclic Aromatic Hydrocarbons (PAH).....	25
6.5.5	Organochlorine Pesticides (OCP).....	25
6.5.6	Organophosphorus Pesticides (OPP).....	25
7.0	GAS MONITORING RESULTS	26
8.0	ENVIRONMENTAL ASSESSMENT	26
8.1	Monitoring Point Summary.....	26
8.2	Historical Data Assessment.....	28
8.3	Environmental Management.....	28
8.3.1	Landfill Operations	28
8.3.2	Environmental Safeguards	28
8.3.3	Monitoring Program.....	29
9.0	CONCLUSION AND RECOMMENDATIONS.....	29
9.1	Conclusions	29
9.2	Recommendations	31
10.0	LIMITATIONS	33
11.0	REFERENCES	34

LIST OF FIGURES, TABLES, CHARTS & APPENDICES

TABLES

Table 1: Site Identification	9
Table 2: Surrounding Landuse	10
Table 3: Potential Contaminants of Concern	12
Table 4: Groundwater Assessment Criteria	13
Table 5: Hardness Modified Trigger Values.....	18
Table 6: Summary of 2017-2018 Monitoring Results	26
Table 7: West Nowra - Quarterly Water Quality Monitoring Results (2017-2018).....	36
Table 8: West Nowra Annual Water Quality Monitoring Results (2017-2018)	36

FIGURES

- Figure 1 Site Location Map
- Figure 2 Site Plan & Bore Location Map
- Figure 3 Topographic Map
- Figure 4 Regional Geology
- Figure 5 Registered Bores

CHARTS

- Chart 1 to Chart 15 – Quarterly Results West Nowra Recycling & Waste Facility
- Chart 16 to Chart 54 – Annual Results West Nowra Recycling & Waste Facility

APPENDICES

- APPENDIX A EPL Sampling Locations
- APPENDIX B Monitoring Bore Construction Summary
- APPENDIX C EPL Non-Compliances
- APPENDIX D Laboratory Certificates of Analysis
- APPENDIX E Chain of Custody & Available Field Sheets
- APPENDIX F Gas Monitoring Reports

1.0 INTRODUCTION

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1.1 PROJECT BACKGROUND

1.1.1 Site History

The West Nowra Recycling and Waste Facility is licensed as a general solid waste (putrescible and non-putrescible) facility. Operations commenced in 1975. The disposal of hazardous and toxic waste, with the exception of asbestos, has been prohibited since 1986. Landfilling of waste is staged:

- Stage 1 - closed and rehabilitated, after commencing in 1975;
- Stage 2 – operational with partial rehabilitation. Subdivided into 2a, 2b, 2c, and 2d; and
- Stage 3 – operational and landfilling, HDPE lined.

1.1.2 Legislation and Planning Requirements

Waste regulation in NSW is administered by the EPA under the *Protection of the Environment Operations (POEO) Act (1997)* and the *Waste Avoidance and Resource Recovery Act (2001)*. The Site is required to operate under the terms and conditions of EPA Environment Protection Licence (EPL) Number 5877. Separate to the requirements of this licence, general obligations of licensees are set out in the POEO Act. The current EPL (varied 7th Dec. 2017) stipulates the licensee must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1 (refer to EPL 5877) at twenty-five (25) monitoring/discharge points or utilisation areas as specified by the point numbers 1-3, 5-9, 11, 13-14, 17-18, 20-21, 26-27, and 29-36 (see **Appendix A**).

1.2 OBJECTIVES

The objectives of this Annual Environmental Monitoring Report are to:

- Meet the monitoring requirements of EPL 5877;
- Assess and analyse the environmental monitoring data for the Site against EPA endorsed criteria;
- Identify any on-site or off-site impacts associated with operation of the Site;
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- Recommendations on improving the environmental performance of the facility including improvement to the monitoring program.

2.0 SITE DESCRIPTION

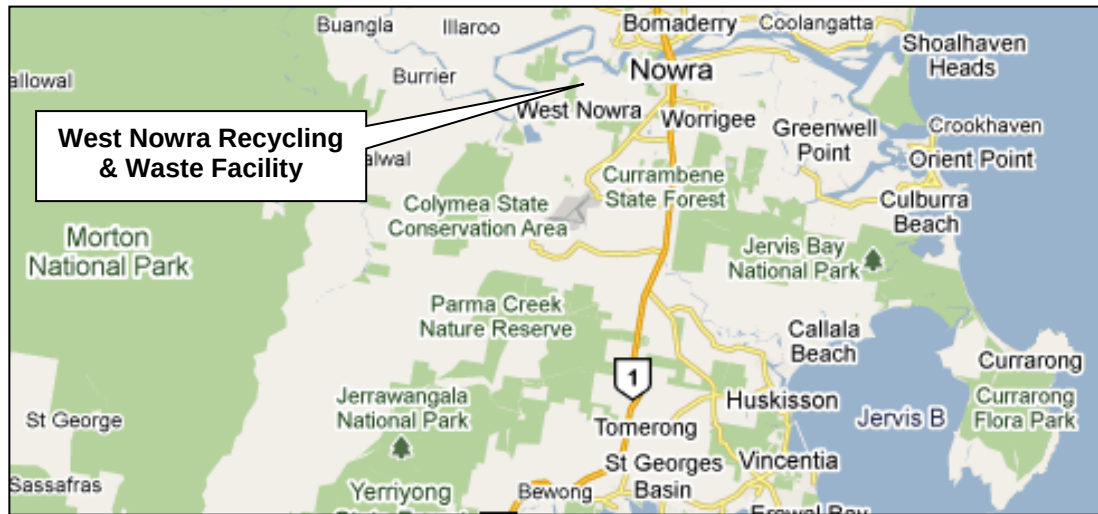
2.1 LOCATION

The Site is located on Flatrock Road, Mundamia, NSW, 2540. The Site is situated approximately five (5) kilometres west-southwest of the Nowra town centre. The area's regional location is defined in **Figure 1**. Details of the Site boundary and sampling points are provided in the Site Plan (see **Figure 2**). The key features required to identify the site are summarised in **Table 1**.

Table 1: Site Identification

Aspect	Description
Site	West Nowra Recycling and Waste Facility
Street Address	120 Flatrock Road, Mundamia, NSW, 2540
Site Area	~50 hectares
Title Identifier	Lot 437, DP 808415 – E3 (Environmental Management) Lot 436, DP 808415 – SP2 (Infrastructure) Lot 1, DP 1018193 - SP2 (Infrastructure) Lot 1, DP 847203 – SP2 (Infrastructure) Lot 1, DP 870268 – SP2 (Infrastructure) Lot 1, DP 1104402 – SP2 (Infrastructure)
Zoning	SP2 - Infrastructure and E3 - Environmental Management
Local Gov. Area	Shoalhaven City Council

Figure 1 Site Location Map



2.2 SURROUNDING LANDUSE

The current activities and operations on adjacent properties and the surrounding area include:

Table 2: Surrounding Landuse

Direction	Land use
North:	Shoalhaven River ~1.5 km
East:	Commercial properties (~100 m) and Cabbage Tree Creek (~150 m)
South:	Rural / farmland ~200 m
West:	Sandy Creek (150 m) and forested Crown Land

2.3 TOPOGRAPHY

A review of the current series Nowra (90283S) 1:25,000 topographic map sheet was conducted to assess the regional topography and to identify potential runoff and groundwater controls in the region. Topography provides a useful indicator for groundwater controls including gradient and flow path (see **Figure 3**).

The Site presents relatively low topographic relief between approximately 50 mAHD (south eastern boundary) and 30 mAHD (north western boundary). The Site slopes down to the northwest towards Sandy Creek which flows north into the Shoalhaven River.

2.4 SOIL LANDSCAPE

Previous investigations (E2W 2008) report the soil profile at the Site consists of silty-clay and sandy-clay sediments. Soil depths range from 1.5 m to 3.5 m at Stage 1 and 2, and up to 7 m at Stage 3.

2.5 GEOLOGY

A review of the Site geology was undertaken with reference to the Wollongong 1:250,000 geological series sheet (Si5609). The Site is located near the south-eastern boundary of the Sydney Basin in an area underlain by Permian sediments of the Shoalhaven Group and Megalong Conglomerate subgroup, comprising Nowra Sandstone (Psn).

2.6 HYDROGEOLOGY

Groundwater resources in the area are expected to be associated with two (2) primary forms of aquifer systems;

1. *Shallow unconfined* alluvial and unconsolidated systems, generally less than 20m in depth with moderate yields, variable water quality, and strongly controlled by rainfall recharge; and
2. *Deep fractured rock* and dual porosity aquifers hosted by the Shoalhaven Group sedimentary rock sequence. Typically, deeper than 20m with low yields, high iron and variable salinity.

Fifteen (15) groundwater monitoring bores are installed at the Site to provide specific data on the quality and nature of groundwater.

A review of the *NSW Office of Water (NOW)* existing bore records was conducted to develop the conceptual understanding of regional groundwater conditions, including aquifer depths, yields, water quality, and distribution. The database search did not identify any registered production bores within one (1) kilometre of the Site area (see **Figure 5**). All bores in proximity to the area are registered for monitoring purposes.

Groundwater beneath the Site is expected to be associated with both shallow unconfined systems, and deep fractured rock aquifers. Shallow groundwater flow is inferred to mimic topography with low hydraulic gradients flowing west-northwest towards Sandy Creek (see **Figure 3**). The Site, and adjoining land, is largely unsealed with potential for local recharge from rainfall infiltration. Likely discharge areas are identified in **Figure 3**, along Sandy Creek and Cabbage Tree Creek approaching the Shoalhaven River. The nearest sensitive receptors are likely to include:

- Recreational users of the Sandy Creek and Shoalhaven River environs;
- Down gradient stakeholders (primarily rural); and
- Down gradient alluvial aquifers, Sandy Creek, and Groundwater Dependent Ecosystems (GDE) near discharge zones.

2.7 SURFACE WATER

The Site topography generally slopes west from a north-south ridgeline (~51 mAHD) towards Sandy Creek (~30 mAHD) on the western boundary (refer to **Figure 2**). Stormwater is intercepted by a system of cut-off drains which direct water around the Site and into collection dams.

2.8 WATER MANAGEMENT STRUCTURES

A number of structures have been constructed at the Site to manage surface water, leachate and groundwater. These include but are not limited to:

- Sediment dam - stormwater collection;
- First flush dam;
- Stage 1, 2 & 3 - groundwater collection curtain/drain;
- Leachate is piped to the leachate dam; and
- Sub-surface leachate collection drains.

3.0 WATER QUALITY ASSESSMENT CRITERIA

3.1 POTENTIAL CONTAMINANTS OF CONCERN

The contaminants and water quality indicators required to be monitored are defined by the EPL. Based on the Site history of landfilling and ongoing use as a waste and recycling facility the contaminants of concern include but are not limited to those defined in **Table 3**.

Table 3: Potential Contaminants of Concern

Potential Contaminants	Historical Activities	Dispersion Mechanism & Areas of Environmental Concern (AEC)
Heavy Metals	General landfill activities	Landfill, spills, leaks, leachate, detention pond and drains
Total Petroleum Hydrocarbons (TPH)		
Benzene Toluene Ethylbenzene, Xylenes (BTEX)		
Polycyclic Hydrocarbons (PAH)		
Phenols		
Organochlorine Pesticides (OCP)		
Organophosphate Pesticides (OPP)		
Nutrients, pH, Electrical Conductivity (EC), Total Suspended Solids (TSS)		

3.2 WATER QUALITY GUIDELINES

Nationally developed guidelines are provided in the *National Water Quality Management Strategy* (NWQMS): Guidelines for Groundwater Protection in Australia (ARMCANZ & ANZECC 1995). The relevant criteria to protect environmental values are:

Table 4: Groundwater Assessment Criteria

Environmental Value	Relevant Guideline
Ecosystems / Health Screening Levels	AWQG (fresh & marine ecosystem guidelines ANZECC 2000); NEPM (2013); and Health Screening Levels for Petroleum Hydrocarbons in Soil & Groundwater (CRC CARE, Sept. 2011)
Drinking Water	ADWG (2006)
Recreational Use	GMRRW (NHMRC 2008)
Agriculture (irrig. & stock)	AWQG (Irrigation & Stock water guidelines)
Effluent Irrigation	Environmental Guidelines (NSW EPA 2004)

3.2.1 ANZECC Guidelines

The relevant criteria for this water quality assessment are the Australian and New Zealand Guidelines for Fresh and Marine Waters (ANZECC Guidelines) Trigger Values (TV) for fresh water. Where the EPL does not dictate limits ENRS has adopted the assessment criteria considered most appropriate for the contaminants of concern, based on the receiving freshwater and estuarine environments and the historical level of disturbance at the Site. The adopted assessment criteria Trigger Values are provided in **Table 7** and **Table 8**. The Trigger Values are categorised by the per cent of species possibly affected. The OEH (DECC;2007) endorsed groundwater management guidelines recommend assessment for aquatic ecosystems based on the 95 per cent of species level of protection.

For selected heavy metals, the standard TV may be recalculated based on the impact of water hardness, pH, and alkalinity. These modifications require consideration in fresh waters (up to 2,500 mg/L⁻¹ or 4,000µS/cm salinity) where they may affect the bioavailability of potentially toxic metals. In those cases, a hardness-modified trigger value (HMTV) may be derived to support a site-specific assessment. The metal hardness-dependent algorithms (ANZECC 2000) are listed below:

- Cadmium HMTV = $TV (H/30)^{0.89}$
- Chromium(III) HMTV = $TV (H/30)^{0.82}$
- Copper HMTV = $TV (H/30)^{0.85}$
- Lead HMTV = $TV (H/30)^{1.27}$
- Nickel HMTV = $TV (H/30)^{0.85}$
- Zinc HMTV = $TV (H/30)^{0.85}$

Where:

- HMTV, hardness-modified trigger value (µg/L);
- TV, trigger value (µg/L) at a hardness of 30 mg/L as CaCO₃; and
- H, measured hardness (mg/L as CaCO₃) of fresh surface water (<2.5%).

pH modified TV are also available for further assessment of total Ammonia for waters within pH range 6 to 9 (i.e. TV at pH=7 is 2.18 mg/L). The pH TV are provided in ANZECC Table 8.3.7 (ANZECC 2000). Where pH is less than 6 a conservative approach should be adopted, TV for pH 6 may be applied.

3.2.2 National Environmental Protection Measure (NEPM)

The NSW EPA has endorsed the use of the Groundwater Investigation Levels (GILs) given in the 2013 NEPM 'Schedule B (1) Guideline on the Investigation Levels for Soil and Groundwater'. The latest NEPM provide a framework for risk-based assessment of groundwater contamination.

Groundwater Health Screening Levels (HSLs) are provided for four (4) land use categories for vapour intrusion (Table 1A [4]) associated with Total Recoverable Hydrocarbons TRH (F1 & F2) and BTEX compounds.

NEPM	Description of Landuse Categories
HIL A	Residential A with garden/accessible soil also includes children's day care centres, preschools and primary schools.
HIL B	Residential B with minimal opportunities for soil access; includes buildings with fully and permanently paved yard space such as high-rise buildings and apartments.
HIL C	Recreational C includes public open space such as parks, playgrounds, playing fields (e.g. ovals), secondary schools and unpaved footpaths.
HIL D	Commercial/industrial D includes premises such as shops, offices, factories and industrial sites.

The appropriate HSL's should be selected based on the; land use; aquifer medium (sand, silt, clay); and depth of watertable.

GILs should be applied based on the receiving environment and groundwater resources. GILs are provided in NEPM Table 1C for; Fresh Waters; Marine Waters; and Drinking Water. In addition to the HILs the amended NEPM (2013) provides the following site assessment criteria (SAC):

- **Management Limits** for petroleum hydrocarbon compounds (Table 1 B (7));
- **Health Screening Levels** (HSLs) potential vapour intrusion (Table 1A [4]) which should be selected based on the; land use; medium (sand, silt, clay); and depth;
- **Groundwater Investigation Levels** (GILs) should be applied based on the receiving environment and groundwater resources. GILs are provided in NEPM Table 1C for; Fresh Waters; Marine Waters; and Drinking Water; and
- **Ecological Investigation Levels (EILs)** for common contaminants in the top two (2) metres of soil based on three (3) generic land use settings:
 - Areas of ecological significance;
 - Urban residential areas and public open space;
 - Commercial and industrial land uses.

4.0 SAMPLING METHODOLOGY

4.1 GROUNDWATER SAMPLING LOCATIONS

Groundwater monitoring requirements are defined by the EPL at seventeen (17) locations, refer to **Appendix A**. Monitoring bore locations are illustrated in **Figure 2**.

Monitoring bores are assigned identification numbers BH1-BH23. It should be noted that where bores have been replaced the monitoring point nomenclature is appended with BHXX 'A'. A summary of bore construction details is provided in **Appendix B**.

4.2 LEACHATE SAMPLING LOCATIONS

Leachate sampling locations are defined by the EPL at three (3) locations (LD1, utilisation area, and Leachate Pump House [Leach PH]) as illustrated in **Figure 2**. Location descriptions are provided in **Appendix A**.

4.3 SURFACE WATER SAMPLING LOCATIONS

Surface water sampling locations are defined by the EPL at five (5) locations (DP2, DP3, SW1, SW2, and SW3) as illustrated in **Figure 2**. Location descriptions are provided in **Appendix A**.

4.4 SAMPLE COLLECTION

Sampling is conducted independently by ALS Environmental under contract with SCC. Chain of Custody records and field sheets are provided in **Appendix E**. ENRS understand sampling is conducted in accordance with ALS sampling protocols.

4.5 SAMPLING FREQUENCY

Monitoring frequency is defined by the EPL and is designed to capture necessary site data to support assessment of Site conditions (quarterly and annually), any long-term trends or overflow events. Monitoring is conducted quarterly (November, February, May and August) and annually for selected analytes with additional overflow and event based sampling triggered by site conditions.

4.6 LABORATORY ANALYSIS

ALS, a NATA accredited laboratory, was contracted by SCC to undertake the sample analysis in accordance with industry standards.

5.0 QUALITY ASSURANCE & QUALITY CONTROL DISCUSSION

5.1 QA/QC PROCEDURES

ENRS understand the data provided by SCC was prepared by ALS. ALS is NATA accredited for the laboratory testing. The QA/QC indicators as provided to ENRS either all complied with the required standards, or showed variations that would have no significant effect on the quality of the data or the conclusions of this environmental assessment. Therefore, the data is considered acceptable for use in this assessment.

It should be noted that whilst the EPL does not require field duplicates, ENRS recommend sampling include rinsate samples and field duplicates at the standard rate of 1 in 10, or field QA/QC is conducted in accordance with ALS procedures. Groundwater bores should be purged prior to sampling by removing at least three (3) well volumes or low flow parameter stabilisation methods applied with completed field sheets to document pumping volumes and field parameters.

5.2 EPL NON-COMPLIANCE

Monitoring requirements are defined by the EPL. SCC audit of the 2017-2018 monitoring results identify four (4) non-compliances for the reporting of Total Phenols at boreholes BH2, BH10, BH18 and BH21. It was noted that insufficient sample was available in the bore to conduct the full suite of analysis as required for the EPL. ENRS note the Total Phenols at these boreholes was reported at below the laboratory limit of detection in the 2016-2017 monitoring period and all other boreholes at the Site during the 2017-2018 monitoring period. Consideration should be given to advancing borehole depths to ensure penetration of the groundwater saturated zone.

It is noted that the EPA does not consider a dry sampling event to be a non-compliance, however where annual samples are dry the point should be re-scheduled or sampled during the next regular sampling round.

6.0 WATER QUALITY RESULTS

Laboratory results for groundwater and surface water were provided to ENRS for tabulation and comparison with relevant EPL assessment criteria and are reported in **Table 7** and **Table 8**. During the 2017-2018 monitoring period, the following water monitoring locations were inspected for sampling;

- **Quarterly** at SW1, SW2, SW3, BH2, BH4A, BH6, BH7, BH10, BH11, BH13, BH14, BH16, BH17, BH18, BH19, BH20; and
- **Annually** at BH2, BH4A, BH6, BH7, BH10, BH11, BH13, BH14, BH16, BH17, BH18, BH19, BH20, BH21, BH22, BH23, LD1, and Stage 3 Leachate Pump House.

6.1 OVERFLOW RESULTS

No overflow events were recorded over the 2017-2018 monitoring period.

6.2 FIELD TESTING

Field testing was conducted by ALS during sampling to record physical water parameters. A water quality meter is used to measure the following parameters in the field:

- Electrical Conductivity (Salinity);
- pH (Acidity);
- Dissolved Oxygen (surface water); and
- Redox/ORP (groundwater).

ALS field record sheets are provided in **Appendix E** and summarised in **Table 7** and **Table 8**.

6.3 PHYSICAL INDICATORS

6.3.1 Salinity (EC & TDS)

Salinity is reported by ALS as either Electrical Conductivity (EC) or Total Dissolved Solids (TDS). The ANZECC guidelines apply a ratio for filterable residue (1 mg/L) = 0.68 EC ($\mu\text{S}/\text{cm}$). In general, fresh water is less than 1,000mg/L or 1,470 $\mu\text{S}/\text{cm}$.

Salinity levels in surface water was reported between **869 $\mu\text{S}/\text{cm}$** (SW3, 21 February 2018) in Sandy Creek down gradient of the Site boundary and **2,460 $\mu\text{S}/\text{cm}$** (SW1, 9 August 2018). TDS values in surface waters were generally reported below the adopted Trigger Values (1,500 mg/L) and within the range of historical data. Minor exceedances were reported in SW3 at levels of **1,560 mg/L** (2 May 2018) and **1,730 mg/L** (8 August 2018). Hence the results are considered satisfactory.

Groundwater salinity was reported between **94 mg/L** (BH21, 8 August 2018) and **3,560 mg/L** (BH13, 22 November 2017). These are within the range of historical values.

Leachate salinity reported values between **261 mg/L** (Stage 3 Leachate Pumphouse, 21 February 2018) and **1,480 mg/L** (LD1, 21 February 2018) which is within the range of historical values. Salinity is expected to vary significantly with leachate concentration and dilution by stormwater in the leachate dam.

Quarterly salinity monitoring should continue to be reviewed to identify any significant trends outside levels of background variation.

6.3.2 Dissolved Oxygen

Levels of Dissolved Oxygen (DO) were measured in the field during sampling. DO reflects the equilibrium between oxygen-consuming processes and oxygen-releasing processes. DO can initiate redox reactions resulting in the uptake or release of nutrients. Low DO concentrations can result in adverse effects on many aquatic organisms which depend on oxygen for their efficient metabolism. At reduced DO concentrations many compounds become increasingly toxic, for example Zinc, Lead, Copper, Phenols, Cyanide, Hydrogen Sulfide and Ammonia.

Surface water DO results range between **1.4 mg/L** (SW1, 21 February 2018) and **4.97 mg/L** (SW3, 8 August 2018). The concentrations are within the range of historical values and present a wide range in values likely due to variation in natural flow and water levels. DO should continue to be reviewed during subsequent rounds.

6.3.3 Oxidation Reduction Potential (Redox)

Oxidation Reduction Potential (ORP) is a measure of the capacity to either release electrons (positive=oxidation) or gain electrons (negative=reduction). Redox reactions govern the biological degradation of hydrocarbon contaminants and the mobility of many compounds such as nitrogen and sulphur. Microorganisms, such as bacteria, obtain energy for growth by transferring electrons from an electron donor to

an electron acceptor. Biodegradation of potential organic contaminants will rapidly deplete DO levels. Once DO levels are depleted, anaerobic microorganisms will typically use available electron acceptors in the following order: Nitrate, Mn(IV), Ferric Iron (Fe^{3+}) Hydroxide, Sulfate, and Carbon Dioxide. Typical indicators of biodegradation at relevant Redox levels include:

- ~ +520 mV manganese reduction;
- ~ -50 mV iron reduction (increased Ferrous Iron (Fe^{2+})); and
- ~ -220 mV sulfate reduction (increased hydrogen sulfide).

Field measurements of ORP during 2017-2018 annual groundwater sampling reported positive (oxidising) values in all bore with the exception of BH21 where negative (reducing) conditions were reported. ORP values shall continue to be assessed during subsequent sampling events.

6.3.4 Hardness

Water hardness is a dimensionless unit which reflects the concentration of metallic cations in water. Analytical testing measures the dissolved calcium and Magnesium salts in mg/L of calcium carbonate (CaCO_3) equivalent. Hardness affects the behaviour of water including corrosion potential and the solubility of heavy metals such as Copper, Zinc, Lead and Cadmium. Hardness was not reported by the laboratory. ENRS calculated hardness (Sum milliequivalents of Ca + Mg x 50) for selected monitoring points to support assessment of heavy metals concentrations against HMTV.

Table 5: Hardness Modified Trigger Values

Hardness Modified Trigger Values (mg/L)							
Site	Hardness CaCO_3	Cd HMTV	Cr VI HMTV	Cu HMTV	Pb HMTV	Ni HMTV	Zn HMTV
BH 2	63.665	0.0004	0.002	0.003	0.009	0.021	0.015
BH 3	Dry	Dry	Dry	Dry	Dry	Dry	Dry
BH 4	123.211	0.001	0.003	0.005	0.020	0.037	0.027
BH 5	Dry	Dry	Dry	Dry	Dry	Dry	Dry
BH 6	196.348	0.001	0.005	0.007	0.037	0.054	0.040
BH 7	204.973	0.001	0.005	0.007	0.039	0.056	0.041
BH10	176.887	0.001	0.004	0.006	0.032	0.050	0.036
BH11	Dry	Dry	Dry	Dry	Dry	Dry	Dry
BH12	Dry	Dry	Dry	Dry	Dry	Dry	Dry
BH13	65.158	0.000	0.002	0.003	0.009	0.021	0.015
BH14	301.820	0.002	0.007	0.010	0.064	0.078	0.057
BH15	Dry	Dry	Dry	Dry	Dry	Dry	Dry
BH16	91.622	0.001	0.002	0.004	0.014	0.028	0.021
BH17	78.519	0.000	0.002	0.003	0.012	0.025	0.018
BH18	111.729	0.001	0.003	0.004	0.018	0.034	0.024
BH19	Dry	Dry	Dry	Dry	Dry	Dry	Dry
BH20	166.009	0.001	0.004	0.006	0.030	0.047	0.034
BH21	9.487	0.000	0.000	0.001	0.001	0.004	0.003
BH22	31.459	0.000	0.001	0.001	0.004	0.011	0.008
BH23	Dry	Dry	Dry	Dry	Dry	Dry	Dry
Leach PH	94.378	0.001	0.003	0.004	0.015	0.029	0.021

Hardness Modified Trigger Values (mg/L)							
Site	Hardness CaCO ₃	Cd HMTV	Cr VI HMTV	Cu HMTV	Pb HMTV	Ni HMTV	Zn HMTV
LD 1	317.449	0.002	0.007	0.010	0.068	0.082	0.059

Hardness values in groundwater are reported between **9.49 mg/L** (BH21) and **301.82 mg/L** (BH14). Leachate hardness (LD1) is calculated to be **317.45 mg/L**. ENRS recommend that hardness continue to be reported for future monitoring rounds to support calculation of Hardness Modified Trigger Values (HMTV) and assessment of heavy metals concentrations against the site specific HMTV.

6.3.5 pH

pH is a measure of hydrogen activity. pH determines the balance between positive hydrogen ions (H⁺) and negative hydroxyl ions (OH⁻) and provides a test of water acidity (low pH) or alkalinity (high pH). Most natural freshwaters have a pH in the range 6.5 to 8.0. Changes in pH may affect the physiological functioning of biota and affect the toxicity of contaminants. Both increases and decreases in pH can result in adverse effects, although decreases are likely to cause more significant problems. Low pH indicates acidic conditions which may increase the mobility of heavy metals, whilst high pH indicates alkaline conditions which may also generate Ammonia. Previous investigations at the Site by Forbes Rigby (1996) report acidic groundwater with a low pH of 4.3 associated with silica saturation and oxidation of accessory marcasites grains (iron sulphide) within weathered sandstone at the site which belongs to the Shoalhaven Group and Nowra Sandstone formation (marine sediments).

Surface water reports a pH between **3.2** (SW3 2 May 2018) and **8.2** (SW3 8 August 2018). The results for all surface waters varied outside the ANZECC 2000 recommended range for lowland rivers in South Eastern Australia (pH 6.5-8). However, the results may be considered acceptable as levels are susceptible to rapid change due to rainfall and recharge events with subsequent monitoring reporting pH within the acceptable range. It is recommended that ENRS attend the next round of sampling to inspect the downgradient sample point conditions and review potential sources of low pH at the Site.

Similar to previous monitoring events, pH in groundwater at the Site remains low. Groundwater pH was reported between **3.1** (BH14, 21 February 2018 & 2 May 2018) and **5.7** (BH22, 8 August 2018). Whilst the readings are generally below the ANZECC recommended range of pH 6.5-8.0 the results are within the range of historical values for the Site and may be considered satisfactory supported by ongoing monitoring and review of downgradient conditions.

The pH in leachate at the site was reported between **4.3** (Leachate PH, 21 February 2018) and **8.3** (LD1, 21 February 2018) which is similar to the previous monitoring results and significantly higher than the adjoining groundwater conditions.

6.3.6 Total Suspended Solids

Total Suspended Solids (TSS) provides a measure of turbidity reported as the mass of fine inorganic particles suspended in the water. Measurement of TSS provides a

valuable indication of the sediment and potential nutrient load. Elevated TSS decreases light penetration whilst Phosphorus is absorbed onto sediment surfaces.

TSS is reported for leachate. Concentrations were reported between **35 mg/L** for Leachate Pump House (21 February 2018) and **146 mg/L** for LD1 (21 February 2018), which is in exceedance of the adopted TV of 50 mg/L. This value is within the range of historic values and is assessed to be satisfactory.

6.4 INORGANIC ANALYTES

6.4.1 Nutrients

Surface water samples were analysed for select nutrients including Ammonia, Nitrate, Phosphorus (P) and Phosphate. The most bio-available forms of Nitrogen are Ammonium (NH₄⁺) and Nitrate (NO₃⁻). Ammonia is an oxygen-consuming compound and is toxic to aquatic biota at elevated concentrations. Ammonia toxicity increases under low oxygen levels and higher pH.

Phosphorus (Total P)

Total Phosphorous is reported for leachate. Concentrations were between **0.1 mg/L** (Leachate Pump House, 21 February 2018) and **0.74mg/L** (LD1, 21 February 2018) which are both in exceedance of the 0.05 mg/L TV for fresh water. The leachate is contained within the site with no external discharge. The results are considered satisfactory. It is recommended that Total P continue to be reported during subsequent monitoring in accordance with the EPL.

Phosphate

Concentrations of Phosphate in groundwater were reported below the laboratory detection limit (**<0.01 mg/L**). The results are satisfactory.

Phosphate in leachate was reported between the Laboratory Limit of Reporting (LOR) at **<0.01 mg/L** (Leachate Pump House) and **0.02 mg/L** (LD1) which is equal to the TV of 0.02 mg/L and representative of raw leachate conditions. As no exceedance occurred the results are considered satisfactory. Results show a decrease in concentrations compared to the 2016-2017 monitoring period.

Ammonia

Ammonia levels in surface water are generally reported between the Laboratory Limit of Reporting (LOR) **0.03 mg/L** (SW3 Feb., May and Aug. 2018) and **0.29 mg/L** (SW1 Nov. 2017). Monitoring results all reported levels below the adopted guidelines, hence the results considered satisfactory. Given the historical trends for Ammonia concentrations during previous monitoring periods it is recommended that the sample sites be inspected by ENRS during the next monitoring event to assess for potential sources of Ammonia.

Concentrations in groundwater were reported between the Laboratory Limit of Reporting (**<0.01 mg/L**) and **0.74 mg/L** (BH10 May 2018). The results are below the adopted 0.9 mg/L TV and are considered satisfactory.

Ammonia in leachate was reported between **1.64 mg/L** (Leach PH) and **2.57mg/L** (LD1). Historical monitoring events have previously reported levels of **627.0 mg/L** (Leach PH Feb. 2013). Hence, the results are considered satisfactory as leachate is contained at the Site and within historical values. ENRS recommend dams and holding ponds be aerated to reduce ammonia concentrations.

Nitrate

Results for Nitrate in groundwater are reported between the laboratory detection limit (**<0.01 mg/L**) and **0.22 mg/L** (BH7) which is below the adopted 0.7 mg/L TV. It should be noted that previously elevated levels in BH7 have reduced significantly. Hence, the results are satisfactory.

Concentrations in leachate were reported between **0.17 mg/L** (LD1) and **0.53 mg/L** (Leachate PH) which is below the ANZECC 2000 guideline of 0.7 mg/L. Hence, the results are satisfactory.

6.4.2 Total Phenolics

Phenols do not tend to bio-accumulate and have a relatively short half-life of between 2 and 20 days. Phenols are present in a range of industrial and household products including disinfectants, fertilisers, explosives, paints and paint removers, drugs, pharmaceuticals, textiles and charcoal (coke). The largest single use of phenol is as an intermediate in the production of phenolic resins, which are low-cost, versatile, thermoset resins used in the plywood adhesive, construction, automotive, and appliance industries. It is also used as an intermediate in the production of bisphenol A, which is used to make epoxy and other resins. Phenol is also naturally occurring in animal waste and decomposing organic matter.

Laboratory results for Total Phenols in Site waters returned levels below the laboratory LOR (**<0.05 mg/L**). The results are considered satisfactory. It is recommended that monitoring continue in accordance with the EPL.

6.4.3 Metals & Metalloids

Water samples were analysed for a suite of selected heavy metals and metalloids. Where heavy metal concentrations exceeded the standard ANZECC 95% threshold Trigger Value, site specific Hardness-Modified Trigger Values (HMTV) were calculated. Details of metal and metalloid concentrations with HMTV are provided in **Table 7** and **Table 8**.

Aluminium (Total Al)

Elevated concentrations of Total Aluminium were reported above the ANZECC 95%TV (**0.055 mg/L**) in most sampled groundwater and leachate locations (BH2, BH4, BH6, BH7, BH10, BH13, BH14, BH16, BH17, BH20, BH21, BH22, LD1 and Leachate PH). Previous Site investigations report naturally occurring levels up to 4.6 mg/L (Forbes Rigby;1996). Review of the historical data indicates all monitoring points are within the range of historical values. It is noted that results are reported for Total metal concentrations which indicates there is potential for elevated levels due to sampling conditions and turbidity. It is recommended that ongoing sampling include

field filtering and consideration be made for dissolved metals analysis. However, this may limit comparison with the historical dataset.

Arsenic (Total As)

Concentrations of Arsenic in Site waters were generally reported below the laboratory detection limit (**<0.01mg/L**) and the adopted TV (**0.024 mg/L**). Similar to previous reporting periods an exceedance is noted in BH13 (**0.076 mg/L**). Elevated levels of arsenic in BH13 have been reported since 2010 and **0.076 mg/L** is within the range of values previously reported. The results in BH13 may be considered satisfactory as BH13 is situated upgradient of the leachate dam and no exceedances for arsenic are reported in downgradient bores. It is recommended that results be reviewed following the next round of monitoring.

Barium (Total Ba)

Concentrations of Barium in Site waters were reported between **0.02 mg/L** (BH4) and **0.174 mg/L** (BH10). Review of historical data and statistical analysis indicates concentrations for Barium were generally within the range of historical data.

Cadmium (Total Cd)

Concentrations of Cadmium in Site waters reported levels between the laboratory detection limit (**<0.0001 mg/L**) and **0.0004 mg/L** (Leachate PH). No exceedances of HMTVs were reported and the results are within range of historical values hence, the results are satisfactory. Concentrations of cadmium should continue to be monitored in accordance with the EPL.

Cobalt (Total Co)

Concentrations of Cobalt in Site waters were reported between **0.001 mg/L** (BH4, BH13 and LD1) and **0.04 mg/L** (BH6). Review of historical data and statistical analysis indicates concentrations for Cobalt were within the range of historical values and the reported levels are assessed to be satisfactory.

Copper (Total Cu)

Concentrations of Copper in Site waters were reported between **0.001 mg/L** (Leachate Pump House) and **0.178 mg/L** (BH14). Review of historical data and statistical analysis indicates concentrations for Copper have increased since the previous monitoring event but still remain within the range of historical values. Similar to Aluminium, results for Copper are likely influenced by low pH and sample turbidity. It is recommended that future sampling include field filtering and consider analysis for dissolved concentrations.

Hexavalent Chromium (Total CrVI)

Concentrations of Hexavalent Chromium in Site waters were reported below the laboratory detection limit (**<0.01mg/L**). It is noted that hexavalent chromium was detected during the 2016-2017 monitoring period in BH18 at concentrations of **0.02 mg/L** which was the first time it was detected in site waters since at least 2008. It is recommended that hexavalent chromium is continued to be monitored in accordance with the EPL.

Total Chromium (Total Cr)

Concentrations of Total Chromium in Site waters was reported between the laboratory LOR (<0.001 mg/L) and **0.122 mg/L** (BH22). HMTV are available for CrVI and may be used for screening Total Cr. Minor exceedances of the HMTV were reported in BH2, BH4, BH6, BH10, BH16, BH21 and BH22. Similar to results for other metals these concentrations are influenced by the low pH of Site waters which increases metal mobility. The results are within the range of historical values and should continue to be assessed during the next monitoring event.

Lead (Total Pb)

Concentrations of Lead in Site waters were reported between the laboratory detection limit (<0.001 mg/L) and **0.12 mg/L** (BH22). Comparison of results against HMTV reports exceedances in BH2, BH10, BH13, BH21 and BH22. Review of historical data and statistical analysis indicates concentrations were generally within the range of historical data. The results are satisfactory and should continue to be reviewed after the next event.

Magnesium (Dissolved Mg)

Concentrations of Magnesium in groundwater were reported between **2 mg/L** (BH21) and **66 mg/L** (BH14) whilst levels in leachate were reported between **12 mg/L** (Leachate PH) and **51 mg/L** (LD1). No TV are available for screening purposes. However, it is noted that results are generally within the range of historical values.

Manganese (Total Mn)

Concentrations of manganese in groundwater were reported between **0.014 mg/L** (BH21) and **0.801 mg/L** (BH20). No TV exceedances (1.9 mg/L) are reported and it is noted that results are within the range of historical values.

Mercury (Total Hg)

Concentrations of Mercury in Site waters were reported below the laboratory detection limit (<0.0001mg/L). The results are satisfactory.

Zinc (Total Zn)

Concentrations of Zinc in groundwater were reported between **0.015 mg/L** (LD1) and **0.453 mg/L** (BH10). Exceedances of the calculated HMTV were reported in BH2, BH4, BH6, BH7, BH10, BH13, BH14, BH16, BH17, BH20, BH21, BH22, BH23 and Leachate PH. Review of historical data indicates results were generally within historical limits.

Review of heavy metals results reports elevated concentrations of Aluminium, Arsenic, Cadmium, Copper, Total Chromium, Lead and Zinc. Some metals can occur naturally at the reported levels. Mobility of metals in groundwater can be increased in low pH conditions such as encountered in groundwater at the Site. It is recommended that concentrations of metals in site waters continue to be monitored closely. The sampling contractor shall ensure samples are field filtered to minimise the influence of turbidity. It is noted that low flow purging is the preferred method, however due to low recharge in selected bores samples may be obtained with bailers. Due to sampling limitations it may be preferential to assess for dissolved metals at all

monitoring points. Whilst this will limit comparison with historical data the results shall reduce the potential influence of sampling conditions and enable an improved comparison of data between sites monitoring points. Should future monitoring continue to identify elevated concentrations of metals in groundwater additional monitoring may be required to assess background conditions and potential off-site migration. Selected metals may also require speciation to support characterisation and source of potential contaminants.

6.5 ORGANIC ANALYTES

6.5.1 Total Organic Carbon (TOC)

Total Organic Carbon (TOC) provides a measure of the total concentration of organic material in a water sample. TOC is typically higher in surface water than groundwater, however high TOC is also characteristic of leachate from landfill. TOC provides a marker for biological activity associated with contaminant degradation and can be used to delineate contaminant plumes. TOC influences geochemical processes by:

- acting as proton donors/acceptors;
- providing pH buffering;
- participating in mineral dissolution/precipitation reactions; and
- providing carbon substrate for microbe-based biodegradation.

During the 2017-2018 monitoring period, the reported TOC concentrations were between:

- Surface water; **6 mg/L** (SW1 22 Nov. 2017 and 2 May 2018) and **33 mg/L** (SW2 21 Feb. 2018);
- Groundwater; **<0.0 mg/L** (BH17 2 May 2018) and **31 mg/L** (BH21 21 Feb. 2018); and
- Leachate; **2 mg/L** (Leach PH 21 Feb. 2018) and **46 mg/L** (LD1 21 Feb. 2018)

Review of historical data (since 2007) indicates readings for TOC in groundwater during the 2017-2018 monitoring period are within the range of historical values with no significant changes compared with the 2016-2017 monitoring period. The variable nature of results indicates potential for data to be influenced by sampling conditions or event based impacts. It is recommended that analysis be conducted for dissolved organic carbon to reduce the potential influence of sample turbidity.

6.5.2 Total Recoverable Hydrocarbons (TRH)

Laboratory testing was conducted for light fraction (C6-9) and heavy fraction (C10-34) Total Recoverable Hydrocarbons (TRH). Previously referred to as Total Petroleum Hydrocarbons (TPH) the updated TRH suite provides for improved screening of a wider range of hydrocarbons.

Minor detections for light fraction TRH C6-C9 were detected in BH20 (**0.180 mg/L**) which is below the NEPM (2013) trigger value of 7 mg/L. Results for heavy fraction C10-C36 report minor detections in BH20 (**0.930 mg/L**) and BH21 (**0.260 mg/L**) which is also below the adopted (NEPM 2013) guidelines. It is recommended that monitoring continue in accordance with the EPL.

Levels of both light and heavy fractions hydrocarbons were reported below the laboratory limit of reporting in LD1 and Leach PH.

6.5.3 Benzene, Toluene, Ethylbenzene and Xylenes (BTEX)

BTEX compounds are volatile compounds commonly found in petroleum products and are a common indicator of ground contamination.

BTEX results in Site waters for the 2017-2018 monitoring period generally reported concentrations below the laboratory LOR and the adopted TV. Elevated concentrations were detected in BH20. The remaining wells, leachate dams and surface waters all reported concentrations below the laboratory detection limit. The following exceedances are noted:

- Benzene **0.003 mg/L** in BH20 < 0.95 mg/L guidelines;
- Ethyl Benzene **0.088 mg/L** in BH20 < 0.14 mg/L guideline;
- Xylenes – **0.006mg/L** BH20 < 0.35 mg/L guideline.

6.5.4 Polycyclic Aromatic Hydrocarbons (PAH)

PAH's are formed by the incomplete combustion of coal, oil, petrol, wood, or other organic materials. Major sources of PAHs include asphalt roads, road tar, coal, and fires of all types.

Concentrations of PAHs in groundwater were all reported as less than the laboratory LOR (<0.0005 mg/L). If results continue to be below detectable levels it is recommended that PAHs cease to be monitored.

6.5.5 Organochlorine Pesticides (OCP)

OCPs are characteristically very stable. They degrade slowly and accumulate in the food chain. Since they were first introduced into Australia in the mid-1940s, OCPs have been used in many commercial products. Commonly used OCP insecticides were DDT, lindane, chlordane, dieldrin, aldrin and heptachlor.

Results for the 2017-2018 monitoring period for OCPs were reported as less than the laboratory detection limit (<0.001 mg/L). If results continue to be below detectable levels it is recommended that OCP cease to be monitored.

6.5.6 Organophosphorus Pesticides (OPP)

OPPs are synthetic, more water soluble and have higher degradation rates than OCPs. OPPs may interfere with the nervous system and cause development or reproductive harm, and endocrine disruption.

Results for the 2017-2018 monitoring period for OPPs were reported as less than the laboratory detection limit (<0.001 mg/L). If results continue to be below detectable levels it is recommended that OPPs cease to be monitored.

7.0 GAS MONITORING RESULTS

Landfill gas monitoring is conducted at the Site under separate contract by ALS in accordance with the Site EPL. Gas monitoring reports are provided in **Appendix F**. ALS results for the 2017-2018 reporting period recorded regular gas readings at 25 meter grid intersections. The Site EPL requires notification if any gas monitoring detects methane above 1.25% (v/v) (12,500ppm), and increase the frequency of monitoring to daily, until the EPA determines otherwise.

Methane gas emissions, all below EPA limits, were detected by ALS over capped landfill areas. Similarly, methane gas emissions were all below EPA EPL limits in the buildings located within a distance of 250 meters of the Site where access was not restricted.

8.0 ENVIRONMENTAL ASSESSMENT

8.1 MONITORING POINT SUMMARY

Field measurements and laboratory water quality results from the 2017-2018 environmental monitoring period identified concentrations of analytes generally within the historical range and/or adopted guideline trigger values. The monitoring results continue to report low pH and elevated levels of selected metals in groundwater. A summary of the key water quality results, trends and recommendations for monitoring points is provided in **Table 6**.

Table 6: Summary of 2017-2018 Monitoring Results

Sample ID	Exceedance		Comment
	Result	Guideline	
SW1	DO 1.4-4.02 mg/L pH 5.7-6.4	7-11 mg/L 6.5-8	Surface water monitoring results report depleted dissolved oxygen for the 2017-2018 monitoring period. Recommend ENRS attend next monitoring event to inspect sampling sites for low DO and elevated pH. Recommend a photographic record of dry surface water sites is maintained with field sheets. Values of TDS in SW3 are within the range of historic values
SW2	Dry	-	
SW3	DO 2.05-4.97 mg/L pH 3.2-6.0 TDS 1560-1730 mg/L	7-11mg/L 6.5-8 1500 mg/L	
BH1	Not Required	-	Groundwater at the Site is characterised by naturally occurring low pH associated with oxidation of the underlying sandstone. Low pH in the range of 3.4 was detected throughout the 2017-2018 monitoring period. Consider installing more Wells offsite outside the potential influence of the landfill to confirm site specific background conditions.
BH2	Al 6.8mg/L Cu 0.016 mg/L pH 4.4 T. Cr 0.004mg/L Pb 0.03 mg/L Zn 0.2 mg/L	0.055mg/L HMTV 0.003 mg/L 6.5-8 HMTV 0.002 mg/L HMTV 0.009 mg/L HMTV 0.015 mg/L	
BH3	Not required	-	
BH4	Al 3.93 mg/L Cu 0.014 mg/L T. Cr 0.005 mg/L pH 3.6-3.8 Zn 0.236 mg/L	0.055mg/L HMTV 0.005 mg/L HMTV 0.003 mg/L 6.5-8 HMTV 0.027 mg/L	Levels of Al, As, Cu, T,Cr, Pb, and Zn are generally within the range of historical values which is satisfactory and should continue to be reviewed after the next round of monitoring. Elevated results for
BH5	Not required	-	

Sample ID	Exceedance		Comment
	Result	Guideline	
BH6	pH 3.2-3.7 Al 6.01 mg/L T. Cr 0.007 mg/L Cu 0.093 mg/L TDS 1760 mg/L Zn 0.242 mg/L	6.5-8 0.055mg/L HMTV 0.005 mg/L HMTV 0.007 mg/L 1500mg/L HMTV 0.04 mg/L	metals are likely associated with background levels as low pH increases mobility of metals. Sample turbidity may also impact total concentrations. Future monitoring should include field filtering and analysis for dissolved concentrations in groundwater instead of totals.
BH7	pH 3.9-4.8 Al 0.31 mg/L Cu 0.037mg/L Zinc 0.111 mg/L	6.5-8 0.055mg/L HMTV 0.007 mg/L HMTV 0.041 mg/L	
BH10	pH 4.7-5.3 Al 6.11 mg/L T. Cr 0.011 mg/L Cu 0.178 mg/L Pb 0.056 mg/L Zn 0.453 mg/L	6.5-8.0 0.055 mg/L HMTV 0.004 mg/L HMTV 0.006 mg/L HMTV 0.032 mg/L HMTV 0.036 mg/L	
BH11	Dry	-	
BH12	Dry	-	ENRS note that sampling methods since August 2014 include low flow sampling and purging where bore yields are suitable. Results should continue to be reviewed after each sampling event.
BH13	Al 0.55 mg/L As 0.076 mg/L Cu 0.073 mg/L pH 3.2-4.9 Pb 0.019 mg/L TDS 1620-2060 mg/L Zn 0.081 mg/L	0.055 mg/L 0.024 mg/L HMTV 0.003 mg/L 6.5-8.0 HMTV 0.009 mg/L 85-1500mg/L HMTV 0.015 mg/L	
BH14	Al 17 mg/L pH 3.1-3.8 Cu 0.178 mg/L TDS 1680-1880 mg/L Zn 0.349 mg/L	0.055 mg/L 6.5-8 HMTV 0.01 mg/L 85-1500 mg/L HMTV 0.057 mg/L	
BH15	Not required	-	
BH16	pH 3.2-3.6 Al 6.06 mg/L Cu 0.043mg/L T. Cr 0.003 mg/L Zn 0.034mg/L	6.5-8 0.055mg/L HMTV 0.004 mg/L HMTV 0.002 mg/L HMTV 0.021 mg/L	It is noted that a number of boreholes were reported as being dry for the 2017-2018 monitoring period (BH11, BH19 and BH23). Review of the historic Site data shows that these boreholes have been dry for an extended period of time, with: - BH11 reported as dry since September 2015; - BH19 reported as dry since September 2015; and - BH23 since February 2016. Boreholes BH2 and BH18 were reported as being dry for three (3) out of the four (4) rounds of sampling. ENRS recommend consideration should be given to deepening the bores at these locations to ensure compliance with Section 4.4 of <i>Environmental Guidelines: Solid Waste Landfills, Second Edition (2016)</i> which requires : <i>If the waste mass is above the groundwater level, the screened section of the well should extend through the upper 5 to 10 metres of the saturated aquifer, or into at least the first water-bearing zone in the case of fractured aquifers.</i>
BH17	pH 3.6-4.1 Al 1.26 mg/L Cu 0.014 mg/L Zn 0.03mg/L	6.5-8.0 0.055mg/L HMTV 0.003 mg/L HMTV 0.018 mg/L	
BH18	pH 5.5 Al 0.87 mg/L Cu 0.029mg/L Zn 0.079mg/L	6.5-8 0.055mg/L HMTV 0.004 mg/L HMTV 0.024 mg/L	
BH19	Dry	Dry	
BH20	pH 4.1-4.5 Al 6.91 mg/L Cu 0.037 mg/L TDS 1530-1700 Zn 0.169mg/L	6.5-8.0 0.055mg/L (HMTV 0.036) HMTV 0.001 mg/L 85-1500 mg/L HMTV 0.034 mg/L	
BH21	pH 5-5.4 Al 9.18 mg/L Cu 0.06 mg/L Pb 0.05 mg/L Zn 0.097 mg/L	6.5-8 0.055 mg/L HMTV 0.001 mg/L HMTV 0.001 mg/L HMTV 0.003 mg/L	
BH22	pH 5.0-5.7 Al 93.1 mg/L Cu 0.061 mg/L Pb 0.12 mg/L Zn 0.187 mg/L	6.5-8 0.055mg/L HMTV 0.001 mg/L HMTV 0.004 mg/L HMTV 0.008 mg/L	
BH23	Dry	-	
LD1	Al 1.56 mg/L Ammonia 2.57 mg/L TSS 146 mg/L T. Phosphorous 0.74mg/L	0.055mg/L 0.9mg/L 50 mg/L 0.05 mg/L	Results document raw leachate quality as the source for potential contamination of groundwater and surface water. Key indicators of potential leachate impacts

Sample ID	Exceedance		Comment
	Result	Guideline	
Leach PH	Al 0.28mg/L Ammonia 1.25mg/L T. Phosphorous 0.74mg/L Zn 0.088 mg/L	0.055mg/L 0.9 mg/L 0.05 mg/L HMTV 0.021 mg/L	include nutrients, conductivity and heavy metals.

8.2 HISTORICAL DATA ASSESSMENT

Water quality monitoring has been conducted at the Site since December 2001, although the sampling regime has been altered since that time. This assessment of environmental monitoring has considered the available data from the previous four (4) years to support the identification of background levels, trends and changes in water quality. Historical data (since 2010) for selected monitoring points with reported exceedances is presented in **Charts 1-54** to facilitate identification of significant concentration trends. In general, concentrations of key landfill leachate indicators, including Ammonia, pH and Organic Carbon were within the historical range reported for the Site. Continued detections of low pH at selected sites should continue to be monitored.

8.3 ENVIRONMENTAL MANAGEMENT

8.3.1 Landfill Operations

ENRS understand 'solid' waste (general solid waste putrescible and non-putrescible) landfill operations are ongoing at the Site. Landfill practices should be conducted in accordance with the Site's Landfill Environmental Management Plan (LEMP) and the EPA Solid Waste Landfill Guidelines (EPA; 2016).

8.3.2 Environmental Safeguards

Appropriate management actions are required to continue to prevent and detect potential groundwater and surface water pollution. The nearest sensitive receptors for any uncontrolled Site water and leachate include; areas of adjoining bushland; Sandy Creek, and shallow groundwater aquifers.

Landfill cells have been capped and active areas should continue to be capped intermediately and covered on a daily basis. Any cleared areas should be re-vegetated to stabilise soils and prevent erosion and sediment mobilisation.

A network of drains, bunds and swales captures stormwater which is directed into the sediment dam. It is recommended that the drainage and detention structures be inspected annually by a suitably qualified environmental professional to assess their structural integrity and identify the need for any maintenance (such as removal of deep rooted vegetation, sediment, and re-lining).

Continue to review annual groundwater monitoring results from up and down gradient of the collection curtain/drain to assess effective interception of leachate from former landfill cell Stages 1 and 2.

Leachate is re-applied over a licenced irrigation utilisation area. Continue to report leachate usage with data loggers and detailed volumetric records.

This review of Site operations and water/leachate control structures indicates the existing systems are generally appropriate.

8.3.3 Monitoring Program

The surface water and leachate monitoring program is required to demonstrate that Site water is not generating any off-site pollution.

The existing monitoring locations and sampling regime (specified in EPL 5877) is generally considered to provide suitable assessment of surface water, leachate and groundwater conditions.

Review of the 2017-2018 monitoring results indicate no significant offsite groundwater pollution from landfilling operations at the Site. Future sampling events should continue to monitor the ongoing low levels of pH, elevated nutrients and metals at the Site. Previous Site investigations conducted pre-landfilling, report a regionally low pH in groundwater of 4.6 pH units indicating that pH levels as low as 3-4 may be acceptable background levels. Decaying organic matter in boreholes and excess sediment may provide elevated readings. Recent borehole development and low flow sampling techniques are anticipated to improve the representativeness of monitoring during subsequent sampling events.

ENRS also note that historical results for metals are for total concentrations. Irregularities may be influenced by turbidity and sample conditions. It is recommended that future sampling include field filtering and for SCC to consider conducting analysis for dissolved concentrations in place of Total Metals in groundwater to reduce the potential for variation due to field conditions.

Should monitoring continue to report any significant changes in analyte concentrations the need for additional monitoring locations should be reviewed, including additional groundwater monitoring bores both up and down gradient to confirm background conditions. The monitoring network would benefit from additional sentinel bores positioned at greater distances from the landfill to support definition of background groundwater conditions, namely pH and metals concentrations.

It is recommended that water quality results from future monitoring rounds continue be forwarded to ENRS for review within the laboratory holding time to compare against relevant guidelines and identify any irregularities so that additional testing may be conducted within the holding time.

9.0 CONCLUSION AND RECOMMENDATIONS

9.1 CONCLUSIONS

Based on the reviewed site data and results of the 2017-2018 monitoring program the following conclusions are provided:

- A total of three (3) surface water, two (2) leachate, and twenty-one (21) groundwater monitoring points were inspected quarterly (for select parameters) and annually for sampling between 30 October 2017 and 29 October 2018 in accordance with the site EPL 5877. Samples were collected and analysed by

Council's preferred contractor, ALS Environmental, a NATA accredited laboratory;

- Shallow groundwater flow is expected to mimic topography with low hydraulic gradients flowing west-northwest towards Sandy Creek. The nearest sensitive receptors are likely to include; recreational users of the Sandy Creek and Shoalhaven River environs; down gradient stakeholders; and Groundwater Dependent Ecosystems near discharge zones;
- Salinity in surface water was generally reported below the adopted Trigger Values (2,200 $\mu\text{S}/\text{cm}$ or 1,500 mg/L). Minor exceedances are within historical values. Groundwater salinity is elevated across the Site with levels of TDS reported within the range of historical values likely associated with the Site geology which comprises marine sedimentary rocks and residual clays;
- Results for pH in groundwater at the Site generally reported low pH levels which are within the range of historical data. Sampling should ensure adequate purging or use of low flow sampling techniques. The pH in raw leachate is recorded between 4.3-8.3 which indicates low pH in groundwater is likely the result of in-ground process and not direct connection with leachate;
- Concentrations of nutrients in surface water and groundwater were generally identified within the range of historical values and below the adopted Trigger Values;
- Total concentrations in groundwater of Barium, Cadmium, Cobalt, Hexavalent Chromium (CrVI), Magnesium, Manganese and Mercury were reported below the laboratory limit of reporting (LOR) and/or the adopted Trigger Value. Similar to previous results exceedances of the adopted TV and Hardness Modified TV were reported for Aluminium, Arsenic, Copper, Total Chromium, Lead and Zinc. The elevated concentrations of selected metals are likely associated with increased mobility from low pH. It is also noted that metals such as Aluminium, Arsenic, Copper and Zinc occur naturally in Site aquifers and results may reflect background conditions due to mineral dissolution. It is recommended that future monitoring include field filtering and analysis for dissolved concentrations to support assessment of any potential risk from metals mobility in groundwater;
- Reported concentrations of Total Organic Carbon (TOC) have generally remained similar to the previous reporting period, which indicates stable environmental conditions at the Site;
- Concentrations of TRH and BTEX were reported below the laboratory LOR and/or the Site Assessment Criteria (SAC). Minor detections of light and heavy fraction hydrocarbons were identified in BH20 and BH21. It is recommended that concentrations of TRH be continued to be reviewed after the next round of sampling in February 2019;
- Results for all tested PAH's in groundwater were reported below the LOR ($<0.001\text{mg}/\text{L}$);
- The existing monitoring locations and sampling regime (specified in EPL 5877) is generally considered to provide suitable assessment of surface water, leachate and groundwater conditions; and
- Based on this review of the 2017-2018 environmental monitoring results, for each surface water, leachate and groundwater monitoring point, ENRS conclude that there is unlikely to be any significant off-site impacts from site operations.

9.2 RECOMMENDATIONS

Based on the findings obtained during this Annual Environmental Monitoring assessment the following recommendations are provided:

- Sampling and Laboratory procedures to continue to include:
 - Low flow sampling where bore yields permit. Alternatively, bores should be purged dry and allowed to recharge before sampling within 24 hours;
 - Where sample points are dry, re-sample after the next rainfall event or during the next scheduled event;
 - Field measurements during purging and sampling to include; Temperature, pH, Dissolved Oxygen (DO), Electrical Conductivity (EC) and Redox. Scanned field sheets to be reported with the laboratory COA; and
 - Results for metals and metalloids to be reported as total concentrations for surface water and dissolved concentrations for groundwater. Consider testing for both total and dissolved concentrations in groundwater, to provide for comparison.
- Consider the following upgrades to the monitoring network:
 - Maintain vehicle access to all bores;
 - Install high visibility standpipe marker posts to provide for ready identification by sample staff and reduce risk of damage by plant;
 - Install water level staff gauges at surface water and leachate sampling points to facilitate water level records and comparison of site conditions between events;
 - Deepen or relocate bores which are reported as dry over more than 3 successive sampling events. Bores BH11, BH19 and BH23 have been reported as being dry for more than ten (10) quarterly monitoring events. Bores BH2 and BH18 were reported as being dry for three (3) of the four (4) quarterly inspections during the 2017-2018 monitoring period;
 - Install additional bores at suitable distance from the landfill to assess for background groundwater quality, namely pH and metals concentrations.
- Drainage and detention structures be inspected annually by a suitably qualified environmental professional to assess their structural integrity and identify the need for any maintenance (such as removal of deep rooted vegetation, sediment, and re-lining);
- Should future monitoring report significant increases in analyte concentrations the need for additional monitoring locations, including groundwater bores, should be reviewed. Additional monitoring bores may be required up-gradient to characterise background conditions and down gradient to assess potential impacts to surrounding environment (if any);
- Water quality results continue to be sent directly to a suitably qualified environmental professional to compare against relevant guidelines and identify any irregularities so that additional testing may be conducted within the laboratory holding time;
- Continue carrying out the sampling, testing and analysis in accordance with the EPL;
- Consider varying the EPL to:
 - Remove the following analytes from the monitoring regime supported by consistent results below the laboratory level of detection since 2008: OCPs, OPPs;

- Revise EPL to test for Dissolved Organic Carbon in groundwater not Total concentrations which can be influenced by in-bore conditions;
- Should any change in Site conditions or incident occur which causes a potential environmental impact, ENRS should be notified to further assess the Site and consider requirements for any additional monitoring.

10.0 LIMITATIONS

This report and the associated services performed by ENRS are in accordance with the scope of services set out in the contract between ENRS and the Client. The scope of services was defined by the requests of the Client, by the time and budgetary constraints imposed by the Client, and by the availability of access to the site.

ENRS derived the data in this report primarily from visual inspections, examination of available records, interviews with individuals with information about the site, and if requested, limited sample collection and analysis made on the dates indicated. In preparing this report, ENRS has relied upon, and presumed accurate, certain information provided by government authorities, the Client and others identified herein. The report has been prepared on the basis that while ENRS believes all the information in it is deemed reliable and accurate at the time of preparing the report, it does not warrant its accuracy or completeness and to the full extent allowed by law excludes liability in contract, tort or otherwise, for any loss or damage sustained by the Client arising from or in connection with the supply or use of the whole or any part of the information in the report through any cause whatsoever.

Limitations also apply to analytical methods used in the identification of substances (or parameters). These limitations may be due to non-homogenous material being sampled (i.e. the sample to be analysed may not be representative), low concentrations, the presence of 'masking' agents and the restrictions of the approved analytical technique. As such, non-statistically significant sampling results can only be interpreted as 'indicative' and not used for quantitative assessments.

The data, findings, observations, conclusions and recommendations in the report are based solely upon the state of the site at the time of the investigation. The passage of time, manifestation of latent conditions or impacts of future events (e.g. changes in legislation, scientific knowledge, land uses, etc) may render the report inaccurate. In those circumstances, ENRS shall not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on, the contents of the report.

This report has been prepared on behalf of and for the exclusive use of the Client, and is subject to and issued in connection with the provisions of the agreement between ENRS and the Client. ENRS accepts no liability or responsibility whatsoever and expressly disclaims any responsibility for or in respect of any use of or reliance upon this report by any third party or parties.

It is the responsibility of the Client to accept if the Client so chooses any recommendations contained within and implement them in an appropriate, suitable and timely manner.

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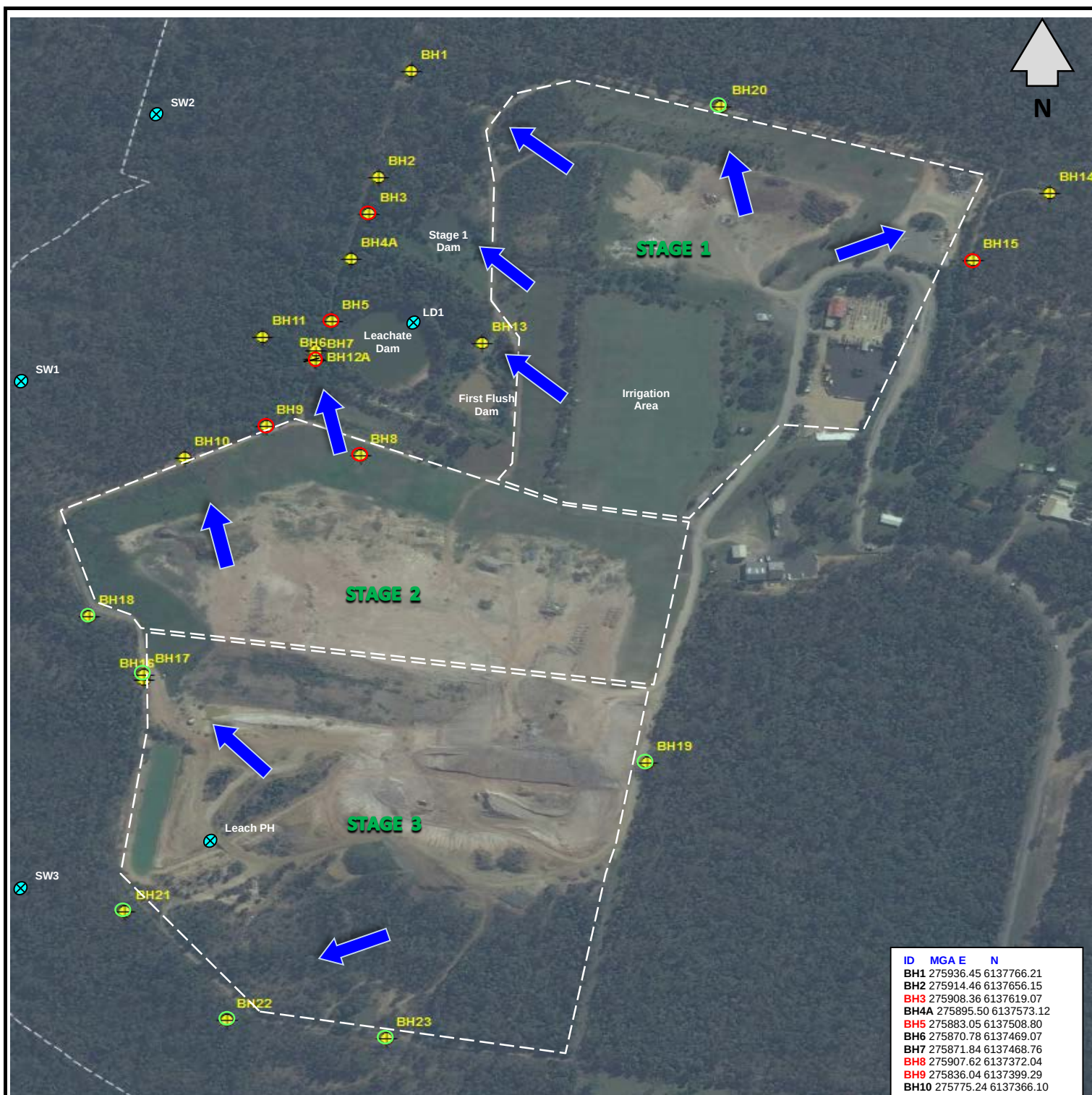
FIGURES

Figure 2 Site Plan & Bore Location Map

Figure 3 Topographic Map

Figure 4 Regional Geology

Figure 5 Registered Bores



- ⊕ Monitoring Bore Site
- ⊕ Monitoring Bore added to current EPL 29 Sept. 2015
- ⊕ Bore removed from EPL 29 September 2015
- Inferred direction of groundwater flow
- - - Approximate Landfill Stage Area

ID	MGA	E	N
BH1	275936.45	6137766.21	
BH2	275914.46	6137656.15	
BH3	275908.36	6137619.07	
BH4A	275895.50	6137573.12	
BH5	275883.05	6137508.80	
BH6	275870.78	6137469.07	
BH7	275871.84	6137468.76	
BH8	275907.62	6137372.04	
BH9	275836.04	6137399.29	
BH10	275775.24	6137366.10	
BH11	275831.25	6137491.27	
BH12A	275871.07	6137478.69	
BH13	275996.40	6137488.92	
BH14	276421.18	6137653.16	
BH15	276365.69	6137582.41	
BH16	275750.11	6137137.29	
BH17	275750.12	6137142.42	
BH18	275706.99	6137201.69	
BH19	276131.95	6137061.32	
BH20	276171.38	6137736.01	
BH21	275741.83	6136900.25	
BH22	275821.38	6136791.13	
BH23	275942.26	6136774.41	

100 Metres



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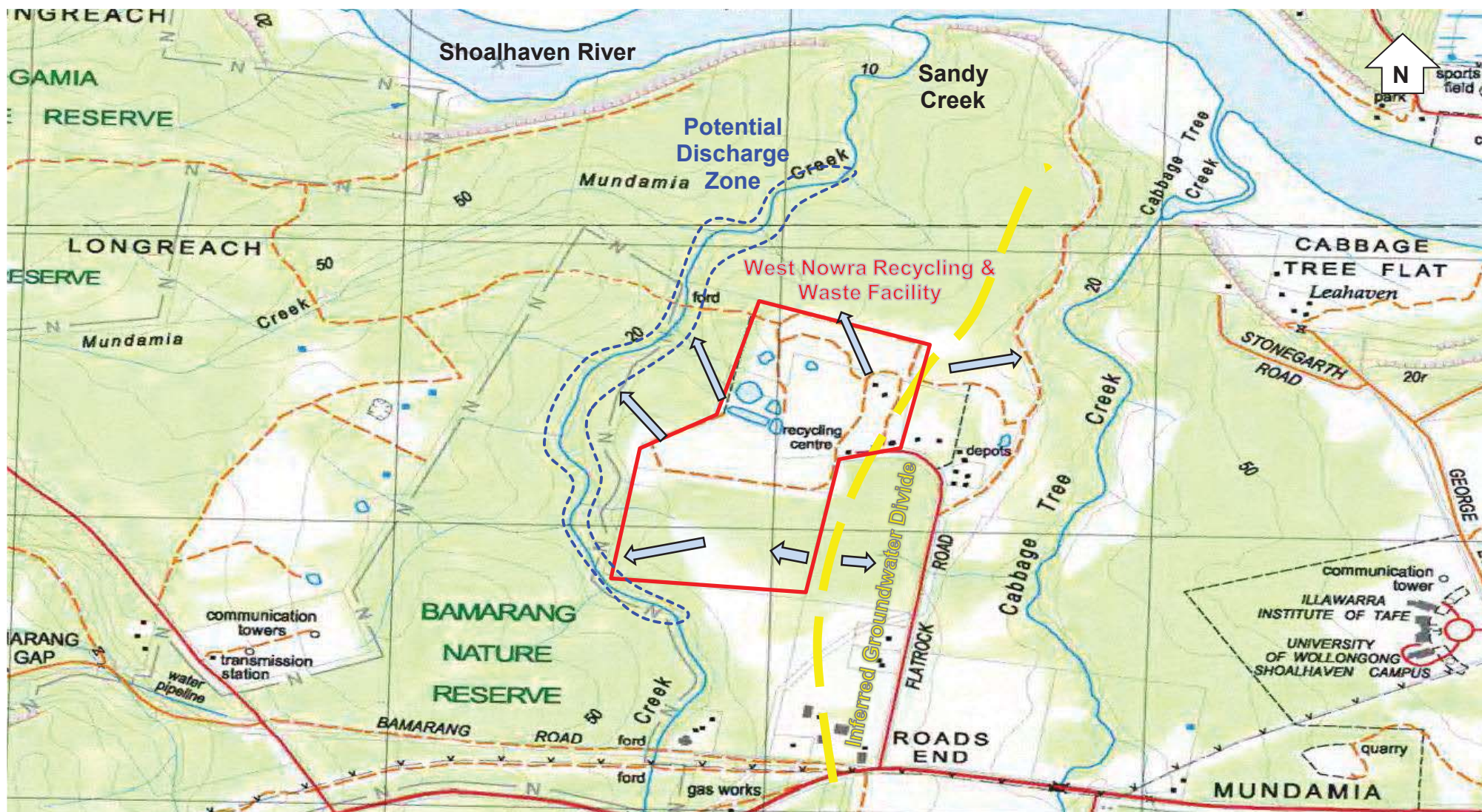
Environment & Natural Resource Solutions

25 River Road, Shoalhaven Heads, NSW, 2535
T/F 02 90374708 M. 0401518443 rohan@enrs.com.au

Client: SCC
Project: ENRS
Location: WN Landfill
Paper: A4

Drawn: RL
Approved: RL
Scale: NA
Source: n.d.

Title:
Date: 18/12/2015
Figure: 2
Status: Rev 5



LEGEND

- Site Boundary
- + Surface Water Sampling Location
- ⊗ Groundwater Monitoring Bore
- Interpreted Groundwater Gradient

- Inferred Groundwater Flow Boundary
- Likely Groundwater Discharge Zone

1 Kilometre



Nowra 1:25,000 Topographic Sheet 902835

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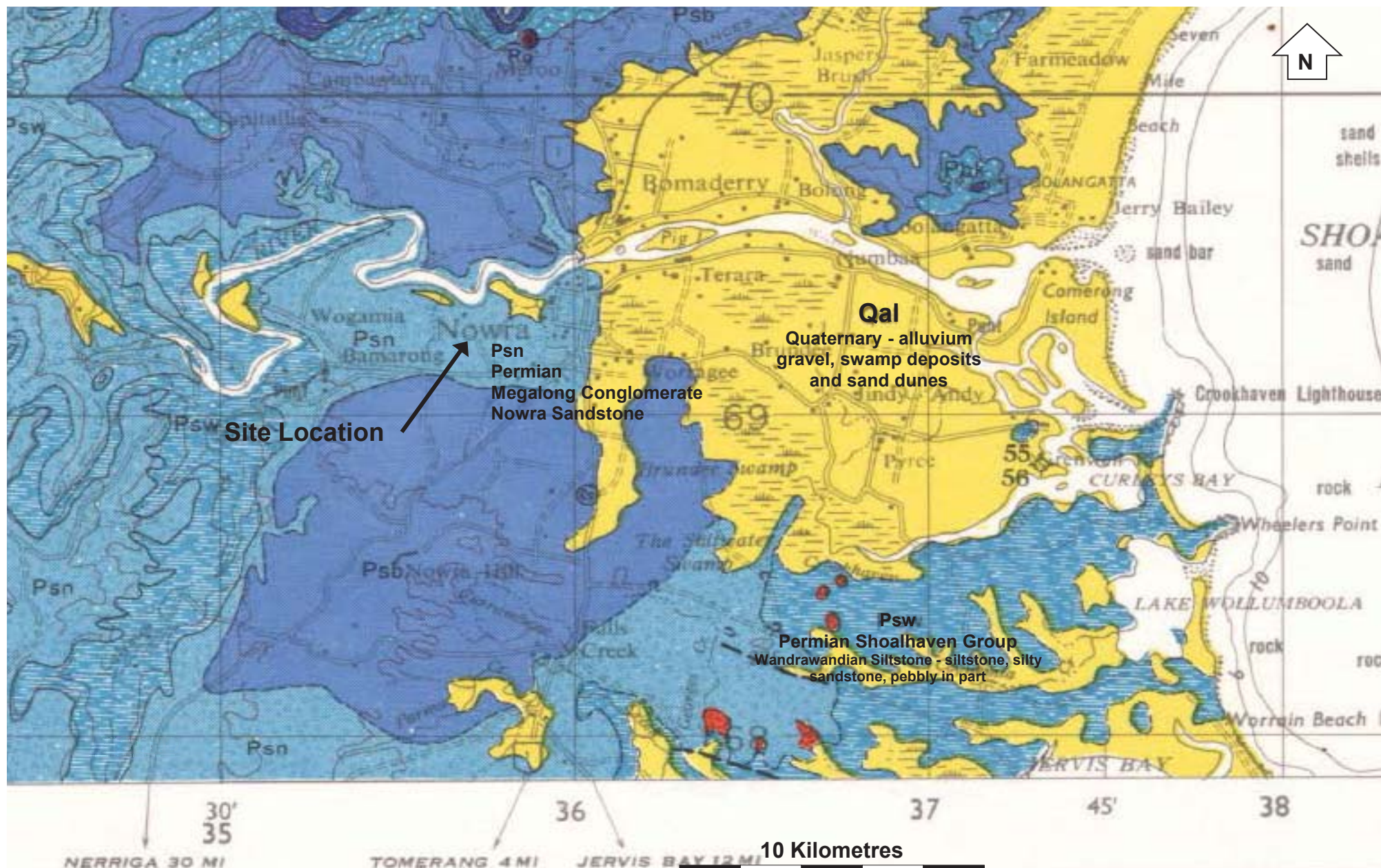
Environment & Natural Resource Solutions
25 River Road, Shoalhaven Heads, NSW, 2535
T/F 02 90374708 M. 0401518443 projects@enrs.com.au

Scale: scale bar
Revision: A
Checked: RL

Status: Rev 1
Drawn: RL
Approved: RL

Client: Shoalhaven City Council
Project: ENRS0047.4
Location: West Nowra Recycling & Waste Facility

Title: Topographic Map
Date: 15/12/2014
Figure: 3



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Environment & Natural Resource Solutions
25 River Road, Shoalhaven Heads, NSW, 2535
T/F 02 90374708 M. 0401518443 projects@enrs.com.au

Scale: **scale bar**

Revision: **A**

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Status: **Rev 1**

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Approved: **RL**

Client: **Shoalhaven City Council**

Project: **ENRS0047.4**

Location: **West Nowra Recycling & Waste Facility**

Title: **Regional Geology**

Date: **15/12/2014**

Figure: **4**



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Environment & Natural Resource Solutions
25 River Road, Shoalhaven Heads, NSW, 2535
T/F 02 90374708 M. 0401518443 projects@enrs.com.au

Scale: scale bar

Revision: A

Checked: RL

Status: Rev 1

Drawn: RL

Approved: RL

Client: Shoalhaven City Council

Project: ENRS0047.4

Location: West Nowra Recycling & Waste Facility

Title: Registered Bores

Date: 15/12/2014

Figure: 5

TABLES

Table 7: West Nowra - Quarterly Water Quality Monitoring Results (2017-2018)

Table 8: West Nowra Annual Water Quality Monitoring Results (2017-2018)

TABLE 6: Quarterly Water Quality Monitoring Results (2017-2018)

West Nourra Recycling and Waste Facility : EPL 5877

Site No	Analyte	Units	ANZECC 2000 - Fresh (95% Species)	Nov-14	Feb-15	May-15	Sep-15	Nov-15	Feb-16	May-16	Aug-16	Nov-16	Feb-17	May-17	Aug-17	Nov-17	Feb-18	May-18	Aug-18
SW 1	Ammonia as N	mg/L	0.9	0.9 (pH 8) - 2.57 (pH 6)	0.03	0.16	0.05	0.6	0.01	#N/A	#N/A	3.65	0.63	0.17	0.35	10.2	0.29	0.24	0.2
	BOC ₅	mg O ₂ /L	-	<2	3	<2	15	4	#N/A	#N/A	3	<2	<2	3	7	<2	<2	<2	<2
	Conductivity	uS/cm	2200	max - 125 min	1820	1910	1320	968	#N/A	#N/A	2410	1320	1160	1390	2460	1110	1080	1110	1150
	Dissolved Oxygen	mg/L	11	(110%) ~ 7ppm(85%)*	9.31	5.68	8.81	5.53	10.4	#N/A	#N/A	9.5	8.1	4.65	3.71	6.56	3.45	1.4	3.5
	pH	pH units	8	-6.5	7.4	7.2	7.5	7.5	6.2	#N/A	#N/A	7.6	6.2	6.2	6	8.1	6.4	5.9	5.7
	Potassium	mg/L	-	-	36	53	42	27	#N/A	#N/A	70	20	22	19	63	20	20	18	17
	Total Dissolved Solids	mg/L	1500	max - 85 min	1170	1060	958	718	571	#N/A	#N/A	1240	687	648	620	1320	562	520	590
	Total Organic Carbon	mg/L	-	-	34.7	19	26	17	15.3	#N/A	#N/A	32	7	8.3	22	33	6	8	7
	Ammonia as N	mg/L	0.9	0.9 (pH 8) - 2.57 (pH 6)	0.01	#N/A	<0.01	<0.01	#N/A	0.02	#N/A	<0.01	Dry	0.02	<0.01	Dry	Dry	Dry	Dry
	BOC ₅	mg O ₂ /L	-	<2	#N/A	<2	5.0	#N/A	<2	#N/A	<2	Dry	<2	<2	Dry	Dry	Dry	Dry	Dry
SW 2	Conductivity	uS/cm	2200	max - 125 min	214	#N/A	248	199	#N/A	253	#N/A	444	Dry	163	398	Dry	Dry	Dry	Dry
	Dissolved Oxygen	mg/L	11	(110%) ~ 7ppm(85%)*	5.56	#N/A	8.1	5.25	#N/A	7.73	#N/A	11.3	Dry	4.8	6.74	Dry	Dry	Dry	Dry
	pH	pH units	8	-6.5	4.6	#N/A	5.4	5.0	#N/A	5.3	#N/A	5.5	Dry	6	5.4	Dry	Dry	Dry	Dry
	Potassium	mg/L	-	-	#N/A	#N/A	<1	1.0	#N/A	2	#N/A	1.0	Dry	3	2	Dry	Dry	Dry	Dry
	Total Dissolved Solids	mg/L	1500	max - 85 min	151	#N/A	152	206	#N/A	219	#N/A	235	Dry	150	258	Dry	Dry	Dry	Dry
	Total Organic Carbon	mg/L	-	-	14	#N/A	10	11	#N/A	22	#N/A	6	Dry	19.1	6	Dry	Dry	Dry	Dry
	Ammonia as N	mg/L	0.9	0.9 (pH 8) - 2.57 (pH 6)	0.35	0.07	0.05	0.28	0.12	0.14	0.04	1.35	0.32	0.04	0.36	13.7	0.1	0.09	0.05
	Calcium	mg/L	-	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Chloride	mg/L	-	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Magnesium	mg/L	-	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
SW 3	Conductivity	uS/cm	2200	max - 125 min	1890	906	625	294	977	1420	3260	1440	1080	631	1390	2290	2190	869	3150
	Dissolved Oxygen	mg/L	11	(110%) ~ 7ppm(85%)*	3.97	5.52	6.5	6.93	7.9	4.01	6.27	11	4.03	6.12	5.65	7.37	2.76	2.55	4.97
	pH	pH units	8	-6.5	5.1	6.2	6.3	6.4	7.5	4.6	3.3	6.5	6.4	5.9	6.8	8.2	4.6	6	3.2
	Potassium	mg/L	-	-	#N/A	14	10	3	21	3	3	32	11	8	36	58	14	19	2
	Total Dissolved Solids	mg/L	1500	max - 85 min	1220	464	310	212	526	940	1720	740	743	388	743	1280	1140	959	1735
	Total Organic Carbon	mg/L	-	-	11.6	11	5	5	12.5	7.5	13	17	13	5	15	31	10	24	7
	Ammonia as N	mg/L	0.9	0.9 (pH 8) - 2.57 (pH 6)	0.03	0.16	0.05	0.6	0.01	#N/A	#N/A	3.65	0.63	0.17	0.35	10.2	0.29	0.24	0.2
	BOC ₅	mg O ₂ /L	-	<2	3	<2	<2	<2	4	<2	<2	<2	4	<2	<2	<2	<2	<2	<2
	Conductivity	uS/cm	2200	max - 125 min	1890	906	625	294	977	1420	3260	1440	1080	631	1390	2290	2190	869	3150
	Dissolved Oxygen	mg/L	11	(110%) ~ 7ppm(85%)*	3.97	5.52	6.5	6.93	7.9	4.01	6.27	11	4.03	6.12	5.65	7.37	2.76	2.55	4.97

TABLE 6: Quarterly Water Quality Monitoring Results (2017-2018)

West Nourra Recycling and Waste Facility : EPL 5877

Site No	Analyte	Units	ANZECC 2000 - Fresh (95% Species)	Nov-14	Feb-15	May-15	Sep-15	Nov-15	Feb-16	May-16	Aug-16	Nov-16	Feb-17	May-17	Aug-17	Nov-17	Feb-18	May-18	Aug-18
BH 1	Ammonia as N	mg/L	0.9	0.9 (pH 8) - 2.57 (pH 6)	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Calcium	mg/L	-	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Chloride	mg/L	-	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Magnesium	mg/L	-	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	pH	pH units	8	-6.5	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Potassium	mg/L	-	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Sodium	mg/L	-	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Standing water level	m AHD	-	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Dissolved Solids	mg/L	-	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Total Dissolved Solids	mg/L	1500	max - 85 min	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
BH 2	Ammonia as N	mg/L	0.9	0.9 (pH 8) - 2.57 (pH 6)	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Calcium	mg/L	-	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Chloride	mg/L	-	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Magnesium	mg/L	-	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	pH	pH units	8	-6.5	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Potassium	mg/L	-	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Sodium	mg/L	-	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Standing water level	m AHD	-	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Dissolved Solids	mg/L	-	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Total Dissolved Solids	mg/L	1500	max - 85 min	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A

TABLE 6: Quarterly Water Quality Monitoring Results (2017-2018)
West Nowra Recycling and Waste Facility : EPL 5877

Site No	Analyte	Units	ANZECC 2000 - Fresh (95% Species)	Nov-14	Feb-15	May-15	Sep-15	Nov-15	Feb-16	May-16	Aug-16	Nov-16	Feb-17	May-17	Aug-17	Nov-17	Feb-18	May-18	Aug-18
BH 3	Alkalinity (CaCO3)	mg/L	-	<1	<1	<1	<1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Ammonia as N	mg/L	0.9	0.9 (pH 8) - 2.57 (pH 6)	<0.01	0.11	0.03	0.02	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Calcium	mg/L	-	2	2	3	1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Chloride	mg/L	-	52	71	112	46	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Magnesium	mg/L	-	4	4	5	4	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	pH	pH units	8	-6.5	3.4	3.8	3.1	4.2	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Potassium	mg/L	-	<1	<1	1	<1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Sodium	mg/L	-	66	62	78	62	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Standing water level	m AHD	-	30.2	30.5	30.9	33.7	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Sulphate	mg/L	-	39	44	40	45	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Total Dissolved Solids	mg/L	1500	max - 85 min	225	287	280	282	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Total Organic Carbon	mg/L	-	3.8	2	4.5	3.3	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
BH 4	Alkalinity (CaCO3)	mg/L	-	<1	<1	<1	<1	#N/A	<1	<1	<1	<1	<1	<1	<1	<1	8	<1	<1
	Ammonia as N	mg/L	0.9	0.9 (pH 8) - 2.57 (pH 6)	0.2	0.19	0.18	0.23	0.22	#N/A	0.24	0.19	0.24	0.29	0.26	0.29	0.2	0.31	0.28
	Calcium	mg/L	-	<1	<1	<1	<1	#N/A	<1	<1	<1	<1	<1	<1	<1	<1	18	<1	<1
	Chloride	mg/L	-	40	31	30	25	30	#N/A	31	37	30	30	30	29	29	153	28	25
	Magnesium	mg/L	-	4	4	5	5	#N/A	4	5	5	4	5	4	4	4	19	3	3
	pH	pH units	8	-6.5	2.4	2.6	4.6	4.2	4.1	#N/A	3.8	3.8	3.8	3.8	3.8	3.6	4	4.7	3.7
	Potassium	mg/L	-	<1	<1	<1	<1	<1	#N/A	<1	<1	<1	<1	<1	<1	<1	7	<1	<1
	Sodium	mg/L	-	28	22	20	22	22	#N/A	22	23	21	20	26	18	18	90	18	16
	Standing water level	m AHD	-	31.2	31.2	31.4	31.5	31.3	#N/A	30.9	31.5	31.1	30.8	31.3	31.5	31.3	31.26	31.3	31.1
	Sulphate	mg/L	-	32	37	41	38	43	#N/A	45	44	40	39	37	40	35	120	40	34
	Total Dissolved Solids	mg/L	1500	max - 85 min	137	160	162	146	163	#N/A	163	177	207	165	160	98	181	470	134
	Total Organic Carbon	mg/L	-	5.7	2	2.2	1.2	2.1	#N/A	2	2	2	2.5	1	2	3	12	2.1	2

TABLE 6: Quarterly Water Quality Monitoring Results (2017-2018)
West Nowra Recycling and Waste Facility : EPL 5877

Site No	Analyte	Units	ANZECC 2000 - Fresh (95% Species)	Nov-14	Feb-15	May-15	Sep-15	Nov-15	Feb-16	May-16	Aug-16	Nov-16	Feb-17	May-17	Aug-17	Nov-17	Feb-18	May-18	Aug-18		
BH 5	Alkalinity (CaCO3)	mg/L		<1	<1	<1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		
	Ammonia as N	mg/L	0.9	0.9 (pH 8) - 2.57 (pH 6)		0.25	0.31	0.29	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		
	Calcium	mg/L		32	36	39	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		
	Chloride	mg/L		1470	1660	1310	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		
	Magnesium	mg/L		64	78	75	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		
	pH	pH units	8	-6.5		3.8	4.2	2.5	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	
	Potassium	mg/L		2	4	3	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		
	Sodium	mg/L		885	1060	820	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A		
	Standing water level	m AHD		28.4	28.5	28.5	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	
	Sulphate	mg/L		29	23	27	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	
	Total Dissolved Solids	mg/L	1500	max - 85 min		2660	2770	2610	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	
	Total Organic Carbon	mg/L		5.2	5	4.5	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	
BH 6	Alkalinity (CaCO3)	mg/L		<1	3	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		
	Ammonia as N	mg/L	0.9	0.9 (pH 8) - 2.57 (pH 6)		0.1	0.96	0.07	0.03	0.26	0.16	0.37	0.02	0.09	0.17	0.13	0.02	0.1	0.15	0.13	0.04
	Calcium	mg/L		16	13	18	14	15	14	14	15	16	14	14	11	12	11	15	8		
	Chloride	mg/L		880	823	768	670	899	885	854	850	821	877	924	840	901	846	717	740		
	Magnesium	mg/L		38	30	44	42	43	47	45	41	40	41	51	38	40	41	31	29		
	pH	pH units	8	-6.5		3.9	5	2.2	3.8	3.9	4.3	3.9	3.7	3.7	3.6	3.4	3.6	3.7	3.2	3.5	3.7
	Potassium	mg/L		3	4	2	2	2	2	2	2	3	3	3	2	2	3	2	1	1	
	Sodium	mg/L		880	845	477	480	485	498	489	491	464	532	499	412	508	546	390	368	368	
	Standing water level	m AHD		30.2	30.1	30.5	30.6	30	30.7	29.5	30.3	30.2	30.4	30.2	30.2	30.1	30.28	30.1	29.7	29.7	
	Sulphate	mg/L		38	52	43	40	45	47	44	40	38	37	36	33	37	36	33	32	32	
	Total Dissolved Solids	mg/L	1500	max - 85 min		1810	1430	1410	1470	1740	1730	1790	1670	1560	1680	1620	1560	1760	1480	1380	1270
	Total Organic Carbon	mg/L		5.7	4	4	1.1	5.1	3.5	4	3	3	7	2	4	4	5	4	2	3	

TABLE 6: Quarterly Water Quality Monitoring Results (2017-2018)
West Nowra Recycling and Waste Facility : EPL 5877

Site No	Analyte	Units	ANZECC 2000 - Fresh (95% Species)	Nov-14	Feb-15	May-15	Sep-15	Nov-15	Feb-16	May-16	Aug-16	Nov-16	Feb-17	May-17	Aug-17	Nov-17	Feb-18	May-18	Aug-18
BH 7	Alkalinity (CaCO ₃)	mg/L	-	<1	<1	<1	<1	<1	<1	<1	3	<1	<1	<1	<1	<1	<1	8	<1
	Ammonia as N	mg/L	0.9	0.9 (pH 8) - 2.57 (pH 6)	0.16	0.08	0.04	0.11	0.13	0.19	0.08	<0.01	<0.01	<0.01	<0.01	<0.01	0.06	0.06	0.01
	Calcium	mg/L	#N/A	-	45	40	38	47	53	45	43	14	19	9	18	17	27	26	9
	Chloride	mg/L	-	-	911	909	710	750	985	899	872	134	351	74	521	418	584	574	48
	Magnesium	mg/L	-	-	48	49	48	61	62	62	55	11	22	8	36	21	32	34	5
	pH	pH units	8	-6.5	4.2	3.9	2.4	3.4	3.8	3.8	3.4	4.7	4.2	4.2	3.5	3.9	4	3.9	4.7
	Potassium	mg/L	-	-	2	2	1	2	2	5	1	3	3	2	2	2	2	2	2
	Sodium	mg/L	-	-	435	332	404	490	484	495	487	73	166	81	258	184	280	324	36
	Standing water level	m AHD	-	-	36.4	36.4	36.2	31	29.6	30.7	29.2	30.6	30.3	30.3	30.5	30.4	29.7	29.4	29.8
	Sulphate	mg/L	-	-	26	30	33	27	34	29	30	29	26	30	23	24	34	26	23
	Total Dissolved Solids	mg/L	-	-	1500	1700	1360	1660	1800	2070	1880	319	661	228	902	819	1240	850	168
	Total Organic Carbon	mg/L	-	-	3.9	2	2.3	0.9	2.1	<0.2	<1	6	4	6.7	3	7	4	4	12.3
BH 10	Alkalinity (CaCO ₃)	mg/L	-	-	2	158	18	3	<1	9	22	39	<1	8	4	<1	<1	2	4
	Ammonia as N	mg/L	0.9	0.9 (pH 8) - 2.57 (pH 6)	0.26	7.91	1.13	0.02	0.78	1.04	1.2	1.25	1.11	0.42	0.4	0.23	0.34	0.56	0.74
	Calcium	mg/L	-	-	3	4	4	<1	13	7	20	70	23	17	5	6	8	23	6
	Chloride	mg/L	-	-	64	79	42	12	188	87	397	198	361	199	73	134	173	480	191
	Magnesium	mg/L	-	-	3	4	2	<1	13	8	23	63	23	11	5	7	10	29	7
	pH	pH units	8	-6.5	4	4.6	6.1	4.9	3.5	5.7	4.9	5.6	4.9	5.2	4.9	4.6	4.8	4.7	5.3
	Potassium	mg/L	-	-	1	2	1	<1	1	1	1	8	2	4	2	1	1	3	1
	Sodium	mg/L	-	-	38	46	38	30	53	40	177	106	182	72	48	60	92	241	16
	Standing water level	m AHD	-	-	33.7	33.7	32.8	34.1	33.8	33.8	33.7	32.6	32.5	32.3	32.8	35.1	33.1	33.08	33.1
	Sulphate	mg/L	-	-	11	2	16	10	5	12	5	36	4	23	6	13	22	14	14
	Total Dissolved Solids	mg/L	-	-	689	387	181	812	NR	368	864	1780	723	469	258	278	366	767	308
	Total Organic Carbon	mg/L	-	-	18.3	<50	8.5	5.4	8.2	13.5	2	66	5	35.1	5	5	10	14	18.5

TABLE 6: Quarterly Water Quality Monitoring Results (2017-2018)
West Nowra Recycling and Waste Facility : EPL 5877

Site No	Analyte	Units	ANZECC 2000 - Fresh (95% Species)	Nov-14	Feb-15	May-15	Sep-15	Nov-15	Feb-16	May-16	Aug-16	Nov-16	Feb-17	May-17	Aug-17	Nov-17	Feb-18	May-18	Aug-18
BH 11	Alkalinity (CaCO ₃)	mg/L	-	#N/A	#N/A	#N/A	1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Ammonia as N	mg/L	0.9	0.9 (pH 8) - 2.57 (pH 6)	#N/A	#N/A	#N/A	<0.01	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Calcium	mg/L	-	-	#N/A	#N/A	#N/A	31	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Chloride	mg/L	-	-	#N/A	#N/A	#N/A	623	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Magnesium	mg/L	-	-	#N/A	#N/A	#N/A	41	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	pH	pH units	8	-6.5	#N/A	#N/A	#N/A	4.7	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Potassium	mg/L	-	-	#N/A	#N/A	#N/A	<1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Sodium	mg/L	-	-	#N/A	#N/A	#N/A	435	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Standing water level	m AHD	-	-	#N/A	#N/A	#N/A	30.8	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Sulphate	mg/L	-	-	#N/A	#N/A	#N/A	33	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Total Dissolved Solids	mg/L	-	-	#N/A	#N/A	#N/A	1370	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
BH 12	Alkalinity (CaCO ₃)	mg/L	-	-	#N/A	#N/A	#N/A	0.6	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Ammonia as N	mg/L	0.9	0.9 (pH 8) - 2.57 (pH 6)	2	3	2	18	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Calcium	mg/L	-	-	0.02	0.03	<0.01	0.17	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Chloride	mg/L	-	-	32	29	36	3	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Magnesium	mg/L	-	-	749	787	695	872	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	pH	pH units	8	-6.5	39	38	41	16	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Potassium	mg/L	-	-	4.3	4.4	4.1	5	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Sodium	mg/L	-	-	<1	<1	<1	<1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Standing water level	m AHD	-	-	436	497	417	478	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Sulphate	mg/L	-	-	30.1	35.1	30.2	34.1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Total Dissolved Solids	mg/L	-	-	32	32	37	11	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Total Organic Carbon	mg/L	-	-	1700	1450	1340	1970	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A

TABLE 6: Quarterly Water Quality Monitoring Results (2017-2018)

West Nowra Recycling and Waste Facility : EPL 5877

Site No	Analyte	Units	ANZECC 2000 - Fresh (95% Species)	Nov-14	Feb-15	May-15	Sep-15	Nov-15	Feb-16	May-16	Aug-16	Nov-16	Feb-17	May-17	Aug-17	Nov-17	Feb-18	May-18	Aug-18
BH 13	Alkalinity (CaCO ₃)	mg/L	-	12	38	15	#N/A	38	35	28	21	39	97	6	2	<1	24	<1	<1
	Ammonia as N	mg/L	0.9	0.34	0.49	0.26	0.17	0.34	0.68	0.36	0.38	0.48	0.76	0.62	0.43	0.57	0.5	0.48	0.59
	Calcium	mg/L	-	4	3	4	3	4	4	4	4	3	3	3	3	4	3	4	3
	Chloride	mg/L	-	1050	1020	890	872	1070	1050	972	1060	1030	997	1140	1020	1080	1030	942	1060
	Magnesium	mg/L	-	15	13	15	16	15	17	14	14	14	13	17	12	14	14	12	13
	pH	g/L units	8	4.3	4.5	5.2	5	4.9	5.1	4.6	4.9	5	4.9	4.6	4.5	4.9	4.9	3.2	4.5
	Potassium	mg/L	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Sodium	mg/L	-	493	514	444	478	449	486	446	476	421	490	477	395	468	540	430	449
	Standing water level	m AHD	-	33.5	33.6	33.9	34.1	33.5	33.7	32.9	33.8	33.4	33.4	33.6	33.6	33.4	33.14	33.2	33.1
	Sulphate	mg/L	-	1500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total Dissolved Solids	mg/L	-	1710	1750	1540	1970	2080	2700	1950	1910	1750	3560	1900	1770	2060	1700	1760	1620
	Total Organic Carbon	mg/L	-	6.1	2	4.4	0.2	5.7	6.6	<1	6	5	5.3	4	6	5	4	1.5	5
BH 14	Alkalinity (CaCO ₃)	mg/L	-	<1	<1	#N/A	#N/A	#N/A	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Ammonia as N	mg/L	0.9	0.27	0.41	#N/A	#N/A	#N/A	0.62	0.11	<0.01	<0.01	0.03	0.01	0.03	0.04	0.03	0.02	<0.01
	Calcium	mg/L	-	17	15	#N/A	#N/A	#N/A	6	6	4	11	10	14	10	13	12	14	16
	Chloride	mg/L	-	944	1050	#N/A	#N/A	#N/A	365	497	400	945	794	1020	873	1020	1060	1050	1150
	Magnesium	mg/L	-	63	59	#N/A	#N/A	#N/A	23	28	19	55	44	51	40	56	56	60	69
	pH	g/L units	8	3.1	3.5	#N/A	#N/A	#N/A	3.7	3.5	3.5	3.3	3.5	3.5	3.5	3.6	3.1	3.1	3.5
	Potassium	mg/L	-	3	3	3	#N/A	#N/A	#N/A	1	1	<1	2	2	2	2	1	1	2
	Sodium	mg/L	-	522	569	#N/A	#N/A	#N/A	206	250	223	383	420	410	373	486	605	468	485
	Standing water level	m AHD	-	36.5	36.6	#N/A	#N/A	#N/A	36.6	36.4	36.7	36.3	36.4	36.4	36.5	36.4	36.43	36.4	36.5
	Sulphate	mg/L	-	39	35	#N/A	#N/A	#N/A	65	57	46	33	38	33	35	33	34	35	29
	Total Dissolved Solids	mg/L	-	1500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total Organic Carbon	mg/L	-	2.1	<1	#N/A	#N/A	#N/A	1.2	<1	<1	2	1.6	<1	2	1	1	1	4

TABLE 6: Quarterly Water Quality Monitoring Results (2017-2018)

West Nowra Recycling and Waste Facility : EPL 5877

Site No	Analyte	Units	ANZECC 2000 - Fresh (95% Species)	Nov-14	Feb-15	May-15	Sep-15	Nov-15	Feb-16	May-16	Aug-16	Nov-16	Feb-17	May-17	Aug-17	Nov-17	Feb-18	May-18	Aug-18
BH 15	Alkalinity (CaCO ₃)	mg/L	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Ammonia as N	mg/L	0.9	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Calcium	mg/L	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Chloride	mg/L	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Magnesium	mg/L	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	pH	g/L units	8	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Potassium	mg/L	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Sodium	mg/L	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Standing water level	m AHD	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Sulphate	mg/L	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Total Dissolved Solids	mg/L	-	1500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total Organic Carbon	mg/L	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
BH 16	Alkalinity (CaCO ₃)	mg/L	-	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
	Ammonia as N	mg/L	0.9	0.01	0.01	<0.01	<0.01	<0.01	0.01	0.01	0.02	<0.01	<0.01	<0.01	0.01	0.01	0.01	0.01	<0.01
	Calcium	mg/L	-	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
	Chloride	mg/L	-	260	267	262	212	255	259	245	260	265	176	303	270	341	368	344	410
	Magnesium	mg/L	-	13	14	15	14	14	15	13	12	14	6	14	12	16	16	14	17
	pH	g/L units	8	2.8	3.3	3.2	3.4	3.6	3.7	3.6	3.7	3.6	3.6	3.5	3.5	3.6	3.2	3.2	3.5
	Potassium	mg/L	-	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2	1	<1	<1	<1
	Sodium	mg/L	-	126	136	125	127	38.8	39	36.7	39	129	86	141	116	167	185	154	176
	Standing water level	m AHD	-	38.7	38.8	38	38.7	127	127	122	114	127	38.8	38.7	38.9	38.1	37.86	38.5	38.3
	Sulphate	mg/L	-	9	9	9	9	9	9	9	9	9	8	14	13	10	10	10	11
	Total Dissolved Solids	mg/L	-	532	606	636	610	-	-	-	-	562	351	467	479	564	1130	608	689
	Total Organic Carbon	mg/L	-	0.9	<1	<1.0	0.4	<1.0	<0.2	<1	<1	<1	<1	1.6	1	<1	<1	0.5	1

TABLE 6: Quarterly Water Quality Monitoring Results (2017-2018)

West Nowra Recycling and Waste Facility : EPL 5877

Site No	Analyte	Units	ANZECC 2000 - Fresh (95% Species)	Nov-14	Feb-15	May-15	Sep-15	Nov-15	Feb-16	May-16	Aug-16	Nov-16	Feb-17	May-17	Aug-17	Nov-17	Feb-18	May-18	Aug-18
BH 17	Alkalinity (CaCO ₃)	mg/L	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Ammonia as N	mg/L	0.9	0.9 (pH 8) - 2.57 (pH 6)	0.91	0.93	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	0.02	0.03	0.02
	Calcium	mg/L	-	10	9	10	9	10	10	7	9	10	10	6	9	10	10	9	-
	Chloride	mg/L	-	223	228	229	184	216	215	194	191	206	203	244	201	196	219	211	221
	Magnesium	mg/L	-	13	14	16	14	13	14	11	14	12	11	16	10	11	13	11	12
	pH	pH units	8	-6.5	3.6	3.4	3.7	3.8	3.9	4	3.8	4.1	4	4	4	4.1	3.6	3.7	4
	Potassium	mg/L	-	<1	<1	<1	<1	4	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Sodium	mg/L	-	103	116	110	106	102	104	98	98	93	90	94	84	86	94	88	86
	Standing water level	m AHD	-	38.7	38.7	39	39.2	38.8	39	38.7	39	38.7	38.6	38.8	38.9	38	37.94	38.5	38.3
	Sulphate	mg/L	-	5	5	5	5	5	2	4	4	4	4	5	5	4	5	4	-
	Total Dissolved Solids	mg/L	1500	max - 85 min	463	530	539	517	-	-	-	439	423	426	384	338	317	373	382
	Total Organic Carbon	mg/L	-	1.3	<1	<1.0	0.5	<1.0	<0.2	<1	<1	<1	<1.0	<1	<1	<1	<1	<0.2	<1
	Alkalinity (CaCO ₃)	mg/L	-	62	#N/A	#N/A	#N/A	#N/A	132	#N/A	#N/A	79	83	191	47	Dry	Dry	48	Dry
	Ammonia as N	mg/L	0.9	0.9 (pH 8) - 2.57 (pH 6)	0.09	#N/A	#N/A	#N/A	0.03	#N/A	#N/A	0.77	0.27	0.29	0.3	Dry	Dry	0.91	Dry
	Calcium	mg/L	-	25	#N/A	#N/A	#N/A	#N/A	25	#N/A	#N/A	24	22	24	17	Dry	Dry	26	Dry
	Chloride	mg/L	-	454	#N/A	#N/A	#N/A	#N/A	460	#N/A	#N/A	467	396	440	376	Dry	Dry	431	Dry
	Magnesium	mg/L	-	22	#N/A	#N/A	#N/A	#N/A	23	#N/A	#N/A	23	17	25	14	Dry	Dry	15	Dry
BH 18	pH	pH units	8	-6.5	5.3	#N/A	#N/A	#N/A	5.9	#N/A	#N/A	5.9	5.6	5.8	5.6	Dry	Dry	5.5	Dry
	Potassium	mg/L	-	<1	#N/A	#N/A	#N/A	#N/A	2	#N/A	#N/A	2	6	2	<1	Dry	Dry	<1	Dry
	Sodium	mg/L	-	298	#N/A	#N/A	#N/A	229	#N/A	#N/A	#N/A	225	237	230	188	Dry	Dry	198	Dry
	Standing water level	m AHD	-	35.9	#N/A	#N/A	#N/A	35.2	#N/A	#N/A	#N/A	36	35.8	35.9	35.9	Dry	Dry	35.4	Dry
	Sulphate	mg/L	-	6	#N/A	#N/A	#N/A	4	#N/A	#N/A	#N/A	2	5	3	11	Dry	Dry	6	Dry
	Total Dissolved Solids	mg/L	1500	max - 85 min	893	#N/A	#N/A	#N/A	4	#N/A	#N/A	904	822	788	705	Dry	Dry	738	Dry
	Total Organic Carbon	mg/L	-	12.2	#N/A	#N/A	#N/A	#N/A	8	#N/A	#N/A	4	14.9	2	27	Dry	Dry	11.5	Dry
	Alkalinity (CaCO ₃)	mg/L	-	62	#N/A	#N/A	#N/A	#N/A	132	#N/A	#N/A	79	83	191	47	Dry	Dry	48	Dry
	Ammonia as N	mg/L	0.9	0.9 (pH 8) - 2.57 (pH 6)	0.09	#N/A	#N/A	#N/A	0.03	#N/A	#N/A	0.77	0.27	0.29	0.3	Dry	Dry	0.91	Dry
	Calcium	mg/L	-	25	#N/A	#N/A	#N/A	#N/A	25	#N/A	#N/A	24	22	24	17	Dry	Dry	26	Dry
	Chloride	mg/L	-	454	#N/A	#N/A	#N/A	#N/A	460	#N/A	#N/A	467	396	440	376	Dry	Dry	431	Dry
	Magnesium	mg/L	-	22	#N/A	#N/A	#N/A	#N/A	23	#N/A	#N/A	23	17	25	14	Dry	Dry	15	Dry
	pH	pH units	8	-6.5	5.3	#N/A	#N/A	#N/A	5.9	#N/A	#N/A	5.9	5.6	5.8	5.6	Dry	Dry	5.5	Dry
	Potassium	mg/L	-	<1	#N/A	#N/A	#N/A	#N/A	2	#N/A	#N/A	2	6	2	<1	Dry	Dry	<1	Dry
	Sodium	mg/L	-	298	#N/A	#N/A	#N/A	229	#N/A	#N/A	#N/A	225	237	230	188	Dry	Dry	198	Dry
	Standing water level	m AHD	-	35.9	#N/A	#N/A	#N/A	35.2	#N/A	#N/A	#N/A	36	35.8	35.9	35.9	Dry	Dry	35.4	Dry
	Sulphate	mg/L	-	6	#N/A	#N/A	#N/A	4	#N/A	#N/A	#N/A	2	5	3	11	Dry	Dry	6	Dry
	Total Dissolved Solids	mg/L	1500	max - 85 min	893	#N/A	#N/A	#N/A	4	#N/A	#N/A	904	822	788	705	Dry	Dry	738	Dry
	Total Organic Carbon	mg/L	-	12.2	#N/A	#N/A	#N/A	#N/A	8	#N/A	#N/A	4	14.9	2	27	Dry	Dry	11.5	Dry

TABLE 6: Quarterly Water Quality Monitoring Results (2017-2018)

West Nowra Recycling and Waste Facility : EPL 5877

Site No	Analyte	Units	ANZECC 2000 - Fresh (95% Species)	Nov-14	Feb-15	May-15	Sep-15	Nov-15	Feb-16	May-16	Aug-16	Nov-16	Feb-17	May-17	Aug-17	Nov-17	Feb-18	May-18	Aug-18
BH 19	Alkalinity (CaCO ₃)	mg/L	-	#N/A	#N/A	#N/A	62	#N/A	#N/A	#N/A	#N/A	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
	Ammonia as N	mg/L	0.9	0.9 (pH 8) - 2.57 (pH 6)	#N/A	#N/A	<0.01	#N/A	#N/A	#N/A	#N/A	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
	Calcium	mg/L	-	#N/A	#N/A	#N/A	39	#N/A	#N/A	#N/A	#N/A	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
	Chloride	mg/L	-	#N/A	#N/A	#N/A	34	#N/A	#N/A	#N/A	#N/A	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
	Magnesium	mg/L	-	#N/A	#N/A	#N/A	23	#N/A	#N/A	#N/A	#N/A	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
	pH	pH units	8	-6.5	#N/A	#N/A	5.5	#N/A	#N/A	#N/A	#N/A	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
	Potassium	mg/L	-	#N/A	#N/A	#N/A	2	#N/A	#N/A	#N/A	#N/A	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
	Sodium	mg/L	-	#N/A	#N/A	#N/A	86	#N/A	#N/A	#N/A	#N/A	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
	Standing water level	m AHD	-	#N/A	#N/A	#N/A	42.1	#N/A	#N/A	#N/A	#N/A	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
	Sulphate	mg/L	-	#N/A	#N/A	#N/A	224	#N/A	#N/A	#N/A	#N/A	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
	Total Dissolved Solids	mg/L	1500	max - 85 min	#N/A	#N/A	599	#N/A	#N/A	#N/A	#N/A	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
	Total Organic Carbon	mg/L	-	#N/A	#N/A	#N/A	6.4	#N/A	#N/A	#N/A	#N/A	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
	Alkalinity (CaCO ₃)	mg/L	-	9	<1	<1	<1	<1	landfill water	<1	8	<1	<1	<1	<1	<1	<1	<1	<1
	Ammonia as N	mg/L	0.9	0.9 (pH 8) - 2.57 (pH 6)	0.4	5.18	0.28	0.26	0.26	landfill water	0.23	0.11	0.29	0.04	<0.01	0.02	5.16	0.31	0.07
	Calcium	mg/L	-	<1	<1	<1	2	<1	landfill water	<1	1	<1	<1	1	1	<1	<1	<1	<1
	Chloride	mg/L	-	718	779	766	589	737	landfill water	694	751	729	788	873	783	827	877	820	820
	Magnesium	mg/L	-	28	28	30	28	29	landfill water	29	30	29	29	42	30	34	40	34	36
	pH	pH units	8	-6.5	4.2	4.2	3.9	3.9	4.6	landfill water	3.9	4.7	3.5	3.8	4.1	3.6	4.2	4.1	4.2
	Potassium	mg/L	-	<1	<1	<1	<1	<1	landfill water	<1	1	1	2	2	<1	<1	<1	<1	<1
BH 20	Sodium	mg/L	-	443	448	402	396	396	landfill water	390	427	386	465	441	388	474	565	442	432
	Standing water level	m AHD	-	35.1	35.5	35.7	36	35.9	landfill water	35.9	35.8	35.8	35.8	35.7	37.4	35.9	36.2	36.2	36
	Sulphate	mg/L	-	22	27	36	40	58	landfill water	76	84	85	91	84	107	128	119	102	110
	Total Dissolved Solids	mg/L	1500	max - 85 min	1707	1646	1714	1639	-	landfill water	-	-	1390	1470	1710	1480	1530	1700	1660
	Total Organic Carbon	mg/L	-	20	19	21.2	1.2	21.9	landfill water	9	26	22	30.8	20	28	28	24	7.8	30
	Alkalinity (CaCO ₃)	mg/L	-	62	#N/A	#N/A	#N/A	#N/A	132	#N/A	#N/A	79	83	191	47	Dry	Dry	48	Dry
	Ammonia as N	mg/L	0.9	0.9 (pH 8) - 2.57 (pH 6)	0.09	#N/A	#N/A	#N/A	0.03	#N/A	#N/A	0.77	0.27	0.29	0.3	Dry	Dry	0.91	Dry
	Calcium	mg/L	-	25	#N/A	#N/A	#N/A	#N/A	25	#N/A	#N/A	24	22	24	17	Dry	Dry	26	Dry
	Chloride	mg/L	-	454	#N/A	#N/A	#N/A	#N/A	460	#N/A	#N/A	467	396	440	376	Dry	Dry	431	Dry
	Magnesium	mg/L	-	22	#N/A	#N/A	#N/A	#N/A	23	#N/A	#N/A	23	17	25	14	Dry	Dry	15	Dry
	pH	pH units	8	-6.5	5.3	#N/A	#N/A	#N/A	5.9	#N/A	#N/A	5.9	5.6	5.8	5.6	Dry	Dry	5.5	Dry
	Potassium	mg/L	-	<1	#N/A	#N/A	#N/A	#N/A	2	#N/A	#N/A	2	6	2	<1	Dry	Dry	<1	Dry
	Sodium	mg/L	-	298	#N/A	#N/A	#N/A	229	#N/A	#N/A	#N/A	225	237	230	188	Dry	Dry	198	Dry
	Standing water level	m AHD	-	35.9	#N/A	#N/A	#N/A	35.2	#N/A	#N/A	#N/A	36	35.8	35.9	35.9	Dry	Dry	35.4	Dry
	Sulphate	mg/L	-	6	#N/A	#N/A	#N/A	4	#N/A	#N/A	#N/A	2	5	3	11	Dry	Dry	6	Dry
	Total Dissolved Solids	mg/L	1500	max - 85 min	893	#N/A	#N/A	#N/A	4	#N/A	#N/A	904	822	788	705	Dry	Dry	738	Dry
	Total Organic Carbon	mg/L	-	12.2	#N/A	#N/A	#N/A	#N/A	8	#N/A	#N/A	4	14.9	2	27	Dry	Dry	11.5	Dry

TABLE 6: Quarterly Water Quality Monitoring Results (2017-2018)

West Nwara Recycling and Waste Facility : EPL 5877

Site No	Analyte	Units	ANZECC 2000 - Fresh (95% Species)		Nov-14	Feb-15	May-15	Sep-15	Nov-15	Feb-16	May-16	Aug-16	Nov-16	Feb-17	May-17	Aug-17	Nov-17	Feb-18	May-18	Aug-18			
BH 21	Acidity (CaCO3)	mg/L	-	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	3	18	4	-	<1	8	Dry	Dry			
	Ammonia as N	mg/L	0.9	0.9 (pH 8) - 2.57 (pH 6)	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0.03	0.06	0.08	-	0.35	0.39	Dry	Dry			
	Calcium	mg/L	-	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	<1	<1	<1	-	<1	<1	Dry	Dry			
	Chloride	mg/L	-	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	35	24	29	-	22	26	Dry	Dry			
	Magnesium	mg/L	-	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	2	2	2	-	<1	2	Dry	Dry			
	pH	pH units	8	-6.5	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	5.3	4.9	5.2	-	5.4	5	Dry	Dry			
	Potassium	mg/L	-	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	2	3	1	-	<1	2	Dry	Dry			
	Sodium	mg/L	-	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	24	19	28	-	20	19	Dry	Dry			
	Standing water level	m AHD	-	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	-	2.98	3	-	3.28	2.91	Dry	Dry			
	Sulphate	mg/L	-	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	<1	3	4	-	3	19	Dry	Dry			
	Total Dissolved Solids	mg/L	1500	max - 85 min	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	170	210	148	-	121	94	Dry	Dry			
	Total Organic Carbon	mg/L	-	-	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	18	34.9	15	-	26	31	Dry	Dry			
BH 22	Acidity (CaCO3)	mg/L	-	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	3	9	3	<1	3	18	27				
	Ammonia as N	mg/L	0.9	0.9 (pH 8) - 2.57 (pH 6)	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0.02	0.2	<0.01	0.04	0.03	0.1	0.02	0.08	0.14	0.1	
	Calcium	mg/L	-	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	6	19	14	18	12	21	26	10	6	28	36
	Chloride	mg/L	-	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	89	234	166	313	194	327	508	216	198	430	491
	Magnesium	mg/L	-	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	6	15	11	19	11	25	28	9	4	24	28
	pH	pH units	8	-6.5	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	5.6	5.6	5.2	4.9	4.9	4.4	5	5.2	5.4	5.7	
	Potassium	mg/L	-	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	<1	1	2	2	3	2	1	1	2	1	
	Sodium	mg/L	-	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	80	112	88	168	101	130	221	151	76	198	204
	Standing water level	m AHD	-	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NR	NR	NR	-	1.73	2.25	2.14	2.8	2.67	3.2	4.32
	Sulphate	mg/L	-	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	40	26	24	26	22	23	27	28	34	44	49
	Total Dissolved Solids	mg/L	1500	max - 85 min	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	212	526	405	650	396	690	670	480	204	839	1040
	Total Organic Carbon	mg/L	-	-	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	3.1	3	3	6	4.4	4	3	8	17	2.6	4

TABLE 6: Quarterly Water Quality Monitoring Results (2017-2018)

West Nwara Recycling and Waste Facility : EPL 5877

Site No	Analyte	Units	ANZECC 2000 - Fresh (95% Species)	Nov-14	Feb-15	May-15	Sep-15	Nov-15	Feb-16	May-16	Aug-16	Nov-16	Feb-17	May-17	Aug-17	Nov-17	Feb-18	May-18	Aug-18
BH 23	Acidity (CaCO ₃)	mg/L	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Ammonia as N	mg/L	0.9	0.9 (pH 8) - 2.57 (pH 6)	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Calcium	mg/L	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Chloride	mg/L	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Magnesium	mg/L	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	pH	g/L units	8	-6.5	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Potassium	mg/L	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Sodium	mg/L	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Standing water level	m AHD	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Sulphate	mg/L	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Total Dissolved Solids	mg/L	1500	max - 85 min	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Total Organic Carbon	mg/L	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A

Monitoring and New Zealand Environment and Conservation License Conditions for Fresh and Marine Water Quality (ANZECC 2000)

ANZECC 2000 Trigger Levels for Fresh Water & Landward Rivers (Table 3.3.2) in South East Australia

NSW DPI (2002) Guidelines for Assessing Surface Water Status: Threshold Concentrations for Aquatic Environments - Fresh Waters

NSW DPI (2013) Schedule B1 Guidelines on Investigation Levels for Soil and Groundwater

ANZECC 2000 Trigger Levels for Landward Rivers (Table 3.3.2) in New South Wales

Values that exceed the EPL, ANZECC guidelines and laboratory QCL are shown

TABLE 7: Annual Water Quality Monitoring Results (2017-2018)
West Nowra Recycling and Waste Facility : EPL 5877

Site No	Analyte	Units	ANZECC 2000 Freshwater (95% Species)	Nov-15	Feb-16	Feb-17	Feb-18
SW1	Ammonia as N	mg/L	0.9 0.9 (pH 8) - 2.57 (pH 6)	0.01	Dry	0.17	0.24
SW1	BOD5	mg O2/L	-	4	Dry	<2	<2
SW1	Conductivity	uS/cm	2200 max - 125 min	968	Dry	1160	1080
SW1	Dissolved Oxygen	mg/L	11 (110%) - ~7ppm(85%)*	10.4	Dry	4.65	1.4
SW1	pH	pH units	8 - 6.5	6.2	Dry	6.2	5.9
SW1	Potassium	mg/L	-	27	Dry	22	20
SW1	Total Dissolved Solids	mg/L	1500 max - 85 min	571	Dry	648	520
SW1	Total Organic Carbon	mg/L	-	16.3	Dry	8.3	8
SW2	Ammonia as N	mg/L	0.9 0.9 (pH 8) - 2.57 (pH 6)	#N/A	0.02	0.02	Dry
SW2	BOD5	mg O2/L	-	#N/A	<2	<2	Dry
SW2	Conductivity	uS/cm	2200 max - 125 min	#N/A	253	163	Dry
SW2	Dissolved Oxygen	mg/L	11 (110%) - ~7ppm(85%)*	#N/A	7.73	4.8	Dry
SW2	pH	pH units	8 - 6.5	#N/A	6.5	6	Dry
SW2	Potassium	mg/L	-	#N/A	2	3	Dry
SW2	Total Dissolved Solids	mg/L	1500 max - 85 min	#N/A	219	150	Dry
SW2	Total Organic Carbon	mg/L	-	#N/A	22	19.1	Dry
SW3	Ammonia as N	mg/L	0.9 0.9 (pH 8) - 2.57 (pH 6)	0.12	0.14	0.04	0.03
SW3	BOD5	mg O2/L	5	4	<2	<2	3
SW3	Conductivity	uS/cm	2200 max - 125 min	977	1420	631	869
SW3	Dissolved Oxygen	mg/L	11 (110%) - ~7ppm(85%)*	7.9	4.01	6.12	2.05
SW3	pH	pH units	8 - 6.5	7.6	4.8	5.9	6
SW3	Potassium	mg/L	-	21	3	19	21
SW3	Total Dissolved Solids	mg/L	1500 max - 85 min	526	940	368	508
SW3	Total Organic Carbon	mg/L	-	12.9	7.5	9	24
BH1	Alkalinity (CaCO3)	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Aluminium	mg/L	0.055	#N/A	#N/A	#N/A	#N/A
BH1	Ammonia as N	mg/L	0.9 (pH 8) - 2.57 (pH 6)	#N/A	#N/A	#N/A	#N/A
BH1	Arsenic	mg/L	0.024	#N/A	#N/A	#N/A	#N/A
BH1	Barium	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Benzene	mg/L	0.95	#N/A	#N/A	#N/A	#N/A
BH1	Bicarbonate	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Cadmium	mg/L	0.0002	#N/A	#N/A	#N/A	#N/A
BH1	Calcium	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Carbonate	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Chloride	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Hexavalent Chromium	mg/L	0.001	#N/A	#N/A	#N/A	#N/A
BH1	Total Chromium	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Cobalt	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Copper	mg/L	0.0014	#N/A	#N/A	#N/A	#N/A
BH1	Ethyl Benzene	mg/L	0.14 **	#N/A	#N/A	#N/A	#N/A
BH1	Fluoride	mg/L	1.5 ***	#N/A	#N/A	#N/A	#N/A
BH1	Lead	mg/L	0.0034	#N/A	#N/A	#N/A	#N/A
BH1	Magnesium	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Manganese	mg/L	1.9	#N/A	#N/A	#N/A	#N/A
BH1	Mercury	mg/L	0.0006	#N/A	#N/A	#N/A	#N/A
BH1	Nitrate	mg/L	0.7	#N/A	#N/A	#N/A	#N/A
BH1	Nitrite	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	OCFs	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Aldrin	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	alpha-BHC	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	alpha-Endosulphan	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	beta-BHC	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	beta-Endosulphan	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Chlordane	mg/L	0.00008	#N/A	#N/A	#N/A	#N/A
BH1	cis-Chlordane	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	trans-Chlordane	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	DDD	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	DDE	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	DDT	mg/L	0.00001	#N/A	#N/A	#N/A	#N/A
BH1	delta-BHC	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Dieldrin	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Endosulphan Sulphate	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Endrin	mg/L	0.00002	#N/A	#N/A	#N/A	#N/A
BH1	Endrin ketone	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Endrin Aldehyde	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	gamma-BHC	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Heptachlor	mg/L	0.00009	#N/A	#N/A	#N/A	#N/A
BH1	Heptachlor Epoxide	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Hexachlorobenzene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Lindane	mg/L	0.0002	#N/A	#N/A	#N/A	#N/A
BH1	Methoxychlor	mg/L	-	#N/A	#N/A	#N/A	#N/A

TABLE 7: Annual Water Quality Monitoring Results (2017-2018)
West Nowra Recycling and Waste Facility : EPL 5877

Site No	Analyte	Units	ANZECC 2000 Freshwater (95% Species)	Nov-15	Feb-16	Feb-17	Feb-18
BH1	OPPs	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Chlorpyrifos	mg/L	0.00001	#N/A	#N/A	#N/A	#N/A
BH1	Diazinon	mg/L	0.00001	#N/A	#N/A	#N/A	#N/A
BH1	Dichlorvos	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Ethion	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Fenitrothion	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Malathion	mg/L	0.00005	#N/A	#N/A	#N/A	#N/A
BH1	Parathion	mg/L	0.000004	#N/A	#N/A	#N/A	#N/A
BH1	Demeton-S-methyl	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Monocrotophos	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Dimethoate	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Chlorpyrifos-methyl	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Parathion-methyl	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Prinphos-ethyl	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Bromophos-ethyl	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Fenamiphos	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Prothiofos	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Carbophenothion	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Azinphos Methyl	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Chlorfenvinphos	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Phosphate	mg/L	0.02 FRP*	#N/A	#N/A	#N/A	#N/A
BH1	PAHs	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Acenaphthene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Acenaphthylene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Anthracene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Benzo(a)anthracene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Benzo(a)pyrene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Benzo(b)&(k)fluoranthene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Benzo(b)fluoranthene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Benzo(k)fluoranthene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Benzo(g,h,i)perylene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Chrysene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Dibenz(a,h)anthracene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Fluoranthene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Fluorene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Indeno(1,2,3-c,d)pyrene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Naphthalene	mg/L	0.016	#N/A	#N/A	#N/A	#N/A
BH1	PAH (total)	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Phenanthrene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Pyrene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	pH	pH units	8.0 - 6.5*	#N/A	#N/A	#N/A	#N/A
BH1	Potassium	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Redox Potential	units	-	#N/A	#N/A	#N/A	#N/A
BH1	Sodium	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Standing water level	m AHD	-	#N/A	#N/A	#N/A	#N/A
BH1	Sulphate	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	Toluene	mg/L	0.3 0**	#N/A	#N/A	#N/A	#N/A
BH1	Total Phenolics	mg/L	0.32	#N/A	#N/A	#N/A	#N/A
BH1	Total Dissolved Solids	mg/L	1500 max - 85 min	#N/A	#N/A	#N/A	#N/A
BH1	Total Organic Carbon	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	TPHs	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	C10-C14	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	C15-C28	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	C29-C36	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH1	C10-C36	mg/L	10 **	#N/A	#N/A	#N/A	#N/A
BH1	CS-C9	mg/L	7 (NEPM F1)	#N/A	#N/A	#N/A	#N/A
BH1	Xylene	mg/L	0.35	#N/A	#N/A	#N/A	#N/A
BH1	Zinc	mg/L	0.008	#N/A	#N/A	#N/A	#N/A

TABLE 7: Annual Water Quality Monitoring Results (2017-2018)
West Nowra Recycling and Waste Facility : EPL 5877

Site No	Analyte	Units	ANZECC 2000 Freshwater (95% Species)	Nov-15	Feb-16	Feb-17	Feb-18
BH 2	Alkalinity (CaCO ₃)	mg/L	-	Dry	Dry	<1	<1
BH 2	Aluminium	mg/L	0.055	Dry	Dry	7.4	6.8
BH 2	Ammonia as N	mg/L	0.9 (pH 8) - 2.57 (pH 6)	Dry	Dry	0.1	0.22
BH 2	Arsenic	mg/L	0.024	Dry	Dry	0.008	0.005
BH 2	Barium	mg/L	-	Dry	Dry	0.057	0.067
BH 2	Benzene	mg/L	0.95	Dry	Dry	<1	<1
BH 2	Bicarbonate	mg/L	-	Dry	Dry	<1	<1
BH 2	Cadmium	mg/L	0.0002	Dry	Dry	0.0001	0.0003
BH 2	Calcium	mg/L	-	Dry	Dry	4	9
BH 2	Carbonate	mg/L	-	Dry	Dry	<1	<1
BH 2	Chloride	mg/L	-	Dry	Dry	116	175
BH 2	Hexavalent Chromium	mg/L	0.001	Dry	Dry	<0.01	<0.01
BH 2	Total Chromium	mg/L	-	Dry	Dry	0.011	0.004
BH 2	Cobalt	mg/L	-	Dry	Dry	0.005	0.011
BH 2	Copper	mg/L	0.0014	Dry	Dry	0.01	0.016
BH 2	Ethyl- Benzene	mg/L	0.14 **	Dry	Dry	<2	<2
BH 2	Fluoride	mg/L	1.5 ***	Dry	Dry	<0.1	0.2
BH 2	Lead	mg/L	0.0034	Dry	Dry	0.038	0.03
BH 2	Magnesium	mg/L	-	Dry	Dry	4	10
BH 2	Manganese	mg/L	1.9	Dry	Dry	0.022	0.06
BH 2	Mercury	mg/L	0.0006	Dry	Dry	<0.0001	<0.0001
BH 2	Nitrate	mg/L	0.7	Dry	Dry	<0.01	0.16
BH 2	Nitrite	mg/L	-	Dry	Dry	0.01	<0.01
BH 2	OCP's	mg/L	-				
BH 2	Aldrin	mg/L	-	Dry	Dry	<0.5	<0.5
BH 2	alpha-BHC	mg/L	-	Dry	Dry	<0.5	<0.5
BH 2	alpha-Endosulphan	mg/L	-	Dry	Dry	<0.5	<0.5
BH 2	beta-BHC	mg/L	-	Dry	Dry	<0.5	<0.5
BH 2	beta-Endosulphan	mg/L	-	Dry	Dry	<0.5	<0.5
BH 2	Chlordane	mg/L	0.00008	Dry	Dry	<0.5	<0.5
BH 2	cis-Chlordane	mg/L	-	Dry	Dry	<0.5	<0.5
BH 2	trans-Chlordane	mg/L	-	Dry	Dry	<0.5	<0.5
BH 2	DDD	mg/L	-	Dry	Dry	<0.5	<0.5
BH 2	DDE	mg/L	-	Dry	Dry	<0.5	<0.5
BH 2	DDT	mg/L	0.00001	Dry	Dry	<2.0	<2.0
BH 2	delta-BHC	mg/L	-	Dry	Dry	<0.5	<0.5
BH 2	Dieldrin	mg/L	-	Dry	Dry	<0.5	<0.5
BH 2	Endosulphan Sulphate	mg/L	-	Dry	Dry	<0.5	<0.5
BH 2	Endrin	mg/L	0.00002	Dry	Dry	<0.5	<0.5
BH 2	Endrin ketone	mg/L	-	Dry	Dry	<0.5	<0.5
BH 2	Endrin Aldehyde	mg/L	-	Dry	Dry	<0.5	<0.5
BH 2	gamma-BHC	mg/L	-	Dry	Dry	<0.5	<0.5
BH 2	Heptachlor	mg/L	0.00009	Dry	Dry	<0.5	<0.5
BH 2	Heptachlor Epoxide	mg/L	-	Dry	Dry	<0.5	<0.5
BH 2	Hexachlorobenzene	mg/L	-	Dry	Dry	<0.5	<0.5
BH 2	Lindane	mg/L	0.0002	Dry	Dry	<0.5	<0.5
BH 2	Methoxychlor	mg/L	-	Dry	Dry	<2.0	<2.0

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Site No	Analyte	Units	ANZECC 2000 Freshwater (95% Species)	Nov-15	Feb-16	Feb-17	Feb-18
BH 2	OPPs	mg/L	-				
BH 2	Chlorpyrifos	mg/L	0.00001	Dry	Dry	<0.5	<0.5
BH 2	Diazinon	mg/L	0.00001	Dry	Dry	<0.5	<0.5
BH 2	Dichlorvos	mg/L	-	Dry	Dry	<0.5	<0.5
BH 2	Ethion	mg/L	-	Dry	Dry	<0.5	<0.5
BH 2	Fenthion	mg/L	-	Dry	Dry	<0.5	<0.5
BH 2	Malathion	mg/L	0.00005	Dry	Dry	<0.5	<0.5
BH 2	Parathion	mg/L	0.000004	Dry	Dry	<2.0	<2.0
BH 2	Demeton-S-methyl	mg/L	-	Dry	Dry	<0.5	<0.5
BH 2	Monocrotophos	mg/L	-	Dry	Dry	<2.0	<2.0
BH 2	Dimethoate	mg/L	-	Dry	Dry	<0.5	<0.5
BH 2	Chlorpyrifos-methyl	mg/L	-	Dry	Dry	<0.5	<0.5
BH 2	Parathion-methyl	mg/L	-	Dry	Dry	<2.0	<2.0
BH 2	Primphos-ethyl	mg/L	-	Dry	Dry	<0.5	<0.5
BH 2	Bromophos-ethyl	mg/L	-	Dry	Dry	<0.5	<0.5
BH 2	Fenamiphos	mg/L	-	Dry	Dry	<0.5	<0.5
BH 2	Prothiofos	mg/L	-	Dry	Dry	<0.5	<0.5
BH 2	Carbophenothion	mg/L	-	Dry	Dry	<0.5	<0.5
BH 2	Azinphos Methyl	mg/L	-	Dry	Dry	<0.5	<0.5
BH 2	Chlorfenvinphos	mg/L	-	Dry	Dry	<0.5	<0.5
BH 2	Phosphate	mg/L	0.02 FRP*	Dry	Dry	<0.01	<0.01
BH 2	PAHs	mg/L	-				
BH 2	Acenaphthene	mg/L	-	Dry	Dry	<1.0	<1.0
BH 2	Acenaphthylene	mg/L	-	Dry	Dry	<1.0	<1.0
BH 2	Anthracene	mg/L	-	Dry	Dry	<1.0	<1.0
BH 2	Benzo(a)anthracene	mg/L	-	Dry	Dry	<1.0	<1.0
BH 2	Benzo(a)pyrene	mg/L	-	Dry	Dry	<0.5	<0.5
BH 2	Benzo(b)&(k)fluoranthene	mg/L	-	Dry	Dry	<1.0	<1.0
BH 2	Benzo(b)fluoranthene	mg/L	-	Dry	Dry	<1.0	<1.0
BH 2	Benzo(k)fluoranthene	mg/L	-	Dry	Dry	<1.0	<1.0
BH 2	Benzo(g,h,i)perylene	mg/L	-	Dry	Dry	<1.0	<1.0
BH 2	Chrysene	mg/L	-	Dry	Dry	<1.0	<1.0
BH 2	Dibenz(a,h)anthracene	mg/L	-	Dry	Dry	<1.0	<1.0
BH 2	Fluoranthene	mg/L	-	Dry	Dry	<1.0	<1.0
BH 2	Fluorene	mg/L	-	Dry	Dry	<1.0	<1.0
BH 2	Indeno(1,2,3-c,d)pyrene	mg/L	-	Dry	Dry	<1.0	<1.0
BH 2	Naphthalene	mg/L	0.016	Dry	Dry	<1.0	<1.0
BH 2	PAH (total)	mg/L	-	Dry	Dry	<0.5	<0.5
BH 2	Phenanthrene	mg/L	-	Dry	Dry	<1.0	<1.0
BH 2	Pyrene	mg/L	-	Dry	Dry	<1.0	<1.0
BH 2	pH	pH units	8.0 - 8.5*	Dry	Dry	4.6	4.4
BH 2	Potassium	mg/L	-	Dry	Dry	-	3
BH 2	Redox Potential	units	-	Dry	Dry	-8.2	202
BH 2	Sodium	mg/L	-	Dry	Dry	-	83
BH 2	Standing water level	m AHD	-	Dry	Dry	30.1	33.29
BH 2	Sulphate	mg/L	-	Dry	Dry	24	33
BH 2	Toluene	mg/L	0.3 0**	Dry	Dry	<2	<2
BH 2	Total Phenolics	mg/L	0.32	Dry	Dry	<0.5	---
BH 2	Total Dissolved Solids	mg/L	1500 max - 85 min	Dry	Dry	363	323
BH 2	Total Organic Carbon	mg/L	-	Dry	Dry	25.8	11
BH 2	TPHs	mg/L	-				
BH 2	C10-C14	mg/L	-	Dry	Dry	<60	<50
BH 2	C15-C28	mg/L	-	Dry	Dry	<100	<100
BH 2	C29-C36	mg/L	-	Dry	Dry	<50	<50
BH 2	C10-C36	mg/L	10 **	Dry	Dry	<50	<50
BH 2	C6-C9	mg/L	7 (NEPM F1)	Dry	Dry	<20	<20
BH 2	Xylene	mg/L	0.35	Dry	Dry	<2	<2
BH 2	Zinc	mg/L	0.008	Dry	Dry	0.114	0.2

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Site No	Analyte	Units	ANZECC 2000 Freshwater (95% Species)	Nov-15	Feb-16	Feb-17	Feb-18
BH 3	Alkalinity (CaCO ₃)	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	Aluminium	mg/L	0.055	#N/A	#N/A	#N/A	#N/A
BH 3	Ammonia as N	mg/L	0.9 (pH 8) - 2.57 (pH 6)	#N/A	#N/A	#N/A	#N/A
BH 3	Arsenic	mg/L	0.024	#N/A	#N/A	#N/A	#N/A
BH 3	Barium	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	Benzene	mg/L	0.95	#N/A	#N/A	#N/A	#N/A
BH 3	Bicarbonate	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	Cadmium	mg/L	0.0002	#N/A	#N/A	#N/A	#N/A
BH 3	Calcium	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	Carbonate	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	Chloride	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	Hexavalent Chromium	mg/L	0.001	#N/A	#N/A	#N/A	#N/A
BH 3	Total Chromium	mg/L	0.001 HMTV CrVI	#N/A	#N/A	#N/A	#N/A
BH 3	Cobalt	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	Copper	mg/L	0.0014 HMTV (0.001)	#N/A	#N/A	#N/A	#N/A
BH 3	Ethyl Benzene	mg/L	0.14 **	#N/A	#N/A	#N/A	#N/A
BH 3	Fluoride	mg/L	1.5 ***	#N/A	#N/A	#N/A	#N/A
BH 3	Lead	mg/L	0.0034 HMTV (0.001)	#N/A	#N/A	#N/A	#N/A
BH 3	Magnesium	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	Manganese	mg/L	1.9	#N/A	#N/A	#N/A	#N/A
BH 3	Mercury	mg/L	0.0006	#N/A	#N/A	#N/A	#N/A
BH 3	Nitrate	mg/L	0.7	#N/A	#N/A	#N/A	#N/A
BH 3	Nitrite	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	OCP's	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	Aldrin	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	alpha-BHC	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	alpha-Endosulphan	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	beta-BHC	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	beta-Endosulphan	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	Chlordane	mg/L	0.00008	#N/A	#N/A	#N/A	#N/A
BH 3	cis-Chlordane			#N/A	#N/A	#N/A	#N/A
BH 3	trans-Chlordane			#N/A	#N/A	#N/A	#N/A
BH 3	DDD	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	DDE	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	DDT	mg/L	0.00001	#N/A	#N/A	#N/A	#N/A
BH 3	delta-BHC			#N/A	#N/A	#N/A	#N/A
BH 3	Dieldrin	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	Endosulphan Sulphate	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	Endrin	mg/L	0.00002	#N/A	#N/A	#N/A	#N/A
BH 3	Endrin ketone			#N/A	#N/A	#N/A	#N/A
BH 3	Endrin Aldehyde	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	gamma-BHC			#N/A	#N/A	#N/A	#N/A
BH 3	Heptachlor	mg/L	0.00009	#N/A	#N/A	#N/A	#N/A
BH 3	Heptachlor Epoxide	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	Hexachlorobenzene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	Lindane	mg/L	0.0002	#N/A	#N/A	#N/A	#N/A
BH 3	Methoxychlor	mg/L	-	#N/A	#N/A	#N/A	#N/A

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Site No	Analyte	Units	ANZECC 2000 Freshwater (95% Species)	Nov-15	Feb-16	Feb-17	Feb-18
BH 3	OPPs	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	Chlorpyrifos	mg/L	0.00001	#N/A	#N/A	#N/A	#N/A
BH 3	Diazinon	mg/L	0.00001	#N/A	#N/A	#N/A	#N/A
BH 3	Dichlorvos	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	Ethion	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	Fenthion	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	Malathion	mg/L	0.00005	#N/A	#N/A	#N/A	#N/A
BH 3	Parathion	mg/L	0.000004	#N/A	#N/A	#N/A	#N/A
BH 3	Demeton-S-methyl		-	#N/A	#N/A	#N/A	#N/A
BH 3	Monocrotophos		-	#N/A	#N/A	#N/A	#N/A
BH 3	Dimethoate		-	#N/A	#N/A	#N/A	#N/A
BH 3	Chlorpyrifos-methyl		-	#N/A	#N/A	#N/A	#N/A
BH 3	Parathion-methyl		-	#N/A	#N/A	#N/A	#N/A
BH 3	Primphos-ethyl		-	#N/A	#N/A	#N/A	#N/A
BH 3	Bromophos-ethyl		-	#N/A	#N/A	#N/A	#N/A
BH 3	Fenamiphos		-	#N/A	#N/A	#N/A	#N/A
BH 3	Prothiofos		-	#N/A	#N/A	#N/A	#N/A
BH 3	Carbophenothion		-	#N/A	#N/A	#N/A	#N/A
BH 3	Azinphos Methyl		-	#N/A	#N/A	#N/A	#N/A
BH 3	Chlorfenvinphos		-	#N/A	#N/A	#N/A	#N/A
BH 3	Phosphate	mg/L	0.02 FRP*	#N/A	#N/A	#N/A	#N/A
BH 3	PAHs	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	Acenaphthene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	Acenaphthylene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	Anthracene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	Benzo(a)anthracene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	Benzo(e)pyrene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	Benzo(b)&(k)fluoranthene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	Benzo(k)fluoranthene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	Benzo(k)fluoranthene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	Benzo(g,h,i)perylene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	Chrysene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	Dibenz(a,h)anthracene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	Fluoranthene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	Fluorene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	Indeno(1,2,3-c,d)pyrene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	Naphthalene	mg/L	0.016	#N/A	#N/A	#N/A	#N/A
BH 3	PAH (total)	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	Phenanthrene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	Pyrene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	pH	pH units	8.0 - 6.5*	#N/A	#N/A	#N/A	#N/A
BH 3	Potassium	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	Redox Potential	units	-	#N/A	#N/A	#N/A	#N/A
BH 3	Sodium	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	Standing water level	m AHD	-	#N/A	#N/A	#N/A	#N/A
BH 3	Sulphate	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	Toluene	mg/L	0.3 **	#N/A	#N/A	#N/A	#N/A
BH 3	Total Phenolics	mg/L	0.32	#N/A	#N/A	#N/A	#N/A
BH 3	Total Dissolved Solids	mg/L	1500 max - 85 min	#N/A	#N/A	#N/A	#N/A
BH 3	Total Organic Carbon	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	TPHs	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	C10-C14	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	C15-C28	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	C29-C36	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 3	C10-C36	mg/L	10 **	#N/A	#N/A	#N/A	#N/A
BH 3	CS-C9	mg/L	7 (NEPM F1)	#N/A	#N/A	#N/A	#N/A
BH 3	Xylene	mg/L	0.35	#N/A	#N/A	#N/A	#N/A
BH 3	meta- & para-Xylene		0.35	#N/A	#N/A	#N/A	#N/A
BH 3	ortho-Xylene		0.35	#N/A	#N/A	#N/A	#N/A
BH 3	Zinc	mg/L	0.008 (HMTV 0.004)	#N/A	#N/A	#N/A	#N/A

TABLE 7: Annual Water Quality Monitoring Results (2017-2018)
West Nowra Recycling and Waste Facility : EPL 5877

Site No	Analyte	Units	ANZECC 2000 Freshwater (95% Species)	Nov-15	Feb-16	Feb-17	Feb-18
BH 4	Alkalinity (CaCO ₃)	mg/L	-	<1	No Access	<1	5
BH 4	Aluminium	mg/L	0.056	1.64	No Access	1.34	3.93
BH 4	Ammonia as N	mg/L	0.9 (pH 8) - 2.57 (pH 6)	0.22	No Access	0.29	0.2
BH 4	Arsenic	mg/L	0.024	0.008	No Access	0.012	0.003
BH 4	Barium	mg/L	-	0.003	No Access	0.003	0.02
BH 4	Benzene	mg/L	0.95	<0.001	No Access	<1	<1
BH 4	Bicarbonate	mg/L	-	<1	No Access	<1	5
BH 4	Cadmium	mg/L	0.0002	<0.0001	No Access	<0.0001	<0.0001
BH 4	Calcium	mg/L	-	<1	No Access	<1	18
BH 4	Carbonate	mg/L	-	<1	No Access	<1	<1
BH 4	Chloride	mg/L	-	30	No Access	30	153
BH 4	Hexavalent Chromium	mg/L	0.001	<0.01	No Access	<0.01	<0.01
BH 4	Total Chromium	mg/L	0.001 HMTV CrVI	0.001	No Access	0.003	0.005
BH 4	Cobalt	mg/L	-	0.001	No Access	0.001	0.001
BH 4	Copper	mg/L	0.0014 HMTV (0.001)	<0.001	No Access	0.001	0.014
BH 4	Ethyl- Benzene	mg/L	0.14 **	<0.002	No Access	<2	<2
BH 4	Fluoride	mg/L	1.5 ***	<0.1	No Access	<0.1	<0.1
BH 4	Lead	mg/L	0.0034 HMTV (0.002)	0.001	No Access	<0.001	0.007
BH 4	Magnesium	mg/L	-	5	No Access	4	19
BH 4	Manganese	mg/L	1.9	0.01	No Access	0.011	0.063
BH 4	Mercury	mg/L	0.0006	<0.0001	No Access	<0.0001	<0.0001
BH 4	Nitrate	mg/L	0.7	<0.01	No Access	<0.01	0.18
BH 4	Nitrite	mg/L	-	<0.01	No Access	<0.01	<0.01
BH 4	OCP's	mg/L	-	-	-	-	-
BH 4	Aldrin	mg/L	-	<0.0005	No Access	<0.5	<0.5
BH 4	alpha-BHC	mg/L	-	<0.0005	No Access	<0.5	<0.5
BH 4	alpha-Endosulphan	mg/L	-	<0.0005	No Access	<0.5	<0.5
BH 4	beta-BHC	mg/L	-	<0.0005	No Access	<0.5	<0.5
BH 4	beta-Endosulphan	mg/L	-	<0.0005	No Access	<0.5	<0.5
BH 4	Chlordane	mg/L	0.00008	<0.0005	No Access	<0.5	<0.5
BH 4	cis-Chlordane	-	-	<0.0005	No Access	<0.5	<0.5
BH 4	trans-Chlordane	-	-	<0.0005	No Access	<0.5	<0.5
BH 4	DDD	mg/L	-	<0.0005	No Access	<0.5	<0.5
BH 4	DDE	mg/L	-	<0.0005	No Access	<0.5	<0.5
BH 4	DDT	mg/L	0.00001	<0.002	No Access	<2.0	<2.0
BH 4	delta-BHC	-	-	<0.0005	No Access	<0.5	<0.5
BH 4	Dieldrin	mg/L	-	<0.0005	No Access	<0.5	<0.5
BH 4	Endosulphan Sulphate	mg/L	-	<0.0005	No Access	<0.5	<0.5
BH 4	Endrin	mg/L	0.00002	<0.0005	No Access	<0.5	<0.5
BH 4	Endrin ketone	-	-	<0.0005	No Access	<0.5	<0.5
BH 4	Endrin Aldehyde	mg/L	-	<0.0005	No Access	<0.5	<0.5
BH 4	gamma-BHC	-	-	<0.0005	No Access	<0.5	<0.5
BH 4	Heptachlor	mg/L	0.00009	<0.0005	No Access	<0.5	<0.5
BH 4	Heptachlor Epoxide	mg/L	-	<0.0005	No Access	<0.5	<0.5
BH 4	Hexachlorobenzene	mg/L	-	<0.0005	No Access	<0.5	<0.5
BH 4	Lindane	mg/L	0.0002	#N/A	No Access	<0.5	<0.5
BH 4	Methoxychlor	mg/L	-	<0.002	No Access	<2.0	<2.0

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West Nowra Recycling and Waste Facility : EPL 5877

Site No	Analyte	Units	ANZECC 2000 Freshwater (95% Species)	Nov-15	Feb-16	Feb-17	Feb-18
BH 4	OPP's	mg/L	-	-	-	-	-
BH 4	Chlorpyrifos	mg/L	0.00001	<0.0005	No Access	<0.5	<0.5
BH 4	Diazinon	mg/L	0.00001	<0.0005	No Access	<0.5	<0.5
BH 4	Dichlorvos	mg/L	-	<0.0005	No Access	<0.5	<0.5
BH 4	Ethion	mg/L	-	<0.0005	No Access	<0.5	<0.5
BH 4	Fenthion	mg/L	-	<0.0005	No Access	<0.5	<0.5
BH 4	Malathion	mg/L	0.00005	<0.0005	No Access	<0.5	<0.5
BH 4	Parathion	mg/L	0.000004	<0.002	No Access	<2.0	<2.0
BH 4	Demeton-S-methyl	-	-	<0.0005	No Access	<0.5	<0.5
BH 4	Monocrotophos	-	-	<0.002	No Access	<2.0	<2.0
BH 4	Dimethoate	-	-	<0.0005	No Access	<0.5	<0.5
BH 4	Chlorpyrifos-methyl	-	-	<0.0005	No Access	<0.5	<0.5
BH 4	Parathion-methyl	-	-	<0.002	No Access	<2.0	<2.0
BH 4	Primphos-ethyl	-	-	<0.0005	No Access	<0.5	<0.5
BH 4	Bromophos-ethyl	-	-	<0.0005	No Access	<0.5	<0.5
BH 4	Fenamiphos	-	-	<0.0005	No Access	<0.5	<0.5
BH 4	Prothiofos	-	-	<0.0005	No Access	<0.5	<0.5
BH 4	Carbophenothion	-	-	<0.0005	No Access	<0.5	<0.5
BH 4	Azinphos Methyl	-	-	<0.0005	No Access	<0.5	<0.5
BH 4	Chlorfenvinphos	-	-	<0.0005	No Access	<0.5	<0.5
BH 4	Phosphate	mg/L	0.02 FRP*	<0.01	No Access	<0.01	<0.01
BH 4	PAHs	mg/L	-	-	-	-	-
BH 4	Acenaphthene	-	-	<0.001	No Access	<1.0	<1.0
BH 4	Acenaphthylene	mg/L	-	<0.001	No Access	<1.0	<1.0
BH 4	Anthracene	mg/L	-	<0.001	No Access	<1.0	<1.0
BH 4	Benzo(a)anthracene	mg/L	-	<0.001	No Access	<1.0	<1.0
BH 4	Benzo(e)pyrene	mg/L	-	<0.0005	No Access	<0.5	<0.5
BH 4	Benzo(b)&(k)fluoranthene	mg/L	-	<0.001	No Access	<1.0	<1.0
BH 4	Benzo(b)fluoranthene	mg/L	-	<0.001	No Access	<1.0	<1.0
BH 4	Benzo(k)fluoranthene	-	-	<0.001	No Access	<1.0	<1.0
BH 4	Benzo(g,h,i)perylene	mg/L	-	<0.001	No Access	<1.0	<1.0
BH 4	Chrysene	mg/L	-	<0.001	No Access	<1.0	<1.0
BH 4	Dibenz(a,h)anthracene	mg/L	-	<0.001	No Access	<1.0	<1.0
BH 4	Fluoranthene	mg/L	-	<0.001	No Access	<1.0	<1.0
BH 4	Fluorene	mg/L	-	<0.001	No Access	<1.0	<1.0
BH 4	Indeno(1,2,3-c,d)pyrene	mg/L	-	<0.001	No Access	<1.0	<1.0
BH 4	Naphthalene	mg/L	0.016	<0.001	No Access	<1.0	<1.0
BH 4	PAH (total)	mg/L	-	<0.0005	No Access	<0.5	<0.5
BH 4	Phenanthrene	mg/L	-	<0.001	No Access	<1.0	<1.0
BH 4	Pyrene	mg/L	-	<0.001	No Access	<1.0	<1.0
BH 4	pH	pH units	8.0 - 8.5*	4.1	No Access	3.8	4.7
BH 4	Potassium	mg/L	-	<1	No Access	-	7
BH 4	Redox Potential	units	-	171	No Access	-45.7	151
BH 4	Sodium	mg/L	-	22	No Access	-	95
BH 4	Standing water level	m AHD	-	31.3	No Access	30.8	31.26
BH 4	Sulphate	mg/L	-	43	No Access	39	120
BH 4	Toluene	mg/L	0.3 0**	<0.002	No Access	<2	<2
BH 4	Total Phenolics	mg/L	0.32	<0.05	No Access	<0.5	<0.05
BH 4	Total Dissolved Solids	mg/L	1500 max - 85 min	163	No Access	165	470
BH 4	Total Organic Carbon	mg/L	-	2.1	No Access	2.6	12
BH 4	TPHs	mg/L	-	-	-	-	-
BH 4	C10-C14	mg/L	-	<0.05	No Access	<50	<50
BH 4	C15-C28	mg/L	-	<0.1	No Access	<100	<100
BH 4	C29-C36	mg/L	-	<0.05	No Access	<50	<50
BH 4	C10-C36	mg/L	10 **	<0.05	No Access	<50	<50
BH 4	CS-C9	mg/L	7 (NEPM F1)	<0.02	No Access	<20	<20
BH 4	Xylene	mg/L	0.35	<0.002	No Access	<2	<2
BH 4	meta- & para-Xylene	-	0.35	<0.002	No Access	<2	<2
BH 4	ortho-Xylene	-	0.35	<0.002	No Access	<2	<2
BH 4	Zinc	mg/L	0.008 (HMTV 0.005)	0.017	No Access	0.026	0.236

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Site No	Analyte	Units	ANZECC 2000 Freshwater (95% Species)	Nov-15	Feb-16	Feb-17	Feb-18
BH 5	Alkalinity (CaCO ₃)	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	Aluminium	mg/L	0.055	#N/A	#N/A	#N/A	#N/A
BH 5	Ammonia as N	mg/L	0.9 (pH 8) - 2.57 (pH 6)	#N/A	#N/A	#N/A	#N/A
BH 5	Arsenic	mg/L	0.024	#N/A	#N/A	#N/A	#N/A
BH 5	Barium	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	Benzene	mg/L	0.95	#N/A	#N/A	#N/A	#N/A
BH 5	Bicarbonate	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	Cadmium	mg/L	0.0002	#N/A	#N/A	#N/A	#N/A
BH 5	Calcium	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	Carbonate	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	Chloride	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	Hexavalent Chromium	mg/L	0.001	#N/A	#N/A	#N/A	#N/A
BH 5	Total Chromium	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	Cobalt	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	Copper	mg/L	0.0014	#N/A	#N/A	#N/A	#N/A
BH 5	Ethyl Benzene	mg/L	0.14 **	#N/A	#N/A	#N/A	#N/A
BH 5	Fluoride	mg/L	1.5 ***	#N/A	#N/A	#N/A	#N/A
BH 5	Lead	mg/L	0.0034	#N/A	#N/A	#N/A	#N/A
BH 5	Magnesium	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	Manganese	mg/L	1.9	#N/A	#N/A	#N/A	#N/A
BH 5	Mercury	mg/L	0.0006	#N/A	#N/A	#N/A	#N/A
BH 5	Nitrate	mg/L	0.7	#N/A	#N/A	#N/A	#N/A
BH 5	Nitrite	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	OCP's	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	Aldrin	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	alpha-BHC	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	alpha-Endosulphan	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	beta-BHC	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	beta-Endosulphan	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	Chlordane	mg/L	0.00008	#N/A	#N/A	#N/A	#N/A
BH 5	cis-Chlordane			#N/A	#N/A	#N/A	#N/A
BH 5	trans-Chlordane			#N/A	#N/A	#N/A	#N/A
BH 5	DDD	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	DDE	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	DDT	mg/L	0.00001	#N/A	#N/A	#N/A	#N/A
BH 5	delta-BHC			#N/A	#N/A	#N/A	#N/A
BH 5	Dieldrin	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	Endosulphan Sulphate	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	Endrin	mg/L	0.00002	#N/A	#N/A	#N/A	#N/A
BH 5	Endrin ketone			#N/A	#N/A	#N/A	#N/A
BH 5	Endrin Aldehyde	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	gamma-BHC			#N/A	#N/A	#N/A	#N/A
BH 5	Heptachlor	mg/L	0.00009	#N/A	#N/A	#N/A	#N/A
BH 5	Heptachlor Epoxide	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	Hexachlorobenzene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	Lindane	mg/L	0.0002	#N/A	#N/A	#N/A	#N/A
BH 5	Methoxychlor	mg/L	-	#N/A	#N/A	#N/A	#N/A

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West Nowra Recycling and Waste Facility : EPL 5877

Site No	Analyte	Units	ANZECC 2000 Freshwater (95% Species)	Nov-15	Feb-16	Feb-17	Feb-18
BH 5	OPP's	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	Chlorpyrifos	mg/L	0.00001	#N/A	#N/A	#N/A	#N/A
BH 5	Diazinon	mg/L	0.00001	#N/A	#N/A	#N/A	#N/A
BH 5	Dichlorvos	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	Ethion	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	Fenthion	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	Malathion	mg/L	0.00005	#N/A	#N/A	#N/A	#N/A
BH 5	Parathion	mg/L	0.000004	#N/A	#N/A	#N/A	#N/A
BH 5	Demeton-S-methyl		-	#N/A	#N/A	#N/A	#N/A
BH 5	Monocrotophos		-	#N/A	#N/A	#N/A	#N/A
BH 5	Dimethoate		-	#N/A	#N/A	#N/A	#N/A
BH 5	Chlorpyrifos-methyl		-	#N/A	#N/A	#N/A	#N/A
BH 5	Carbofenthiol-methyl		-	#N/A	#N/A	#N/A	#N/A
BH 5	Phosphos-ethyl		-	#N/A	#N/A	#N/A	#N/A
BH 5	Bromophos-ethyl		-	#N/A	#N/A	#N/A	#N/A
BH 5	Fenamiphos		-	#N/A	#N/A	#N/A	#N/A
BH 5	Prothiofos		-	#N/A	#N/A	#N/A	#N/A
BH 5	Carbophenothion		-	#N/A	#N/A	#N/A	#N/A
BH 5	Azinphos Methyl		-	#N/A	#N/A	#N/A	#N/A
BH 5	Chlorfenvinphos		-	#N/A	#N/A	#N/A	#N/A
BH 5	Phosphate	mg/L	0.02 FRP*	#N/A	#N/A	#N/A	#N/A
BH 5	PAHs	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	Acenaphthene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	Acenaphthylene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	Anthracene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	Benzo(a)anthracene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	Benzo(b)fluoranthene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	Benzo(k)fluoranthene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	Benzo(a,h)perylene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	Chrysene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	Dibenz(a,h)anthracene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	Fluoranthene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	Fluorene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	Indeno(1,2,3-c,d)pyrene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	Naphthalene	mg/L	0.016	#N/A	#N/A	#N/A	#N/A
BH 5	PAH (total)	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	Phenanthrene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	Pyrene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	pH	pH units	8.0 - 6.5*	#N/A	#N/A	#N/A	#N/A
BH 5	Potassium	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	Redox Potential	units	-	#N/A	#N/A	#N/A	#N/A
BH 5	Sodium	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	Standing water level	m AHD	-	#N/A	#N/A	#N/A	#N/A
BH 5	Sulphate	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	Toluene	mg/L	0.3 0**	#N/A	#N/A	#N/A	#N/A
BH 5	Total Phenolics	mg/L	0.32	#N/A	#N/A	#N/A	#N/A
BH 5	Total Dissolved Solids	mg/L	1500 max - 85 min	#N/A	#N/A	#N/A	#N/A
BH 5	Total Organic Carbon	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	TPHs	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	C10-C14	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	C15-C28	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	C29-C36	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	C10-C36	mg/L	10 **	#N/A	#N/A	#N/A	#N/A
BH 5	CS-C9	mg/L	7 (NEPM F1)	#N/A	#N/A	#N/A	#N/A
BH 5	Xylene	mg/L	0.35	#N/A	#N/A	#N/A	#N/A
BH 5	meta- & para-Xylene		0.35	#N/A	#N/A	#N/A	#N/A
BH 5	ortho-Xylene		0.35	#N/A	#N/A	#N/A	#N/A
BH 5	Zinc	mg/L	0.008	#N/A	#N/A	#N/A	#N/A
BH 5	2,3,4,5-Tetrachlorophenol	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	2,3,4,6-Tetrachlorophenol	mg/L	20	#N/A	#N/A	#N/A	#N/A
BH 5	2,3,4-Trichlorophenol	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	2,3,5,6-Tetrachlorophenol	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	2,3,5-Trichlorophenol	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	2,3,6-Trichlorophenol	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	2,3-Dichlorophenol	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	2,4,5-Trichlorophenol	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	2,4,6-Trichlorophenol	mg/L	20	#N/A	#N/A	#N/A	#N/A
BH 5	2,4-Dichlorophenol	mg/L	160 *	#N/A	#N/A	#N/A	#N/A
BH 5	2,5-Dichlorophenol	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	2,6-Dichlorophenol	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	2-Chlorophenol	mg/L	490 *	#N/A	#N/A	#N/A	#N/A
BH 5	3,4-Dichlorophenol	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	3,5-Dichlorophenol	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	3,4,5-Trichlorophenol	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	3-chlorophenol	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 5	4-chlorophenol	mg/L	220 220	#N/A	#N/A	#N/A	#N/A
BH 5	3,4,5-Trichlorophenol	mg/L	-	#N/A	#N/A	#N/A	#N/A

TABLE 7: Annual Water Quality Monitoring Results (2017-2018)
West Nowra Recycling and Waste Facility : EPL 5877

Site No	Analyte	Units	ANZECC 2000 Freshwater (95% Species)	Nov-15	Feb-16	Feb-17	Feb-18
BH 6	Alkalinity (CaCO ₃)	mg/L	-	<1	<1	<1	<1
BH 6	Aluminium	mg/L	0.056	7.86	4.53	6.42	6.01
BH 6	Ammonia as N	mg/L	0.9 (pH 8) - 2.57 (pH 6)	0.26	0.16	0.17	0.15
BH 6	Arsenic	mg/L	0.024	0.005	0.002	0.003	0.003
BH 6	Barium	mg/L	-	0.079	0.092	0.083	0.073
BH 6	Benzene	mg/L	0.95 0.95	<0.001	<0.001	<1	<1
BH 6	Bicarbonate	mg/L	-	<1	<1	<1	<1
BH 6	Cadmium	mg/L	0.0002	0.0002	0.0002	<0.0001	<0.0001
BH 6	Calcium	mg/L	-	15	14	14	11
BH 6	Carbonate	mg/L	-	<1	<1	<1	<1
BH 6	Chloride	mg/L	-	899	885	877	846
BH 6	Hexavalent Chromium	mg/L	0.001	<0.01	<0.01	<0.01	<0.01
BH 6	Total Chromium	mg/L	-	0.012	0.004	0.007	0.009
BH 6	Cobalt	mg/L	-	0.048	0.054	0.051	0.04
BH 6	Copper	mg/L	0.0014	0.014	0.009	0.006	0.093
BH 6	Ethyl Benzene	mg/L	0.14 **	<0.002	<0.002	<2	<2
BH 6	Fluoride	mg/L	-	0.3	0.3	0.4	0.3
BH 6	Lead	mg/L	0.0034	0.016	0.014	0.013	0.028
BH 6	Magnesium	mg/L	-	43	47	41	41
BH 6	Manganese	mg/L	1.9	0.315	0.36	0.316	0.243
BH 6	Mercury	mg/L	0.0006	<0.0001	<0.0001	<0.0001	<0.0001
BH 6	Nitrate	mg/L	0.7	0.22	0.06	0.02	0.09
BH 6	Nitrite	mg/L	-	<0.01	0.01	<0.01	<0.01
BH 6	OCP's	mg/L	-	-	-	-	-
BH 6	Aldrin	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 6	alpha-BHC	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 6	alpha-Endosulphan	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 6	beta-BHC	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 6	beta-Endosulphan	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 6	Chlordane	mg/L	0.00008	<0.0005	<0.0005	<0.5	<0.5
BH 6	cis-Chlordane	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 6	trans-Chlordane	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 6	DDD	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 6	DDE	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 6	DDT	mg/L	0.00001	<0.002	<0.002	<2.0	<2.0
BH 6	delta-BHC	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 6	Dieldrin	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 6	Endosulphan Sulphate	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 6	Endrin	mg/L	0.00002	<0.0005	<0.0005	<0.5	<0.5
BH 6	Endrin ketone	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 6	Endrin Aldehyde	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 6	gamma-BHC	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 6	Heptachlor	mg/L	0.00009	<0.0005	<0.0005	<0.5	<0.5
BH 6	Heptachlor Epoxide	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 6	Hexachlorobenzene	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 6	Lindane	mg/L	0.0002	#N/A	-	<0.5	<0.5
BH 6	Methoxychlor	mg/L	-	<0.002	<0.002	<2.0	<2.0

TABLE 7: Annual Water Quality Monitoring Results (2017-2018)
West Nowra Recycling and Waste Facility : EPL 5877

Site No	Analyte	Units	ANZECC 2000 Freshwater (95% Species)	Nov-15	Feb-16	Feb-17	Feb-18
BH 6	OPPs	mg/L	-	-	-	-	-
BH 6	Chlorpyrifos	mg/L	0.00001	<0.0005	<0.0005	<0.5	<0.5
BH 6	Diazinon	mg/L	0.00001	<0.0005	<0.0005	<0.5	<0.5
BH 6	Dichlorvos	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 6	Ethion	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 6	Fenthion	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 6	Malathion	mg/L	0.00005	<0.0005	<0.0005	<0.5	<0.5
BH 6	Parathion	mg/L	0.000004	<0.002	<0.002	<2.0	<2.0
BH 6	Demeton-S-methyl	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 6	Monocrotophos	mg/L	-	<0.002	<0.002	<2.0	<2.0
BH 6	Dimethoate	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 6	Chlorpyrifos-methyl	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 6	Carbaryl-methyl	mg/L	-	<0.002	<0.002	<2.0	<2.0
BH 6	Primphos-ethyl	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 6	Bromophos-ethyl	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 6	Fenamiphos	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 6	Prothiofos	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 6	Carbophenothion	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 6	Azinphos Methyl	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 6	Chlorfenvinphos	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 6	Phosphate	mg/L	0.02 FRP*	<0.01	<0.01	<0.01	<0.01
BH 6	PAHs	mg/L	-	-	-	-	-
BH 6	Acenaphthene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 6	Acenaphthylene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 6	Anthracene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 6	Benzo(a)anthracene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 6	Benzo(a)pyrene	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 6	Benzo(b)&(k)fluoranthene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 6	Benzo(b)fluoranthene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 6	Benzo(k)fluoranthene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 6	Benzo(g,h,i)perylene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 6	Chrysene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 6	Dibenz(a,h)anthracene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 6	Fluoranthene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 6	Fluorene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 6	Indeno(1,2,3-c,d)pyrene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 6	Naphthalene	mg/L	0.016	<0.001	<0.001	<1.0	<1.0
BH 6	PAH (total)	mg/L	-	<0.0005	-	<0.5	<0.5
BH 6	Phenanthrene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 6	Pyrene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 6	pH	pH units	8.0 - 8.5*	3.9	4.3	3.2	3.2
BH 6	Potassium	mg/L	-	2	2	-	3
BH 6	Redox Potential	units	-	281	109	55.1	403
BH 6	Sodium	mg/L	-	485	496	-	546
BH 6	Standing water level	m AHD	-	30	30.7	30.4	30.28
BH 6	Sulphate	mg/L	-	45	47	37	33
BH 6	Toluene	mg/L	0.3 **	<0.002	<0.002	<2	<2
BH 6	Total Phenolics	mg/L	0.32	<0.05	<0.05	<0.5	<0.05
BH 6	Total Dissolved Solids	mg/L	1500 max - 85 min	1740	1730	1650	1490
BH 6	Total Organic Carbon	mg/L	-	5.1	3.5	7	4
BH 6	TPHs	mg/L	-	-	-	-	-
BH 6	C10-C14	mg/L	-	<0.05	<0.05	<50	<50
BH 6	C15-C28	mg/L	-	<0.1	<0.1	<100	<100
BH 6	C29-C36	mg/L	-	0.14	<0.5	<50	<50
BH 6	C10-C36	mg/L	10 **	0.14	-	<50	<50
BH 6	CS-C9	mg/L	7 (NEPM F1)	<0.02	<0.02	<20	<20
BH 6	Xylene	mg/L	0.35	<0.002	<0.002	<2	<2
BH 6	meta- & para-Xylene	mg/L	0.35	<0.002	<0.002	<2	<2
BH 6	ortho-Xylene	mg/L	0.35	<0.002	<0.002	<2	<2
BH 6	Zinc	mg/L	0.008	0.112	0.12	0.109	0.242
BH 6	2,3,4,5-Tetrachlorophenol	mg/L	-	<0.002	<0.0005	<0.0005	<0.0005
BH 6	2,3,4,6-Tetrachlorophenol	mg/L	20	<0.002	<0.0005	<0.0005	<0.0005
BH 6	2,3,4-Trichlorophenol	mg/L	-	<0.002	<0.0005	<0.0005	<0.0005
BH 6	2,3,5,6-Tetrachlorophenol	mg/L	-	<0.002	<0.0005	<0.0005	<0.0005
BH 6	2,3,5-Trichlorophenol	mg/L	-	<0.002	<0.0005	<0.0005	<0.0005
BH 6	2,3,6-Trichlorophenol	mg/L	-	<0.002	<0.0005	<0.0005	<0.0005
BH 6	2,3-Dichlorophenol	mg/L	-	<0.002	<0.0005	<0.0005	<0.0005
BH 6	2,4,5-Trichlorophenol	mg/L	-	<0.001	<0.0003	<0.0003	<0.0003
BH 6	2,4,6-Trichlorophenol	mg/L	20	<0.001	<0.0003	<0.0003	<0.0003
BH 6	2,4-Dichlorophenol	mg/L	160 *	<0.001	<0.0003	<0.0003	<0.0003
BH 6	2,5-Dichlorophenol	mg/L	-	<0.002	<0.0005	<0.0005	<0.0005
BH 6	2,6-Dichlorophenol	mg/L	-	<0.001	<0.0003	<0.0003	<0.0003
BH 6	2-Chlorophenol	mg/L	490 *	<0.001	<0.0003	<0.0003	<0.0003
BH 6	3,4-Dichlorophenol	mg/L	-	<0.002	<0.0005	<0.0005	<0.0005
BH 6	3,5-Dichlorophenol	mg/L	-	<0.002	<0.0005	<0.0005	<0.0005
BH 6	3,4,5-Trichlorophenol	mg/L	-	<0.002	<0.0005	<0.0005	<0.0005
BH 6	3-chlorophenol	mg/L	-	<0.002	<0.0005	<0.0005	<0.0005
BH 6	4-chlorophenol	mg/L	220	<0.002	<0.0005	<0.0005	<0.0005
BH 6	3,4,5-Trichlorophenol	mg/L	-	<0.002	<0.0006	<0.0006	<0.0006

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Site No	Analyte	Units	ANZECC 2000 Freshwater (95% Species)	Nov-15	Feb-16	Feb-17	Feb-18
BH7	Alkalinity (CaCO ₃)	mg/L	-	<1	<1	<1	<1
BH7	Aluminium	mg/L	0.056	0.47	0.51	1.34	0.31
BH7	Ammonia as N	mg/L	0.9 (pH 8) - 2.57 (pH 6)	0.13	0.19	<0.01	0.06
BH7	Arsenic	mg/L	0.024	<0.001	<0.001	<0.001	<0.001
BH7	Barium	mg/L	-	0.185	0.159	0.023	0.088
BH7	Benzene	mg/L	0.95 0.95	<0.001	<0.001	<1	<1
BH7	Bicarbonate	mg/L	-	<1	<1	<1	<1
BH7	Cadmium	mg/L	0.0002	<0.0001	<0.0001	<0.0001	<0.0001
BH7	Calcium	mg/L	-	53	46	9	26
BH7	Carbonate	mg/L	-	<1	<1	<1	<1
BH7	Chloride	mg/L	-	985	699	74	574
BH7	Hexavalent Chromium	mg/L	0.001	<0.001	<0.01	<0.01	<0.01
BH7	Total Chromium	mg/L	0.002 HMTV CrVI	<0.001	<0.001	0.002	<0.001
BH7	Cobalt	mg/L	-	0.018	0.016	0.002	0.01
BH7	Copper	mg/L	0.0014 (HMTV 0.003)	0.005	0.016	0.004	0.037
BH7	Ethyl Benzene	mg/L	0.14 **	<0.002	<0.002	<2	<2
BH7	Fluoride	mg/L	-	<0.1	<0.1	<0.1	0.3
BH7	Lead	mg/L	0.0034	0.002	0.004	0.002	0.002
BH7	Magnesium	mg/L	-	62	62	8	34
BH7	Manganese	mg/L	1.9	0.416	0.347	0.026	0.197
BH7	Mercury	mg/L	0.0006	<0.0001	<0.0001	<0.0001	<0.0001
BH7	Nitrate	mg/L	0.7	0.01	0.08	2.54	0.22
BH7	Nitrite	mg/L	-	<0.01	0.03	<0.01	<0.01
BH7	OCPPs	mg/L	-	-	-	-	-
BH7	Aldrin	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH7	alpha-BHC	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH7	alpha-Endosulphan	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH7	beta-BHC	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH7	beta-Endosulphan	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH7	Chlordane	mg/L	0.00008	<0.0005	<0.0005	<0.5	<0.5
BH7	cis-Chlordane	-	-	<0.0005	<0.0005	<0.5	<0.5
BH7	trans-Chlordane	-	-	<0.0005	<0.0005	<0.5	<0.5
BH7	DDD	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH7	DDE	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH7	DDT	mg/L	0.00001	<0.002	<0.002	<2.0	<2.0
BH7	delta-BHC	-	-	<0.0005	<0.0005	<0.5	<0.5
BH7	Dieldrin	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH7	Endosulphan Sulphate	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH7	Endrin	mg/L	0.00002	<0.0005	<0.0005	<0.5	<0.5
BH7	Endrin ketone	-	-	<0.0005	<0.0005	<0.5	<0.5
BH7	Endrin Aldehyde	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH7	gamma-BHC	-	-	<0.0005	<0.0005	<0.5	<0.5
BH7	Heptachlor	mg/L	0.00009	<0.0005	<0.0005	<0.5	<0.5
BH7	Heptachlor Epoxide	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH7	Hexachlorobenzene	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH7	Lindane	mg/L	0.0002	#N/A	-	<0.5	<0.5
BH7	Methoxychlor	mg/L	-	<0.002	<0.002	<2.0	<2.0

TABLE 7: Annual Water Quality Monitoring Results (2017-2018)
West Nowra Recycling and Waste Facility : EPL 5877

Site No	Analyte	Units	ANZECC 2000 Freshwater (95% Species)	Nov-15	Feb-16	Feb-17	Feb-18
BH7	OPPs	mg/L	-	-	-	-	-
BH7	Chlorpyrifos	mg/L	0.00001	<0.0005	<0.0005	<0.5	<0.5
BH7	Diazinon	mg/L	0.00001	<0.0005	<0.0005	<0.5	<0.5
BH7	Dichlorvos	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH7	Ethion	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH7	Fenithion	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH7	Malathion	mg/L	0.00005	<0.0005	<0.0005	<0.5	<0.5
BH7	Parathion	mg/L	0.000004	<0.002	<0.002	<2.0	<2.0
BH7	Demeton-S-methyl	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH7	Monocrotophos	mg/L	-	<0.002	<0.002	<2.0	<2.0
BH7	Dimethoate	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH7	Chlorpyrifos-methyl	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH7	Parathion-methyl	mg/L	-	<0.002	<0.002	<2.0	<2.0
BH7	Prinphos-ethyl	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH7	Bromophos-ethyl	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH7	Fenamiphos	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH7	Prothiofos	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH7	Carbophenothion	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH7	Azinphos Methyl	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH7	Chlorfenvinphos	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH7	Phosphate	mg/L	0.02 FRP*	<0.01	<0.01	<0.01	<0.01
BH7	PAHs	mg/L	-	-	-	-	-
BH7	Acenaphthene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH7	Acenaphthylene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH7	Anthracene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH7	Benzo(a)anthracene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH7	Benzo(e)pyrene	mg/L	-	<0.001	<0.0005	<0.5	<0.5
BH7	Benzo(b)&(k)fluoranthene	mg/L	-	<0.001	n/a	<1.0	<1.0
BH7	Benzo(b)fluoranthene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH7	Benzo(k)fluoranthene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH7	Benzo(g,h,i)perylene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH7	Chrysene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH7	Dibenz(a,h)anthracene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH7	Fluoranthene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH7	Fluorene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH7	Indeno(1,2,3-c,d)pyrene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH7	Naphthalene	mg/L	0.016	<0.001	<0.001	<1.0	<1.0
BH7	PAH (total)	mg/L	-	<0.0005	n/a	<0.5	<0.5
BH7	Phenanthrene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH7	Pyrene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH7	pH	pH units	8.0 - 6.5*	3.8	3.8	4.2	3.2
BH7	Potassium	mg/L	-	2	2	-	2
BH7	Redox Potential	units	-	355	134	-1	182
BH7	Sodium	mg/L	-	494	495	-	324
BH7	Standing water level	m AHD	-	29.6	30.7	30.3	29.4
BH7	Sulphate	mg/L	-	24	29	20	26
BH7	Toluene	mg/L	0.3 **	<0.002	<0.002	<2	<2
BH7	Total Phenolics	mg/L	0.32	<0.05	<0.05	<0.5	<0.05
BH7	Total Dissolved Solids	mg/L	1500 max - 85 min	1800	2070	228	850
BH7	Total Organic Carbon	mg/L	-	2.1	<0.2	6.7	4
BH7	TPHs	mg/L	-	-	-	-	-
BH7	C10-C14	mg/L	-	<0.05	<0.05	<60	<50
BH7	C15-C28	mg/L	-	<0.1	<0.1	<100	<100
BH7	C29-C36	mg/L	-	<0.05	<0.05	<50	<50
BH7	C10-C36	mg/L	10 **	<0.05	-	<50	<50
BH7	CS-C9	mg/L	7 (NEPM F1)	<0.02	<0.02	<20	<20
BH7	Xylene	mg/L	0.35	<0.002	<0.002	<2	<2
BH7	meta- & para-Xylene	mg/L	0.35	<0.002	<0.002	<2	<2
BH7	ortho-Xylene	mg/L	0.35	<0.002	<0.002	<2	<2
BH7	Zinc	mg/L	0.008 (HMTV 0.015)	0.1	0.104	0.027	0.111

TABLE 7: Annual Water Quality Monitoring Results (2017-2018)
West Nowra Recycling and Waste Facility : EPL 5877

Site No	Analyte	Units	ANZECC 2000 Freshwater (95% Species)	Nov-15	Feb-16	Feb-17	Feb-18
BH 10	Alkalinity (CaCO ₃)	mg/L	-	<1	9	6	2
BH 10	Aluminium	mg/L	0.056	9.32	21.9	27.6	6.11
BH 10	Ammonia as N	mg/L	0.9 (pH 8) - 2.57 (pH 6)	0.78	1.04	0.42	0.56
BH 10	Arsenic	mg/L	0.024	0.003	0.011	0.009	0.002
BH 10	Barium	mg/L	-	0.092	0.088	0.128	0.174
BH 10	Benzene	mg/L	0.95 0.95	<0.001	<0.001	<1	<1
BH 10	Bicarbonate	mg/L	-	<1	9	6	2
BH 10	Cadmium	mg/L	0.0002	<0.0001	<0.0001	0.0001	<0.0001
BH 10	Calcium	mg/L	-	13	7	17	23
BH 10	Carbonate	mg/L	-	<1	<1	<1	<1
BH 10	Chloride	mg/L	-	188	57	159	480
BH 10	Hexavalent Chromium	mg/L	0.001	<0.01	<0.01	<0.01	<0.01
BH 10	Total Chromium	mg/L	-	0.011	0.036	0.032	0.011
BH 10	Cobalt	mg/L	-	0.007	0.008	0.008	0.018
BH 10	Copper	mg/L	0.0014	0.009	0.032	0.049	0.175
BH 10	Ethyl Benzene	mg/L	0.14 **	<0.002	<0.002	<2	<2
BH 10	Fluoride	mg/L	-	<0.1	<0.1	<0.1	<0.1
BH 10	Lead	mg/L	0.0034	0.014	0.043	0.058	0.056
BH 10	Magnesium	mg/L	-	13	8	11	29
BH 10	Manganese	mg/L	1.9	0.193	0.12	0.186	0.463
BH 10	Mercury	mg/L	0.0006	<0.0001	<0.0001	<0.0001	<0.0001
BH 10	Nitrate	mg/L	0.7	0.05	<0.01	1.44	0.16
BH 10	Nitrite	mg/L	-	<0.01	0.02	0.06	<0.01
BH 10	OCP's	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 10	Aldrin	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 10	alpha-BHC	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 10	alpha-Endosulphan	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 10	beta-BHC	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 10	beta-Endosulphan	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 10	Chlordane	mg/L	0.00008	<0.0005	<0.0005	<0.5	<0.5
BH 10	cis-Chlordane	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 10	trans-Chlordane	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 10	DDD	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 10	DDE	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 10	DDT	mg/L	0.00001	<0.002	<0.002	<2.0	<2.0
BH 10	delta-BHC	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 10	Dieldrin	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 10	Endosulphan Sulphate	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 10	Endrin	mg/L	0.00002	<0.0005	<0.0005	<0.5	<0.5
BH 10	Endrin ketone	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 10	Endrin Aldehyde	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 10	gamma-BHC	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 10	Heptachlor	mg/L	0.00009	<0.0005	<0.0005	<0.5	<0.5
BH 10	Heptachlor Epoxide	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 10	Hexachlorobenzene	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 10	Lindane	mg/L	0.0002	#N/A	-	<0.5	<0.5
BH 10	Methoxychlor	mg/L	-	<0.002	<0.002	<2.0	<2.0

TABLE 7: Annual Water Quality Monitoring Results (2017-2018)
West Nowra Recycling and Waste Facility : EPL 5877

Site No	Analyte	Units	ANZECC 2000 Freshwater (95% Species)	Nov-15	Feb-16	Feb-17	Feb-18
BH 10	OPPs	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 10	Chlorpyrifos	mg/L	0.00001	<0.0005	<0.0005	<0.5	<0.5
BH 10	Diazinon	mg/L	0.00001	<0.0005	<0.0005	<0.5	<0.5
BH 10	Dichlorvos	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 10	Ethion	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 10	Fenthion	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 10	Malathion	mg/L	0.00005	<0.0005	<0.0005	<0.5	<0.5
BH 10	Parathion	mg/L	0.000004	<0.002	<0.002	<2.0	<2.0
BH 10	Demeton-S-methyl	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 10	Monocrotophos	mg/L	-	<0.002	<0.002	<2.0	<2.0
BH 10	Dimethoate	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 10	Chlorpyrifos-methyl	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 10	Parathion-methyl	mg/L	-	<0.002	<0.002	<2.0	<2.0
BH 10	Primphos-ethyl	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 10	Bromophos-ethyl	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 10	Fenamiphos	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 10	Prothiofos	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 10	Carbophenothion	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 10	Azinphos Methyl	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 10	Chlorfenvinphos	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 10	Phosphate	mg/L	0.02 FRP*	<0.01	<0.01	<0.01	<0.01
BH 10	PAHs	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 10	Acenaphthene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 10	Acenaphthylene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 10	Anthracene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 10	Benzo(a)anthracene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 10	Benzo(a)pyrene	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 10	Benzo(b)&(k)fluoranthene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 10	Benzo(b)fluoranthene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 10	Benzo(k)fluoranthene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 10	Benzo(g,h,i)perylene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 10	Chrysene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 10	Dibenz(a,h)anthracene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 10	Fluoranthene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 10	Fluorene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 10	Indeno(1,2,3-c,d)pyrene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 10	Naphthalene	mg/L	0.016	<0.001	<0.001	<1.0	<1.0
BH 10	PAH (total)	mg/L	-	<0.0005	-	<0.5	<0.5
BH 10	Phenanthrene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 10	Pyrene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 10	pH	pH units	8.0 - 8.5*	5.8	5.7	5.2	4.7
BH 10	Potassium	mg/L	-	1	1	-	3
BH 10	Redox Potential	units	-	304	-67.5	-11.9	146
BH 10	Sodium	mg/L	-	83	49	-	241
BH 10	Standing water level	m AHD	-	33.8	33.8	32.3	33.05
BH 10	Sulphate	mg/L	-	5	12	23	14
BH 10	Toluene	mg/L	0.3 **	<0.002	0.01	<2	<2
BH 10	Total Phenolics	mg/L	0.32	0.06	0.08	<0.5	—
BH 10	Total Dissolved Solids	mg/L	1500 max - 85 min	286	368	459	767
BH 10	Total Organic Carbon	mg/L	-	8.2	13.5	38.1	14
BH 10	TPHs	mg/L	-	-	-	-	-
BH 10	C10-C14	mg/L	-	<0.05	0.32	<60	<50
BH 10	C15-C28	mg/L	-	<0.1	0.31	<100	<100
BH 10	C29-C36	mg/L	-	<0.05	0.1	<50	<50
BH 10	C10-C36	mg/L	10 **	<0.05	-	<50	<50
BH 10	CS-C9	mg/L	7 (NEPM F1)	<0.02	0.02	<20	<20
BH 10	Xylene	mg/L	0.35	<0.002	<0.02	<2	<2
BH 10	meta- & para-Xylene	mg/L	0.35	<0.002	<0.02	<2	<2
BH 10	ortho-Xylene	mg/L	0.35	<0.002	<0.02	<2	<2
BH 10	Zinc	mg/L	0.008	0.078	0.162	0.377	0.453

TABLE 7: Annual Water Quality Monitoring Results (2017-2018)
West Nowra Recycling and Waste Facility : EPL 5877

Site No	Analyte	Units	ANZECC 2000 Freshwater (95% Species)	Nov-15	Feb-16	Feb-17	Feb-18
BH 11	Alkalinity (CaCO ₃)	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Aluminium	mg/L	0.055	Dry	Dry	Dry	Dry
BH 11	Ammonia as N	mg/L	0.9 (pH 8) - 2.57 (pH 6)	Dry	Dry	Dry	Dry
BH 11	Arsenic	mg/L	0.024	Dry	Dry	Dry	Dry
BH 11	Barium	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Benzene	mg/L	0.95 0.95	Dry	Dry	Dry	Dry
BH 11	Bicarbonate	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Cadmium	mg/L	0.0002	Dry	Dry	Dry	Dry
BH 11	Calcium	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Carbonate	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Chloride	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Hexavalent Chromium	mg/L	0.001	Dry	Dry	Dry	Dry
BH 11	Total Chromium	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Cobalt	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Copper	mg/L	0.0014	Dry	Dry	Dry	Dry
BH 11	Ethyl- Benzene	mg/L	0.14 **	Dry	Dry	Dry	Dry
BH 11	Fluoride	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Lead	mg/L	0.0034	Dry	Dry	Dry	Dry
BH 11	Magnesium	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Manganese	mg/L	1.9	Dry	Dry	Dry	Dry
BH 11	Mercury	mg/L	0.0006	Dry	Dry	Dry	Dry
BH 11	Nitrate	mg/L	0.7	Dry	Dry	Dry	Dry
BH 11	Nitrite	mg/L	-	Dry	Dry	Dry	Dry
BH 11	OCP's	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Aldrin	mg/L	-	Dry	Dry	Dry	Dry
BH 11	alpha-BHC	mg/L	-	Dry	Dry	Dry	Dry
BH 11	alpha-Endosulphan	mg/L	-	Dry	Dry	Dry	Dry
BH 11	beta-BHC	mg/L	-	Dry	Dry	Dry	Dry
BH 11	beta-Endosulphan	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Chlordane	mg/L	0.00008	Dry	Dry	Dry	Dry
BH 11	cis-Chlordane	mg/L	-	Dry	Dry	Dry	Dry
BH 11	trans-Chlordane	mg/L	-	Dry	Dry	Dry	Dry
BH 11	DDD	mg/L	-	Dry	Dry	Dry	Dry
BH 11	DDE	mg/L	-	Dry	Dry	Dry	Dry
BH 11	DDT	mg/L	0.00001	Dry	Dry	Dry	Dry
BH 11	delta-BHC	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Dieldrin	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Endosulphan Sulphate	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Endrin	mg/L	0.00002	Dry	Dry	Dry	Dry
BH 11	Endrin ketone	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Endrin Aldehyde	mg/L	-	Dry	Dry	Dry	Dry
BH 11	gamma-BHC	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Heptachlor	mg/L	0.00009	Dry	Dry	Dry	Dry
BH 11	Heptachlor Epoxide	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Hexachlorobenzene	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Lindane	mg/L	0.0002	Dry	Dry	Dry	Dry
BH 11	Methoxychlor	mg/L	-	Dry	Dry	Dry	Dry

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Site No	Analyte	Units	ANZECC 2000 Freshwater (95% Species)	Nov-15	Feb-16	Feb-17	Feb-18
BH 11	OPPs	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Chlorpyrifos	mg/L	0.00001	Dry	Dry	Dry	Dry
BH 11	Diazinon	mg/L	0.00001	Dry	Dry	Dry	Dry
BH 11	Dichlorvos	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Ethion	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Fenthion	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Malathion	mg/L	0.00005	Dry	Dry	Dry	Dry
BH 11	Parathion	mg/L	0.000004	Dry	Dry	Dry	Dry
BH 11	Demeton-S-methyl	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Monocrotophos	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Dimethoate	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Chlorpyrifos-methyl	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Parathion-methyl	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Phosphos-ethyl	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Bromophos-ethyl	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Fenamiphos	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Prothiofos	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Carbophenothion	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Azinphos Methyl	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Chlorfenvinphos	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Phosphate	mg/L	0.02 FRP*	Dry	Dry	Dry	Dry
BH 11	PAHs	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Acenaphthene	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Acenaphthylene	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Anthracene	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Benzo(a)anthracene	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Benzo(a)pyrene	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Benzo(b)&(k)fluoranthene	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Benzo(b)fluoranthene	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Benzo(k)fluoranthene	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Benzo(g,h,i)perylene	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Chrysene	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Dibenz(a,h)anthracene	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Fluoranthene	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Fluorene	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Indeno(1,2,3-c,d)pyrene	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Naphthalene	mg/L	0.016	Dry	Dry	Dry	Dry
BH 11	PAH (total)	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Phenanthrene	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Pyrene	mg/L	-	Dry	Dry	Dry	Dry
BH 11	pH	pH units	8.0 - 6.5*	Dry	Dry	Dry	Dry
BH 11	Potassium	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Redox Potential	units	-	Dry	Dry	Dry	Dry
BH 11	Sodium	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Standing water level	m AHD	-	Dry	Dry	Dry	Dry
BH 11	Sulphate	mg/L	-	Dry	Dry	Dry	Dry
BH 11	Toluene	mg/L	0.3 **	Dry	Dry	Dry	Dry
BH 11	Total Phenolics	mg/L	0.32	Dry	Dry	Dry	Dry
BH 11	Total Dissolved Solids	mg/L	1500 max - 85 min	Dry	Dry	Dry	Dry
BH 11	Total Organic Carbon	mg/L	-	Dry	Dry	Dry	Dry
BH 11	TPHs	mg/L	-	Dry	Dry	Dry	Dry
BH 11	C10-C14	mg/L	-	Dry	Dry	Dry	Dry
BH 11	C15-C28	mg/L	-	Dry	Dry	Dry	Dry
BH 11	C29-C36	mg/L	-	Dry	Dry	Dry	Dry
BH 11	C10-C36	mg/L	10 **	Dry	Dry	Dry	Dry
BH 11	CS-CS	mg/L	7 (NEPM F1)	Dry	Dry	Dry	Dry
BH 11	Xylene	mg/L	0.35	Dry	Dry	Dry	Dry
BH 11	meta- & para-Xylene	mg/L	0.35	Dry	Dry	Dry	Dry
BH 11	ortho-Xylene	mg/L	0.35	Dry	Dry	Dry	Dry
BH 11	Zinc	mg/L	0.008	Dry	Dry	Dry	Dry

TABLE 7: Annual Water Quality Monitoring Results (2017-2018)
West Nowra Recycling and Waste Facility : EPL 5877

Site No	Analyte	Units	ANZECC 2000 Freshwater (95% Species)	Nov-15	Feb-16	Feb-17	Feb-18
BH 12	Alkalinity (CaCO ₃)	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Aluminium	mg/L	0.055	#N/A	#N/A	#N/A	#N/A
BH 12	Ammonia as N	mg/L	0.9 (pH 8) - 2.57 (pH 6)	#N/A	#N/A	#N/A	#N/A
BH 12	Arsenic	mg/L	0.024	#N/A	#N/A	#N/A	#N/A
BH 12	Barium	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Benzene	mg/L	0.95 0.95	#N/A	#N/A	#N/A	#N/A
BH 12	Bicarbonate	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Cadmium	mg/L	0.0002	#N/A	#N/A	#N/A	#N/A
BH 12	Calcium	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Carbonate	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Chloride	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Hexavalent Chromium	mg/L	0.001	#N/A	#N/A	#N/A	#N/A
BH 12	Total Chromium	mg/L	0.005 HMTV CrVI	#N/A	#N/A	#N/A	#N/A
BH 12	Cobalt	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Copper	mg/L	0.0014 (HMTV 0.008)	#N/A	#N/A	#N/A	#N/A
BH 12	Ethyl Benzene	mg/L	0.14 **	#N/A	#N/A	#N/A	#N/A
BH 12	Fluoride	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Lead	mg/L	0.0034 (HMTV 0.046)	#N/A	#N/A	#N/A	#N/A
BH 12	Magnesium	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Manganese	mg/L	1.9	#N/A	#N/A	#N/A	#N/A
BH 12	Mercury	mg/L	0.0006	#N/A	#N/A	#N/A	#N/A
BH 12	Nitrate	mg/L	0.7	#N/A	#N/A	#N/A	#N/A
BH 12	Nitrite	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	OCP's	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Aldrin	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	alpha-BHC	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	alpha-Endosulphan	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	beta-BHC	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	beta-Endosulphan	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Chlordane	mg/L	0.00008	#N/A	#N/A	#N/A	#N/A
BH 12	cis-Chlordane	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	trans-Chlordane	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	DDD	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	DDE	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	DDT	mg/L	0.00001	#N/A	#N/A	#N/A	#N/A
BH 12	delta-BHC	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Dieldrin	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Endosulphan Sulphate	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Endrin	mg/L	0.00002	#N/A	#N/A	#N/A	#N/A
BH 12	Endrin ketone	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Endrin Aldehyde	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	gamma-BHC	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Heptachlor	mg/L	0.00009	#N/A	#N/A	#N/A	#N/A
BH 12	Heptachlor Epoxide	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Hexachlorobenzene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Lindane	mg/L	0.0002	#N/A	#N/A	#N/A	#N/A
BH 12	Methoxychlor	mg/L	-	#N/A	#N/A	#N/A	#N/A

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West Nowra Recycling and Waste Facility : EPL 5877

Site No	Analyte	Units	ANZECC 2000 Freshwater (95% Species)	Nov-15	Feb-16	Feb-17	Feb-18
BH 12	OPPs	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Chlorpyrifos	mg/L	0.00001	#N/A	#N/A	#N/A	#N/A
BH 12	Diazinon	mg/L	0.00001	#N/A	#N/A	#N/A	#N/A
BH 12	Dichlorvos	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Ethion	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Fenthion	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Malathion	mg/L	0.00005	#N/A	#N/A	#N/A	#N/A
BH 12	Parathion	mg/L	0.000004	#N/A	#N/A	#N/A	#N/A
BH 12	Demeton-S-methyl	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Monocrotophos	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Dimethoate	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Chlorpyrifos-methyl	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Carbofenthrin-methyl	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Phosphos-ethyl	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Bromophos-ethyl	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Fenamiphos	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Prothiofos	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Carbophenothion	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Azinphos Methyl	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Chlorfenvinphos	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Phosphate	mg/L	0.02 FRP*	#N/A	#N/A	#N/A	#N/A
BH 12	PAHs	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Acenaphthene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Acenaphthylene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Anthracene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Benzo(a)anthracene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Benzo(b)fluoranthene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Benzo(b)fluoranthene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Benzo(k)fluoranthene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Benzo(g,h,i)perylene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Chrysene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Dibenz(a,h)anthracene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Fluoranthene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Fluorene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Indeno(1,2,3-c,d)pyrene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Naphthalene	mg/L	0.016	#N/A	#N/A	#N/A	#N/A
BH 12	PAH (total)	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Phenanthrene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Pyrene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	pH	pH units	8.0 - 6.5*	#N/A	#N/A	#N/A	#N/A
BH 12	Potassium	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Redox Potential	units	-	#N/A	#N/A	#N/A	#N/A
BH 12	Sodium	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Standing water level	m AHD	-	#N/A	#N/A	#N/A	#N/A
BH 12	Sulphate	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	Toluene	mg/L	0.3 **	#N/A	#N/A	#N/A	#N/A
BH 12	Total Phenolics	mg/L	0.32	#N/A	#N/A	#N/A	#N/A
BH 12	Total Dissolved Solids	mg/L	1500 max - 85 min	#N/A	#N/A	#N/A	#N/A
BH 12	Total Organic Carbon	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	TPHs	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	C10-C14	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	C15-C28	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	C29-C36	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	C10-C36	mg/L	10 **	#N/A	#N/A	#N/A	#N/A
BH 12	CS-C9	mg/L	7 (NEPM F1)	#N/A	#N/A	#N/A	#N/A
BH 12	Xylene	mg/L	0.35	#N/A	#N/A	#N/A	#N/A
BH 12	meta- & para-Xylene	mg/L	0.35	#N/A	#N/A	#N/A	#N/A
BH 12	ortho-Xylene	mg/L	0.35	#N/A	#N/A	#N/A	#N/A
BH 12	Zinc	mg/L	0.008 (HMTV 0.046)	#N/A	#N/A	#N/A	#N/A
BH 12	2,3,4,5-Tetrachlorophenol	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	2,3,4,6-Tetrachlorophenol	mg/L	20	#N/A	#N/A	#N/A	#N/A
BH 12	2,3,4-Trichlorophenol	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	2,3,5,6-Tetrachlorophenol	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	2,3,5-Trichlorophenol	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	2,3,6-Trichlorophenol	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	2,3-Dichlorophenol	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	2,4,5-Trichlorophenol	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	2,4,6-Trichlorophenol	mg/L	20	#N/A	#N/A	#N/A	#N/A
BH 12	2,4-Dichlorophenol	mg/L	160 *	#N/A	#N/A	#N/A	#N/A
BH 12	2,5-Dichlorophenol	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	2,6-Dichlorophenol	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	2-Chlorophenol	mg/L	490 *	#N/A	#N/A	#N/A	#N/A
BH 12	3,4-Dichlorophenol	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	3,5-Dichlorophenol	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	3,4,5-Trichlorophenol	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	3-chlorophenol	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 12	4-chlorophenol	mg/L	220	#N/A	#N/A	#N/A	#N/A
BH 12	3,4,5-Trichlorophenol	mg/L	-	#N/A	#N/A	#N/A	#N/A

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West Nowra Recycling and Waste Facility : EPL 5877

Site No	Analyte	Units	ANZECC 2000 Freshwater (95% Species)	Nov-15	Feb-16	Feb-17	Feb-18
BH 13	Alkalinity (CaCO ₃)	mg/L	-	39	35	37	24
BH 13	Aluminium	mg/L	0.056	0.3	0.56	0.16	0.55
BH 13	Ammonia as N	mg/L	0.9 (pH 8) - 2.57 (pH 6)	0.34	0.68	0.76	0.5
BH 13	Arsenic	mg/L	0.024	0.028	0.076	0.045	0.076
BH 13	Barium	mg/L	-	0.111	0.132	0.119	0.113
BH 13	Benzene	mg/L	0.95 0.95	<0.001	<0.001	<1	<1
BH 13	Bicarbonate	mg/L	-	<1	35	37	24
BH 13	Cadmium	mg/L	0.0002	<0.0001	<0.0001	<0.0001	<0.0001
BH 13	Calcium	mg/L	-	4	4	3	3
BH 13	Carbonate	mg/L	-	<1	<1	<1	<1
BH 13	Chloride	mg/L	-	1070	1090	997	1030
BH 13	Hexavalent Chromium	mg/L	0.001	<0.01	<0.01	<0.01	<0.01
BH 13	Total Chromium	mg/L	0.002 HMTV CrVI	<0.001	<0.001	0.001	<0.001
BH 13	Cobalt	mg/L	0.001	0.001	0.001	0.001	0.001
BH 13	Copper	mg/L	0.0014 (HMTV 0.003)	0.002	0.005	<0.001	0.073
BH 13	Ethyl Benzene	mg/L	0.14 **	<0.002	<0.002	<2	<2
BH 13	Fluoride	mg/L	-	<0.1	<0.1	<0.1	<0.1
BH 13	Lead	mg/L	0.0034 (HMTV 0.009)	0.001	0.003	<0.001	0.019
BH 13	Magnesium	mg/L	-	15	17	13	14
BH 13	Manganese	mg/L	1.9	0.125	0.141	0.138	0.129
BH 13	Mercury	mg/L	0.0006	<0.0001	<0.0001	<0.0001	<0.0001
BH 13	Nitrate	mg/L	0.7	<0.01	<0.05	<0.01	<0.05
BH 13	Nitrite	mg/L	-	<0.01	<0.05	<0.01	<0.05
BH 13	OCP's	mg/L	-	-	-	-	-
BH 13	Aldrin	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 13	alpha-BHC	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 13	alpha-Endosulphan	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 13	beta-BHC	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 13	beta-Endosulphan	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 13	Chlordane	mg/L	0.00008	<0.0005	<0.0005	<0.5	<0.5
BH 13	cis-Chlordane	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 13	trans-Chlordane	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 13	DDD	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 13	DDE	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 13	DDT	mg/L	0.00001	<0.002	<0.002	<2.0	<2.0
BH 13	delta-BHC	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 13	Dieldrin	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 13	Endosulphan Sulphate	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 13	Endrin	mg/L	0.00002	<0.0005	<0.0005	<0.5	<0.5
BH 13	Endrin ketone	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 13	Endrin Aldehyde	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 13	gamma-BHC	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 13	Heptachlor	mg/L	0.00009	<0.0005	<0.0005	<0.5	<0.5
BH 13	Heptachlor Epoxide	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 13	Hexachlorobenzene	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 13	Lindane	mg/L	0.0002	#N/A	#N/A	<0.5	<0.5
BH 13	Methoxychlor	mg/L	-	<0.002	<0.002	<2.0	<2.0

TABLE 7: Annual Water Quality Monitoring Results (2017-2018)
West Nowra Recycling and Waste Facility : EPL 5877

Site No	Analyte	Units	ANZECC 2000 Freshwater (95% Species)	Nov-15	Feb-16	Feb-17	Feb-18
BH 13	OPPs	mg/L	-	-	-	-	-
BH 13	Chlorpyrifos	mg/L	0.00001	<0.0005	<0.0005	<0.5	<0.5
BH 13	Diazinon	mg/L	0.00001	<0.0005	<0.0005	<0.5	<0.5
BH 13	Dichlorvos	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 13	Ethion	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 13	Fenthion	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 13	Malathion	mg/L	0.00005	<0.0005	<0.0005	<0.5	<0.5
BH 13	Parathion	mg/L	0.000004	<0.002	<0.002	<2.0	<2.0
BH 13	Demeton-S-methyl	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 13	Monocrotophos	mg/L	-	<0.002	<0.002	<2.0	<2.0
BH 13	Dimethoate	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 13	Chlorpyrifos-methyl	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 13	Permethrin-methyl	mg/L	-	<0.002	<0.002	<2.0	<2.0
BH 13	Primphos-ethyl	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 13	Bromophos-ethyl	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 13	Fenamiphos	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 13	Prothiofos	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 13	Carbophenothion	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 13	Azinphos Methyl	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 13	Chlorfenvinphos	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 13	Phosphate	mg/L	0.02 FRP*	<0.01	<0.01	<0.01	<0.01
BH 13	PAHs	mg/L	-	-	-	-	-
BH 13	Acenaphthene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 13	Acenaphthylene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 13	Anthracene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 13	Benzo(a)anthracene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 13	Benzo(a)pyrene	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 13	Benzo(b)&(k)fluoranthene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 13	Benzo(b)fluoranthene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 13	Benzo(k)fluoranthene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 13	Benzo(g,h,i)perylene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 13	Chrysene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 13	Dibenz(a,h)anthracene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 13	Fluoranthene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 13	Fluorene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 13	Indeno(1,2,3-c,d)pyrene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 13	Naphthalene	mg/L	0.016	<0.001	<0.001	<1.0	<1.0
BH 13	PAH (total)	mg/L	-	<0.0005	n/a	<0.5	<0.5
BH 13	Phenanthrene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 13	Pyrene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 13	pH	pH units	8.0 - 8.5*	4.9	5.1	4.9	4.9
BH 13	Potassium	mg/L	-	<1	<1	<1	<1
BH 13	Redox Potential	units	-	110	-64.5	-74	-46.8
BH 13	Sodium	mg/L	-	449	496	---	546
BH 13	Standing water level	m AHD	-	33.5	33.7	33.4	33.14
BH 13	Sulphate	mg/L	-	10	8	12	9
BH 13	Toluene	mg/L	0.3 **	<0.002	<0.002	<2	<2
BH 13	Total Phenolics	mg/L	0.32	<0.05	<0.05	<0.5	<0.05
BH 13	Total Dissolved Solids	mg/L	1500 max - 85 min	2080	2700	3560	1700
BH 13	Total Organic Carbon	mg/L	-	5.7	6.5	6.3	4
BH 13	TPHs	mg/L	-	-	-	-	-
BH 13	C10-C14	mg/L	-	<0.05	<0.05	<60	<50
BH 13	C15-C28	mg/L	-	<0.1	<0.1	<100	<100
BH 13	C29-C36	mg/L	-	<0.05	<0.05	<50	<50
BH 13	C10-C36	mg/L	10 **	<0.05	-	<50	<50
BH 13	CS-C9	mg/L	7 (NEPM F1)	<0.02	<0.02	<20	<20
BH 13	Xylene	mg/L	0.35	<0.002	<0.002	<2	<2
BH 13	meta- & para-Xylene	mg/L	0.35	<0.002	<0.002	<2	<2
BH 13	ortho-Xylene	mg/L	0.35	<0.002	<0.002	<2	<2
BH 13	Zinc	mg/L	0.008 (HMTV 0.015)	0.014	0.016	0.012	0.081

TABLE 7: Annual Water Quality Monitoring Results (2017-2018)
West Nowra Recycling and Waste Facility : EPL 5877

Site No	Analyte	Units	ANZECC 2000 Freshwater (95% Species)	Nov-15	Feb-16	Feb-17	Feb-18
BH 14	Alkalinity (CaCO ₃)	mg/L	-	#N/A	<1	<1	<1
BH 14	Aluminium	mg/L	0.056	#N/A	3.71	10.8	17
BH 14	Ammonia as N	mg/L	0.9 (pH 8) - 2.57 (pH 6)	#N/A	0.02	0.03	0.03
BH 14	Arsenic	mg/L	0.024	#N/A	<0.001	<0.001	<0.001
BH 14	Barium	mg/L	-	#N/A	0.028	0.075	0.1
BH 14	Benzene	mg/L	0.95	#N/A	<0.001	<1	<1
BH 14	Bicarbonate	mg/L	-	#N/A	<1	<1	<1
BH 14	Cadmium	mg/L	0.0002	#N/A	<0.0001	0.0003	0.0003
BH 14	Calcium	mg/L	-	#N/A	5	10	12
BH 14	Carbonate	mg/L	-	#N/A	<1	<1	<1
BH 14	Chloride	mg/L	-	#N/A	365	784	1060
BH 14	Hexavalent Chromium	mg/L	0.001	#N/A	<0.01	<0.01	<0.01
BH 14	Total Chromium	mg/L	-	#N/A	<0.001	0.01	<0.001
BH 14	Cobalt	mg/L	-	#N/A	0.01	0.024	0.027
BH 14	Copper	mg/L	0.0014	#N/A	0.046	0.021	0.175
BH 14	Ethyl Benzene	mg/L	0.14 **	#N/A	<0.002	<2	<2
BH 14	Fluoride	mg/L	1.5 ***	#N/A	0.1	0.4	0.2
BH 14	Lead	mg/L	0.0034	#N/A	0.008	0.01	0.04
BH 14	Magnesium	mg/L	-	#N/A	23	44	66
BH 14	Manganese	mg/L	1.9	#N/A	0.244	0.581	0.68
BH 14	Mercury	mg/L	0.0006	#N/A	<0.0001	<0.0001	<0.0001
BH 14	Nitrate	mg/L	0.7	#N/A	0.02	<0.01	<0.01
BH 14	Nitrite	mg/L	-	#N/A	<0.01	<0.01	<0.01
BH 14	OCP's	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 14	Aldrin	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 14	alpha-BHC	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 14	alpha-Endosulphan	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 14	beta-BHC	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 14	beta-Endosulphan	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 14	Chlordane	mg/L	0.00008	#N/A	<0.0005	<0.5	<0.5
BH 14	cis-Chlordane	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 14	trans-Chlordane	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 14	DDD	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 14	DDE	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 14	DDT	mg/L	0.00001	#N/A	<0.002	<2.0	<2.0
BH 14	delta-BHC	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 14	Dieldrin	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 14	Endosulphan Sulphate	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 14	Endrin	mg/L	0.00002	#N/A	<0.0005	<0.5	<0.5
BH 14	Endrin ketone	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 14	Endrin Aldehyde	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 14	gamma-BHC	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 14	Heptachlor	mg/L	0.00009	#N/A	<0.0005	<0.5	<0.5
BH 14	Heptachlor Epoxide	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 14	Hexachlorobenzene	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 14	Lindane	mg/L	0.0002	#N/A	-	<0.5	<0.5
BH 14	Methoxychlor	mg/L	-	#N/A	<0.002	<2.0	<2.0

TABLE 7: Annual Water Quality Monitoring Results (2017-2018)
West Nowra Recycling and Waste Facility : EPL 5877

Site No	Analyte	Units	ANZECC 2000 Freshwater (95% Species)	Nov-15	Feb-16	Feb-17	Feb-18
BH 14	OPPs	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 14	Chlorpyrifos	mg/L	0.00001	#N/A	<0.0005	<0.5	<0.5
BH 14	Diazinon	mg/L	0.00001	#N/A	<0.0005	<0.5	<0.5
BH 14	Dichlorvos	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 14	Ethion	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 14	Fenthion	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 14	Malathion	mg/L	0.00005	#N/A	<0.0005	<0.5	<0.5
BH 14	Parathion	mg/L	0.000004	#N/A	<0.002	<2.0	<2.0
BH 14	Demeton-S-methyl	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 14	Monocrotophos	mg/L	-	#N/A	<0.002	<2.0	<2.0
BH 14	Dimethoate	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 14	Chlorpyrifos-methyl	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 14	Parathion-methyl	mg/L	-	#N/A	<0.002	<2.0	<2.0
BH 14	Primphos-ethyl	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 14	Bromophos-ethyl	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 14	Fenamiphos	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 14	Prothiofos	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 14	Carbophenothion	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 14	Azinphos Methyl	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 14	Chlorfenvinphos	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 14	Phosphate	mg/L	0.02 FRP*	#N/A	<0.01	<0.01	<0.01
BH 14	PAHs	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 14	Acenaphthene	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 14	Acenaphthylene	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 14	Anthracene	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 14	Benzo(a)anthracene	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 14	Benzo(e)pyrene	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 14	Benzo(b)&(k)fluoranthene	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 14	Benzo(b)fluoranthene	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 14	Benzo(k)fluoranthene	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 14	Benzo(g,h,i)perylene	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 14	Chrysene	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 14	Dibenz(a,h)anthracene	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 14	Fluoranthene	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 14	Fluorene	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 14	Indeno(1,2,3-c,d)pyrene	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 14	Naphthalene	mg/L	0.016	#N/A	<0.001	<1.0	<1.0
BH 14	PAH (total)	mg/L	-	#N/A	-	<0.5	<0.5
BH 14	Phenanthrene	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 14	Pyrene	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 14	pH	pH units	8.0 - 6.5*	#N/A	3.7	3.5	3.1
BH 14	Potassium	mg/L	-	#N/A	1	---	---
BH 14	Redox Potential	units	-	#N/A	157	87.2	360
BH 14	Sodium	mg/L	-	#N/A	206	---	605
BH 14	Standing water level	m AHD	-	#N/A	36.6	36.4	36.43
BH 14	Sulphate	mg/L	-	#N/A	65	38	34
BH 14	Toluene	mg/L	0.3 **	#N/A	<0.002	<2	<2
BH 14	Total Phenolics	mg/L	0.32	#N/A	<0.05	<0.5	<0.05
BH 14	Total Dissolved Solids	mg/L	1500 max - 85 min	#N/A	907	1480	1680
BH 14	Total Organic Carbon	mg/L	-	#N/A	1.3	1.6	1
BH 14	TPHs	mg/L	-	#N/A	-	-	-
BH 14	C10-C14	mg/L	-	#N/A	<0.05	<60	<50
BH 14	C15-C28	mg/L	-	#N/A	<0.1	<100	<100
BH 14	C29-C36	mg/L	-	#N/A	<0.05	<50	<50
BH 14	C10-C36	mg/L	10 **	#N/A	-	<20	<20
BH 14	CS-CS9	mg/L	7 (NEPM F1)	#N/A	<0.02	<2	<2
BH 14	Xylene	mg/L	0.35	#N/A	<0.002	<2	<2
BH 14	meta- & para-Xylene	mg/L	0.35	#N/A	<0.002	<2	<2
BH 14	ortho-Xylene	mg/L	0.35	#N/A	<0.002	<2	<2
BH 14	Zinc	mg/L	0.008	#N/A	0.144	0.179	0.349

TABLE 7: Annual Water Quality Monitoring Results (2017-2018)
West Nowra Recycling and Waste Facility : EPL 5877

Site No	Analyte	Units	ANZECC 2000 Freshwater (95% Species)	Nov-15	Feb-16	Feb-17	Feb-18
BH 15	Alkalinity (CaCO ₃)	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Aluminium	mg/L	0.056	#N/A	#N/A	#N/A	#N/A
BH 15	Ammonia as N	mg/L	0.9 (pH 8) - 2.57 (pH 6)	#N/A	#N/A	#N/A	#N/A
BH 15	Arsenic	mg/L	0.024	#N/A	#N/A	#N/A	#N/A
BH 15	Barium	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Benzene	mg/L	0.95	#N/A	#N/A	#N/A	#N/A
BH 15	Bicarbonate	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Cadmium	mg/L	0.0002	#N/A	#N/A	#N/A	#N/A
BH 15	Calcium	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Carbonate	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Chloride	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Hexavalent Chromium	mg/L	0.001	#N/A	#N/A	#N/A	#N/A
BH 15	Total Chromium	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Cobalt	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Copper	mg/L	0.0014	#N/A	#N/A	#N/A	#N/A
BH 15	Ethyl Benzene	mg/L	0.14 **	#N/A	#N/A	#N/A	#N/A
BH 15	Fluoride	mg/L	1.5 ***	#N/A	#N/A	#N/A	#N/A
BH 15	Lead	mg/L	0.0034	#N/A	#N/A	#N/A	#N/A
BH 15	Magnesium	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Manganese	mg/L	1.9	#N/A	#N/A	#N/A	#N/A
BH 15	Mercury	mg/L	0.0006	#N/A	#N/A	#N/A	#N/A
BH 15	Nitrate	mg/L	0.7	#N/A	#N/A	#N/A	#N/A
BH 15	Nitrite	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	OCP's	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Aldrin	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	alpha-BHC	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	alpha-Endosulphan	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	beta-BHC	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	beta-Endosulphan	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Chlordane	mg/L	0.00008	#N/A	#N/A	#N/A	#N/A
BH 15	cis-Chlordane	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	trans-Chlordane	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	DDD	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	DDE	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	DDT	mg/L	0.00001	#N/A	#N/A	#N/A	#N/A
BH 15	delta-BHC	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Dieldrin	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Endosulphan Sulphate	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Endrin	mg/L	0.00002	#N/A	#N/A	#N/A	#N/A
BH 15	Endrin ketone	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Endrin Aldehyde	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	gamma-BHC	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Heptachlor	mg/L	0.00009	#N/A	#N/A	#N/A	#N/A
BH 15	Heptachlor Epoxide	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Hexachlorobenzene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Lindane	mg/L	0.0002	#N/A	#N/A	#N/A	#N/A
BH 15	Methoxychlor	mg/L	-	#N/A	#N/A	#N/A	#N/A

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West Nowra Recycling and Waste Facility : EPL 5877

Site No	Analyte	Units	ANZECC 2000 Freshwater (95% Species)	Nov-15	Feb-16	Feb-17	Feb-18
BH 15	OPPs	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Chlorpyrifos	mg/L	0.00001	#N/A	#N/A	#N/A	#N/A
BH 15	Diazinon	mg/L	0.00001	#N/A	#N/A	#N/A	#N/A
BH 15	Dichlorvos	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Ethion	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Fenthion	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Malathion	mg/L	0.00005	#N/A	#N/A	#N/A	#N/A
BH 15	Parathion	mg/L	0.000004	#N/A	#N/A	#N/A	#N/A
BH 15	Demeton-S-methyl	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Monocrotophos	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Dimethoate	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Chlorpyrifos-methyl	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Carbathion-methyl	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Prinphos-ethyl	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Bromophos-ethyl	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Fenamiphos	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Prothiofos	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Carbophenothion	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Azinphos Methyl	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Chlorfenvinphos	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Phosphate	mg/L	0.02 FRP*	#N/A	#N/A	#N/A	#N/A
BH 15	PAHs	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Acenaphthene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Acenaphthylene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Anthracene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Benzo(a)anthracene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Benzo(e)pyrene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Benzo(b)&(k)fluoranthene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Benzo(b)fluoranthene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Benzo(k)fluoranthene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Chrysene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Dibenz(a,h)perylene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Dibenz(a,h)anthracene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Fluoranthene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Fluorene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Indeno(1,2,3-c,d)pyrene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Naphthalene	mg/L	0.016	#N/A	#N/A	#N/A	#N/A
BH 15	PAH (total)	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Phenanthrene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Pyrene	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	pH	pH units	8.0 - 8.5*	#N/A	#N/A	#N/A	#N/A
BH 15	Potassium	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Redox Potential	units	-	#N/A	#N/A	#N/A	#N/A
BH 15	Sodium	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Standing water level	m AHD	-	#N/A	#N/A	#N/A	#N/A
BH 15	Sulphate	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	Toluene	mg/L	0.3 **	#N/A	#N/A	#N/A	#N/A
BH 15	Total Phenolics	mg/L	0.32	#N/A	#N/A	#N/A	#N/A
BH 15	Total Dissolved Solids	mg/L	1500 max - 85 min	#N/A	#N/A	#N/A	#N/A
BH 15	Total Organic Carbon	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	TPHs	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	C10-C14	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	C15-C28	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	C29-C36	mg/L	-	#N/A	#N/A	#N/A	#N/A
BH 15	C10-C36	mg/L	10 **	#N/A	#N/A	#N/A	#N/A
BH 15	CS-C9	mg/L	7 (NEPM F1)	#N/A	#N/A	#N/A	#N/A
BH 15	Xylene	mg/L	0.35	#N/A	#N/A	#N/A	#N/A
BH 15	meta- & para-Xylene	mg/L	0.35	#N/A	#N/A	#N/A	#N/A
BH 15	ortho-Xylene	mg/L	0.35	#N/A	#N/A	#N/A	#N/A
BH 15	Zinc	mg/L	0.008	#N/A	#N/A	#N/A	#N/A

TABLE 7: Annual Water Quality Monitoring Results (2017-2018)
West Nowra Recycling and Waste Facility : EPL 5877

Site No	Analyte	Units	ANZECC 2000 Freshwater (95% Species)	Nov-15	Feb-16	Feb-17	Feb-18
BH 16	Alkalinity (CaCO ₃)	mg/L	-	<1	<1	<1	<1
BH 16	Aluminium	mg/L	0.056	2.6	2.3	1.67	6.06
BH 16	Ammonia as N	mg/L	0.9 (pH 8) - 2.57 (pH 6)	<0.01	<0.001	<0.01	0.04
BH 16	Arsenic	mg/L	0.024	<0.001	0.01	<0.001	0.001
BH 16	Barium	mg/L	-	0.028	0.033	0.023	0.049
BH 16	Benzene	mg/L	0.95	<0.001	<0.001	<1	<1
BH 16	Bicarbonate	mg/L	-	<1	<1	<1	<1
BH 16	Cadmium	mg/L	0.0002	<0.0001	<0.0001	<0.0001	<0.0001
BH 16	Calcium	mg/L	-	8	8	3	7
BH 16	Carbonate	mg/L	-	<1	<1	<1	<1
BH 16	Chloride	mg/L	-	255	259	176	368
BH 16	Hexavalent Chromium	mg/L	0.001	<0.01	<0.01	<0.01	<0.01
BH 16	Total Chromium	mg/L	-	<0.001	<0.001	<0.001	0.003
BH 16	Cobalt	mg/L	-	0.003	0.004	0.003	0.005
BH 16	Copper	mg/L	0.0014	0.01	0.008	0.003	0.043
BH 16	Ethyl Benzene	mg/L	0.14 **	<0.002	<0.002	<2	<2
BH 16	Fluoride	mg/L	1.5 ***	<0.1	<0.1	<0.1	0.2
BH 16	Lead	mg/L	0.0034	0.001	<0.001	<0.001	0.007
BH 16	Magnesium	mg/L	-	14	15	6	18
BH 16	Manganese	mg/L	1.9	0.051	0.058	0.058	0.061
BH 16	Mercury	mg/L	0.0006	<0.0001	<0.0001	<0.0001	<0.0001
BH 16	Nitrate	mg/L	0.7	<0.01	<0.01	<0.01	<0.01
BH 16	Nitrite	mg/L	-	<0.01	0.02	<0.01	<0.01
BH 16	OCP's	mg/L	-	-	-	-	-
BH 16	Aldrin	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 16	alpha-BHC	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 16	alpha-Endosulphan	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 16	beta-BHC	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 16	beta-Endosulphan	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 16	Chlordane	mg/L	0.00008	<0.0005	<0.0005	<0.5	<0.5
BH 16	cis-Chlordane	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 16	trans-Chlordane	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 16	DDD	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 16	DDE	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 16	DDT	mg/L	0.00001	<0.002	<0.002	<2.0	<2.0
BH 16	delta-BHC	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 16	Dieldrin	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 16	Endosulphan Sulphate	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 16	Endrin	mg/L	0.00002	<0.0005	<0.0005	<0.5	<0.5
BH 16	Endrin ketone	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 16	Endrin Aldehyde	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 16	gamma-BHC	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 16	Heptachlor	mg/L	0.00009	<0.0005	<0.0005	<0.5	<0.5
BH 16	Heptachlor Epoxide	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 16	Hexachlorobenzene	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 16	Lindane	mg/L	0.0002	#N/A	-	<0.5	<0.5
BH 16	Methoxychlor	mg/L	-	<0.002	<0.002	<2.0	<2.0

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Site No	Analyte	Units	ANZECC 2000 Freshwater (95% Species)	Nov-15	Feb-16	Feb-17	Feb-18
BH 16	OPPs	mg/L	-	-	-	-	-
BH 16	Chlorpyrifos	mg/L	0.00001	<0.0005	<0.0005	<0.5	<0.5
BH 16	Diazinon	mg/L	0.00001	<0.0005	<0.0005	<0.5	<0.5
BH 16	Dichlorvos	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 16	Ethion	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 16	Fenthion	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 16	Malathion	mg/L	0.00005	<0.0005	<0.0005	<0.5	<0.5
BH 16	Parathion	mg/L	0.000004	<0.002	<0.003	<2.0	<2.0
BH 16	Demeton-S-methyl	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 16	Monocrotophos	mg/L	-	<0.002	<0.002	<2.0	<2.0
BH 16	Dimethoate	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 16	Chlorpyrifos-methyl	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 16	Parathion-methyl	mg/L	-	<0.002	<0.002	<2.0	<2.0
BH 16	Primphos-ethyl	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 16	Bromophos-ethyl	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 16	Fenamiphos	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 16	Prothiofos	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 16	Carbophenothion	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 16	Azinphos Methyl	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 16	Chlorfenvinphos	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 16	Phosphate	mg/L	0.02 FRP*	<0.01	<0.01	<0.01	<0.01
BH 16	PAHs	mg/L	-	-	-	-	-
BH 16	Acenaphthene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 16	Acenaphthylene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 16	Anthracene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 16	Benzo(a)anthracene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 16	Benzo(e)pyrene	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 16	Benzo(b)&(k)fluoranthene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 16	Benzo(b)fluoranthene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 16	Benzo(k)fluoranthene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 16	Benzo(g,h,i)perylene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 16	Chrysene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 16	Dibenz(a,h)anthracene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 16	Fluoranthene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 16	Fluorene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 16	Indeno(1,2,3-c,d)pyrene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 16	Naphthalene	mg/L	0.016	<0.001	<0.001	<1.0	<1.0
BH 16	PAH (total)	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 16	Phenanthrene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 16	Pyrene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 16	pH	pH units	8.0 - 8.5*	3.6	3.7	3.6	3.2
BH 16	Potassium	mg/L	-	<1	<1	<1	<1
BH 16	Redox Potential	units	-	395	100	2.2	241
BH 16	Sodium	mg/L	-	127	122	---	188
BH 16	Standing water level	m AHD	-	38.8	38.98	38.7	37.96
BH 16	Sulphate	mg/L	-	10	9	14	10
BH 16	Toluene	mg/L	0.3 **	<0.002	<0.002	<2	<2
BH 16	Total Phenolics	mg/L	0.32	<0.05	<0.05	<0.5	<0.05
BH 16	Total Dissolved Solids	mg/L	1500 max - 85 min	471	576	351	1130
BH 16	Total Organic Carbon	mg/L	-	<1.0	<0.2	1.6	<1
BH 16	TPHs	mg/L	-	-	-	-	-
BH 16	C10-C14	mg/L	-	<0.05	<50	<60	<50
BH 16	C15-C28	mg/L	-	<0.1	<100	<100	<100
BH 16	C29-C36	mg/L	-	<0.05	<50	<50	<50
BH 16	C10-C36	mg/L	10 **	<0.05	<100	<50	<50
BH 16	CS-C9	mg/L	7 (NEPM F1)	<0.02	<20	<20	<20
BH 16	Xylene	mg/L	0.35	<0.002	<0.002	<2	<2
BH 16	meta- & para-Xylene	mg/L	0.35	<0.002	<0.002	<2	<2
BH 16	ortho-Xylene	mg/L	0.35	<0.002	<0.002	<2	<2
BH 16	Zinc	mg/L	0.008	0.029	0.029	0.034	0.09

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Site No	Analyte	Units	ANZECC 2000 Freshwater (95% Species)	Nov-15	Feb-16	Feb-17	Feb-18
BH 17	Alkalinity (CaCO ₃)	mg/L	-	<1	<1	<1	<1
BH 17	Aluminium	mg/L	0.056	1.55	1.54	1.44	1.26
BH 17	Ammonia as N	mg/L	0.9 (pH 8) - 2.57 (pH 6)	<0.01	<0.01	<0.01	0.02
BH 17	Arsenic	mg/L	0.024	<0.001	<0.001	<0.001	<0.001
BH 17	Barium	mg/L	-	0.026	0.031	0.03	0.028
BH 17	Benzene	mg/L	0.95	<0.001	<0.001	<1	<1
BH 17	Bicarbonate	mg/L	-	<1	<1	<1	<1
BH 17	Cadmium	mg/L	0.0002	<0.0001	<0.0001	<0.0001	<0.0001
BH 17	Calcium	mg/L	-	10	10	10	10
BH 17	Carbonate	mg/L	-	<1	<1	<1	<1
BH 17	Chloride	mg/L	-	216	215	203	219
BH 17	Hexavalent Chromium	mg/L	0.001	<0.01	<0.01	<0.01	<0.01
BH 17	Total Chromium	mg/L	-	<0.001	0.002	<0.001	<0.001
BH 17	Cobalt	mg/L	-	0.003	0.003	0.003	0.002
BH 17	Copper	mg/L	0.0014	0.007	0.009	0.007	0.014
BH 17	Ethyl Benzene	mg/L	0.14 **	<0.002	<0.002	<2	<2
BH 17	Fluoride	mg/L	1.5 ***	<0.1	<0.1	<0.1	<0.1
BH 17	Lead	mg/L	0.0034	<0.001	<0.001	<0.001	<0.001
BH 17	Magnesium	mg/L	-	13	14	11	13
BH 17	Manganese	mg/L	1.9	0.055	0.06	0.06	0.056
BH 17	Mercury	mg/L	0.0006	<0.0001	<0.0001	<0.0001	<0.0001
BH 17	Nitrate	mg/L	0.7	<0.01	<0.01	<0.01	<0.01
BH 17	Nitrite	mg/L	-	<0.01	<0.01	<0.01	<0.01
BH 17	OCP's	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 17	Aldrin	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 17	alpha-BHC	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 17	alpha-Endosulphan	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 17	beta-BHC	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 17	beta-Endosulphan	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 17	Chlordane	mg/L	0.00008	<0.0005	<0.0005	<0.5	<0.5
BH 17	cis-Chlordane	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 17	trans-Chlordane	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 17	DDD	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 17	DDE	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 17	DDT	mg/L	0.00001	<0.002	<0.002	<2.0	<2.0
BH 17	delta-BHC	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 17	Dieldrin	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 17	Endosulphan Sulphate	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 17	Endrin	mg/L	0.00002	<0.0005	<0.0005	<0.5	<0.5
BH 17	Endrin ketone	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 17	Endrin Aldehyde	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 17	gamma-BHC	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 17	Heptachlor	mg/L	0.00009	<0.0005	<0.0005	<0.5	<0.5
BH 17	Heptachlor Epoxide	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 17	Hexachlorobenzene	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 17	Lindane	mg/L	0.0002	#N/A	-	<0.5	<0.5
BH 17	Methoxychlor	mg/L	-	<0.002	<0.002	<2.0	<2.0

TABLE 7: Annual Water Quality Monitoring Results (2017-2018)
West Nowra Recycling and Waste Facility : EPL 5877

Site No	Analyte	Units	ANZECC 2000 Freshwater (95% Species)	Nov-15	Feb-16	Feb-17	Feb-18
BH 17	OPPs	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 17	Chlorpyrifos	mg/L	0.00001	<0.0005	<0.0005	<0.5	<0.5
BH 17	Diazinon	mg/L	0.00001	<0.0005	<0.0005	<0.5	<0.5
BH 17	Dichlorvos	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 17	Ethion	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 17	Fenthion	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 17	Malathion	mg/L	0.00005	<0.0005	<0.0005	<0.5	<0.5
BH 17	Parathion	mg/L	0.000004	<0.002	<0.002	<2.0	<2.0
BH 17	Demeton-S-methyl	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 17	Monocrotophos	mg/L	-	<0.002	<0.002	<2.0	<2.0
BH 17	Dimethoate	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 17	Chlorpyrifos-methyl	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 17	Parathion-methyl	mg/L	-	<0.002	<0.002	<2.0	<2.0
BH 17	Primphos-ethyl	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 17	Bromophos-ethyl	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 17	Fenamiphos	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 17	Prothiofos	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 17	Carbophenothion	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 17	Azinphos Methyl	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 17	Chlorfenvinphos	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 17	Phosphate	mg/L	0.02 FRP*	<0.01	<0.01	<0.01	<0.01
BH 17	PAHs	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 17	Acenaphthene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 17	Acenaphthylene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 17	Anthracene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 17	Benzo(a)anthracene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 17	Benzo(e)pyrene	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 17	Benzo(b)&(k)fluoranthene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 17	Benzo(b)fluoranthene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 17	Benzo(k)fluoranthene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 17	Benzo(g,h,i)perylene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 17	Chrysene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 17	Dibenz(a,h)anthracene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 17	Fluoranthene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 17	Fluorene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 17	Indeno(1,2,3-c,d)pyrene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 17	Naphthalene	mg/L	0.016	<0.001	<0.001	<1.0	<1.0
BH 17	PAH (total)	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
BH 17	Phenanthrene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 17	Pyrene	mg/L	-	<0.001	<0.001	<1.0	<1.0
BH 17	pH	pH units	8.0 - 8.5*	3.9	4	4	3.6
BH 17	Potassium	mg/L	-	4	<1	-	<1
BH 17	Redox Potential	units	-	314	104	-10.5	236
BH 17	Sodium	mg/L	-	102	104	-	94
BH 17	Standing water level	m AHD	-	38.8	38.96	38.6	37.94
BH 17	Sulphate	mg/L	-	5	5	4	4
BH 17	Toluene	mg/L	0.3 **	<0.002	<0.002	<2	<2
BH 17	Total Phenolics	mg/L	0.32	<0.05	<0.05	<0.5	<0.05
BH 17	Total Dissolved Solids	mg/L	1500 max - 85 min	414	476	423	317
BH 17	Total Organic Carbon	mg/L	-	<1.0	<0.2	<1.0	<1
BH 17	TPHs	mg/L	-	<0.05	<50	<60	<50
BH 17	C10-C14	mg/L	-	<0.05	<50	<100	<100
BH 17	C15-C28	mg/L	-	<0.05	<50	<50	<50
BH 17	C29-C36	mg/L	-	<0.05	<100	<50	<50
BH 17	C10-C36	mg/L	10 **	<0.05	<100	<50	<50
BH 17	CS-C9	mg/L	7 (NEPM F1)	<0.02	<20	<20	<20
BH 17	Xylene	mg/L	0.35	<0.002	<0.002	<2	<2
BH 17	meta- & para-Xylene	mg/L	0.35	<0.002	<0.002	<2	<2
BH 17	ortho-Xylene	mg/L	0.35	<0.002	<0.002	<2	<2
BH 17	Zinc	mg/L	0.008	0.025	0.03	0.023	0.03

TABLE 7: Annual Water Quality Monitoring Results (2017-2018)
West Nowra Recycling and Waste Facility : EPL 5877

Site No	Analyte	Units	ANZECC 2000 Freshwater (95% Species)	Nov-15	Feb-16	Feb-17	Feb-18
BH 18	Alkalinity (CaCO ₃)	mg/L	-	#N/A	132	63	49
BH 18	Aluminium	mg/L	0.055	#N/A	3.2	2.58	0.87
BH 18	Ammonia as N	mg/L	0.9 (pH 8) - 2.57 (pH 6)	#N/A	0.53	0.27	0.51
BH 18	Arsenic	mg/L	0.024	#N/A	0.027	0.014	0.018
BH 18	Barium	mg/L	-	#N/A	0.172	0.149	0.118
BH 18	Benzene	mg/L	0.95	#N/A	<0.001	<1	<1
BH 18	Bicarbonate	mg/L	-	#N/A	132	63	49
BH 18	Cadmium	mg/L	0.001	#N/A	<0.0001	<0.0001	<0.0001
BH 18	Calcium	mg/L	-	#N/A	25	22	20
BH 18	Carbonate	mg/L	-	#N/A	<1	<1	<1
BH 18	Chloride	mg/L	-	#N/A	460	396	431
BH 18	Hexavalent Chromium	mg/L	0.001	#N/A	<0.01	0.02	<0.01
BH 18	Total Chromium	mg/L	0.003	#N/A	0.007	0.006	0.002
BH 18	Cobalt	mg/L	-	#N/A	0.02	0.014	0.011
BH 18	Copper	mg/L	HMTV 0.004	#N/A	0.051	0.025	0.029
BH 18	Ethyl- Benzene	mg/L	0.14 **	#N/A	<0.001	<2	<2
BH 18	Fluoride	mg/L	1.5 ***	#N/A	0.1	0.1	0.1
BH 18	Lead	mg/L	HMTV 0.018	#N/A	0.025	0.016	0.009
BH 18	Magnesium	mg/L	-	#N/A	23	17	15
BH 18	Manganese	mg/L	1.9	#N/A	0.797	0.84	0.767
BH 18	Mercury	mg/L	0.0006	#N/A	<0.0001	<0.0001	<0.0001
BH 18	Nitrate	mg/L	0.7	#N/A	0.02	0.01	<0.01
BH 18	Nitrite	mg/L	-	#N/A	<0.01	<0.01	<0.01
BH 18	OCF's	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 18	Aldrin	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 18	alpha-BHC	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 18	alpha-Endosulphan	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 18	beta-BHC	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 18	beta-Endosulphan	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 18	Chlordane	mg/L	0.00008	#N/A	<0.0005	<0.5	<0.5
BH 18	cis-Chlordane	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 18	trans-Chlordane	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 18	DDD	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 18	DDE	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 18	DDT	mg/L	0.00001	#N/A	<0.002	<2.0	<2.0
BH 18	delta-BHC	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 18	Dieldrin	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 18	Endosulphan Sulphate	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 18	Endrin	mg/L	0.00002	#N/A	<0.0005	<0.5	<0.5
BH 18	Endrin ketone	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 18	gamma-BHC	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 18	Heptachlor	mg/L	0.00009	#N/A	<0.0005	<0.5	<0.5
BH 18	Heptachlor Epoxide	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 18	Hexachlorobenzene	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 18	Lindane	mg/L	0.0002	#N/A	-	<0.5	<0.5
BH 18	Methoxychlor	mg/L	-	#N/A	<0.002	<2.0	<2.0

TABLE 7: Annual Water Quality Monitoring Results (2017-2018)
West Nowra Recycling and Waste Facility : EPL 5877

Site No	Analyte	Units	ANZECC 2000 Freshwater (95% Species)	Nov-15	Feb-16	Feb-17	Feb-18
BH 18	OPPs	mg/L	-	#N/A	-	-	-
BH 18	Chlorpyrifos	mg/L	0.00001	#N/A	<0.0005	<0.5	<0.5
BH 18	Diazinon	mg/L	0.00001	#N/A	<0.0005	<0.5	<0.5
BH 18	Dichlorvos	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 18	Ethion	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 18	Fenthion	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 18	Malathion	mg/L	0.00005	#N/A	<0.0005	<0.5	<0.5
BH 18	Parathion	mg/L	0.000004	#N/A	<0.002	<2.0	<2.0
BH 18	Demeton-S-methyl	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 18	Monocrotophos	mg/L	-	#N/A	<0.002	<2.0	<2.0
BH 18	Dimethoate	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 18	Chlorpyrifos-methyl	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 18	Parathion-methyl	mg/L	-	#N/A	<0.002	<2.0	<2.0
BH 18	Primphos-ethyl	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 18	Bromophos-ethyl	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 18	Fenamiphos	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 18	Prothiofos	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 18	Carbophenothion	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 18	Azinphos Methyl	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 18	Chlorfenvinphos	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 18	Phosphate	mg/L	0.02 FRP*	#N/A	<0.01	<0.01	<0.01
BH 18	PAHs	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 18	Acenaphthene	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 18	Acenaphthylene	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 18	Anthracene	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 18	Benzo(a)anthracene	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 18	Benzo(e)pyrene	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 18	Benzo(b)&(k)fluoranthene	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 18	Benzo(k)fluoranthene	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 18	Benzo(b)fluoranthene	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 18	Benzo(g,h,i)perylene	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 18	Chrysene	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 18	Dibenz(a,h)anthracene	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 18	Fluoranthene	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 18	Fluorene	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 18	Indeno(1,2,3-c,d)pyrene	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 18	Naphthalene	mg/L	0.016	#N/A	<0.001	<1.0	<1.0
BH 18	PAH (total)	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 18	Phenanthrene	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 18	Pyrene	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 18	pH	pH units	8.0 - 6.5*	#N/A	5.9	5.6	5.5
BH 18	Potassium	mg/L	-	#N/A	2	---	<1
BH 18	Redox Potential	units	-	#N/A	-66.8	-92.2	81
BH 18	Sodium	mg/L	-	#N/A	229	---	198
BH 18	Standing water level	m AHD	-	#N/A	36.21	35.8	36.4
BH 18	Sulphate	mg/L	-	#N/A	4	5	6
BH 18	Toluene	mg/L	0.3 **	#N/A	<0.002	<2	<2
BH 18	Total Phenolics	mg/L	0.32	#N/A	0.06	<0.5	---
BH 18	Total Dissolved Solids	mg/L	1500 max - 85 min	#N/A	1020	822	758
BH 18	Total Organic Carbon	mg/L	-	#N/A	8	14.9	11.9
BH 18	TPHs	mg/L	-	#N/A	<50	<60	<50
BH 18	C10-C14	mg/L	-	#N/A	<100	<100	<100
BH 18	C15-C28	mg/L	-	#N/A	<50	<50	<50
BH 18	C29-C36	mg/L	-	#N/A	<20	<20	<20
BH 18	C37-C40	mg/L	7 (NEPM F1)	#N/A	<20	<20	<20
BH 18	Xylene	mg/L	0.35	#N/A	<0.002	<2	<2
BH 18	meta- & para-Xylene	mg/L	0.35	#N/A	<0.002	<2	<2
BH 18	ortho-Xylene	mg/L	0.35	#N/A	<0.002	<2	<2
BH 18	Zinc	mg/L	HMTV 0.024	#N/A	0.064	0.102	0.079

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West Nowra Recycling and Waste Facility : EPL 5877

Site No	Analyte	Units	ANZECC 2000 Freshwater (95% Species)	Nov-15	Feb-16	Feb-17	Feb-18
BH 19	Alkalinity (CaCO ₃)	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Aluminium	mg/L	0.055	Dry	Dry	Dry	Dry
BH 19	Ammonia as N	mg/L	0.9 (pH 8) - 2.57 (pH 6)	Dry	Dry	Dry	Dry
BH 19	Arsenic	mg/L	0.024	Dry	Dry	Dry	Dry
BH 19	Barium	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Benzene	mg/L	0.95	Dry	Dry	Dry	Dry
BH 19	Bicarbonate	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Cadmium	mg/L	0.0002	Dry	Dry	Dry	Dry
BH 19	Calcium	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Carbonate	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Chloride	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Hexavalent Chromium	mg/L	0.001	Dry	Dry	Dry	Dry
BH 19	Total Chromium	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Cobalt	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Copper	mg/L	0.0014	Dry	Dry	Dry	Dry
BH 19	Ethyl- Benzene	mg/L	0.14 **	Dry	Dry	Dry	Dry
BH 19	Fluoride	mg/L	1.5 ***	Dry	Dry	Dry	Dry
BH 19	Lead	mg/L	0.0034	Dry	Dry	Dry	Dry
BH 19	Magnesium	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Manganese	mg/L	1.9	Dry	Dry	Dry	Dry
BH 19	Mercury	mg/L	0.0006	Dry	Dry	Dry	Dry
BH 19	Nitrate	mg/L	0.7	Dry	Dry	Dry	Dry
BH 19	Nitrite	mg/L	-	Dry	Dry	Dry	Dry
BH 19	OCP's	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Aldrin	mg/L	-	Dry	Dry	Dry	Dry
BH 19	alpha-BHC	mg/L	-	Dry	Dry	Dry	Dry
BH 19	alpha-Endosulphan	mg/L	-	Dry	Dry	Dry	Dry
BH 19	beta-BHC	mg/L	-	Dry	Dry	Dry	Dry
BH 19	beta-Endosulphan	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Chlordane	mg/L	0.00008	Dry	Dry	Dry	Dry
BH 19	cis-Chlordane	mg/L	-	Dry	Dry	Dry	Dry
BH 19	trans-Chlordane	mg/L	-	Dry	Dry	Dry	Dry
BH 19	DDD	mg/L	-	Dry	Dry	Dry	Dry
BH 19	DDE	mg/L	-	Dry	Dry	Dry	Dry
BH 19	DDT	mg/L	0.00001	Dry	Dry	Dry	Dry
BH 19	delta-BHC	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Dieldrin	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Endosulphan Sulphate	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Endrin	mg/L	0.00002	Dry	Dry	Dry	Dry
BH 19	Endrin ketone	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Endrin Aldehyde	mg/L	-	Dry	Dry	Dry	Dry
BH 19	gamma-BHC	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Heptachlor	mg/L	0.00009	Dry	Dry	Dry	Dry
BH 19	Heptachlor Epoxide	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Hexachlorobenzene	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Lindane	mg/L	0.0002	Dry	Dry	Dry	Dry
BH 19	Methoxychlor	mg/L	-	Dry	Dry	Dry	Dry

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West Nowra Recycling and Waste Facility : EPL 5877

Site No	Analyte	Units	ANZECC 2000 Freshwater (95% Species)	Nov-15	Feb-16	Feb-17	Feb-18
BH 19	OPPs	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Chlorpyrifos	mg/L	0.00001	Dry	Dry	Dry	Dry
BH 19	Diazinon	mg/L	0.00001	Dry	Dry	Dry	Dry
BH 19	Dichlorvos	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Ethion	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Fenthion	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Malathion	mg/L	0.00005	Dry	Dry	Dry	Dry
BH 19	Parathion	mg/L	0.000004	Dry	Dry	Dry	Dry
BH 19	Demeton-S-methyl	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Monocrotophos	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Dimethoate	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Chlorpyrifos-methyl	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Parathion-methyl	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Phosphos-ethyl	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Bromophos-ethyl	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Fenamiphos	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Prothiofos	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Carbophenothion	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Azinphos Methyl	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Chlorfenvinphos	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Phosphate	mg/L	0.02 FRP*	Dry	Dry	Dry	Dry
BH 19	PAHs	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Acenaphthene	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Acenaphthylene	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Anthracene	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Benzo(a)anthracene	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Benzo(a)pyrene	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Benzo(b)&(k)fluoranthene	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Benzo(b)fluoranthene	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Benzo(k)fluoranthene	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Benzo(g,h,i)perylene	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Chrysene	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Dibenz(a,h)anthracene	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Fluoranthene	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Fluorene	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Indeno(1,2,3-c,d)pyrene	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Naphthalene	mg/L	0.016	Dry	Dry	Dry	Dry
BH 19	PAH (total)	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Phenanthrene	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Pyrene	mg/L	-	Dry	Dry	Dry	Dry
BH 19	pH	pH units	8.0 - 6.5*	Dry	Dry	Dry	Dry
BH 19	Potassium	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Redox Potential	units	-	Dry	Dry	Dry	Dry
BH 19	Sodium	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Standing water level	m AHD	-	Dry	Dry	Dry	Dry
BH 19	Sulphate	mg/L	-	Dry	Dry	Dry	Dry
BH 19	Toluene	mg/L	0.3 **	Dry	Dry	Dry	Dry
BH 19	Total Phenolics	mg/L	0.32	Dry	Dry	Dry	Dry
BH 19	Total Dissolved Solids	mg/L	1500 max - 85 min	Dry	Dry	Dry	Dry
BH 19	Total Organic Carbon	mg/L	-	Dry	Dry	Dry	Dry
BH 19	TPHs	mg/L	-	Dry	Dry	Dry	Dry
BH 19	C10-C14	mg/L	-	Dry	Dry	Dry	Dry
BH 19	C15-C28	mg/L	-	Dry	Dry	Dry	Dry
BH 19	C29-C36	mg/L	-	Dry	Dry	Dry	Dry
BH 19	C10-C36	mg/L	10 **	Dry	Dry	Dry	Dry
BH 19	CS-CS	mg/L	7 (NEPM F1)	Dry	Dry	Dry	Dry
BH 19	Xylene	mg/L	0.35	Dry	Dry	Dry	Dry
BH 19	meta- & para-Xylene	mg/L	0.35	Dry	Dry	Dry	Dry
BH 19	ortho-Xylene	mg/L	0.35	Dry	Dry	Dry	Dry
BH 19	Zinc	mg/L	0.008	Dry	Dry	Dry	Dry

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Site No	Analyte	Units	ANZECC 2000 Freshwater (95% Species)	Nov-15	Feb-16	Feb-17	Feb-18
BH 20	Alkalinity (CaCO ₃)	mg/L	-	<1	Insufficient Water	<1	<1
BH 20	Aluminium	mg/L	0.056	4.12	Insufficient Water	7.84	6.91
BH 20	Ammonia as N	mg/L	0.9 (pH 8) - 2.57 (pH 6)	0.26	Insufficient Water	0.04	0.31
BH 20	Arsenic	mg/L	0.024	0.009	Insufficient Water	0.008	0.009
BH 20	Barium	mg/L	-	0.054	Insufficient Water	0.093	0.088
BH 20	Benzene	mg/L	0.95	0.003	Insufficient Water	3	3
BH 20	Bicarbonate	mg/L	-	<1	Insufficient Water	<1	<1
BH 20	Cadmium	mg/L	0.0002	<0.0001	Insufficient Water	<0.0001	0.0002
BH 20	Calcium	mg/L	-	<1	Insufficient Water	<1	<1
BH 20	Carbonate	mg/L	-	<1	Insufficient Water	<1	<1
BH 20	Chloride	mg/L	-	737	Insufficient Water	758	877
BH 20	Hexavalent Chromium	mg/L	0.001	<0.01	Insufficient Water	<0.01	<0.01
BH 20	Total Chromium	mg/L	-	0.001	Insufficient Water	0.005	0.002
BH 20	Cobalt	mg/L	-	0.003	Insufficient Water	0.004	0.004
BH 20	Copper	mg/L	0.0014	0.003	Insufficient Water	0.025	0.037
BH 20	Ethyl Benzene	mg/L	0.14 **	0.042	Insufficient Water	58	88
BH 20	Fluoride	mg/L	1.5 ***	0.2	Insufficient Water	0.4	0.3
BH 20	Lead	mg/L	0.0034	0.004	Insufficient Water	0.012	0.024
BH 20	Magnesium	mg/L	-	29	Insufficient Water	29	40
BH 20	Manganese	mg/L	1.9	0.321	Insufficient Water	0.552	0.801
BH 20	Mercury	mg/L	0.0006	<0.0001	Insufficient Water	<0.0001	<0.0001
BH 20	Nitrate	mg/L	0.7	<0.01	Insufficient Water	<0.01	<0.01
BH 20	Nitrite	mg/L	-	<0.01	Insufficient Water	<0.01	<0.01
BH 20	OCP's	mg/L	-	-	-	-	-
BH 20	Aldrin	mg/L	-	<0.0005	Insufficient Water	<0.5	<0.5
BH 20	alpha-BHC	mg/L	-	<0.0005	Insufficient Water	<0.5	<0.5
BH 20	alpha-Endosulphan	mg/L	-	<0.0005	Insufficient Water	<0.5	<0.5
BH 20	beta-BHC	mg/L	-	<0.0005	Insufficient Water	<0.5	<0.5
BH 20	beta-Endosulphan	mg/L	-	<0.0005	Insufficient Water	<0.5	<0.5
BH 20	Chlordane	mg/L	0.00008	<0.0005	Insufficient Water	<0.5	<0.5
BH 20	cis-Chlordane	mg/L	-	<0.0005	Insufficient Water	<0.5	<0.5
BH 20	trans-Chlordane	mg/L	-	<0.0005	Insufficient Water	<0.5	<0.5
BH 20	DDD	mg/L	-	<0.0005	Insufficient Water	<0.5	<0.5
BH 20	DDE	mg/L	-	<0.0005	Insufficient Water	<0.5	<0.5
BH 20	DDT	mg/L	0.00001	<0.002	Insufficient Water	<2.0	<2.0
BH 20	delta-BHC	mg/L	-	<0.0005	Insufficient Water	<0.5	<0.5
BH 20	Dieldrin	mg/L	-	<0.0005	Insufficient Water	<0.5	<0.5
BH 20	Endosulphan Sulphate	mg/L	-	<0.0005	Insufficient Water	<0.5	<0.5
BH 20	Endrin	mg/L	0.00002	<0.0005	Insufficient Water	<0.5	<0.5
BH 20	Endrin ketone	mg/L	-	<0.0005	Insufficient Water	<0.5	<0.5
BH 20	Endrin Aldehyde	mg/L	-	<0.0005	Insufficient Water	<0.5	<0.5
BH 20	gamma-BHC	mg/L	-	<0.0005	Insufficient Water	<0.5	<0.5
BH 20	Heptachlor	mg/L	0.00009	<0.0005	Insufficient Water	<0.5	<0.5
BH 20	Heptachlor Epoxide	mg/L	-	<0.0005	Insufficient Water	<0.5	<0.5
BH 20	Hexachlorobenzene	mg/L	-	<0.0005	Insufficient Water	<0.5	<0.5
BH 20	Lindane	mg/L	0.0002	#N/A	Insufficient Water	<0.5	<0.5
BH 20	Methoxychlor	mg/L	-	<0.002	Insufficient Water	<2.0	<2.0

TABLE 7: Annual Water Quality Monitoring Results (2017-2018)
West Nowra Recycling and Waste Facility : EPL 5877

Site No	Analyte	Units	ANZECC 2000 Freshwater (95% Species)	Nov-15	Feb-16	Feb-17	Feb-18
BH 20	OPPs	mg/L	-	-	-	-	-
BH 20	Chlorpyrifos	mg/L	0.00001	<0.0005	Insufficient Water	<0.5	<0.5
BH 20	Diazinon	mg/L	0.00001	<0.0005	Insufficient Water	<0.5	<0.5
BH 20	Dichlorvos	mg/L	-	<0.0005	Insufficient Water	<0.5	<0.5
BH 20	Ethion	mg/L	-	<0.0005	Insufficient Water	<0.5	<0.5
BH 20	Fenthion	mg/L	-	<0.0005	Insufficient Water	<0.5	<0.5
BH 20	Malathion	mg/L	0.00005	<0.0005	Insufficient Water	<0.5	<0.5
BH 20	Parathion	mg/L	0.000004	<0.002	Insufficient Water	<2.0	<2.0
BH 20	Demeton-S-methyl	mg/L	-	<0.0005	Insufficient Water	<0.5	<0.5
BH 20	Monocrotophos	mg/L	-	<0.002	Insufficient Water	<2.0	<2.0
BH 20	Dimethoate	mg/L	-	<0.0005	Insufficient Water	<0.5	<0.5
BH 20	Chlorpyrifos-methyl	mg/L	-	<0.0005	Insufficient Water	<0.5	<0.5
BH 20	Carbathion-methyl	mg/L	-	<0.002	Insufficient Water	<2.0	<2.0
BH 20	Primphos-ethyl	mg/L	-	<0.0005	Insufficient Water	<0.5	<0.5
BH 20	Bromophos-ethyl	mg/L	-	<0.0005	Insufficient Water	<0.5	<0.5
BH 20	Fenamiphos	mg/L	-	<0.0005	Insufficient Water	<0.5	<0.5
BH 20	Prothiofos	mg/L	-	<0.0005	Insufficient Water	<0.5	<0.5
BH 20	Carbophenothion	mg/L	-	<0.0005	Insufficient Water	<0.5	<0.5
BH 20	Azinphos Methyl	mg/L	-	<0.0005	Insufficient Water	<0.5	<0.5
BH 20	Chlorfenvinphos	mg/L	-	<0.0005	Insufficient Water	<0.5	<0.5
BH 20	Phosphate	mg/L	0.02 FRP*	<0.01	Insufficient Water	<0.01	<0.01
BH 20	PAHs	mg/L	-	-	-	-	-
BH 20	Acenaphthene	mg/L	-	<0.001	Insufficient Water	<1.0	<1.0
BH 20	Acenaphthylene	mg/L	-	<0.001	Insufficient Water	<1.0	<1.0
BH 20	Anthraccene	mg/L	-	<0.001	Insufficient Water	<1.0	<1.0
BH 20	Benzo(a)anthracene	mg/L	-	<0.001	Insufficient Water	<1.0	<1.0
BH 20	Benzo(a)pyrene	mg/L	-	<0.0005	Insufficient Water	<0.5	<0.5
BH 20	Benzo(b)&(k)fluoranthene	mg/L	-	<0.001	Insufficient Water	<1.0	<1.0
BH 20	Benzo(b)fluoranthene	mg/L	-	<0.001	Insufficient Water	<1.0	<1.0
BH 20	Benzo(k)fluoranthene	mg/L	-	<0.001	Insufficient Water	<1.0	<1.0
BH 20	Benzo(g,h,i)perylene	mg/L	-	<0.001	Insufficient Water	<1.0	<1.0
BH 20	Chrysene	mg/L	-	<0.001	Insufficient Water	<1.0	<1.0
BH 20	Dibenz(a,h)anthracene	mg/L	-	<0.001	Insufficient Water	<1.0	<1.0
BH 20	Fluoranthene	mg/L	-	<0.001	Insufficient Water	<1.0	<1.0
BH 20	Fluorene	mg/L	-	<0.001	Insufficient Water	<1.0	<1.0
BH 20	Indeno(1,2,3-c,d)pyrene	mg/L	-	<0.001	Insufficient Water	<1.0	<1.0
BH 20	Naphthalene	mg/L	0.016	<0.001	Insufficient Water	<1.0	<1.0
BH 20	PAH (total)	mg/L	-	<0.0005	Insufficient Water	<0.5	<0.5
BH 20	Phenanthrene	mg/L	-	<0.001	Insufficient Water	<1.0	<1.0
BH 20	Pyrene	mg/L	-	<0.001	Insufficient Water	<1.0	<1.0
BH 20	pH	pH units	8.0 - 8.5*	4.6	Insufficient Water	3.8	4.1
BH 20	Potassium	mg/L	-	<1	Insufficient Water	2	<1
BH 20	Redox Potential	units	-	176	Insufficient Water	53.6	233
BH 20	Sodium	mg/L	-	396	Insufficient Water	432	565
BH 20	Standing water level	m AHD	-	35.9	Insufficient Water	35.8	36.2
BH 20	Sulphate	mg/L	-	58	Insufficient Water	91	119
BH 20	Toluene	mg/L	0.3 **	<0.002	Insufficient Water	<2	2
BH 20	Total Phenolics	mg/L	0.32	<0.05	Insufficient Water	<0.5	<0.05
BH 20	Total Dissolved Solids	mg/L	1500 max - 85 min	1550	Insufficient Water	1470	1700
BH 20	Total Organic Carbon	mg/L	-	21.9	Insufficient Water	30.8	24
BH 20	TPHs	mg/L	-	-	-	-	-
BH 20	C10-C14	mg/L	-	<0.05	Insufficient Water	350	350
BH 20	C15-C28	mg/L	-	0.73	Insufficient Water	780	580
BH 20	C29-C36	mg/L	-	<0.05	Insufficient Water	<50	<50
BH 20	C10-C36	mg/L	10 **	0.73	Insufficient Water	1.13	0.93
BH 20	C6-C9	mg/L	7 (NEPM F1)	0.15	Insufficient Water	0.11	0.16
BH 20	Xylene	mg/L	0.35	0.005	Insufficient Water	0.003	0.006
BH 20	meta- & para-Xylene	mg/L	0.35	0.006	Insufficient Water	0.003	0.004
BH 20	ortho-Xylene	mg/L	0.35	0.006	Insufficient Water	<2	0.002
BH 20	Zinc	mg/L	0.008	0.088	Insufficient Water	0.165	0.169

TABLE 7: Annual Water Quality Monitoring Results (2017-2018)
West Nowra Recycling and Waste Facility : EPL 5877

Site No	Analyte	Units	ANZECC 2000 Freshwater (95% Species)	Nov-15	Feb-16	Feb-17	Feb-18
BH 21	Alkalinity (CaCO ₃)	mg/L	-	#N/A	No Access	10	5
BH 21	Aluminium	mg/L	0.056	#N/A	No Access	6.86	9.18
BH 21	Ammonia as N	mg/L	0.9 (pH 8) - 2.57 (pH 6)	#N/A	No Access	0.06	0.39
BH 21	Arsenic	mg/L	0.024	#N/A	No Access	0.003	0.003
BH 21	Barium	mg/L	-	#N/A	No Access	0.018	0.021
BH 21	Benzene	mg/L	0.95	#N/A	No Access	<1	<1
BH 21	Bicarbonate	mg/L	-	#N/A	No Access	10	5
BH 21	Cadmium	mg/L	0.0002	#N/A	No Access	<0.0001	0.0002
BH 21	Calcium	mg/L	-	#N/A	No Access	<1	<1
BH 21	Carbonate	mg/L	-	#N/A	No Access	<1	<1
BH 21	Chloride	mg/L	-	#N/A	No Access	24	25
BH 21	Hexavalent Chromium	mg/L	0.001	#N/A	No Access	<0.01	<0.01
BH 21	Total Chromium	mg/L	-	#N/A	No Access	0.017	0.016
BH 21	Cobalt	mg/L	-	#N/A	No Access	0.006	0.005
BH 21	Copper	mg/L	0.0014	#N/A	No Access	0.008	0.06
BH 21	Ethyl Benzene	mg/L	0.14 **	#N/A	No Access	<2	<2
BH 21	Fluoride	mg/L	1.5 ***	#N/A	No Access	<0.1	<0.1
BH 21	Lead	mg/L	0.0034	#N/A	No Access	0.017	0.05
BH 21	Magnesium	mg/L	-	#N/A	No Access	2	2
BH 21	Manganese	mg/L	1.9	#N/A	No Access	0.012	0.014
BH 21	Mercury	mg/L	0.0006	#N/A	No Access	<0.0001	<0.0001
BH 21	Nitrate	mg/L	0.7	#N/A	No Access	<0.01	<0.01
BH 21	Nitrite	mg/L	-	#N/A	No Access	<0.01	<0.01
BH 21	OCP's	mg/L	-	#N/A	No Access	-	-
BH 21	Aldrin	mg/L	-	#N/A	No Access	<0.5	<0.5
BH 21	alpha-BHC	mg/L	-	#N/A	No Access	<0.5	<0.5
BH 21	alpha-Endosulphan	mg/L	-	#N/A	No Access	<0.5	<0.5
BH 21	beta-BHC	mg/L	-	#N/A	No Access	<0.5	<0.5
BH 21	beta-Endosulphan	mg/L	-	#N/A	No Access	<0.5	<0.5
BH 21	Chlordane	mg/L	0.00008	#N/A	No Access	<0.5	<0.5
BH 21	cis-Chlordane	mg/L	-	#N/A	No Access	<0.5	<0.5
BH 21	trans-Chlordane	mg/L	-	#N/A	No Access	<0.5	<0.5
BH 21	DDD	mg/L	-	#N/A	No Access	<0.5	<0.5
BH 21	DDE	mg/L	-	#N/A	No Access	<0.5	<0.5
BH 21	DDT	mg/L	0.00001	#N/A	No Access	<2.0	<2.0
BH 21	delta-BHC	mg/L	-	#N/A	No Access	<0.5	<0.5
BH 21	Dieldrin	mg/L	-	#N/A	No Access	<0.5	<0.5
BH 21	Endosulphan Sulphate	mg/L	-	#N/A	No Access	<0.5	<0.5
BH 21	Endrin	mg/L	0.00002	#N/A	No Access	<0.5	<0.5
BH 21	Endrin ketone	mg/L	-	#N/A	No Access	<0.5	<0.5
BH 21	Endrin Aldehyde	mg/L	-	#N/A	No Access	<0.5	<0.5
BH 21	gamma-BHC	mg/L	-	#N/A	No Access	<0.5	<0.5
BH 21	Heptachlor	mg/L	0.00009	#N/A	No Access	<0.5	<0.5
BH 21	Heptachlor Epoxide	mg/L	-	#N/A	No Access	<0.5	<0.5
BH 21	Hexachlorobenzene	mg/L	-	#N/A	No Access	<0.5	<0.5
BH 21	Lindane	mg/L	0.0002	#N/A	No Access	<0.5	<0.5
BH 21	Methoxychlor	mg/L	-	#N/A	No Access	<2.0	<2.0

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Site No	Analyte	Units	ANZECC 2000 Freshwater (95% Species)	Nov-15	Feb-16	Feb-17	Feb-18
BH 21	OPP's	mg/L	-	#N/A	No Access	<0.5	<0.5
BH 21	Chlorpyrifos	mg/L	0.00001	#N/A	No Access	<0.5	<0.5
BH 21	Diazinon	mg/L	0.00001	#N/A	No Access	<0.5	<0.5
BH 21	Dichlorvos	mg/L	-	#N/A	No Access	<0.5	<0.5
BH 21	Ethion	mg/L	-	#N/A	No Access	<0.5	<0.5
BH 21	Fenthion	mg/L	-	#N/A	No Access	<0.5	<0.5
BH 21	Malathion	mg/L	0.00005	#N/A	No Access	<0.5	<0.5
BH 21	Parathion	mg/L	0.000004	#N/A	No Access	<2.0	<2.0
BH 21	Demeton-S-methyl	mg/L	-	#N/A	No Access	<0.5	<0.5
BH 21	Monocrotophos	mg/L	-	#N/A	No Access	<2.0	<2.0
BH 21	Dimethoate	mg/L	-	#N/A	No Access	<0.5	<0.5
BH 21	Chlorpyrifos-methyl	mg/L	-	#N/A	No Access	<0.5	<0.5
BH 21	Carbaryl-methyl	mg/L	-	#N/A	No Access	<2.0	<2.0
BH 21	Primphos-ethyl	mg/L	-	#N/A	No Access	<0.5	<0.5
BH 21	Bromophos-ethyl	mg/L	-	#N/A	No Access	<0.5	<0.5
BH 21	Fenamiphos	mg/L	-	#N/A	No Access	<0.5	<0.5
BH 21	Prothiofos	mg/L	-	#N/A	No Access	<0.5	<0.5
BH 21	Carbophenothion	mg/L	-	#N/A	No Access	<0.5	<0.5
BH 21	Azinphos Methyl	mg/L	-	#N/A	No Access	<0.5	<0.5
BH 21	Chlorfenvinphos	mg/L	-	#N/A	No Access	<0.5	<0.5
BH 21	Phosphate	mg/L	0.02 FRP*	#N/A	No Access	<0.01	<0.01
BH 21	PAHs	mg/L	-	#N/A	No Access	<1.0	<1.0
BH 21	Acenaphthene	mg/L	-	#N/A	No Access	<1.0	<1.0
BH 21	Acenaphthylene	mg/L	-	#N/A	No Access	<1.0	<1.0
BH 21	Anthracene	mg/L	-	#N/A	No Access	<1.0	<1.0
BH 21	Benzo(a)anthracene	mg/L	-	#N/A	No Access	<1.0	<1.0
BH 21	Benzo(a)pyrene	mg/L	-	#N/A	No Access	<0.5	<0.5
BH 21	Benzo(b)&(k)fluoranthene	mg/L	-	#N/A	No Access	<1.0	<1.0
BH 21	Benzo(b)fluoranthene	mg/L	-	#N/A	No Access	<1.0	<1.0
BH 21	Benzo(k)fluoranthene	mg/L	-	#N/A	No Access	<1.0	<1.0
BH 21	Chrysene	mg/L	-	#N/A	No Access	<1.0	<1.0
BH 21	Dibenz(a,h)anthracene	mg/L	-	#N/A	No Access	<1.0	<1.0
BH 21	Fluoranthene	mg/L	-	#N/A	No Access	<1.0	<1.0
BH 21	Fluorene	mg/L	-	#N/A	No Access	<1.0	<1.0
BH 21	Indeno(1,2,3-c,d)pyrene	mg/L	-	#N/A	No Access	<1.0	<1.0
BH 21	Naphthalene	mg/L	0.016	#N/A	No Access	<1.0	<1.0
BH 21	PAH (total)	mg/L	-	#N/A	No Access	<0.5	<0.5
BH 21	Phenanthrene	mg/L	-	#N/A	No Access	<1.0	<1.0
BH 21	Pyrene	mg/L	-	#N/A	No Access	<1.0	<1.0
BH 21	pH	pH units	8.0 - 8.5*	#N/A	No Access	4.9	5
BH 21	Potassium	mg/L	-	#N/A	No Access	-	2
BH 21	Redox Potential	units	-	#N/A	No Access	-62.6	-13.4
BH 21	Sodium	mg/L	-	#N/A	No Access	-	19
BH 21	Standing water level	m AHD	-	#N/A	No Access	2.98	2.91
BH 21	Sulphate	mg/L	-	#N/A	No Access	3	10
BH 21	Toluene	mg/L	0.3 **	#N/A	No Access	<2	<2
BH 21	Total Phenolics	mg/L	0.32	#N/A	No Access	<0.5	---
BH 21	Total Dissolved Solids	mg/L	1500 max - 85 min	#N/A	No Access	210	94
BH 21	Total Organic Carbon	mg/L	-	#N/A	No Access	34.9	31
BH 21	TPHs	mg/L	-	#N/A	No Access	-	-
BH 21	C10-C14	mg/L	-	#N/A	No Access	<60	0.14
BH 21	C15-C28	mg/L	-	#N/A	No Access	<100	0.12
BH 21	C29-C36	mg/L	-	#N/A	No Access	<50	<50
BH 21	C10-C36	mg/L	10 **	#N/A	No Access	<50	0.26
BH 21	CS-C9	mg/L	7 (NEPM F1)	#N/A	No Access	<20	<20
BH 21	Xylene	mg/L	0.35	#N/A	No Access	<2	<2
BH 21	meta- & para-Xylene	mg/L	0.35	#N/A	No Access	<2	<2
BH 21	ortho-Xylene	mg/L	0.35	#N/A	No Access	<2	<2
BH 21	Zinc	mg/L	0.008	#N/A	No Access	0.029	0.097

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West Nowra Recycling and Waste Facility : EPL 5877

Site No	Analyte	Units	ANZECC 2000 Freshwater (95% Species)	Nov-15	Feb-16	Feb-17	Feb-18
BH 22	Alkalinity (CaCO ₃)	mg/L	-	#N/A	9	3	3
BH 22	Aluminium	mg/L	0.056	#N/A	2.47	1.1	93.1
BH 22	Ammonia as N	mg/L	0.9 (pH 8) - 2.57 (pH 6)	#N/A	0.02	0.03	0.08
BH 22	Arsenic	mg/L	0.024	#N/A	0.002	<0.001	0.01
BH 22	Barium	mg/L	-	#N/A	0.018	0.036	0.167
BH 22	Benzene	mg/L	0.95	#N/A	<0.001	<1	<1
BH 22	Bicarbonate	mg/L	-	#N/A	9	3	3
BH 22	Cadmium	mg/L	0.0002	#N/A	<0.0001	<0.0001	0.0002
BH 22	Calcium	mg/L	-	#N/A	6	12	6
BH 22	Carbonate	mg/L	-	#N/A	<1	<1	<1
BH 22	Chloride	mg/L	-	#N/A	59	194	108
BH 22	Hexavalent Chromium	mg/L	0.001	#N/A	<0.01	<0.01	<0.01
BH 22	Total Chromium	mg/L	-	#N/A	0.003	0.002	0.112
BH 22	Cobalt	mg/L	-	#N/A	0.002	0.002	0.012
BH 22	Copper	mg/L	0.0014	#N/A	0.003	0.002	0.061
BH 22	Ethyl Benzene	mg/L	0.14 **	#N/A	<0.002	<2	<2
BH 22	Fluoride	mg/L	1.5 ***	#N/A	<0.1	<0.1	<0.1
BH 22	Lead	mg/L	0.0034	#N/A	0.003	0.006	0.12
BH 22	Magnesium	mg/L	-	#N/A	6	11	4
BH 22	Manganese	mg/L	1.9	#N/A	0.138	0.204	0.399
BH 22	Mercury	mg/L	0.0006	#N/A	<0.0001	<0.0001	<0.0001
BH 22	Nitrate	mg/L	0.7	#N/A	<0.01	<0.01	0.01
BH 22	Nitrite	mg/L	-	#N/A	<0.01	<0.01	<0.01
BH 22	OCP's	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 22	Aldrin	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 22	alpha-BHC	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 22	alpha-Endosulphan	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 22	beta-BHC	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 22	beta-Endosulphan	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 22	Chlordane	mg/L	0.00008	#N/A	<0.0005	<0.5	<0.5
BH 22	cis-Chlordane	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 22	trans-Chlordane	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 22	DDD	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 22	DDE	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 22	DDT	mg/L	0.00001	#N/A	<0.002	<2.0	<2.0
BH 22	delta-BHC	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 22	Dieldrin	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 22	Endosulphan Sulphate	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 22	Endrin	mg/L	0.00002	#N/A	<0.0005	<0.5	<0.5
BH 22	Endrin ketone	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 22	Endrin Aldehyde	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 22	gamma-BHC	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 22	Heptachlor	mg/L	0.00009	#N/A	<0.0005	<0.5	<0.5
BH 22	Heptachlor Epoxide	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 22	Hexachlorobenzene	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 22	Lindane	mg/L	0.0002	#N/A	-	<0.5	<0.5
BH 22	Methoxychlor	mg/L	-	#N/A	<0.002	<2.0	<2.0

TABLE 7: Annual Water Quality Monitoring Results (2017-2018)
West Nowra Recycling and Waste Facility : EPL 5877

Site No	Analyte	Units	ANZECC 2000 Freshwater (95% Species)	Nov-15	Feb-16	Feb-17	Feb-18
BH 22	OPPs	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 22	Chlorpyrifos	mg/L	0.00001	#N/A	<0.0005	<0.5	<0.5
BH 22	Diazinon	mg/L	0.00001	#N/A	<0.0005	<0.5	<0.5
BH 22	Dichlorvos	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 22	Ethion	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 22	Fenthion	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 22	Malathion	mg/L	0.00005	#N/A	<0.0005	<0.5	<0.5
BH 22	Parathion	mg/L	0.000004	#N/A	<0.002	<2.0	<2.0
BH 22	Demeton-S-methyl	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 22	Monocrotophos	mg/L	-	#N/A	<0.002	<2.0	<2.0
BH 22	Dimethoate	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 22	Chlorpyrifos-methyl	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 22	Parathion-methyl	mg/L	-	#N/A	<0.002	<2.0	<2.0
BH 22	Primphos-ethyl	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 22	Bromophos-ethyl	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 22	Fenamiphos	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 22	Prothiofos	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 22	Carbophenothion	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 22	Azinphos Methyl	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 22	Chlorfenvinphos	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 22	Phosphate	mg/L	0.02 FRP*	#N/A	<0.01	<0.01	<0.01
BH 22	PAHs	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 22	Acenaphthene	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 22	Acenaphthylene	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 22	Anthracene	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 22	Benzo(a)anthracene	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 22	Benzo(e)pyrene	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 22	Benzo(b)&(k)fluoranthene	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 22	Benzo(k)fluoranthene	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 22	Benzo(k)fluoranthene	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 22	Chrysene	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 22	Benzo(g,h,i)perylene	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 22	Dibenz(a,h)anthracene	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 22	Fluoranthene	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 22	Fluorene	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 22	Indeno(1,2,3-c,d)pyrene	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 22	Naphthalene	mg/L	0.016	#N/A	<0.001	<1.0	<1.0
BH 22	PAH (total)	mg/L	-	#N/A	<0.0005	<0.5	<0.5
BH 22	Phenanthrene	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 22	Pyrene	mg/L	-	#N/A	<0.001	<1.0	<1.0
BH 22	pH	pH units	8.0 - 6.5*	#N/A	5.6	4.9	5.2
BH 22	Potassium	mg/L	-	#N/A	<1	-	1
BH 22	Redox Potential	units	-	#N/A	1.2	-6.6	54.3
BH 22	Sodium	mg/L	-	#N/A	50	-	76
BH 22	Standing water level	m AHD	-	#N/A	2.13	1.73	2.67
BH 22	Sulphate	mg/L	-	#N/A	40	22	34
BH 22	Toluene	mg/L	0.3 **	#N/A	<0.002	<2	<2
BH 22	Total Phenolics	mg/L	0.32	#N/A	<0.05	<0.5	<0.05
BH 22	Total Dissolved Solids	mg/L	1500 max - 85 min	#N/A	212	396	204
BH 22	Total Organic Carbon	mg/L	-	#N/A	3.1	4.4	17
BH 22	TPHs	mg/L	-	#N/A	<0.05	<60	<50
BH 22	C10-C14	mg/L	-	#N/A	<0.1	<100	<100
BH 22	C15-C28	mg/L	-	#N/A	<0.35	<50	<50
BH 22	C29-C36	mg/L	-	#N/A	<0.05	<20	<50
BH 22	C10-C36	mg/L	10 **	#N/A	<0.02	<20	<20
BH 22	CS-C9	mg/L	7 (NEPM F1)	#N/A	<0.002	<2	<2
BH 22	Xylene	mg/L	0.35	#N/A	<0.002	<2	<2
BH 22	meta- & para-Xylene	mg/L	0.35	#N/A	<0.002	<2	<2
BH 22	ortho-Xylene	mg/L	0.35	#N/A	<0.002	<2	<2
BH 22	Zinc	mg/L	0.008	#N/A	0.014	0.023	0.187

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Site No	Analyte	Units	ANZECC 2000 Freshwater (95% Species)	Nov-15	Feb-16	Feb-17	Feb-18
BH 23	Alkalinity (CaCO ₃)	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Aluminium	mg/L	0.055	Dry	Dry	Dry	Dry
BH 23	Ammonia as N	mg/L	0.9 (pH 8) - 2.57 (pH 6)	Dry	Dry	Dry	Dry
BH 23	Arsenic	mg/L	0.024	Dry	Dry	Dry	Dry
BH 23	Barium	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Benzene	mg/L	0.95	Dry	Dry	Dry	Dry
BH 23	Bicarbonate	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Cadmium	mg/L	0.0002	Dry	Dry	Dry	Dry
BH 23	Calcium	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Carbonate	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Chloride	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Hexavalent Chromium	mg/L	0.001	Dry	Dry	Dry	Dry
BH 23	Total Chromium	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Cobalt	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Copper	mg/L	0.0014	Dry	Dry	Dry	Dry
BH 23	Ethyl- Benzene	mg/L	0.14 **	Dry	Dry	Dry	Dry
BH 23	Fluoride	mg/L	1.5 ***	Dry	Dry	Dry	Dry
BH 23	Lead	mg/L	0.0034	Dry	Dry	Dry	Dry
BH 23	Magnesium	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Manganese	mg/L	1.9	Dry	Dry	Dry	Dry
BH 23	Mercury	mg/L	0.0006	Dry	Dry	Dry	Dry
BH 23	Nitrate	mg/L	0.7	Dry	Dry	Dry	Dry
BH 23	Nitrite	mg/L	-	Dry	Dry	Dry	Dry
BH 23	OCP's	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Aldrin	mg/L	-	Dry	Dry	Dry	Dry
BH 23	alpha-BHC	mg/L	-	Dry	Dry	Dry	Dry
BH 23	alpha-Endosulphan	mg/L	-	Dry	Dry	Dry	Dry
BH 23	beta-BHC	mg/L	-	Dry	Dry	Dry	Dry
BH 23	beta-Endosulphan	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Chlordane	mg/L	0.00008	Dry	Dry	Dry	Dry
BH 23	cis-Chlordane	mg/L	-	Dry	Dry	Dry	Dry
BH 23	trans-Chlordane	mg/L	-	Dry	Dry	Dry	Dry
BH 23	DDD	mg/L	-	Dry	Dry	Dry	Dry
BH 23	DDE	mg/L	-	Dry	Dry	Dry	Dry
BH 23	DDT	mg/L	0.00001	Dry	Dry	Dry	Dry
BH 23	delta-BHC	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Dieldrin	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Endosulphan Sulphate	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Endrin	mg/L	0.00002	Dry	Dry	Dry	Dry
BH 23	Endrin ketone	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Endrin Aldehyde	mg/L	-	Dry	Dry	Dry	Dry
BH 23	gamma-BHC	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Heptachlor	mg/L	0.00009	Dry	Dry	Dry	Dry
BH 23	Heptachlor Epoxide	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Hexachlorobenzene	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Lindane	mg/L	0.0002	Dry	Dry	Dry	Dry
BH 23	Methoxychlor	mg/L	-	Dry	Dry	Dry	Dry

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Site No	Analyte	Units	ANZECC 2000 Freshwater (95% Species)	Nov-15	Feb-16	Feb-17	Feb-18
BH 23	OPPs	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Chlorpyrifos	mg/L	0.00001	Dry	Dry	Dry	Dry
BH 23	Diazinon	mg/L	0.00001	Dry	Dry	Dry	Dry
BH 23	Dichlorvos	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Ethion	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Fenthion	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Malathion	mg/L	0.00005	Dry	Dry	Dry	Dry
BH 23	Parathion	mg/L	0.000004	Dry	Dry	Dry	Dry
BH 23	Demeton-S-methyl	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Monocrotophos	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Dimethoate	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Chlorpyrifos-methyl	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Parathion-methyl	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Phosphos-ethyl	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Bromophos-ethyl	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Fenamiphos	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Prothiofos	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Carbophenothion	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Azinphos Methyl	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Chlorfenvinphos	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Phosphate	mg/L	0.02 FRP*	Dry	Dry	Dry	Dry
BH 23	PAHs	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Acenaphthene	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Acenaphthylene	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Anthracene	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Benzo(a)anthracene	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Benzo(e)pyrene	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Benzo(b)&(k)fluoranthene	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Benzo(b)fluoranthene	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Benzo(k)fluoranthene	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Benzo(g,h,i)perylene	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Chrysene	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Dibenz(a,h)anthracene	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Fluoranthene	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Fluorene	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Indeno(1,2,3-c,d)pyrene	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Naphthalene	mg/L	0.016	Dry	Dry	Dry	Dry
BH 23	PAH (total)	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Phenanthrene	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Pyrene	mg/L	-	Dry	Dry	Dry	Dry
BH 23	pH	pH units	8.0 - 6.5*	Dry	Dry	Dry	Dry
BH 23	Potassium	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Redox Potential	units	-	Dry	Dry	Dry	Dry
BH 23	Sodium	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Standing water level	m AHD	-	Dry	Dry	Dry	Dry
BH 23	Sulphate	mg/L	-	Dry	Dry	Dry	Dry
BH 23	Toluene	mg/L	0.3 **	Dry	Dry	Dry	Dry
BH 23	Total Phenolics	mg/L	0.32	Dry	Dry	Dry	Dry
BH 23	Total Dissolved Solids	mg/L	1500 max - 85 min	Dry	Dry	Dry	Dry
BH 23	Total Organic Carbon	mg/L	-	Dry	Dry	Dry	Dry
BH 23	TPHs	mg/L	-	Dry	Dry	Dry	Dry
BH 23	C10-C14	mg/L	-	Dry	Dry	Dry	Dry
BH 23	C15-C28	mg/L	-	Dry	Dry	Dry	Dry
BH 23	C29-C36	mg/L	-	Dry	Dry	Dry	Dry
BH 23	C10-C36	mg/L	10 **	Dry	Dry	Dry	Dry
BH 23	CS-CS	mg/L	7 (NEPM F1)	Dry	Dry	Dry	Dry
BH 23	Xylene	mg/L	0.35	Dry	Dry	Dry	Dry
BH 23	meta- & para-Xylene	mg/L	0.35	Dry	Dry	Dry	Dry
BH 23	ortho-Xylene	mg/L	0.35	Dry	Dry	Dry	Dry
BH 23	Zinc	mg/L	0.008	Dry	Dry	Dry	Dry

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Site No	Analyte	Units	ANZECC 2000 Freshwater (95% Species)	Nov-15	Feb-16	Feb-17	Feb-18
Leach PH	Alkalinity (CaCO ₃)	mg/L	-	727	3880	2	<1
Leach PH	Aluminium	mg/L	0.055	0.16	0.02	0.46	0.28
Leach PH	Ammonia as N	mg/L	0.9 (pH 8) - 2.57 (pH 6)	42.1	425	1.25	1.64
Leach PH	Arsenic	mg/L	0.024	0.004	0.007	0.002	<0.001
Leach PH	Barium	mg/L	-	0.025	0.266	0.018	0.032
Leach PH	Benzene	mg/L	0.95	<0.001	0.016	<1	<1
Leach PH	Bicarbonate	mg/L	-	727	3880	2	<1
Leach PH	Cadmium	mg/L	0.0002	<0.0001	<0.0001	0.0013	0.0004
Leach PH	Calcium	mg/L	-	41	480	14	18
Leach PH	Carbonate	mg/L	-	<1	<1	<1	<1
Leach PH	Chloride	mg/L	-	#N/A	NR	-	120
Leach PH	Hexavalent Chromium	mg/L	0.001	<0.01	<0.01	<0.01	<0.01
Leach PH	Total Chromium	mg/L	0.008 HMTV CrVI	0.004	0.051	<0.001	<0.001
Leach PH	Cobalt	mg/L	-	0.003	0.014	0.028	0.012
Leach PH	Conductivity	uS/cm	2200 max - 125 min	3260	9760	374	591
Leach PH	Copper	mg/L	0.0014	<0.001	<0.001	0.014	0.001
Leach PH	Ethyl- Benzene	mg/L	0.14 **	<0.002	0.393	<2	<2
Leach PH	Fluoride	mg/L	-	0.1	0.2	0.2	0.7
Leach PH	Lead	mg/L	0.0034	<0.001	<0.001	<0.001	<0.001
Leach PH	Magnesium	mg/L	-	104	304	8	12
Leach PH	Manganese	mg/L	1.9	0.22	2.85	0.521	0.464
Leach PH	Mercury	mg/L	0.0006	<0.0001	<0.0001	<0.0001	<0.0001
Leach PH	Nitrate	mg/L	0.7	0.04	<0.01	0.26	0.53
Leach PH	Nitrite	mg/L	-	0.05	0.02	0.07	<0.01
Leach PH	OCF's	mg/L	-	-	-	-	-
Leach PH	Aldrin	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
Leach PH	alpha-BHC	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
Leach PH	alpha-Endosulphan	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
Leach PH	beta-BHC	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
Leach PH	beta-Endosulphan	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
Leach PH	Chlordane	mg/L	0.00008	<0.0005	<0.0005	<0.5	<0.5
Leach PH	cis-Chlordane	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
Leach PH	trans-Chlordane	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
Leach PH	DDD	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
Leach PH	DDE	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
Leach PH	DDT	mg/L	0.00001	<0.002	<0.002	<2.0	<2.0
Leach PH	delta-BHC	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
Leach PH	Dieldrin	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
Leach PH	Endosulphan Sulphate	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
Leach PH	Endrin	mg/L	0.00002	<0.0005	<0.0005	<0.5	<0.5
Leach PH	Endrin ketone	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
Leach PH	Endrin Aldehyde	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
Leach PH	gamma-BHC	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
Leach PH	Heptachlor	mg/L	0.00009	<0.0005	<0.0005	<0.5	<0.5
Leach PH	Heptachlor Epoxide	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
Leach PH	Hexachlorobenzene	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
Leach PH	Lindane	mg/L	0.0002	#N/A	-	<0.5	<0.5
Leach PH	Methoxychlor	mg/L	-	<0.002	<0.002	<2.0	<2.0

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Site No	Analyte	Units	ANZECC 2000 Freshwater (95% Species)	Nov-15	Feb-16	Feb-17	Feb-18
Leach PH	OPP's	mg/L	-	-	-	-	-
Leach PH	Chlorpyrifos	mg/L	0.00001	<0.0005	<0.0005	<0.5	<0.5
Leach PH	Diazinon	mg/L	0.00001	<0.0005	<0.0005	<0.5	<0.5
Leach PH	Dichlorvos	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
Leach PH	Ethion	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
Leach PH	Fenthion	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
Leach PH	Malathion	mg/L	0.00005	<0.0005	<0.0005	<0.5	<0.5
Leach PH	Parathion	mg/L	0.000004	<0.002	<0.002	<2.0	<2.0
Leach PH	Demeton-S-methyl	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
Leach PH	Monocrotophos	mg/L	-	<0.002	<0.002	<2.0	<2.0
Leach PH	Dimethoate	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
Leach PH	Chlorpyrifos-methyl	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
Leach PH	Parathion-methyl	mg/L	-	<0.002	<0.002	<2.0	<2.0
Leach PH	Primphos-ethyl	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
Leach PH	Bromophos-ethyl	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
Leach PH	Fenamiphos	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
Leach PH	Prothiofos	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
Leach PH	Carbophenothion	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
Leach PH	Azinphos Methyl	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
Leach PH	Chlorfenvinphos	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
Leach PH	Phosphate	mg/L	0.02 FRP*	0.16	1.02	<0.01	<0.01
Leach PH	Total Phosphorus	mg/L	0.05	0.4	2.16	0.01	0.1
Leach PH	PAHs	mg/L	-	-	-	-	-
Leach PH	Acenaphthene	mg/L	-	<0.001	<0.001	<1.0	<1.0
Leach PH	Acenaphthylene	mg/L	-	<0.001	<0.001	<1.0	<1.0
Leach PH	Anthracene	mg/L	-	<0.001	<0.001	<1.0	<1.0
Leach PH	Benzo(a)anthracene	mg/L	-	<0.001	<0.001	<1.0	<1.0
Leach PH	Benzo(a)pyrene	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
Leach PH	Benzo(b)(k)fluoranthene	mg/L	-	<0.001	<0.001	<1.0	<1.0
Leach PH	Benzo(b)fluoranthene	mg/L	-	<0.001	<0.001	<1.0	<1.0
Leach PH	Benzo(k)fluoranthene	mg/L	-	<0.001	<0.001	<1.0	<1.0
Leach PH	Benzo(g,h,i)perylene	mg/L	-	<0.001	<0.001	<1.0	<1.0
Leach PH	Chrysene	mg/L	-	<0.001	<0.001	<1.0	<1.0
Leach PH	Dibenz(a,h)anthracene	mg/L	-	<0.001	<0.001	<1.0	<1.0
Leach PH	Fluoranthene	mg/L	-	<0.001	<0.001	<1.0	<1.0
Leach PH	Fluorene	mg/L	-	<0.001	<0.001	<1.0	<1.0
Leach PH	Indeno(1,2,3-c,d)pyrene	mg/L	-	<0.001	<0.001	<1.0	<1.0
Leach PH	Naphthalene	mg/L	0.016	<0.001	0.0026	<1.0	<1.0
Leach PH	PAH (total)	mg/L	-	<0.0005	0.0026	<0.5	<0.5
Leach PH	Phenanthrene	mg/L	-	<0.001	<0.001	<1.0	<1.0
Leach PH	Pyrene	mg/L	-	<0.001	<0.001	<1.0	<1.0
Leach PH	pH	pH units	8.0 - 6.5*	7.5	7.1	5.7	4.3
Leach PH	Potassium	mg/L	-	97	297	-	5
Leach PH	Sodium	mg/L	-	394	730	-	60
Leach PH	Sulphate	mg/L	-	5	5	79	85
Leach PH	Toluene	mg/L	0.3 0**	<0.002	0.017	<2	<2
Leach PH	Total Phenolics	mg/L	0.32	<0.05	<0.05	-	<0.05
Leach PH	Total Dissolved Solids	mg/L	1500 max - 85 min	1840	4390	170	261
Leach PH	Total Organic Carbon	mg/L	-	43	116	6.8	2
Leach PH	TPHs	mg/L	-	-	-	-	-
Leach PH	C10-C14	mg/L	-	<0.05	1	<50	<50
Leach PH	C15-C28	mg/L	-	0.27	1.61	<100	<100
Leach PH	C29-C36	mg/L	-	<0.05	<0.05	<50	<50
Leach PH	C10-C36	mg/L	10 **	0.27	2.61	<50	<50
Leach PH	CS-C9	mg/L	7 (NEPM F1)	<0.02	1.32	<20	<20
Leach PH	Total Suspended Solids	mg/L	50 ****	<5	40	<5	35
Leach PH	Xylene	mg/L	0.35	<0.002	0.105	<2	<2
Leach PH	meta- & para-Xylene	mg/L	0.35	<0.002	0.08	<2	<2
Leach PH	ortho-Xylene	mg/L	0.35	<0.002	0.025	<2	<2
Leach PH	Zinc	mg/L	0.008	<0.005	0.014	0.231	0.088

TABLE 7: Annual Water Quality Monitoring Results (2017-2018)
West Nowra Recycling and Waste Facility : EPL 5877

Site No	Analyte	Units	ANZECC 2000 Freshwater (95% Species)	Nov-15	Feb-16	Feb-17	Feb-18
LD 1	Alkalinity (CaCO ₃)	mg/L	-	761	541	291	318
LD 1	Aluminium	mg/L	0.056	0.21	0.14	0.24	1.56
LD 1	Ammonia as N	mg/L	0.9 (pH 8) - 2.57 (pH 6)	43.1	13.4	15.7	2.57
LD 1	Arsenic	mg/L	0.024	0.004	0.003	0.003	0.004
LD 1	Barium	mg/L	-	0.026	0.022	0.033	0.078
LD 1	Benzene	mg/L	0.95	<0.001	<0.001	<1	<1
LD 1	Bicarbonate	mg/L	-	751	456	251	316
LD 1	Cadmium	mg/L	0.0002	<0.0001	<0.0001	<0.0001	<0.0001
LD 1	Calcium	mg/L	-	42	28	31	43
LD 1	Carbonate	mg/L	-	<1	85	40	2
LD 1	Chloride	mg/L	-	587	573	309	799
LD 1	Hexavalent Chromium	mg/L	0.001	<0.01	<0.01	<0.01	<0.01
LD 1	Total Chromium	mg/L	0.008 HMTV CrVI	0.003	0.003	0.004	0.004
LD 1	Cobalt	mg/L	-	0.002	0.002	0.002	0.001
LD 1	Conductivity	uS/cm	2200 max - 125 min	3240	2780	1500	2970
LD 1	Copper	mg/L	0.0014	<0.001	0.001	0.008	0.007
LD 1	Ethyl- Benzene	mg/L	0.14 **	<0.002	<0.002	<2	<2
LD 1	Fluoride	mg/L	-	0.2	0.1	0.2	1.2
LD 1	Lead	mg/L	0.0034	<0.001	<0.001	<0.001	0.004
LD 1	Magnesium	mg/L	-	104	89	31	51
LD 1	Manganese	mg/L	1.9	0.217	0.073	0.042	0.081
LD 1	Mercury	mg/L	0.0006	<0.0001	<0.0001	<0.0001	<0.0001
LD 1	Nitrate	mg/L	0.7	0.05	<0.01	0.15	0.17
LD 1	Nitrite	mg/L	-	0.09	2.51	0.29	0.2
LD 1	OCF's	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
LD 1	Aldrin	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
LD 1	alpha-BHC	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
LD 1	alpha-Endosulphan	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
LD 1	beta-BHC	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
LD 1	beta-Endosulphan	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
LD 1	Chlordane	mg/L	0.00008	<0.0005	<0.0005	<0.5	<0.5
LD 1	cis-Chlordane	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
LD 1	trans-Chlordane	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
LD 1	DDD	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
LD 1	DDE	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
LD 1	DDT	mg/L	0.00001	<0.002	<0.002	<2.0	<2.0
LD 1	delta-BHC	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
LD 1	Dieldrin	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
LD 1	Endosulphan Sulphate	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
LD 1	Endrin	mg/L	0.00002	<0.0005	<0.0005	<0.5	<0.5
LD 1	Endrin ketone	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
LD 1	Endrin Aldehyde	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
LD 1	gamma-BHC	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
LD 1	Heptachlor	mg/L	0.00009	<0.0005	<0.0005	<0.5	<0.5
LD 1	Heptachlor Epoxide	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
LD 1	Hexachlorobenzene	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
LD 1	Lindane	mg/L	0.0002	#N/A	-	<0.5	<0.5
LD 1	Methoxychlor	mg/L	-	<0.002	<0.002	<2.0	<2.0

TABLE 7: Annual Water Quality Monitoring Results (2017-2018)
West Nowra Recycling and Waste Facility : EPL 5877

Site No	Analyte	Units	ANZECC 2000 Freshwater (95% Species)	Nov-15	Feb-16	Feb-17	Feb-18
LD 1	OPPs	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
LD 1	Chlorpyrifos	mg/L	0.00001	<0.0005	<0.0005	<0.5	<0.5
LD 1	Diazinon	mg/L	0.00001	<0.0005	<0.0005	<0.5	<0.5
LD 1	Dichlorvos	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
LD 1	Ethion	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
LD 1	Fenthion	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
LD 1	Malathion	mg/L	0.00005	<0.0005	<0.0005	<0.5	<0.5
LD 1	Parathion	mg/L	0.000004	<0.002	<0.003	<2.0	<2.0
LD 1	Demeton-S-methyl	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
LD 1	Monocrotophos	mg/L	-	<0.002	<0.002	<2.0	<2.0
LD 1	Dimethoate	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
LD 1	Chlorpyrifos-methyl	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
LD 1	Permethrin-methyl	mg/L	-	<0.002	<0.002	<2.0	<2.0
LD 1	Primphos-ethyl	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
LD 1	Bromophos-ethyl	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
LD 1	Fenamiphos	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
LD 1	Prothiofos	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
LD 1	Carbophenothion	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
LD 1	Azinphos Methyl	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
LD 1	Chlorfenvinphos	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
LD 1	Phosphate	mg/L	0.02 FRP*	0.15	1.15	0.03	0.02
LD 1	PAHs	mg/L	0.05	-	-	-	-
LD 1	Acenaphthene	mg/L	-	<0.001	<0.001	<1.0	<1.0
LD 1	Acenaphthylene	mg/L	-	<0.001	<0.001	<1.0	<1.0
LD 1	Anthracene	mg/L	-	<0.001	<0.001	<1.0	<1.0
LD 1	Benzo(a)anthracene	mg/L	-	<0.001	<0.001	<1.0	<1.0
LD 1	Benzo(a)pyrene	mg/L	-	<0.0005	<0.0005	<0.5	<0.5
LD 1	Benzo(b)&(k)fluoranthene	mg/L	-	<0.001	<0.001	<1.0	<1.0
LD 1	Benzo(b)fluoranthene	mg/L	-	<0.001	<0.001	<1.0	<1.0
LD 1	Benzo(k)fluoranthene	mg/L	-	<0.001	<0.001	<1.0	<1.0
LD 1	Chrysene	mg/L	-	<0.001	<0.001	<1.0	<1.0
LD 1	Dibenz(a,h)perylene	mg/L	-	<0.001	<0.001	<1.0	<1.0
LD 1	Fluorene	mg/L	-	<0.001	<0.001	<1.0	<1.0
LD 1	Indeno(1,2,3-c,d)pyrene	mg/L	-	<0.001	<0.001	<1.0	<1.0
LD 1	Naphthalene	mg/L	-	<0.001	<0.001	<1.0	<1.0
LD 1	PAH (total)	mg/L	0.016	<0.0005	<0.0005	<0.5	<0.5
LD 1	Phenanthrene	mg/L	-	<0.001	<0.001	<1.0	<1.0
LD 1	Pyrene	mg/L	-	<0.001	<0.001	<1.0	<1.0
LD 1	pH	pH units	8.0 - 6.5*	7.9	8.5	8.8	8.3
LD 1	Potassium	mg/L	-	97	104	----	86
LD 1	Sodium	mg/L	-	394	374	----	445
LD 1	Sulphate	mg/L	-	<5	8	23	22
LD 1	Toluene	mg/L	0.3 0**	<0.002	<0.002	<2	<2
LD 1	Total Phenolics	mg/L	0.32	<0.05	<0.05	-	<0.05
LD 1	Total Dissolved Solids	mg/L	1500 max - 85 min	1740	1510	716	1480
LD 1	Total Organic Carbon	mg/L	-	43.7	43	36.9	46
LD 1	TPHs	mg/L	-	<0.05	<0.05	<50	<50
LD 1	C10-C14	mg/L	-	0.24	0.014	<100	<100
LD 1	C15-C28	mg/L	-	<0.05	<0.05	<60	<60
LD 1	C29-C36	mg/L	-	0.24	0.14	<50	<50
LD 1	C10-C36	mg/L	10 **	<0.02	<0.02	<20	<20
LD 1	C8-C9	mg/L	7 (NEPM F1)	0.42	0.19	<2	0.74
LD 1	Total Phosphorus	mg/L	0.05	5	25	5	146
LD 1	Total Suspended Solids	mg/L	50 ****	<0.002	<0.002	<2	<2
LD 1	Xylene	mg/L	0.35	<0.002	<0.002	<2	<2
LD 1	meta- & para-Xylene	mg/L	0.35	<0.002	<0.002	<2	<2
LD 1	ortho-Xylene	mg/L	0.35	<0.002	<0.002	<2	<2
LD 1	Zinc	mg/L	0.008	<0.005	<0.005	0.008	0.015

Australian and New Zealand Environment and Conservation Council, Guidelines for Fresh and Marine Water Quality (ANZECC 2000)

*ANZECC 2000 Trigger Levels for Fresh Water & Lowland Rivers (Table 3.3.2) in South East Australia

**NSW DEC (1994) Guidelines for Assessing Service Station Sites - Threshold Concentrations for Aquatic Environments - Fresh Waters

****NEPM 2013 Schedule B1 Guideline on Investigation Levels for Soil and Groundwater

*****ANZECC 2000 Trigger Levels for Lowland Rivers (Table 8.2.12) in New South Wales

FRP = Filterable Reactive Phosphate

Leach PH = Leachate Pump House

Values that exceed the EPL ANZECC guidelines are shaded

CHARTS

Chart 1 to Chart 15 – Quarterly Results West Nowra Recycling & Waste Facility

Chart 16 to Chart 54 – Annual Results West Nowra Recycling & Waste Facility

Chart 1: Ammonia as N

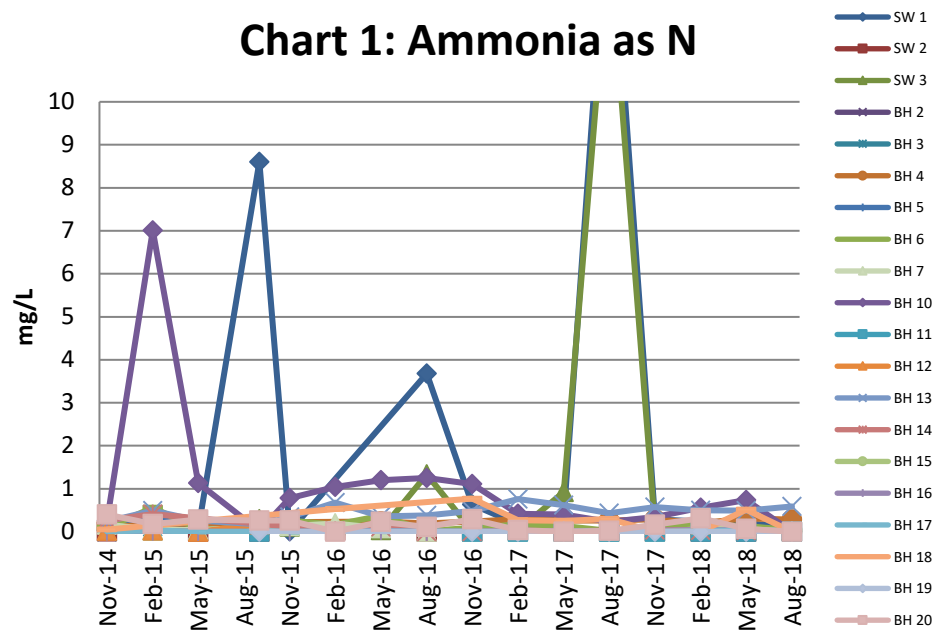


Chart 2: pH

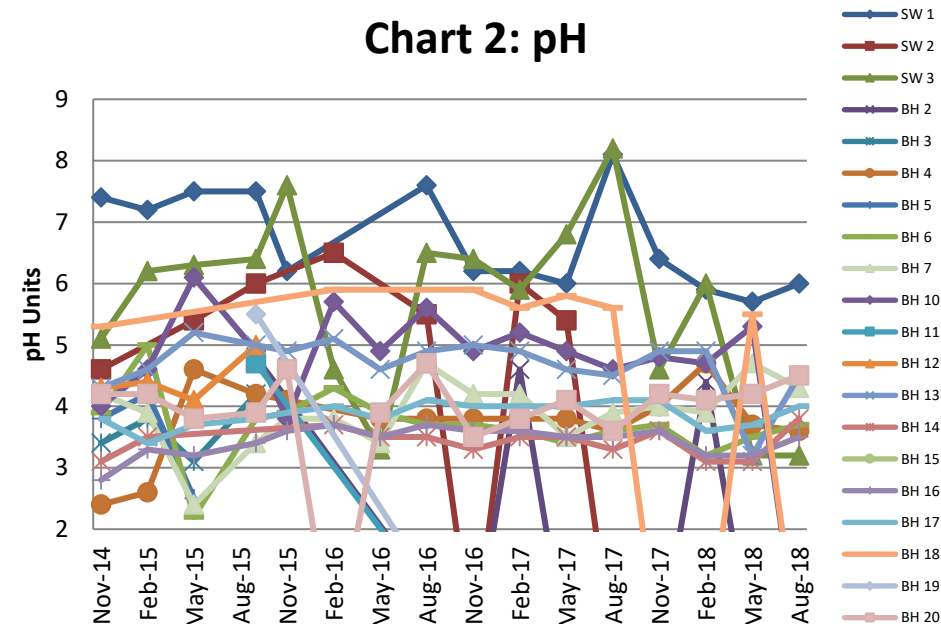


Chart 3: Potassium

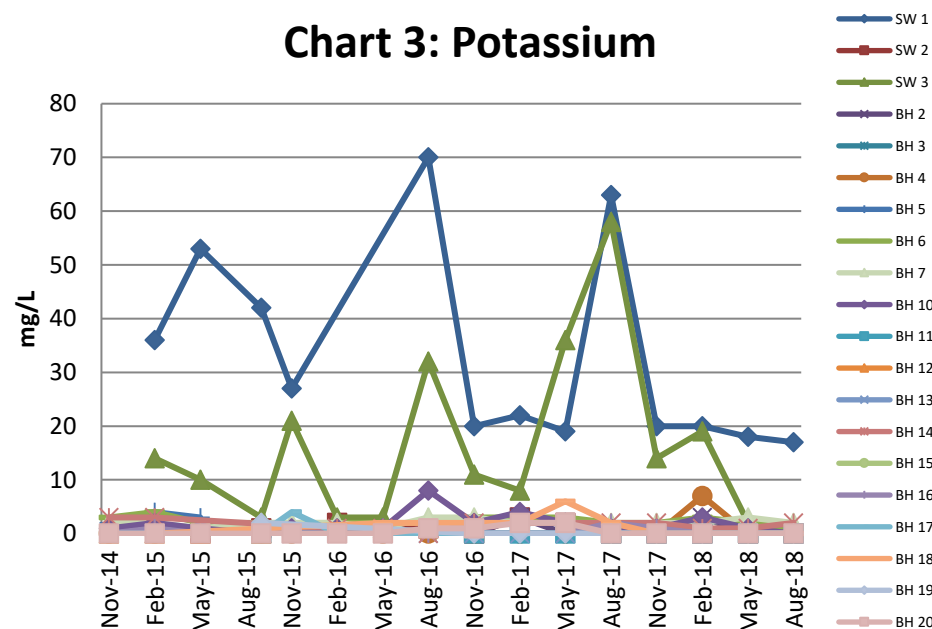


Chart 4: Total Dissolved Solids

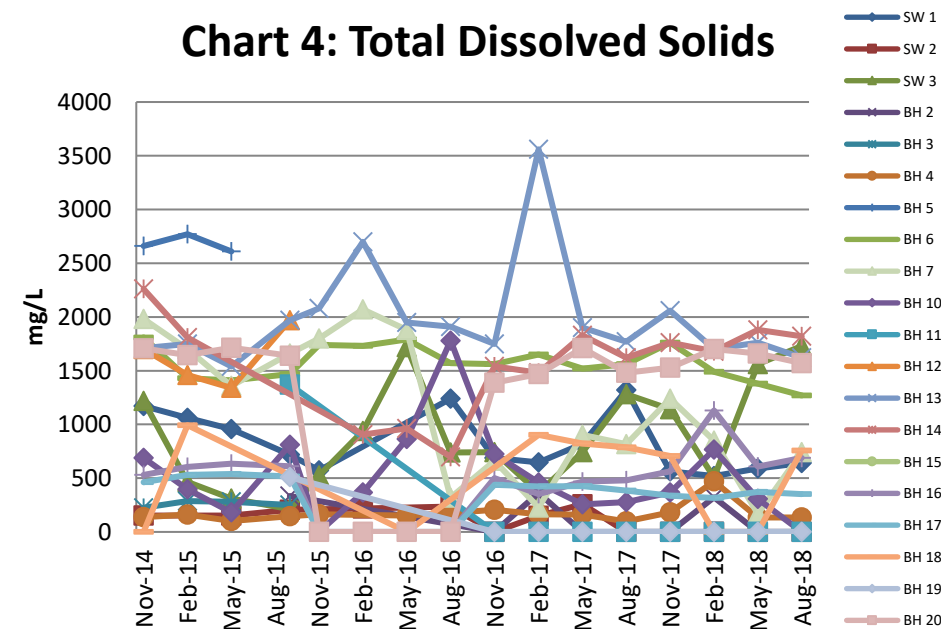


Chart 5: Total Organic Carbon

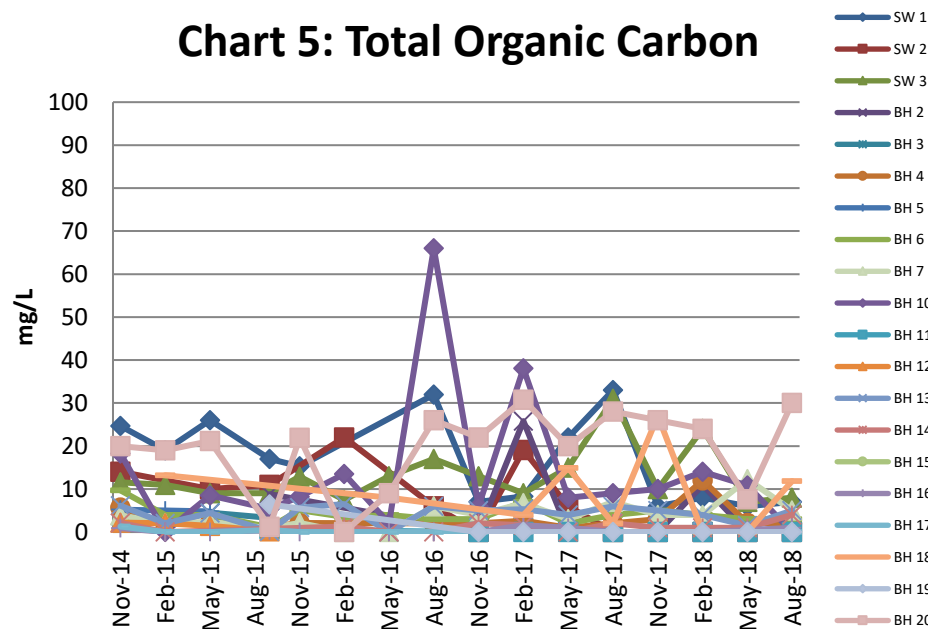


Chart 6: Alkalinity (CaCO₃)

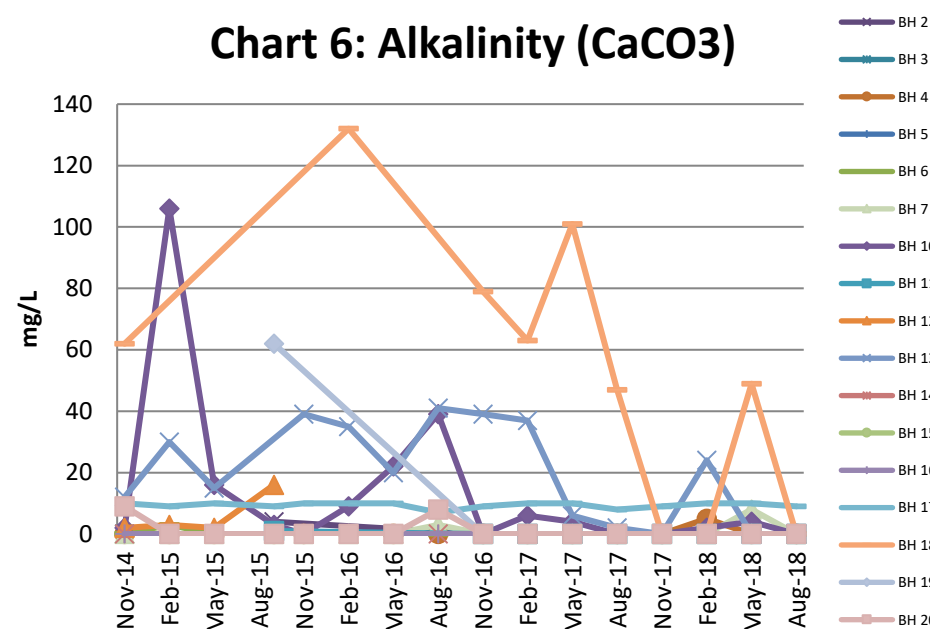


Chart 7: Calcium

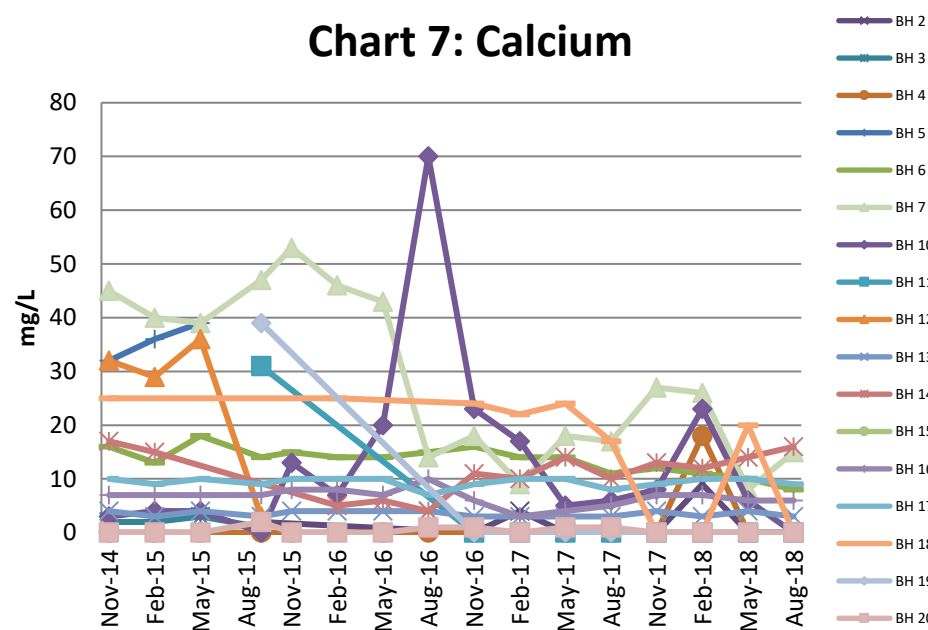


Chart 8: Chloride

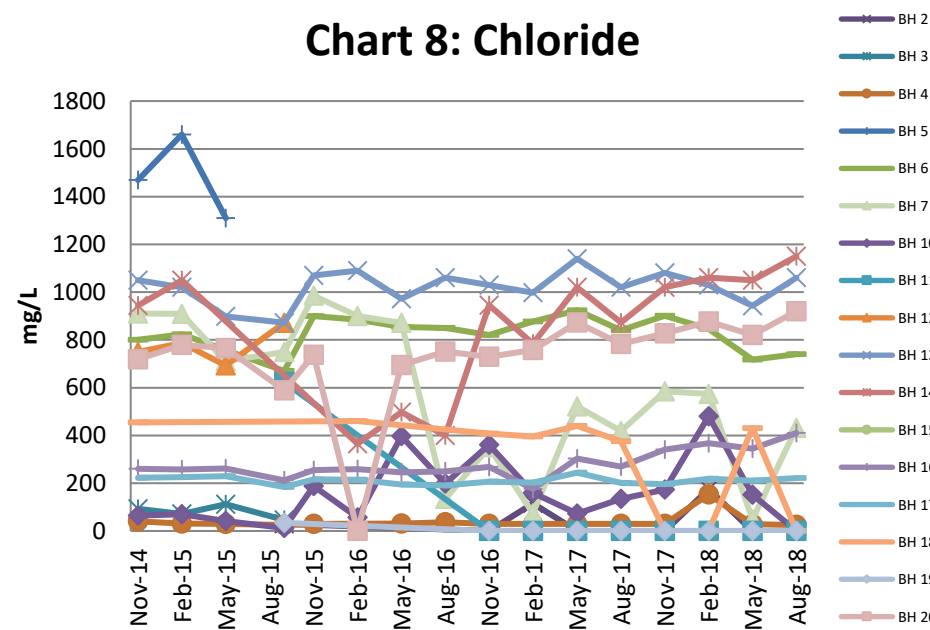


Chart 9: Magnesium

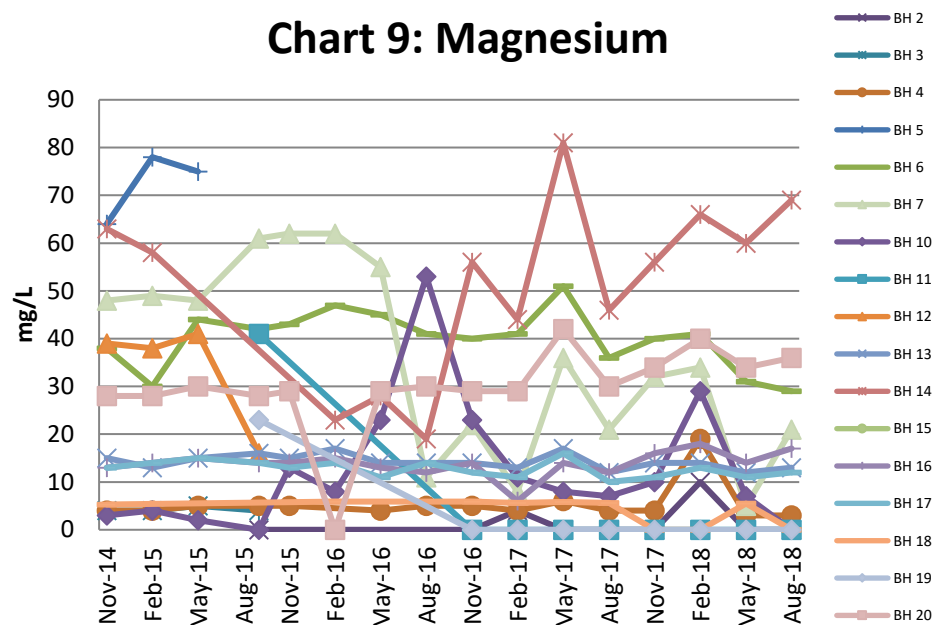


Chart 10: Sodium

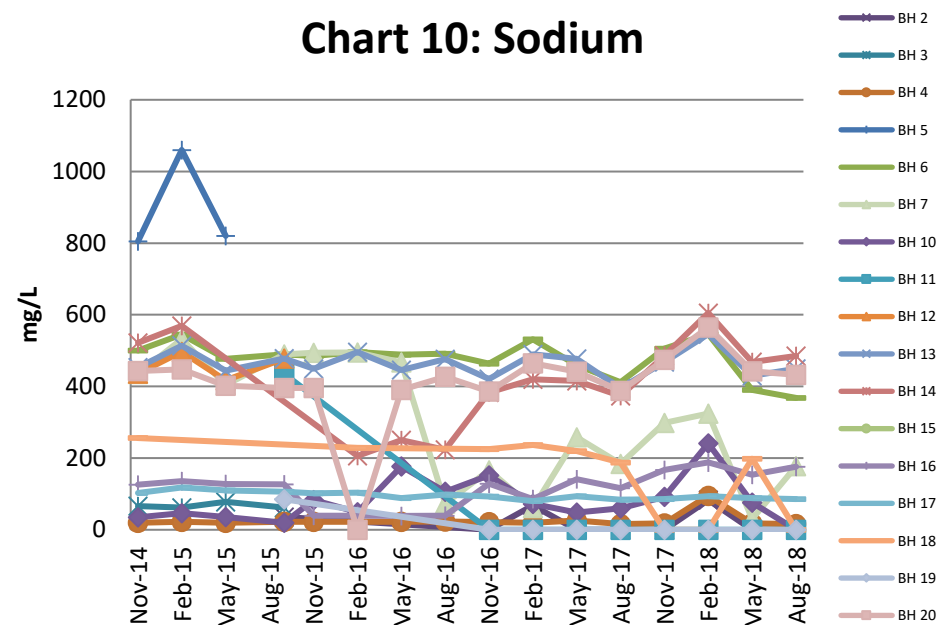


Chart 11: Standing Water Level

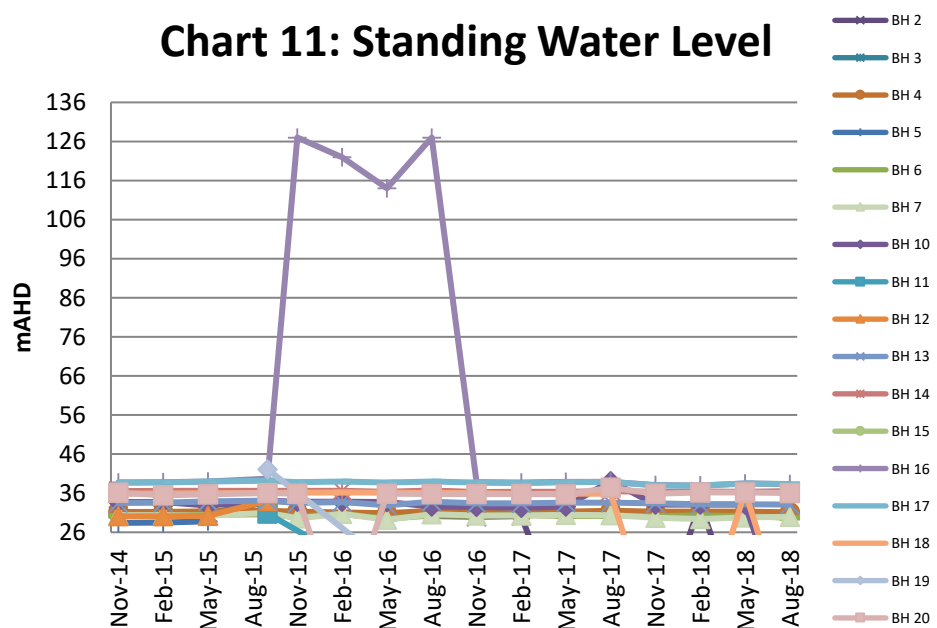


Chart 12: Sulphate

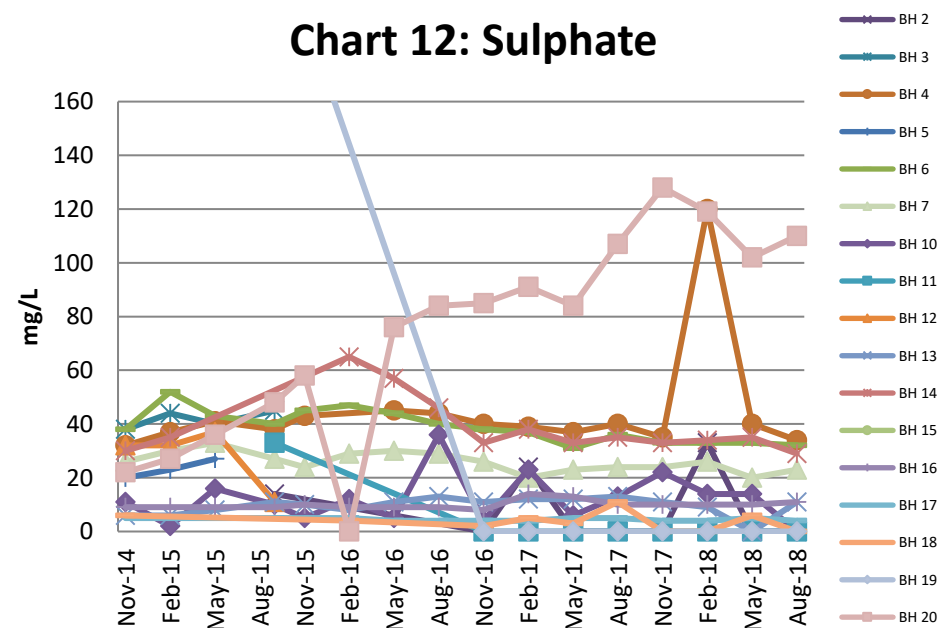


Chart 13: BOD5

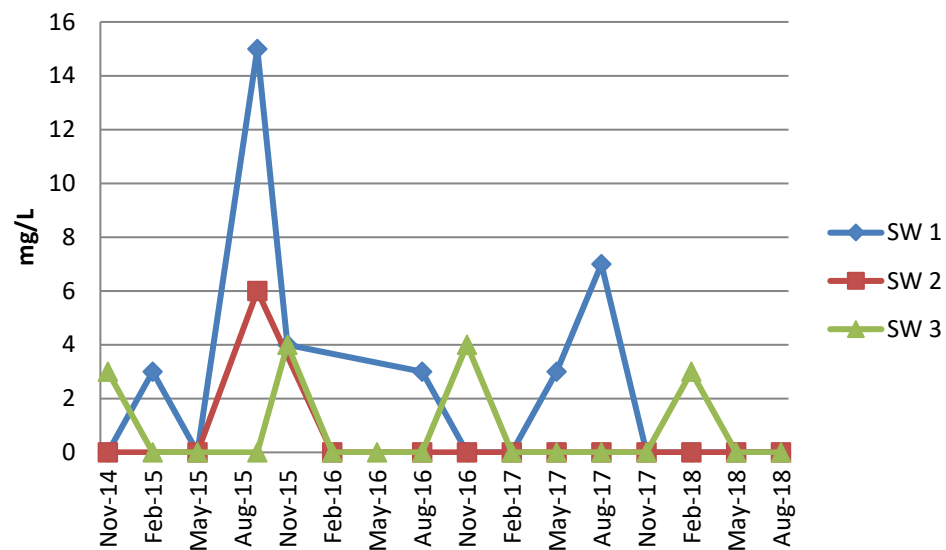


Chart 14: Conductivity

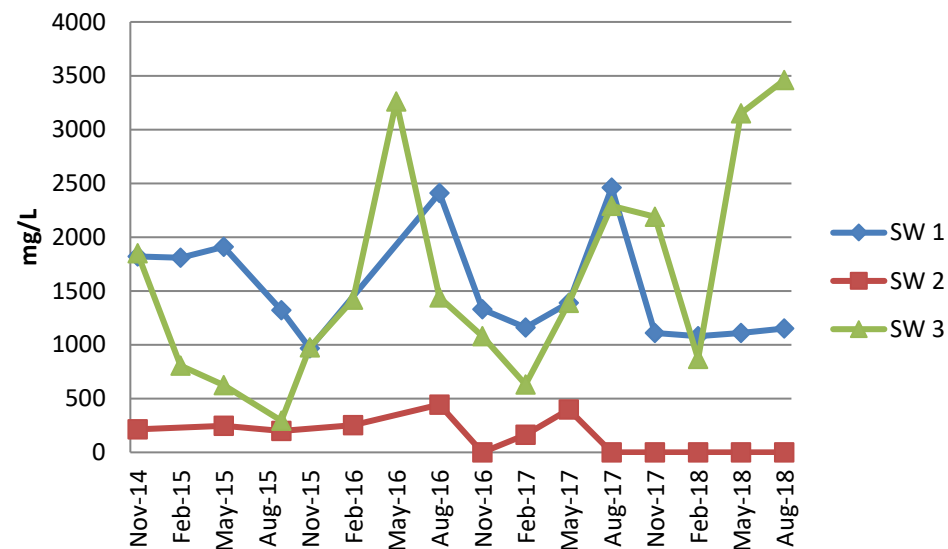


Chart 15: Dissolved Oxygen

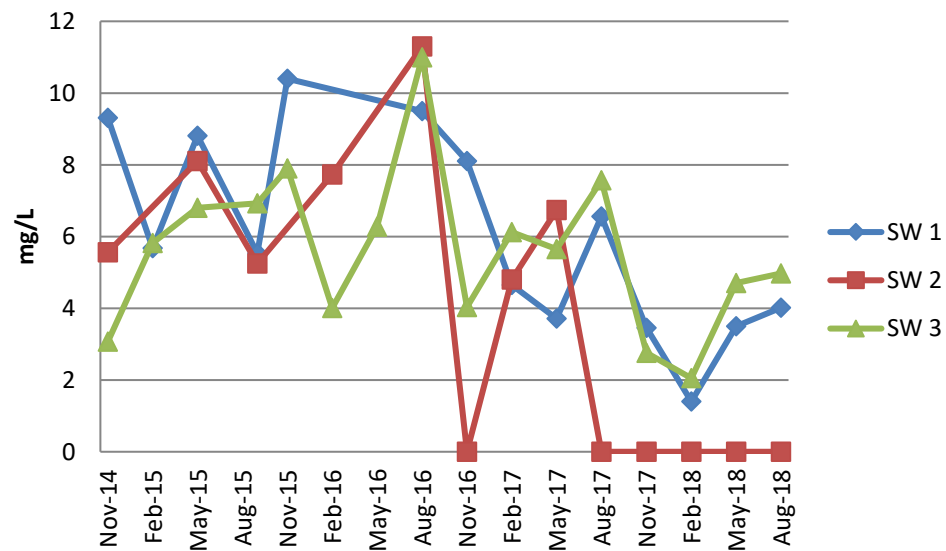


Chart 16: Ammonia as N

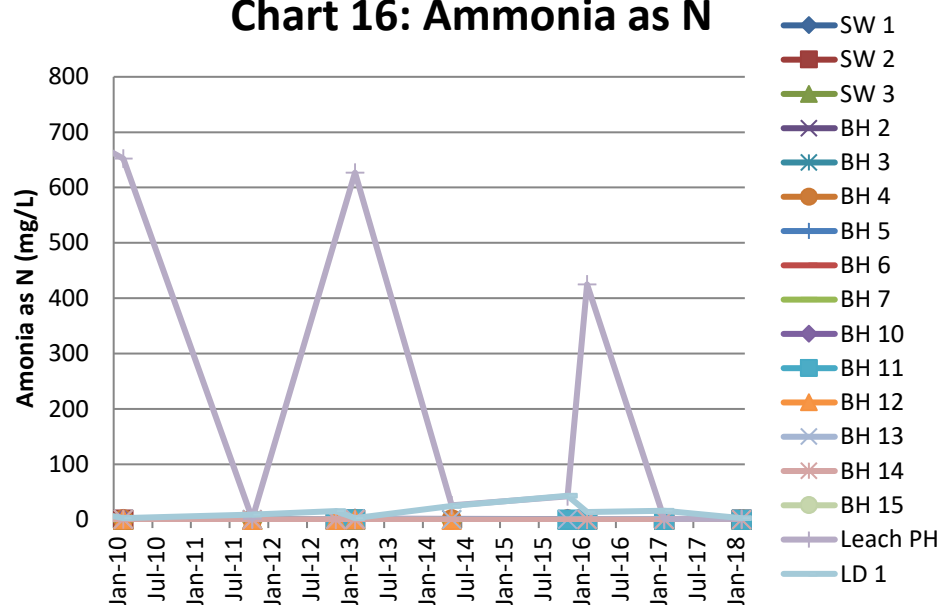


Chart 17: pH

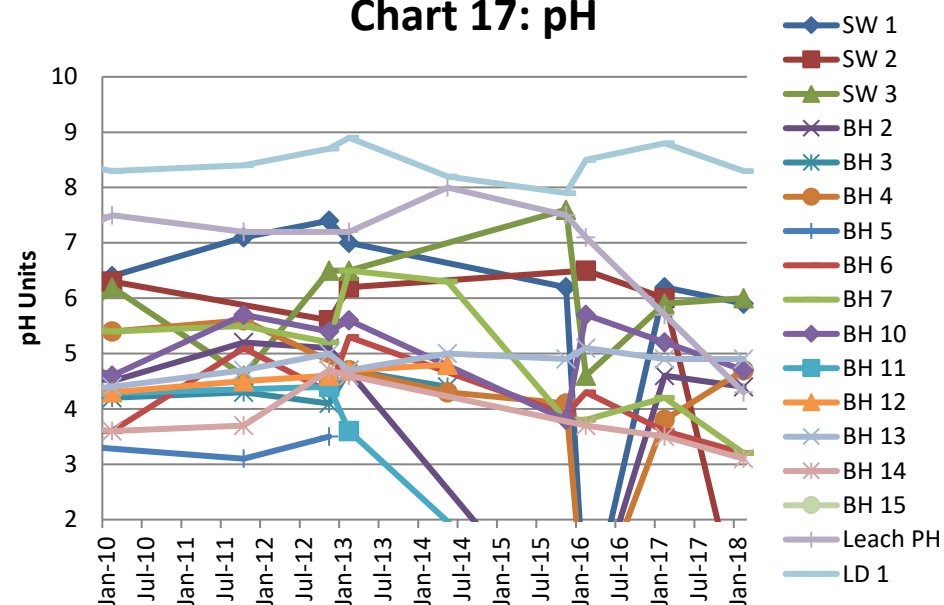


Chart 18: Aluminium

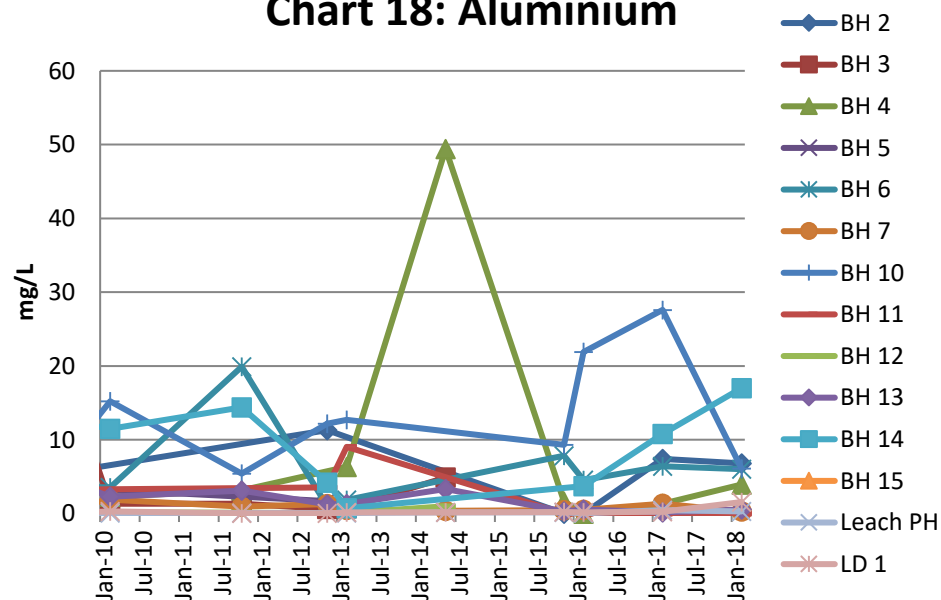


Chart 19: Arsenic

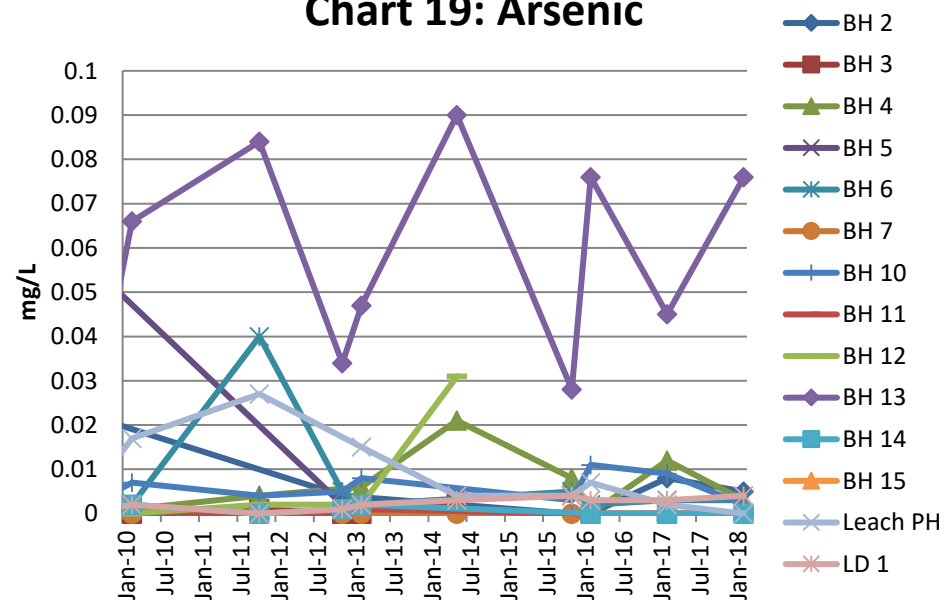


Chart 20: Barium

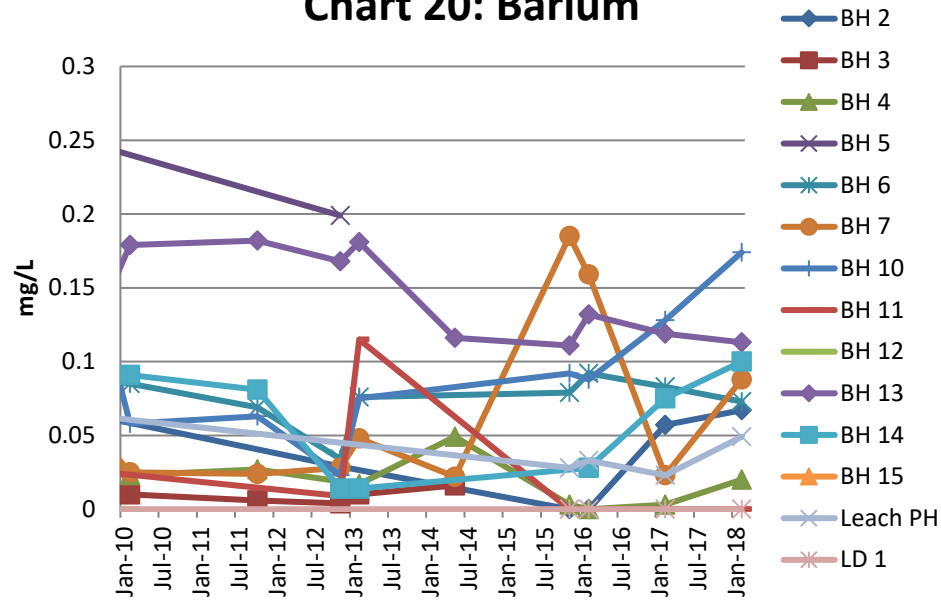


Chart 21: Benzene

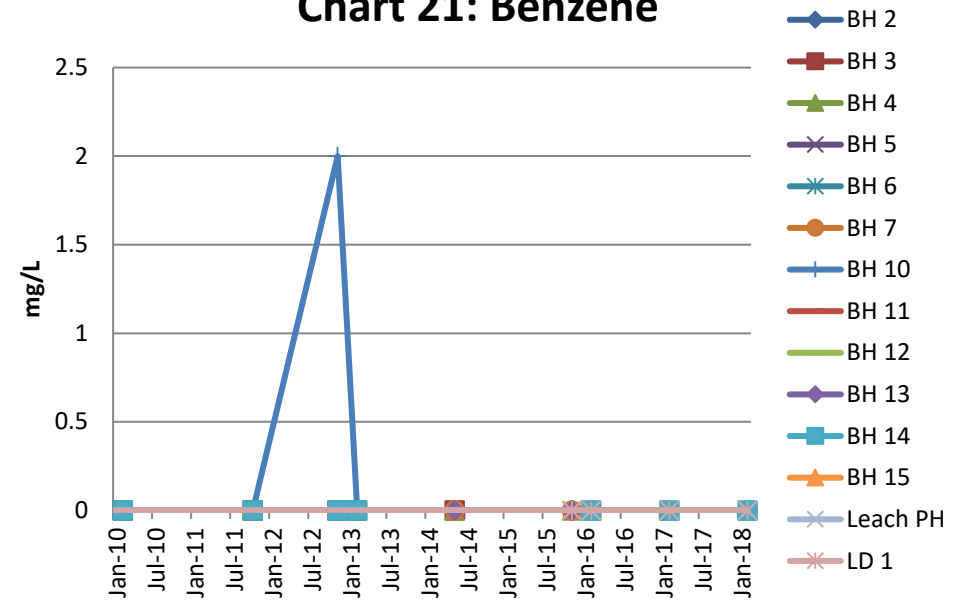


Chart 22: Bicarbonate

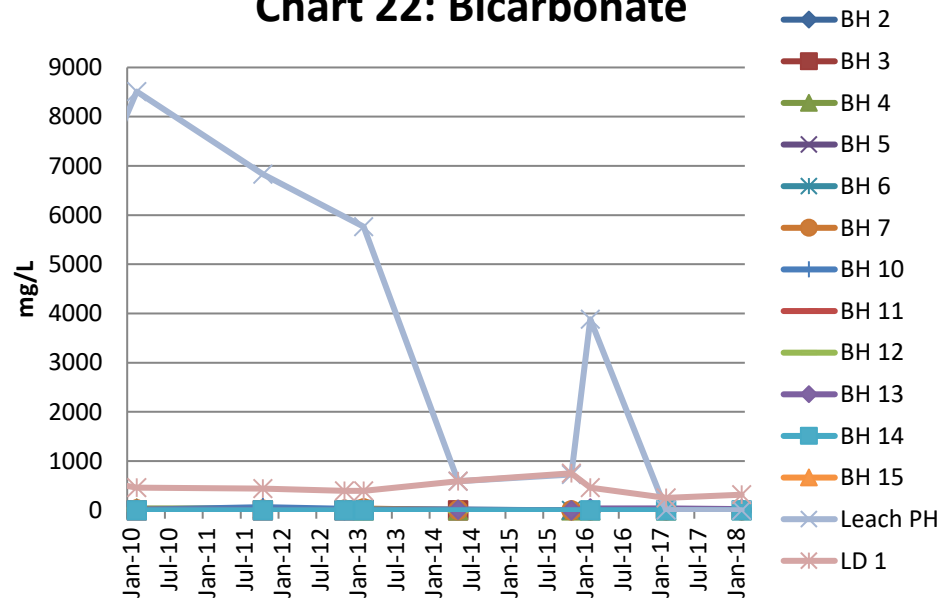


Chart 23: Cadmium

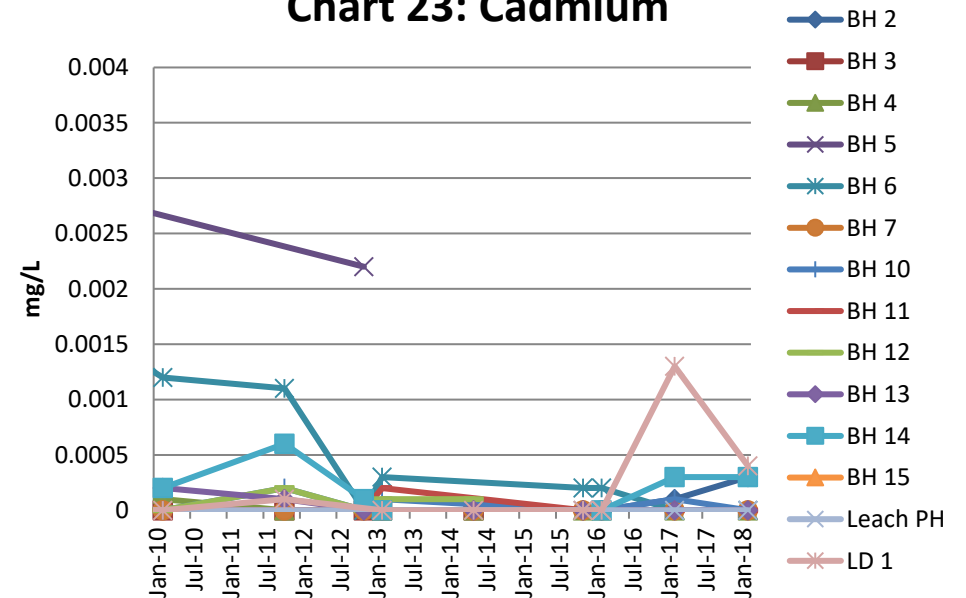


Chart 24: Calcium

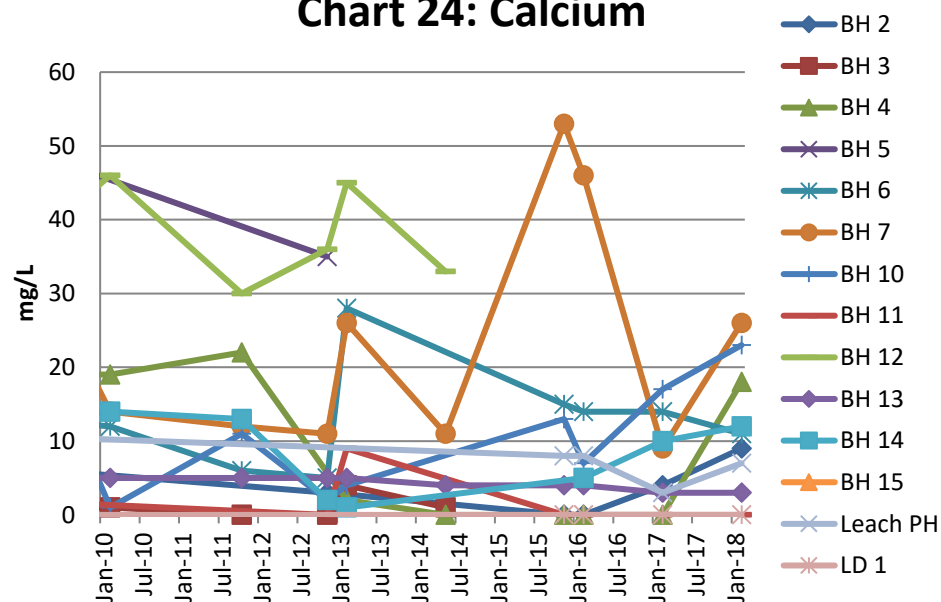


Chart 25: Carbonate

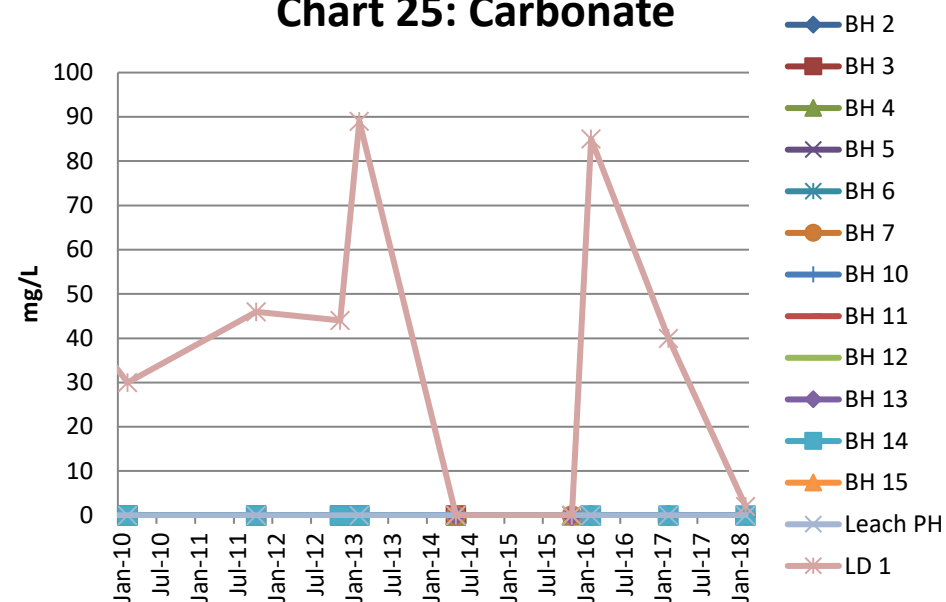


Chart 26: Chloride

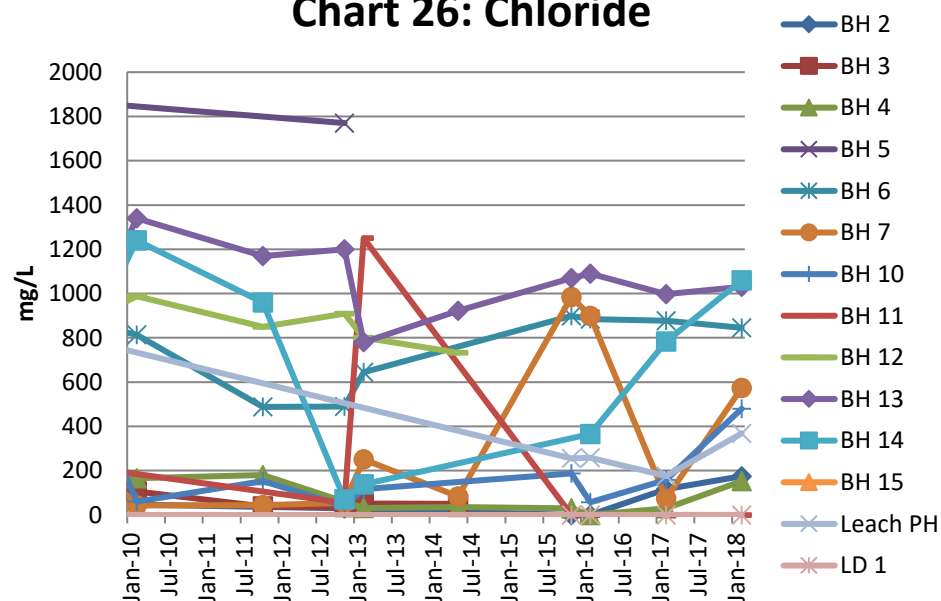


Chart 27: Hexavalent Chromium

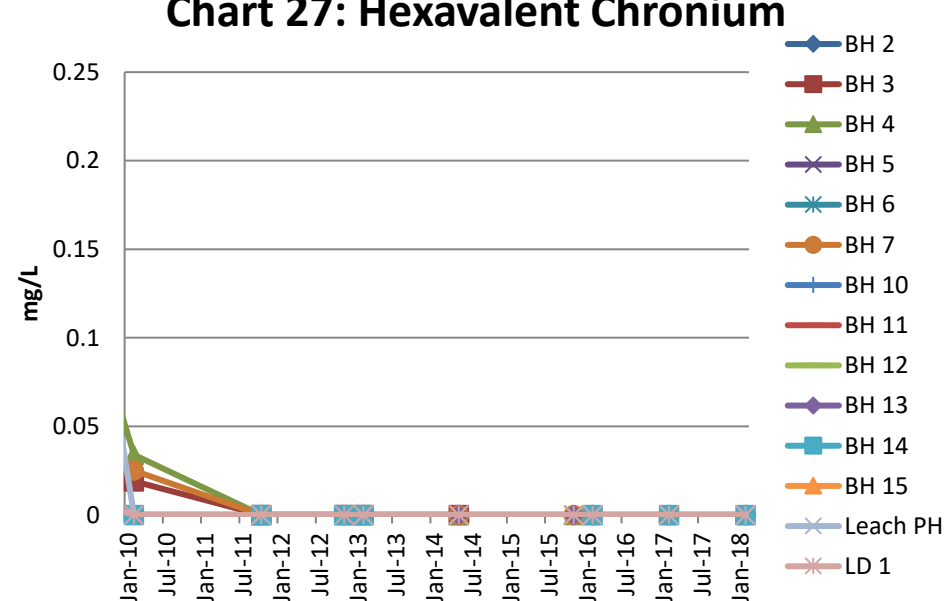


Chart 28: Total Chromium

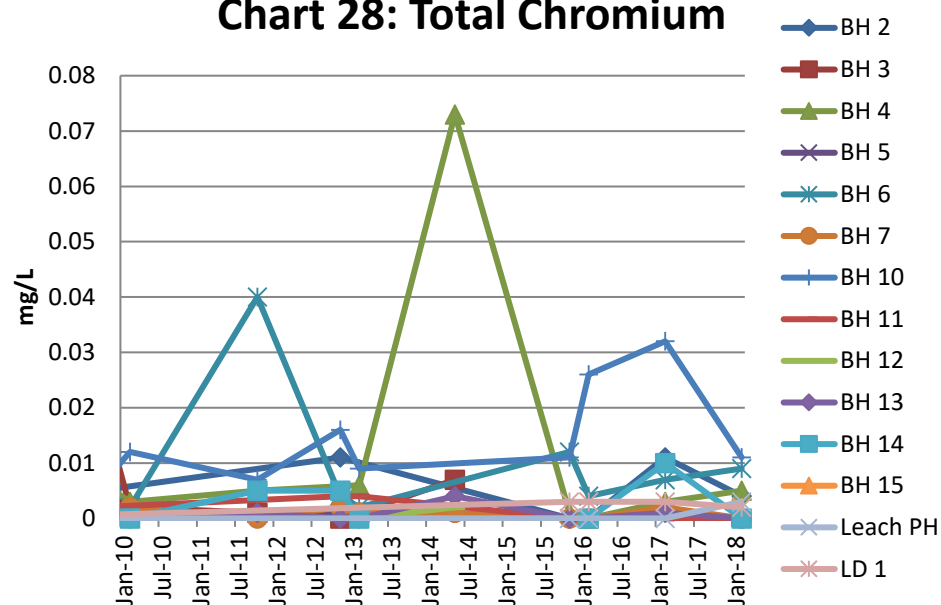


Chart 29: Cobalt

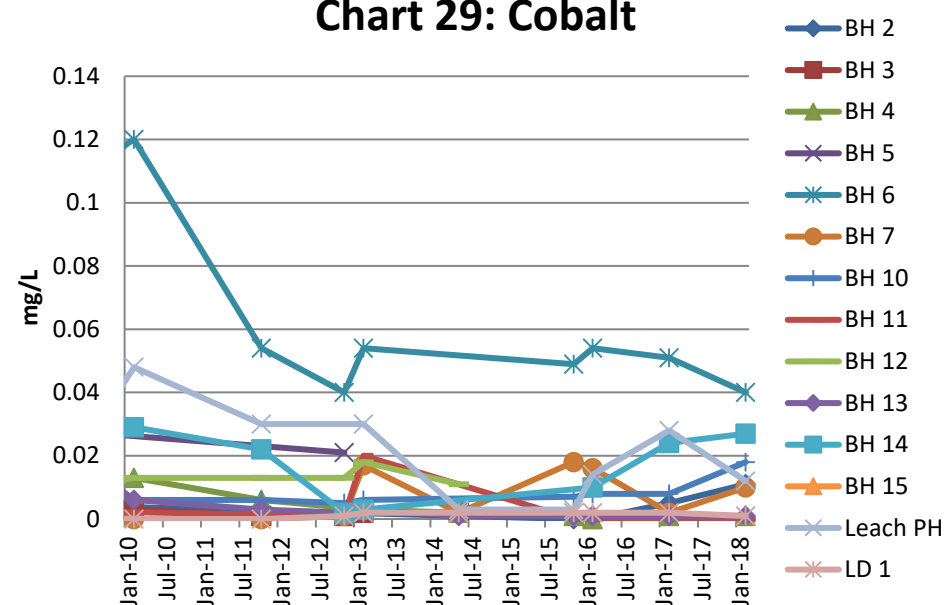


Chart 30: Copper

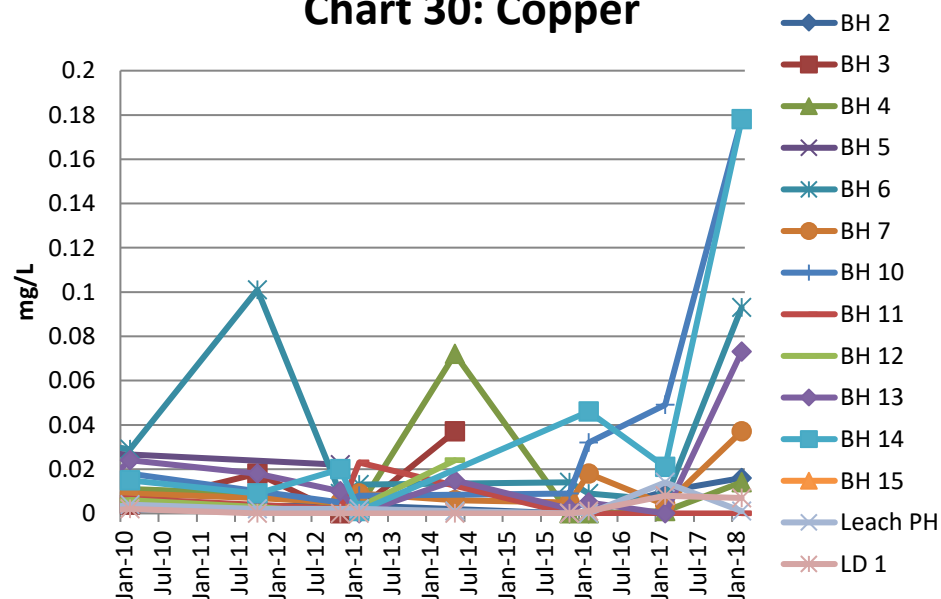


Chart 31: Ethyl- Benzene

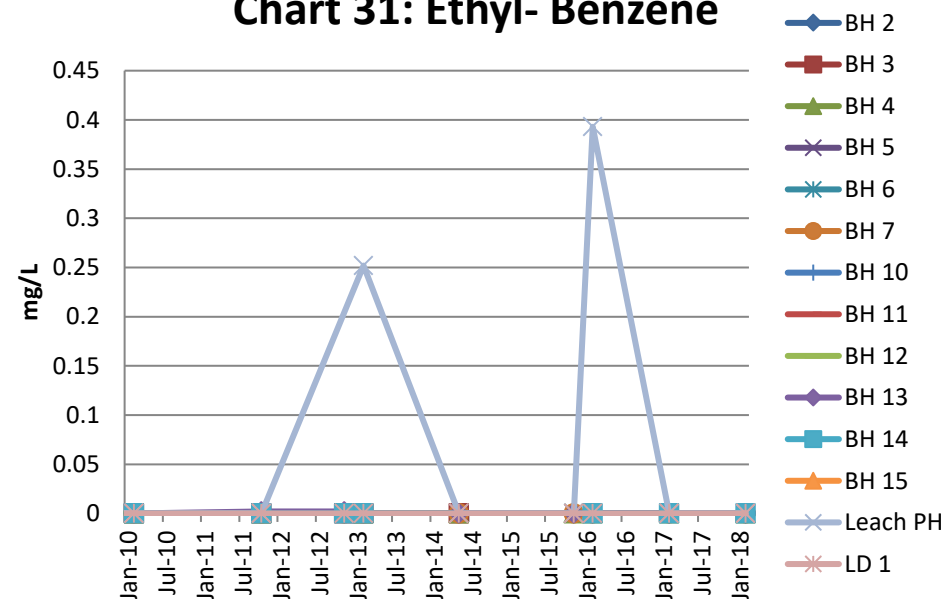


Chart 32: Fluoride

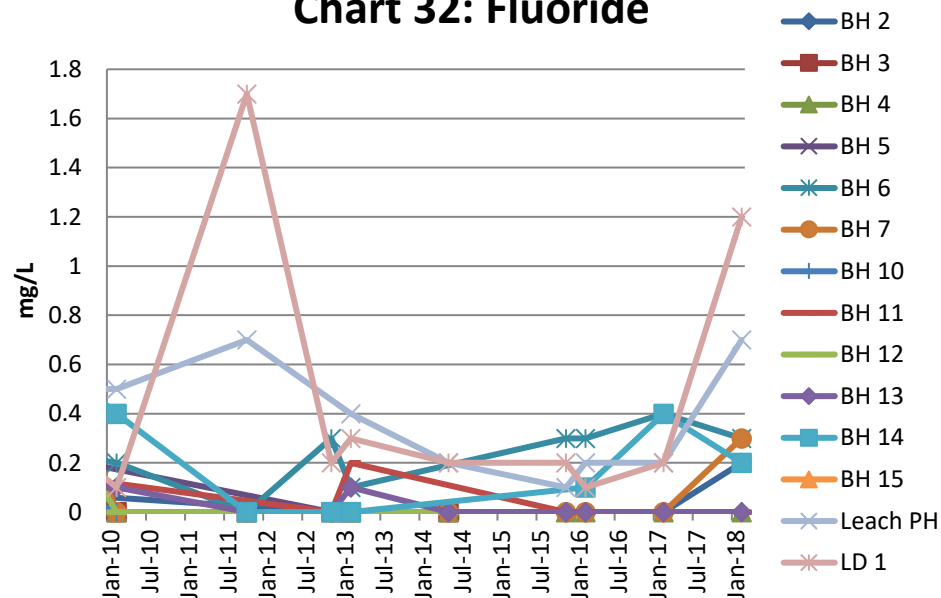


Chart 33: Lead

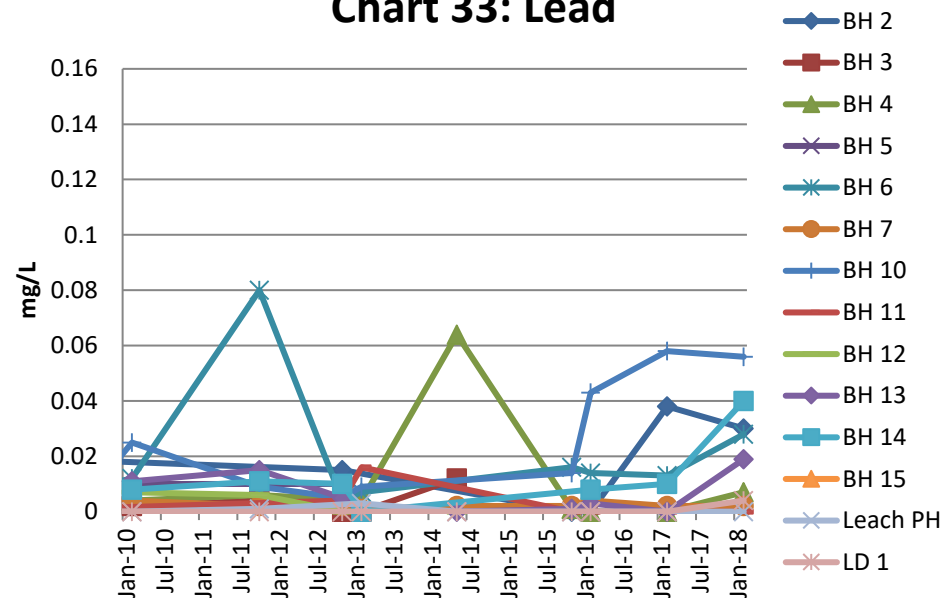


Chart 34: Magnesium

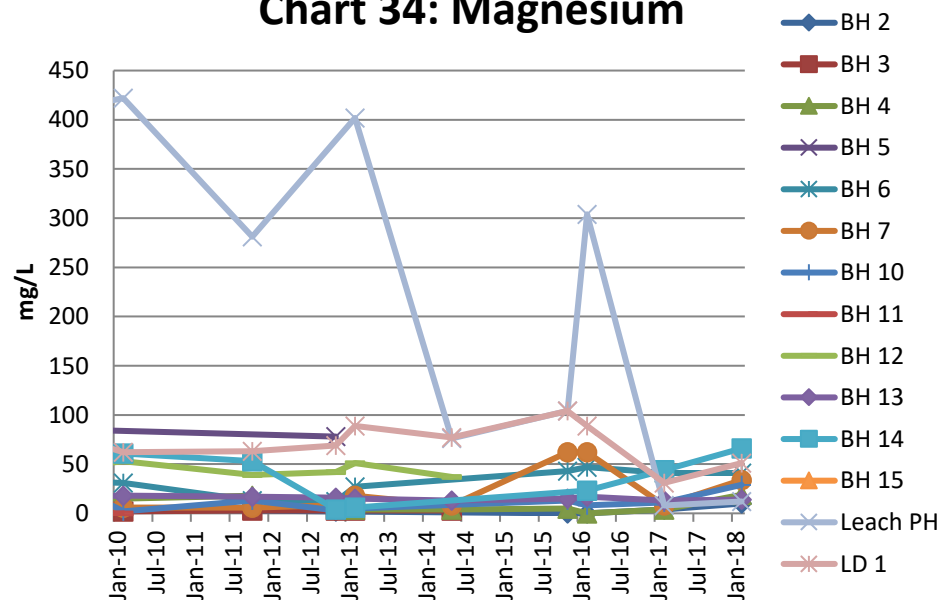


Chart 35 : Manganese

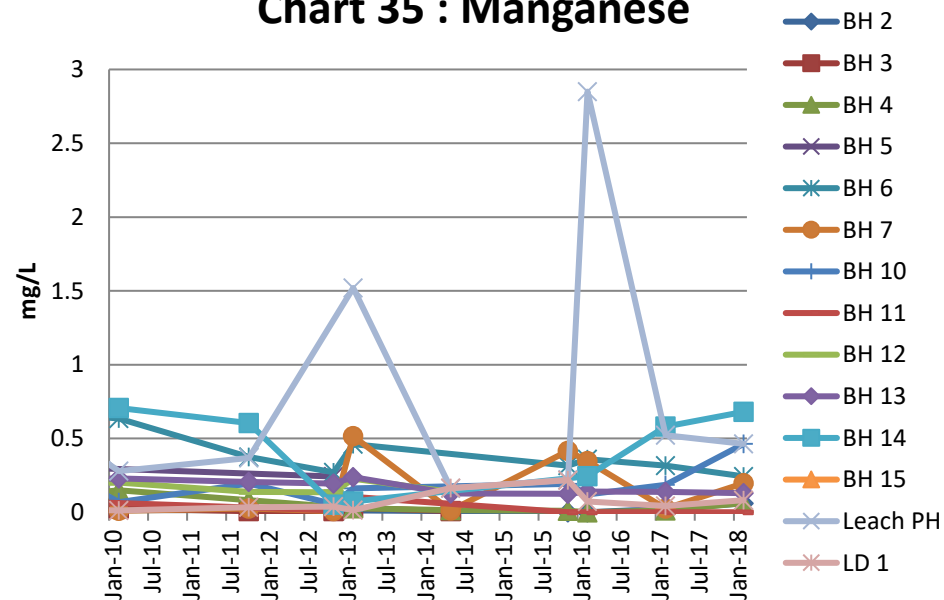


Chart 36 : Mercury

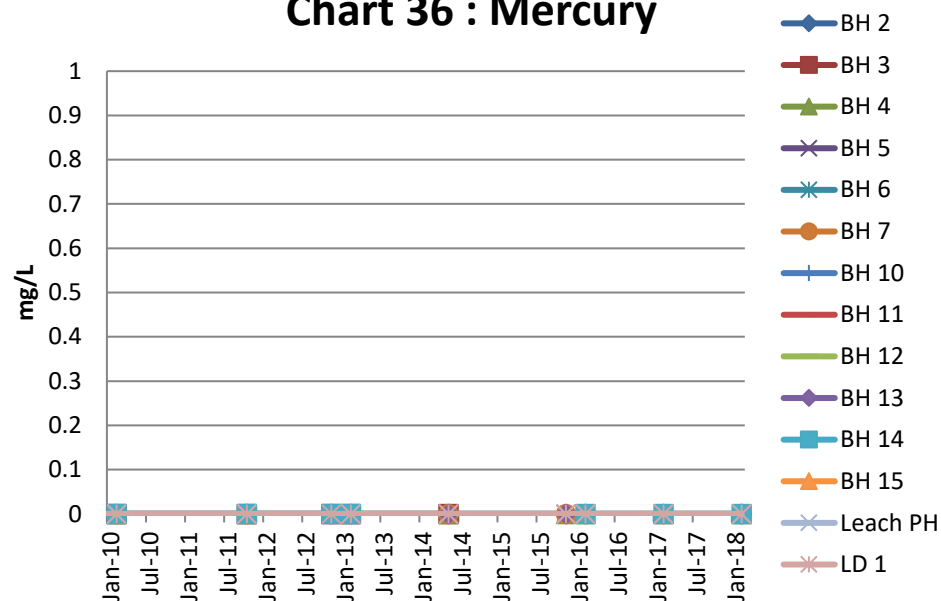


Chart 37: Nitrate

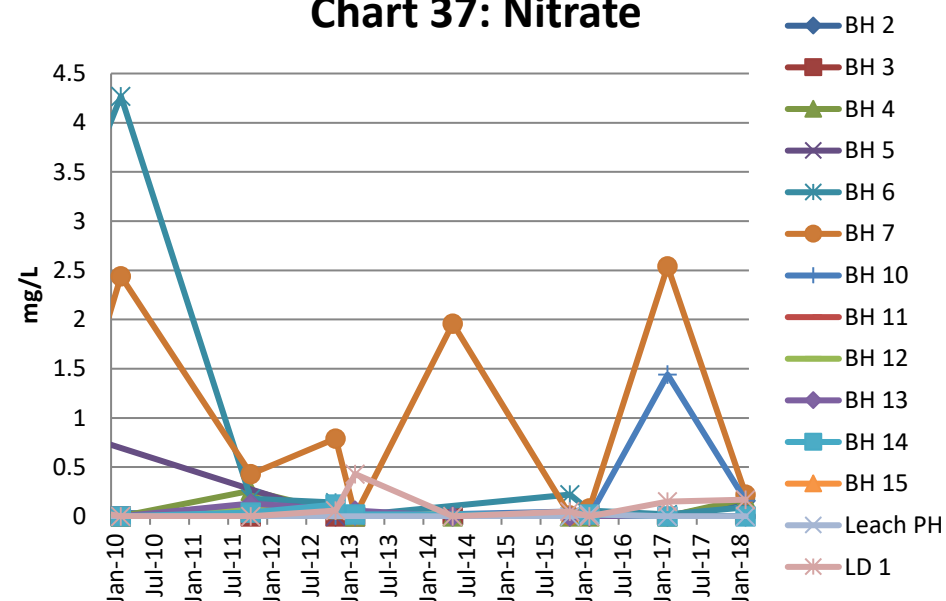


Chart 38: Nitrite

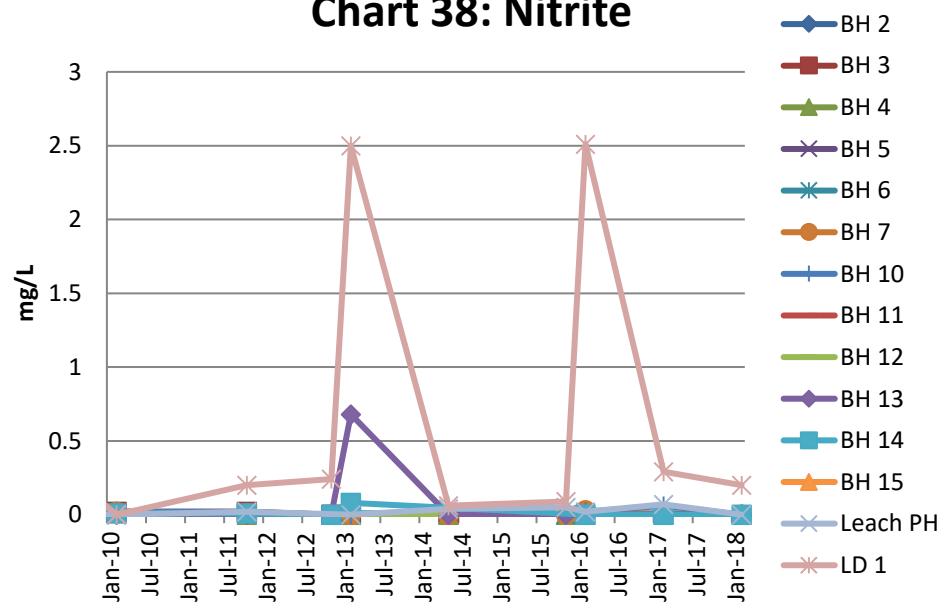


Chart 39: OCP's

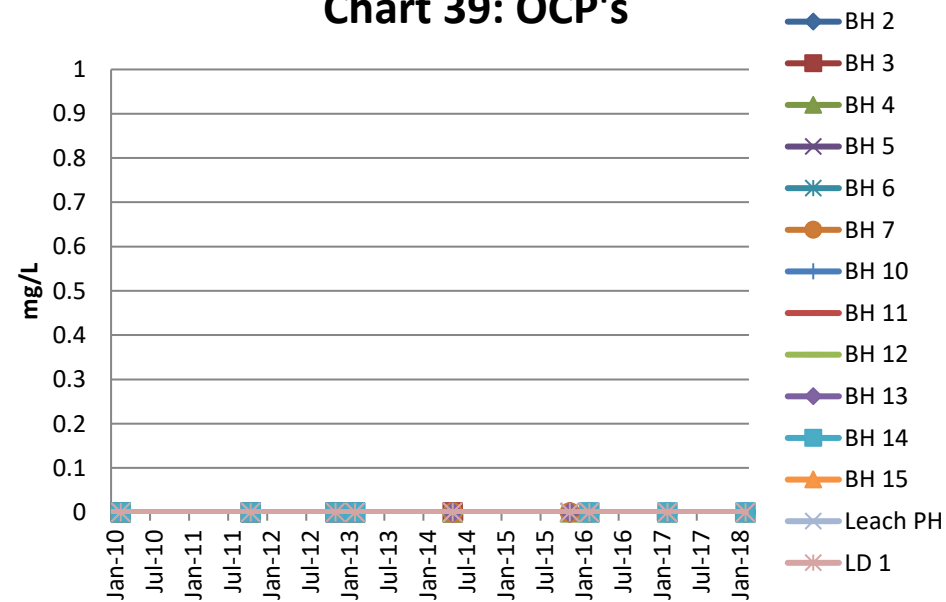


Chart 40: OPP's

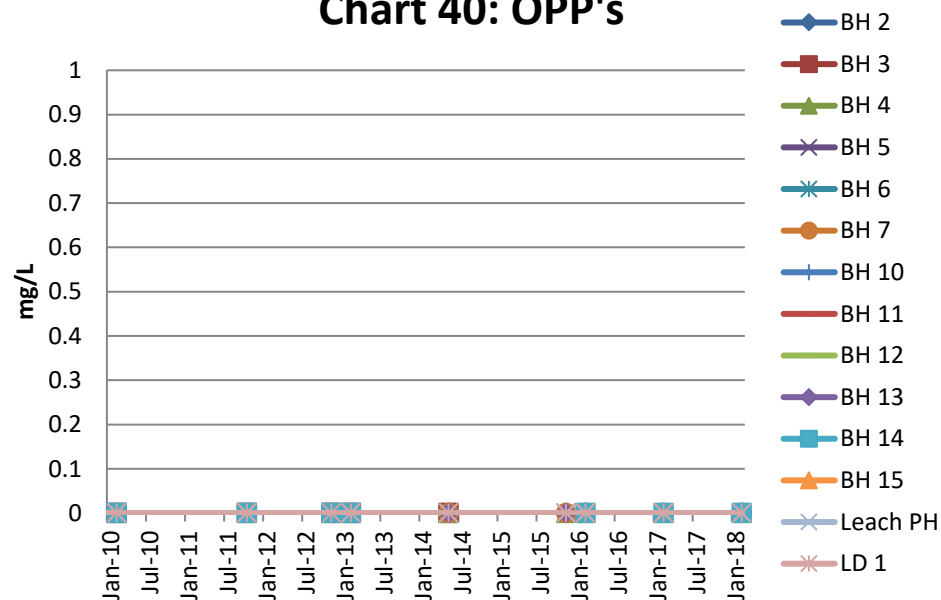


Chart 41: Phosphate

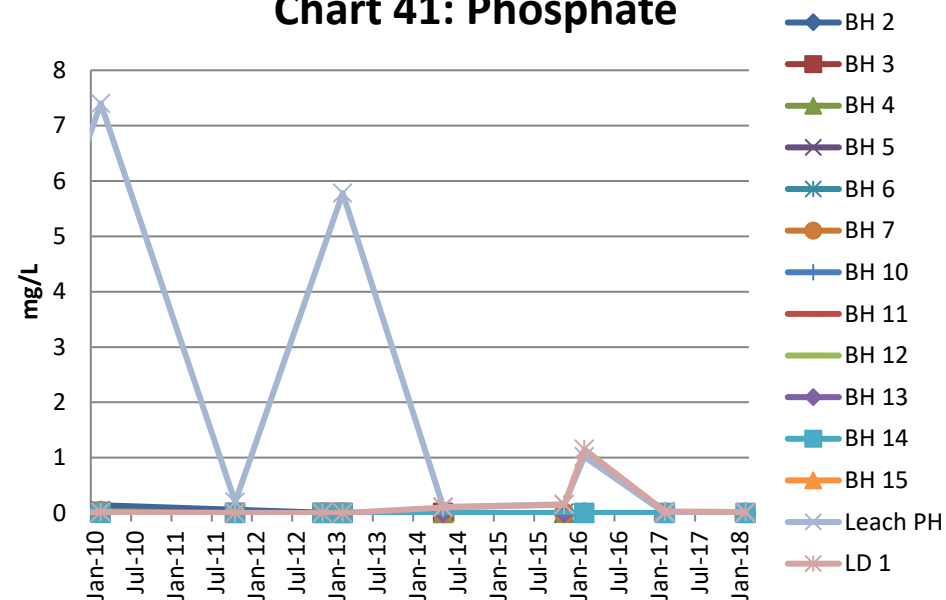


Chart 42: PAH's

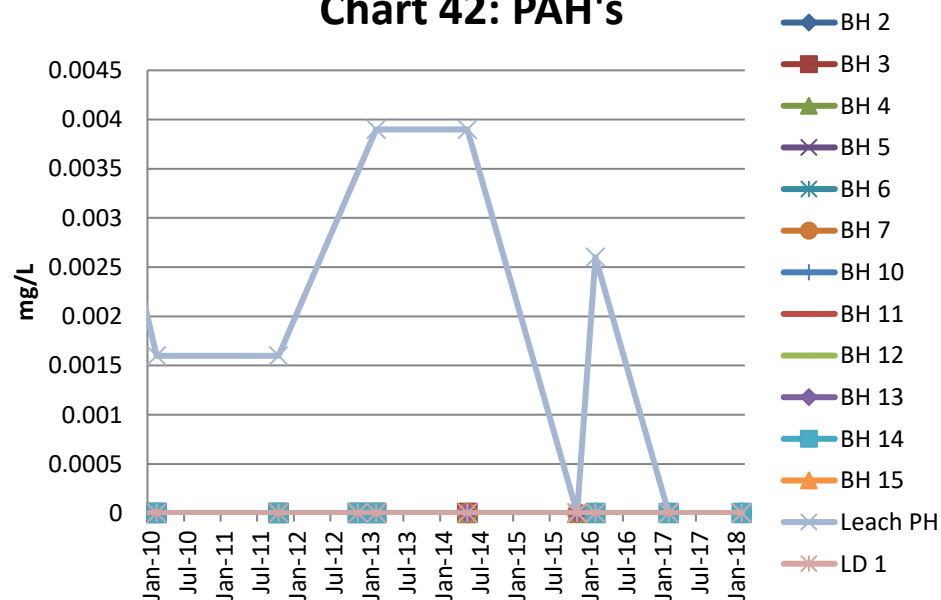


Chart 43: Standing Water Level

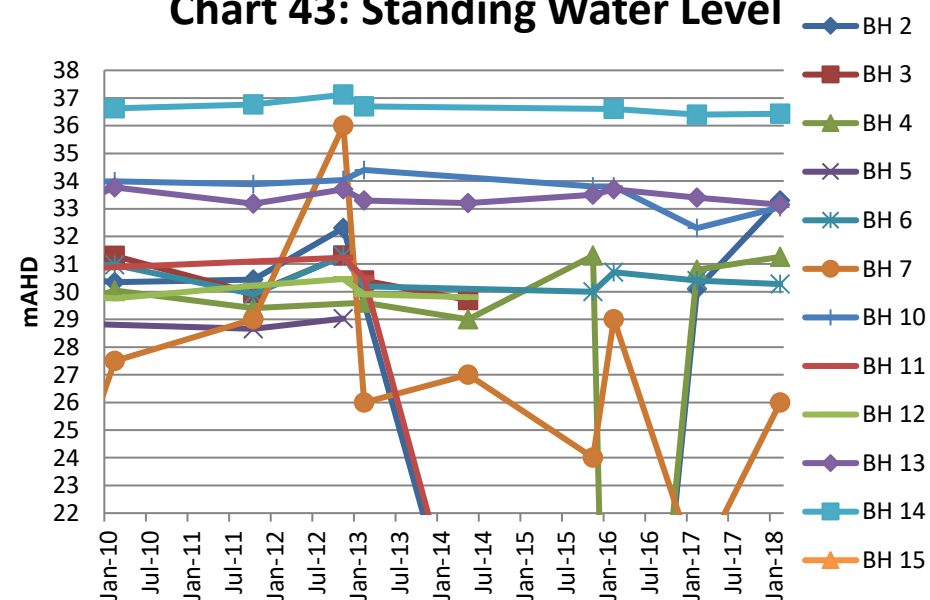


Chart 44: Sodium

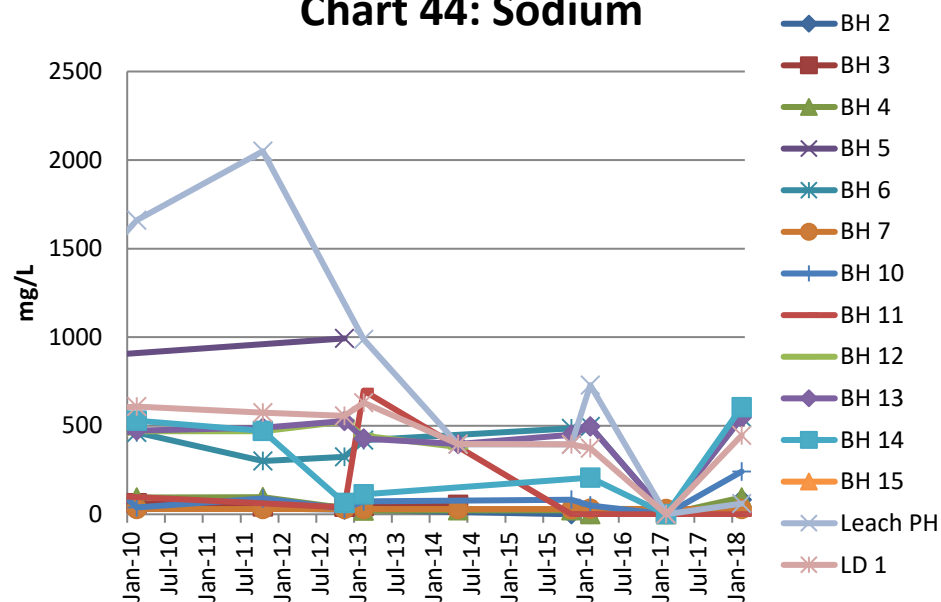


Chart 45: Sulphate

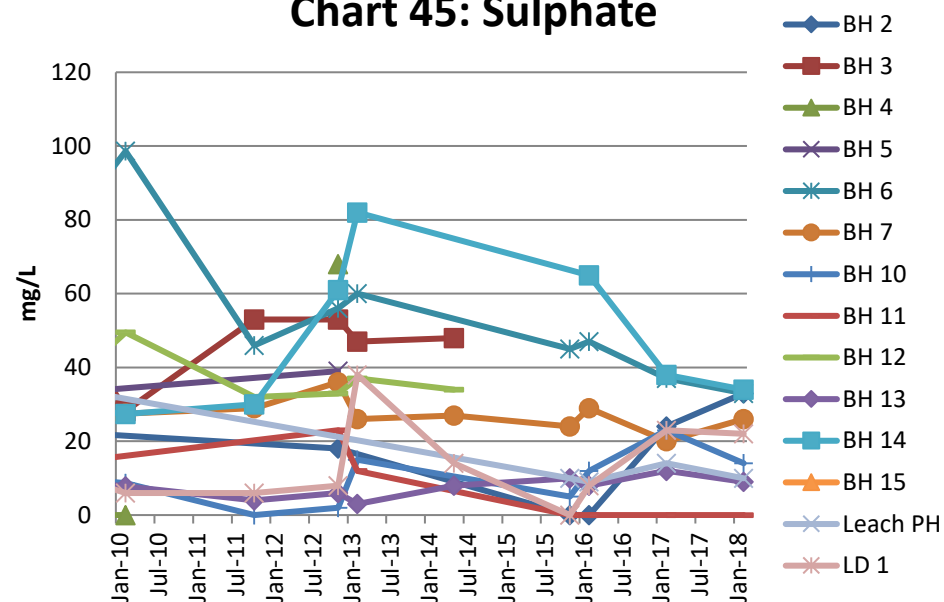


Chart 46: Toluene

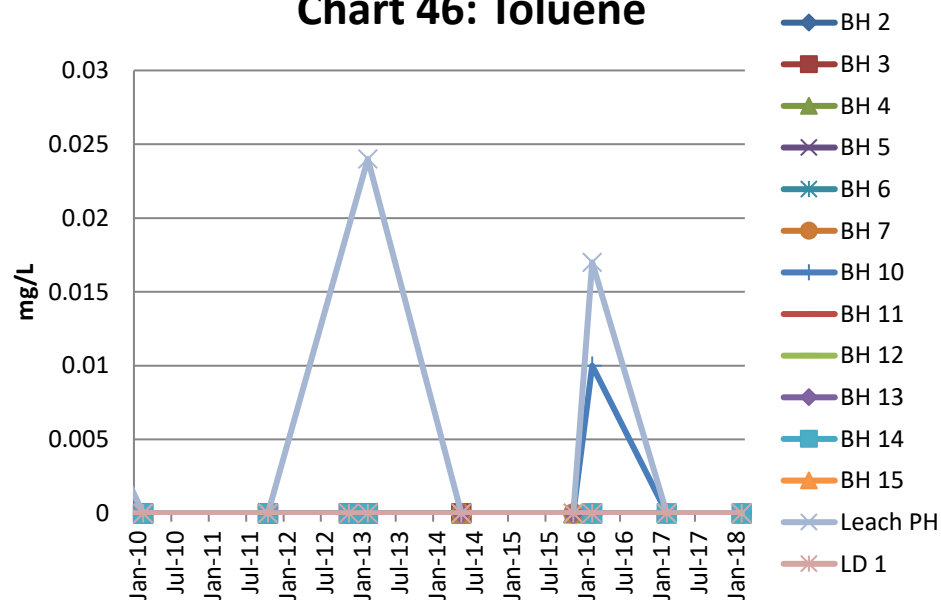
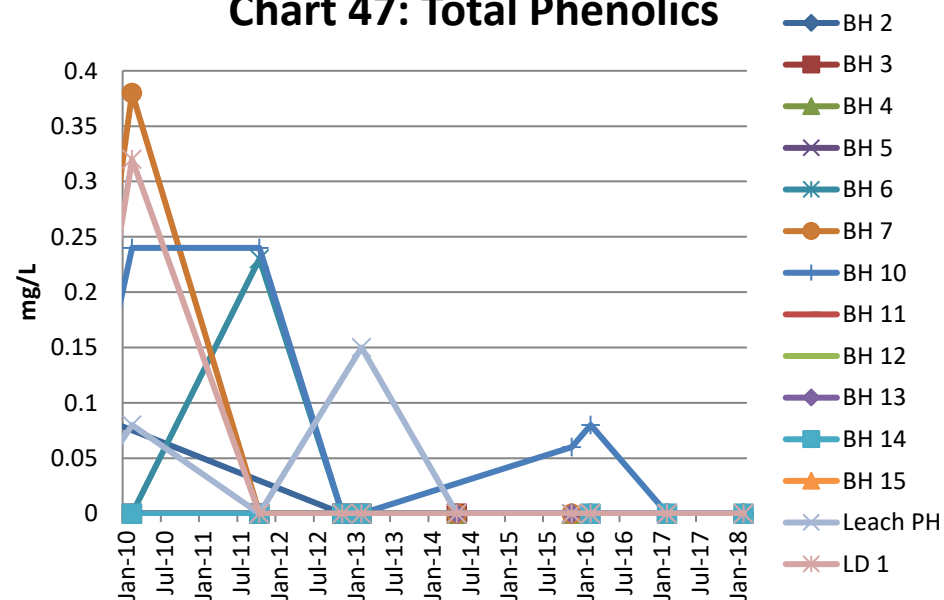


Chart 47: Total Phenolics



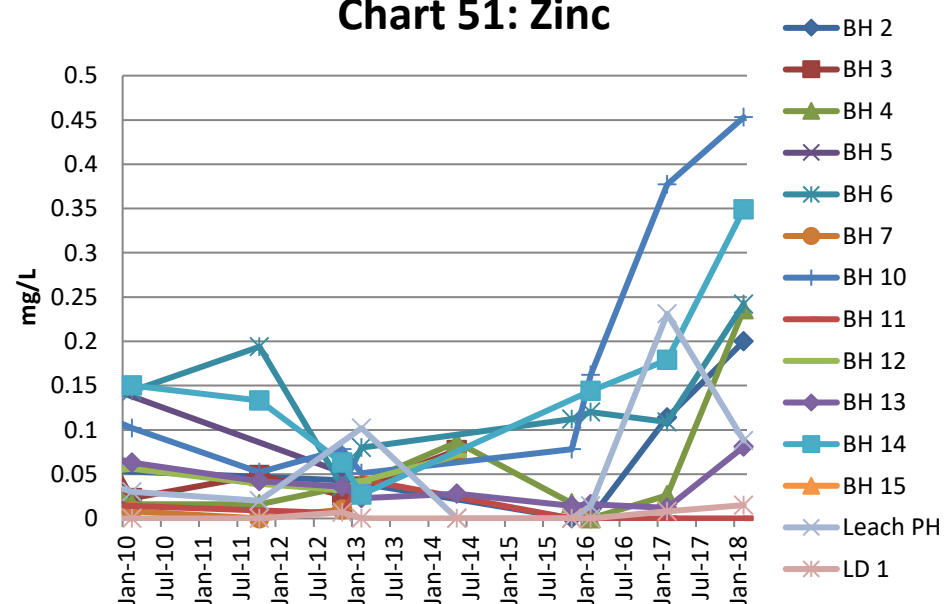
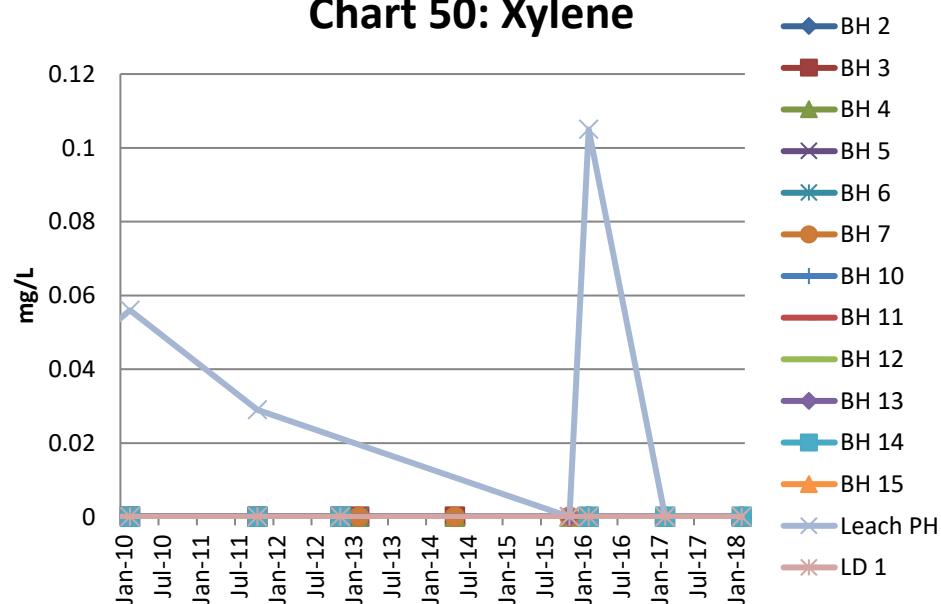
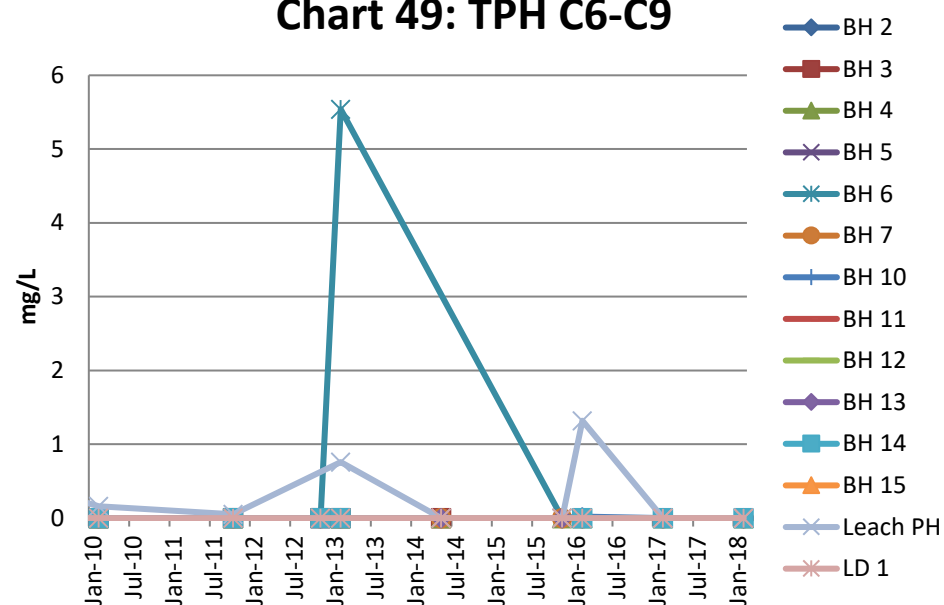
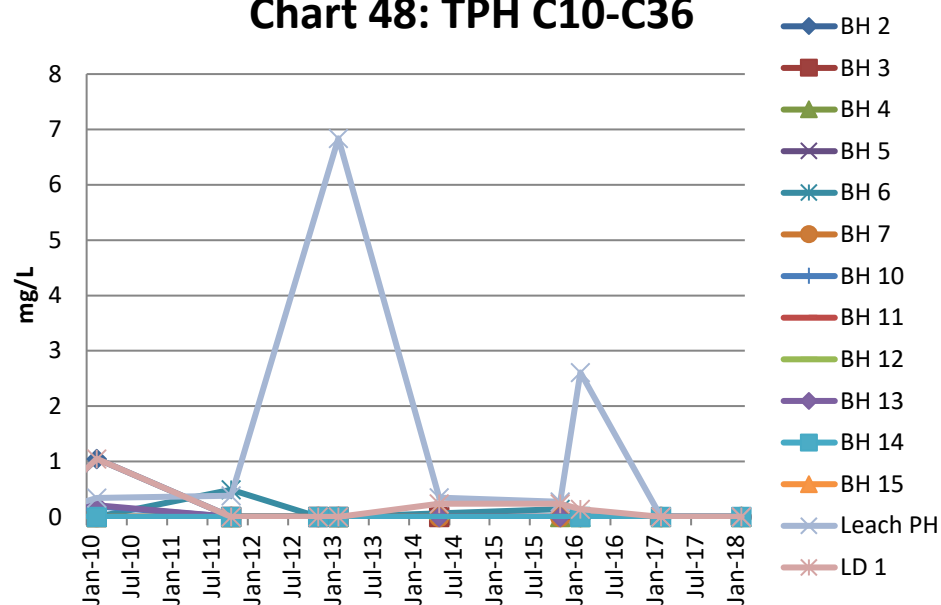


Chart 52: Redox Potential

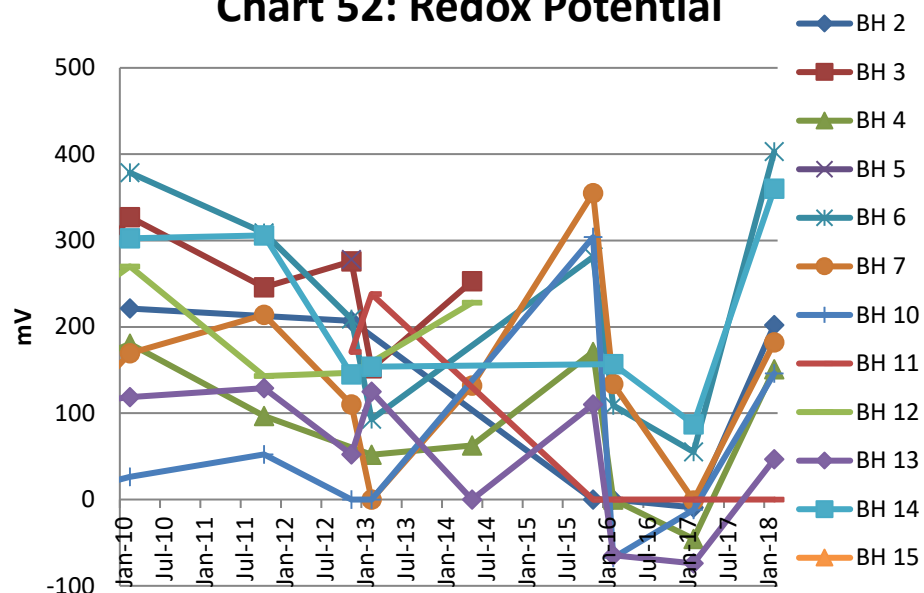


Chart 53: TDS

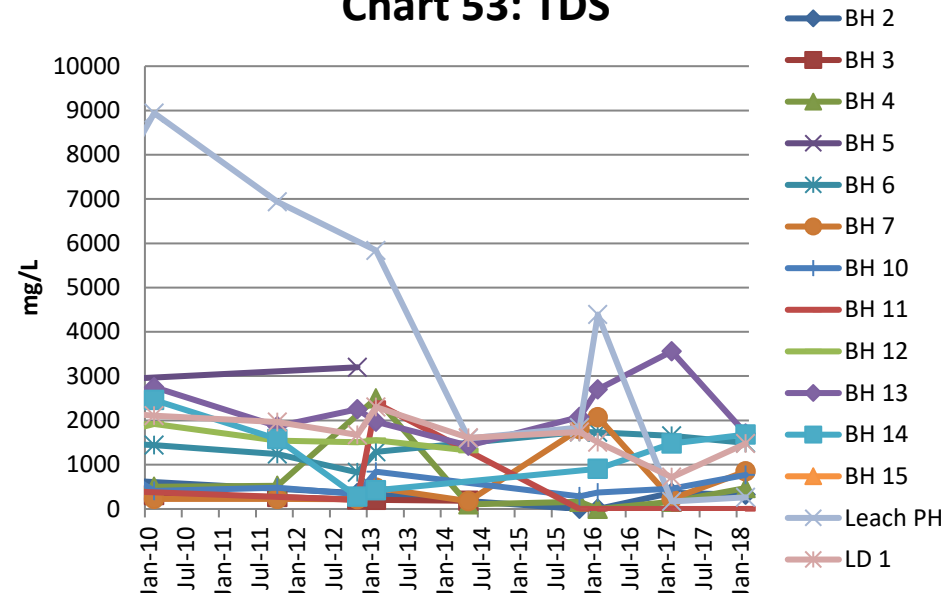
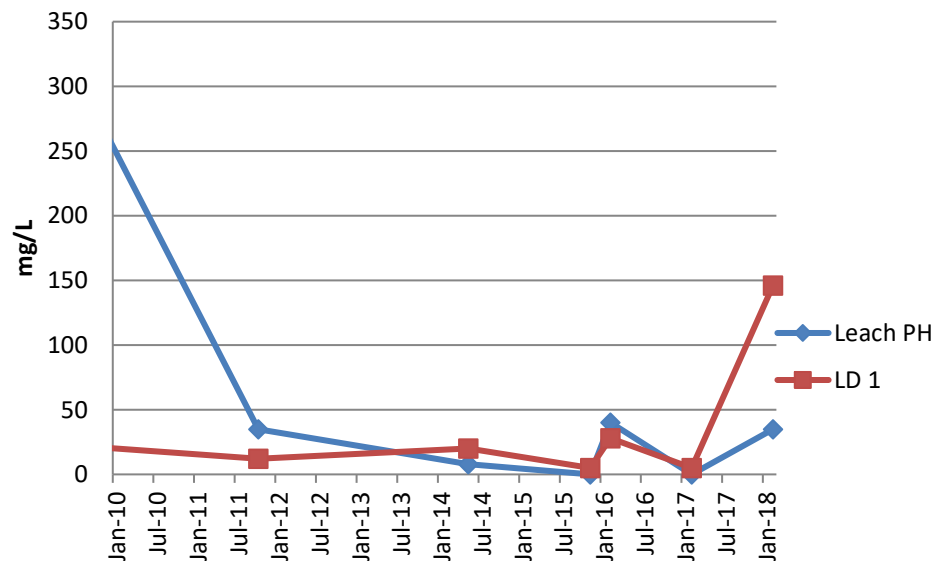


Chart 54: TSS



APPENDICES

APPENDIX A

EPL SAMPLING LOCATIONS

Location of Monitoring / Discharge Points

EPA Identification no.	Type of Monitoring Point	Type of Discharge Point	Location Description
1	Leachate Quality Monitoring		Leachate dam LD1 as shown on drawing 2824_16 referenced as EPA WOF9346
2		Overflow drain	Overflow from first flush dam DP2 as shown on drawing 2824_16 referenced as EPA WOF9346
3	Overflow drain	Overflow drain	Overflow from sedimentation dam 1 DP3 as shown on drawing 2824_16 referenced as EPA WOF9346
5	Surface water monitoring		Immediately downstream from the leachate dam at the boundary of the site as shown on drawing 2824_16 referenced as EPA WOF9346
6	Surface water monitoring		Upstream of site in Sandy Creek as shown on drawing 2824_16 referenced as EPA WOF9346.
7	Surface water monitoring		Downstream of site in Sandy Creek as shown on drawing 2824_16 referenced as EPA WOF9346.
8	Groundwater monitoring		Groundwater monitoring well labelled BH1 on diagram titled "Bore Location Plan" dated 17/01/14 (DOC14/6276-01) E275936 N6137766
9	Groundwater monitoring		Groundwater monitoring well labelled BH2 on diagram titled "Bore Location Plan" dated 17/01/14 (DOC14/6276-01). E275914 N6137656
11	Groundwater monitoring		Groundwater monitoring well labelled BH4A on diagram titled "Bore Location Plan" dated 17/01/14 (DOC14/6276-01) E275896 N6137573
13	Groundwater monitoring		Groundwater monitoring well labelled BH6 on diagram titled "Bore Location Plan" dated 17/01/14 (DOC14/6276-01) E275871 N6137469
14	Groundwater monitoring		Groundwater monitoring well labelled BH7 on diagram titled "Bore Location Plan" dated 17/01/14 (DOC14/6276-01) E275872 N6137469
17	Groundwater monitoring		Groundwater monitoring well labelled BH10 on diagram titled "Bore Location Plan" dated 17/01/14 (DOC14/6276-01) E275775 N6137366
18	Groundwater monitoring		Groundwater monitoring well labelled BH11 on diagram titled "Bore Location Plan" dated 17/01/14 (DOC14/6276-01) E275830 N6137492

20	Groundwater monitoring	Groundwater monitoring well labelled BH13 on diagram titled "Bore Location Plan" May 17/01/14 (DOC14/6276-07) E275996 N6137489
21	Groundwater monitoring	Groundwater monitoring well labelled BH14 on diagram titled "Bore Location Plan" dated 17/01/14 (DOC14/6276-01) E276421 N6137653
25	Leachate Volume Monitoring	Pipeline from Leachate Dam (LD1) to irrigation area as shown on drawing 2824_16 referenced as EPA WOF 9346
26	Utilisation Area	Irrigation area as shown on drawing 2824_16 referenced as EPA WOF9346
27	Leachate Volume and Quality	leachate pumphouse for Stage 3
29	Groundwater monitoring	Groundwater monitoring well labelled BH16 on diagram titled "Bore Location Plan" dated 17/01/14 (DOC14/6276-01) E275750 E6137137
30	Groundwater monitoring	Groundwater monitoring well labelled BH17 on diagram titled "Bore Location Plan" dated 17/01/14 (DOC14/6276-01) E275750 N6137142
31	Groundwater monitoring	Groundwater monitoring well labelled BH18 on diagram titled "Bore Location Plan" dated 17/01/14 (DOC14/6276-01) E275707 N6137202
32	Groundwater monitoring	Groundwater monitoring well labelled BH19 on diagram titled "Bore Location Plan" dated 17/01/14 (DOC14/6276-01) E276132 N6137061
33	Groundwater monitoring	Groundwater monitoring well labelled BH20 on diagram titled "Bore Location Plan" dated 17/01/14 (DOC14/6276-01) E276171 N6137736
34	Groundwater Monitoring	Groundwater monitoring well labelled BH21 on diagram titled "Bore Location Plan" dated 17/01/14 (DOC14/6276-01) E275742 N6136900
35	Groundwater monitoring	Groundwater monitoring well labelled BH22 on diagram titled "Bore Location Plan" dated 17/01/14 (DOC14/6276-01) E275821 N6136791
36	Groundwater monitoring	Groundwater monitoring well labelled BH23 on diagram titled "Bore Location Plan" dated 17/01/14 (DOC14/6276-01) E275942 N6136774

APPENDIX B

MONITORING BORE CONSTRUCTION SUMMARY

Summary of Monitoring Bore Construction Details – West Nowra

EPA Point	BORE ID	Easting	Northing	Depth mbgl	RL SCC Plan mAHD	TOC RL E2W mAHD	Screen E2W mbgl	PVC Stick Up magl
8	BH1	275936.45	6137766.21	7	35.00	47.86	1.5-2.4	N/A
9	BH2	275914.46	6137656.15	9	33.09	45.78	1.6-3.0	N/A
10	BH3	275908.36	6137619.07	7.4	31.64	44.9	1.9-2.7	N/A
11	BH4A	275895.50	6137573.12	7.25	31.83	44.7	0.5-1.7	N/A
12	BH5	275883.05	6137508.80	8.85	30.56	48.3	1.8-2.3	N/A
13	BH6	275870.78	6137469.07	9.6	32.34	49.11	1.1-2.3	N/A
14	BH7	275871.84	6137468.76	7.4	32.44	49.91	1.6-2.6	N/A
15	BH8	275907.62	6137372.04	3.15	32.62	46.62	Destroyed 1999	N/A
16	BH9	275836.04	6137399.29	7.95	36.37	47.7	Destroyed 1999	N/A
17	BH10	275775.24	6137366.10	8.75	39.62	47.1	3.8-6.7	N/A
18	BH11	275831.25	6137491.27	9.1	31.78	47.16	0.7-1.2	N/A
19	BH12A	275871.07	6137478.69	8.75	31.82	44.36	7-8	N/A
20	BH13	275996.40	6137488.92	8.2	34.67	45.49	0.2-1.0	N/A
21	BH14	276421.18	6137653.16	7	45.08	44.99	8.67-11.67	N/A
28	BH15	276365.69	6137582.44		45.99	N/A	N/A	N/A
29	BH16	275750.11	6137137.29	8.2	-	43.156	5.2-8.2	N/A
30	BH17	275750.12	6137142.42	12	-	43.458	9-12	N/A
31	BH18	275706.99	6137201.69	8	-	44.41	5-8	N/A
32	BH19	276131.95	6137061.32	8.2	-	49.705	5.2-8.2	N/A
33	BH20	276171.38	6137736.01	8.2	-	41.925	5.2-8.2	N/A
34	BH21	275741.83	6136900.25	-	-	N/A	N/A	N/A
35	BH22	275821.38	6136791.13	-	-	N/A	N/A	N/A
36	BH23	275942.26	6136774.41	5.63	46.62	N/A	N/A	0.55

—BHXX = removed from current EPL. Monitoring no longer required.

APPENDIX C

EPL NON-COMPLIANCES

CERTIFICATE OF ANALYSIS

Work Order	: EW1704683	Page	: 1 of 8
Client	: SHOALHAVEN CITY COUNCIL	Laboratory	: Environmental Division NSW South Coast
Contact	: Mr Giordano Bianco	Contact	: Kristy Boje
Address	: PO Box 42 Nowra NSW 2541	Address	: 1/19 Ralph Black Dr, North Wollongong 2500 4/13 Geary Pl, North Nowra 2541 Australia NSW
Telephone	: 02 4429 3554	Telephone	: 02 4423 2063
Project	: LF-W Nowra Quarterly	Date Samples Received	: 23-Nov-2017 14:03
Order number	: 15425.16780	Date Analysis Commenced	: 24-Nov-2017
C/O-C number	: ---	Issue Date	: 07-Dec-2017 15:09
Sampler	: Duncan McIntosh		
Site	: ---		
Quote number	: Landfills 2017/18		
No. of samples received	: 21		
No. of samples analysed	: 21		



Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Ashesh Patel	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Dian Dao		Sydney Inorganics, Smithfield, NSW
Kristy Boje	Laboratory Supervisor	Laboratory - Wollongong, NSW

APPENDIX D

LABORATORY CERTIFICATES OF ANALYSIS



Analytical Results

Client sample ID				L-WN-SW01	L-WN-SW02	L-WN-SW03	L-WN-BH02	L-WN-BH04
Client sampling date / time				22-Nov-2017 13:40	22-Nov-2017 15:30	22-Nov-2017 14:20	23-Nov-2017 11:50	22-Nov-2017 13:01
Compound				EW1704683-001	EW1704683-002	EW1704683-003	EW1704683-004	EW1704683-005
CAS Number	LOR	Unit		Result	Result	Result	Result	Result
EP025FD: Field Dissolved Oxygen - Continued								
Dissolved Oxygen	----	0.01	mg/L	3.45	----	2.76	----	----
EP030: Biochemical Oxygen Demand (BOD)								
Biochemical Oxygen Demand	----	2	mg/L	<2	----	<2	----	----
FWI-EN/001: Groundwater Sampling - Depth								
Standing Water Level	----	0.01	m AHD	----	----	----	----	31.3



Analytical Results

Client sample ID				L-WN-BH06	L-WN-BH07	L-WN-BH10	L-WN-BH11	L-WN-BH13
Client sampling date / time				23-Nov-2017 11:30	22-Nov-2017 11:07	23-Nov-2017 11:10	22-Nov-2017 14:00	22-Nov-2017 12:06
Compound				EW1704683-006	EW1704683-007	EW1704683-008	EW1704683-009	EW1704683-010
CAS Number	LOR	Unit		Result	Result	Result	Result	Result
EA005FD: Field pH								
pH	----	0.1	pH Unit	3.7	4.0	4.8	----	4.9
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	1	mg/L	1760	1240	366	----	2060
EA075FD: Field Redox Potential								
Redox Potential	----	0.1	mV	343	243	209	----	72.3
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	----	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	----	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	<1	4	----	23
Total Alkalinity as CaCO3	----	1	mg/L	<1	<1	4	----	23
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	33	24	22	----	11
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	901	584	173	----	1080
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	12	27	8	----	4
Magnesium	7439-95-4	1	mg/L	40	32	10	----	14
Sodium	7440-23-5	1	mg/L	506	298	92	----	468
Potassium	7440-09-7	1	mg/L	2	2	1	----	<1
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	0.10	<0.01	0.34	----	0.57
EN055: Ionic Balance								
Total Anions	----	0.01	meq/L	26.1	17.8	5.42	----	31.2
Total Cations	----	0.01	meq/L	26.0	17.8	5.25	----	21.7
Ionic Balance	----	0.01	%	0.29	0.06	1.58	----	17.9
EN67 PK: Field Tests								
Field Observations	----	0.01	--	----	----	----	Dry	----
EP005: Total Organic Carbon (TOC)								
Total Organic Carbon	----	1	mg/L	5	4	10	----	5
FWI-EN/001: Groundwater Sampling - Depth								
Standing Water Level	----	0.01	m AHD	30.1	29.7	33.1	----	33.4



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Client sample ID	L-WN-BH14	L-WN-BH16	L-WN-BH17	L-WN-BH18	L-WN-BH19
Client sampling date / time				22-Nov-2017 15:10	22-Nov-2017 09:33	22-Nov-2017 10:09	23-Nov-2017 11:00	22-Nov-2017 08:20
Compound	CAS Number	LOR	Unit	EW1704683-011	EW1704683-012	EW1704683-013	EW1704683-014	EW1704683-015
				Result	Result	Result	Result	Result
EA005FD: Field pH								
pH	----	0.1	pH Unit	3.6	3.6	4.1	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	1	mg/L	1760	564	338	----	----
EA075FD: Field Redox Potential								
Redox Potential	----	0.1	mV	256	262	213	----	----
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	<1	<1	----	----
Total Alkalinity as CaCO3	----	1	mg/L	<1	<1	<1	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	33	10	4	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	1020	341	196	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	13	7	9	----	----
Magnesium	7439-95-4	1	mg/L	56	16	11	----	----
Sodium	7440-23-5	1	mg/L	486	167	86	----	----
Potassium	7440-09-7	1	mg/L	2	1	<1	----	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	0.04	0.02	<0.01	----	----
EN055: Ionic Balance								
Total Anions	----	0.01	meq/L	29.4	9.83	5.61	----	----
Total Cations	----	0.01	meq/L	26.4	8.96	5.10	----	----
Ionic Balance	----	0.01	%	5.39	4.64	4.83	----	----
EN67 PK: Field Tests								
Field Observations	----	0.01	--	----	----	----	Dry	Dry
EP005: Total Organic Carbon (TOC)								
Total Organic Carbon	----	1	mg/L	1	<1	<1	----	----
FWI-EN/001: Groundwater Sampling - Depth								
Standing Water Level	----	0.01	m AHD	36.4	38.1	38.0	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Client sample ID		L-WN-BH20	L-WN-BH21	L-WN-BH22	L-WN-BH23	Duplicate		
Client sampling date / time					23-Nov-2017 12:00	23-Nov-2017 10:40	23-Nov-2017 10:10	22-Nov-2017 08:30	23-Nov-2017 10:15		
Compound	CAS Number	LOR	Unit		EW1704683-016	EW1704683-017	EW1704683-018	EW1704683-019	EW1704683-020		
					Result	Result	Result	Result	Result		
EA005FD: Field pH											
pH	---	0.1	pH Unit		4.2	5.4	5.0	---	5.0		
EA015: Total Dissolved Solids dried at 180 ± 5 °C											
Total Dissolved Solids @180°C	---	1	mg/L		1530	121	480	---	434		
EA075FD: Field Redox Potential											
Redox Potential	---	0.1	mV		258	150	200	---	200		
ED037P: Alkalinity by PC Titrator											
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	---	<1		
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	---	<1		
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		<1	6	5	---	3		
Total Alkalinity as CaCO3	---	1	mg/L		<1	6	5	---	3		
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA											
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		128	3	28	---	28		
ED045G: Chloride by Discrete Analyser											
Chloride	16887-00-6	1	mg/L		827	22	216	---	236		
ED093F: Dissolved Major Cations											
Calcium	7440-70-2	1	mg/L		<1	<1	10	---	10		
Magnesium	7439-95-4	1	mg/L		34	<1	9	---	10		
Sodium	7440-23-5	1	mg/L		474	20	131	---	130		
Potassium	7440-09-7	1	mg/L		<1	<1	1	---	1		
EK055G: Ammonia as N by Discrete Analyser											
Ammonia as N	7664-41-7	0.01	mg/L		0.16	0.35	0.02	---	0.04		
EN055: Ionic Balance											
Total Anions	---	0.01	meq/L		26.0	0.80	6.78	---	7.30		
Total Cations	---	0.01	meq/L		23.4	0.87	6.96	---	7.00		
Ionic Balance	---	0.01	%		5.22	---	1.36	---	2.08		
EN67 PK: Field Tests											
Field Observations	---	0.01	--	---	---	---	---	Dry	---		
EP005: Total Organic Carbon (TOC)											
Total Organic Carbon	---	1	mg/L		26	26	8	---	6		
FWI-EN/001: Groundwater Sampling - Depth											
Standing Water Level	---	0.01	m AHD		35.9	3.28	2.80	---	2.80		



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID		Blank			
Client sampling date / time				22-Nov-2017 13:30		-----			
Compound				CAS Number		EW1704683-021			
LOR				Unit		Result			
EA005FD: Field pH				pH Unit		5.4			
pH				0.1		-----			
EA015: Total Dissolved Solids dried at 180 ± 5 °C				mg/L		<1			
Total Dissolved Solids @180°C				1		-----			
EA075FD: Field Redox Potential				mV		211			
Redox Potential				0.1		-----			
ED037P: Alkalinity by PC Titrator				mg/L		<1			
Hydroxide Alkalinity as CaCO3				DMO-210-001		-----			
Carbonate Alkalinity as CaCO3				mg/L		<1			
Bicarbonate Alkalinity as CaCO3				3813-32-6		-----			
Total Alkalinity as CaCO3				71-52-3		-----			
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA				mg/L		<1			
Sulfate as SO4 - Turbidimetric				14808-79-8		-----			
ED045G: Chloride by Discrete Analyser				mg/L		<1			
Chloride				16887-00-6		-----			
ED093F: Dissolved Major Cations				mg/L		<1			
Calcium				7440-70-2		-----			
Magnesium				7439-95-4		-----			
Sodium				7440-23-5		-----			
Potassium				7440-09-7		-----			
EK055G: Ammonia as N by Discrete Analyser				mg/L		<0.01			
Ammonia as N				7664-41-7		-----			
EN055: Ionic Balance				meq/L		<0.01			
Total Anions				0.01		-----			
Total Cations				0.01		-----			
EP005: Total Organic Carbon (TOC)				mg/L		<1			
Total Organic Carbon				1		-----			



Environmental

CERTIFICATE OF ANALYSIS

Work Order	: EW1805216	Page	: 1 of 5
Client	: SHOALHAVEN CITY COUNCIL	Laboratory	: Environmental Division NSW South Coast
Contact	: Mr Rohan Last	Contact	: Jessica Foster
Address	: PO Box 42 Nowra NSW 2541	Address	: 1/19 Ralph Black Dr, North Wollongong 2500 4/13 Geary Pl, North Nowra 2541 Australia NSW Australia
Telephone	: 02 9037 4708	Telephone	: 02 42253125
Project	: Nowra Annual	Date Samples Received	: 28-Feb-2018 16:00
Order number	: 15425 16790	Date Analysis Commenced	: 12-Dec-2018
C/O-C number	: ----	Issue Date	: 13-Dec-2018 11:42
Sampler	: ----		
Site	: ----		
Quote number	: WOI/019/17 2017 Blanketquote		
No. of samples received	: 11		
No. of samples analysed	: 11		



Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Ankit Joshi	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

* = This result is computed from individual analyte detections at or above the level of reporting

g = ALS is not NATA accredited for these tests.

~ = Indicates an estimated value.



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)		Client sample ID			L-WN-BH04	L-WN-BH06	L-WN-BH07	L-WN-BH13	L-WN-BH14	
Client sampling date / time					28-Feb-2018 00:00	28-Feb-2018 00:00	28-Feb-2018 00:00	28-Feb-2018 00:00	28-Feb-2018 00:00	
Compound	CAS Number	LOR	Unit	EW1805216-001	EW1805216-002	EW1805216-003	EW1805216-004	EW1805216-005		
				Result	Result	Result	Result	Result		
EP035G: Total Phenol by Discrete Analyser										
Phenols (Total)				----	0.05	mg/L	<0.05	<0.05	<0.05	<0.05



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)		Client sample ID		L-WN-BH16	L-WN-BH17	L-WN-BH20	L-WN-BH22	Duplicate
Client sampling date / time				28-Feb-2018 00:00	28-Feb-2018 00:00	28-Feb-2018 00:00	28-Feb-2018 00:00	28-Feb-2018 00:00
Compound	CAS Number	LOR	Unit	EW1805216-006	EW1805216-007	EW1805216-008	EW1805216-009	EW1805216-010
				Result	Result	Result	Result	Result
EP035G: Total Phenol by Discrete Analyser								
Phenols (Total)	----	0.05	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)		Client sample ID		Blank	----	----	----	----
Client sampling date / time				28-Feb-2018 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EW1805216-011	-----	-----	-----	-----
				Result	----	----	----	----
EP035G: Total Phenol by Discrete Analyser								
Phenols (Total)	----	0.05	mg/L	<0.05	----	----	----	----

CERTIFICATE OF ANALYSIS

Work Order	: EW1800660	Page	: 1 of 29
Client	: SHOALHAVEN CITY COUNCIL	Laboratory	: Environmental Division NSW South Coast
Contact	: Mr Giordano Bianco	Contact	: Kristy Boje
Address	: PO Box 42 Nowra NSW 2541	Address	: 1/19 Ralph Black Dr, North Wollongong 2500 4/13 Geary Pl, North Nowra 2541 Australia NSW 02 4423 2063
Telephone	: 02 4429 3554	Telephone	: 02 4423 2063
Project	: LF-W Nowra Annual	Date Samples Received	: 22-Feb-2018 16:22
Order number	: 15425 16780	Date Analysis Commenced	: 21-Feb-2018
C/O-C number	: ---	Issue Date	: 01-Mar-2018 16:08
Sampler	: Duncan McIntosh		
Site	: ---		
Quote number	: Landfills 2017/18		
No. of samples received	: 23		
No. of samples analysed	: 23		



This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Ankit Joshi	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Glenn Davies	Environmental Services Representative	Laboratory - Wollongong, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW
Sanjeshni Jyoti	Senior Chemist Volatiles	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

* = This result is computed from individual analyte detections at or above the level of reporting

g = ALS is not NATA accredited for these tests.

~ = Indicates an estimated value.

- ED093: Positive result for sample EW1800660-8023 has been confirmed by reanalysis.
- EK057G: LOR raised for Nitrite on sample 12 due to sample matrix.
- EP005: TOC has been analysed under High Range method due to sample matrix not appropriate for Low Range analysis, LOR has been raised accordingly
- EK059G-EK058G: LOR raised for NOx-Nitrate on sample 12 due to sample matrix.
- TDS by method EA-015 may bias high for various samples due to the presence of fine particulate matter, which may pass through the prescribed GF/C paper.
- Sampling completed as per FWI-EN001 Groundwater Sampling.
- Sampling completed as per FWI-EN002 Surface Water Sampling.
- Field data supplied by ALS Wollongong.
- Field tests completed on day of sampling/receipt.
- Sampling completed by ALS Wollongong.
- ALS Wollongong is not NATA accredited for Standing Water Level
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benzo(a)anthracene (0.1), Chrysene (0.01), Benzo(b)fluoranthene (0.1), Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1,2,3-cd)pyrene (0.1), Dibenzo(a,h)anthracene (1.0), Benzo(g,h,i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID		L-WN-LD01	Leachate Stage 3	L-WN-SW01	L-WN-SW02	L-WN-SW03
Client sampling date / time				21-Feb-2018 14:00		21-Feb-2018 12:00	21-Feb-2018 15:30	22-Feb-2018 11:10	21-Feb-2018 14:30	
Compound	CAS Number	LOR	Unit	EW1800660-001		EW1800660-002	EW1800660-003	EW1800660-004	EW1800660-005	
				Result	Result	Result	Result	Result	Result	
EA005FD: Field pH										
pH	----	0.1	pH Unit	8.3	4.3	5.9	----	----	6.0	
EA010FD: Field Conductivity										
Electrical Conductivity (Non Compensated)	----	1	µS/cm	2970	591	1080	----	----	869	
EA015: Total Dissolved Solids dried at 180 ± 5 °C										
Total Dissolved Solids @180°C	----	1	mg/L	1480	261	520	----	----	508	
ED037P: Alkalinity by PC Titrator										
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	----	----	----	----	
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	2	<1	----	----	----	----	
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	316	<1	----	----	----	----	
Total Alkalinity as CaCO3	----	1	mg/L	318	<1	----	----	----	----	
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA										
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	22	85	----	----	----	----	
ED045G: Chloride by Discrete Analyser										
Chloride	16887-00-6	1	mg/L	799	120	----	----	----	----	
ED093F: Dissolved Major Cations										
Calcium	7440-70-2	1	mg/L	43	18	----	----	----	----	
Magnesium	7439-95-4	1	mg/L	51	12	----	----	----	----	
Sodium	7440-23-5	1	mg/L	445	60	----	----	----	----	
Potassium	7440-09-7	1	mg/L	86	5	20	----	----	19	
EG020T: Total Metals by ICP-MS										
Aluminium	7429-90-5	0.01	mg/L	1.56	0.28	----	----	----	----	
Arsenic	7440-38-2	0.001	mg/L	0.004	<0.001	----	----	----	----	
Barium	7440-39-3	0.001	mg/L	0.078	0.032	----	----	----	----	
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.0004	----	----	----	----	
Cobalt	7440-48-4	0.001	mg/L	0.001	0.012	----	----	----	----	
Chromium	7440-47-3	0.001	mg/L	0.004	<0.001	----	----	----	----	
Copper	7440-50-8	0.001	mg/L	0.007	0.001	----	----	----	----	
Manganese	7439-96-5	0.001	mg/L	0.081	0.464	----	----	----	----	
Lead	7439-92-1	0.001	mg/L	0.004	<0.001	----	----	----	----	
Zinc	7440-66-6	0.005	mg/L	0.015	0.088	----	----	----	----	
EG035T: Total Recoverable Mercury by FIMS										
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	----	----	----	----	
EG050T: Total Hexavalent Chromium										



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)		Client sample ID		L-WN-LD01	Leachate Stage 3	L-WN-SW01	L-WN-SW02	L-WN-SW03
Client sampling date / time				21-Feb-2018 14:00	21-Feb-2018 12:00	21-Feb-2018 15:30	22-Feb-2018 11:10	21-Feb-2018 14:30
Compound	CAS Number	LOR	Unit	EW1800660-001	EW1800660-002	EW1800660-003	EW1800660-004	EW1800660-005
				Result	Result	Result	Result	Result
EG050T: Total Hexavalent Chromium - Continued								
Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	<0.01	----	----	----
EK040P: Fluoride by PC Titrator								
Fluoride	16984-48-8	0.1	mg/L	1.2	0.7	----	----	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	2.57	1.64	0.24	----	0.03
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	0.20	<0.01	----	----	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	0.17	0.53	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	0.37	0.53	----	----	----
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.02	<0.01	----	----	----
EN055: Ionic Balance								
Total Anions	----	0.01	meq/L	29.4	5.15	----	----	----
Total Cations	----	0.01	meq/L	----	4.74	----	----	----
Total Cations	----	0.01	meq/L	27.9	----	----	----	----
Ionic Balance	----	0.01	%	----	4.18	----	----	----
Ionic Balance	----	0.01	%	2.54	----	----	----	----
EN67 PK: Field Tests								
Field Observations	----	0.01	--	----	----	----	DRY	----
EP005: Total Organic Carbon (TOC)								
Total Organic Carbon	----	1	mg/L	46	2	8	----	24
EP025FD: Field Dissolved Oxygen								
Dissolved Oxygen	----	0.01	mg/L	----	----	1.40	----	2.05
EP030: Biochemical Oxygen Demand (BOD)								
Biochemical Oxygen Demand	----	2	mg/L	----	----	<2	----	3
EP035G: Total Phenol by Discrete Analyser								
Phenols (Total)	----	0.05	mg/L	<0.05	<0.05	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.5	µg/L	<0.5	<0.5	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	<0.5	----	----	----
beta-BHC	319-85-7	0.5	µg/L	<0.5	<0.5	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	L-WN-LD01	Leachate Stage 3	L-WN-SW01	L-WN-SW02	L-WN-SW03
Client sampling date / time					21-Feb-2018 14:00	21-Feb-2018 12:00	21-Feb-2018 15:30	22-Feb-2018 11:10	21-Feb-2018 14:30
Compound	CAS Number	LOR	Unit		EW1800660-001	EW1800660-002	EW1800660-003	EW1800660-004	EW1800660-005
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
gamma-BHC	58-89-9	0.5	µg/L		<0.5	<0.5	----	----	----
delta-BHC	319-86-8	0.5	µg/L		<0.5	<0.5	----	----	----
Heptachlor	76-44-8	0.5	µg/L		<0.5	<0.5	----	----	----
Aldrin	309-00-2	0.5	µg/L		<0.5	<0.5	----	----	----
Heptachlor epoxide	1024-57-3	0.5	µg/L		<0.5	<0.5	----	----	----
trans-Chlordane	5103-74-2	0.5	µg/L		<0.5	<0.5	----	----	----
alpha-Endosulfan	959-98-8	0.5	µg/L		<0.5	<0.5	----	----	----
cis-Chlordane	5103-71-9	0.5	µg/L		<0.5	<0.5	----	----	----
Dieldrin	60-57-1	0.5	µg/L		<0.5	<0.5	----	----	----
4,4'-DDE	72-55-9	0.5	µg/L		<0.5	<0.5	----	----	----
Endrin	72-20-8	0.5	µg/L		<0.5	<0.5	----	----	----
beta-Endosulfan	33213-65-9	0.5	µg/L		<0.5	<0.5	----	----	----
4,4'-DDD	72-54-8	0.5	µg/L		<0.5	<0.5	----	----	----
Endrin aldehyde	7421-93-4	0.5	µg/L		<0.5	<0.5	----	----	----
Endosulfan sulfate	1031-07-8	0.5	µg/L		<0.5	<0.5	----	----	----
4,4'-DDT	50-29-3	2.0	µg/L		<2.0	<2.0	----	----	----
Endrin ketone	53494-70-5	0.5	µg/L		<0.5	<0.5	----	----	----
Methoxychlor	72-43-5	2.0	µg/L		<2.0	<2.0	----	----	----
* Total Chlordane (sum)	----	0.5	µg/L		<0.5	<0.5	----	----	----
* Sum of DDD + DDE + DDT	72-54-8/72-55-9/5-0-2	0.5	µg/L		<0.5	<0.5	----	----	----
* Sum of Aldrin + Dieldrin	309-20-2/60-57-1	0.5	µg/L		<0.5	<0.5	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.5	µg/L		<0.5	<0.5	----	----	----
Demeton-S-methyl	919-86-8	0.5	µg/L		<0.5	<0.5	----	----	----
Monocrotophos	6923-22-4	2.0	µg/L		<2.0	<2.0	----	----	----
Dimethoate	60-51-5	0.5	µg/L		<0.5	<0.5	----	----	----
Diazinon	333-41-5	0.5	µg/L		<0.5	<0.5	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L		<0.5	<0.5	----	----	----
Parathion-methyl	298-00-0	2.0	µg/L		<2.0	<2.0	----	----	----
Malathion	121-75-5	0.5	µg/L		<0.5	<0.5	----	----	----
Fenitrothion	55-38-9	0.5	µg/L		<0.5	<0.5	----	----	----
Chlorpyrifos	2921-88-2	0.5	µg/L		<0.5	<0.5	----	----	----
Parathion	96-38-2	2.0	µg/L		<2.0	<2.0	----	----	----
Pirimphos-ethyl	23505-41-1	0.5	µg/L		<0.5	<0.5	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	L-WN-LD01	Leachate Stage 3	L-WN-SW01	L-WN-SW02	L-WN-SW03
Client sampling date / time					21-Feb-2018 14:00	21-Feb-2018 12:00	21-Feb-2018 15:30	22-Feb-2018 11:10	21-Feb-2018 14:30
Compound	CASNumber	LOR	Unit		EW1800660-001	EW1800660-002	EW1800660-003	EW1800660-004	EW1800660-005
					Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) -Continued									
Chlorfenvinphos	470-90-6	0.5	µg/L		<0.5	<0.5	----	----	----
Bromophos-ethyl	4824-78-6	0.5	µg/L		<0.5	<0.5	----	----	----
Fenamiphos	22224-92-6	0.5	µg/L		<0.5	<0.5	----	----	----
Prothiofos	34643-46-4	0.5	µg/L		<0.5	<0.5	----	----	----
Ethion	563-12-2	0.5	µg/L		<0.5	<0.5	----	----	----
Carbophenothion	786-19-6	0.5	µg/L		<0.5	<0.5	----	----	----
Azinphos Methyl	86-50-0	0.5	µg/L		<0.5	<0.5	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	<1.0	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	<1.0	----	----	----
Acenaphthene	83-32-9	1.0	µg/L		<1.0	<1.0	----	----	----
Fluorene	86-73-7	1.0	µg/L		<1.0	<1.0	----	----	----
Phenanthrene	85-01-8	1.0	µg/L		<1.0	<1.0	----	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	<1.0	----	----	----
Fluoranthene	206-44-0	1.0	µg/L		<1.0	<1.0	----	----	----
Pyrene	129-00-0	1.0	µg/L		<1.0	<1.0	----	----	----
Benzo(a)anthracene	56-55-3	1.0	µg/L		<1.0	<1.0	----	----	----
Chrysene	218-01-9	1.0	µg/L		<1.0	<1.0	----	----	----
Benzo(b)fluoranthene	205-99-2	205-82-3	1.0	µg/L	<1.0	<1.0	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	<1.0	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	<0.5	----	----	----
Indeno[1,2,3-cd]pyrene	193-39-5	1.0	µg/L		<1.0	<1.0	----	----	----
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L		<1.0	<1.0	----	----	----
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L		<1.0	<1.0	----	----	----
* Sum of polycyclic aromatic hydrocarbons				----	0.5	µg/L	<0.5	<0.5	----
* Benzo(a)pyrene TEQ (zero)				----	0.5	µg/L	<0.5	<0.5	----
EP080/071: Total Petroleum Hydrocarbons									
C5 - C9 Fraction	----	20	µg/L		<20	<20	----	----	----
C10 - C14 Fraction	----	50	µg/L		<50	<50	----	----	----
C15 - C28 Fraction	----	100	µg/L		<100	<100	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	<50	----	----	----
* C10 - C36 Fraction (sum)				----	50	µg/L	<50	<50	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 20									
C6 - C10 Fraction	C6, C10	20	µg/L		<20	<20	----	----	----

Sub-Matrix: WATER (Matrix: WATER)	Client sample ID			L-WN-LD01	Leachate Stage 3	L-WN-SW01	L-WN-SW02	L-WN-SW03
Client sampling date / time				21-Feb-2018 14:00	21-Feb-2018 12:00	21-Feb-2018 15:30	22-Feb-2018 11:10	21-Feb-2018 14:30
Compound	CAS Number	LOR	Unit	EW1800660-001	EW1800660-002	EW1800660-003	EW1800660-004	EW1800660-005
				Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued								
>C6 - C10 Fraction minus BTEX (F1)	06_C10-BTEX	20	µg/L	<20	<20	----	----	----
>C10 - C16 Fraction	----	100	µg/L	<100	<100	----	----	----
>C16 - C34 Fraction	----	100	µg/L	<100	<100	----	----	----
>C34 - C40 Fraction	----	100	µg/L	<100	<100	----	----	----
>C40 - C40 Fraction (sum)	----	100	µg/L	<100	<100	----	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	----	----	----
EP080: BTEX								
Benzene	71-43-2	1	µg/L	<1	<1	----	----	----
Toluene	108-88-3	2	µg/L	<2	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	<2	----	----	----
meta- & para-Xylene	106-38-3 106-42-3	2	µg/L	<2	<2	----	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	----	----	----
* Total Xylenes	----	2	µg/L	<2	<2	----	----	----
* Sum of BTEX	----	1	µg/L	<1	<1	----	----	----
Naphthalene	91-20-3	5	µg/L	<5	<5	----	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.5	%	106	99.2	----	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.5	%	88.4	72.3	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-86-3	1.0	%	27.0	26.2	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%	58.9	62.1	----	----	----
2,4,6-Tribromophenol	118-79-6	1.0	%	63.5	55.9	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-9	1.0	%	92.7	96.1	----	----	----
Anthracene-d10	1719-06-8	1.0	%	94.5	81.7	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%	92.5	95.1	----	----	----
EP080S: TPH(V)BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	2	%	114	110	----	----	----
Toluene-D8	2037-26-5	2	%	113	108	----	----	----
4-Bromofluorobenzene	460-00-4	2	%	108	103	----	----	----

Sub-Matrix: WATER (Matrix: WATER)	Client sample ID			L-WN-BH02	L-WN-BH04	L-WN-BH06	L-WN-BH07	L-WN-BH10
Client sampling date / time				21-Feb-2018 15:00	21-Feb-2018 15:42	21-Feb-2018 12:50	21-Feb-2018 13:12	22-Feb-2018 13:30
Compound	CAS Number	LOF	Unit	EW1800660-006	EW1800660-007	EW1800660-008	EW1800660-009	EW1800660-010
				Result	Result	Result	Result	Result
EA005FD: Field pH								
pH	---	0.1	pH Unit	4.4	4.7	3.2	3.9	4.7
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	---	1	mg/L	323	470	1490	850	767
EA075FD: Field Redox Potential								
Redox Potential	----	0.1	mV	202	151	403	182	146
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	5	<1	<1	2
Total Alkalinity as CaCO3	---	1	mg/L	<1	5	<1	<1	2
ED04(G): Sulfate (Turbidimetric) as SO4-2 by DA								
Sulfate as SO4- Turbidimetric	14806-79-5	1	mg/L	33	120	33	26	14
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	175	153	846	574	480
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	9	18	11	26	23
Magnesium	7439-95-4	1	mg/L	10	19	41	34	29
Sodium	7440-23-5	1	mg/L	83	95	546	324	241
Potassium	7440-09-7	1	mg/L	3	7	3	2	3
EG020T: Total Metals by ICP-MS								
Aluminum	7429-90-5	0.01	mg/L	6.80	3.93	6.01	0.31	6.11
Arsenic	7440-38-2	0.001	mg/L	0.005	0.003	0.003	<0.001	0.002
Barium	7440-39-3	0.001	mg/L	0.067	0.020	0.073	0.088	0.174
Cadmium	7440-43-9	0.0001	mg/L	0.0003	<0.0001	<0.0001	<0.0001	<0.0001
Cobalt	7440-48-4	0.001	mg/L	0.011	0.001	0.040	0.010	0.018
Chromium	7440-47-3	0.001	mg/L	0.004	0.005	0.009	<0.001	0.011
Copper	7440-50-8	0.001	mg/L	0.016	0.014	0.093	0.037	0.178
Manganese	7439-95-5	0.001	mg/L	0.060	0.063	0.243	0.163	0.463
Lead	7439-92-1	0.001	mg/L	0.007	0.030	0.029	0.062	0.056
Zinc	7440-66-6	0.005	mg/L	0.200	0.236	0.242	0.111	0.453
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
EG050T: Total Hexavalent Chromium								
Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID				
Client sampling date / time				L-WN-BH02	L-WN-BH04	L-WN-BH06	L-WN-BH07	L-WN-BH10
Compound				21-Feb-2018 15:00	21-Feb-2018 15:42	21-Feb-2018 12:50	21-Feb-2018 13:12	22-Feb-2018 13:30
CAS Number LOR Unit				EW1800660-006	EW1800660-007	EW1800660-008	EW1800660-009	EW1800660-010
				Result	Result	Result	Result	Result
EK040P: Fluoride by PC Titrator								
Fluoride	16984-48-8	0.1	mg/L	0.2	<0.1	0.3	0.3	<0.1
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	0.22	0.20	0.15	0.06	0.56
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	0.16	0.18	0.09	0.22	0.16
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	---	0.01	mg/L	0.16	0.18	0.09	0.22	0.16
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14255-44-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
EN05S: Ionic Balance								
Total Anions	---	0.01	meq/L	5.62	6.91	24.6	16.7	13.9
Total Cations	---	0.01	meq/L	5.72	---	---	---	---
Total Cations	---	0.01	meq/L	---	6.77	27.7	18.2	14.1
Ionic Balance	---	0.01	%	0.67	---	---	---	---
Ionic Balance	---	0.01	%	---	1.03	6.11	4.31	0.80
EP00S: Total Organic Carbon (TOC)								
Total Organic Carbon	---	1	mg/L	11	12	4	4	14
EP035G: Total Phenol by Discrete Analyser								
Phenols (Total)	---	0.05	mg/L	---	---	<0.05	---	---
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
beta-BHC	319-85-7	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
gamma-BHC	58-89-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
delta-BHC	319-86-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Heptachlor	76-44-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Aldrin	309-00-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Dieldrin	60-57-1	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID				
Client sampling date / time				L-WN-BH02	L-WN-BH04	L-WN-BH06	L-WN-BH07	L-WN-BH10
Compound				21-Feb-2018 15:00	21-Feb-2018 15:42	21-Feb-2018 12:50	21-Feb-2018 13:12	22-Feb-2018 13:30
CAS Number LOR Unit				EW1800660-006	EW1800660-007	EW1800660-008	EW1800660-009	EW1800660-010
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
4,4'-DDE	72-55-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Endrin	72-20-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
4,4'-DDD	72-54-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
4,4'-DDT	50-29-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Endrin ketone	53494-70-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Methoxychlor	72-43-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
^A TotalChlordane (sum)	---	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^A Sum of DDD + DDE + DDT	72-54-8/72-55-9/5-0-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^A Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Monocrotophos	6923-22-4	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Dimethoate	60-51-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon	333-41-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorpyrifos-methyl	5508-13-0	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Parathion-methyl	298-00-0	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Malathion	121-75-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	95-36-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Parathion	56-38-2	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Fenamiphos	22224-92-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Prothiofos	34643-46-4	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	563-12-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Carbophenothion	786-19-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
EP07S(SIM)A: Phenolic Compounds								
Phenol	108-96-2	1.0	µg/L	---	---	<1.0	---	---

Sub-Matrix: WATER		Client sample ID		L-WN-BH02	L-WN-BH04	L-WN-BH06	L-WN-BH07	L-WN-BH10
(Matrix: WATER)								
Client sampling date / time								
Compound	CAS Number	LOR	Unit	EW1800660-006	EW1800660-007	EW1800660-008	EW1800660-009	EW1800660-010
				Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued								
2-Chlorophenol	95-57-8	1.0	µg/L	----	----	<1.0	----	----
2-Methylphenol	95-48-7	1.0	µg/L	----	----	<1.0	----	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	----	----	<2.0	----	----
2-Nitrophenol	88-75-5	1.0	µg/L	----	----	<1.0	----	----
2,4-Dimethylphenol	105-67-9	1.0	µg/L	----	----	<1.0	----	----
2,4-Dichlorophenol	120-83-2	1.0	µg/L	----	----	<1.0	----	----
2,6-Dichlorophenol	87-65-0	1.0	µg/L	----	----	<1.0	----	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	----	----	<1.0	----	----
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	----	----	<1.0	----	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	----	----	<1.0	----	----
Pentachlorophenol	87-86-5	2.0	µg/L	----	----	<2.0	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz[a]anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo[b]fluoranthene	205-99-2	205-82-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0
Benzo[k]fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo[a]pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno[1,2,3-cd]pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenzo[a,h]anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo[g,h,i]perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
* Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
* Benzo[a]pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
EP075(A): Phenolic Compounds (Additional Chlorinated)								
3- & 4-Chlorophenol	108-43-0	105-48-9	0.5	µg/L	----	<0.5	----	----
2,6-Dichlorophenol	583-78-8	0.5	µg/L	----	----	<0.5	----	----
2,3-Dichlorophenol	576-24-9	0.5	µg/L	----	----	<0.5	----	----

Sub-Matrix: WATER	Client sample ID	L-WN-BH02	L-WN-BH04	L-WN-BH06	L-WN-BH07	L-WN-BH10
(Matrix: WATER)		21-Feb-2018 15:00	21-Feb-2018 15:42	21-Feb-2018 12:50	21-Feb-2018 13:12	22-Feb-2018 13:30
Compound	CAS Number	Unit	Result	Result	Result	Result
			EW1800660-006	EW1800660-007	EW1800660-008	EW1800660-009
Client sampling date / time						
EW1800660-010						
EP075A: Phenolic Compounds (Additional Chlorinated) - Continued						
3,5-Dichlorophenol	591-35-5	0.5 µg/L	----	----	<0.5	----
3,4-Dichlorophenol	95-77-2	0.5 µg/L	----	----	<0.5	----
2,3,5-Trichlorophenol	933-78-8	0.5 µg/L	----	----	<0.5	----
2,3,4-Trichlorophenol	15950-66-0	0.5 µg/L	----	----	<0.5	----
2,3,6-Trichlorophenol	933-75-5	0.5 µg/L	----	----	<0.5	----
3,4,5-Trichlorophenol	609-19-8	0.5 µg/L	----	----	<0.5	----
2,3,5,6-Tetrachlorophenol	935-95-5	0.5 µg/L	----	----	<0.5	----
2,3,4,5-Tetrachlorophenol	4901-51-3	0.5 µg/L	----	----	<0.5	----
2,3,4,6-Tetrachlorophenol	58-90-2	0.5 µg/L	----	----	<0.5	----
EP075G: Chlorinated Hydrocarbons						
1,2,3,4-tetrachlorobenzene	634-66-2	0.2 µg/L	----	----	<0.2	----
1,2,3,5- & 1,2,4,5-Tetrachlorobenzene	634-90-295-94-3	0.5 µg/L	----	----	<0.5	----
EP080/071: Total Petroleum Hydrocarbons						
C8 - C16 Fraction	----	20 µg/L	<20	<20	<20	<20
C10 - C14 Fraction	----	50 µg/L	<50	<50	<50	<50
C16 - C28 Fraction	----	100 µg/L	<100	<100	<100	<100
C28 - C36 Fraction	----	50 µg/L	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50 µg/L	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 20						
C8 - C16 Fraction	C8_C10	20 µg/L	<20	<20	<20	<20
^ C8 - C16 Fraction minus BTEX (F1)	C8_C10-BTEX	20 µg/L	<20	<20	<20	<20
>C10 - C16 Fraction	----	100 µg/L	<100	<100	<100	<100
>C16 - C34 Fraction	----	100 µg/L	<100	<100	<100	<100
>C34 - C40 Fraction	----	100 µg/L	<100	<100	<100	<100
>C10 - C40 Fraction (sum)	----	100 µg/L	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100 µg/L	<100	<100	<100	<100
EP080: BTEXN						
Benzene	71-43-2	1 µg/L	<1	<1	<1	<1
Toluene	108-88-3	2 µg/L	<2	<2	<2	<2
Ethylbenzene	100-41-4	2 µg/L	<2	<2	<2	<2
meta- & para-Xylene	105-38-3 106-42-3	2 µg/L	<2	<2	<2	<2
ortho-Xylene	95-47-6	2 µg/L	<2	<2	<2	<2



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID				
Client sampling date / time				L-WN-BH02	L-WN-BH04	L-WN-BH06	L-WN-BH07	L-WN-BH10
Compound				EW1800660-006	EW1800660-007	EW1800660-008	EW1800660-009	EW1800660-010
CAS Number				Result	Result	Result	Result	Result
LOR								
Unit								
EP080: BTEXN - Continued								
^ Total Xylenes				<2	<2	<2	<2	<2
^ Sum of BTEX				<1	<1	<1	<1	<1
Naphthalene				<5	<5	<5	<5	<5
FWI-EN/001: Groundwater Sampling - Depth								
Standing Water Level				33.29	31.26	30.28	29.40	33.05
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DOE				116	116	100	89.2	70.3
EP068T: Organophosphorus Pesticide Surrogate								
DEF				79.8	99.0	79.6	65.2	62.7
EP07S(SIM)S: Phenolic Compound Surrogates								
Phenol-d6				23.8	24.9	21.3	19.0	24.8
2-Chlorophenol-d4				69.0	55.4	60.4	36.1	63.5
2,4,6-Tribromophenol				52.1	58.0	68.8	77.5	72.4
EP07S(SIM)T: PAH Surrogates								
2-Fluorobiphenyl				77.2	90.3	95.3	72.1	86.6
Anthracene-d10				76.4	80.6	68.8	80.7	75.9
4-Terphenyl-d14				93.5	81.2	86.7	85.4	83.4
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4				110	111	110	129	113
Toluene-D8				108	107	105	107	109
4-Bromofluorobenzene				104	105	103	104	108



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID				
Client sampling date / time				L-WN-BH11	L-WN-BH13	L-WN-BH14	L-WN-BH16	L-WN-BH17
Compound				EW1800660-011	EW1800660-012	EW1800660-013	EW1800660-014	EW1800660-015
CAS Number				Result	Result	Result	Result	Result
LOR								
Unit								
EA005FD: Field pH								
pH				0.1	pH Unit	4.9	3.1	3.6
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C				1	mg/L	1700	1680	1130
EA075FD: Field Redox Potential								
Redox Potential				0.1	mV	46.8	360	241
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3				DMO-210-001	1	mg/L	<1	<1
Carbonate Alkalinity as CaCO3				3812-32-6	1	mg/L	<1	<1
Bicarbonate Alkalinity as CaCO3				71-52-3	1	mg/L	<1	<1
Total Alkalinity as CaCO3				---	1	mg/L	24	<1
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric				14808-79-8	1	mg/L	9	34
ED045G: Chloride by Discrete Analyser								
Chloride				16887-00-6	1	mg/L	1030	1060
ED093F: Dissolved Major Cations								
Calcium				7440-70-2	1	mg/L	3	12
Magnesium				7439-95-4	1	mg/L	14	66
Sodium				7440-23-5	1	mg/L	546	605
Potassium				7440-09-7	1	mg/L	<1	1
EG020T: Total Metals by ICP-MS								
Aluminium				7429-90-5	0.01	mg/L	9.55	17.0
Arsenic				7440-38-2	0.001	mg/L	0.076	<0.001
Barium				7440-39-3	0.001	mg/L	0.113	0.100
Cadmium				7440-43-9	0.0001	mg/L	<0.0001	0.0003
Cobalt				7440-48-4	0.001	mg/L	0.001	0.027
Chromium				7440-47-3	0.001	mg/L	<0.001	<0.001
Copper				7440-50-8	0.001	mg/L	0.073	0.178
Manganese				7439-96-5	0.001	mg/L	0.129	0.680
Lead				7439-92-1	0.001	mg/L	0.019	0.040
Zinc				7440-66-6	0.005	mg/L	0.081	0.349
EG035T: Total Recoverable Mercury by FIMS								
Mercury				7439-97-6	0.0001	mg/L	<0.0001	<0.0001
EG050T: Total Hexavalent Chromium								
Hexavalent Chromium				18540-29-9	0.01	mg/L	<0.01	<0.01



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Client sample ID		L-WN-BH11		L-WN-BH13		L-WN-BH14		L-WN-BH16		L-WN-BH17							
Client sampling date / time					21-Feb-2018 12:30		22-Feb-2018 13:48		22-Feb-2018 11:36		22-Feb-2018 12:35		22-Feb-2018 13:02							
Compound					CAS Number		LOR		Unit		EW1800660-011		EW1800660-012		EW1800660-013		EW1800660-014		EW1800660-015	
					Result		Result		Result		Result		Result		Result		Result		Result	
EK040P: Fluoride by PC Titrator																				
Fluoride					16984-48-8		0.1		mg/L		---		<0.1		0.2		0.2		<0.1	
EK055G: Ammonia as N by Discrete Analyser																				
Ammonia as N					7664-41-7		0.01		mg/L		---		0.50		0.03		0.04		0.02	
EK057G: Nitrite as N by Discrete Analyser																				
Nitrite as N					14797-65-0		0.01		mg/L		---		<0.05		<0.01		<0.01		<0.01	
EK058G: Nitrate as N by Discrete Analyser																				
Nitrate as N					14797-55-8		0.01		mg/L		---		<0.05		<0.01		<0.01		<0.01	
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser																				
Nitrite + Nitrate as N					---		0.01		mg/L		---		<0.05		<0.01		<0.01		<0.01	
EK071G: Reactive Phosphorus as P by discrete analyser																				
Reactive Phosphorus as P					14265-44-2		0.01		mg/L		---		<0.01		<0.01		<0.01		<0.01	
EN05S: Ionic Balance																				
Total Anions					---		0.01		meq/L		---		29.7		30.6		10.6		6.26	
Total Cations					---		0.01		meq/L		---		25.0		32.4		10.0		5.66	
Ionic Balance					---		0.01		%		---		8.53		2.80		2.82		5.06	
EN67 PK: Field Tests																				
Field Observations					---		0.01		--		DRY		---		---		---		---	
EP00S: Total Organic Carbon (TOC)																				
Total Organic Carbon					---		1		mg/L		---		4		1		<1		<1	
EP068A: Organochlorine Pesticides (OC)																				
alpha-BHC					319-84-6		0.5		µg/L		---		<0.5		<0.5		<0.5		<0.5	
Hexachlorobenzene (HCB)					118-74-1		0.5		µg/L		---		<0.5		<0.5		<0.5		<0.5	
beta-BHC					319-85-7		0.5		µg/L		---		<0.5		<0.5		<0.5		<0.5	
gamma-BHC					58-89-9		0.5		µg/L		---		<0.5		<0.5		<0.5		<0.5	
delta-BHC					319-86-8		0.5		µg/L		---		<0.5		<0.5		<0.5		<0.5	
Heptachlor					76-44-8		0.5		µg/L		---		<0.5		<0.5		<0.5		<0.5	
Aldrin					309-00-2		0.5		µg/L		---		<0.5		<0.5		<0.5		<0.5	
Heptachlor epoxide					1024-57-3		0.5		µg/L		---		<0.5		<0.5		<0.5		<0.5	
trans-Chlordane					5103-74-2		0.5		µg/L		---		<0.5		<0.5		<0.5		<0.5	
alpha-Endosulfan					959-98-8		0.5		µg/L		---		<0.5		<0.5		<0.5		<0.5	
cis-Chlordane					5103-71-9		0.5		µg/L		---		<0.5		<0.5		<0.5		<0.5	
Dieldrin					60-57-1		0.5		µg/L		---		<0.5		<0.5		<0.5		<0.5	
4,4'-DDE					72-55-9		0.5		µg/L		---		<0.5		<0.5		<0.5		<0.5	
Endrin					72-20-8		0.5		µg/L		---		<0.5		<0.5		<0.5		<0.5	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID				
Client sampling date / time				L-WN-BH11	L-WN-BH13	L-WN-BH14	L-WN-BH16	L-WN-BH17
21-Feb-2018 12:30				22-Feb-2018 13:48	22-Feb-2018 11:36	22-Feb-2018 12:35	22-Feb-2018 13:02	
Compound	CAS Number	LOR	Unit	EW1800660-011	EW1800660-012	EW1800660-013	EW1800660-014	EW1800660-015
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
beta-Endosulfan	33213-65-9	0.5	µg/L	----	<0.5	<0.5	<0.5	<0.5
4,4'-DDD	72-54-8	0.5	µg/L	----	<0.5	<0.5	<0.5	<0.5
Endrin aldehyde	7421-93-4	0.5	µg/L	----	<0.5	<0.5	<0.5	<0.5
Endosulfan sulfate	1031-07-8	0.5	µg/L	----	<0.5	<0.5	<0.5	<0.5
4,4'-DDT	50-29-3	2.0	µg/L	----	<2.0	<2.0	<2.0	<2.0
Endrin ketone	53494-70-5	0.5	µg/L	----	<0.5	<0.5	<0.5	<0.5
Methoxychlor	72-43-5	2.0	µg/L	----	<2.0	<2.0	<2.0	<2.0
^A TotalChlordane (sum)	----	0.5	µg/L	----	<0.5	<0.5	<0.5	<0.5
^A Sum of DDD + DDE + DDT	72-54-8/72-55-9/5-0-2	0.5	µg/L	----	<0.5	<0.5	<0.5	<0.5
^A Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	----	<0.5	<0.5	<0.5	<0.5
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.5	µg/L	----	<0.5	<0.5	<0.5	<0.5
Demeton-S-methyl	919-86-6	0.5	µg/L	----	<0.5	<0.5	<0.5	<0.5
Monocrotophos	6923-22-4	2.0	µg/L	----	<2.0	<2.0	<2.0	<2.0
Dimethoate	60-51-5	0.5	µg/L	----	<0.5	<0.5	<0.5	<0.5
Diazinon	333-41-5	0.5	µg/L	----	<0.5	<0.5	<0.5	<0.5
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	----	<0.5	<0.5	<0.5	<0.5
Parathion-methyl	298-00-0	2.0	µg/L	----	<2.0	<2.0	<2.0	<2.0
Malathion	121-75-5	0.5	µg/L	----	<0.5	<0.5	<0.5	<0.5
Fenthion	55-38-9	0.5	µg/L	----	<0.5	<0.5	<0.5	<0.5
Chlorpyrifos	2921-88-2	0.5	µg/L	----	<0.5	<0.5	<0.5	<0.5
Parathion	96-36-2	2.0	µg/L	----	<2.0	<2.0	<2.0	<2.0
Pirimphos-ethyl	23505-41-1	0.5	µg/L	----	<0.5	<0.5	<0.5	<0.5
Chlorfenvinphos	470-90-6	0.5	µg/L	----	<0.5	<0.5	<0.5	<0.5
Bromophos-ethyl	4824-78-6	0.5	µg/L	----	<0.5	<0.5	<0.5	<0.5
Fenamiphos	22224-92-6	0.5	µg/L	----	<0.5	<0.5	<0.5	<0.5
Prothiophos	34643-46-4	0.5	µg/L	----	<0.5	<0.5	<0.5	<0.5
Ethion	563-12-2	0.5	µg/L	----	<0.5	<0.5	<0.5	<0.5
Carbophenothion	786-19-6	0.5	µg/L	----	<0.5	<0.5	<0.5	<0.5
Azinphos Methyl	86-50-0	0.5	µg/L	----	<0.5	<0.5	<0.5	<0.5
EP07S(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)		Client sample ID		L-WN-BH11	L-WN-BH13	L-WN-BH14	L-WN-BH16	L-WN-BH17
Client sampling date / time				21-Feb-2018 12:30	22-Feb-2018 13:48	22-Feb-2018 11:36	22-Feb-2018 12:35	22-Feb-2018 13:02
Compound	CAS Number	LOR	Unit	EW1800660-011	EW1800660-012	EW1800660-013	EW1800660-014	EW1800660-015
				Result	Result	Result	Result	Result
EP075(SIM)S: Polynuclear Aromatic Hydrocarbons - Continued								
Fluorene	86-73-7	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Benzo(a)anthracene	56-55-3	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	205-82-3	1.0	µg/L	----	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	----	<0.5	<0.5	<0.5	<0.5
Indeno(1,2,3-cd)pyrene	193-39-5	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	----	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons				----	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)				----	<0.5	<0.5	<0.5	<0.5
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	----	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	----	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	----	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	----	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)				----	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 20								
C6 - C10 Fraction	C6_C10	20	µg/L	----	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)				C6_C10-BTEX	20	µg/L	----	<20
>C10 - C16 Fraction				----	100	µg/L	----	<100
>C16 - C34 Fraction				----	100	µg/L	----	<100
>C34 - C40 Fraction				----	100	µg/L	----	<100
^>C10 - C40 Fraction (sum)				----	100	µg/L	----	<100
>C10 - C16 Fraction minus Naphthalene (F2)				----	100	µg/L	----	<100
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	----	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	----	<2	<2	<2	<2



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)		Client sample ID		L-WN-BH11	L-WN-BH13	L-WN-BH14	L-WN-BH16	L-WN-BH17
Client sampling date / time				21-Feb-2018 12:30	22-Feb-2018 13:48	22-Feb-2018 11:36	22-Feb-2018 12:35	22-Feb-2018 13:02
Compound	CAS Number	LOR	Unit	EW1800660-011	EW1800660-012	EW1800660-013	EW1800660-014	EW1800660-015
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
Ethylbenzene	100-41-4	2	µg/L	----	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	----	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	----	<2	<2	<2	<2
^ Total Xylenes	----	2	µg/L	----	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	----	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	----	<5	<5	<5	<5
FWI-EN/001: Groundwater Sampling - Depth								
Standing Water Level	----	0.01	m AHD	----	33.14	36.43	37.96	37.94
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.5	%	----	63.2	76.7	73.1	82.1
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.5	%	----	62.8	67.3	68.6	72.8
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	----	23.2	24.8	24.2	25.5
2-Chlorophenol-D4	93951-73-6	1.0	%	----	45.2	65.0	55.5	56.0
2,4,6-Tribromophenol	118-79-6	1.0	%	----	80.4	67.8	66.2	61.5
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	----	74.8	90.2	83.1	90.7
Anthracene-d10	17119-06-8	1.0	%	----	86.1	72.2	67.6	91.1
4-Terphenyl-d14	17118-51-0	1.0	%	----	94.1	83.6	84.8	90.4
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	2	%	----	128	132	128	127
Toluene-D8	2037-26-5	2	%	----	105	105	100	110
4-Bromofluorobenzene	460-00-4	2	%	----	105	104	102	109



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID				
Client sampling date / time				L-WN-BH18	L-WN-BH19	L-WN-BH20	L-WN-BH21	L-WN-BH22
Compound				EW1800660-016	EW1800660-017	EW1800660-018	EW1800660-019	EW1800660-020
CAS Number				Result	Result	Result	Result	Result
LOR								
Unit								
EA005FD: Field pH								
pH	----	0.1	pH Unit	----	----	4.1	5.0	5.2
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	1	mg/L	----	----	1700	94	204
EA075FD: Field Redox Potential								
Redox Potential	----	0.1	mV	----	----	233	-13.4	54.3
ED037P: Alkalinity by PC Titrator								
DMAO-210-001	1	mg/L	----	----	----	<1	<1	<1
Hydroxide Alkalinity as CaCO3	3813-32-6	1	mg/L	----	----	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	----	----	<1	5	3
Total Alkalinity as CaCO3	----	1	mg/L	----	----	<1	5	3
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	----	----	119	10	34
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	----	----	877	25	108
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	----	----	<1	<1	6
Magnesium	7439-95-4	1	mg/L	----	----	40	2	4
Sodium	7440-23-5	1	mg/L	----	----	565	19	76
Potassium	7440-09-7	1	mg/L	----	----	<1	2	1
EG020T: Total Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	----	----	6.91	9.18	83.1
Arsenic	7440-38-2	0.001	mg/L	----	----	0.009	0.003	0.010
Barium	7440-39-3	0.001	mg/L	----	----	0.088	0.021	0.167
Cadmium	7440-43-9	0.0001	mg/L	----	----	0.0002	0.0002	0.0002
Cobalt	7440-48-4	0.001	mg/L	----	----	0.004	0.005	0.012
Chromium	7440-47-3	0.001	mg/L	----	----	0.002	0.018	0.112
Copper	7440-50-8	0.001	mg/L	----	----	0.037	0.060	0.061
Manganese	7439-96-5	0.001	mg/L	----	----	0.801	0.014	0.389
Lead	7439-92-1	0.001	mg/L	----	----	0.024	0.050	0.120
Zinc	7440-66-6	0.005	mg/L	----	----	0.169	0.097	0.187
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	----	----	<0.0001	<0.0001	<0.0001
EG050T: Total Hexavalent Chromium								
Hexavalent Chromium	18540-29-9	0.01	mg/L	----	----	<0.01	<0.01	<0.01



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID				
Client sampling date / time				L-WN-BH18	L-WN-BH19	L-WN-BH20	L-WN-BH21	L-WN-BH22
Compound				EW1800660-016	EW1800660-017	EW1800660-018	EW1800660-019	EW1800660-020
CAS Number				Result	Result	Result	Result	Result
LOR								
Unit								
EK040P: Fluoride by PC Titrator								
Fluoride	16984-48-8	0.1	mg/L	----	----	0.3	<0.1	<0.1
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	----	----	0.31	0.39	0.08
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	----	----	<0.01	<0.01	<0.01
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	----	----	<0.01	<0.01	0.01
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	----	----	<0.01	<0.01	0.01
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14255-44-2	0.01	mg/L	----	----	<0.01	<0.01	<0.01
EN05S: Ionic Balance								
Total Anions	----	0.01	meq/L	----	----	27.2	1.01	3.81
Total Cations	----	0.01	meq/L	----	----	27.9	1.04	3.96
Ionic Balance	----	0.01	%	----	----	1.18	----	1.87
EN67 PK: Field Tests								
Field Observations	----	0.01	--	DRY	DRY	----	----	----
EP00S: Total Organic Carbon (TOC)								
Total Organic Carbon	----	1	mg/L	----	----	24	31	17
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	----	----	<0.5	<0.5	<0.5
beta-BHC	319-85-7	0.5	µg/L	----	----	<0.5	<0.5	<0.5
gamma-BHC	58-89-9	0.5	µg/L	----	----	<0.5	<0.5	<0.5
delta-BHC	319-86-8	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Heptachlor	76-44-8	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Aldrin	309-00-2	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Heptachlor epoxide	1024-57-3	0.5	µg/L	----	----	<0.5	<0.5	<0.5
trans-Chlordane	5103-74-2	0.5	µg/L	----	----	<0.5	<0.5	<0.5
alpha-Endosulfan	959-98-8	0.5	µg/L	----	----	<0.5	<0.5	<0.5
cis-Chlordane	5103-71-9	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Dieldrin	60-57-1	0.5	µg/L	----	----	<0.5	<0.5	<0.5
4,4'-DDE	72-55-9	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Endrin	72-20-8	0.5	µg/L	----	----	<0.5	<0.5	<0.5



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID				
Client sampling date / time				L-WN-BH18	L-WN-BH19	L-WN-BH20	L-WN-BH21	L-WN-BH22
Compound				EW1800660-016	EW1800660-017	EW1800660-018	EW1800660-019	EW1800660-020
CAS Number				Result	Result	Result	Result	Result
LOR								
Unit								
EP068A: Organochlorine Pesticides (OC) - Continued								
beta-Endosulfan	33213-65-9	0.5	µg/L	----	----	<0.5	<0.5	<0.5
4,4'-DDD	72-54-8	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Endrin aldehyde	7421-93-4	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Endosulfan sulfate	1031-07-8	0.5	µg/L	----	----	<0.5	<0.5	<0.5
4,4'-DDT	50-29-3	2.0	µg/L	----	----	<2.0	<2.0	<2.0
Endrin ketone	53494-70-5	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Methoxychlor	72-43-5	2.0	µg/L	----	----	<2.0	<2.0	<2.0
^ Total Chlordane (sum)	----	0.5	µg/L	----	----	<0.5	<0.5	<0.5
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/5-0-2	0.5	µg/L	----	----	<0.5	<0.5	<0.5
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	----	----	<0.5	<0.5	<0.5
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Demeton-S-methyl	919-96-6	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Monocrotophos	6923-22-4	2.0	µg/L	----	----	<2.0	<2.0	<2.0
Dimethoate	60-51-5	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Diazinon	333-41-5	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Parathion-methyl	298-00-0	2.0	µg/L	----	----	<2.0	<2.0	<2.0
Malathion	121-75-5	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Fenitrothion	55-38-9	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Chlorpyrifos	2921-88-2	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Parathion	56-36-2	2.0	µg/L	----	----	<2.0	<2.0	<2.0
Pirimiphos-ethyl	23505-41-1	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Chlorfenvinphos	470-90-6	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Bromophos-ethyl	4824-79-6	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Fenamiphos	22224-92-6	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Prothiofos	34643-46-4	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Ethion	563-12-2	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Carbophenothion	786-19-6	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Azinphos Methyl	86-50-0	0.5	µg/L	----	----	<0.5	<0.5	<0.5
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	----	----	<1.0	<1.0	<1.0



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID				
Client sampling date / time				L-WN-BH18	L-WN-BH19	L-WN-BH20	L-WN-BH21	L-WN-BH22
Compound				EW1800660-016	EW1800660-017	EW1800660-018	EW1800660-019	EW1800660-020
CAS Number				Result	Result	Result	Result	Result
LOR								
Unit								
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Fluorene	86-73-7	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2 205-82-3	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	----	----	<0.5	<0.5	<0.5
Indeno(1,2,3-cd)pyrene	193-39-5	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	----	----	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	----	----	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	----	----	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	----	----	<0.5	<0.5	<0.5
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	----	----	180	<20	<20
C10 - C14 Fraction	----	50	µg/L	----	----	350	140	<50
C15 - C28 Fraction	----	100	µg/L	----	----	580	120	<100
C29 - C36 Fraction	----	50	µg/L	----	----	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	----	----	930	260	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 20 3 Fractions								
C6 - C10 Fraction	C6, C10	20	µg/L	----	----	180	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6, C10-BTEX	20	µg/L	----	----	80	<20	<20
>C10 - C16 Fraction	----	100	µg/L	----	----	500	120	<100
>C16 - C34 Fraction	----	100	µg/L	----	----	420	160	<100
>C34 - C40 Fraction	----	100	µg/L	----	----	<100	<100	<100
^>C10 - C40 Fraction (sum)	----	100	µg/L	----	----	920	280	<100
^>C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	----	----	500	120	<100
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	----	----	3	<1	<1
Toluene	108-88-3	2	µg/L	----	----	2	<2	<2



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID		L-WN-BH18	L-WN-BH19	L-WN-BH20	L-WN-BH21	L-WN-BH22
Client sampling date / time						21-Feb-2018 12:20	21-Feb-2018 10:45	21-Feb-2018 16:10	21-Feb-2018 11:00	21-Feb-2018 11:30
Compound	CAS Number	LOR	Unit	EW1800660-016		EW1800660-017	EW1800660-018	EW1800660-019	EW1800660-020	
				Result	Result	Result	Result	Result	Result	
EP080: BTEXN - Continued										
Ethylbenzene	100-41-4	2	µg/L	----	----	88	<2	<2	<2	
meta- & para-Xylene	106-38-3 106-42-3	2	µg/L	----	----	4	<2	<2	<2	
ortho-Xylene	95-47-6	2	µg/L	----	----	2	<2	<2	<2	
^ Total Xylenes	----	2	µg/L	----	----	6	<2	<2	<2	
^ Sum of BTEX	----	1	µg/L	----	----	99	<1	<1	<1	
Naphthalene	91-20-3	5	µg/L	----	----	<5	<5	<5	<5	
FWI-EN001: Groundwater Sampling - Depth										
Standing Water Level	----	0.01	m AHD	----	----	36.20	2.91		2.67	
EP088S: Organochlorine Pesticide Surrogate										
Dibromo-DDE	21655-73-2	0.5	%	----	----	78.0	95.6		79.4	
EP088T: Organophosphorus Pesticide Surrogate										
DEF	78-48-8	0.5	%	----	----	89.4	105		73.5	
EP075(SIM)/S: Phenolic Compound Surrogates										
Phenol-d6	13127-88-3	1.0	%	----	----	22.5	24.6		25.9	
2-Chlorophenol-D4	93951-73-6	1.0	%	----	----	60.5	62.8		66.8	
2,4,6-Tribromophenol	118-79-6	1.0	%	----	----	75.4	81.8		63.2	
EP075(SIM)/T: PAH Surrogates										
2-Fluorobiphenyl	321-60-8	1.0	%	----	----	76.0	80.7		85.5	
Anthracene-d10	1719-06-8	1.0	%	----	----	84.0	85.6		89.9	
4-Terphenyl-d14	1718-51-0	1.0	%	----	----	83.0	95.3		82.9	
EP080S: TPH(V)/BTEX Surrogates										
1,2-Dichloroethane-D4	17060-07-0	2	%	----	----	137	104		125	
Toluene-D8	2037-26-5	2	%	----	----	101	109		101	
4-Bromofluorobenzene	460-00-4	2	%	----	----	106	104		99.7	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID		L-WN-BH23	Duplicate	Blank	----	----
Client sampling date / time				22-Feb-2018 12:10		22-Feb-2018 11:37	21-Feb-2018 14:30	-----	-----	-----
Compound	CAS Number	LOR	Unit	EW1800660-021		EW1800660-022	EW1800660-023	-----	-----	-----
				Result	Result	Result	Result	-----	-----	-----
EA005FD: Field pH										
pH	----	0.1	pH Unit	----	----	3.1	5.6	----	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C										
Total Dissolved Solids @180°C	----	1	mg/L	----	----	1780	<1	----	----	----
EA075FD: Field Redox Potential										
Redox Potential	----	0.1	mV	----	----	358	314	----	----	----
ED037P: Alkalinity by PC Titrator										
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	----	----	<1	<1	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	----	----	<1	<1	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	----	----	<1	<1	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L	----	----	<1	<1	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA										
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	----	----	33	<1	----	----	----
ED045G: Chloride by Discrete Analyser										
Chloride	16887-00-6	1	mg/L	----	----	1140	<1	----	----	----
ED093F: Dissolved Major Cations										
Calcium	7440-70-2	1	mg/L	----	----	13	<1	----	----	----
Magnesium	7439-95-4	1	mg/L	----	----	61	<1	----	----	----
Sodium	7440-23-5	1	mg/L	----	----	524	2	----	----	----
Potassium	7440-09-7	1	mg/L	----	----	1	<1	----	----	----
EG020T: Total Metals by ICP-MS										
Aluminium	7429-90-5	0.01	mg/L	----	----	17.6	<0.01	----	----	----
Arsenic	7440-38-2	0.001	mg/L	----	----	<0.001	<0.001	----	----	----
Barium	7440-39-3	0.001	mg/L	----	----	0.099	<0.001	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	----	----	0.0003	<0.0001	----	----	----
Cobalt	7440-48-4	0.001	mg/L	----	----	0.027	<0.001	----	----	----
Chromium	7440-47-3	0.001	mg/L	----	----	0.001	<0.001	----	----	----
Copper	7440-50-8	0.001	mg/L	----	----	0.179	<0.001	----	----	----
Manganese	7439-96-5	0.001	mg/L	----	----	0.694	<0.001	----	----	----
Lead	7439-92-1	0.001	mg/L	----	----	0.040	<0.001	----	----	----
Zinc	7440-66-6	0.005	mg/L	----	----	0.344	<0.005	----	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	7439-97-6	0.0001	mg/L	----	----	<0.0001	<0.0001	----	----	----
EG050T: Total Hexavalent Chromium										
Hexavalent Chromium	18540-29-9	0.01	mg/L	----	----	<0.01	<0.01	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	L-WN-BH23	Duplicate	Blank	----	----
Client sampling date / time					22-Feb-2018 12:10	22-Feb-2018 11:37	21-Feb-2018 14:30	----	----
Compound	CAS Number	LOR	Unit		EW1800660-021	EW1800660-022	EW1800660-023	-----	-----
				Result	Result	Result	----	----	
EK0450P: Fluoride by PC Titrator									
Fluoride	16984-48-8	0.1	mg/L	----	----	0.3	<0.1	----	----
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L	----	----	0.03	<0.01	----	----
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L	----	----	<0.01	<0.01	----	----
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L	----	----	<0.01	<0.01	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L	----	----	<0.01	<0.01	----	----
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	----	----	<0.01	<0.01	----	----
EN05S: Ionic Balance									
Total Anions	----	0.01	meq/L	----	----	32.8	<0.01	----	----
Total Cations	----	0.01	meq/L	----	----	28.5	0.09	----	----
Ionic Balance	----	0.01	%	----	----	7.10	----	----	----
EN67 PK: Field Tests									
Field Observations	----	0.01	--	----	DRY	----	----	----	----
EP00S: Total Organic Carbon (TOC)									
Total Organic Carbon	----	1	mg/L	----	----	1	<1	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.5	µg/L	----	----	<0.5	<0.5	----	----
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	----	----	<0.5	<0.5	----	----
beta-BHC	319-85-7	0.5	µg/L	----	----	<0.5	<0.5	----	----
gamma-BHC	58-89-9	0.5	µg/L	----	----	<0.5	<0.5	----	----
delta-BHC	319-86-8	0.5	µg/L	----	----	<0.5	<0.5	----	----
Heptachlor	76-44-8	0.5	µg/L	----	----	<0.5	<0.5	----	----
Aldrin	309-00-2	0.5	µg/L	----	----	<0.5	<0.5	----	----
Heptachlor epoxide	1024-57-3	0.5	µg/L	----	----	<0.5	<0.5	----	----
trans-Chlordane	5103-74-2	0.5	µg/L	----	----	<0.5	<0.5	----	----
alpha-Endosulfan	959-98-8	0.5	µg/L	----	----	<0.5	<0.5	----	----
cis-Chlordane	5103-71-9	0.5	µg/L	----	----	<0.5	<0.5	----	----
Dieldrin	60-57-1	0.5	µg/L	----	----	<0.5	<0.5	----	----
4,4'-DDE	72-55-9	0.5	µg/L	----	----	<0.5	<0.5	----	----
Endrin	72-20-8	0.5	µg/L	----	----	<0.5	<0.5	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	L-WN-BH23	Duplicate	Blank	-----	-----
Client sampling date / time					22-Feb-2018 12:10	22-Feb-2018 11:37	21-Feb-2018 14:30	-----	-----
Compound	CAS Number	LOR	Unit		EW1800660-021	EW1800660-022	EW1800660-023	-----	-----
				Result	Result	Result	-----	-----	
EP068A: Organochlorine Pesticides (OC) - Continued									
beta-Endosulfan	33213-65-9	0.5	µg/L	-----	<0.5	<0.5	<0.5	-----	-----
4,4'-DDD	72-54-8	0.5	µg/L	-----	<0.5	<0.5	<0.5	-----	-----
Endrin aldehyde	7421-93-4	0.5	µg/L	-----	<0.5	<0.5	<0.5	-----	-----
Endosulfan sulfate	1031-07-8	0.5	µg/L	-----	<0.5	<0.5	<0.5	-----	-----
4,4'-DDT	50-29-3	2.0	µg/L	-----	<2.0	<2.0	<2.0	-----	-----
Endrin ketone	53494-70-5	0.5	µg/L	-----	<0.5	<0.5	<0.5	-----	-----
Methoxychlor	72-43-5	2.0	µg/L	-----	<2.0	<2.0	<2.0	-----	-----
^ TotalChlordane (sum)	-----	0.5	µg/L	-----	<0.5	<0.5	<0.5	-----	-----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-95-0-2	0.5	µg/L	-----	<0.5	<0.5	<0.5	-----	-----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	-----	<0.5	<0.5	<0.5	-----	-----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.5	µg/L	-----	<0.5	<0.5	<0.5	-----	-----
Demeton-S-methyl	919-86-8	0.5	µg/L	-----	<0.5	<0.5	<0.5	-----	-----
Monocrotophos	6923-22-4	2.0	µg/L	-----	<2.0	<2.0	<2.0	-----	-----
Dimethoate	60-51-5	0.5	µg/L	-----	<0.5	<0.5	<0.5	-----	-----
Diazinon	333-41-5	0.5	µg/L	-----	<0.5	<0.5	<0.5	-----	-----
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	-----	<0.5	<0.5	<0.5	-----	-----
Parathion-methyl	298-00-0	2.0	µg/L	-----	<2.0	<2.0	<2.0	-----	-----
Malathion	121-75-5	0.5	µg/L	-----	<0.5	<0.5	<0.5	-----	-----
Fenithion	55-38-9	0.5	µg/L	-----	<0.5	<0.5	<0.5	-----	-----
Chlorpyrifos	2921-88-2	0.5	µg/L	-----	<0.5	<0.5	<0.5	-----	-----
Parathion	56-38-2	2.0	µg/L	-----	<2.0	<2.0	<2.0	-----	-----
Pirimiphos-ethyl	23505-41-1	0.5	µg/L	-----	<0.5	<0.5	<0.5	-----	-----
Chlorfenvinphos	470-90-6	0.5	µg/L	-----	<0.5	<0.5	<0.5	-----	-----
Bromophos-ethyl	4824-78-6	0.5	µg/L	-----	<0.5	<0.5	<0.5	-----	-----
Fenamiphos	22224-92-6	0.5	µg/L	-----	<0.5	<0.5	<0.5	-----	-----
Prothiophos	34643-46-4	0.5	µg/L	-----	<0.5	<0.5	<0.5	-----	-----
Ethion	563-12-2	0.5	µg/L	-----	<0.5	<0.5	<0.5	-----	-----
Carbophenothion	786-19-6	0.5	µg/L	-----	<0.5	<0.5	<0.5	-----	-----
Azinphos Methyl	86-50-0	0.5	µg/L	-----	<0.5	<0.5	<0.5	-----	-----
EP07S(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L	-----	<1.0	<1.0	<1.0	-----	-----
Acenaphthylene	208-96-8	1.0	µg/L	-----	<1.0	<1.0	<1.0	-----	-----
Acenaphthene	83-32-9	1.0	µg/L	-----	<1.0	<1.0	<1.0	-----	-----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)		Client sample ID		L-WN-BH23	Duplicate	Blank	----	----
Client sampling date / time				22-Feb-2018 12:10	22-Feb-2018 11:37	21-Feb-2018 14:30	----	----
Compound	CAS Number	LOR	Unit	EW1800660-021	EW1800660-022	EW1800660-023	-----	-----
				Result	Result	Result	----	----
EP075(SIM)S: Polynuclear Aromatic Hydrocarbons - Continued								
Fluorene	86-73-7	1.0	µg/L	----	<1.0	<1.0	----	----
Phenanthrene	85-01-8	1.0	µg/L	----	<1.0	<1.0	----	----
Anthracene	120-12-7	1.0	µg/L	----	<1.0	<1.0	----	----
Fluoranthene	206-44-0	1.0	µg/L	----	<1.0	<1.0	----	----
Pyrene	129-00-0	1.0	µg/L	----	<1.0	<1.0	----	----
Benzo(a)anthracene	56-55-3	1.0	µg/L	----	<1.0	<1.0	----	----
Chrysene	218-01-9	1.0	µg/L	----	<1.0	<1.0	----	----
Benzo(b)fluoranthene	205-99-2	205-82-3	1.0	µg/L	----	<1.0	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	----	<1.0	<1.0	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	----	<0.5	<0.5	----	----
Indeno(1,2,3-cd)pyrene	193-39-5	1.0	µg/L	----	<1.0	<1.0	----	----
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	----	<1.0	<1.0	----	----
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	----	<1.0	<1.0	----	----
^ Sum of polycyclic aromatic hydrocarbons				----	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)				----	<0.5	<0.5	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	----	<20	<20	----	----
C10 - C14 Fraction	----	50	µg/L	----	<50	<50	----	----
C15 - C28 Fraction	----	100	µg/L	----	<100	<100	----	----
C29 - C36 Fraction	----	50	µg/L	----	<50	<50	----	----
^ C10 - C36 Fraction (sum)				----	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 20								
C6 - C10 Fraction	C6_C10	20	µg/L	----	<20	<20	----	----
^ C6 - C10 Fraction minus BTEX (F1)				C6_C10-BTEX	20	µg/L	----	<20
>C10 - C16 Fraction	----	100	µg/L	----	<100	<100	----	----
>C16 - C34 Fraction	----	100	µg/L	----	<100	<100	----	----
>C34 - C40 Fraction	----	100	µg/L	----	<100	<100	----	----
^>C10 - C40 Fraction (sum)				----	100	µg/L	----	<100
^>C10 - C16 Fraction minus Naphthalene (F2)				----	100	µg/L	----	<100
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	----	<1	<1	----	----
Toluene	108-88-3	2	µg/L	----	<2	<2	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	L-WN-BH23	Duplicate	Blank	----	----
				Client sampling date / time	22-Feb-2018 12:10	22-Feb-2018 11:37	21-Feb-2018 14:30	-----	-----
Compound	CAS Number	LOR	Unit		EW1800660-021	EW1800660-022	EW1800660-023	-----	-----
				Result	Result	Result	Result	-----	-----
EP080: BTEXN - Continued									
Ethylbenzene	100-41-4	2	µg/L	----	<2	<2	<2	----	----
meta- & para-Xylene	106-38-3 106-42-3	2	µg/L	----	<2	<2	<2	----	----
ortho-Xylene	95-47-6	2	µg/L	----	<2	<2	<2	----	----
^ Total Xylenes	----	2	µg/L	----	<2	<2	<2	----	----
^ Sum of BTEX	----	1	µg/L	----	<1	<1	<1	----	----
Naphthalene	91-20-3	5	µg/L	----	<5	<5	<5	----	----
FWI-EN/001: Groundwater Sampling - Depth									
Standing Water Level	----	0.01	m AHD	----	36.43	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.5	%	----	82.7	81.0	81.0	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.5	%	----	83.9	81.9	81.9	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%	----	24.6	24.6	29.4	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%	----	63.3	63.3	54.9	----	----
2,4,6-Tribromophenol	118-79-6	1.0	%	----	55.8	55.8	42.8	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%	----	91.9	91.9	76.2	----	----
Anthracene-d10	1719-06-8	1.0	%	----	90.8	90.8	78.7	----	----
4-Terphenyl-d14	1718-51-0	1.0	%	----	93.4	93.4	88.3	----	----
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	2	%	----	103	103	102	----	----
Toluene-D8	2037-26-5	2	%	----	94.9	94.9	102	----	----
4-Bromofluorobenzene	460-00-4	2	%	----	99.2	99.2	98.5	----	----



Surrogate Control Limits

Sub-Matrix WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDD	21655-73-2	67	111
EP088T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	67	111
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d8	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP088S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128



Environmental

CERTIFICATE OF ANALYSIS

Work Order	: EW1801727	Page	: 1 of 13
Client	: SHOALHAVEN CITY COUNCIL	Laboratory	: Environmental Division NSW South Coast
Contact	: Mr Giordano Bianco	Contact	: Kristy Boje
Address	: PO Box 42 Nowra NSW 2541	Address	: 1/19 Ralph Black Dr, North Wollongong 2500 4/13 Geary Pl, North Nowra 2541 Australia NSW
Telephone	: 02 4429 3554	Telephone	: 02 4423 2063
Project	: LF-W Nowra Quarterly	Date Samples Received	: 03-May-2018 16:00
Order number	: 15425 16780	Date Analysis Commenced	: 02-May-2018
C/O-C number	: ---	Issue Date	: 29-May-2018 14:50
Sampler	: Duncan McIntosh		
Site	: ---		
Quote number	: Landfills 2017/18		
No. of samples received	: 21		
No. of samples analysed	: 21		



Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Ankit Joshi	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Glenn Davies	Environmental Services Representative	Laboratory - Wollongong, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

* = This result is computed from individual analyte detections at or above the level of reporting

g = ALS is not NATA accredited for these tests.

~ = Indicates an estimated value.

- EP005: TOC has been analysed under High Range method due to sample matrix not appropriate for Low Range analysis, LOR has been raised accordingly
- EN055: Ionic Balance out of acceptable limits for various samples due to analytes not quantified in this report.
- Sampling completed as per FWI-EN001 Groundwater Sampling.
- Field data supplied by ALS Wollongong.
- Field tests completed on day of sampling/receipt.
- Sampling completed by ALS Wollongong.
- ALS Wollongong is not NATA accredited for Standing Water Level
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benzo(a)anthracene (0.1), Chrysene (0.01), Benzo(b)h, Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1,2,3-cd)pyrene (0.1), Dibenzo(a,h)anthracene (1.0), Benzo(g,h,i)perylene (0.01). Less than LOR results for TEQ Zero* are treated as zero.



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	L-WN-SW01	L-WN-SW02	L-WN-SW03	L-WN-BH02	L-WN-BH04
Client sampling date / time				02-May-2018 09:50	03-May-2018 11:30	02-May-2018 10:10	03-May-2018 10:10	02-May-2018 10:58	
Compound	CASNumber	LOR	Unit	EW1801727-001	EW1801727-002	EW1801727-003	EW1801727-004	EW1801727-005	
				Result	Result	Result	Result	Result	
EA005FD: Field pH									
pH	----	0.1	pH Unit	5.7	----	3.2	----	3.7	
EA010FD: Field Conductivity									
Electrical Conductivity (Non Compensated)	----	1	µS/cm	1110	----	3150	----	----	
EA015: Total Dissolved Solids dried at 180 ± 5 °C									
Total Dissolved Solids @180°C	----	10	mg/L	590	----	1560	----	----	
Total Dissolved Solids @180°C	----	1	mg/L	----	----	----	----	134	
EA075FD: Field Redox Potential									
Redox Potential	----	0.1	mV	----	----	----	----	58.1	
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	----	----	----	----	<1	
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	----	----	----	----	<1	
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	----	----	----	----	<1	
Total Alkalinity as CaCO3	----	1	mg/L	----	----	----	----	<1	
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	----	----	----	----	40	
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L	----	----	----	----	28	
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L	----	----	----	----	<1	
Magnesium	7439-95-4	1	mg/L	----	----	----	----	3	
Sodium	7440-23-5	1	mg/L	----	----	----	----	18	
Potassium	7440-09-7	1	mg/L	18	----	2	----	<1	
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L	0.20	----	0.03	----	0.31	
EN055: Ionic Balance									
Total Anions	----	0.01	meq/L	----	----	----	----	1.62	
Total Cations	----	0.01	meq/L	----	----	----	----	1.03	
EN67 PK: Field Tests									
Field Observations	----	0.01	--	----	DRY	----	DRY	----	
EP005: Total Organic Carbon (TOC)									
Total Organic Carbon	----	0.2	mg/L	----	----	----	----	2.1	
Total Organic Carbon	----	1	mg/L	6	----	7	----	----	



Analytical Results

Client sample ID				L-WN-SW01	L-WN-SW02	L-WN-SW03	L-WN-BH02	L-WN-BH04
Client sampling date / time				02-May-2018 09:50	03-May-2018 11:30	02-May-2018 10:10	03-May-2018 10:10	02-May-2018 10:58
Compound	CAS Number	LOR	Unit	EW1801727-001	EW1801727-002	EW1801727-003	EW1801727-004	EW1801727-005
				Result	Result	Result	Result	Result
EP025FD: Field Dissolved Oxygen								
Dissolved Oxygen - % Saturation	----	0.1	% saturation	3.5	----	4.7	----	----
EP030: Biochemical Oxygen Demand (BOD)								
Biochemical Oxygen Demand	----	2	mg/L	<2	----	<2	----	----
FWI-EN/001: Groundwater Sampling - Depth								
Standing Water Level	----	0.01	m AHD	----	----	----	----	31.3



Analytical Results

Client sample ID				L-WN-BH06	L-WN-BH07	L-WN-BH10	L-WN-BH11	L-WN-BH13
Client sampling date / time				03-May-2018 10:00	02-May-2018 12:09	03-May-2018 09:30	02-May-2018 12:00	02-May-2018 11:32
Compound	CAS Number	LOR	Unit	EW1801727-006	EW1801727-007	EW1801727-008	EW1801727-009	EW1801727-010
				Result	Result	Result	Result	Result
EA005FD: Field pH								
pH	----	0.1	pH Unit	3.5	4.7	5.3	----	3.2
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	1	mg/L	1380	168	308	----	1760
EA075FD: Field Redox Potential								
Redox Potential	----	0.1	mV	238	186	85.1	----	320
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	----	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	----	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	8	4	----	<1
Total Alkalinity as CaCO3	----	1	mg/L	<1	8	4	----	<1
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	33	20	14	----	<1
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	717	48	151	----	942
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	10	8	6	----	4
Magnesium	7439-95-4	1	mg/L	31	5	7	----	12
Sodium	7440-23-5	1	mg/L	390	30	76	----	430
Potassium	7440-09-7	1	mg/L	2	3	1	----	<1
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	0.13	0.06	0.74	----	0.49
EN055: Ionic Balance								
Total Anions	----	0.01	meq/L	20.9	1.93	4.63	----	26.5
Total Cations	----	0.01	meq/L	20.1	2.19	4.21	----	19.9
Ionic Balance	----	0.01	%	2.07	----	4.80	----	14.4
EN67 PK: Field Tests								
Field Observations	----	0.01	--	----	----	----	DRY	----
EP005: Total Organic Carbon (TOC)								
Total Organic Carbon	----	0.2	mg/L	3.0	12.3	10.8	----	1.5
FWI-EN/001: Groundwater Sampling - Depth								
Standing Water Level	----	0.01	m AHD	30.1	29.8	33.1	----	33.2



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)		Client sample ID		L-WN-BH14	L-WN-BH16	L-WN-BH17	L-WN-BH18	L-WN-BH19
Client sampling date / time				02-May-2018 14:28	02-May-2018 13:44	02-May-2018 13:09	03-May-2018 09:10	02-May-2018 14:00
Compound	CAS Number	LOR	Unit	EW1801727-011	EW1801727-012	EW1801727-013	EW1801727-014	EW1801727-015
				Result	Result	Result	Result	Result
EA005FD: Field pH								
pH	----	0.1	pH Unit	3.1	3.2	3.7	5.5	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	1	mg/L	1880	608	373	758	----
EA075FD: Field Redox Potential								
Redox Potential	----	0.1	mV	313	256	220	81.0	----
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	<1	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	<1	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	<1	<1	49	----
Total Alkalinity as CaCO3	----	1	mg/L	<1	<1	<1	49	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	35	10	5	6	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	1050	344	211	431	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	14	6	10	20	----
Magnesium	7439-95-4	1	mg/L	60	14	11	15	----
Sodium	7440-23-5	1	mg/L	468	154	88	198	----
Potassium	7440-09-7	1	mg/L	1	<1	<1	<1	----
EG020T: Total Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	----	----	----	0.87	----
Arsenic	7440-38-2	0.001	mg/L	----	----	----	0.018	----
Barium	7440-39-3	0.001	mg/L	----	----	----	0.118	----
Cadmium	7440-43-9	0.0001	mg/L	----	----	----	<0.0001	----
Cobalt	7440-48-4	0.001	mg/L	----	----	----	0.011	----
Chromium	7440-47-3	0.001	mg/L	----	----	----	0.002	----
Copper	7440-50-8	0.001	mg/L	----	----	----	0.029	----
Manganese	7439-96-5	0.001	mg/L	----	----	----	0.767	----
Lead	7439-92-1	0.001	mg/L	----	----	----	0.009	----
Zinc	7440-66-6	0.005	mg/L	----	----	----	0.079	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	----	----	----	<0.0001	----
EG050T: Total Hexavalent Chromium								
Hexavalent Chromium	18540-29-9	0.01	mg/L	----	----	----	<0.01	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)		Client sample ID		L-WN-BH14	L-WN-BH16	L-WN-BH17	L-WN-BH18	L-WN-BH19
Client sampling date / time				02-May-2018 14:28	02-May-2018 13:44	02-May-2018 13:09	03-May-2018 09:10	02-May-2018 14:00
Compound	CAS Number	LOR	Unit	EW1801727-011	EW1801727-012	EW1801727-013	EW1801727-014	EW1801727-015
				Result	Result	Result	Result	Result
EK040P: Fluoride by PC Titrator								
Fluoride	16984-48-8	0.1	mg/L	----	----	----	0.1	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	0.02	0.03	0.03	0.51	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	----	----	----	<0.01	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	----	----	----	<0.01	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	----	----	----	<0.01	----
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	----	----	----	<0.01	----
EN065: Ionic Balance								
Total Anions	----	0.01	meq/L	30.3	9.91	6.06	13.3	----
Total Cations	----	0.01	meq/L	26.0	8.15	5.23	10.8	----
Ionic Balance	----	0.01	%	7.68	9.75	7.30	10.0	----
EN67 PK: Field Tests								
Field Observations	----	0.01	--	----	----	----	----	DRY
EP005: Total Organic Carbon (TOC)								
Total Organic Carbon	----	0.2	mg/L	1.0	0.5	<0.2	11.9	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.5	µg/L	----	----	----	<0.5	----
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	----	----	----	<0.5	----
beta-BHC	319-85-7	0.5	µg/L	----	----	----	<0.5	----
gamma-BHC	58-89-9	0.5	µg/L	----	----	----	<0.5	----
delta-BHC	319-86-8	0.5	µg/L	----	----	----	<0.5	----
Heptachlor	76-44-8	0.5	µg/L	----	----	----	<0.5	----
Aldrin	309-00-2	0.5	µg/L	----	----	----	<0.5	----
Heptachlor epoxide	1024-57-3	0.5	µg/L	----	----	----	<0.5	----
trans-Chlordane	5103-74-2	0.5	µg/L	----	----	----	<0.5	----
alpha-Endosulfan	959-98-8	0.5	µg/L	----	----	----	<0.5	----
cis-Chlordane	5103-71-9	0.5	µg/L	----	----	----	<0.5	----
Dieldrin	60-57-1	0.5	µg/L	----	----	----	<0.5	----
4,4'-DDE	72-55-9	0.5	µg/L	----	----	----	<0.5	----
Endrin	72-20-8	0.5	µg/L	----	----	----	<0.5	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)		Client sample ID		L-WN-BH14	L-WN-BH16	L-WN-BH17	L-WN-BH18	L-WN-BH19
Client sampling date / time				02-May-2018 14:28	02-May-2018 13:44	02-May-2018 13:09	03-May-2018 09:10	02-May-2018 14:00
Compound	CAS Number	LOR	Unit	EW1801727-011	EW1801727-012	EW1801727-013	EW1801727-014	EW1801727-015
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
beta-Endosulfan	33213-65-9	0.5	µg/L	----	----	----	<0.5	----
4,4'-DDD	72-54-8	0.5	µg/L	----	----	----	<0.5	----
Endrin aldehyde	7421-93-4	0.5	µg/L	----	----	----	<0.5	----
Endosulfan sulfate	1031-07-8	0.5	µg/L	----	----	----	<0.5	----
4,4'-DDT	50-29-3	2.0	µg/L	----	----	----	<2.0	----
Endrin ketone	53494-70-5	0.5	µg/L	----	----	----	<0.5	----
Methoxychlor	72-43-5	2.0	µg/L	----	----	----	<2.0	----
^ Total Chlordane (sum)	----	0.5	µg/L	----	----	----	<0.5	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-95-0-2	0.5	µg/L	----	----	----	<0.5	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	----	----	----	<0.5	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.5	µg/L	----	----	----	<0.5	----
Demeton-S-methyl	919-96-8	0.5	µg/L	----	----	----	<0.5	----
Monocrotophos	6923-22-4	2.0	µg/L	----	----	----	<2.0	----
Dimethoate	60-51-5	0.5	µg/L	----	----	----	<0.5	----
Diazinon	333-41-5	0.5	µg/L	----	----	----	<0.5	----
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	----	----	----	<0.5	----
Parathion-methyl	298-00-0	2.0	µg/L	----	----	----	<2.0	----
Malathion	121-75-5	0.5	µg/L	----	----	----	<0.5	----
Fenthion	55-38-9	0.5	µg/L	----	----	----	<0.5	----
Chlorpyrifos	2921-88-2	0.5	µg/L	----	----	----	<0.5	----
Parathion	56-38-2	2.0	µg/L	----	----	----	<2.0	----
Pirimiphos-ethyl	23505-41-1	0.5	µg/L	----	----	----	<0.5	----
Chlorfenvinphos	470-90-6	0.5	µg/L	----	----	----	<0.5	----
Bromophos-ethyl	4824-79-6	0.5	µg/L	----	----	----	<0.5	----
Fenamiphos	22224-92-6	0.5	µg/L	----	----	----	<0.5	----
Prothiofos	34643-46-4	0.5	µg/L	----	----	----	<0.5	----
Ethion	563-12-2	0.5	µg/L	----	----	----	<0.5	----
Carbaphenothion	786-19-6	0.5	µg/L	----	----	----	<0.5	----
Azinphos Methyl	86-50-0	0.5	µg/L	----	----	----	<0.5	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	----	----	----	<1.0	----
Acenaphthylene	208-96-8	1.0	µg/L	----	----	----	<1.0	----
Acenaphthene	83-32-9	1.0	µg/L	----	----	----	<1.0	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)		Client sample ID	L-WN-BH14		L-WN-BH16		L-WN-BH17		L-WN-BH18		L-WN-BH19	
Client sampling date / time			02-May-2018 14:28		02-May-2018 13:44		02-May-2018 13:09		03-May-2018 09:10		02-May-2018 14:00	
Compound	CAS Number	LOR	Unit	EW1801727-011	EW1801727-012	EW1801727-013	EW1801727-014	EW1801727-015	EW1801727-016	EW1801727-017	EW1801727-018	EW1801727-019
				Result	Result	Result	Result	Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued												
Fluorene	86-73-7	1.0	µg/L	----	----	----	----	----	<1.0	----	----	----
Phenanthrene	85-01-8	1.0	µg/L	----	----	----	----	----	<1.0	----	----	----
Anthracene	120-12-7	1.0	µg/L	----	----	----	----	----	<1.0	----	----	----
Fluoranthene	206-44-0	1.0	µg/L	----	----	----	----	----	<1.0	----	----	----
Pyrene	129-00-0	1.0	µg/L	----	----	----	----	----	<1.0	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L	----	----	----	----	----	<1.0	----	----	----
Chrysene	218-01-9	1.0	µg/L	----	----	----	----	----	<1.0	----	----	----
Benzo(b)fluoranthene	205-99-2 205-82-3	1.0	µg/L	----	----	----	----	----	<1.0	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	----	----	----	----	----	<1.0	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	----	----	----	----	----	<0.7	----	----	----
Indeno(1,2,3-cd)pyrene	193-39-5	1.0	µg/L	----	----	----	----	----	<1.0	----	----	----
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	----	----	----	----	----	<1.0	----	----	----
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	----	----	----	----	----	<1.0	----	----	----
^ Sum of polycyclic aromatic hydrocarbons			----	0.5	µg/L	----	----	----	<0.7	----	----	----
^ Benzo(a)pyrene TEQ (zero)			----	0.5	µg/L	----	----	----	<0.7	----	----	----
EP080/071: Total Petroleum Hydrocarbons												
C6 - C9 Fraction	----	20	µg/L	----	----	----	----	----	<20	----	----	----
C10 - C14 Fraction	----	50	µg/L	----	----	----	----	----	<50	----	----	----
C15 - C28 Fraction	----	100	µg/L	----	----	----	----	----	<100	----	----	----
C29 - C36 Fraction	----	50	µg/L	----	----	----	----	----	<50	----	----	----
^ C10 - C36 Fraction (sum)			----	50	µg/L	----	----	----	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions												
C6 - C10 Fraction	C6, C10	20	µg/L	----	----	----	----	----	<20	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)			C6, C10-BTEX	20	µg/L	----	----	----	<20	----	----	----
>C10 - C16 Fraction	----	100	µg/L	----	----	----	----	----	<100	----	----	----
>C16 - C34 Fraction	----	100	µg/L	----	----	----	----	----	<100	----	----	----
>C34 - C40 Fraction	----	100	µg/L	----	----	----	----	----	<100	----	----	----
^>C10 - C40 Fraction (sum)			----	100	µg/L	----	----	----	<100	----	----	----
^>C10 - C16 Fraction minus Naphthalene (F2)			----	100	µg/L	----	----	----	<100	----	----	----
EP080: BTEXN												
Benzene	71-43-2	1	µg/L	----	----	----	----	----	<1	----	----	----
Toluene	108-88-3	2	µg/L	----	----	----	----	----	<2	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID				
Client sampling date / time				L-WN-BH14	L-WN-BH16	L-WN-BH17	L-WN-BH18	L-WN-BH19
Compound				02-May-2018 14:28	02-May-2018 13:44	02-May-2018 13:09	03-May-2018 09:10	02-May-2018 14:00
CAS Number LOR Unit				EW1801727-011	EW1801727-012	EW1801727-013	EW1801727-014	EW1801727-015
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
Ethylbenzene	100-41-4	2	µg/L	----	----	----	<2	----
meta- & para-Xylene	106-38-3 106-42-3	2	µg/L	----	----	----	<2	----
ortho-Xylene	95-47-6	2	µg/L	----	----	----	<2	----
^ Total Xylenes	----	2	µg/L	----	----	----	<2	----
^ Sum of BTEX	----	1	µg/L	----	----	----	<1	----
Naphthalene	91-20-3	5	µg/L	----	----	----	<5	----
FWI-EN/001: Groundwater Sampling - Depth								
Standing Water Level	----	0.01	m AHD	36.4	38.5	38.5	36.4	----
EP048S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.5	%	----	----	----	80.7	----
EP088T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.5	%	----	----	----	72.4	----
EP075(SIM)/S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	----	----	----	26.6	----
2-Chlorophenol-d4	93951-73-6	1.0	%	----	----	----	45.7	----
2,4,6-Tribromophenol	118-79-6	1.0	%	----	----	----	51.2	----
EP075(SIM)/T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	----	----	----	60.1	----
Anthracene-d10	1719-06-8	1.0	%	----	----	----	78.5	----
4-Terphenyl-d14	1718-51-0	1.0	%	----	----	----	75.0	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	2	%	----	----	----	102	----
Toluene-D8	2037-26-5	2	%	----	----	----	123	----
4-Bromofluorobenzene	460-00-4	2	%	----	----	----	116	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID				
Client sampling date / time				L-WN-BH20	L-WN-BH21	L-WN-BH22	L-WN-BH23	Duplicate
Compound				03-May-2018 10:40	03-May-2018 11:10	03-May-2018 08:40	02-May-2018 08:15	02-May-2018 13:09
CAS Number LOR Unit				EW1801727-016	EW1801727-017	EW1801727-018	EW1801727-019	EW1801727-020
				Result	Result	Result	Result	Result
EA005FD: Field pH								
pH	----	0.1	pH Unit	4.2	----	5.4	----	3.8
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	1	mg/L	1660	----	829	----	398
EA075FD: Field Redox Potential								
Redox Potential	----	0.1	mV	204	----	122	----	220
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	<1	----	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	<1	----	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	----	10	----	<1
Total Alkalinity as CaCO3	----	1	mg/L	<1	----	10	----	<1
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	102	----	44	----	5
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	820	----	420	----	220
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	<1	----	29	----	9
Magnesium	7439-95-4	1	mg/L	34	----	24	----	11
Sodium	7440-23-5	1	mg/L	442	----	198	----	90
Potassium	7440-09-7	1	mg/L	<1	----	2	----	<1
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	0.07	----	0.14	----	0.02
EN05S: Ionic Balance								
Total Anions	----	0.01	meq/L	25.2	----	13.0	----	6.31
Total Cations	----	0.01	meq/L	22.0	----	12.1	----	5.27
Ionic Balance	----	0.01	%	6.83	----	3.50	----	8.99
EN67 PK: Field Tests								
Field Observations	----	0.01	--	----	DRY	----	DRY	----
EP08S: Total Organic Carbon (TOC)								
Total Organic Carbon	----	0.2	mg/L	7.6	----	2.6	----	<0.2
FWI-EN/001: Groundwater Sampling - Depth								
Standing Water Level	----	0.01	m AHD	36.2	----	3.20	----	38.5



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	Blank				
				Client sampling date / time	02-May-2018 13:30				
					EW1801727-021				
Compound	CAS Number	LOR	Unit		Result				
EA005FD: Field pH									
pH		0.1	pH Unit		5.9				
EA015: Total Dissolved Solids dried at 180 ± 5 °C									
Total Dissolved Solids @180°C		1	mg/L		<1				
EA075FD: Field Redox Potential									
Redox Potential		0.1	mV		207				
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1				
Carbonate Alkalinity as CaCO3	3813-32-6	1	mg/L		<1				
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		<1				
Total Alkalinity as CaCO3		1	mg/L		<1				
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		<1				
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		<1				
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		<1				
Magnesium	7439-95-4	1	mg/L		<1				
Sodium	7440-23-5	1	mg/L		<1				
Potassium	7440-09-7	1	mg/L		<1				
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		<0.01				
EN055: Ionic Balance									
Total Anions		0.01	meq/L		<0.01				
Total Cations		0.01	meq/L		<0.01				
EP005: Total Organic Carbon (TOC)									
Total Organic Carbon		0.2	mg/L		<0.2				



Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDD	21655-73-2	67	111
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	67	111
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d8	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

CERTIFICATE OF ANALYSIS

Work Order	: EW1803117	Page	: 1 of 8
Client	: SHOALHAVEN CITY COUNCIL	Laboratory	: Environmental Division NSW South Coast
Contact	: Mr Giordano Bianco	Contact	: Jessica Foster
Address	: PO Box 42 Nowra NSW 2541	Address	: 1/19 Ralph Black Dr, North Wollongong 2500 4/13 Geary Pl, North Nowra 2541 Australia NSW Australia
Telephone	: 02 4429 3554	Telephone	: 02 42253125
Project	: LF-W Nowra Quarterly	Date Samples Received	: 09-Aug-2018 16:00
Order number	: 15425 16780	Date Analysis Commenced	: 08-Aug-2018
C/O-C number	: ---	Issue Date	: 20-Aug-2018 14:36
Sampler	: Duncan McIntosh		
Site	: ---		
Quote number	: Landfills 2018/19		
No. of samples received	: 21		
No. of samples analysed	: 21		



This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Ankit Joshi	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Glenn Davies	Environmental Services Representative	Laboratory - Wollongong, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS, and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key: CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

* = This result is computed from individual analyte detections at or above the level of reporting

g = ALS is not NATA accredited for these tests.

~ = Indicates an estimated value.

- EP005: TOC has been analysed under High Range method due to sample matrix not appropriate for Low Range analysis, LOR has been raised accordingly
- Ionic Balance out of acceptable limits due to analytes not quantified in this report.
- Sampling completed as per FWI-EN001 Groundwater Sampling.
- Sampling completed as per FWI-EN002 Surface Water Sampling.
- Field data supplied by ALS Wollongong.
- Field tests completed on day of sampling/receipt.
- Sampling completed by ALS Wollongong.
- ALS Wollongong is not NATA accredited for Standing Water Level
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Client sample ID		L-WN-SW01	L-WN-SW02	L-WN-SW03	L-WN-BH02	L-WN-BH04
Client sampling date / time					08-Aug-2018 10:20	08-Aug-2018 08:15	08-Aug-2018 11:55	09-Aug-2018 09:10	08-Aug-2018 10:47
Compound	CAS Number	LOR	Unit	EW1803117-001	EW1803117-002	EW1803117-003	EW1803117-004	EW1803117-005	
					Result	Result	Result	Result	Result
EA005FD: Field pH									
pH	----	0.1	pH Unit	6.0		3.2		3.6	
EA010FD: Field Conductivity									
Electrical Conductivity (Non Compensated)	----	1	µS/cm	1150		3460			
EA015: Total Dissolved Solids dried at 180 ± 5 °C									
Total Dissolved Solids @180°C	----	10	mg/L	642		1730		135	
EA075FD: Field Redox Potential									
Redox Potential	----	0.1	mV	----	----	----	----	99.4	
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	----	----	----	----	<1	
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	----	----	----	----	<1	
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	----	----	----	----	<1	
Total Alkalinity as CaCO3	----	1	mg/L	----	----	----	----	<1	
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	----	----	----	----	34	
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L	----	----	----	----	25	
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L	----	----	----	----	<1	
Magnesium	7439-95-4	1	mg/L	----	----	----	----	3	
Sodium	7440-23-5	1	mg/L	----	----	----	----	16	
Potassium	7440-09-7	1	mg/L	17	----	1	----	<1	
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L	0.10	----	0.03	----	0.28	
EN065: Ionic Balance									
Total Anions	----	0.01	meq/L	----	----	----	----	1.41	
Total Cations	----	0.01	meq/L	----	----	----	----	0.94	
EN67 PK: Field Tests									
Field Observations	----	0.01	--	----	DRY	----	DRY	----	
EP005: Total Organic Carbon (TOC)									
Total Organic Carbon	----	1	mg/L	7	----	8	----	2	
EP025FD: Field Dissolved Oxygen									
Dissolved Oxygen	----	0.01	mg/L	4.02	----	4.97	----	----	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID		L-WN-SW01	L-WN-SW02	L-WN-SW03	L-WN-BH02	L-WN-BH04			
Client sampling date / time				08-Aug-2018 10:20		08-Aug-2018 08:15		08-Aug-2018 11:55		09-Aug-2018 09:10		08-Aug-2018 10:47	
Compound	CAS Number	LOR	Unit	EW1803117-001		EW1803117-002		EW1803117-003		EW1803117-004		EW1803117-005	
				Result		Result		Result		Result		Result	
EP030: Biochemical Oxygen Demand (BOD)													
Biochemical Oxygen Demand	----	2	mg/L	<2				<2					
FWI-EN/001: Groundwater Sampling - Depth													
Standing Water Level	----	0.01	m AHD									31.1	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID		L-WN-BH06	L-WN-BH07	L-WN-BH10	L-WN-BH11	L-WN-BH13
Client sampling date / time						09-Aug-2018 09:00	08-Aug-2018 13:16	09-Aug-2018 08:50	08-Aug-2018 10:30	08-Aug-2018 11:27
Compound	CAS Number	LOR	Unit			EW1803117-006	EW1803117-007	EW1803117-008	EW1803117-009	EW1803117-010
						Result	Result	Result	Result	Result
EA005FD: Field pH										
pH	----	0.1	pH Unit			3.7	4.3	----	----	4.5
EA015: Total Dissolved Solids dried at 180 ± 5 °C										
Total Dissolved Solids @180°C	----	10	mg/L			1270	742	----	----	1620
EA075FD: Field Redox Potential										
Redox Potential	----	0.1	mV			263	266	----	----	157
ED037P: Alkalinity by PC Titrator										
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L			<1	<1	----	----	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L			<1	<1	----	----	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L			<1	<1	----	----	<1
Total Alkalinity as CaCO3	----	1	mg/L			<1	<1	----	----	<1
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA										
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L			32	23	----	----	11
ED045G: Chloride by Discrete Analyser										
Chloride	16887-00-6	1	mg/L			740	432	----	----	1060
ED093F: Dissolved Major Cations										
Calcium	7440-70-2	1	mg/L			8	15	----	----	3
Magnesium	7439-95-4	1	mg/L			29	21	----	----	13
Sodium	7440-23-5	1	mg/L			368	178	----	----	449
Potassium	7440-09-7	1	mg/L			1	2	----	----	<1
EK055G: Ammonia as N by Discrete Analyser										
Ammonia as N	7664-41-7	0.01	mg/L			0.04	0.01	----	----	0.59
EN055: Ionic Balance										
Total Anions	----	0.01	meq/L			21.5	12.7	----	----	30.1
Total Cations	----	0.01	meq/L			18.8	10.3	----	----	20.7
Ionic Balance	----	0.01	%			6.74	10.4	----	----	18.4
EN67 PK: Field Tests										
Field Observations	----	0.01	--			----	----	DRY	DRY	----
EP005: Total Organic Carbon (TOC)										
Total Organic Carbon	----	1	mg/L			3	5	----	----	5
FWI-EN/001: Groundwater Sampling - Depth										
Standing Water Level	----	0.01	m AHD			29.7	30.0	----	----	33.1



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID		L-WN-BH14	L-WN-BH16	L-WN-BH17	L-WN-BH18	L-WN-BH19
Client sampling date / time						08-Aug-2018 12:44	08-Aug-2018 14:09	08-Aug-2018 13:47	09-Aug-2018 08:40	08-Aug-2018 14:30
Compound	CAS Number	LOR	Unit			EW1803117-011	EW1803117-012	EW1803117-013	EW1803117-014	EW1803117-015
						Result	Result	Result	Result	Result
EA005FD: Field pH										
pH	----	0.1	pH Unit			3.8	3.5	4.0	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C										
Total Dissolved Solids @180°C	----	10	mg/L			1820	689	352	----	----
EA075FD: Field Redox Potential										
Redox Potential	----	0.1	mV			268	380	281	----	----
ED037P: Alkalinity by PC Titrator										
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L			<1	<1	<1	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L			<1	<1	<1	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L			<1	<1	<1	----	----
Total Alkalinity as CaCO3	----	1	mg/L			<1	<1	<1	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA										
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L			29	11	4	----	----
ED045G: Chloride by Discrete Analyser										
Chloride	16887-00-6	1	mg/L			1150	410	221	----	----
ED093F: Dissolved Major Cations										
Calcium	7440-70-2	1	mg/L			16	6	9	----	----
Magnesium	7439-95-4	1	mg/L			69	17	12	----	----
Sodium	7440-23-5	1	mg/L			485	176	86	----	----
Potassium	7440-09-7	1	mg/L			2	<1	<1	----	----
EK055G: Ammonia as N by Discrete Analyser										
Ammonia as N	7664-41-7	0.01	mg/L			<0.01	<0.01	0.02	----	----
EN055: Ionic Balance										
Total Anions	----	0.01	meq/L			33.0	11.8	6.32	----	----
Total Cations	----	0.01	meq/L			27.6	9.35	5.18	----	----
Ionic Balance	----	0.01	%			8.93	11.5	9.92	----	----
EN67 PK: Field Tests										
Field Observations	----	0.01	--		----	----	----	----	DRY	DRY
EP005: Total Organic Carbon (TOC)										
Total Organic Carbon	----	1	mg/L			4	1	<1	----	----
FWI-EN/001: Groundwater Sampling - Depth										
Standing Water Level	----	0.01	m AHD			36.5	38.3	38.3	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	L-WN-BH20	L-WN-BH21	L-WN-BH22	L-WN-BH23	Duplicate
Client sampling date / time				09-Aug-2018 09:25	09-Aug-2018 11:00	09-Aug-2018 10:45	08-Aug-2018 08:50	08-Aug-2018 13:16	
Compound	CAS Number	LOR	Unit	EW1803117-016	EW1803117-017	EW1803117-018	EW1803117-019	EW1803117-020	
				Result	Result	Result	Result	Result	
EA005FD: Field pH									
pH	----	0.1	pH Unit	4.5	----	5.7	----	4.3	
EA015: Total Dissolved Solids dried at 180 ± 5 °C									
Total Dissolved Solids @180°C	----	10	mg/L	1570	----	1040	----	728	
EA075FD: Field Redox Potential									
Redox Potential	----	0.1	mV	206	----	132	----	265	
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	<1	----	<1	
Carbonate Alkalinity as CaCO3	3813-32-6	1	mg/L	<1	----	<1	----	<1	
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	----	27	----	<1	
Total Alkalinity as CaCO3	----	1	mg/L	<1	----	27	----	<1	
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	110	----	49	----	23	
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L	920	----	491	----	421	
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L	<1	----	36	----	16	
Magnesium	7439-95-4	1	mg/L	36	----	28	----	22	
Sodium	7440-23-5	1	mg/L	432	----	204	----	187	
Potassium	7440-09-7	1	mg/L	<1	----	1	----	2	
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L	<0.01	----	0.10	----	0.02	
EN055: Ionic Balance									
Total Anions	----	0.01	meq/L	29.2	----	15.4	----	12.4	
Total Cations	----	0.01	meq/L	21.8	----	13.0	----	10.8	
Ionic Balance	----	0.01	%	13.0	----	8.48	----	6.74	
EN67 PK: Field Tests									
Field Observations	----	0.01	--	----	DRY	----	DRY	----	
EP005: Total Organic Carbon (TOC)									
Total Organic Carbon	----	1	mg/L	30	----	4	----	5	
FWI-EN/001: Groundwater Sampling - Depth									
Standing Water Level	----	0.01	m AHD	36.0	----	4.32	----	30.0	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID		Blank	-----	-----	-----	-----
Client sampling date / time						08-Aug-2018 12:00	-----	-----	-----	-----
Compound	CAS Number	LOR	Unit			EW1803117-021	-----	-----	-----	-----
						Result	-----	-----	-----	-----
EA005FD: Field pH										
pH	----	0.1	pH Unit			5.4	-----	-----	-----	-----
EA015: Total Dissolved Solids dried at 180 ± 5 °C										
Total Dissolved Solids @180°C	----	10	mg/L			<10	-----	-----	-----	-----
EA075FD: Field Redox Potential										
Redox Potential	----	0.1	mV			247	-----	-----	-----	-----
ED037P: Alkalinity by PC Titrator										
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L			<1	-----	-----	-----	-----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L			<1	-----	-----	-----	-----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L			<1	-----	-----	-----	-----
Total Alkalinity as CaCO3	----	1	mg/L			<1	-----	-----	-----	-----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA										
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L			<1	-----	-----	-----	-----
ED045G: Chloride by Discrete Analyser										
Chloride	16887-00-6	1	mg/L			<1	-----	-----	-----	-----
ED093F: Dissolved Major Cations										
Calcium	7440-70-2	1	mg/L			<1	-----	-----	-----	-----
Magnesium	7439-95-4	1	mg/L			<1	-----	-----	-----	-----
Sodium	7440-23-5	1	mg/L			<1	-----	-----	-----	-----
Potassium	7440-09-7	1	mg/L			<1	-----	-----	-----	-----
EK055G: Ammonia as N by Discrete Analyser										
Ammonia as N	7664-41-7	0.01	mg/L			<0.01	-----	-----	-----	-----
EN055: Ionic Balance										
Total Anions	----	0.01	meq/L			<0.01	-----	-----	-----	-----
Total Cations	----	0.01	meq/L			<0.01	-----	-----	-----	-----
EP005: Total Organic Carbon (TOC)										
Total Organic Carbon	----	1	mg/L			<1	-----	-----	-----	-----

CERTIFICATE OF ANALYSIS

Work Order	: EW1805062	Page	: 1 of 2
Client	: SHOALHAVEN CITY COUNCIL	Laboratory	: Environmental Division NSW South Coast
Contact	: ALS Nowra	Contact	: Jessica Foster
Address	: PO Box 42 Nowra NSW 2541	Address	: 1/19 Ralph Black Dr, North Wollongong 2500 4/13 Geary Pl, North Nowra 2541 Australia NSW Australia 02 42253125
Telephone	: ----	Telephone	: 02 42253125
Project	: LF-W Nowra Annual	Date Samples Received	: 04-Dec-2018 15:11
Order number	: 15425 16790	Date Analysis Commenced	: 05-Dec-2018
C/O-C number	: ----	Issue Date	: 07-Dec-2018 16:21
Sampler	: ----		
Site	: ----		
Quote number	: WO/019/17 2017 Blanket quote		
No. of samples received	: 2		
No. of samples analysed	: 2		



This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Ankit Joshi	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key: CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

* = This result is computed from individual analyte detections at or above the level of reporting

g = ALS is not NATA accredited for these tests.

~ = Indicates an estimated value.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID		Stage 3	LD01			
				Client sampling date / time		04-Dec-2018 00:00	04-Dec-2018 00:00			
				CAS Number	LOR	Unit	EW1805062-001	EW1805062-002		
				Result			Result			
EA025: Total Suspended Solids dried at 104 ± 2°C										
Suspended Solids (SS)				---	5	mg/L	35	146		
EK067G: Total Phosphorus as P by Discrete Analyser										
Total Phosphorus as P				---	0.01	mg/L	0.10	0.74		

APPENDIX E

CHAIN OF CUSTODY & AVAILABLE FIELD SHEETS

 CHAIN OF CUSTODY ALS Laboratory please tick		21010007 72 Major Road Murray QLD 5142 Ph: 08 8547 7777 Fax: 08 8547 8000 21010007 21 Vincent Road Somers VIC 3481 Ph: 03 8547 4000 Fax: 03 8547 4001 21010007 27 Sydney Road Ingleton NSW 2151 Ph: 02 8575 2026 Fax: 02 8575 2027		21010007 81 S. Goss Road Grand Strand QLD 4174 Ph: 07 5588 2874 Fax: 07 5588 2875 21010007 410 Gower Place North Sydney NSW 1585 Ph: 02 9550 1234 Fax: 02 9550 1235 21010007 17 Ross Road Mudgee NSW 2855 Ph: 02 6255 1555 Fax: 02 6255 1556		21010007 217 Windermere Road Northfields NSW 2191 Ph: 02 9574 0212 Fax: 02 9574 0213 21010007 116 E. Dumas Court Salford VIC 4102 Ph: 03 4998 0011 Fax: 03 4998 0012 21010007 2000 W. Kynard Street Longmeadow NSW 2138 Ph: 02 9255 9195 Fax: 02 9255 9196	
CLIENT: Shoalhaven City Council		TURNAROUND REQUIREMENTS: n e T T n abe longer for some d ALS-QUOTE NO. _____		☒ Standard TAT (list due date): ☐ D Standard TAT (list due date): ☐ COC SEQUENCE NUMBER (ticks) COC: 4 5 7 REC'D: 4 7 RECEIVED DATE Y... 23-11-17 / 13-00			
PROJECT: LF-W Nwara Quarterly		ORDER NUMBER: 15425 16780		AUTHORIZED BY: David Hojem			
PROJECT Manager: Gordiano Bianco		CONTACT PH: 02 429 3554		SAMPLER MOBILE: 042636331			
SAMPLER: ALS		Email Reports to: nwara.lab@alsglobal.com		Email Invoice to: nwara.lab@alsglobal.com			
COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL: Send Results to:							
ALS 15425		SAMPLE DETAILS MATRIX: CLUP (6) WATER (W)		CONTAINER INFORMATION			
LABID		COUNCIL SAMPLE ID		DATE / TIME SAMPLED			
L-WN-SW01		22-11-17 15:30 W		500ml, SP, VS			
L-WN-SW02		22-11-17 15:30 W		500ml, SP, VS			
L-WN-SW03		22-11-17 14:20 W		500ml, SP, VS			
L-WN-BH02		23-11-17 11:50 W		500ml, SP, VS			
L-WN-BH04		23-11-17 13:01 W		500ml, SP, VS			
L-WN-BH06		23-11-17 11:30 W		500ml, SP, VS			
L-WN-BH07		23-11-17 11:07 W		500ml, SP, VS			
L-WN-BH10		23-11-17 11:10 W		500ml, SP, VS			
L-WN-BH11		22-11-17 14:00 W		500ml, SP, VS			
L-WN-BH13		22-11-17 12:06 W		500ml, SP, VS			
L-WN-BH14		22-11-17 15:10 W		500ml, SP, VS			
L-WN-BH16		22-11-17 9:33 W		500ml, SP, VS			
TOTAL							
ANALYSIS REQUIRED including SUBS (NB: Sub Codes must be listed to attract sub price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (filtered bottle required)		ANALYST: [Signature] DATE: 23-11-17		RELINQUISHED BY: [Signature] DATE/TIME:			
Environmental Division Wonglalong Work Order Reference EW170468		REPORT: 100-02210112P					

[illegible]

CHAIN OF CUSTODY

ALS Laboratory please tick 7

CLIENT:

OFFICE:

PROJECT:

ORDER NUMBER:

PROJECT MANAGER:

SAMPLER:

COC Emailed to ALS? (YES / NO)

ALSO USE ONLY

LABID

2

SAMPLE DETAILS

MATRIX: Solid(S) Water(W)

SAMPLE ID

L.Oo1-

CONTAINER INFORMATION

TYPE & PRESERVATIVE

TOTAL BOTTLES

1

ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price)

Where Materials are required, specify Total (unfiltered bottle required) or Decanted (filtered bottle required)

Additional Information

Comments on likely contamination risks, dilutions, or samples requiring specific QC analysis etc

ALS QUOTE NO:

COUNTRY OF ORIGIN:

EDD FORMAT (or default):

RELINQUISHED BY:

DATE/TIME:

COCT1

RECEIVED

DATE/TIME:

DATE/TI

Environmental Division

Wollongong

Work Order Reference

EW1805062

Barcode

11ff11

02 42233125

Water Contoler Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; CMC = Nitric Preserved CMC; SP = Sodium Hydroxide Preserved Plastic; S = Sodium Hydroxide Preserved Plastic; AP = Amber Glass Unpreserved; AP = Amber Glass Unpreserved Plastic; V = VOA Vol HCl Preserved; VB = VOA Vol Bottom Blank/plate Preserved; VB = VOA Vol Bottom Preserved; AV = Air/flight Unpreserved; Vial BG = Sulfate Preserved Amber Glass; H = HCl Preserved Plastic; HB = HCl Preserved Speciation bottle; SP = Butyl Z = Zinc Aspartate Preserved Bottle; E = EDTA Preserved Bottle; BT = Borate Bottle; ASIS Plastic Box for Acid Bottle/plate; B = Unpreserved Bottle; L = Lysate bottle Preserved Bottle; BT = Borate Bottle; Thiosulfate Preserved Bottle.

print Date 20/03/17

Annual Environmental Monitoring Report October 2017-2018
West Nowra Recycling and Waste Facility

APPENDIX F

GAS MONITORING REPORTS



WEST NOWRA LANDFILL SURFACE GAS EMISSION MONITORING

15th February 2018

Carried out by:

ALS Environmental

4/13 Geary Place (PO Box 3105)

North Nowra

NSW 2541

Contact:

Duncan McIntosh

Phone: (02) 4423 2063

E-mail: nowra.lab@alsglobal.com.au

REPORT ON THE MONITORING OF SURFACE METHANE GAS EMISSIONS AT THE WEST NOWRA LANDFILL

Date of Report: 23rd February 2018

Date of Sampling: 15th February 2018

Time of Sampling: 1:00pm – 4:00pm

Field Services Team: Duncan McIntosh (ALS Environmental).

Author: Duncan McIntosh, ALS Nowra Laboratory.

Purpose: To determine whether cover materials and/or extraction systems are controlling the emission of gas from the landfill.

Methodology

The concentration of methane gas (in units of ppm) at the West Nowra landfill was carried out in accordance with EPA requirements, on a day when the wind speed was below 10 km per hour, using a calibrated Inspectra Laser portable gas monitor specifically designed for landfill gas monitoring.

One field technician commenced data collection along transect lines in a grid pattern across the landfill surface at 25-metre spacings using plans supplied by Shoalhaven City Council, as shown on the *West Nowra LF Map*. The location of each grid point was recorded using a Magellan SporTrak GPS, as shown in the *SCC West Nowra Gas Emissions Report February 2018* (Microsoft Excel file). The concentration of methane gas was measured at a height of 5 cm above the ground in areas with intermediate or final cover over the emplaced waste.

The concentration of methane gas was also recorded in any buildings located within a distance of 250 m of the deposited waste, and any depressions or surface fissures away from the sampling grid were also investigated.

Results

The data in the *SCC West Nowra Gas Emissions Report February 2018* show that 232 data readings (in ppm) were taken at the West Nowra landfill. Methane gas emissions, all below EPA licence limits, were detected by the field services team. In addition, methane gas was below EPA licence limits in the buildings located within a distance of 250 m of the site.



WEST NOWRA LANDFILL SURFACE GAS EMISSION MONITORING

29th August 2018

Carried out by:

ALS Environmental

4/13 Geary Place (PO Box 3105)

North Nowra

NSW 2541

Contact:

Duncan McIntosh

Phone: (02) 4423 2063

E-mail: nowra.lab@alsglobal.com.au



REPORT ON THE MONITORING OF SURFACE METHANE GAS EMISSIONS AT THE WEST NOWRA LANDFILL

Date of Report: 31st August 2018

Date of Sampling: 29th August 2018

Time of Sampling: 11:45am – 2:45pm

Field Services Team: Duncan McIntosh (ALS Environmental).

Author: Duncan McIntosh, ALS Nowra Laboratory.

Purpose: To determine whether cover materials and/or extraction systems are controlling the emission of gas from the landfill.

Methodology

The concentration of methane gas (in units of ppm) at the West Nowra landfill was carried out in accordance with EPA requirements, on a day when the wind speed was below 10 km per hour, using a calibrated Inspectra Laser portable gas monitor specifically designed for landfill gas monitoring.

One field technician commenced data collection along transect lines in a grid pattern across the landfill surface at 25-metre spacings using plans supplied by Shoalhaven City Council, as shown on the *West Nowra LF Map*. The location of each grid point was recorded using a Magellan SporTrak GPS, as shown in the *SCC West Nowra Gas Emissions Report August 2018* (Microsoft Excel file). The concentration of methane gas was measured at a height of 5 cm above the ground in areas with intermediate or final cover over the emplaced waste.

The concentration of methane gas was also recorded in any buildings located within a distance of 250 m of the deposited waste, and any depressions or surface fissures away from the sampling grid were also investigated.

Results

The data in the *SCC West Nowra Gas Emissions Report August 2018* show that 230 data readings (in ppm) were taken at the West Nowra landfill. Methane gas emissions, all below EPA licence limits, were detected by the field services team. However, there were three points with methane gas emissions above 500ppm that were traced to the base of conduits on the **stage 2** lot 1 area (transects 4 and 7) and a storm drain near the work yard (transect Q). In addition, methane gas was below EPA licence limits in the buildings located within a distance of 250 m of the site.