CWM ENVIRONMENTAL LTD

NANTYCAWS LANDFILL SITE ANNUAL COMPLIANCE REPORT 2020

CP3735PB



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LIMITATIONS

1. INTRODUCTION

1.1. TERMS OF REFERENCE

1.1.1. This report has been produced by WSP on behalf of CWM Environmental Ltd and comprises the 2020 Annual Compliance Report for the Nantycaws Landfill Site, Carmarthenshire (the site).

1.2. BACKGROUND

1.2.1. Nantycaws Landfill Site is situated approximately 8.0km east of Carmarthen and 1.5km south east of Nantycaws in a rural setting. It is operated by CWM Environmental Ltd and only accepts non-hazardous waste.

1.2.2. The site has developed in a northerly direction and comprises seven (7 no.) cells, of which Cell 1 to Cell 5 (corresponding to Phase 1 and Phase 2) have been completed and capped. Phase 3, comprising Cell 6 and Cell 7, is currently operational but has not accepted waste for the past 12 months and is covered with a temporary cap. The configuration of the cells is shown in Figure 1.

1.2.3. The site has the following monitoring infrastructure:

- 16 combined groundwater and gas monitoring boreholes;
- 2 groundwater monitoring boreholes;
- 5 under-drainage monitoring points;
- 10 gas monitoring wells;
- 6 leachate monitoring points; and
- 7 surface water monitoring locations.

1.2.4. The monitoring points are shown in Figure 1.

1.2.5. Due to the on-going Covid-19 Pandemic the chemical testing laboratory has experienced issues with resourcing and meeting testing deadlines. This has led to a number of instances where Limits of Detection (LOD) have varied and / or compliance with holding times have been exceeded. A review is on-going with the testing laboratory to understand the challenges and how these are going to be reduced and rectified going forward.

1.3. SCOPE OF WORKS

1.3.1. This report has been produced in accordance with points (a) and (j) as listed in Section 4.2.1 of Environmental Permit No. CP3735PB and its subsequent variations, hereafter referred to as “the Site Permit”. Specific reference has been made to the requirements within Compliance Assessment Report (CAR) reference 4547 from Natural Resources Wales (formerly Environment Agency Wales), dated 1st May 2012.

1.4. LIMITATIONS

1.4.1. This report is presented to CWM Environmental and Natural Resource Wales (NRW) with respect to the 2020 Annual Compliance Report for the site and may not be used or relied on by any other person or by the Client in relation to any other matters not covered specifically by the scope of this Report.

No responsibility will be accepted where this report is used, either in its entirety or in part, by any other party. WSP cannot be held liable for third party information. Full details of the limitations are provided as Appendix D.

2. SITE SETTING

2.1. TOPOGRAPHY AND DRAINAGE

2.1.1. The site lies within the catchment of the Afon-y-Bantwen, which is approximately 1.2 km from the southern margin of the site at its closest extent. The site is effectively a land raise and was constructed on gentle southerly sloping land with approximate ground elevations of between 140 mAOD (metres Above Ordnance Datum) in the north, and 125 mAOD in the south.

2.1.2. Two small surface watercourses (little more than ditches) are present along the south eastern and south western margins of the site, both of which flow into the Afon-y-Bantwen. These receive surface runoff from the site and are monitored monthly (Figure 1).

2.2. GEOLOGY AND HYDROGEOLOGY

2.2.1. The bedrock beneath the site comprises the Devonian aged Old Red Sandstone Formation. This unit forms the main water-bearing strata beneath the site and is classified as a Secondary A Aquifer according to the published 1:100,000 Groundwater Vulnerability Map (Map Sheet 35). Generally, the waters within the Old Red Sandstone Formation have low trace metal concentrations, but small areas can be anoxic and as a result may have elevated concentrations of certain trace metals such as iron or manganese.

2.2.2. The Old Red Sandstone Formation is overlain in places by unconsolidated drift deposits of variable thickness. These predominantly comprise stiff glacial till (formerly Boulder Clay), however some water-bearing granular horizons are present, possibly representing esker deposits (Fluvioglacial Deposits). These are laterally discontinuous but may be hydraulically linked to the underlying Devonian Old Red Sandstone Formation.

2.2.3. The site is located within a groundwater discharge area which provides base flow to the adjacent surface water features (Figure 1).

2.3. LANDFILL CONSTRUCTION

2.3.1. Construction of the landfill has progressed in three (3 no.) phases comprising seven (7 no.) cells:

- Phase 1 (Cell 1);
- Phase 2 (Cell 2 to Cell 5 inclusive); and
- Phase 3 (Cell 6 and Cell 7).

2.3.2. Phase 1 and Phase 2 have been completed and capped. Phase 3 is currently covered with temporary polythene cover to limit water infiltration and leachate production.

2.3.3. Phase 1 was constructed more than 25 years ago. It was not constructed as a fully contained facility and has no engineered liner. This part of the site is a ‘closed’ landfill and is subject to a different environmental permit.

2.3.4. Phase 2 and Phase 3 of Nantycaws Landfill Site are contained by engineered linings. The base and sides of Phase 2 consist of a high-density polyethylene (HDPE) geocomposite liner (GCL). This is underlain by an engineered geological barrier comprising reworked, locally sourced glacial material, approximately 1.0 m thick.

2.3.5. Phase 3 has a composite liner comprising ‘Trisoplast’ (9.0 cm of bentonite-enriched sand) underlain by an engineered geological barrier 0.5m in thickness, also formed from engineered glacial till.

2.3.6. A groundwater drainage system was incorporated below the base of Phase 1 and below the GCL of Phase 2 and Phase 3. This comprises a series of collection drains which drain by gravity to the south, with finger drains extending to individual seepages that were present within the undeveloped ground. This system currently discharges to the surface water ditches.

2.3.7. Groundwater levels around the site are monitored on a monthly frequency and confirm a general southerly movement of groundwater on the site (Figure 1).

2.4. LEACHATE MANAGEMENT

2.4.1. All leachate from the three (3 no.) phases is pumped to a Leachate Holding Lagoon to the north of Cell 1 where it is aerated before being tankered off-site for disposal. An automated leachate extraction system was installed within the leachate sumps and the retrofitted in-waste monitoring wells in Cell 1 to Cell 5 (M1A to M4B and LMP5A and 5B), which was commissioned in January 2013. The system uses submersible pumps, which are triggered by float switches, positioned at pre-determined levels.

2.4.2. Leachate wells are monitored at sumps installed into each cell. During construction of the early phases of the site, Cell 1 was connected to Cell 2 via a pipe and similarly that Cell 3 is now hydraulically connected to Cell 4. These features are illustrated on Figure 1.

2.4.3. Cell 7 in Phase 3 of the landfill was constructed in March 2014 in which the monitoring wells Cell 7 Sump, LMP7a and LMP7b were installed. These have been added to the routine monitoring round and the results from Cell 7 Sump included within this report.

3. MONITORING REQUIREMENTS

3.1. PERMIT REQUIREMENTS

3.1.1. The monitoring considered in this report was undertaken by CWM Environmental Ltd, in accordance with the requirements in Section 3.6.1 of the Site Permit, detailed within the site *Environmental Monitoring and Management Plan (EMMP)*[1]. The Site Permit refers to 'trigger levels' and 'control levels' (also referred to hereafter as compliance limits) derived from a Hydrogeological Risk Assessment (HRA) prepared for the site in 2006 and reviews of the HRA in 2014 and 2017[2]. The Site Permit was subsequently updated by Permit Variation No. EA/EPR/CP3735PB/V004 following submission and agreement of improvement conditions to Natural Resources Wales (NRW). This resulted in a change to the compliance limits concentrations for diethylphalate and Mecoprop[3][4]. This report refers to 'compliance limits' as the greater of the trigger and control concentrations.

3.2. LEACHATE

3.2.1. The requirements for monitoring of leachates included within the Site Permit are summarised in Table 3-1. Monitoring is required at six (6 no.) locations, with different suites required at monthly, quarterly and annual frequencies. The locations of the monitoring points are shown on Figure 1. The leachate pond monitoring point was decommissioned in June 2014 and therefore no results for this are contained in this report.

3.2.2. Compliance limits specific to individual cells are included within the HRA (2006), and the relevant determinands are highlighted in bold text within Table 3-1.

[1] Parsons Brinckerhoff (2012). Nantycaws Landfill Site Environmental Monitoring and Management Plan. Permit No. CP3735PB. Issue No. 4, March 2012.

[2] SLR (2006). Nantycaws Landfill Site. Hydrogeological Risk Assessment. SLR Report Ref 407.0610.00011/HRA, May 2006. Parsons Brinckerhoff (2014 and 2017). Nantycaws Landfill. Hydrogeological Risk Assessment – Four Yearly Review September 2014 and October 2017.

[3] SLR (2008). Nantycaws Landfill Site. Application for a Permit Variation, Reference DP3134XD A(1) PPC Installation. Appendix SS3: Hydrogeological Modelling Report. SLR Report Ref 407.0610.00011, June 2008.

[4] Environment Agency determination of Variation Application EPR/CP3735PB/V004, 23/09/2009.

Table 3-1 Leachate Monitoring Undertaken During 2020

Determinand	Monitoring Frequency	Monitoring Points
Ammoniacal Nitrogen as N	Monthly	Cell Sump 1 /2, Cell Sump 3 /4, Cell Sump 5, Cell sump 6, Cell Sump 7 and Leachate Holding Lagoon*
Chloride	Monthly	
Electrical Conductivity	Monthly	
Depth of leachate above the base of the liner	Monthly	
Mecoprop (pesticide)	Quarterly	
Diethylphthalate	Quarterly	
Dichloromethane	Quarterly	
4–methlyphenol	Quarterly	
Cadmium	Quarterly	
Total alkalinity	Quarterly	
Magnesium	Quarterly	
Potassium	Quarterly	
Total Sulphate	Quarterly	
Calcium	Quarterly	
Sodium	Quarterly	
Biological Oxygen Demand	Quarterly	
Chemical Oxygen Demand	Quarterly	
Total organic carbon	Quarterly	
Total oxidised nitrogen	Quarterly	
Manganese	Quarterly	
Iron	Quarterly	
Chromium	Quarterly	
Copper	Quarterly	
Lead	Quarterly	
Zinc	Quarterly	
Nickel	Quarterly	
Monitoring Point Base	Annually	
List 1 Substances	Annually	

* Monthly only, not included in quarterly compliance limit

3.3. SURFACE WATER

3.3.1. The requirements for monitoring of surface waters included within the Site Permit are summarised in Table 3-2. The internal drainage ditches are monitored in accordance with Table S4.10 of the Site Permit. Compliance limits are only set for the determinands highlighted in bold in Table 3-2 at monitoring locations SW205 and SW206 (Figure 1).

Table 3-2 - Surface Water Monitoring Undertaken During 2020

Determinand	Monitoring Frequency	Monitoring Points
Ammoniacal Nitrogen	Monthly	SW201, SW202, SW203, SW204, **SW205, SW206**, SW207.
Chloride	Monthly	
Suspended Solids	Monthly	
pH	Monthly	
Temperature	Monthly	
Electrical Conductivity	Monthly	
Water Depth	Monthly	
Mecoprop (pesticide)	Quarterly	
Diethyphthalate	Quarterly	
Dichloromethane	Quarterly	
4-Methylphenol	Quarterly	
Cadmium	Quarterly	
Total Alkalinity	Quarterly	
Magnesium	Quarterly	
Potassium	Quarterly	
Total Sulphate	Quarterly	
Calcium	Quarterly	
Sodium	Quarterly	
Total Oxidised Nitrogen	Quarterly	
Total Organic Carbon	Quarterly	
Manganese	Quarterly	
Iron	Quarterly	
Chromium	Quarterly	
Copper	Quarterly	
Lead	Quarterly	

Determinand	Monitoring Frequency	Monitoring Points
Zinc	Quarterly	
Nickel	Quarterly	
Ionic Balance	Quarterly	
List 1 Screen	Annually	

3.4. GROUNDWATER

3.4.1. The requirements for monitoring groundwaters within the Site Permit are summarised in Table 3.3. Monitoring is required at twenty-one (21 no.) locations, comprising five (5 no.) locations within the under-drainage (UD) system and sixteen (16 no.) perimeter groundwater monitoring boreholes. As with the leachate monitoring, different suites are required at monthly, quarterly and annual frequencies. The monitoring points are shown on Figure 1.

3.4.2. All groundwater monitoring wells are sampled at the site in accordance with Table S4.11 of the Site Permit. The Site Permit specifies compliance limits in Table S4.5 at twelve (12 no.) locations, with the relevant determinands and locations highlighted in bold in Table 3.3.

Table 3.3 - Groundwater Monitoring Undertaken During 2020

Determinand	Monitoring Frequency	Monitoring Points
Ammoniacal Nitrogen as N	Monthly	**NACW212**, NACW219, **NACW227, NACW228,** NACW229, **NACW203, NACW205**, **BH3/4, BH5/02, BH208**, BH3/2, BH3/3, BH3/5, BH3/6, BH3/8, BH3/9**, UD1, UD2, UD3, UD4,** UD5.
Chloride	Monthly	
Electrical Conductivity	Monthly	
Water Level	Monthly	
Monitoring Point Base	Quarterly	
Mecoprop (pesticide)	Quarterly	
Diethylphthalate	Quarterly	
Dichloromethane	Quarterly	
4-methylphenol	Quarterly	
Cadmium	Quarterly	
Total Alkalinity	Quarterly	
Magnesium	Quarterly	
Potassium	Quarterly	
Total Sulphate	Quarterly	
Calcium	Quarterly	
Sodium	Quarterly	

Determinand	Monitoring Frequency	Monitoring Points
Nitrates	Quarterly	
Nitrites	Quarterly	
Total Oxidised Nitrogen	Quarterly	
Manganese	Quarterly	
Iron	Quarterly	
Chromium	Quarterly	
Copper	Quarterly	
Lead	Quarterly	
Zinc	Quarterly	
Nickel	Quarterly	
List 1 Screen	Annually	

3.5. GAS MONITORING

3.5.1. The requirements for monitoring of landfill gases included within the Site Permit are summarised in Table 3.4. All in-waste boreholes are connected to the gas extraction system at the site. This report only contains the results of monitoring undertaken within the perimeter wells identified in Table 3.3 and Table 3.4 below. The locations of the twenty-five (25 no.) gas monitoring points are shown on Figure 1 and listed in Table 3-4 below.

Table 3.4 - Gas Monitoring Undertaken During 2020

Determinand	Monitoring Frequency	Monitoring Points
Methane	Monthly	NACW201, NACW202, NACW203, NACW204, NACW205, NACW212, NACW213, NACW215, NACW216, NACW219, NACW220, NACW227, NACW228, NACW229, NACW230, BH3/1, BH3/2, BH3/3, BH3/4, BH3/5, BH3/6, BH3/8, BH3/9, BH3/10, BH3/11.
Carbon Dioxide	Monthly	
Oxygen	Monthly	
Atmospheric Pressure	Monthly	
Differential Pressure	Monthly	
Temperature	Monthly	
Gas Flow Rate	Monthly	
Trace Gas Analysis	Annually	

4. MONITORING RESULTS

4.1. INTRODUCTION

4.1.1. This section presents the results of the monitoring undertaken during 2020. Attention is given to compliance with the compliance limits within the Site Permit (where applicable) and to data trends by comparison with the historic record obtained since 2014, illustrated by Figure 2 to Figure 19 and Table 4-1 to Table 4-9 at the end of this report. A summary of the compliance issues is provided at the end of the section.

4.1.2. The compliance monitoring is based on the 'monthly' and 'quarterly' monitoring suites, the results of which are shown on the laboratory certificates included within Appendix A. The extended suites undertaken in the annual monitoring are summarised in Appendix B, and the laboratory analysis for these included within Appendix C.

4.2. LEACHATE MONITORING

LEACHATE LEVELS

4.2.1. Leachates levels are monitored on a monthly frequency to determine the depth of leachate above the landfill liner and is a requirement of Table S4.1 within the Site Permit as shown in Table 3-1.

4.2.2. The monitored leachate levels within the leachate sumps obtained during 2020 are summarised in Table 4-1 and shown graphically in Figure 2, which also shows historic data from the beginning of 2014 compared to the relevant compliance limits. Recorded leachate heads were all well below their respective compliance limits with leachate heads remaining stable for most of the year. The mean recorded head above all sumps during 2020 was 0.342 m. There were no recorded exceedances of the compliance limits for 2020. It should be noted that no record of head for Cell 6 Sump was provided for December 2020 on the field sheets provided.

4.2.3. The following in-waste monitoring wells were retrofitted into Cell 1 to Cell 7 Sumps respectively:

- M1A to M4B inclusive (Cell 1 to Cell 4 Sumps);
- LMP5a to LMP5b (Cell 5 Sumps);
- LMP6a to LMP6b (Cell 6 Sumps); and
- LMP7a to LMP7b (Cell 7 Sumps)

Given the absence of target pads at these locations, these boreholes were terminated approximately 2.0 m above the landfill base to avoid harming the landfill liner system and therefore cannot be used for compliance purposes. The mean head above the base of the boreholes monitored within these locations during 2020 is 0.29 m for all locations. A maximum head of 1.22 m was recorded at M2A (November 2020) and a minimum head of 0.01 m at M3B (October 2020). An anomaly at LMP7b is recognised for October 2020 where a head of 3.74 m was recorded. WSP assume this is an anomalous record in field reporting as this has only occurred on one occasion. The data obtained since the start of 2014 are summarised in Figure 3 and show that leachate heads within the in-waste holes were generally similar during 2020 as 2019. The LMP7b anomaly is reported on Figure 3.

4.2.4. The head data shown in Figure 2 and Figure 3 indicate that the automated leachate extraction system has continued to be effective in maintaining low leachate heads across the site since early 2014, excluding the LMP7b anomaly detailed above.

LEACHATE CHEMISTRY - MONTHLY AND QUARTERLY SUITES

4.2.5. The leachate chemistry monitoring is summarised in Table 4-2 and shown graphically in Figure 4 to Figure 10. For all figures, where determinands were below detection limit of the laboratory, a value of half the detection limit has been plotted. The summary of concentrations provided below are based solely on laboratory data and does account for laboratory LOD (as reported). It should be noted that no record of head for Cell 6 Sump was provided for December 2020 on the field sheets provided but a water sample was submitted to the laboratory for analysis. Results are shown on the laboratory certificates in Appendix A and Appendix C.

4.2.6. The leachate pond monitoring point was decommissioned in June 2014.

Ammoniacal Nitrogen as N and Chloride

4.2.7. The time series of Ammoniacal Nitrogen as N and Chloride concentrations recorded within the site leachates since 2014 are shown in Figure 4 and Figure 5, respectively. No exceedances of the compliance limits for Ammoniacal Nitrogen as N (3640 mg/l) and chloride (19000 mg/l) were noted during 2020.

4.2.8. The minimum recorded concentration of Ammoniacal Nitrogen as N (Figure 4) over the duration of the 2020 monitoring was 62.7 mg/l (Cell 7 Sump) and, the maximum recorded concentration of 2510 mg/l in Cell 1/2 Sump.

4.2.9. The minimum chloride concentration (Figure 5) recorded over the duration of the 2020 monitoring was 186.0 mg/l (Cell 7 Sump) and a maximum concentration of 12000 mg/l was recorded in Cell 1/2 Sump. Chloride concentrations were well below the compliance limit for all leachate monitoring sites.

Mecoprop

4.2.10. Recorded concentrations of Mecoprop (MCPP) in 2020 are provided in Figure 6. The minimum recorded concentration over the duration of 2020 was 0.0075 mg/l (Cell 3/4 Sump) and a maximum concentration of 0.129 mg/l (Cell 1/2 Sump). Cell 1/2 Sump exceeded the compliance limit of 0.071 mg/l for MCPP on four (4 no.) occasions during 2020 and an average recorded concentration of 0.118 mg/l across the year. However, concentrations within Cell 1/2 Sump are consistent to those recorded since mid-2018. All other monitoring points were within their respective compliance limits during 2020. Schedule 6 Notices were issued for each exceedance of MCPP in Cell 1/2 Sump (see Section 4.6).

4-methylphenol

4.2.11. Recorded concentrations of 4-methylphenol in 2020 (Figure 7) were below the laboratory LOD and compliance limit for all leachate monitoring points. No obvious trends are apparent in the data for 2020, with most of the results being below the laboratory LOD and compliance limit. The compliance limit for Cell 1/2 Sump and Cell 3/4 Sump is 1.6 mg/l. The compliance limit for Cell 5 Sump, Cell 6 Sump and Cell 7 Sump is 0.126 mg/l.

Dichloromethane

4.2.12. Dichloromethane was not recorded above the laboratory LOD (<0.003 mg/l) or compliance limit (0.033 mg/l Cell 1/2 and Cell 3/4 and 0.066 mg/l Cell 5 to Cell 7 Sumps inclusive) at any leachate monitoring point during 2020. No trends are apparent in the data obtained since 2014 to present (Figure 8).

Diethylphthalate

4.2.13. Recorded concentration of diethylphthalate in 2020 were below the laboratory LOD (0.01 mg/l) at all leachate monitoring points. The 'peak' in concentration for mid-2020 is due to a rise in laboratory LOD in April 2020 for Cell 1/2 Sump and Cell 7 Sump (Figure 9 and Section 4.2.5).

Cadmium (filtered)

4.2.14. Cadmium was detected ten times at all leachate monitoring points. The maximum recorded concentration was 0.0022 mg/l in Cell 1/2 Sump and a minimum concentration of 0.0000914 mg/l was recorded in Cell 3/4 Sump. No breaches of the compliance limit (0.105 mg/l) has occurred over the duration of the 2020 monitoring (Figure 10).

LEACHATE CHEMISTRY – EXTENDED ANNUAL SUITE

4.2.15. Sampling of the site leachates for the annual suite of analysis took place on 20 October 2020. The suites for the annual 'List 1' monitoring was agreed with NRW beforehand and are summarised within the appended technical note (Appendix B). The results are shown on the certificates of analysis in Appendix C.

4.2.16. The extended analysis confirmed the chemistry of the site leachates to be considerably different to that of the waters in the under-drainage system and the surface water and groundwater near the site. The general chemistry of the leachates in terms of transition metals and Hazardous Substances is discussed below.

Hazardous Substances

4.2.17. In contrast to the other waters analysed, Hazardous Substances were detected in most leachates. For the sake of brevity and to aid comparison with the chemistry of the other waters (discussed later) these are discussed in general terms by compound type, with only specific mention of individual concentrations of determinands, where considered significant.

4.2.18. The following Hazardous Substances were not detected at any location above their respective method detection limits (MDLs):

- Phenylurea herbicides;
- Organochlorine and organophosphorous pesticides; and
- Cyanide (total)

4.2.19. The following Hazardous Substances were only detected at some locations:

- A SVOC (Semi-volatile organic compound) (bis(2-Ethylhexyl) phthalate (aq)) was detected at Cell 7 Sump at a concentration of 165 µg/l;
- BTEX (ethylbenzene, m.p xylene, o-xylene and toluene) was detected at Cell 1/2 Sump and Cell 7 Sump with a concentration of 87.0 µg/l and 38.0 µg/l respectively. All other monitoring locations were below the laboratory LOD (28.0 µg/l)

4.2.20. A greater variety of Hazardous Substances were detected in the following parameter groups than in the other waters at and adjacent to the site:

- Phenols;

- Total aliphatics and aromatics (>C5-C35);
- Herbicides; and
- Transition metals, excluding those discussed above.

Phenols

4.2.21. Phenols were detected in Cell 1/2 Sump (10.8 µg/l) and the Leachate Holding Lagoon (27.6 µg/l). Cell 1/2 Sump also had detections for 2-methylphenol (21.50 µg/l), 3-methylphenol (5.98 µg/l) and 4-chloro-3-methylphenol (4.51 µg/l).

Total aliphatics and aromatics (>C5-C35)

4.2.22. Detections of total aliphatics and aromatics (>C5-C35) were recorded at all leachate monitoring locations (Cell 1/2 Sump to Leachate Holding Lagoon inclusive). Concentrations ranged from 364 µg/l (Cell 3/4 Sump) to 2240 µg/l (Cell 1/2 Sump). The average concentration for all leachate monitoring locations is 798 µg/l.

Herbicides

4.2.23. Terbutryn was found at all leachate sampling locations and concentrations range from 0.16 µg/l (Cell 5 Sump) to 0.42 µg/l (Cell 7 Sump). The average concentration for all leachate monitoring locations is 0.25 µg/l.

Transition Metals

4.2.24. The recorded concentrations of the transition metals (dissolved concentrations) within the site leachates, not discussed above, were typically between one and two orders of magnitude greater than in the other waters sampled and were greatest in Cell 3/4 Sump, Cell 5 Sump and Cell 7 Sump:

- Chromium: recorded between 79.10 µg/l in Cell 3/4 Sump and 256.00 µg/l in Cell 7 Sump;
- Copper: recorded between 2.40 µg/l in Cell 5 Sump and 185 µg/l in Cell 1/2 Sump;
- Iron: recorded between 2.59 mg/l in Cell 6 Sump and 7.89 mg/l in Cell 5 Sump;
- Lead: recorded between 0.46 µg/l in Cell 3/4 Sump and 25.20 µg/l in Cell 1/2 Sump;
- Manganese: recorded between 99.70 µg/l in Cell 1/2 Sump and 1420 µg/l in Cell 3/4 Sump;
- Nickel: recorded between 97.10 µg/l in Cell 6 Sump and 316.00 µg/l in Cell 1/2 Sump; and
- Zinc: recorded between 21.70 µg/l in the Cell 3/4 Sump and 138.00 µg/l in Cell 1/2 Sump.

4.3. SURFACE WATER

4.3.1. The surface water monitoring is summarised in Table 4-3 and shown graphically in Figure 11 to Figure 14. Table S4.3 of the Site Permit sets limits on allowable concentrations at two regulated emission points SW205 and SW206. The results obtained are discussed below and results are shown on the laboratory certificates appended to this report (Appendix A and Appendix C).

pH

4.3.2. The compliance limit for the site is between pH 6.0 – pH 9.0 at the regulated emission points SW205 and SW206. The compliance limit was exceedance for SW205 in December 2020 with a record of pH 5.57 recorded by the lab. pH is not recorded in-situ. A Schedule 6 Notice was issued on this occasion.

On average, for all surface water monitoring sites (SW201 to SW207 inclusive), pH was recorded between 6.3 and 8.2 for 2020.

Suspended Solids

4.3.3. The time series of suspended solids is shown in Figure 11. Measured concentrations of suspended solids were all below Site Permit limits of 70 mg/l (SW205) and 50 mg/l (SW206). The maximum concentration recorded for SW205 and SW206 was 31.5 mg/l (August 2020) and 24.5 mg/l (February 2020), respectively. On average, for all surface water monitoring sites (SW201 to SW207 inclusive), the concentration of suspended solids ranged between 5.66 mg/l and 12.0 mg/l for 2020. No trends are apparent in the data obtained since 2014.

Ammoniacal Nitrogen as N

4.3.4. Figure 12 shows the recorded concentrations of Ammoniacal Nitrogen as N for surface waters. A maximum concentration of 2.4 mg/l was recorded at SW205 in November 2020 which was above the compliance limit of 1.0 mg/l. All other records for SW205 were within the compliance limit. SW206 recorded no exceedances and was within the compliance limit for Ammoniacal Nitrogen as N. The maximum recorded concentration of Ammoniacal Nitrogen as N at all other surface water locations was recorded at SW201 (2.7 mg/l) during November 2020. Figure 12 also identifies an upward trend in Ammoniacal Nitrogen as N concentration for SW202 for November 2020 (0.4 mg/l) and December 2020 (0.8 mg/l). This peak concentration was transient and its causes unknown. While it does not comprise a Site Permit breach, it is above compliance limits offset for SW205 and SW206. No obvious trends are apparent in the data.

Chloride

4.3.5. Concentrations of chloride recorded since 2014 are shown in Figure 13. No exceedance of the compliance limit (150 mg/l) was recorded at SW205 and SW206 in 2020. SW205 recorded a maximum concentration of 55.4 mg/l (December 2020) and SW206 recorded 36.6 mg/l (February 2020). The maximum concentration recorded at all other surface water monitoring locations was 62.4 mg/l (SW201).

Mecoprop

4.3.6. The time series of Mecoprop (MCPP) concentrations detected in the surface waters is shown in Figure 14. Over the duration of the 2020 monitoring, the laboratory LOD for MCPP varied between 0.00004 mg/l and 0.00008 mg/l. The compliance limit for the site is 0.000055mg/l for SW205 and SW206. On three occasions, the laboratory LOD exceeded the compliance limit at SW205 (0.00008 mg/l July 2020) and SW206 (0.00008 mg/l July 2020 and October 2020 respectively) and therefore presents false breaches in Table 4-3.

4.3.7. MCPP was detected above the laboratory LOD (0.00004 mg/l) at SW204 (0.000057 mg/l January 2020), SW206 (0.000043 mg/l April 2020) and SW207 (0.000055 mg/l July 2020).

4.3.8. Figure 14 shows a general increase in MCPP at surface water locations during 2020, relative to 2019 This increase is due to an increase in laboratory LOD for MCPP.

Dichloromethane

4.3.9. Dichloromethane was not detected at any location above the laboratory LOD (0.003 mg/l) at any surface water monitoring point during 2020. The laboratory LOD was marginally above the Site Permit

compliance limit of 0.002 mg/l for SW205 and SW206 and therefore presents false breaches in Table 4-3.

4-methylphenol

4.3.10. 4-methylphenol was not detected at most surface water monitoring locations above the laboratory LOD (0.001 mg/l) during 2020 and the Site Permit compliance limit of 0.001 mg/l was respected. The laboratory LOD for SW205 (0.002 mg/l) was marginally above the Site Permit compliance limit in October 2020 and therefore presents false breaches in Table 4-3.

Diethylphthalate

4.3.11. Diethylphthalate was not detected at any surface water monitoring location above the laboratory LOD (varied between 0.001 mg/l and 0.002 mg/l) for all sampling locations during 2020. The Site Permit compliance limit of 0.003 mg/l was respected.

Cadmium (filtered)

4.3.12. Cadmium was not detected at any location above the laboratory LOD (0.00008 mg/l) at any surface water monitoring point during 2020. The compliance limit for SW205 and SW206 is 0.0001 mg/l.

EXTENDED 'ANNUAL' SUITE OF ANALYSIS

4.3.13. Sampling of the surface water for the annual suite of analysis took place on 20 October 2020. The suites for the annual 'List 1' monitoring was agreed with NRW beforehand and are summarised on the technical note in Appendix B. The results are shown on the laboratory certificates of analysis in Appendix C.

4.3.14. The extended analysis confirmed the chemistry of the surface water to be of good quality, very similar to that of the groundwaters in the vicinity of the site.

Hazardous Substances

4.3.15. The following Hazardous Substances were not detected at any locations above their respective laboratory method detection limits (MDLs):

- Chromium;
- Phenols;
- Phenoxyacid herbicides;
- SVOC;
- BTEX (including ethylbenzene, m.p xylene, o-xylene and toluene); and
- Total PAH (Polyaromatic Hydrocarbons)

4.3.16. The following Hazardous Substances were detected at some locations:

- Organics specifically dinitro-o-cresol detected at all surface water sampling locations. A minimum concentration of 0.35 µg/l at SW206 and a maximum concentration of 0.93 µg/l at SW203 was recorded.

Transition Metals

4.3.17. Other transition metals (i.e. in addition to cadmium (dissolved) above) were only detected at trace concentrations and are listed as follows:

- Copper: was detected at all surface water monitoring locations and concentrations ranged between 2.73 µg/l (SW201) and 5.96 µg/l (SW202);

- Lead: was detected at all surface water monitoring locations and concentrations ranged between 0.38 µg/l (SW204) and 1.03 µg/l (SW203);
- Manganese: was detected at all surface water monitoring locations and concentrations ranged between 17.3 µg/l (SW201) and 43.8 µg/l (SW202);
- Nickel: was detected at all surface water monitoring locations and concentrations ranged between 1.38 µg/l (SW206) and 5.38 µg/l (SW203); and
- Zinc was detected at all surface water monitoring locations and concentrations ranged between 5.53 µg/l (SW204) and 13.8 µg/l (SW203).

4.4. GROUNDWATER

GROUNDWATER ELEVATIONS

4.4.1. The groundwater level data obtained from the perimeter monitoring boreholes are summarised in Table 4-4 and shown on Figure 1. The 2020 recorded groundwater level data indicates a general movement of groundwater from north to south and south-west in the vicinity of the site, consistent with the site topography and historical monitoring.

GROUNDWATER CHEMISTRY

4.4.2. This section includes the chemistry of the under-drainage locations (UD1 - UD5) and the perimeter monitoring boreholes. It should be noted, that the under-drainage locations are internal to the site, whereas the perimeter monitoring boreholes are external to the containment facility (Figure 1). Under-drainage monitoring point UD2 and perimeter monitoring borehole NACW227 were unable to be sampled for most of the year as they were dry.

4.4.3. The groundwater compliance monitoring is summarised in Table 4-5 and shown graphically in Figure 15 to Figure 19.

Ammoniacal Nitrogen as N

4.4.4. No exceedances of the Site Permit compliance limit for Ammoniacal Nitrogen as N (5.5 mg/l) was recorded in either the site under-drainage or perimeter monitoring boreholes during 2020. A maximum recorded concentration of 1.98 mg/l was recorded at NACW203.

4.4.5. No trends are apparent within the time series data shown in Figure 15.

Chloride

4.4.6. No exceedances of the Site Permit compliance limit (150 mg/l) for chloride were recorded in either the under-drainage or perimeter monitoring boreholes during 2020. A range in chloride concentrations were recorded with the minimum concentration of 8.2 mg/l at BH3/4 (January 2020 and May 2020) and maximum concentration of 54.9mg/l at BH3/8 (April 2020).

4.4.7. No obvious trends are apparent within the time series data shown in Figure 16.

Mecoprop

4.4.8. Two (2 no.) exceedances for Mecoprop (MCPP) were recorded at BH3/4 in April 2020 (0.000131 mg/l) and July 2020 (0.000069 mg/l). Schedule 6 Notices have been issued for these exceedances. There were also 13 instances where the laboratory LOD (ranging between 0.00004 mg/l and 0.00008 mg/l) exceeded the compliance limit for MCPP (0.000055 mg/l) and therefore present false breaches in Table 4-5. No other exceedances of the Site Permit Compliance Limit for MCPP, bar the two exceedances at BH3/4, was recorded in any of the under-drainage and perimeter borehole monitoring locations for the duration of 2020.

4.4.9. The time series data shown in Figure 17 illustrate the sporadic nature of the MCPP detections and exceedances recorded at BH3/4.

Dichloromethane

4.4.10. Dichloromethane was not detected at any location above the laboratory LOD (0.003 mg/l) at any point during 2020. The laboratory LOD was marginally above the Site Permit compliance limit of 0.002 mg/l for all groundwater monitoring locations and therefore presents false breaches (Table 4-5).

4-methylphenol and Diethylphthalate

4.4.11. There were no breaches of the Site Permit for these compounds during 2020, which were not detected in any groundwater location at any time. There are three instances where the laboratory LOD (0.002 mg/l) exceeded the compliance for 4-methylphenol at BH208, BH3/4 and BH203 and therefore presents false breaches (Table 4-5).

Cadmium (dissolved)

4.4.12. Cadmium was detected above its laboratory LOD (0.00008 mg/l) at two perimeter borehole locations with concentrations of 0.000119 mg/l and 0.000237 mg/l (BH3/8 and NACW228 respectively). NACW228 exceeded the compliance limit of 0.0001 mg/l and a Schedule 6 Notice was issued as a result. BH3/8 does not form part of the site permit compliance limit, therefore no Schedule 6 Notice was issued. There was one instance where the laboratory LOD (0.008mg/L) exceeded the compliance limit for cadmium at BH208 and therefore presents false breaches (Table 4-5).

4.4.13. The time series of reported cadmium is shown in Figure 18 and shows no trends or obvious patterns.

Nickel (dissolved)

4.4.14. Nickel was detected above its laboratory LOD (0.0004 mg/l) on forty-five (45 no.) occurrences. There were no exceedances of the compliance limits for Nickel (0.02 mg/l and 0.037 mg/l for NACW212 only) during 2020. A maximum concentration of 0.00442 mg/l was recorded in BH3/8 in 2020. BH3/8 does not form part of the Site Permit compliance limit (0.02 mg/l).

4.4.15. The time series of reported nickel is shown in Figure 19 and shows no obvious trend or pattern.

EXTENDED 'ANNUAL' SUITE OF ANALYSIS

4.4.16. Sampling of the under-drainage and perimeter groundwater for the annual suite of analysis took place on 20 October 2020. The suites for the annual 'List 1' monitoring was agreed with NRW beforehand and are summarised on the technical note in Appendix B. The results are shown on the certificates of analysis in Appendix C. Monitoring locations NACW227 and UD2 were dry on most sample visits in 2020 and unable to be sampled.

4.4.17. The extended analysis confirmed the chemistry of the under-drainage and perimeter groundwater to be of good quality, very similar to that of the surface waters near the site, in terms of transition metals and Hazardous Substances, these are discussed separately below.

Under-drainage

4.4.18. The following Hazardous Substances were not detected at any locations above their respective laboratory MDL:

- Phenol;
- SVOC;

- PAH;
- Volatile Organic Compounds (VOC);
- Total aliphatics and aromatics (>C5 -C35);
- Polychlorinated biphenyls (PCBs);
- Organochlorine and organophosphate pesticides;
- Phenylurea herbicides; and
- Phenoxyacid herbicides.

4.4.19. The following Hazardous Substances were detected at some locations:

- Organics, specifically dinitro-o-cresol was detected at UD3, UD4 and UD5, with concentrations ranging from 0.379 µg/l (UD3) to 0.538 µg/l (UD5); and
- Transition metals (dissolved), excluding those discussed above:
  - Chromium was detected at UD5 (3.07 µg/l) and all other locations were below the laboratory LOD;
  - Copper was detected at all locations and concentrations ranged between 0.86 µg/l (UD1) to 15.10 µg/l (UD5);
  - Lead was detected at UD4 (1.25 µg/l) and UD5 (2.62 µg/l). All other locations were below the laboratory LOD;
  - Manganese was detected at all locations and concentrations ranged between 26.40 µg/l (UD3) to 54.60 µg/l (UD1);
  - Nickel was detected at UD1 (0.64 µg/l), UD4 (1.33 µg/l) and UD5 (3.75 µg/l); and
  - Zinc was detected at all locations and concentrations ranged between 3.06 µg/l (UD3) to 11.50 µg/l (UD5).

Perimeter Groundwaters

4.4.20. The following Hazardous Substances were not detected at any locations above their respective laboratory LOD:

- Phenol;
- Mecoprop;
- Total aliphatics and aromatics (>C5 -C35);
- Phenoxyacid herbicides;
  - PAH;
  - SVOC;
  - VOC

4.4.21. The following Hazardous Substances were detected at some locations:

- Organics, specifically dinitro-o-cresol, was detected at numerous locations (bar BH5/02, NACW203, NACW205, NACW212 and NACW219). The concentrations ranged between 0.11 µg/l (BH3/4) to 0.89 µg/l (BH3/2); and
- Transition metals (dissolved), in addition to cadmium noted above:
  - Chromium was detected at BH3/8 (1.03 µg/l) and all other locations were below the laboratory LOD;
  - Copper was detected at twelve locations (excluding BH208, BH3/4 and NACW203 which were below laboratory LOD) and concentrations ranged between 1.09 µg/l (NACW219) and 6.75 µg/l (BH3/5);
  - Lead was detected at ten locations (excluding NACW219, NACW203, BH208, BH3/4 and BH3/5 which were below laboratory LOD) and concentrations ranged between 0.21 µg/l (NACW228) and 1.16 µg/l (BH3/9);

- Manganese was detected at fourteen locations (excluding BH208 which was below laboratory LOD) and concentrations ranged between 4.23 µg/l (BH3/5) and 2500 µg/l (NACW219);
- Nickel was detected at eleven locations (excluding BH208, BH3/3, NACW203and BH3/4 which were below laboratory LOD) and concentrations ranged between 0.587 µg/l (BH3/6) and 3.01 µg/l (BH3/8);
- Zinc was detected at fourteen locations (excluding BH208 which was below laboratory LOD) and concentrations ranged between 2.44 µg/l (BH3/2) and 14.4 µg/l (NACW212).

4.5. LANDFILL GAS MONITORING PERIMETER BOREHOLES

4.5.1. The requirements of the Site Permit are summarised in Table 3.4 and the gas data obtained during 2020 are summarised in Table 4-6 to Table 4-8.

4.5.2. BH3/3 was recorded as artesian between September 2020 and December 2020, therefore some gas measurements were not able to be taken. Borehole NACW220 was decommissioned in 2012 due to the construction and operation of Cell 7 Sump and no records are provided on this basis.

Methane

4.5.3. There was no exceedance of the compliance limit of 1% v/v above background methane during 2020. Methane was recorded at 0% v/v at all perimeter borehole monitoring locations.

Carbon Dioxide

4.5.4. There were no exceedances of the carbon dioxide compliance limit of 3.5% v/v during 2020. Carbon dioxide was recorded at all perimeter borehole monitoring locations and a maximum concentration of 3.4% was recorded at NACW201.

Oxygen

4.5.5. Oxygen concentrations at all monitoring locations ranged between 13.2% (BH3/8) and 22.4% (NACW204) during the 2020 monitoring.

4.6. SUMMARY OF CONTROL LEVEL BREACHES (SCHEDULE 6 NOTICES)

4.6.1. A total of 10 Schedule 6 Notices were issued to NRW during 2020 following breaches of the compliance limits within the Site Permit. These are shown in Table 4-9 and summarised below:

- One (1 no.) was submitted regarding Cell 1/2 Sump for breach of the compliance limit for Mecoprop (MCPP) in Quarter 1 (Q1);
- Four (4 no.) was submitted regarding two MCPP exceedances in Cell 1/2 Sump and BH3/4, one Cadmium exceedance in NACW228 and one deviation caused by laboratory handling error during Quarter 2 (Q2);
- Two (2 no.) was submitted regarding two MCPP exceedances in Cell 1/2 Sump and BH3/4 and during Quarter 3 (Q3);
- Three (3 no.) was submitted regarding a MCPP exceedance in Cell 1/2 Sump, Ammoniacal Nitrogen as N exceedance in SW205 and a pH exceedance in SW205 during Quarter 4 (Q4).

4.6.2. The reported breaches are discussed in more detail in Section 5.

5. DISCUSSION

5.1. GENERAL CONSIDERATIONS

5.1.1. The overall impression from the results of the monitoring undertaken during 2020, was that the site had little (if any) impact on the surrounding water environment during this period, consistent with previous reporting.

5.1.2. A variation in leachate strength is apparent within the leachate sumps, for example chloride is found at approximately 186 mg/l in Cell 7 Sump but at approximately 12000 mg/l in Cell 1/2 Sump. However, there is no indication that this is impacting on surrounding groundwater or surface water. Concentrations of indicator parameters within the leachate are greater than in the surrounding water environment typically by between one and two orders of magnitude and occasionally more. Furthermore, the leachate chemistry, both in terms of its general indicators (e.g. ammoniacal nitrogen and chloride) and its trace chemistry (e.g. transition metals, hydrocarbon species or herbicides etc.) is sufficiently different from the chemistry of the surrounding water environment that chronic leakage would be detected in groundwater. There has been no change to groundwater determinands or emerging trends that would indicate an impact from the rising leachate concentrations upon the water environment.

5.2. PERMIT BREACHES

5.2.1. The Permit breaches that occurred in 2020 related to reported concentrations of the following:

- In Q1 - Q4 2020, an exceedance of Mecoprop (MCPP) was recorded at the leachate monitoring point Cell 1/2 Sump;
- In Q2 – Q3 2020, an exceedance of MCPP was recorded at perimeter monitoring borehole BH3/4;
- In Q2 2020, a Cadmium exceedance was recorded at perimeter monitoring borehole NACW228;
- In Q2 2020, a groundwater sample deviation, due to handling error by laboratory which resulted in samples being on hold and no analysis at time of receipt, occurred for all groundwater monitoring locations;
- In Q4 2020, an Ammoniacal Nitrogen as N and pH exceedance was recorded at surface water monitoring location SW205; and

5.2.2. These exceedances of the Site Permit appeared to be isolated incidents and were not sustained, other than the exceedance of MCPP at Cell 1/2 Sump which is a regular occurrence (Q1 to Q4). It is recommended that a review of MCPP exceedance in leachate and other monitoring locations is undertaken as a wider review outside of this factual report.

5.2.3. In the groundwater the breach of the Site Permit conditions for cadmium are within the historic range of concentrations detected around the site and potentially relate to natural variations within porewater within the Old Red Sandstone bedrock or overlying till.

5.3. PROBLEMS ENCOUNTERED DURING GROUNDWATER MONITORING, 2020

5.3.1. The main problem experienced during the monitoring undertaken in 2020 was inability to obtain samples from borehole NACW227, immediately south of the Leachate Holding Lagoon and at under-drainage location UD2, on the north-eastern site margin.

5.3.2. Borehole NACW227 and UD2 were dry for the majority of 2020, as mentioned in paragraph 4.4.2 above. The reasons for this are unclear. Both these locations are controlled locations within the Site Permit and investigations are therefore recommended to ascertain the causes for the dryness and whether the sampling locations can be re-instated.

5.4. QUARTERLY MONITORING ISSUES

5.4.1. Due to the on-going Covid-19 Pandemic the chemical testing laboratory has experienced issues with resourcing and meeting testing deadlines. This has led to a number of instances where Limits of Detection (LOD) have varied and / or compliance with holding times have been exceeded. A review is on-going with the testing laboratory to understand the challenges and how these are going to be reduced and rectified going forward.

5.5. LIMITS OF DETECTION

5.5.1. The detection limits for Dichloromethane, Mecoprop and 4-Methylphenol are in places higher than permit requirements for surface water and groundwater monitoring locations. This has been discussed with NRW and ALS previously and will be reviewed with ALS again in 2021.

5.6. RECOMMENDATIONS FOR ANNUAL 'LIST 1' SAMPLING 2020

5.6.1. The requirements for the parameters to be tested in the 'List 1' sampling during 2020, should be reviewed in the context of a review of the HRA. WSP recommend that the HRA is updated, with a view of submitting an Environmental Permit Variation, and should be considered for 2021 monitoring programme.

6. CONCLUSIONS AND RECOMMENDATIONS

6.1. CONCLUSIONS

6.1.1. The monitoring results obtained during 2020 indicate that the landfill had little measurable and no significant or sustained impact on the surrounding environment.

6.1.2. There were ten breaches of the Site Permit compliance limits relating to the monitored chemistry of the site leachate, surface waters and groundwater during 2020. These are summarised in Table 4.9 and summarised below:

- One (1 no.) was submitted regarding Cell 1/2 Sump for breach of the compliance limit for Mecoprop (MCPP) in Quarter 1 (Q1);
- Four (4 no.) was submitted regarding two MCPP exceedances in Cell 1/2 Sump and BH3/4, one Cadmium exceedance in NACW228 and one deviation caused by laboratory handling error during Quarter 2 (Q2);
- Two (2 no.) was submitted regarding two MCPP exceedances in Cell 1/2 Sump and BH3/4 and during Quarter 3 (Q3);
- Three (3 no.) was submitted regarding a MCPP exceedance in Cell 1/2 Sump, Ammoniacal Nitrogen as N exceedance in SW205 and a pH exceedance in SW205 during Quarter 4 (Q4).

6.1.3. These breaches appeared to be isolated incidents, in time and space, and were not sustained, such that no obvious trends or patterns are apparent in the time-series data. The only exception to this is that Mecoprop is commonly detected in the leachate at Cell 1/2 Sump and on two consecutive occasions at BH3/4.

6.1.4. During 2016, CWM undertook an internal audit of all the water monitoring undertaken in the three preceding years, 2013 – 2015. This confirmed between two and seven Site Permit breaches in these years, set against a backdrop of between 21,000 and 22,000 laboratory determinations, and that the total site compliance exceeded 99.99 % in each year. Similar compliance was achieved in 2016 and 2017. Some rationalisation of the existing monitoring is therefore technically justified.

6.1.5. Monitored leachate heads within the sumps were compliant with the requirements of the Site Permit throughout 2020. The mean head recorded across all sumps during 2020 was 0.342 m.

6.2. RECOMMENDATIONS

6.2.1. The following recommendations are made:

1. Monitoring locations UD2 and NACW227 should be investigated to assess the causes for these drying. These locations should be reinstated if possible;
2. The detection limits for Dichloromethane, Mecoprop and 4-Methylphenol should be investigated with the laboratory to confirm if there is any scope for reducing the detection limit of these determinants;
3. An investigation into Mecoprop at Cell 1/2 Sump and nearby monitoring locations should be undertaken as a wider investigation than this factual report;
4. An investigation to confirm assumptions regarding natural cadmium ranges in groundwater could be implemented;
5. A review of field data collection methods should be completed. WSP plan to issue the Client a new field template to streamline this process and align with the database (created in late 2019); and

6. Implementation of the recommendations made in the latest review of the HRA (Parsons Brinkerhoff, November 2017) and 2019 annual compliance report, regarding modification of the Site Permit and EMMP in the context of the monitoring information obtained.

6.2.2. CWM had intentions to submit an Environmental Permit Variation Application during 2020. This should be considered for 2021 in order to reduce the sites monitoring burden and will seek NRW assistance in achieving this.

TABLES

TABLES

Table 4-1 - Leachate Heads for Cell Sumps and In-waste Boreholes, 2020

Leachate Thickness (m above base of liner)												
	01/01/2020	01/02/2020	01/03/2020	08/04/2020	04/05/2020	10/06/2020	06/07/2020	10/08/2020	08/09/2020	07/10/2020	09/11/2020	14/12/2020
Cell Sumps												
Cell 1/2 Sump	0.29	0.32	0.30	0.29	0.33	0.42	0.47	0.33	0.33	0.51	0.33	0.22
Cell 3/4 Sump	0.29	0.34	0.49	0.65	0.46	0.39	0.46	0.55	0.59	0.47	0.39	0.39
Cell 5 Sump	0.30	0.37	0.10	0.33	0.18	0.29	0.39	0.40	0.42	0.60	0.08	0.12
Cell 6 Sump	0.07	0.09	0.19	0.10	0.20	0.22	0.39	0.24	0.50	0.40	0.37	Dry
Cell 7 Sump	0.33	0.54	0.32	0.39	0.26	0.35	0.42	0.39	0.40	0.53	0.34	0.27
In Waste Boreholes												
M1A	0.30	0.43	0.40	0.49	0.42	0.45	0.47	0.40	0.51	0.25	0.05	0.15
M1B	0.03	0.07	0.14	0.40	0.24	0.12	0.35	0.27	0.30	0.24	0.08	Dry
M2A	0.36	0.40	0.32	0.17	0.20	0.24	0.36	0.30	0.50	0.28	1.22	0.16
M2B	0.38	0.29	0.35	0.30	0.50	0.36	0.38	0.35	0.40	0.33	0.12	0.10
M3A	0.72	0.50	0.34	0.20	0.08	0.14	0.34	0.27	0.32	0.18	0.40	0.19
M3B	0.27	0.36	0.22	0.03	0.04	0.32	0.28	0.38	0.33	0.01	Dry	0.05
M4A	0.28	0.36	0.25	0.33	0.26	0.39	0.38	0.40	0.47	0.26	0.21	0.29
M4B	0.19	0.18	0.20	0.12	0.17	0.28	0.36	0.48	0.50	0.08	0.13	0.13
LMP5a	Dry	0.02	Dry	Dry	Dry	Dry	0.07	0.10	0.08	Dry	Dry	Dry
LMP5b	0.04	0.10	0.06	0.04	Dry	0.07	0.08	0.06	0.10	Dry	Dry	0.08
LMP6a	Dry	Dry	Dry	Dry	Dry	Dry	0.20	0.10	0.09	Dry	Dry	Dry
LMP7a	0.23	0.20	0.15	0.20	0.08	0.08	0.16	0.19	0.18	0.15	0.10	0.19
LMP7b	Dry	Dry	Dry	0.08	Dry	Dry	0.06	Dry	Dry	3.74	Dry	0.09

Table 4-2 - Summary of Compliance Monitoring, Site Leachate 2020

Monthly Monitoring

Borehole	Determinand	Units	LOD	N	N > LOD	Mean	Min	Max	Compliance Limit	N > CL
Cell 1/2 Sump	Ammoniacal Nitrogen as N	mg/l	4	2	2	661	621	701	<3,640	0
Cell 1/2 Sump	Ammoniacal Nitrogen as N	mg/l	10	7	7	2382.86	2240	2460	<3,640	0
Cell 1/2 Sump	Ammoniacal Nitrogen as N	mg/l	20	3	3	2326.67	1980	2510	<3,640	0
Cell 3/4 Sump	Ammoniacal Nitrogen as N	mg/l	1	1	1	157	157	157	<3,640	0
Cell 3/4 Sump	Ammoniacal Nitrogen as N	mg/l	2	1	1	443	443	443	<3,640	0
Cell 3/4 Sump	Ammoniacal Nitrogen as N	mg/l	4	6	6	854.5	776	911	<3,640	0
Cell 3/4 Sump	Ammoniacal Nitrogen as N	mg/l	5	1	1	824	824	824	<3,640	0
Cell 3/4 Sump	Ammoniacal Nitrogen as N	mg/l	10	3	3	1133.33	1020	1190	<3,640	0
Cell 5 Sump	Ammoniacal Nitrogen as N	mg/l	4	2	2	920.5	909	932	<3,640	0
Cell 5 Sump	Ammoniacal Nitrogen as N	mg/l	5	1	1	831	831	831	<3,640	0
Cell 5 Sump	Ammoniacal Nitrogen as N	mg/l	10	9	9	1226.67	1000	1560	<3,640	0
Cell 6 Sump	Ammoniacal Nitrogen as N	mg/l	2	1	1	422	422	422	<3,640	0
Cell 6 Sump	Ammoniacal Nitrogen as N	mg/l	4	4	4	834.5	756	912	<3,640	0
Cell 6 Sump	Ammoniacal Nitrogen as N	mg/l	10	2	2	1045	1010	1080	<3,640	0
Cell 7 Sump	Ammoniacal Nitrogen as N	mg/l	0.4	1	1	62.7	62.7	62.7	<3,640	0
Cell 7 Sump	Ammoniacal Nitrogen as N	mg/l	1	1	1	96.4	96.4	96.4	<3,640	0

Monthly Monitoring

Borehole	Determinand	Units	LOD	N	N > LOD	Mean	Min	Max	Compliance Limit	N > CL
Cell 7 Sump	Ammoniacal Nitrogen as N	mg/l	2	1	1	435	435	435	<3,640	0
Cell 7 Sump	Ammoniacal Nitrogen as N	mg/l	4	1	1	921	921	921	<3,640	0
Cell 7 Sump	Ammoniacal Nitrogen as N	mg/l	5	1	1	621	621	621	<3,640	0
Cell 7 Sump	Ammoniacal Nitrogen as N	mg/l	10	7	7	1592.86	1200	2140	<3,640	0
Leachate Holding Lagoon	Ammoniacal Nitrogen as N	mg/l	4	1	1	983	983	983	<3,640	0
Leachate Holding Lagoon	Ammoniacal Nitrogen as N	mg/l	10	11	11	1191.82	1060	1280	<3,640	0
Cell 1/2 Sump	Chloride	mg/l	8	1	1	10900	10900	10900	<19,000	0
Cell 1/2 Sump	Chloride	mg/l	20	1	1	1070	1070	1070	<19,000	0
Cell 1/2 Sump	Chloride	mg/l	40	1	1	3220	3220	3220	<19,000	0
Cell 1/2 Sump	Chloride	mg/l	200	9	9	11277.78	10300	12000	<19,000	0
Cell 3/4 Sump	Chloride	mg/l	4	1	1	368	368	368	<19,000	0
Cell 3/4 Sump	Chloride	mg/l	20	6	6	1322.83	997	1590	<19,000	0
Cell 3/4 Sump	Chloride	mg/l	40	1	1	1710	1710	1710	<19,000	0
Cell 3/4 Sump	Chloride	mg/l	100	4	4	4595	2360	6290	<19,000	0
Cell 5 Sump	Chloride	mg/l	40	2	2	3490	3130	3850	<19,000	0
Cell 5 Sump	Chloride	mg/l	100	10	10	5722	4510	7160	<19,000	0
Cell 6 Sump	Chloride	mg/l	10	1	1	605	605	605	<19,000	0

Monthly Monitoring

Borehole	Determinand	Units	LOD	N	N > LOD	Mean	Min	Max	Compliance Limit	N > CL
Cell 6 Sump	Chloride	mg/l	20	3	3	1293.33	1060	1660	<19,000	0
Cell 6 Sump	Chloride	mg/l	40	3	3	2696.67	1410	3960	<19,000	0
Cell 7 Sump	Chloride	mg/l	4	2	2	228.5	186	271	<19,000	0
Cell 7 Sump	Chloride	mg/l	10	1	1	873	873	873	<19,000	0
Cell 7 Sump	Chloride	mg/l	20	3	3	1453.33	1090	1720	<19,000	0
Cell 7 Sump	Chloride	mg/l	40	5	5	2274	1620	3090	<19,000	0
Cell 7 Sump	Chloride	mg/l	100	1	1	2410	2410	2410	<19,000	0
Leachate Holding Lagoon	Chloride	mg/l	40	3	3	3403.33	2850	3840	<19,000	0
Leachate Holding Lagoon	Chloride	mg/l	100	9	9	4510	4110	4890	<19,000	0
Cell 1/2 Sump	Electrical conductivity @20°C (lab)	µS/cm	5	6	6	31717	402	39500		0
Cell 1/2 Sump	Electrical conductivity @20°C (lab)	µS/cm	20	6	6	30301.67	9110	40400		0
Cell 3/4 Sump	Electrical conductivity @20°C (lab)	µS/cm	5	6	6	14411.67	8990	22800		0
Cell 3/4 Sump	Electrical conductivity @20°C (lab)	µS/cm	20	6	6	9496.67	2410	15800		0
Cell 5 Sump	Electrical conductivity @20°C (lab)	µS/cm	5	6	6	19316.67	13400	23700		0
Cell 5 Sump	Electrical conductivity @20°C (lab)	µS/cm	20	6	6	21233.33	18600	26500		0
Cell 6 Sump	Electrical conductivity @20°C (lab)	µS/cm	5	2	2	11045	5390	16700		0
Cell 6 Sump	Electrical conductivity @20°C (lab)	µS/cm	20	5	5	11422	9410	13500		0

Monthly Monitoring

Borehole	Determinand	Units	LOD	N	N > LOD	Mean	Min	Max	Compliance Limit	N > CL
Cell 7 Sump	Electrical conductivity @20°C (lab)	µS/cm	5	6	6	12363.33	1690	21600		0
Cell 7 Sump	Electrical conductivity @20°C (lab)	µS/cm	20	6	6	12091.67	1860	17600		0
Leachate Holding Lagoon	Electrical conductivity @20°C (lab)	µS/cm	5	6	6	18266.67	16200	19800		0
Leachate Holding Lagoon	Electrical conductivity @20°C (lab)	µS/cm	20	6	6	19000	15000	20600		0

Quarterly Monitoring

Borehole	Determinand	Units	LOD	N	N > LOD	Mean	Min	Max	Compliance Limit	N > CL
Cell 1/2 Sump	4-Methylphenol	mg/l	0.02	2	0	0.02	0.02	0.02	<1.6	0
Cell 1/2 Sump	4-Methylphenol	mg/l	0.05	1	0	0.05	0.05	0.05	<1.6	0
Cell 1/2 Sump	4-Methylphenol	mg/l	0.1	1	0	0.1	0.1	0.1	<1.6	0
Cell 3/4 Sump	4-Methylphenol	mg/l	0.01	2	0	0.01	0.01	0.01	<1.6	0
Cell 3/4 Sump	4-Methylphenol	mg/l	0.02	1	0	0.02	0.02	0.02	<1.6	0
Cell 3/4 Sump	4-Methylphenol	mg/l	0.04	1	0	0.04	0.04	0.04	<1.6	0
Cell 5 Sump	4-Methylphenol	mg/l	0.001	1	0	0	0.001	0.001	<0.126	0
Cell 5 Sump	4-Methylphenol	mg/l	0.02	2	0	0.02	0.02	0.02	<0.126	0
Cell 5 Sump	4-Methylphenol	mg/l	0.04	1	0	0.04	0.04	0.04	<0.126	0
Cell 6 Sump	4-Methylphenol	mg/l	0.02	1	0	0.02	0.02	0.02	<0.126	0

Quarterly Monitoring

Borehole	Determinand	Units	LOD	N	N > LOD	Mean	Min	Max	Compliance Limit	N > CL
Cell 7 Sump	4-Methylphenol	mg/l	0.01	1	0	0.01	0.01	0.01	<0.126	0
Cell 7 Sump	4-Methylphenol	mg/l	0.02	2	0	0.02	0.02	0.02	<0.126	0
Cell 7 Sump	4-Methylphenol	mg/l	0.1	1	0	0.1	0.1	0.1	<0.126	0
Leachate Holding Lagoon	4-Methylphenol	mg/l	0.02	4	0	0.02	0.02	0.02		0
Cell 1/2 Sump	Cadmium (filtered)	mg/l	0.00048	1	1	0	0.000761	0.000761	<0.105	0
Cell 1/2 Sump	Cadmium (filtered)	mg/l	0.0008	3	2	0	0.0008	0.0022	<0.105	0
Cell 3/4 Sump	Cadmium (filtered)	mg/l	0.00008	3	2	0	0.00008	0.000721	<0.105	0
Cell 3/4 Sump	Cadmium (filtered)	mg/l	0.0008	1	0	0	0.0008	0.0008	<0.105	0
Cell 5 Sump	Cadmium (filtered)	mg/l	0.00008	3	2	0	0.00008	0.000193	<0.105	0
Cell 5 Sump	Cadmium (filtered)	mg/l	0.0008	1	0	0	0.0008	0.0008	<0.105	0
Cell 6 Sump	Cadmium (filtered)	mg/l	0.00008	1	1	0	0.000106	0.000106	<0.105	0
Cell 7 Sump	Cadmium (filtered)	mg/l	0.00008	3	2	0	0.00008	0.000167	<0.105	0
Cell 7 Sump	Cadmium (filtered)	mg/l	0.0008	1	0	0	0.0008	0.0008	<0.105	0
Leachate Holding Lagoon	Cadmium (filtered)	mg/l	0.00008	4	3	0	0.00008	0.000197		0
Cell 1/2 Sump	Dichloromethane	mg/l	0.003	4	0	0	0.003	0.003	<0.033	0
Cell 3/4 Sump	Dichloromethane	mg/l	0.003	4	0	0	0.003	0.003	<0.033	0
Cell 5 Sump	Dichloromethane	mg/l	0.003	4	0	0	0.003	0.003	<0.066	0
Cell 6 Sump	Dichloromethane	mg/l	0.003	1	0	0	0.003	0.003	<0.066	0

Quarterly Monitoring

Borehole	Determinand	Units	LOD	N	N > LOD	Mean	Min	Max	Compliance Limit	N > CL
Cell 7 Sump	Dichloromethane	mg/l	0.003	4	0	0	0.003	0.003	<0.066	0
Leachate Holding Lagoon	Dichloromethane	mg/l	0.003	4	0	0	0.003	0.003		0
Cell 1/2 Sump	Diethyl phthalate	mg/l	0.02	2	0	0.02	0.02	0.02	<0.44	0
Cell 1/2 Sump	Diethyl phthalate	mg/l	0.05	1	0	0.05	0.05	0.05	<0.44	0
Cell 1/2 Sump	Diethyl phthalate	mg/l	0.1	1	0	0.1	0.1	0.1	<0.44	0
Cell 3/4 Sump	Diethyl phthalate	mg/l	0.01	2	0	0.01	0.01	0.01	<0.44	0
Cell 3/4 Sump	Diethyl phthalate	mg/l	0.02	1	0	0.02	0.02	0.02	<0.44	0
Cell 3/4 Sump	Diethyl phthalate	mg/l	0.04	1	0	0.04	0.04	0.04	<0.44	0
Cell 5 Sump	Diethyl phthalate	mg/l	0.001	1	0	0	0.001	0.001	<0.36	0
Cell 5 Sump	Diethyl phthalate	mg/l	0.02	2	0	0.02	0.02	0.02	<0.36	0
Cell 5 Sump	Diethyl phthalate	mg/l	0.04	1	0	0.04	0.04	0.04	<0.36	0
Cell 6 Sump	Diethyl phthalate	mg/l	0.02	1	0	0.02	0.02	0.02	<0.36	0
Cell 7 Sump	Diethyl phthalate	mg/l	0.01	1	0	0.01	0.01	0.01	<0.36	0
Cell 7 Sump	Diethyl phthalate	mg/l	0.02	2	0	0.02	0.02	0.02	<0.36	0
Cell 7 Sump	Diethyl phthalate	mg/l	0.1	1	0	0.1	0.1	0.1	<0.36	0
Leachate Holding Lagoon	Diethyl phthalate	mg/l	0.02	4	0	0.02	0.02	0.02		0
Cell 1/2 Sump	Mecoprop	mg/l	0.004	4	4	0.12	0.107	0.129	<0.071	4
Cell 3/4 Sump	Mecoprop	mg/l	0.004	4	4	0.03	0.00752	0.0395	<0.071	0

Quarterly Monitoring

Borehole	Determinand	Units	LOD	N	N > LOD	Mean	Min	Max	Compliance Limit	N > CL
Cell 5 Sump	Mecoprop	mg/l	0.004	3	3	0.05	0.0378	0.0776	<0.14	0
Cell 5 Sump	Mecoprop	mg/l	0.008	1	1	0.03	0.0313	0.0313	<0.14	0
Cell 6 Sump	Mecoprop	mg/l	0.008	1	1	0.01	0.0131	0.0131	<0.14	0
Cell 7 Sump	Mecoprop	mg/l	0.004	3	3	0.03	0.0202	0.0366	<0.14	0
Cell 7 Sump	Mecoprop	mg/l	0.008	1	0	0.01	0.008	0.008	<0.14	0
Leachate Holding Lagoon	Mecoprop	mg/l	0.004	3	3	0.03	0.0325	0.0375		0
Leachate Holding Lagoon	Mecoprop	mg/l	0.008	1	1	0.02	0.0232	0.0232		0

Table notes: N denotes 'Number of Results' and CL denotes 'Compliance Limit'

Table 4-3 - Summary of Compliance Monitoring, Site Surface Waters, 2020

Monthly Monitoring

Monitoring point	Determinand	N	N > LOD	Mean	Min	Max	Compliance Limit	N>CL
SW201	Ammoniacal Nitrogen as N mg/l	12	2	0.500	0.200	2.740		0
SW202	Ammoniacal Nitrogen as N mg/l	12	3	0.280	0.200	0.762		0
SW203	Ammoniacal Nitrogen as N mg/l	7	1	0.240	0.200	0.503		0
SW204	Ammoniacal Nitrogen as N mg/l	12	0	0.200	0.200	0.200		0
SW205a	Ammoniacal Nitrogen as N mg/l	12	3	0.430	0.200	2.390	<1.0	1
SW206	Ammoniacal Nitrogen as N mg/l	12	1	0.210	0.200	0.301	<1.0	0
SW207	Ammoniacal Nitrogen as N mg/l	12	0	0.200	0.200	0.200		0
SW201	Chloride mg/l	12	12	22.770	11.400	62.400		0
SW202	Chloride mg/l	12	12	25.040	12.400	61.300		0
SW203	Chloride mg/l	7	7	29.000	17.100	50.800		0
SW204	Chloride mg/l	12	12	18.660	9.900	33.500		0
SW205a	Chloride mg/l	12	12	28.680	12.000	55.400	<150	0
SW206	Chloride mg/l	12	12	14.360	10.000	36.600	<150	0
SW207	Chloride mg/l	12	12	18.620	11.200	28.200		0
SW201	Electrical conductivity @20°C (lab) µS/cm	6	6	266.170	148.000	534.000		0
SW201	Electrical conductivity @20°C (lab) µS/cm	6	6	398.000	229.000	679.000		0
SW202	Electrical conductivity @20°C (lab) µS/cm	6	6	343.830	163.000	548.000		0
SW202	Electrical conductivity @20°C (lab) µS/cm	6	6	474.830	349.000	640.000		0

Monthly Monitoring

Monitoring point	Determinand	N	N > LOD	Mean	Min	Max	Compliance Limit	N>CL
SW203	Electrical conductivity @20°C (lab) µS/cm	3	3	512.000	442.000	652.000		0
SW203	Electrical conductivity @20°C (lab) µS/cm	4	4	470.250	368.000	595.000		0
SW204	Electrical conductivity @20°C (lab) µS/cm	6	6	393.000	316.000	550.000		0
SW204	Electrical conductivity @20°C (lab) µS/cm	6	6	412.830	368.000	468.000		0
SW205a	Electrical conductivity @20°C (lab) µS/cm	6	6	365.670	255.000	553.000		0
SW205a	Electrical conductivity @20°C (lab) µS/cm	6	6	570.670	467.000	665.000		0
SW206	Electrical conductivity @20°C (lab) µS/cm	6	6	327.330	180.000	461.000		0
SW206	Electrical conductivity @20°C (lab) µS/cm	6	6	269.500	164.000	313.000		0
SW207	Electrical conductivity @20°C (lab) µS/cm	6	6	303.670	216.000	455.000		0
SW207	Electrical conductivity @20°C (lab) µS/cm	6	6	338.670	214.000	453.000		0
SW201	pH (lab) pH units	12	12	7.59	5.55	8.08		0
SW202	pH (lab) pH units	12	12	7.74	5.58	8.24		0
SW203	pH (lab) pH units	7	7	7.46	5.37	8.17		0
SW204	pH (lab) pH units	12	12	7.87	7.39	8.11		0
SW205a	pH (lab) pH units	12	12	7.84	5.57	8.40	6 to 9	1
SW206	pH (lab) pH units	12	12	7.97	7.29	8.36	6 to 9	0
SW207	pH (lab) pH units	11	11	7.99	7.81	8.37		0
SW201	Total Suspended solids mg/l	8	5	4.50	2.00	11.90		0
SW201	Total Suspended solids mg/l	3	1	4.84	4.00	6.53		0

Monthly Monitoring

Monitoring point	Determinand	N	N > LOD	Mean	Min	Max	Compliance Limit	N>CL
SW201	Total Suspended solids mg/l	1	1	20.800	20.800	20.800		0
SW202	Total Suspended solids mg/l	9	9	6.180	2.800	12.700		0
SW202	Total Suspended solids mg/l	3	1	4.510	4.000	5.530		0
SW203	Total Suspended solids mg/l	5	5	4.300	2.300	5.850		0
SW203	Total Suspended solids mg/l	2	0	4.000	4.000	4.000		0
SW204	Total Suspended solids mg/l	8	6	3.600	2.000	6.600		0
SW204	Total Suspended solids mg/l	4	1	4.260	4.000	5.060		0
SW205a	Total Suspended solids mg/l	8	8	8.320	2.650	31.500	<70	0
SW205a	Total Suspended solids mg/l	3	1	4.180	4.000	4.540	<70	0
SW205a	Total Suspended solids mg/l	1	1	25.400	25.400	25.400	<70	0
SW206	Total Suspended solids mg/l	8	8	6.770	2.050	24.500	<50	0
SW206	Total Suspended solids mg/l	4	2	5.060	4.000	6.760	<50	0
SW207	Total Suspended solids mg/l	7	7	5.670	2.650	14.900		0
SW207	Total Suspended solids mg/l	4	3	5.120	4.000	6.000		0

Table notes: N denotes 'Number of Results'

Quarterly Monitoring

Monitoring point	Determinand	N	N > LOD	Mean	Min	Max	Compliance Limit	N>CL
SW201	4-Methylphenol mg/l	4	0	0	0.001	0.001		0

Quarterly Monitoring

Monitoring point	Determinand	N	N > LOD	Mean	Min	Max	Compliance Limit	N>CL
SW202	4-Methylphenol mg/l	4	0	0	0.001	0.001		0
SW203	4-Methylphenol mg/l	3	0	0	0.001	0.001		0
SW204	4-Methylphenol mg/l	4	0	0	0.001	0.001		0
SW205a	4-Methylphenol mg/l	3	0	0	0.001	0.001	<0.001	0
SW205a	4-Methylphenol mg/l	1	0	0	0.002	0.002	<0.001	1
SW206	4-Methylphenol mg/l	4	0	0	0.001	0.001	<0.001	0
SW207	4-Methylphenol mg/l	4	0	0	0.001	0.001		0
SW201	Cadmium (filtered) mg/l	4	0	0	0.00008	0.00008		0
SW202	Cadmium (filtered) mg/l	4	0	0	0.00008	0.00008		0
SW203	Cadmium (filtered) mg/l	3	0	0	0.00008	0.00008		0
SW204	Cadmium (filtered) mg/l	4	0	0	0.00008	0.00008		0
SW205a	Cadmium (filtered) mg/l	4	0	0	0.00008	0.00008	<0.0001	0
SW206	Cadmium (filtered) mg/l	4	0	0	0.00008	0.00008	<0.0001	0
SW207	Cadmium (filtered) mg/l	4	0	0	0.00008	0.00008		0
SW201	Dichloromethane mg/l	4	0	0	0.003	0.003		0
SW202	Dichloromethane mg/l	4	0	0	0.003	0.003		0
SW203	Dichloromethane mg/l	3	0	0	0.003	0.003		0
SW204	Dichloromethane mg/l	4	0	0	0.003	0.003		0
SW205a	Dichloromethane mg/l	4	0	0	0.003	0.003	<0.002	4

Quarterly Monitoring

Monitoring point	Determinand	N	N > LOD	Mean	Min	Max	Compliance Limit	N>CL
SW206	Dichloromethane mg/l	4	0	0	0.003	0.003	<0.002	4
SW207	Dichloromethane mg/l	4	0	0	0.003	0.003		0
SW201	Diethyl phthalate mg/l	4	0	0	0.001	0.001		0
SW202	Diethyl phthalate mg/l	4	0	0	0.001	0.001		0
SW203	Diethyl phthalate mg/l	3	0	0	0.001	0.001		0
SW204	Diethyl phthalate mg/l	4	0	0	0.001	0.001		0
SW205a	Diethyl phthalate mg/l	3	0	0	0.001	0.001	<0.003	0
SW205a	Diethyl phthalate mg/l	1	0	0	0.002	0.002	<0.003	0
SW206	Diethyl phthalate mg/l	4	0	0	0.001	0.001	<0.003	0
SW207	Diethyl phthalate mg/l	4	0	0	0.001	0.001		0
SW201	Mecoprop mg/l	4	0	0	0.00004	0.00004		0
SW202	Mecoprop mg/l	4	0	0	0.00004	0.00004		0
SW203	Mecoprop mg/l	2	0	0	0.00004	0.00004		0
SW203	Mecoprop mg/l	1	0	0	0.00008	0.00008		0
SW204	Mecoprop mg/l	4	1	0	0.00004	0.000057		0
SW205a	Mecoprop mg/l	3	0	0	0.00004	0.00004	<0.000055	0
SW205a	Mecoprop mg/l	1	0	0	0.00008	0.00008	<0.000055	1
SW206	Mecoprop mg/l	2	1	0	0.00004	0.000043	<0.000055	0
SW206	Mecoprop mg/l	2	0	0	0.00008	0.00008	<0.000055	2

Quarterly Monitoring								
Monitoring point	**Determinand**	**N**	**N > LOD**	**Mean**	**Min**	**Max**	**Compliance Limit**	**N>CL**
SW207	Mecoprop mg/l	4	1	0	0.00004	0.000055		0

Table notes: N denotes 'Number of Results' and CL denotes 'Compliance Limit'

Table 4-4 - Groundwater Elevations in Perimeter Boreholes, 2020

Borehole	Cover Elevation (mAOD)	Groundwater Elevation (mAOD)											
		01/01/2020	01/02/2020	01/03/2020	08/04/2020	04/05/2020	10/06/2020	06/07/2020	10/08/2020	08/09/2020	07/10/2020	09/11/2020	14/12/2020
BH208	124.00	123.83	123.78	123.74	123.78	123.25	123.36	123.85			123.85	123.66	123.74
BH3/1	137.99	137.22	137.29	137.32	136.69	135.72	134.98	137.24	136.17	136.87	136.94	137.07	137.33
BH3/10	144.54	143.60	143.44	143.31	143.14	140.79	140.64	142.54	142.69	143.52	143.41	143.51	143.85
BH3/11	139.88	138.91	139.08	138.46	138.08	136.57	135.65	137.23	137.32	138.46	138.46	138.75	139.18
BH3/2	142.41	141.61	141.66	140.46	139.49	138.15	137.01	140.76	139.00	139.91	140.70	140.28	141.79
BH3/3	146.85	146.76	146.77	146.73	146.21	143.87	142.63	146.7	145.81	ART	ART	ART	ART
BH3/4	138.12	137.12	136.84	137.16	137.04	136.59	135.67	136.58	136.75	137.00	136.84	136.96	137.24
BH3/5	141.1	138.97	138.90	139.06	138.33	137.14	135.44	139.21	139.39	138.54	138.31	138.98	139.02
BH3/6	140.53	137.29	137.16	137.47	135.97	134.93	133.76	134.82	135.22	135.71	137.65	137.08	139.02
BH3/8	139.79	138.55	138.50	139.11	138.92	136.74	135.43	137.85	136.89	139.05	139.05	138.86	139.14
BH3/9	143.24	141.16	140.97	140.23	139.14	136.41	136.20	138.99	138.54	140.12	139.68	141.11	141.41
BH5/02	126.50	124.71	124.67	124.70	124.76	124.48	124.37	124.43			124.57	124.64	124.71
NACW201	135.50	133.10	133.11	133.16	132.93	132.12	131.33	132.20	132.53	132.96	132.77	133.15	133.25
NACW202	135.10	132.80	132.72	132.77	132.52	131.73	130.89	131.90	132.32	132.62	132.49	132.82	132.88
NACW203	133.60	133.26	133.22	133.37	132.98	131.94	131.19	133.28	133.08	133.25	133.25	133.09	133.28
NACW204	133.10	130.94	130.97	131.03	130.75	130.51	130.18	130.64	130.82	130.94	130.87	131.08	131.09
NACW205	130.20	129.46	129.56	129.86	129.31	129.15	128.98	129.82	129.27	129.35	129.31	129.43	129.68
NACW212	119.80	118.20	117.77	118.00	118.53	118.50	118.57	118.86	118.45	117.94	118.70	117.99	118.74
NACW213	122.30	120.75	120.80	121.07	120.29	119.98	119.74	121.06	117.94	118.02	120.61	118.12	120.71
NACW215	132.50	128.63	128.42	128.76	128.54	128.29	127.92	127.94	130.27	128.32	128.27	129.70	129.79
NACW216	N/A												
NACW219	133.10	128.72	128.60	128.55	128.14	127.75	127.33	132.35	127.97	128.39	129.18	129.03	128.47
NACW227	134.80	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
NACW228	134.80	130.50	130.47	130.60	130.33	129.59	128.99	131.49	130.09	129.97	130.24	130.63	130.62
NACW229	135.00	134.26	134.30	134.29	133.30	133.84	131.24	134.45	134.30	134.20	134.44	134.21	134.02
NACW230	134.10	133.46	133.54	133.86	133.21	132.87	130.57	133.06	133.18	133.72	133.12	133.58	133.84

Table notes: ART – artesian, i.e. above ground elevation,

Where blank – no record provided by field team

Table 4-5 - Summary of Compliance Monitoring, Site Groundwater, 2020

Monthly Monitoring

Borehole	Determinand	LOD	N	N > LOD	Mean	Min	Max	Compliance Limit	No. of Exceedances
BH208	Ammoniacal Nitrogen as N	0.2	12	0	0.2	0.2	0.2	<5.5	0
BH3/2	Ammoniacal Nitrogen as N	0.2	4	0	0.2	0.2	0.2	<5.5	0
BH3/3	Ammoniacal Nitrogen as N	0.2	4	1	0.2	0.2	0.215	<5.5	0
BH3/4	Ammoniacal Nitrogen as N	0.2	12	0	0.2	0.2	0.2	<5.5	0
BH3/5	Ammoniacal Nitrogen as N	0.2	4	0	0.2	0.2	0.2	<5.5	0
BH3/6	Ammoniacal Nitrogen as N	0.2	4	0	0.2	0.2	0.2	<5.5	0
BH3/8	Ammoniacal Nitrogen as N	0.2	4	0	0.2	0.2	0.2	<5.5	0
BH3/9	Ammoniacal Nitrogen as N	0.2	4	0	0.2	0.2	0.2	<5.5	0
BH5/02	Ammoniacal Nitrogen as N	0.2	12	0	0.2	0.2	0.2	<5.5	0
NACW203	Ammoniacal Nitrogen as N	0.2	12	1	0.35	0.2	1.98	<5.5	0
NACW205	Ammoniacal Nitrogen as N	0.2	12	0	0.2	0.2	0.2	<5.5	0
NACW212	Ammoniacal Nitrogen as N	0.2	12	0	0.2	0.2	0.2	<5.5	0
NACW219	Ammoniacal Nitrogen as N	0.2	4	0	0.2	0.2	0.2	<5.5	0
NACW228	Ammoniacal Nitrogen as N	0.2	12	1	0.33	0.2	1.79	<5.5	0
NACW229	Ammoniacal Nitrogen as N	0.2	4	1	0.27	0.2	0.499	<5.5	0
UD1	Ammoniacal Nitrogen as N	0.2	12	0	0.2	0.2	0.2	<5.5	0
UD3	Ammoniacal Nitrogen as N	0.2	12	0	0.2	0.2	0.2	<5.5	0

Monthly Monitoring

Borehole	Determinand	LOD	N	N > LOD	Mean	Min	Max	Compliance Limit	No. of Exceedances
UD4	Ammoniacal Nitrogen as N	0.2	12	7	0.31	0.2	0.588	<5.5	0
UD5	Ammoniacal Nitrogen as N	0.2	12	0	0.2	0.2	0.2	<5.5	0
BH208	Chloride	2	12	12	16.84	14.8	28.9	<150	0
BH3/2	Chloride	2	4	4	11.55	8.5	13.9	<150	0
BH3/3	Chloride	2	4	4	11.1	9	13.3	<150	0
BH3/4	Chloride	2	12	12	13.02	8.2	36.1	<150	0
BH3/5	Chloride	2	4	4	12.7	9.1	15.7	<150	0
BH3/6	Chloride	2	4	4	15.62	10.8	21.2	<150	0
BH3/8	Chloride	2	4	4	32.25	14.9	54.9	<150	0
BH3/9	Chloride	2	4	4	29.72	16.4	41.2	<150	0
BH5/02	Chloride	2	12	12	22.45	20.2	34.6	<150	0
NACW203	Chloride	2	12	12	26.9	8.8	47.5	<150	0
NACW205	Chloride	2	12	12	30.54	20.8	35.4	<150	0
NACW212	Chloride	2	12	12	14.78	11.9	19.3	<150	0
NACW219	Chloride	2	4	4	17.25	9.5	22.3	<150	0
NACW228	Chloride	2	12	12	29.46	12.3	46.1	<150	0
NACW229	Chloride	2	4	4	17.82	14.7	20.2	<150	0
UD1	Chloride	2	12	12	42.97	40.5	45.6	<150	0

Monthly Monitoring

Borehole	Determinand	LOD	N	N > LOD	Mean	Min	Max	Compliance Limit	No. of Exceedances
UD3	Chloride	2	12	12	16.82	16.1	18.7	<150	0
UD4	Chloride	2	12	12	17.31	12.4	34.3	<150	0
UD5	Chloride	2	12	12	18.76	9.6	35.9	<150	0
BH208	Electrical conductivity @20°C (lab)	5	6	6	426.17	385	487		0
BH208	Electrical conductivity @20°C (lab)	20	5	5	428	380	451		0
BH3/2	Electrical conductivity @20°C (lab)	5	2	2	105.4	62.8	148		0
BH3/2	Electrical conductivity @20°C (lab)	20	1	1	108	108	108		0
BH3/3	Electrical conductivity @20°C (lab)	5	2	2	114.1	71.2	157		0
BH3/3	Electrical conductivity @20°C (lab)	20	2	2	237	198	276		0
BH3/4	Electrical conductivity @20°C (lab)	5	6	6	230.17	144	317		0
BH3/4	Electrical conductivity @20°C (lab)	20	6	6	261.33	242	314		0
BH3/5	Electrical conductivity @20°C (lab)	5	2	2	123.75	61.5	186		0
BH3/5	Electrical conductivity @20°C (lab)	20	2	2	350.5	144	557		0
BH3/6	Electrical conductivity @20°C (lab)	5	2	2	361	270	452		0
BH3/6	Electrical conductivity @20°C (lab)	20	2	2	153.5	127	180		0
BH3/8	Electrical conductivity @20°C (lab)	5	2	2	509	179	839		0
BH3/8	Electrical conductivity @20°C (lab)	20	2	2	451.5	107	796		0
BH3/9	Electrical conductivity @20°C (lab)	5	2	2	533	505	561		0

Monthly Monitoring

Borehole	Determinand	LOD	N	N > LOD	Mean	Min	Max	Compliance Limit	No. of Exceedances
BH3/9	Electrical conductivity @20°C (lab)	20	2	2	444	194	694		0
BH5/02	Electrical conductivity @20°C (lab)	5	6	6	442.17	407	505		0
BH5/02	Electrical conductivity @20°C (lab)	20	6	6	457.83	446	476		0
NACW203	Electrical conductivity @20°C (lab)	5	6	6	326.08	76.5	567		0
NACW203	Electrical conductivity @20°C (lab)	20	5	5	480.4	394	513		0
NACW205	Electrical conductivity @20°C (lab)	5	6	6	462.5	428	499		0
NACW205	Electrical conductivity @20°C (lab)	20	6	6	497.33	478	517		0
NACW212	Electrical conductivity @20°C (lab)	5	6	6	267.17	231	344		0
NACW212	Electrical conductivity @20°C (lab)	20	6	6	260	223	307		0
NACW219	Electrical conductivity @20°C (lab)	5	2	2	240.75	71.5	410		0
NACW219	Electrical conductivity @20°C (lab)	20	2	2	292.5	169	416		0
NACW228	Electrical conductivity @20°C (lab)	5	6	6	483.83	319	573		0
NACW228	Electrical conductivity @20°C (lab)	20	6	6	385	115	712		0
NACW229	Electrical conductivity @20°C (lab)	5	2	2	365.5	129	602		0
NACW229	Electrical conductivity @20°C (lab)	20	2	2	578.5	564	593		0
UD1	Electrical conductivity @20°C (lab)	5	6	6	528.5	469	564		0
UD1	Electrical conductivity @20°C (lab)	20	6	6	550.17	532	566		0
UD3	Electrical conductivity @20°C (lab)	5	6	6	362.33	340	391		0

Monthly Monitoring

Borehole	Determinand	LOD	N	N > LOD	Mean	Min	Max	Compliance Limit	No. of Exceedances
UD3	Electrical conductivity @20°C (lab)	20	6	6	388	367	420		0
UD4	Electrical conductivity @20°C (lab)	5	6	6	368.83	158	489		0
UD4	Electrical conductivity @20°C (lab)	20	6	6	464.67	418	527		0
UD5	Electrical conductivity @20°C (lab)	5	6	6	400	271	526		0
UD5	Electrical conductivity @20°C (lab)	20	6	6	413.67	390	446		0

Table notes: N denotes 'Number of Results' and CL denotes 'Compliance Limit'

Quarterly Monitoring

Borehole	Determinand	LOD	N	N > LOD	Mean	Min	Max	Compliance Limit	No. of Exceedances
BH208	4-Methylphenol mg/l	0.001	3	0	0.001	0.001	0.001	<0.001	0
BH208	4-Methylphenol mg/l	0.002	1	0	0.002	0.002	0.002	<0.001	1
BH3/2	4-Methylphenol mg/l	0.001	4	0	0.001	0.001	0.001		0
BH3/3	4-Methylphenol mg/l	0.001	3	0	0.001	0.001	0.001		0
BH3/3	4-Methylphenol mg/l	0.002	1	0	0.002	0.002	0.002		0
BH3/4	4-Methylphenol mg/l	0.001	3	0	0.001	0.001	0.001	<0.001	0
BH3/4	4-Methylphenol mg/l	0.002	1	0	0.002	0.002	0.002	<0.001	1
BH3/5	4-Methylphenol mg/l	0.001	4	0	0.001	0.001	0.001		0
BH3/6	4-Methylphenol mg/l	0.001	4	0	0.001	0.001	0.001		0
BH3/8	4-Methylphenol mg/l	0.001	4	0	0.001	0.001	0.001		0
BH3/9	4-Methylphenol mg/l	0.001	4	0	0.001	0.001	0.001		0
BH5/02	4-Methylphenol mg/l	0.001	4	0	0.001	0.001	0.001	<0.001	0
NACW203	4-Methylphenol mg/l	0.001	2	0	0.001	0.001	0.001	<0.001	0
NACW203	4-Methylphenol mg/l	0.002	2	0	0.002	0.002	0.002	<0.001	2
NACW205	4-Methylphenol mg/l	0.001	4	0	0.001	0.001	0.001	<0.001	0
NACW212	4-Methylphenol mg/l	0.001	4	0	0.001	0.001	0.001	<0.001	0
NACW219	4-Methylphenol mg/l	0.001	4	0	0.001	0.001	0.001		0
NACW228	4-Methylphenol mg/l	0.001	4	0	0.001	0.001	0.001	<0.001	0

Quarterly Monitoring

Borehole	Determinand	LOD	N	N > LOD	Mean	Min	Max	Compliance Limit	No. of Exceedances
NACW229	4-Methylphenol mg/l	0.001	2	0	0.001	0.001	0.001		0
NACW229	4-Methylphenol mg/l	0.002	2	0	0.002	0.002	0.002		0
UD1	4-Methylphenol mg/l	0.001	4	0	0.001	0.001	0.001	<0.001	0
UD3	4-Methylphenol mg/l	0.001	4	0	0.001	0.001	0.001	<0.001	0
UD4	4-Methylphenol mg/l	0.001	4	0	0.001	0.001	0.001	<0.001	0
UD5	4-Methylphenol mg/l	0.001	4	0	0.001	0.001	0.001	<0.001	0
BH208	Cadmium (filtered) mg/l	0.00008	3	0	0.00008	0.00008	0.00008	<0.0001	0
BH208	Cadmium (filtered) mg/l	0.0008	1	0	0.0008	0.0008	0.0008	<0.0001	1
BH3/2	Cadmium (filtered) mg/l	0.00008	4	0	0.00008	0.00008	0.00008		0
BH3/3	Cadmium (filtered) mg/l	0.00008	4	0	0.00008	0.00008	0.00008		0
BH3/4	Cadmium (filtered) mg/l	0.00008	4	0	0.00008	0.00008	0.00008	<0.0001	0
BH3/5	Cadmium (filtered) mg/l	0.00008	4	0	0.00008	0.00008	0.00008		0
BH3/6	Cadmium (filtered) mg/l	0.00008	4	0	0.00008	0.00008	0.00008		0
BH3/8	Cadmium (filtered) mg/l	0.00008	4	1	0.00009	0.00008	0.000119		0
BH3/9	Cadmium (filtered) mg/l	0.00008	4	0	0.00008	0.00008	0.00008		0
BH5/02	Cadmium (filtered) mg/l	0.00008	4	0	0.00008	0.00008	0.00008	<0.0001	0
NACW203	Cadmium (filtered) mg/l	0.00008	4	0	0.00008	0.00008	0.00008	<0.0001	0
NACW205	Cadmium (filtered) mg/l	0.00008	4	0	0.00008	0.00008	0.00008	<0.0001	0

Quarterly Monitoring

Borehole	Determinand	LOD	N	N > LOD	Mean	Min	Max	Compliance Limit	No. of Exceedances
NACW212	Cadmium (filtered) mg/l	0.00008	4	0	0.00008	0.00008	0.00008	<0.0001	0
NACW219	Cadmium (filtered) mg/l	0.00008	4	0	0.00008	0.00008	0.00008		0
NACW228	Cadmium (filtered) mg/l	0.00008	4	1	0.00012	0.00008	0.000237	<0.0001	1
NACW229	Cadmium (filtered) mg/l	0.00008	4	0	0.00008	0.00008	0.00008		0
UD1	Cadmium (filtered) mg/l	0.00008	4	0	0.00008	0.00008	0.00008	<0.0001	0
UD3	Cadmium (filtered) mg/l	0.00008	4	0	0.00008	0.00008	0.00008	<0.0001	0
UD4	Cadmium (filtered) mg/l	0.00008	4	0	0.00008	0.00008	0.00008	<0.0001	0
UD5	Cadmium (filtered) mg/l	0.00008	4	0	0.00008	0.00008	0.00008	<0.0001	0
BH208	Dichloromethane mg/l	0.003	4	0	0.003	0.003	0.003	<0.002	4
BH3/2	Dichloromethane mg/l	0.003	4	0	0.003	0.003	0.003		0
BH3/3	Dichloromethane mg/l	0.003	4	0	0.003	0.003	0.003		0
BH3/4	Dichloromethane mg/l	0.003	4	0	0.003	0.003	0.003	<0.002	4
BH3/5	Dichloromethane mg/l	0.003	4	0	0.003	0.003	0.003		0
BH3/6	Dichloromethane mg/l	0.003	4	0	0.003	0.003	0.003		0
BH3/8	Dichloromethane mg/l	0.003	4	0	0.003	0.003	0.003		0
BH3/9	Dichloromethane mg/l	0.003	4	0	0.003	0.003	0.003		0
BH5/02	Dichloromethane mg/l	0.003	4	0	0.003	0.003	0.003	<0.002	4
NACW203	Dichloromethane mg/l	0.003	4	0	0.003	0.003	0.003	<0.002	4

Quarterly Monitoring

Borehole	Determinand	LOD	N	N > LOD	Mean	Min	Max	Compliance Limit	No. of Exceedances
NACW205	Dichloromethane mg/l	0.003	4	0	0.003	0.003	0.003	<0.002	4
NACW212	Dichloromethane mg/l	0.003	4	0	0.003	0.003	0.003	<0.002	4
NACW219	Dichloromethane mg/l	0.003	4	0	0.003	0.003	0.003		0
NACW228	Dichloromethane mg/l	0.003	4	0	0.003	0.003	0.003	<0.002	4
NACW229	Dichloromethane mg/l	0.003	4	0	0.003	0.003	0.003		0
UD1	Dichloromethane mg/l	0.003	4	0	0.003	0.003	0.003	<0.002	4
UD3	Dichloromethane mg/l	0.003	4	0	0.003	0.003	0.003	<0.002	4
UD4	Dichloromethane mg/l	0.003	4	0	0.003	0.003	0.003	<0.002	4
UD5	Dichloromethane mg/l	0.003	4	0	0.003	0.003	0.003	<0.002	4
BH208	Diethyl phthalate mg/l	0.001	3	0	0.001	0.001	0.001	<0.003	0
BH208	Diethyl phthalate mg/l	0.002	1	0	0.002	0.002	0.002	<0.003	0
BH3/2	Diethyl phthalate mg/l	0.001	4	0	0.001	0.001	0.001		0
BH3/3	Diethyl phthalate mg/l	0.001	3	0	0.001	0.001	0.001		0
BH3/3	Diethyl phthalate mg/l	0.002	1	0	0.002	0.002	0.002		0
BH3/4	Diethyl phthalate mg/l	0.001	3	0	0.001	0.001	0.001	<0.003	0
BH3/4	Diethyl phthalate mg/l	0.002	1	0	0.002	0.002	0.002	<0.003	0
BH3/5	Diethyl phthalate mg/l	0.001	4	0	0.001	0.001	0.001		0
BH3/6	Diethyl phthalate mg/l	0.001	4	0	0.001	0.001	0.001		0

Quarterly Monitoring

Borehole	Determinand	LOD	N	N > LOD	Mean	Min	Max	Compliance Limit	No. of Exceedances
BH3/8	Diethyl phthalate mg/l	0.001	4	0	0.001	0.001	0.001		0
BH3/9	Diethyl phthalate mg/l	0.001	4	0	0.001	0.001	0.001		0
BH5/02	Diethyl phthalate mg/l	0.001	4	0	0.001	0.001	0.001	<0.003	0
NACW203	Diethyl phthalate mg/l	0.001	2	0	0.001	0.001	0.001	<0.003	0
NACW203	Diethyl phthalate mg/l	0.002	2	0	0.002	0.002	0.002	<0.003	0
NACW205	Diethyl phthalate mg/l	0.001	4	0	0.001	0.001	0.001	<0.003	0
NACW212	Diethyl phthalate mg/l	0.001	4	0	0.001	0.001	0.001	<0.003	0
NACW219	Diethyl phthalate mg/l	0.001	4	0	0.001	0.001	0.001		0
NACW228	Diethyl phthalate mg/l	0.001	4	0	0.001	0.001	0.001	<0.003	0
NACW229	Diethyl phthalate mg/l	0.001	2	0	0.001	0.001	0.001		0
NACW229	Diethyl phthalate mg/l	0.002	2	0	0.002	0.002	0.002		0
UD1	Diethyl phthalate mg/l	0.001	4	0	0.001	0.001	0.001	<0.003	0
UD3	Diethyl phthalate mg/l	0.001	4	0	0.001	0.001	0.001	<0.003	0
UD4	Diethyl phthalate mg/l	0.001	4	0	0.001	0.001	0.001	<0.003	0
UD5	Diethyl phthalate mg/l	0.001	4	0	0.001	0.001	0.001	<0.003	0
BH208	Mecoprop mg/l	0.00004	2	0	0.00004	0.00004	0.00004	<0.000055	0
BH208	Mecoprop mg/l	0.00008	2	0	0.00008	0.00008	0.00008	<0.000055	2
BH3/2	Mecoprop mg/l	0.00004	2	0	0.00004	0.00004	0.00004		0

Quarterly Monitoring

Borehole	Determinand	LOD	N	N > LOD	Mean	Min	Max	Compliance Limit	No. of Exceedances
BH3/2	Mecoprop mg/l	0.00008	2	0	0.00008	0.00008	0.00008		0
BH3/3	Mecoprop mg/l	0.00004	3	1	0.00004	0.00004	0.000041		0
BH3/3	Mecoprop mg/l	0.00008	1	0	0.00008	0.00008	0.00008		0
BH3/4	Mecoprop mg/l	0.00004	4	2	0.00007	0.00004	0.000131	<0.000055	2
BH3/5	Mecoprop mg/l	0.00004	2	0	0.00004	0.00004	0.00004		0
BH3/5	Mecoprop mg/l	0.00008	2	0	0.00008	0.00008	0.00008		0
BH3/6	Mecoprop mg/l	0.00004	3	0	0.00004	0.00004	0.00004		0
BH3/6	Mecoprop mg/l	0.00008	1	0	0.00008	0.00008	0.00008		0
BH3/8	Mecoprop mg/l	0.00004	3	0	0.00004	0.00004	0.00004		0
BH3/8	Mecoprop mg/l	0.00008	1	0	0.00008	0.00008	0.00008		0
BH3/9	Mecoprop mg/l	0.00004	2	0	0.00004	0.00004	0.00004		0
BH3/9	Mecoprop mg/l	0.00008	2	0	0.00008	0.00008	0.00008		0
BH5/02	Mecoprop mg/l	0.00004	3	0	0.00004	0.00004	0.00004	<0.000055	0
BH5/02	Mecoprop mg/l	0.00008	1	0	0.00008	0.00008	0.00008	<0.000055	1
NACW203	Mecoprop mg/l	0.00004	4	0	0.00004	0.00004	0.00004	<0.000055	0
NACW205	Mecoprop mg/l	0.00004	3	0	0.00004	0.00004	0.00004	<0.000055	0
NACW205	Mecoprop mg/l	0.00008	1	0	0.00008	0.00008	0.00008	<0.000055	1
NACW212	Mecoprop mg/l	0.00004	1	0	0.00004	0.00004	0.00004	<0.000055	0

Quarterly Monitoring

Borehole	Determinand	LOD	N	N > LOD	Mean	Min	Max	Compliance Limit	No. of Exceedances
NACW212	Mecoprop mg/l	0.00008	3	0	0.00008	0.00008	0.00008	<0.000055	3
NACW219	Mecoprop mg/l	0.00004	2	0	0.00004	0.00004	0.00004		0
NACW219	Mecoprop mg/l	0.00008	2	0	0.00008	0.00008	0.00008		0
NACW228	Mecoprop mg/l	0.00004	2	0	0.00004	0.00004	0.00004	<0.000055	0
NACW228	Mecoprop mg/l	0.00008	2	0	0.00008	0.00008	0.00008	<0.000055	2
NACW229	Mecoprop mg/l	0.00004	2	0	0.00004	0.00004	0.00004		0
NACW229	Mecoprop mg/l	0.00008	2	0	0.00008	0.00008	0.00008		0
UD1	Mecoprop mg/l	0.00004	2	0	0.00004	0.00004	0.00004	<0.000055	0
UD1	Mecoprop mg/l	0.00008	2	0	0.00008	0.00008	0.00008	<0.000055	2
UD3	Mecoprop mg/l	0.00004	3	0	0.00004	0.00004	0.00004	<0.000055	0
UD3	Mecoprop mg/l	0.00008	1	0	0.00008	0.00008	0.00008	<0.000055	1
UD4	Mecoprop mg/l	0.00004	4	0	0.00004	0.00004	0.00004	<0.000055	0
UD5	Mecoprop mg/l	0.00004	3	0	0.00004	0.00004	0.00004	<0.000055	0
UD5	Mecoprop mg/l	0.00008	1	0	0.00008	0.00008	0.00008	<0.000055	1
BH208	Nickel (filtered) mg/l	0.0004	3	1	0.00042	0.0004	0.000457	<0.02	0
BH208	Nickel (filtered) mg/l	0.004	1	0	0.004	0.004	0.004	<0.02	0
BH3/2	Nickel (filtered) mg/l	0.0004	4	3	0.0008	0.0004	0.00173		0
BH3/3	Nickel (filtered) mg/l	0.0004	4	1	0.00049	0.0004	0.000777		0

Quarterly Monitoring									
Borehole	Determinand	LOD	N	N > LOD	Mean	Min	Max	Compliance Limit	No. of Exceedances
BH3/4	Nickel (filtered) mg/l	0.0004	4	3	0.00086	0.0004	0.00164	<0.02	0
BH3/5	Nickel (filtered) mg/l	0.0004	4	3	0.00086	0.0004	0.00186		0
BH3/6	Nickel (filtered) mg/l	0.0004	4	3	0.0007	0.0004	0.00113		0
BH3/8	Nickel (filtered) mg/l	0.0004	4	2	0.00206	0.0004	0.00442		0
BH3/9	Nickel (filtered) mg/l	0.0004	4	4	0.00111	0.00097	0.00131		0
BH5/02	Nickel (filtered) mg/l	0.0004	4	2	0.00048	0.0004	0.00065	<0.02	0
NACW203	Nickel (filtered) mg/l	0.0004	4	2	0.00046	0.0004	0.000591	<0.02	0
NACW205	Nickel (filtered) mg/l	0.0004	4	1	0.00048	0.0004	0.000728	<0.02	0
NACW212	Nickel (filtered) mg/l	0.0004	4	4	0.00173	0.000764	0.00316	<0.037	0
NACW219	Nickel (filtered) mg/l	0.0004	4	3	0.00123	0.0004	0.00206		0
NACW228	Nickel (filtered) mg/l	0.0004	4	4	0.00195	0.00114	0.00244	<0.02	0
NACW229	Nickel (filtered) mg/l	0.0004	4	3	0.00115	0.0004	0.00156		0
UD1	Nickel (filtered) mg/l	0.0004	4	1	0.00046	0.0004	0.000637	<0.02	0
UD3	Nickel (filtered) mg/l	0.0004	4	0	0.0004	0.0004	0.0004	<0.02	0
UD4	Nickel (filtered) mg/l	0.0004	4	1	0.00063	0.0004	0.00133	<0.02	0
UD5	Nickel (filtered) mg/l	0.0004	4	4	0.00217	0.00059	0.00375	<0.02	0

Table notes: N denotes 'Number of Results' and CL denotes 'Compliance Limit'

Table 4-6 - Summary of Monthly Perimeter Gas Monitoring for Methane, 2020

Borehole	Min	Max	N > 0	Limit	Number of exceedances
BH3/1	0	0	0	<1% v/v above background	0
BH3/10	0	0	0		0
BH3/11	0	0	0		0
BH3/2	0	0	0		0
BH3/3	0	0	0		0
BH3/4	0	0	0		0
BH3/5	0	0	0		0
BH3/6	0	0	0		0
BH3/8	0	0	0		0
BH3/9	0	0	0		0
NACW201	0	0.1	1		0
NACW202	0	0	0		0
NACW203	0	0	0		0
NACW204	0	0	0		0
NACW205	0	0	0		0
NACW212	0	0	0		0
NACW213	0	0	0		0
NACW215	0	0	0		0
NACW216	0	0	0		0
NACW219	0	0	0		0
NACW227	0	0	0		0
NACW228	0	0	0		0
NACW229	0	0	0		0
NACW230	0	0	0		0

Table notes: N denotes 'Number of Results'

Table 4-7 – Summary of Monthly Perimeter Gas Monitoring for Carbon Dioxide 2020

Borehole	Min	Max	N > 0	Limit	Number of exceedances
BH3/1	0.1	1.9	12	<3.5% v/v	0
BH3/10	0.1	3.2	12		0
BH3/11	0	3.2	9		0
BH3/2	0.1	2.5	12		0
BH3/3	0	3	7		0
BH3/4	0.4	3.2	12		0
BH3/5	0.2	2.6	12		0
BH3/6	0	0.7	12		0
BH3/8	0.1	3.4	12		0
BH3/9	0.1	1.3	12		0
NACW201	0.8	3.4	12		0
NACW202	0.7	3.1	12		0
NACW203	0	1.9	12		0
NACW204	0.1	1.3	12		0
NACW205	0.4	1.6	12		0
NACW212	0.8	3.3	12		0
NACW213	0.4	3.2	12		0
NACW215	0.3	3.2	12		0
NACW216	0.1	1.7	12		0
NACW219	0.1	3.1	12		0
NACW227	0.2	2.9	12		0
NACW228	0.2	3.2	12		0
NACW229	0.1	3.2	12		0
NACW230	0.1	1.8	12		0

Table notes: N denotes 'Number of Results'

Table 4-8 - Summary of Monthly Perimeter Gas Monitoring for Oxygen 2020

Borehole	Min	Max	N > 0	Limit	Number of exceedances
BH3/1	20	21.4	12	None Set	0
BH3/10	17.9	21.9	12		0
BH3/11	18.6	22.1	12		0
BH3/2	16.2	22.1	12		0
BH3/3	16	21.6	8		0
BH3/4	16.7	21.6	12		0
BH3/5	17.7	21.8	12		0
BH3/6	20.4	21.8	12		0
BH3/8	13.2	21.3	12		0
BH3/9	17.6	21.5	12		0
NACW201	18.7	21.1	12		0
NACW202	18.1	22.2	12		0
NACW203	20.1	22.1	12		0
NACW204	20.3	22.4	12		0
NACW205	15.6	21.3	12		0
NACW212	15.9	21.2	12		0
NACW213	16.8	21.3	12		0
NACW215	17.6	20.8	12		0
NACW216	19.6	21	12		0
NACW219	18.1	212	12		0
NACW227	17.8	21.3	12		0
NACW228	19.2	21.3	12		0
NACW229	13.4	21.4	12		0
NACW230	18.4	21.6	12		0

Table notes: N denotes 'Number of Results'

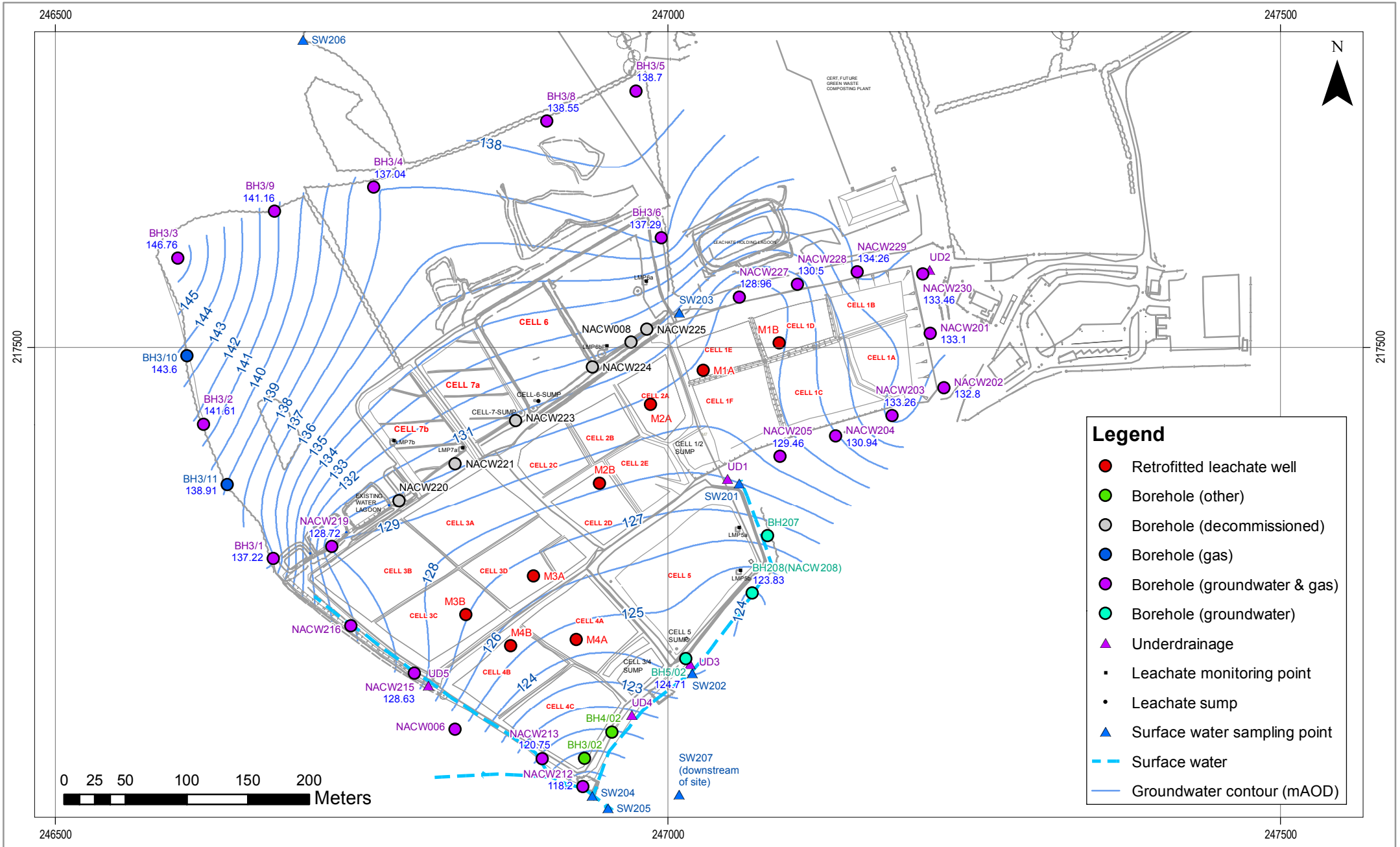
Table 4-9 - Schedule 6 Notices Issued in 2020

Date	Monitoring Location	Determinand	Recorded Concentration (mg/l)	Statutory Limit (mg/l)	Reason for Breach	Action taken
22/01/2020 27/04/2020 23/07/2020 21/10/2020	Cell 1/2 Sump	Mecoprop	Q1 0.107 Q2 0.126 Q3 0.129 Q4 0.111	0.071	Unknown	Continued surveillance of Mecoprop concentrations in successive monitoring rounds, including in underdrainage and surface water. Leachates are continually pumped out into the lagoon whereupon they are removed for treatment offsite. Suggest short review of recent Mecoprop in different locations for the site to look for any trends.
27/04/2020 23/07/2020	BH3/4	Mecoprop	Q2 0.000131 Q3 0.0000687	0.000055	Unknown	Continued surveillance of Mecoprop concentrations in successive monitoring rounds, including in underdrainage and surface water. Leachates are continually pumped out into the lagoon whereupon they are removed for treatment offsite. Suggest short review of recent Mecoprop in different locations for the site to look for any trends.
27/04/2020	NACW228	Cadmium	Q2 0.000237	0.000100	Unknown	Historic periodic elevated cadmium concentrations around the site. Continued surveillance of Cd concentrations in successive monitoring rounds, including in surface water.
14/07/2020	All groundwater monitoring locations	N/A	N/A	N/A	Deviation due to handling error by laboratory which resulted in samples being on hold and no analysis at time of receipt	Immediate review of test schedule to ensure all samples are accounted for and relevant documentation. Ensure that field staff provide correct documentation when submitting samples to laboratory and undertake an immediate review of test schedules received from the lab.
23/11/2020	SW205	Ammoniacal Nitrogen as N	2.39	1.00	Unknown	SW201 also recorded a concentration of 2.74mg/l for Ammoniacal Nitrogen as N. Monitoring location SW201 is not a compliance point

Date	Monitoring Location	Determinand	Recorded Concentration (mg/l)	Statutory Limit (mg/l)	Reason for Breach	Action taken
						under permit CP3735PB. There were no other detections at any adjacent monitoring points. Suggest short review of recent Ammoniacal Nitrogen as N for surface water monitoring sites in different locations for the site to look at any trends.
17/12/2020	SW205	pH	5.57	6.00 – 9.00	Unknown	Suggested short review of recent pH variations for surface water monitoring sites in different locations for the site to look at any trends. SW201 also recorded a concentration of 1.22mg/l for Ammoniacal Nitrogen as N. Monitoring location SW201 is not a compliance point under permit CP3735PB. There were no other detections at any adjacent monitoring points for SW205.

FIGURES

FIGURES

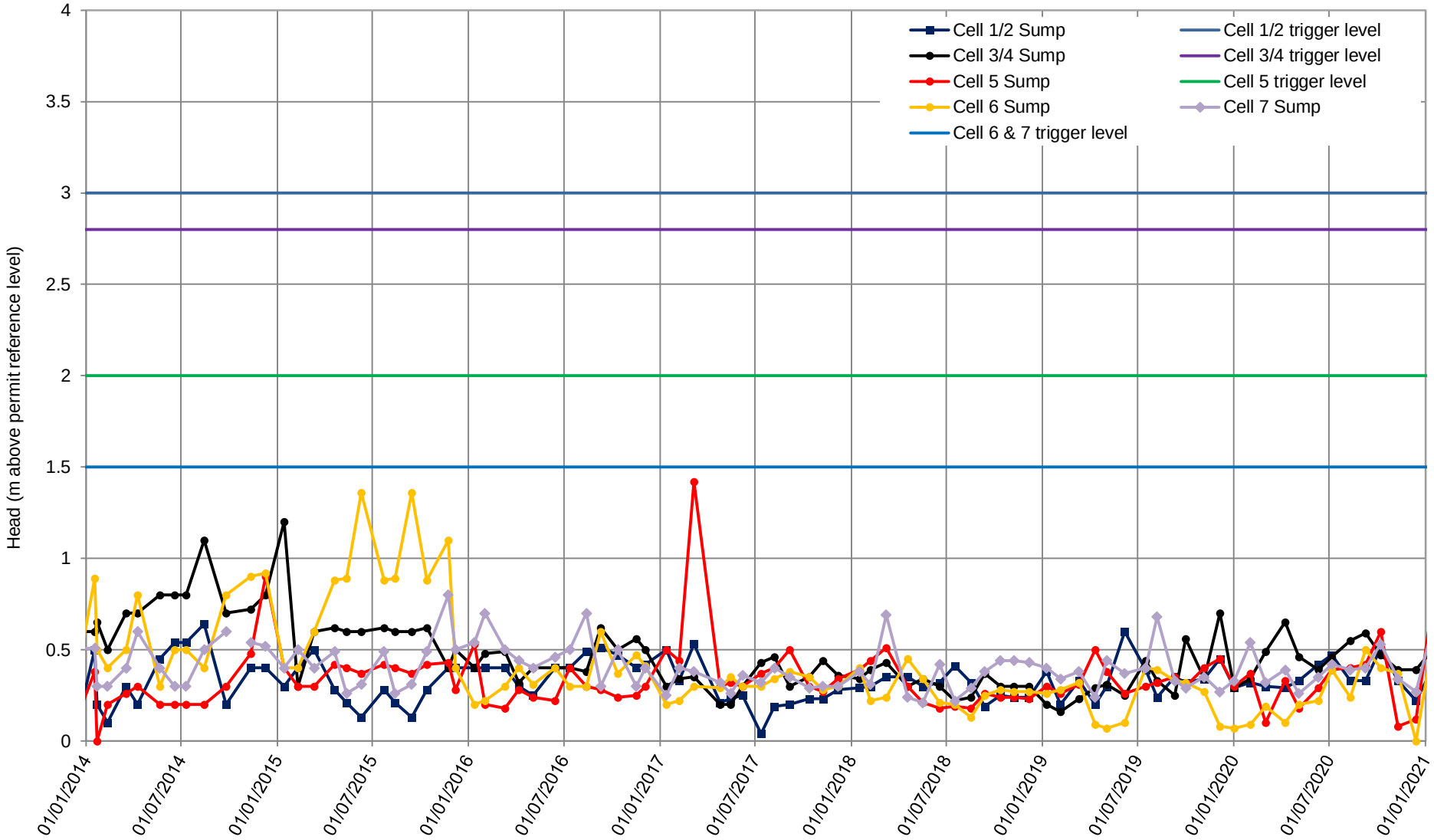


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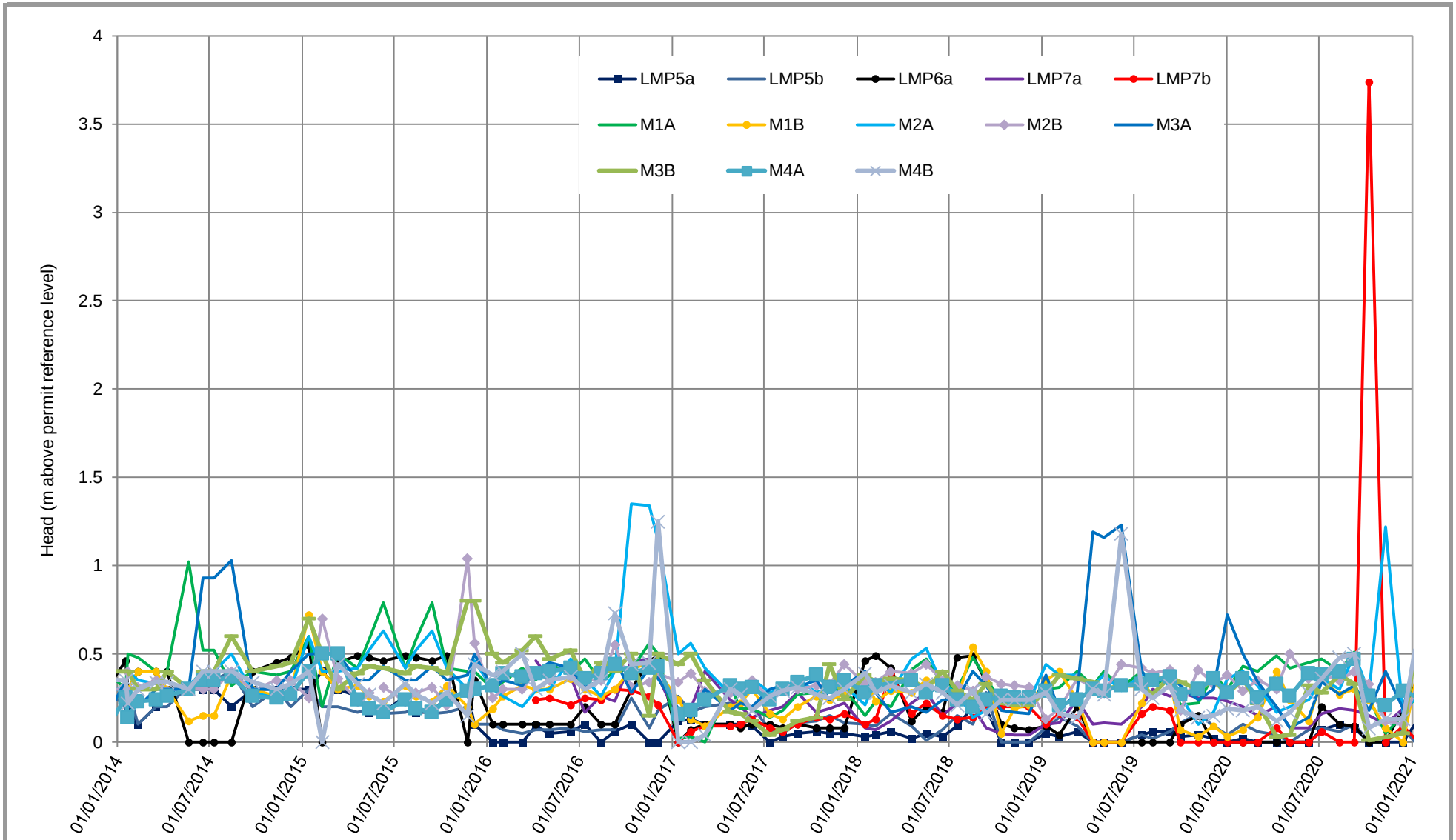
Groundwater configuration - January 2020

PROJECT:	Nantycaws Landfill	PROJECT NUMBER:	70071624
CLIENT:	CWM Environmental	DRAWING NUMBER	Figure 1
DRAWN: ZK	CHECKED: MC		January 2021



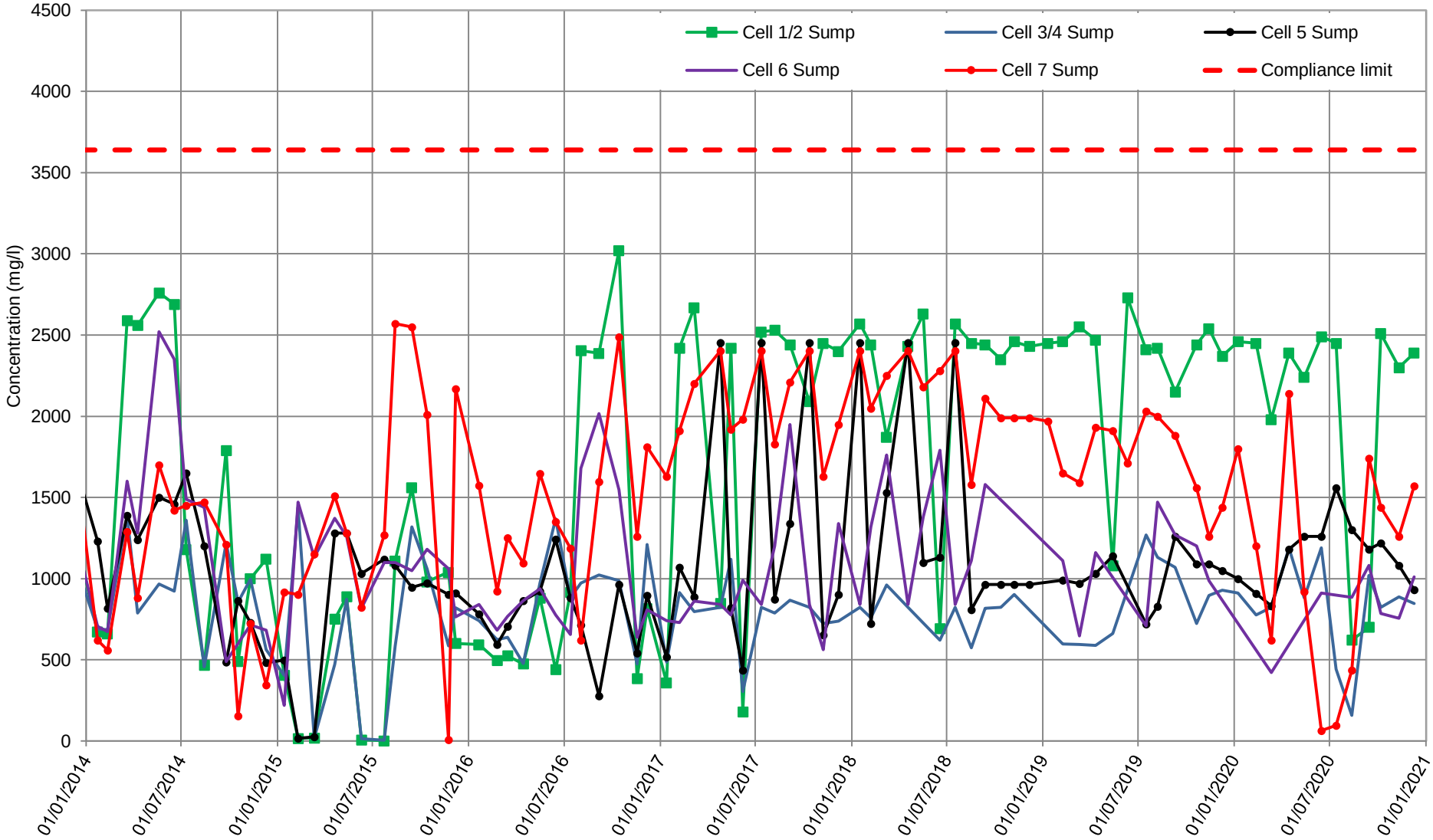
Observed Leachate Heads, January 2014 to December 2020

CLIENT:	CWM Environmental Ltd	PROJECT:	Annual report 2020		
PROJ. NO:	70071624 R1	DRAWN:	ZK	CHECKED:	MC
DATE:	January 2021	FIGURE:	2		



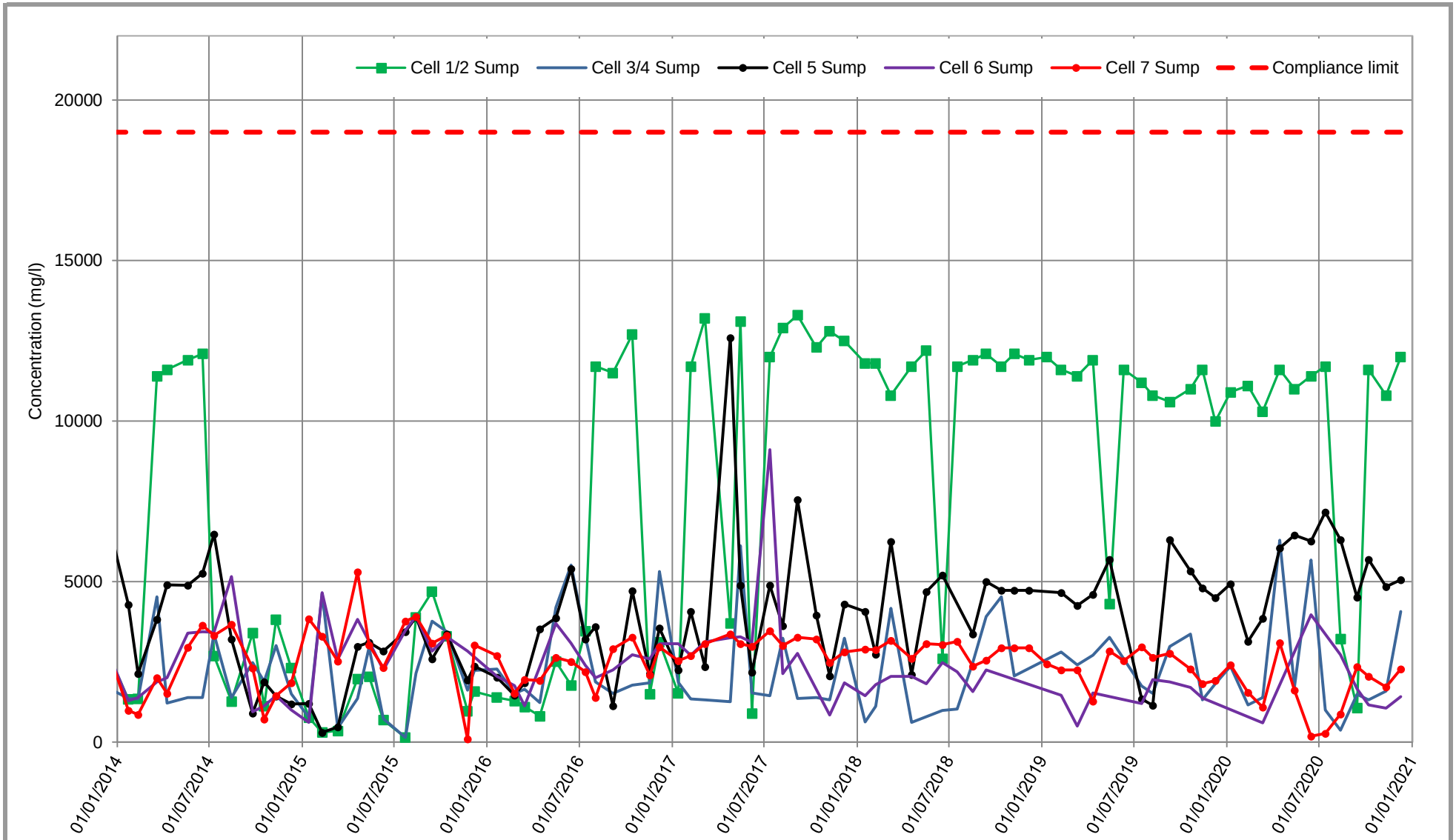
Leachate Heads above Base of In-waste Boreholes, January 2014 to December 2020

CLIENT:	CWM Environmental Ltd	PROJECT:	Annual report 2020		
PROJ. NO:	70071624 R1	DRAWN:	ZK	CHECKED:	MC
DATE:	January 2021	FIGURE:	3		



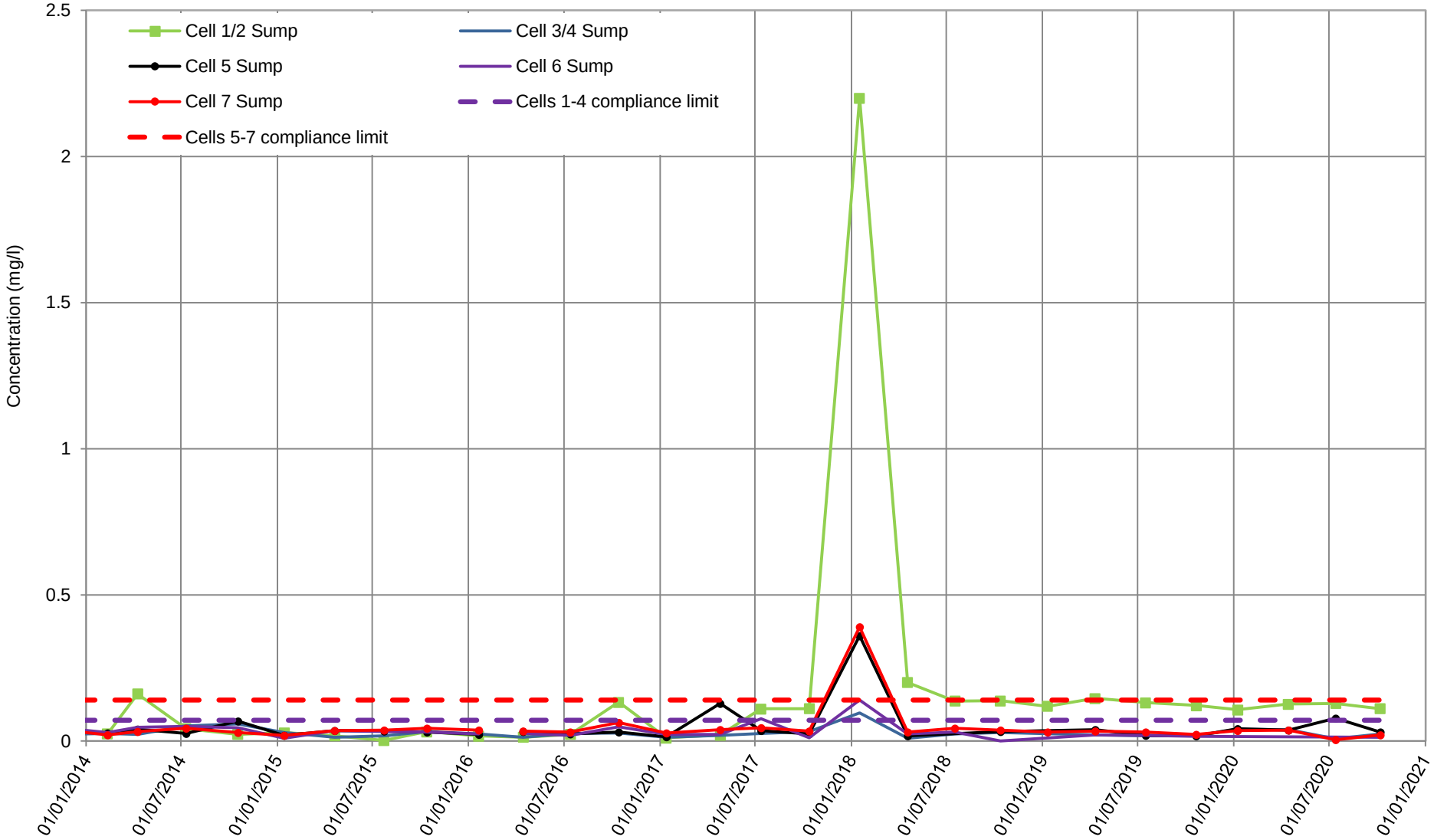
Recorded Concentrations of Ammoniacal Nitrogen in Site Leachates, January 2014 to December 2020

CLIENT:	CWM Environmental Ltd	PROJECT:	Annual report 2020		
PROJ. NO:	70071624 R1	DRAWN:	ZK	CHECKED:	MC
DATE:	January 2021	FIGURE:	4		



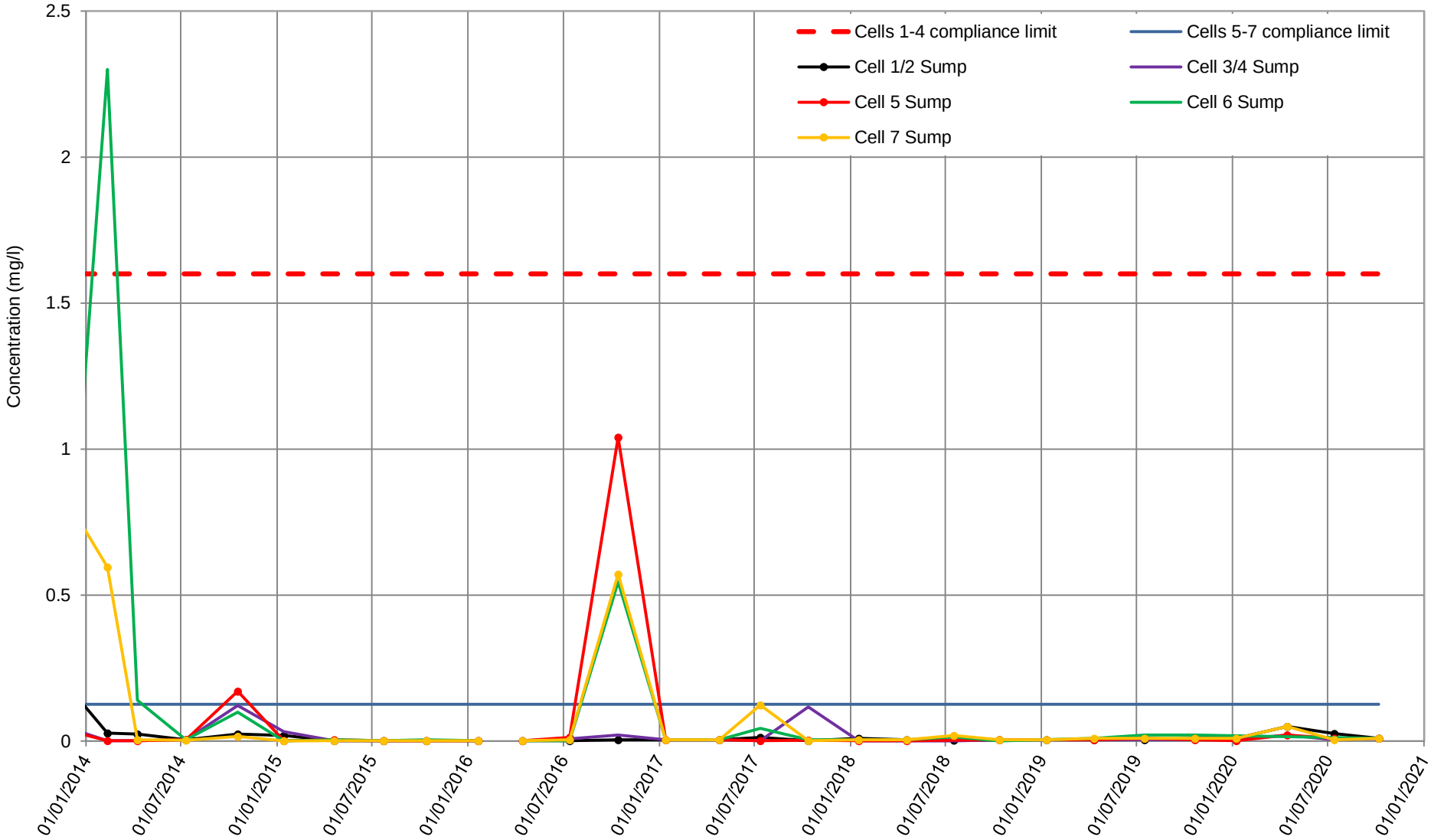
Recorded Concentrations of Chloride in Site Leachates, January 2014 to December 2020

CLIENT:	CWM Environmental Ltd	PROJECT:	Annual report 2020		
PROJ. NO:	70071624 R1	DRAWN:	ZK	CHECKED:	MC
DATE:	January 2021	FIGURE:	5		



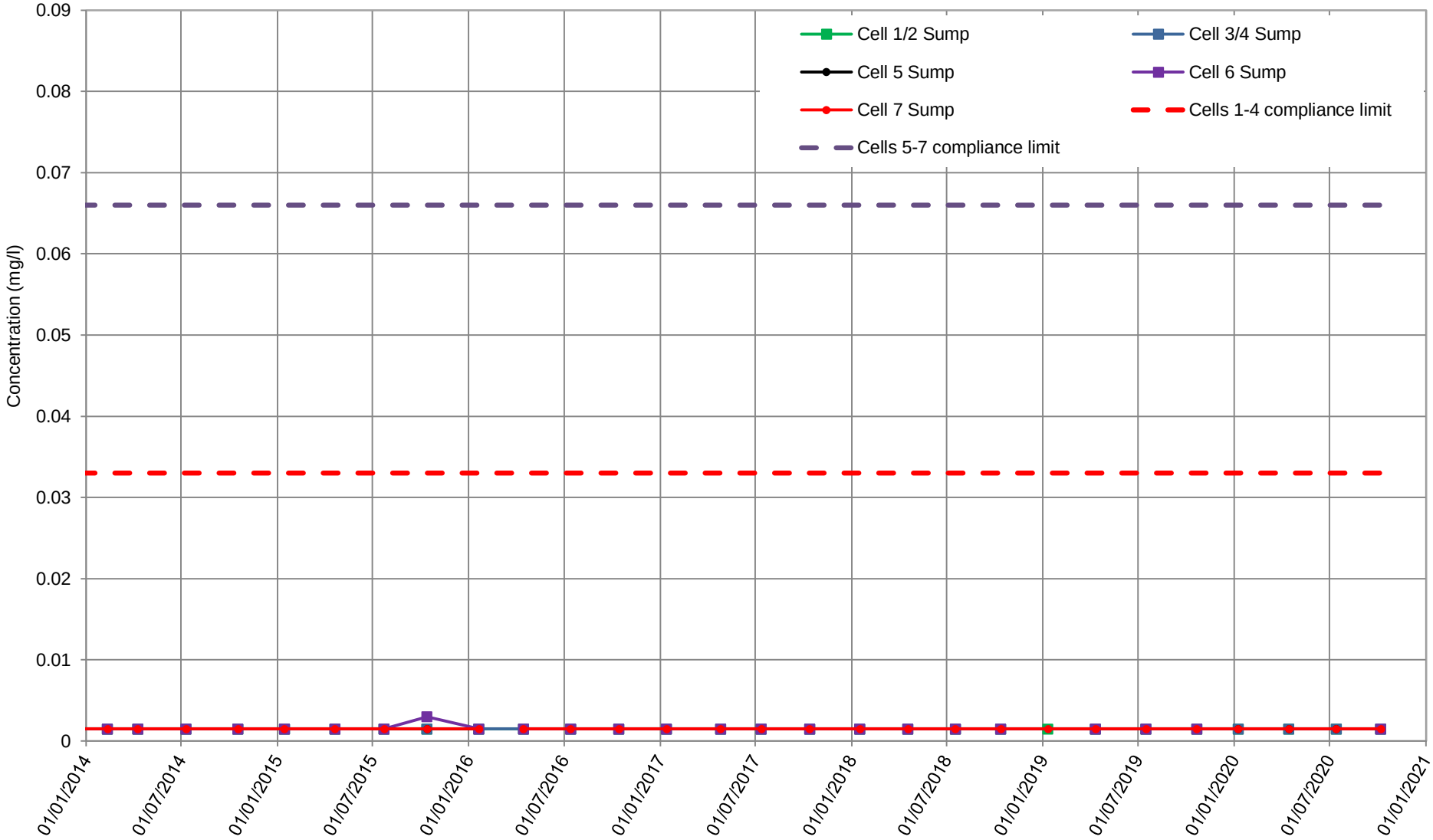
Recorded Concentrations of Mecoprop in Site Leachates, January 2014 to December 2020

CLIENT:	CWM Environmental Ltd	PROJECT:	Annual report 2020		
PROJ. NO:	70071624 R1	DRAWN:	ZK	CHECKED:	MC
DATE:	January 2021	FIGURE:	6		



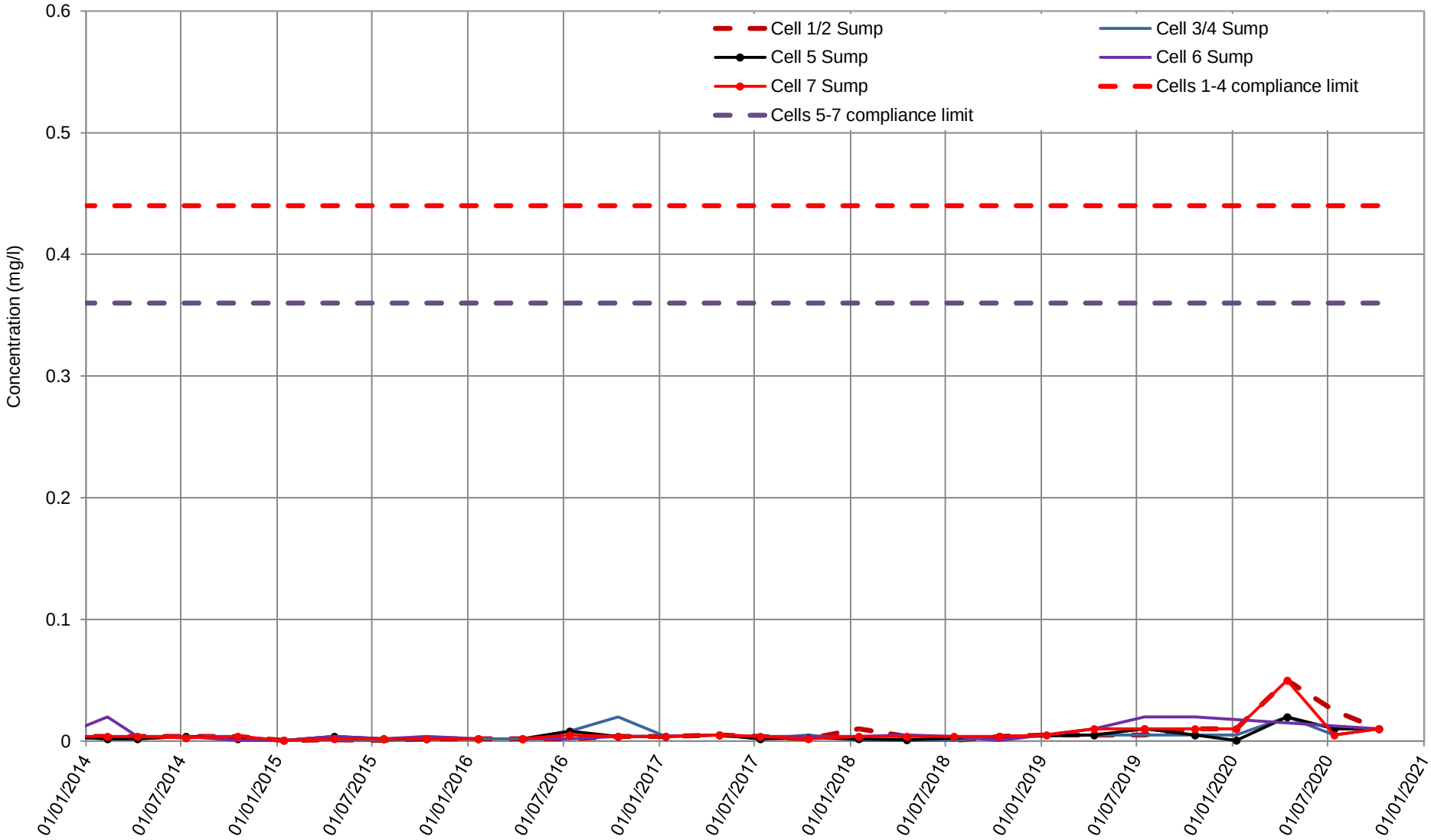
Recorded Concentrations of 4-methylphenol in Site Leachates, January 2014 to December 2020

CLIENT:	CWM Environmental Ltd	PROJECT:	Annual report 2020		
PROJ. NO:	70071624 R1	DRAWN:	ZK	CHECKED:	MC
DATE:	January 2021	FIGURE:	7		



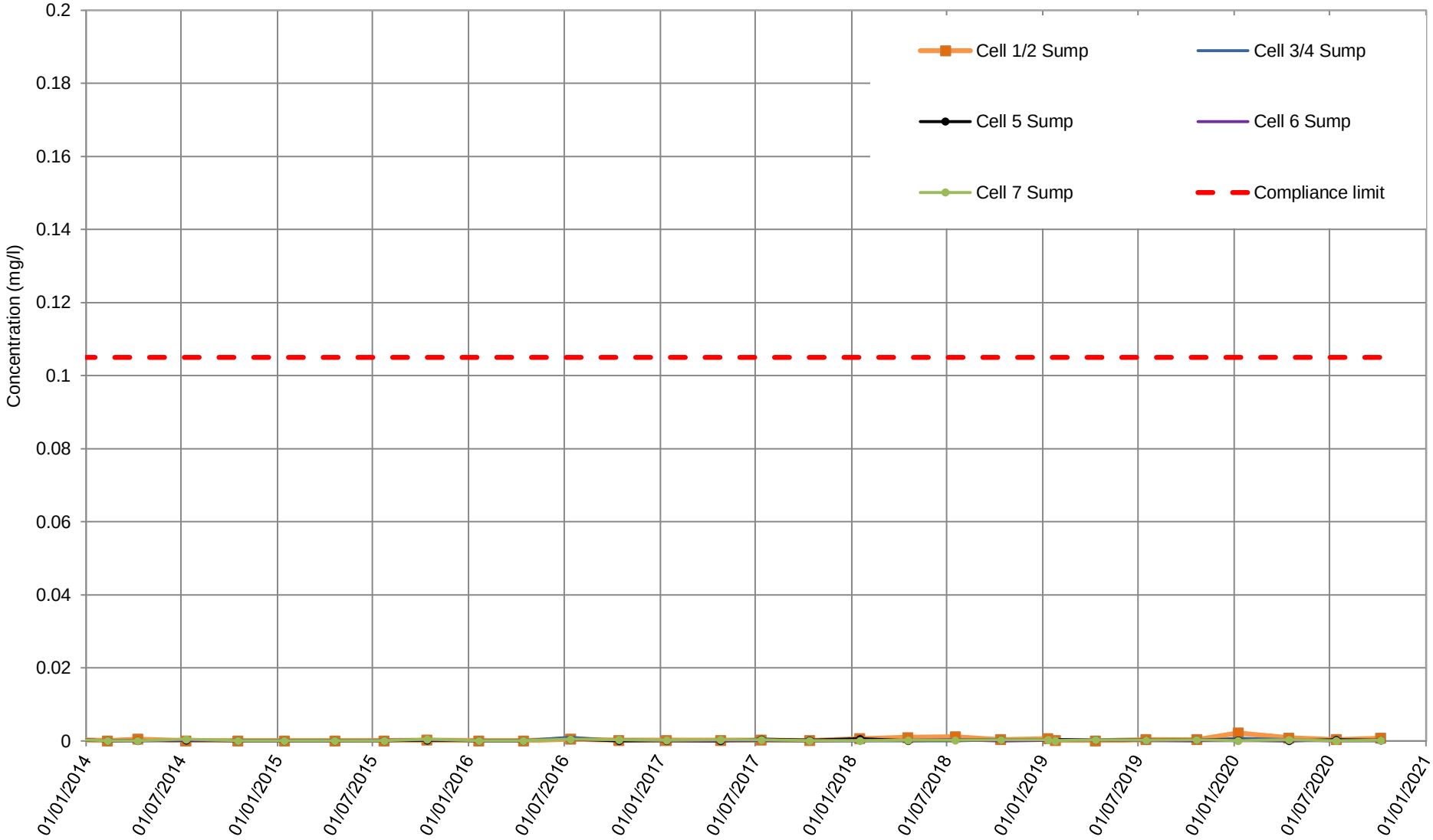
Recorded Concentrations of Dichloromethane in Leachates, January 2014 to December 2020

CLIENT:	CWM Environmental Ltd	PROJECT:	Annual report 2020		
PROJ. NO:	70071624 R1	DRAWN:	ZK	CHECKED:	MC
DATE:	January 2021	FIGURE:	8		



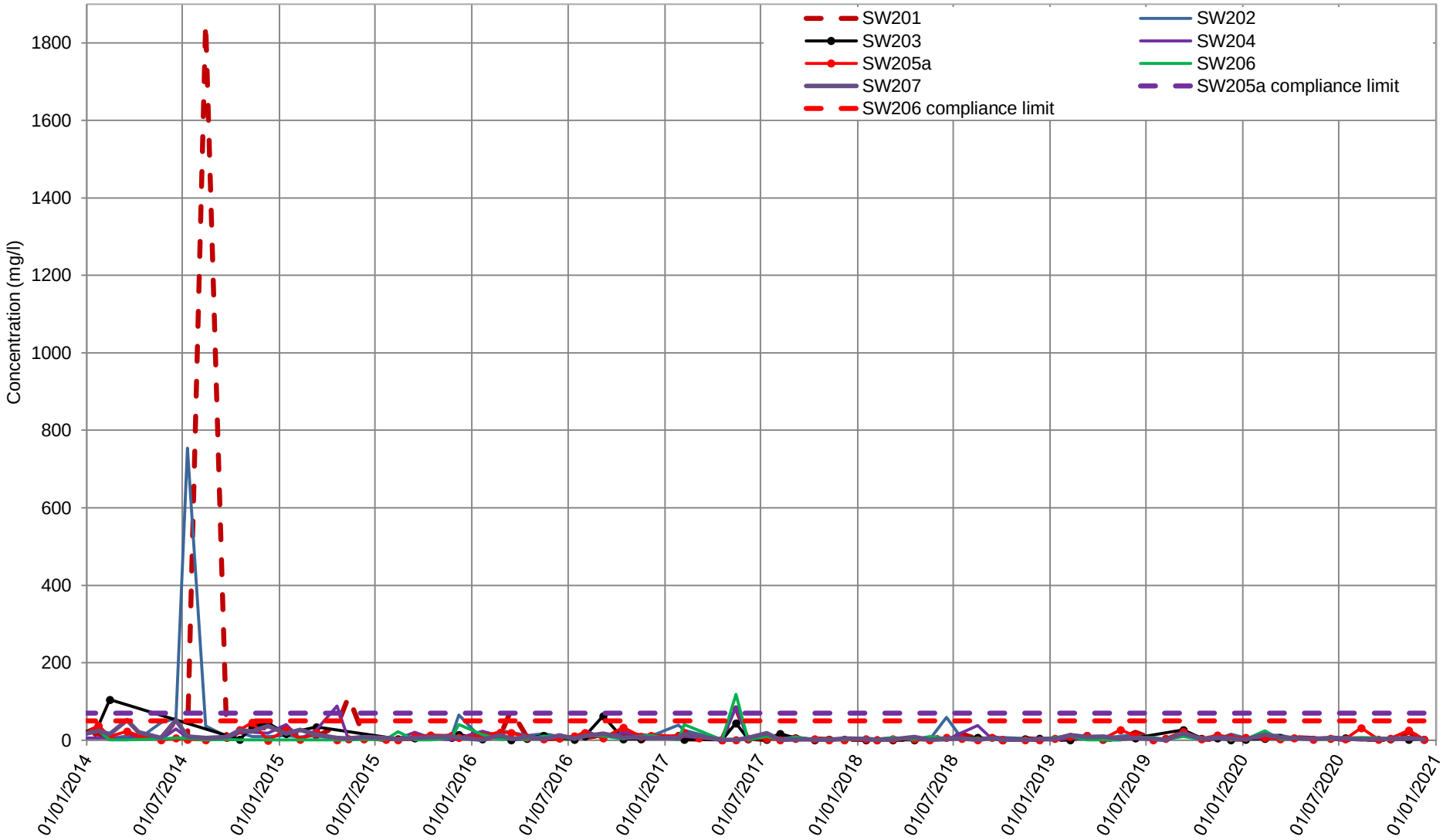
Recorded Concentrations of Diethylphthalate in Site Leachates, January 2014 to December 2020

CLIENT:	CWM Environmental Ltd	PROJECT:	Annual report 2020		
PROJ. NO:	70071624 R1	DRAWN:	ZK	CHECKED:	MC
DATE:	January 2021	FIGURE:	9		



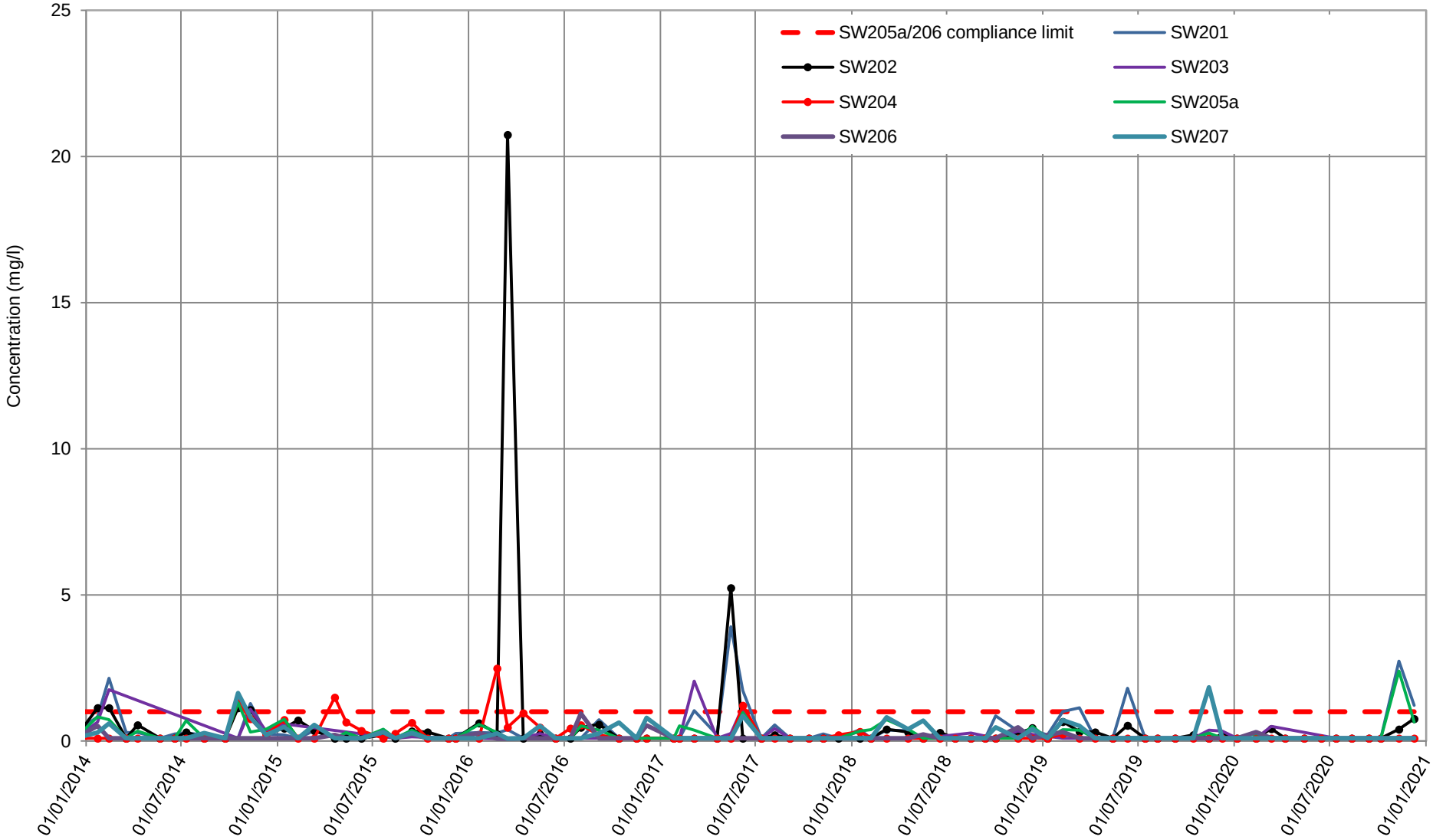
Recorded Concentrations of Cadmium in Site Leachates, January 2014 to December 2020

CLIENT:	CWM Environmental Ltd	PROJECT:	Annual report 2020		
PROJ. NO:	70071624 R1	DRAWN:	ZK	CHECKED:	MC
DATE:	January 2021	FIGURE:	10		



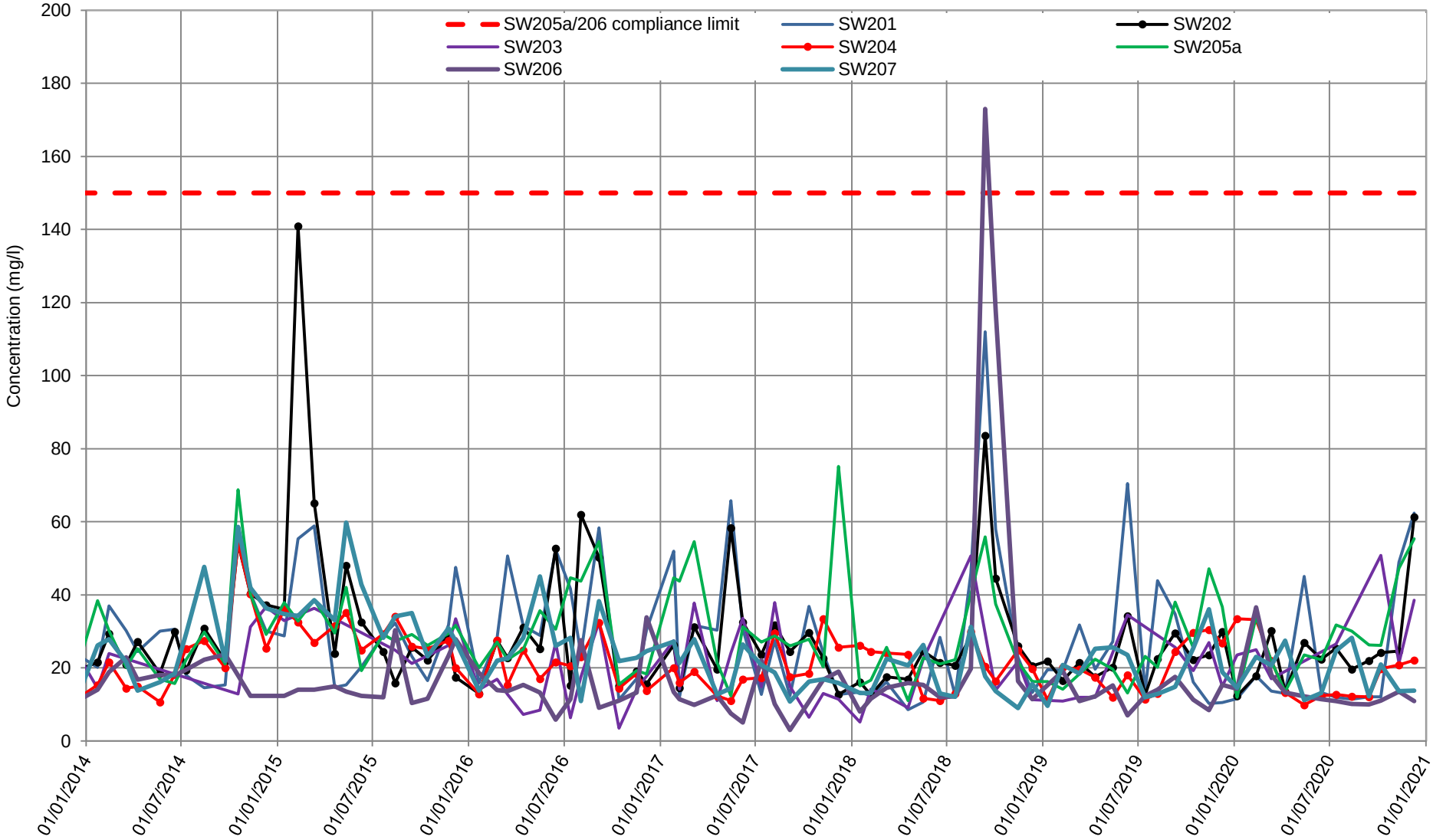
Recorded Concentrations of Suspended Solids in Surface Waters, January 2014 to December 2020

CLIENT:	CWM Environmental Ltd	PROJECT:	Annual report 2020		
PROJ. NO:	70071624 R1	DRAWN:	ZK	CHECKED:	MC
DATE:	January 2021	FIGURE:	11		



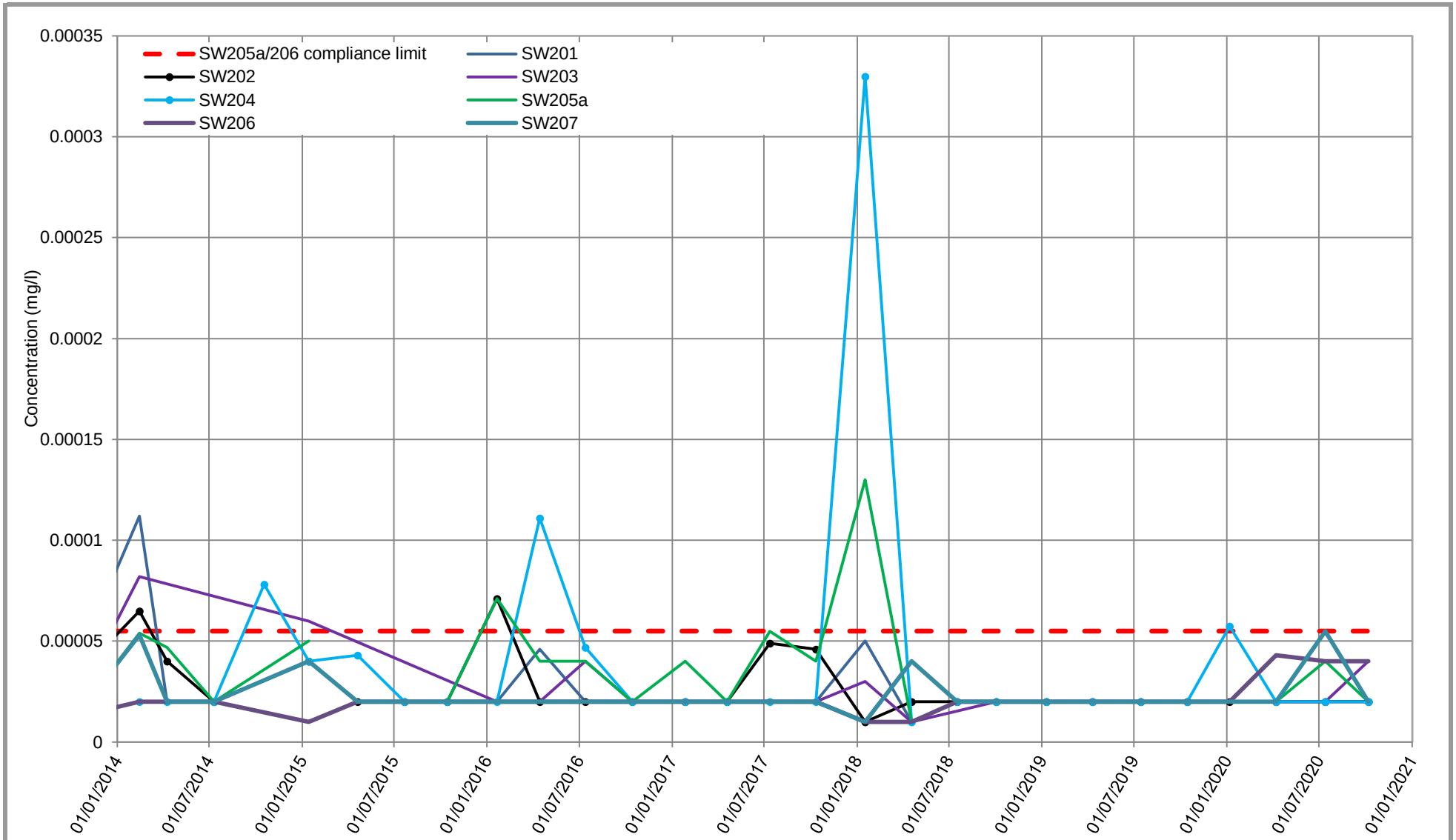
Recorded Concentrations of Ammoniacal Nitrogen in Surface Waters, January 2014 to December 2020

CLIENT:	CWM Environmental Ltd	PROJECT:	Annual report 2020		
PROJ. NO:	70071624 R1	DRAWN:	ZK	CHECKED:	MC
DATE:	January 2021	FIGURE:	12		



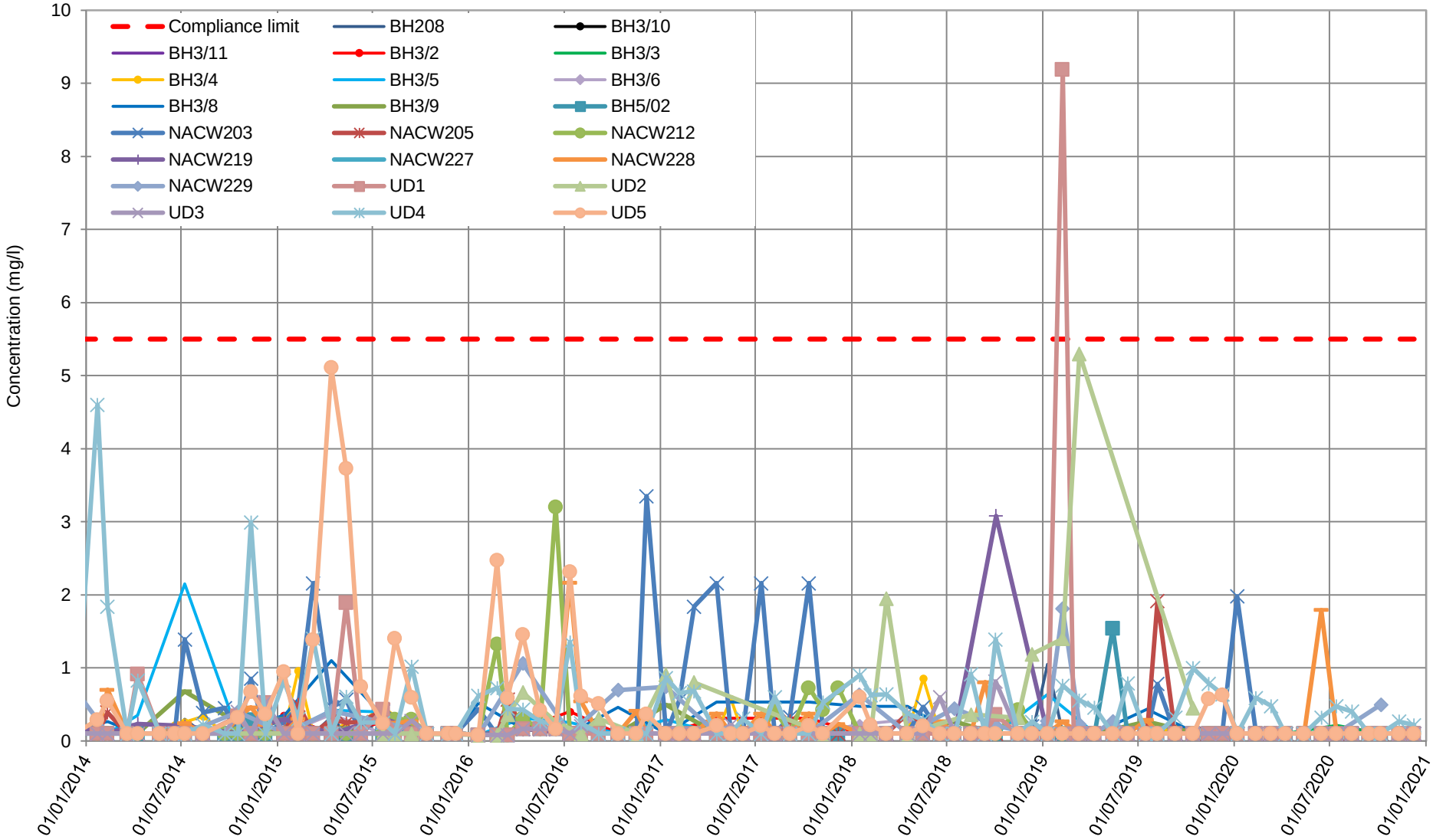
Recorded Concentrations of Chloride in Surface Water, January 2014 to December 2020

CLIENT:	CWM Environmental Ltd	PROJECT:	Annual report 2020		
PROJ. NO:	70071624 R1	DRAWN:	ZK	CHECKED:	MC
DATE:	January 2021	FIGURE:	13		



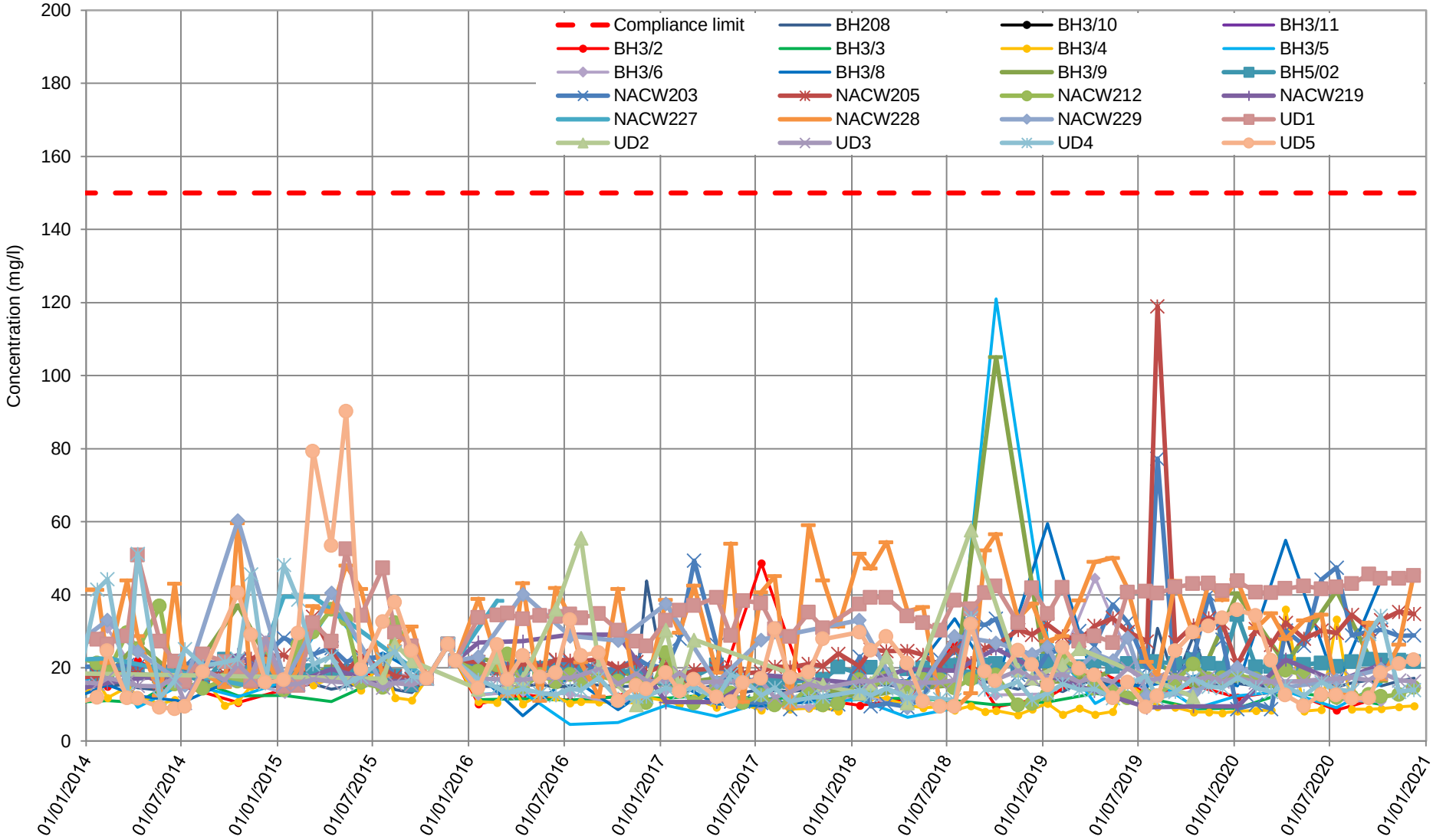
Recorded Concentrations of Mecoprop in Surface Waters, January 2014 to December 2020

CLIENT:	CWM Environmental Ltd	PROJECT:	Annual report 2020		
PROJ. NO:	70071624 R1	DRAWN:	ZK	CHECKED:	MC
DATE:	January 2021	FIGURE:	14		



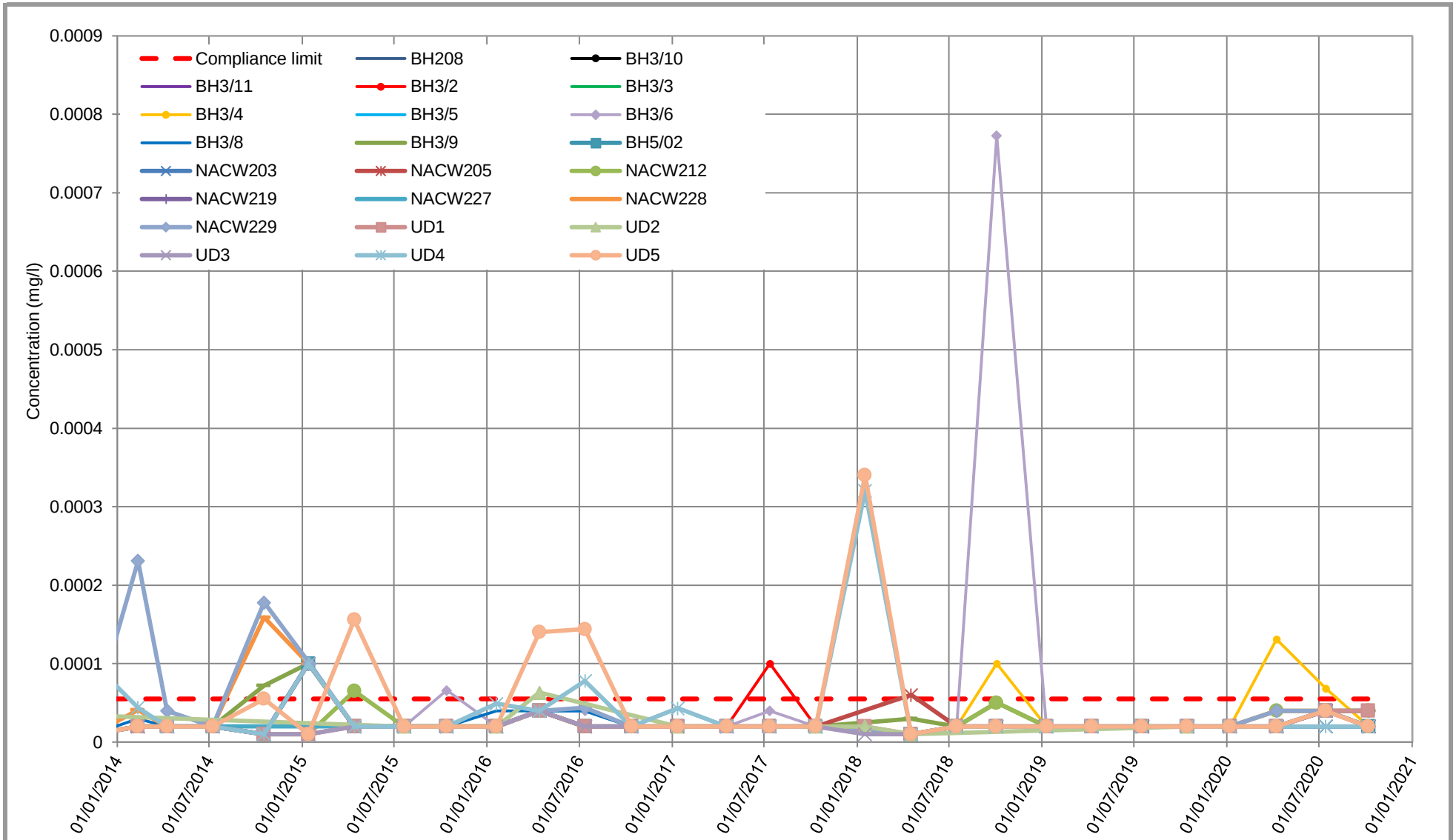
Recorded Concentrations of Ammoniacal Nitrogen in Groundwater and Underdrainage, January 2014 to December 2020

CLIENT:	CWM Environmental Ltd	PROJECT:	Annual report 2020		
PROJ. NO:	70071624 R1	DRAWN:	ZK	CHECKED:	MC
DATE:	January 2021	FIGURE:	15		



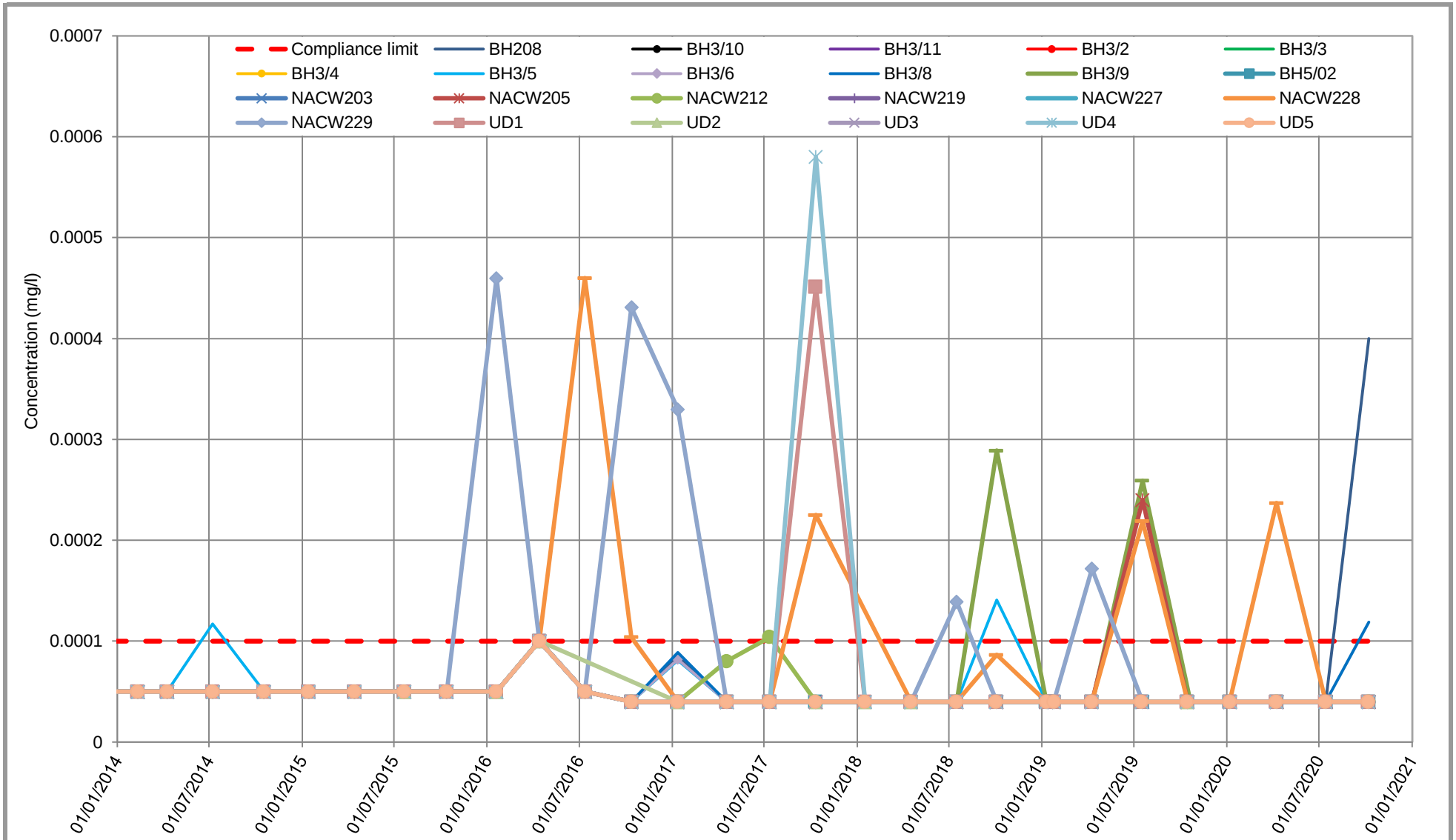
Recorded Concentrations of Chloride in Groundwater and Underdrainage, January 2014 to December 2020

CLIENT:	CWM Environmental Ltd	PROJECT:	Annual report 2020		
PROJ. NO:	70071624 R1	DRAWN:	ZK	CHECKED:	MC
DATE:	January 2021	FIGURE:	16		



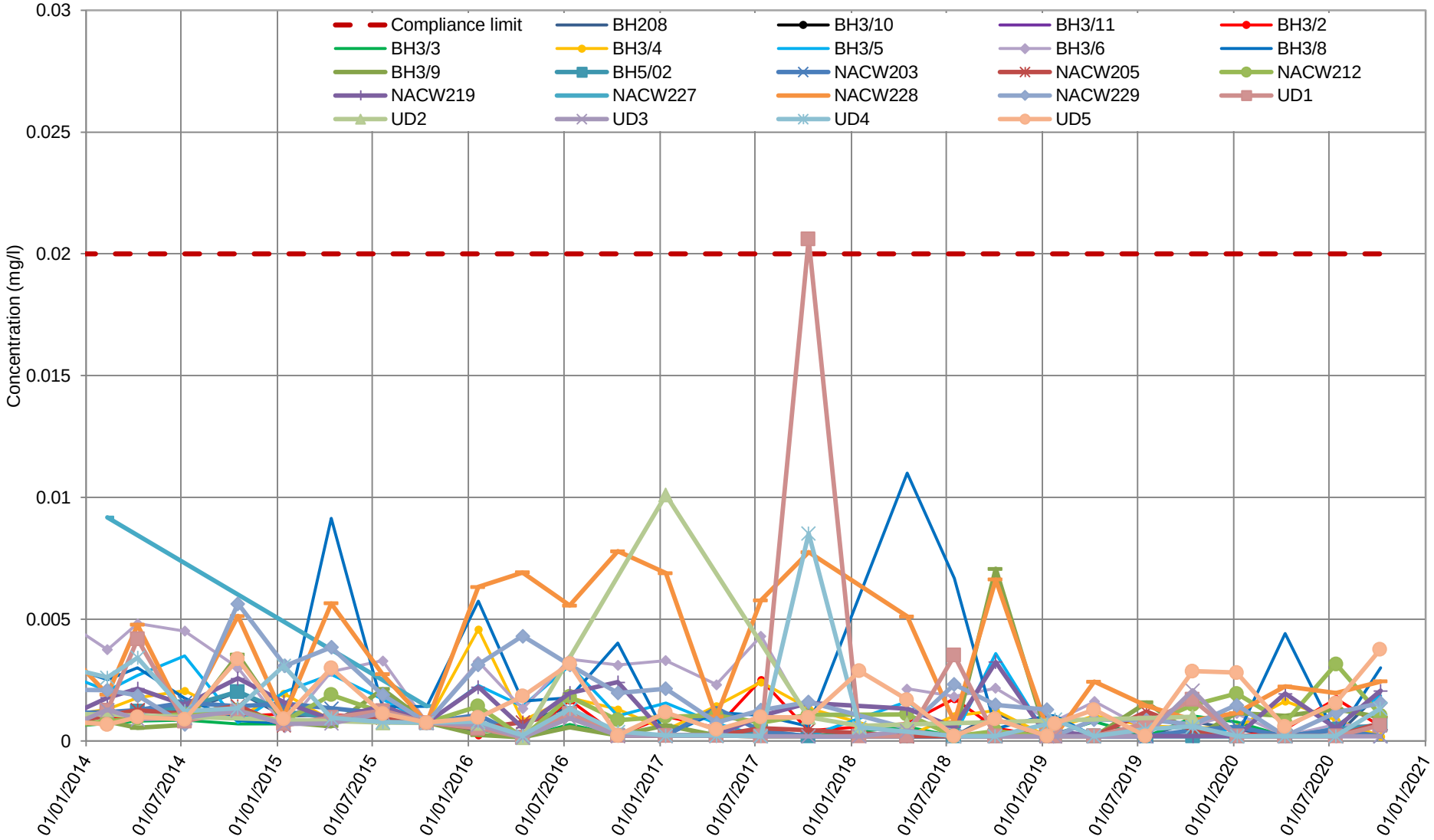
Recorded Concentrations of Mecoprop in Groundwater and Underdrainage, January 2014 to December 2020

CLIENT:	CWM Environmental Ltd	PROJECT:	Annual report 2020		
PROJ. NO:	70071624 R1	DRAWN:	ZK	CHECKED:	MC
DATE:	January 2021	FIGURE:	17		



Recorded Concentrations of Cadmium in Groundwaters
January 2014 to December 2020

CLIENT:	CWM Environmental Ltd	PROJECT:	Annual report 2020		
PROJ. NO:	70071624 R1	DRAWN:	ZK	CHECKED:	MC
DATE:	January 2021	FIGURE:	18		



Recorded Concentrations of Nickel in Groundwaters and Underdrainage, January 2014 to December 2020

CLIENT:	CWM Environmental Ltd	PROJECT:	Annual report 2020	
PROJ. NO:	70071624 R1	DRAWN:	ZK	CHECKED: MC
DATE:	January 2021	FIGURE:	19	

Appendix A

LABORATORY CERTIFICATES (MONTHLY AND QUARTERLY MONITORING SUITES)

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528700
Fax: (01244) 528701
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

CWM Environmental Ltd
Nantyclaws Landfill Site
Llanddarg Road
Carmarthen
Carmarthenshire
SA32 8BG

Attention: Darren Sanders

CERTIFICATE OF ANALYSIS

Date of report Generation:	13 January 2020
Customer:	CWM Environmental Ltd
Sample Delivery Group (SDG):	200107-26
Your Reference:	
Location:	SA32 8BG
Report No:	537046

We received 7 samples on Tuesday January 07, 2020 and 7 of these samples were scheduled for analysis which was completed on Monday January 13, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG:	200107-26	**Client Reference:**		**Report Number:**	537046
Location:	SA32 8BG	**Order Number:**	12886 LAN	**Superseded Report:**	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
21451559	SW201			06/01/2020
21451560	SW202			06/01/2020
21451561	SW203			06/01/2020
21451562	SW204			06/01/2020
21451563	SW205			06/01/2020
21451564	SW206			06/01/2020
21451565	SW207			06/01/2020

Maximum Sample/Coolbox Temperature (°C) : **6.8**

ISO5667-3 Water quality - Sampling - Part3 -
During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG:	200107-26	**Client Reference:**		**Report Number:**	537046
Location:	SA32 8BG	**Order Number:**	12886 LAN	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type
			21451559	SW201			0.5l glass bottle (ALE227)	SW
							500ml Plastic (ALE208)	SW
							H2SO4 (ALE244)	SW
							HNO3 Filtered (ALE204)	SW
							NaOH (ALE245)	SW
							Vial (ALE297)	SW
			21451560	SW202			0.5l glass bottle (ALE227)	SW
							500ml Plastic (ALE208)	SW
							H2SO4 (ALE244)	SW
							HNO3 Filtered (ALE204)	SW
							NaOH (ALE245)	SW
							Vial (ALE297)	SW
			21451561	SW203			0.5l glass bottle (ALE227)	SW
							500ml Plastic (ALE208)	SW
							H2SO4 (ALE244)	SW
							HNO3 Filtered (ALE204)	SW
							NaOH (ALE245)	SW
							Vial (ALE297)	SW
			21451562	SW204			0.5l glass bottle (ALE227)	SW
Acid Herbicides by GCMS	All	NDPs: 0 Tests: 7	X				X								X						X
Alkalinity as CaCO3	All	NDPs: 0 Tests: 7		X				X								X					
Alkalinity Filtered as CaCO3	All	NDPs: 0 Tests: 7		X				X								X					
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 7			X				X								X				
Anions by Kone (w)	All	NDPs: 0 Tests: 7		X				X								X					
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 7		X				X								X					
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 7				X						X						X			
Ionic Balance	All	NDPs: 0 Tests: 7		X				X								X					
Nitrite by Kone (w)	All	NDPs: 0 Tests: 7					X						X						X		
pH Value	All	NDPs: 0 Tests: 7		X				X								X					
Suspended Solids	All	NDPs: 0 Tests: 7		X				X								X					
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 7	X						X								X				X
Total Organic and Inorganic Carbon	All	NDPs: 0 Tests: 7			X						X							X			
VOC MS (W)	All	NDPs: 0 Tests: 7						X						X						X	

21451565																				
SW207																				
SW	HNO3 Filtered (ALE204)	H2SO4 (ALE244)	500ml Plastic (ALE208)	0.5l glass bottle (ALE227)	Vial (ALE297)	NaOH (ALE245)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	500ml Plastic (ALE208)	0.5l glass bottle (ALE227)	Vial (ALE297)	NaOH (ALE245)	HNO3 Filtered (ALE204)	H2SO4 (ALE244)	500ml Plastic (ALE208)	0.5l glass bottle (ALE227)	Vial (ALE297)	NaOH (ALE245)	HNO3 Filtered (ALE204)	H2SO4 (ALE244)	500ml Plastic (ALE208)
SW				X						X						X					
SW			X					X							X						X
SW			X					X							X						X
SW		X					X							X						X	
SW			X					X							X						X
SW	X								X											X	
SW			X					X							X						X
SW						X						X							X		
SW			X					X							X						X
SW			X					X							X						X
SW				X						X						X					
SW		X					X							X						X	
SW					X						X								X		
21451562																					
SW204																					
SW	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)

Validated

CERTIFICATE OF ANALYSIS

SDG:	200107-26	**Client Reference:**		**Report Number:**	537046
Location:	SA32 8BG	**Order Number:**	12886 LAN	**Superseded Report:**	

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			21451565	
Customer Sample Reference			SW207	
AGS Reference				
Depth (m)				
Container			NaOH (ALE245)	Vial (ALE297)
Sample Type			SW	SW
Nitrite by Kone (w)	All	NDPs: 0 Tests: 7	X	
VOC MS (W)	All	NDPs: 0 Tests: 7		X

Validated

CERTIFICATE OF ANALYSIS

SDG:	200107-26	**Client Reference:**		**Report Number:**	537046
Location:	SA32 8BG	**Order Number:**	12886 LAN	**Superseded Report:**	

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW201	SW202	SW203	SW204	SW205	SW206
			Depth (m)	.	.	.	.	.	.
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
			Date Sampled	06/01/2020	06/01/2020	06/01/2020	06/01/2020	06/01/2020	06/01/2020
			Sample Time	.	.	.	.	.	.
			Date Received	07/01/2020	07/01/2020	07/01/2020	07/01/2020	07/01/2020	07/01/2020
			SDG Ref	200107-26	200107-26	200107-26	200107-26	200107-26	200107-26
			Lab Sample No.(s)	21451559	21451560	21451561	21451562	21451563	21451564
			AGS Reference						
Ionic balance	% Diff	Calulation		-3.73	-3.48	-3.08	-2.36	-3.33	-4.28
Suspended solids, Total	<2 mg/l	TM022		2.3 #	5.75 #	2.3 #	4.45 #	7.7 #	2.25 #
Alkalinity, Total as CaCO3	<2 mg/l	TM043		100 #	120 #	325 #	180 #	130 #	130 #
Alkalinity,Total as CaCO3 (diss.filt)	<2 mg/l	TM043		100	130	325	180	125	135
Alkalinity, Bicarbonate as CaCO3 (diss.filt)	<2 mg/l	TM043		100	130	325	180	125	135
Organic Carbon, Total	<3 mg/l	TM090		5.54 #	4.83 #	11.6 #	14.4 #	4.52 #	5.66 #
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 #	<0.2 #	<0.2 #	<0.2 #	<0.2 #	<0.2 #
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120		0.218 #	0.263 #	0.652 #	0.449 #	0.255 #	0.274 #
Cadmium (diss.filt)	<0.08 µg/l	TM152		<0.08 #	<0.08 #	<0.08 #	<0.08 #	<0.08 #	<0.08 #
Chromium (diss.filt)	<1 µg/l	TM152		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Copper (diss.filt)	<0.3 µg/l	TM152		1.28 #	2.06 #	2.86 #	2.73 #	0.985 #	1.12 #
Lead (diss.filt)	<0.2 µg/l	TM152		<0.2 #	0.5 #	<0.2 #	0.255 #	0.259 #	0.322 #
Manganese (diss.filt)	<3 µg/l	TM152		17.8 #	49.8 #	124 #	53.4 #	48.4 #	44.1 #
Nickel (diss.filt)	<0.4 µg/l	TM152		0.681 #	0.884 #	1.71 #	2.31 #	0.557 #	0.701 #
Zinc (diss.filt)	<1 µg/l	TM152		3.19 #	13.8 #	5.98 #	2.67 #	3.34 #	3.34 #
Sodium (Dis.Filt)	<0.076 mg/l	TM152		6.82 #	7.7 #	13.9 #	12.6 #	7.18 #	7.84 #
Magnesium (Dis.Filt)	<0.036 mg/l	TM152		2.93 #	3.69 #	10.1 #	5.65 #	3.48 #	3.8 #
Potassium (Dis.Filt)	<0.2 mg/l	TM152		1.07 #	2.76 #	20 #	29.6 #	2.32 #	7.69 #
Calcium (Dis.Filt)	<0.2 mg/l	TM152		36.5 #	47.3 #	122 #	70 #	45.8 #	46.6 #
Iron (Dis.Filt)	<0.019 mg/l	TM152		0.206 #	0.232 #	0.24 #	0.15 #	0.231 #	0.171 #
Nitrite as NO2	<0.05 mg/l	TM184		<0.05 #	0.125 #	<0.05 #	<0.05 #	0.124 #	0.095 #
Sulphate	<2 mg/l	TM184		5.8 #	8.5 #	59.5 #	38.6 #	7.1 #	8.8 #
Chloride	<2 mg/l	TM184		11.6 #	12.4 #	23.6 #	33.5 #	12 #	14.3 #
Nitrate as NO3	<0.3 mg/l	TM184		7.74	10.1	9.4	10.7	9.77	10.7
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184		1.75 #	2.31 #	2.13 #	2.42 #	2.25 #	2.45 #
pH	<1 pH Units	TM256		7.8 #	7.97 #	7.78 #	8.02 #	7.97 #	8.05 #
Mecoprop	<0.04 µg/l	TM411		<0.04	<0.04	<0.04	0.0574	<0.04	<0.04

Validated

CERTIFICATE OF ANALYSIS

SDG:	200107-26	**Client Reference:**		**Report Number:**	537046
Location:	SA32 8BG	**Order Number:**	12886 LAN	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	Depth (m)	Sample Type	Date Sampled	Sample Time	Date Received	SDG Ref	Lab Sample No.(s)	AGS Reference
			SW207	.	Surface Water (SW)	06/01/2020	.	07/01/2020	200107-26	21451565	
Ionic balance	% Diff	Calulation	-6.14								
Suspended solids, Total	<2 mg/l	TM022	2.65 #								
Alkalinity, Total as CaCO3	<2 mg/l	TM043	115 #								
Alkalinity,Total as CaCO3 (diss.filt)	<2 mg/l	TM043	115								
Alkalinity, Bicarbonate as CaCO3 (diss.filt)	<2 mg/l	TM043	115								
Organic Carbon, Total	<3 mg/l	TM090	6.83 #								
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099	<0.2 #								
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120	0.28 #								
Cadmium (diss.filt)	<0.08 µg/l	TM152	<0.08 #								
Chromium (diss.filt)	<1 µg/l	TM152	<1 #								
Copper (diss.filt)	<0.3 µg/l	TM152	1.48 #								
Lead (diss.filt)	<0.2 µg/l	TM152	0.316 #								
Manganese (diss.filt)	<3 µg/l	TM152	30.7 #								
Nickel (diss.filt)	<0.4 µg/l	TM152	0.726 #								
Zinc (diss.filt)	<1 µg/l	TM152	3.19 #								
Sodium (Dis.Filt)	<0.076 mg/l	TM152	7.68 #								
Magnesium (Dis.Filt)	<0.036 mg/l	TM152	3.29 #								
Potassium (Dis.Filt)	<0.2 mg/l	TM152	4.83 #								
Calcium (Dis.Filt)	<0.2 mg/l	TM152	38.9 #								
Iron (Dis.Filt)	<0.019 mg/l	TM152	0.22 #								
Nitrite as NO2	<0.05 mg/l	TM184	<0.05 #								
Sulphate	<2 mg/l	TM184	7.9 #								
Chloride	<2 mg/l	TM184	14.6 #								
Nitrate as NO3	<0.3 mg/l	TM184	8.69								
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184	1.98 #								
pH	<1 pH Units	TM256	7.86 #								
Mecoprop	<0.04 µg/l	TM411	<0.04								

Validated

CERTIFICATE OF ANALYSIS

SDG:	200107-26	**Client Reference:**		**Report Number:**	537046
Location:	SA32 8BG	**Order Number:**	12886 LAN	**Superseded Report:**	

SVOC MS (W) - Aqueous

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW201	SW202	SW203	SW204	SW205	SW206
			Depth (m)	.	.	.	.	.	.
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
			Date Sampled	06/01/2020	06/01/2020	06/01/2020	06/01/2020	06/01/2020	06/01/2020
			Sample Time	.	.	.	.	.	.
			Date Received	07/01/2020	07/01/2020	07/01/2020	07/01/2020	07/01/2020	07/01/2020
			SDG Ref	200107-26	200107-26	200107-26	200107-26	200107-26	200107-26
			Lab Sample No.(s)	21451559	21451560	21451561	21451562	21451563	21451564
			AGS Reference						
4-Methylphenol (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Diethyl phthalate (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	200107-26	**Client Reference:**		**Report Number:**	537046
Location:	SA32 8BG	**Order Number:**	12886 LAN	**Superseded Report:**	

SVOC MS (W) - Aqueous

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

		Customer Sample Ref.	SW207
		Depth (m)	.
		Sample Type	Surface Water (SW)
		Date Sampled	06/01/2020
		Sample Time	.
		Date Received	07/01/2020
		SDG Ref	200107-26
		Lab Sample No.(s)	21451565
		AGS Reference	
Component	**LOD/Units**	**Method**	
4-Methylphenol (aq)	<1 µg/l	TM176	<1 #
Diethyl phthalate (aq)	<1 µg/l	TM176	<1 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	200107-26	**Client Reference:**		**Report Number:**	537046
Location:	SA32 8BG	**Order Number:**	12886 LAN	**Superseded Report:**	

VOC MS (W)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW201	SW202	SW203	SW204	SW205	SW206
			Depth (m)	.	.	.	.	.	.
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
			Date Sampled	06/01/2020	06/01/2020	06/01/2020	06/01/2020	06/01/2020	06/01/2020
			Sample Time	.	.	.	.	.	.
			Date Received	07/01/2020	07/01/2020	07/01/2020	07/01/2020	07/01/2020	07/01/2020
			SDG Ref	200107-26	200107-26	200107-26	200107-26	200107-26	200107-26
			Lab Sample No.(s)	21451559	21451560	21451561	21451562	21451563	21451564
			AGS Reference						
Dichloromethane	<3 µg/l	TM208		<3 #	<3 #	<3 #	<3 #	<3 #	<3 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	200107-26	**Client Reference:**		**Report Number:**	537046
Location:	SA32 8BG	**Order Number:**	12886 LAN	**Superseded Report:**	

VOC MS (W)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	Depth (m)	Sample Type	Date Sampled	Sample Time	Date Received	SDG Ref	Lab Sample No.(s)	AGS Reference
			SW207	.	Surface Water (SW)	06/01/2020	.	07/01/2020	200107-26	21451565	
Dichloromethane	<3 µg/l	TM208	<3 #								

CERTIFICATE OF ANALYSIS

SDG:	200107-26	**Client Reference:**		**Report Number:**	537046
Location:	SA32 8BG	**Order Number:**	12886 LAN	**Superseded Report:**	

Table of Results - Appendix

Method No	Reference	Description
Calulation		
TM022	Method 2540D, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part120 1981;BS EN 872	Determination of total suspended solids in waters
TM043	Method 2320B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part109 1984	Determination of alkalinity in aqueous samples
TM090	Method 5310, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 415.1 & 9060	Determination of Total Organic Carbon/Total Inorganic Carbon in Water and Waste Water
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM176	EPA 8270D Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of SVOCs in Water by GCMS
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter
TM411	Acid_Herbs_GCMS	Acid Herbs in Water by GCMS

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG:	200107-26	**Client Reference:**		**Report Number:**	537046
Location:	SA32 8BG	**Order Number:**	12886 LAN	**Superseded Report:**	

Test Completion Dates

Lab Sample No(s)	21451559	21451560	21451561	21451562	21451563	21451564	21451565
Customer Sample Ref.	SW201	SW202	SW203	SW204	SW205	SW206	SW207
AGS Ref.							
Depth							
Type	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Acid Herbicides by GCMS	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020
Alkalinity as CaCO3	09-Jan-2020	09-Jan-2020	09-Jan-2020	09-Jan-2020	09-Jan-2020	09-Jan-2020	09-Jan-2020
Alkalinity Filtered as CaCO3	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020
Ammoniacal Nitrogen	08-Jan-2020	08-Jan-2020	08-Jan-2020	08-Jan-2020	08-Jan-2020	08-Jan-2020	08-Jan-2020
Anions by Kone (w)	08-Jan-2020	08-Jan-2020	08-Jan-2020	08-Jan-2020	08-Jan-2020	08-Jan-2020	08-Jan-2020
Conductivity (at 20 deg.C)	08-Jan-2020	08-Jan-2020	08-Jan-2020	08-Jan-2020	08-Jan-2020	08-Jan-2020	08-Jan-2020
Dissolved Metals by ICP-MS	13-Jan-2020	13-Jan-2020	13-Jan-2020	13-Jan-2020	13-Jan-2020	13-Jan-2020	13-Jan-2020
Ionic Balance	13-Jan-2020	13-Jan-2020	13-Jan-2020	13-Jan-2020	13-Jan-2020	13-Jan-2020	13-Jan-2020
Nitrite by Kone (w)	08-Jan-2020	08-Jan-2020	08-Jan-2020	08-Jan-2020	08-Jan-2020	08-Jan-2020	08-Jan-2020
pH Value	08-Jan-2020	08-Jan-2020	08-Jan-2020	08-Jan-2020	08-Jan-2020	08-Jan-2020	08-Jan-2020
Suspended Solids	08-Jan-2020	08-Jan-2020	08-Jan-2020	08-Jan-2020	08-Jan-2020	08-Jan-2020	08-Jan-2020
SVOC MS (W) - Aqueous	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	13-Jan-2020	10-Jan-2020
Total Organic and Inorganic Carbon	08-Jan-2020	08-Jan-2020	08-Jan-2020	08-Jan-2020	08-Jan-2020	08-Jan-2020	08-Jan-2020
VOC MS (W)	07-Jan-2020	07-Jan-2020	07-Jan-2020	07-Jan-2020	07-Jan-2020	07-Jan-2020	07-Jan-2020

Appendix General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**

19. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2107).*

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528700
Fax: (01244) 528701
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

CWM Environmental Ltd
Nantyclaws Landfill Site
Llanddarg Road
Carmarthen
Carmarthenshire
SA32 8BG

Attention: Darren Sanders

CERTIFICATE OF ANALYSIS

Date of report Generation:	16 January 2020
Customer:	CWM Environmental Ltd
Sample Delivery Group (SDG):	200108-45
Your Reference:	
Location:	SA32 8BG
Report No:	537502

We received 19 samples on Wednesday January 08, 2020 and 19 of these samples were scheduled for analysis which was completed on Thursday January 16, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan
Operations Manager

ALS Life Sciences Limited. Registered Office: Units 7 & 8 Hawarden Business Park, Manor Road, Hawarden, Deeside, CH5 3US. Registered in England and Wales No. 4057291.

Version: 2.3 Version Issued: 16/01/2020

CERTIFICATE OF ANALYSIS

SDG:	200108-45	**Client Reference:**		**Report Number:**	537502
Location:	SA32 8BG	**Order Number:**	12886 LAN	**Superseded Report:**	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
21455869	BH3/2			07/01/2020
21455870	BH3/3			07/01/2020
21455871	BH3/4			07/01/2020
21455872	BH3/5			06/01/2020
21455873	BH3/6			06/01/2020
21455874	BH3/8			07/01/2020
21455875	BH3/9			06/01/2020
21455889	BH208			06/01/2020
21455887	BH5/02			06/01/2020
21455890	NACW203			06/01/2020
21455891	NACW205			06/01/2020
21455892	NACW212			06/01/2020
21455882	NACW219			07/01/2020
21455884	NACW228			06/01/2020
21455886	NACW229			06/01/2020
21455876	UD1			07/01/2020
21455879	UD3			07/01/2020
21455880	UD4			07/01/2020
21455893	UD5			06/01/2020

Maximum Sample/Coolbox Temperature (°C) : **9.0**

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG:	200108-45	**Client Reference:**		**Report Number:**	537502
Location:	SA32 8BG	**Order Number:**	12886 LAN	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)						21455869						21455870					21455871			
Customer Sample Reference						BH3/2						BH3/3					BH3/4			
AGS Reference																				
Depth (m)																				
Container						0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	NaOH (ALE245)	Vial (ALE297)
Sample Type						GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
Acid Herbicides by GCMS	All	NDPs: 0 Tests: 19				X					X					X				X
Alkalinity as CaCO3	All	NDPs: 0 Tests: 19					X					X					X				X
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 19						X					X					X				X
Anions by Kone (w)	All	NDPs: 0 Tests: 19					X					X					X				X
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 19					X					X					X				X
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 19					X					X					X				X
Nitrite by Kone (w)	All	NDPs: 0 Tests: 19							X					X					X			X
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 19				X					X					X				X		
VOC MS (W)	All	NDPs: 0 Tests: 19								X					X					X		

21455889	BH208			GW	Vial (ALE297)																			
				GW	NaOH (ALE245)																			
				GW	H2SO4 (ALE244)																			
				GW	0.5l glass bottle (ALE227)																			
				GW	500ml Plastic (ALE208)																			
21455875	BH3/9			GW	Vial (ALE297)																			
				GW	NaOH (ALE245)																			
				GW	H2SO4 (ALE244)																			
				GW	500ml Plastic (ALE208)																			
21455874	BH3/8			GW	0.5l glass bottle (ALE227)																			
				GW	Vial (ALE297)																			
				GW	NaOH (ALE245)																			
				GW	H2SO4 (ALE244)																			
				GW	500ml Plastic (ALE208)																			
21455873	BH3/6			GW	0.5l glass bottle (ALE227)																			
				GW	Vial (ALE297)																			
				GW	NaOH (ALE245)																			
				GW	H2SO4 (ALE244)																			
				GW	500ml Plastic (ALE208)																			
21455872	BH3/5			GW	0.5l glass bottle (ALE227)																			
				GW	Vial (ALE297)																			

Validated

CERTIFICATE OF ANALYSIS

SDG:	200108-45	**Client Reference:**		**Report Number:**	537502
Location:	SA32 8BG	**Order Number:**	12886 LAN	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)						21455887					21455890					21455891				21455892
Customer Sample Reference						BH5/02					NACW203					NACW205				NACW212
AGS Reference																				
Depth (m)																				
Container						0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	NaOH (ALE245)
Sample Type						GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
Acid Herbicides by GCMS	All	NDPs: 0 Tests: 19				X					X					X					X			
Alkalinity as CaCO3	All	NDPs: 0 Tests: 19					X					X					X					X		
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 19						X					X					X					X	
Anions by Kone (w)	All	NDPs: 0 Tests: 19					X					X					X					X		
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 19					X					X					X					X		
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 19					X					X					X					X		
Nitrite by Kone (w)	All	NDPs: 0 Tests: 19							X					X					X					X
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 19				X					X					X					X			
VOC MS (W)	All	NDPs: 0 Tests: 19								X					X					X				

| | | |

Validated

CERTIFICATE OF ANALYSIS

SDG:	200108-45	**Client Reference:**		**Report Number:**	537502
Location:	SA32 8BG	**Order Number:**	12886 LAN	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)						21455879						21455880						21455893	
Customer Sample Reference						UD3						UD4						UD5	
AGS Reference																			
Depth (m)																			
Container						0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	NaOH (ALE245)	Vial (ALE297)
Sample Type						GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
Acid Herbicides by GCMS	All	NDPs: 0 Tests: 19				X					X					X				
Alkalinity as CaCO3	All	NDPs: 0 Tests: 19					X					X					X			
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 19						X					X					X		
Anions by Kone (w)	All	NDPs: 0 Tests: 19					X					X					X			
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 19					X					X					X			
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 19					X					X					X			
Nitrite by Kone (w)	All	NDPs: 0 Tests: 19							X						X				X	
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 19				X					X					X				
VOC MS (W)	All	NDPs: 0 Tests: 19								X					X					X

Validated

CERTIFICATE OF ANALYSIS

SDG:	200108-45	**Client Reference:**		**Report Number:**	537502
Location:	SA32 8BG	**Order Number:**	12886 LAN	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/2	BH3/3	BH3/4	BH3/5	BH3/6	BH3/8
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	07/01/2020	07/01/2020	07/01/2020	06/01/2020	06/01/2020	07/01/2020
			Sample Time	.	.	.	.	.	.
			Date Received	08/01/2020	08/01/2020	08/01/2020	08/01/2020	08/01/2020	08/01/2020
			SDG Ref	200108-45	200108-45	200108-45	200108-45	200108-45	200108-45
			Lab Sample No.(s)	21455869	21455870	21455871	21455872	21455873	21455874
			AGS Reference						
Alkalinity, Total as CaCO3	<2 mg/l	TM043		64 #	75.5 #	87 #	76.5 #	80 #	75 #
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 #	<0.2 #	<0.2 #	<0.2 #	<0.2 #	<0.2 #
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120		0.148 #	0.157 #	0.19 #	0.186 #	0.27 #	0.179 #
Cadmium (diss.filt)	<0.08 µg/l	TM152		<0.08 2 #	<0.08 2 #	<0.08 2 #	<0.08 2 #	<0.08 2 #	<0.08 2 #
Chromium (diss.filt)	<1 µg/l	TM152		<1 2 #	<1 2 #	<1 2 #	<1 2 #	<1 2 #	<1 2 #
Copper (diss.filt)	<0.3 µg/l	TM152		1.87 2 #	12.1 2 #	5.05 2 #	1.33 2 #	8.14 2 #	1.03 2 #
Lead (diss.filt)	<0.2 µg/l	TM152		<0.2 2 #	<0.2 2 #	<0.2 2 #	<0.2 2 #	0.4 2 #	<0.2 2 #
Manganese (diss.filt)	<3 µg/l	TM152		<3 2 #	<3 2 #	<3 2 #	49.7 2 #	<3 2 #	<3 2 #
Nickel (diss.filt)	<0.4 µg/l	TM152		<0.4 2 #	0.777 2 #	0.559 2 #	0.549 2 #	1.13 2 #	<0.4 2 #
Zinc (diss.filt)	<1 µg/l	TM152		1.54 2 #	2.78 2 #	2.85 2 #	6.79 2 #	3.12 2 #	2.12 2 #
Sodium (Dis.Filt)	<0.076 mg/l	TM152		7.19 2 #	7.57 2 #	7.35 2 #	7.08 2 #	10 2 #	9.36 2 #
Magnesium (Dis.Filt)	<0.036 mg/l	TM152		2.33 2 #	2.59 2 #	5.29 2 #	2.91 2 #	6.39 2 #	1.87 2 #
Potassium (Dis.Filt)	<0.2 mg/l	TM152		1.21 2 #	0.559 2 #	0.94 2 #	2.69 2 #	3.81 2 #	0.399 2 #
Calcium (Dis.Filt)	<0.2 mg/l	TM152		24 2 #	27.5 2 #	28.9 2 #	32.1 2 #	43.7 2 #	30 2 #
Iron (Dis.Filt)	<0.019 mg/l	TM152		<0.019 2 #	0.0898 2 #	<0.019 2 #	0.153 2 #	0.0252 2 #	<0.019 2 #
Nitrite as NO2	<0.05 mg/l	TM184		<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #
Sulphate	<2 mg/l	TM184		2.4 #	<2 #	8.8 #	10.3 #	47 #	4.2 #
Chloride	<2 mg/l	TM184		11.9 #	9 #	8.2 #	12.3 #	19.2 #	15.1 #
Nitrate as NO3	<0.3 mg/l	TM184		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184		<0.1 #	<0.1 #	<0.1 #	<0.1 #	<0.1 #	<0.1 #
Mecoprop	<0.04 µg/l	TM411		<0.04	<0.04	<0.04	<0.04	<0.04	<0.04

Validated

CERTIFICATE OF ANALYSIS

SDG:	200108-45	**Client Reference:**		**Report Number:**	537502
Location:	SA32 8BG	**Order Number:**	12886 LAN	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/9	BH208	BH5/02	NACW203	NACW205	NACW212
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	06/01/2020	06/01/2020	06/01/2020	06/01/2020	06/01/2020	06/01/2020
			Sample Time	.	.	.	.	.	.
			Date Received	08/01/2020	08/01/2020	08/01/2020	08/01/2020	08/01/2020	08/01/2020
			SDG Ref	200108-45	200108-45	200108-45	200108-45	200108-45	200108-45
			Lab Sample No.(s)	21455875	21455889	21455887	21455890	21455891	21455892
			AGS Reference						
Alkalinity, Total as CaCO3	<2 mg/l	TM043		60 #	235 #	230 #	50 #	221 #	67 #
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 #	<0.2 #	<0.2 #	1.98 #	<0.2 #	<0.2 #
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120		0.505 #	0.434 #	0.505 #	0.113 #	0.452 #	0.277 #
Cadmium (diss.filt)	<0.08 µg/l	TM152		<0.08 2 #	<0.08 2 #	<0.08 2 #	<0.08 2 #	<0.08 2 #	<0.08 2 #
Chromium (diss.filt)	<1 µg/l	TM152		<1 2 #	<1 2 #	<1 2 #	<1 2 #	<1 2 #	<1 2 #
Copper (diss.filt)	<0.3 µg/l	TM152		1.46 2 #	<0.3 2 #	<0.3 2 #	0.343 2 #	0.303 2 #	13.5 2 #
Lead (diss.filt)	<0.2 µg/l	TM152		<0.2 2 #	<0.2 2 #	<0.2 2 #	<0.2 2 #	<0.2 2 #	0.383 2 #
Manganese (diss.filt)	<3 µg/l	TM152		34.2 2 #	<3 2 #	<3 2 #	22.7 2 #	<3 2 #	4.02 2 #
Nickel (diss.filt)	<0.4 µg/l	TM152		1.14 2 #	0.457 2 #	<0.4 2 #	0.591 2 #	<0.4 2 #	1.94 2 #
Zinc (diss.filt)	<1 µg/l	TM152		2.34 2 #	1.64 2 #	2.35 2 #	2.02 2 #	2.65 2 #	55.5 2 #
Sodium (Dis.Filt)	<0.076 mg/l	TM152		24.6 2 #	10.3 2 #	10.6 2 #	4.91 2 #	11.2 2 #	10.1 2 #
Magnesium (Dis.Filt)	<0.036 mg/l	TM152		6.19 2 #	8.09 2 #	9.87 2 #	1.57 2 #	10.2 2 #	5.86 2 #
Potassium (Dis.Filt)	<0.2 mg/l	TM152		7.56 2 #	1.36 2 #	1.27 2 #	1.03 2 #	1.53 2 #	4.03 2 #
Calcium (Dis.Filt)	<0.2 mg/l	TM152		77.4 2 #	84.5 2 #	100 2 #	16.7 2 #	86.8 2 #	43.4 2 #
Iron (Dis.Filt)	<0.019 mg/l	TM152		0.0733 2 #	<0.019 2 #	<0.019 2 #	0.112 2 #	<0.019 2 #	0.183 2 #
Nitrite as NO2	<0.05 mg/l	TM184		<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #
Sulphate	<2 mg/l	TM184		161 #	10.1 #	13 #	<2 #	13.7 #	49.4 #
Chloride	<2 mg/l	TM184		40.4 #	15.7 #	34.6 #	8.8 #	20.8 #	17.9 #
Nitrate as NO3	<0.3 mg/l	TM184		<0.3	10.2	8.69	<0.3	10.7	17.2
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184		<0.1 #	2.3 #	1.97 #	<0.1 #	2.42 #	3.9 #
Mecoprop	<0.04 µg/l	TM411		<0.04	<0.04	<0.04	<0.04	<0.04	<0.04

Validated

CERTIFICATE OF ANALYSIS

SDG:	200108-45	**Client Reference:**		**Report Number:**	537502
Location:	SA32 8BG	**Order Number:**	12886 LAN	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	NACW219	NACW228	NACW229	UD1	UD3	UD4
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	07/01/2020	06/01/2020	06/01/2020	07/01/2020	07/01/2020	07/01/2020
			Sample Time	.	.	.	.	.	.
			Date Received	08/01/2020	08/01/2020	08/01/2020	08/01/2020	08/01/2020	08/01/2020
			SDG Ref	200108-45	200108-45	200108-45	200108-45	200108-45	200108-45
			Lab Sample No.(s)	21455882	21455884	21455886	21455876	21455879	21455880
			AGS Reference						
Alkalinity, Total as CaCO3	<2 mg/l	TM043		29.5 #	37.5 #	250 #	245 #	190 #	190 #
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 #	<0.2 #	<0.2 #	<0.2 #	<0.2 #	<0.2 #
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120		0.0715 #	0.485 #	0.602 #	0.543 #	0.391 #	0.395 #
Cadmium (diss.filt)	<0.08 µg/l	TM152		<0.08 2 #	<0.08 2 #	<0.08 2 #	<0.08 2 #	<0.08 2 #	<0.08 2 #
Chromium (diss.filt)	<1 µg/l	TM152		<1 2 #	<1 2 #	<1 2 #	<1 2 #	<1 2 #	<1 2 #
Copper (diss.filt)	<0.3 µg/l	TM152		0.464 2 #	1.36 2 #	1.75 2 #	<0.3 2 #	<0.3 2 #	<0.3 2 #
Lead (diss.filt)	<0.2 µg/l	TM152		<0.2 2 #	<0.2 2 #	0.307 2 #	<0.2 2 #	<0.2 2 #	<0.2 2 #
Manganese (diss.filt)	<3 µg/l	TM152		<3 2 #	<3 2 #	53.2 2 #	65 2 #	31 2 #	31.1 2 #
Nickel (diss.filt)	<0.4 µg/l	TM152		<0.4 2 #	1.14 2 #	1.48 2 #	<0.4 2 #	<0.4 2 #	<0.4 2 #
Zinc (diss.filt)	<1 µg/l	TM152		1.4 2 #	1.17 2 #	2.68 2 #	1.41 2 #	<1 2 #	<1 2 #
Sodium (Dis.Filt)	<0.076 mg/l	TM152		4.43 2 #	27 2 #	13.6 2 #	13.5 2 #	11.2 2 #	11.3 2 #
Magnesium (Dis.Filt)	<0.036 mg/l	TM152		1.11 2 #	13.7 2 #	8.45 2 #	11.4 2 #	6.49 2 #	6.57 2 #
Potassium (Dis.Filt)	<0.2 mg/l	TM152		0.382 2 #	0.967 2 #	15.2 2 #	1.56 2 #	3.63 2 #	3.64 2 #
Calcium (Dis.Filt)	<0.2 mg/l	TM152		8.09 2 #	54 2 #	114 2 #	104 2 #	71.1 2 #	69.7 2 #
Iron (Dis.Filt)	<0.019 mg/l	TM152		<0.019 2 #	<0.019 2 #	0.0398 2 #	<0.019 2 #	<0.019 2 #	<0.019 2 #
Nitrite as NO2	<0.05 mg/l	TM184		<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #
Sulphate	<2 mg/l	TM184		2.6 #	157 #	80.3 #	14.6 #	13 #	13.1 #
Chloride	<2 mg/l	TM184		9.5 #	44.2 #	20.2 #	43.8 #	17.3 #	17.3 #
Nitrate as NO3	<0.3 mg/l	TM184		<0.3	<0.3	3.14	9.22	6.51	6.56
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184		<0.1 #	<0.1 #	0.713 #	2.09 #	1.47 #	1.49 #
Mecoprop	<0.04 µg/l	TM411		<0.04	<0.04	<0.04	<0.04	<0.04	<0.04

Validated

CERTIFICATE OF ANALYSIS

SDG:	200108-45	**Client Reference:**		**Report Number:**	537502
Location:	SA32 8BG	**Order Number:**	12886 LAN	**Superseded Report:**	

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Customer Sample Ref.			UD5					
Depth (m)			.					
Sample Type			Ground Water (GW)					
Date Sampled			06/01/2020					
Sample Time			.					
Date Received			08/01/2020					
SDG Ref			200108-45					
Lab Sample No.(s)			21455893					
AGS Reference								
Component	**LOD/Units**	**Method**						
Alkalinity, Total as CaCO3	<2 mg/l	TM043	185 #					
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099	<0.2 #					
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120	0.493 #					
Cadmium (diss.filt)	<0.08 µg/l	TM152	<0.08 2 #					
Chromium (diss.filt)	<1 µg/l	TM152	<1 2 #					
Copper (diss.filt)	<0.3 µg/l	TM152	2.77 2 #					
Lead (diss.filt)	<0.2 µg/l	TM152	<0.2 2 #					
Manganese (diss.filt)	<3 µg/l	TM152	38.3 2 #					
Nickel (diss.filt)	<0.4 µg/l	TM152	2.8 2 #					
Zinc (diss.filt)	<1 µg/l	TM152	4.11 2 #					
Sodium (Dis.Filt)	<0.076 mg/l	TM152	13.1 2 #					
Magnesium (Dis.Filt)	<0.036 mg/l	TM152	6.38 2 #					
Potassium (Dis.Filt)	<0.2 mg/l	TM152	33.4 2 #					
Calcium (Dis.Filt)	<0.2 mg/l	TM152	77.9 2 #					
Iron (Dis.Filt)	<0.019 mg/l	TM152	0.0854 2 #					
Nitrite as NO2	<0.05 mg/l	TM184	<0.05 #					
Sulphate	<2 mg/l	TM184	38.2 #					
Chloride	<2 mg/l	TM184	35.9 #					
Nitrate as NO3	<0.3 mg/l	TM184	11.4					
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184	2.58 #					
Mecoprop	<0.04 µg/l	TM411	<0.04					

Validated

CERTIFICATE OF ANALYSIS

SDG:	200108-45	**Client Reference:**		**Report Number:**	537502
Location:	SA32 8BG	**Order Number:**	12886 LAN	**Superseded Report:**	

SVOC MS (W) - Aqueous

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/2	BH3/3	BH3/4	BH3/5	BH3/6	BH3/8
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	07/01/2020	07/01/2020	07/01/2020	06/01/2020	06/01/2020	07/01/2020
			Sample Time	.	.	.	.	.	.
			Date Received	08/01/2020	08/01/2020	08/01/2020	08/01/2020	08/01/2020	08/01/2020
			SDG Ref	200108-45	200108-45	200108-45	200108-45	200108-45	200108-45
			Lab Sample No.(s)	21455869	21455870	21455871	21455872	21455873	21455874
			AGS Reference						
4-Methylphenol (aq)	<1 µg/l	TM176		<1 #	<2 #	<2 #	<1 #	<1 #	<1 #
Diethyl phthalate (aq)	<1 µg/l	TM176		<1 #	<2 #	<2 #	<1 #	<1 #	<1 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	200108-45	**Client Reference:**		**Report Number:**	537502
Location:	SA32 8BG	**Order Number:**	12886 LAN	**Superseded Report:**	

SVOC MS (W) - Aqueous

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/9	BH208	BH5/02	NACW203	NACW205	NACW212
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	06/01/2020	06/01/2020	06/01/2020	06/01/2020	06/01/2020	06/01/2020
			Sample Time	.	.	.	.	.	.
			Date Received	08/01/2020	08/01/2020	08/01/2020	08/01/2020	08/01/2020	08/01/2020
			SDG Ref	200108-45	200108-45	200108-45	200108-45	200108-45	200108-45
			Lab Sample No.(s)	21455875	21455889	21455887	21455890	21455891	21455892
			AGS Reference						
4-Methylphenol (aq)	<1 µg/l	TM176		<1 #	<2 #	<1 #	<2 #	<1 #	<1 #
Diethyl phthalate (aq)	<1 µg/l	TM176		<1 #	<2 #	<1 #	<2 #	<1 #	<1 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	200108-45	**Client Reference:**		**Report Number:**	537502
Location:	SA32 8BG	**Order Number:**	12886 LAN	**Superseded Report:**	

SVOC MS (W) - Aqueous

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	NACW219	NACW228	NACW229	UD1	UD3	UD4
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	07/01/2020	06/01/2020	06/01/2020	07/01/2020	07/01/2020	07/01/2020
			Sample Time	.	.	.	.	.	.
			Date Received	08/01/2020	08/01/2020	08/01/2020	08/01/2020	08/01/2020	08/01/2020
			SDG Ref	200108-45	200108-45	200108-45	200108-45	200108-45	200108-45
			Lab Sample No.(s)	21455882	21455884	21455886	21455876	21455879	21455880
			AGS Reference						
4-Methylphenol (aq)	<1 µg/l	TM176		<1 #	<1 #	<2 #	<1 #	<1 #	<1 #
Diethyl phthalate (aq)	<1 µg/l	TM176		<1 #	<1 #	<2 #	<1 #	<1 #	<1 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	200108-45	**Client Reference:**		**Report Number:**	537502
Location:	SA32 8BG	**Order Number:**	12886 LAN	**Superseded Report:**	

SVOC MS (W) - Aqueous

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Customer Sample Ref.	UD5
Depth (m)	.
Sample Type	Ground Water (GW)
Date Sampled	06/01/2020
Sample Time	.
Date Received	08/01/2020
SDG Ref	200108-45
Lab Sample No.(s)	21455893
AGS Reference	

Component	LOD/Units	Method	
4-Methylphenol (aq)	<1 µg/l	TM176	<1 #
Diethyl phthalate (aq)	<1 µg/l	TM176	<1 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	200108-45	**Client Reference:**		**Report Number:**	537502
Location:	SA32 8BG	**Order Number:**	12886 LAN	**Superseded Report:**	

VOC MS (W)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/2	BH3/3	BH3/4	BH3/5	BH3/6	BH3/8
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	07/01/2020	07/01/2020	07/01/2020	06/01/2020	06/01/2020	07/01/2020
			Sample Time	.	.	.	.	.	.
			Date Received	08/01/2020	08/01/2020	08/01/2020	08/01/2020	08/01/2020	08/01/2020
			SDG Ref	200108-45	200108-45	200108-45	200108-45	200108-45	200108-45
			Lab Sample No.(s)	21455869	21455870	21455871	21455872	21455873	21455874
			AGS Reference						
Dichloromethane	<3 µg/l	TM208		<3 #	<3 #	<3 #	<3 #	<3 #	<3 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	200108-45	**Client Reference:**		**Report Number:**	537502
Location:	SA32 8BG	**Order Number:**	12886 LAN	**Superseded Report:**	

VOC MS (W)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/9	BH208	BH5/02	NACW203	NACW205	NACW212
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	06/01/2020	06/01/2020	06/01/2020	06/01/2020	06/01/2020	06/01/2020
			Sample Time	.	.	.	.	.	.
			Date Received	08/01/2020	08/01/2020	08/01/2020	08/01/2020	08/01/2020	08/01/2020
			SDG Ref	200108-45	200108-45	200108-45	200108-45	200108-45	200108-45
			Lab Sample No.(s)	21455875	21455889	21455887	21455890	21455891	21455892
			AGS Reference						
Dichloromethane	<3 µg/l	TM208		<3 #	<3 #	<3 #	<3 #	<3 #	<3 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	200108-45	**Client Reference:**		**Report Number:**	537502
Location:	SA32 8BG	**Order Number:**	12886 LAN	**Superseded Report:**	

VOC MS (W)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	NACW219	NACW228	NACW229	UD1	UD3	UD4
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	07/01/2020	06/01/2020	06/01/2020	07/01/2020	07/01/2020	07/01/2020
			Sample Time	.	.	.	.	.	.
			Date Received	08/01/2020	08/01/2020	08/01/2020	08/01/2020	08/01/2020	08/01/2020
			SDG Ref	200108-45	200108-45	200108-45	200108-45	200108-45	200108-45
			Lab Sample No.(s)	21455882	21455884	21455886	21455876	21455879	21455880
			AGS Reference						
Dichloromethane	<3 µg/l	TM208		<3 #	<3 #	<3 #	<3 #	<3 #	<3 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	200108-45	**Client Reference:**		**Report Number:**	537502
Location:	SA32 8BG	**Order Number:**	12886 LAN	**Superseded Report:**	

VOC MS (W)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

		Customer Sample Ref.	UD5
		Depth (m)	.
		Sample Type	Ground Water (GW)
		Date Sampled	06/01/2020
		Sample Time	.
		Date Received	08/01/2020
		SDG Ref	200108-45
		Lab Sample No.(s)	21455893
		AGS Reference	
Component	**LOD/Units**	**Method**	
Dichloromethane	<3 µg/l	TM208	<3 #

CERTIFICATE OF ANALYSIS

SDG:	200108-45	**Client Reference:**		**Report Number:**	537502
Location:	SA32 8BG	**Order Number:**	12886 LAN	**Superseded Report:**	

Table of Results - Appendix

Method No	Reference	Description
TM043	Method 2320B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part109 1984	Determination of alkalinity in aqueous samples
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM176	EPA 8270D Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of SVOCs in Water by GCMS
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters
TM411	Acid_Herbs_GCMS	Acid Herbs in Water by GCMS

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG:	200108-45	**Client Reference:**		**Report Number:**	537502
Location:	SA32 8BG	**Order Number:**	12886 LAN	**Superseded Report:**	

Test Completion Dates

Lab Sample No(s)	21455889	21455869	21455870	21455871	21455872	21455873	21455874	21455875	21455887	21455890
Customer Sample Ref.	BH208	BH3/2	BH3/3	BH3/4	BH3/5	BH3/6	BH3/8	BH3/9	BH5/02	NACW203
AGS Ref.										
Depth										
Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Acid Herbicides by GCMS	16-Jan-2020	15-Jan-2020	15-Jan-2020	16-Jan-2020	15-Jan-2020	15-Jan-2020	15-Jan-2020	15-Jan-2020	15-Jan-2020	16-Jan-2020
Alkalinity as CaCO3	13-Jan-2020	14-Jan-2020	14-Jan-2020	14-Jan-2020	14-Jan-2020	13-Jan-2020	13-Jan-2020	13-Jan-2020	13-Jan-2020	13-Jan-2020
Ammoniacal Nitrogen	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020
Anions by Kone (w)	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020
Conductivity (at 20 deg.C)	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020
Dissolved Metals by ICP-MS	15-Jan-2020	14-Jan-2020	14-Jan-2020	14-Jan-2020	14-Jan-2020	15-Jan-2020	15-Jan-2020	15-Jan-2020	14-Jan-2020	14-Jan-2020
Nitrite by Kone (w)	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020
SVOC MS (W) - Aqueous	14-Jan-2020	14-Jan-2020	14-Jan-2020	14-Jan-2020	14-Jan-2020	13-Jan-2020	13-Jan-2020	14-Jan-2020	13-Jan-2020	15-Jan-2020
VOC MS (W)	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020

Lab Sample No(s)	21455891	21455892	21455882	21455884	21455886	21455876	21455879	21455880	21455893
Customer Sample Ref.	NACW205	NACW212	NACW219	NACW228	NACW229	UD1	UD3	UD4	UD5
AGS Ref.									
Depth									
Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Acid Herbicides by GCMS	15-Jan-2020	15-Jan-2020	15-Jan-2020	15-Jan-2020	16-Jan-2020	15-Jan-2020	15-Jan-2020	16-Jan-2020	15-Jan-2020
Alkalinity as CaCO3	14-Jan-2020	14-Jan-2020	15-Jan-2020	13-Jan-2020	13-Jan-2020	13-Jan-2020	10-Jan-2020	10-Jan-2020	13-Jan-2020
Ammoniacal Nitrogen	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020
Anions by Kone (w)	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020
Conductivity (at 20 deg.C)	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020
Dissolved Metals by ICP-MS	14-Jan-2020	14-Jan-2020	15-Jan-2020	15-Jan-2020	15-Jan-2020	15-Jan-2020	15-Jan-2020	15-Jan-2020	14-Jan-2020
Nitrite by Kone (w)	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020
SVOC MS (W) - Aqueous	13-Jan-2020	13-Jan-2020	14-Jan-2020	13-Jan-2020	14-Jan-2020	13-Jan-2020	13-Jan-2020	14-Jan-2020	14-Jan-2020
VOC MS (W)	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020

Appendix General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**

19. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2107).*

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528700
Fax: (01244) 528701
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

CWM Environmental Ltd
Nantyclaws Landfill Site
Llanddarg Road
Carmarthen
Carmarthenshire
SA32 8BG

Attention: Darren Sanders

CERTIFICATE OF ANALYSIS

Date of report Generation:	20 January 2020
Customer:	CWM Environmental Ltd
Sample Delivery Group (SDG):	200109-45
Your Reference:	
Location:	SA32 8BG
Report No:	537751

This report has been revised and directly supersedes 537508 in its entirety.

We received 5 samples on Thursday January 09, 2020 and 5 of these samples were scheduled for analysis which was completed on Monday January 20, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan
Operations Manager

CERTIFICATE OF ANALYSIS

SDG:	200109-45	**Client Reference:**		**Report Number:**	537751
Location:	SA32 8BG	**Order Number:**	12886 LAN	**Superseded Report:**	537508

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
21461952	CELL 5 SUMP			08/01/2020
21461953	CELL 7 SUMP			08/01/2020
21461950	CELL 1-2 SUMP			08/01/2020
21461951	CELL 3-4 SUMP			08/01/2020
21461954	LEACHATE HOLDING LAGOON			08/01/2020

Maximum Sample/Coolbox Temperature (°C) : **7.6**

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG:	200109-45	**Client Reference:**		**Report Number:**	537751
Location:	SA32 8BG	**Order Number:**	12886 LAN	**Superseded Report:**	537508

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)								21461952							21461953						21461950	21461951
Customer Sample Reference								CELL 5 SUMP							CELL 7 SUMP						CELL 1-2 SUMP	CELL 3-4 SUMP
AGS Reference																						
Depth (m)																						
Container								0.5l glass bottle (ALE227)	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Unfiltered (ALE204)	Vial (ALE297)	0.5l glass bottle (ALE227)	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Unfiltered (ALE204)	Vial (ALE297)	0.5l glass bottle (ALE227)	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Unfiltered (ALE204)	Vial (ALE297)	0.5l glass bottle (ALE227)
Sample Type								LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE
Acid Herbicides by GCMS	All	NDPs: 0 Tests: 5						X						X						X						X
Alkalinity as CaCO3	All	NDPs: 0 Tests: 5								X						X						X				
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 5									X						X						X			
Anions by ion Chromatography	All	NDPs: 0 Tests: 1																					X			
Anions by Kone (w)	All	NDPs: 0 Tests: 4								X						X										
BOD True Total	All	NDPs: 0 Tests: 5							X						X						X					
COD Unfiltered	All	NDPs: 0 Tests: 5							X						X						X					
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 5								X						X						X				
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 5								X						X						X				
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 5						X						X						X						X
Total Metals by ICP-MS	All	NDPs: 0 Tests: 5										X						X						X		
Total Organic and Inorganic Carbon	All	NDPs: 0 Tests: 5									X						X						X			
VOC MS (W)	All	NDPs: 0 Tests: 5											X						X						X	

21461954	LEACHATE HOLDING LAGOON			Vial (ALE297)	LE																X
				HNO3 Unfiltered (ALE204)	LE														X		
				H2SO4 (ALE244)	LE			X												X	
				250ml BOD (ALE212)	LE						X		X								
				1lplastic (ALE221)	LE		X			X				X		X					
				0.5l glass bottle (ALE227)	LE	X											X				
21461951	CELL 3-4 SUMP			Vial (ALE297)	LE																X
				HNO3 Unfiltered (ALE204)	LE														X		
				H2SO4 (ALE244)	LE			X												X	
				500ml Plastic (ALE208)	LE		X			X				X		X					
				250ml BOD (ALE212)	LE						X		X								

Validated

CERTIFICATE OF ANALYSIS

SDG:	200109-45	**Client Reference:**		**Report Number:**	537751
Location:	SA32 8BG	**Order Number:**	12886 LAN	**Superseded Report:**	537508

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	CELL 5 SUMP	CELL 7 SUMP	CELL 1-2 SUMP	CELL 3-4 SUMP	LEACHATE HOLDING LAG OON
			Depth (m)	.	.	.	.	.
			Sample Type	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
			Date Sampled	08/01/2020	08/01/2020	08/01/2020	08/01/2020	08/01/2020
			Sample Time	.	.	.	.	.
			Date Received	09/01/2020	09/01/2020	09/01/2020	09/01/2020	09/01/2020
			SDG Ref	200109-45	200109-45	200109-45	200109-45	200109-45
			Lab Sample No.(s)	21461952	21461953	21461950	21461951	21461954
			AGS Reference					
Alkalinity, Total as CaCO3	<2 mg/l	TM043		3980 #	8840 #	8760 #	4020 #	5570 #
BOD, unfiltered	<1 mg/l	TM045		66.7 #	136 #	101 #	134 #	81.6 #
Organic Carbon, Total	<3 mg/l	TM090		361	1110	810	362	568
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		1000	1800	2460	911	1280
COD, unfiltered	<7 mg/l	TM107		1130 #	3280 #	2950 #	2490 #	1780 #
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120		18.9 #	18.8 #	38.3 #	12.7 #	19.4 #
Cadmium (diss.filt)	<0.08 µg/l	TM152		0.175 2 #	0.14 2 #	2.2 2 #	0.721 2 #	0.197 2 #
Cadmium (tot.unfilt)	<0.5 µg/l	TM152		<0.5 #	<0.5 #	<3 #	<0.5 #	<0.5 #
Chromium (tot.unfilt)	<3 µg/l	TM152		84.9 #	527 #	227 #	97.5 #	186 #
Chromium (diss.filt)	<1 µg/l	TM152		76.4 2 #	344 2 #	212 2 #	78.7 2 #	133 2 #
Copper (tot.unfilt)	<1 µg/l	TM152		7.86 #	6.68 #	45.5 #	13.4 #	17.1 #
Lead (tot.unfilt)	<1 µg/l	TM152		4.22 #	6.52 #	20.7 #	3.57 #	7.6 #
Copper (diss.filt)	<0.3 µg/l	TM152		6.33 2 #	4.49 2 #	31.3 2 #	2.06 2 #	8.51 2 #
Manganese (tot.unfilt)	<1 µg/l	TM152		1130 #	1310 #	114 #	2040 #	1160 #
Lead (diss.filt)	<0.2 µg/l	TM152		3.15 2 #	5.37 2 #	16 2 #	1.52 2 #	4.54 2 #
Nickel (tot.unfilt)	<1 µg/l	TM152		102 #	207 #	345 #	114 #	137 #
Manganese (diss.filt)	<3 µg/l	TM152		1030 2 #	1200 2 #	88 2 #	1290 2 #	1100 2 #
Nickel (diss.filt)	<0.4 µg/l	TM152		97.3 2 #	193 2 #	286 2 #	109 2 #	139 2 #
Zinc (tot.unfilt)	<5 µg/l	TM152		91.4 #	171 #	235 #	67.8 #	108 #
Zinc (diss.filt)	<1 µg/l	TM152		66.5 2 #	122 2 #	160 2 #	29.7 2 #	61.9 2 #
Sodium (Dis.Filt)	<0.076 mg/l	TM152		2590 2 #	2070 2 #	4310 2 #	1490 2 #	2420 2 #
Magnesium (Dis.Filt)	<0.036 mg/l	TM152		84.1 2 #	70.5 2 #	49.1 2 #	51.3 2 #	75.8 2 #
Potassium (Dis.Filt)	<0.2 mg/l	TM152		1590 2 #	816 2 #	2740 2 #	791 2 #	1350 2 #
Calcium (Dis.Filt)	<0.2 mg/l	TM152		104 2 #	99.1 2 #	27.8 2 #	108 2 #	99.9 2 #
Iron (Dis.Filt)	<0.019 mg/l	TM152		4.64 2 #	7.81 2 #	3.95 2 #	7.97 2 #	3.61 2 #
Sodium (Tot. Unfilt.)	<0.047 mg/l	TM152		2020 #	1820 #	4900 #	1350 #	2180 #
Magnesium (Tot. Unfilt.)	<0.05 mg/l	TM152		84.6 #	75.5 #	59.6 #	49.6 #	75.1 #
Potassium (Tot. Unfilt.)	<0.2 mg/l	TM152		1800 #	995 #	2900 #	804 #	1360 #
Calcium (Tot. Unfilt.)	<0.057 mg/l	TM152		109 #	108 #	37.3 #	127 #	103 #
Iron (Tot. Unfilt.)	<0.024 mg/l	TM152		7.46 #	8.87 #	5.02 #	63.7 #	4.05 #
Sulphate	<2 mg/l	TM184		38	356		<20	<20
Chloride	<2 mg/l	TM184		4920	2410		2360	4240
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184		12.5	1.08		<0.5	<0.5

Validated

CERTIFICATE OF ANALYSIS

SDG:	200109-45	**Client Reference:**		**Report Number:**	537751
Location:	SA32 8BG	**Order Number:**	12886 LAN	**Superseded Report:**	537508

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	CELL 5 SUMP	CELL 7 SUMP	CELL 1-2 SUMP	CELL 3-4 SUMP	LEACHATE HOLDING LAG OON
			Depth (m)	.	.	.	.	.
			Sample Type	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
			Date Sampled	08/01/2020	08/01/2020	08/01/2020	08/01/2020	08/01/2020
			Sample Time	.	.	.	.	.
			Date Received	09/01/2020	09/01/2020	09/01/2020	09/01/2020	09/01/2020
			SDG Ref	200109-45	200109-45	200109-45	200109-45	200109-45
			Lab Sample No.(s)	21461952	21461953	21461950	21461951	21461954
			AGS Reference					
Chloride	<0.08 mg/l	TM226			10900 #			
Sulphate	<0.1 mg/l	TM226			51 #			
Total Oxidised Nitrogen as N	<0.02 mg/l	TM226			<0.02			
Mecoprop	<0.04 µg/l	TM411	42	35.5	107	39.5	37.5	

Validated

CERTIFICATE OF ANALYSIS

SDG:	200109-45	**Client Reference:**		**Report Number:**	537751
Location:	SA32 8BG	**Order Number:**	12886 LAN	**Superseded Report:**	537508

SVOC MS (W) - Aqueous

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	CELL 5 SUMP	CELL 7 SUMP	CELL 1-2 SUMP	CELL 3-4 SUMP	LEACHATE HOLDING LAG OON
			Depth (m)	.	.	.	.	.
			Sample Type	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
			Date Sampled	08/01/2020	08/01/2020	08/01/2020	08/01/2020	08/01/2020
			Sample Time	.	.	.	.	.
			Date Received	09/01/2020	09/01/2020	09/01/2020	09/01/2020	09/01/2020
			SDG Ref	200109-45	200109-45	200109-45	200109-45	200109-45
			Lab Sample No.(s)	21461952	21461953	21461950	21461951	21461954
			AGS Reference					
4-Methylphenol (aq)	<1 µg/l	TM176		<1	<20	<20	<10	<20
Diethyl phthalate (aq)	<1 µg/l	TM176		<1	<20	<20	<10	<20

Validated

CERTIFICATE OF ANALYSIS

SDG:	200109-45	**Client Reference:**		**Report Number:**	537751
Location:	SA32 8BG	**Order Number:**	12886 LAN	**Superseded Report:**	537508

VOC MS (W)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	CELL 5 SUMP	CELL 7 SUMP	CELL 1-2 SUMP	CELL 3-4 SUMP	LEACHATE HOLDING LAG OON
			Depth (m)	.	.	.	.	.
			Sample Type	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
			Date Sampled	08/01/2020	08/01/2020	08/01/2020	08/01/2020	08/01/2020
			Sample Time	.	.	.	.	.
			Date Received	09/01/2020	09/01/2020	09/01/2020	09/01/2020	09/01/2020
			SDG Ref	200109-45	200109-45	200109-45	200109-45	200109-45
			Lab Sample No.(s)	21461952	21461953	21461950	21461951	21461954
			AGS Reference					
Dichloromethane	<3 µg/l	TM208		<3 #	<3 #	<3 #	<3 #	<3 #

CERTIFICATE OF ANALYSIS

SDG:	200109-45	**Client Reference:**		**Report Number:**	537751
Location:	SA32 8BG	**Order Number:**	12886 LAN	**Superseded Report:**	537508

Table of Results - Appendix

Method No	Reference	Description
TM043	Method 2320B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part109 1984	Determination of alkalinity in aqueous samples
TM045	MEWAM BOD5 2nd Ed.HMSO 1988 / Method 5210B, AWWA/APHA, 20th Ed., 1999; SCA Blue Book 130	Determination of BOD5 (ATU) Filtered by Oxygen Meter on liquids
TM090	Method 5310, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 415.1 & 9060	Determination of Total Organic Carbon/Total Inorganic Carbon in Water and Waste Water
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM107	ISO 6060-1989	Determination of Chemical Oxygen Demand using COD Dr Lange Kit
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM176	EPA 8270D Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of SVOCs in Water by GCMS
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters
TM226	In-House Method	Determination of Anions in Waters using Ion Chromatography
TM411	Acid_Herbs_GCMS	Acid Herbs in Water by GCMS

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG:	200109-45	**Client Reference:**		**Report Number:**	537751
Location:	SA32 8BG	**Order Number:**	12886 LAN	**Superseded Report:**	537508

Test Completion Dates

Lab Sample No(s)	21461952	21461953	21461950	21461951	21461954
Customer Sample Ref.	CELL 5 SUMP	CELL 7 SUMP	CELL 1-2 SUMP	CELL 3-4 SUMP	LEACHATE HOLDING LAGOON
AGS Ref.					
Depth					
Type	Land Leachate	Land Leachate	Land Leachate	Land Leachate	Land Leachate
Acid Herbicides by GCMS	15-Jan-2020	15-Jan-2020	16-Jan-2020	15-Jan-2020	15-Jan-2020
Alkalinity as CaCO3	14-Jan-2020	15-Jan-2020	15-Jan-2020	14-Jan-2020	15-Jan-2020
Ammoniacal Nitrogen	13-Jan-2020	13-Jan-2020	13-Jan-2020	13-Jan-2020	13-Jan-2020
Anions by ion Chromatography			15-Jan-2020		
Anions by Kone (w)	10-Jan-2020	10-Jan-2020		10-Jan-2020	10-Jan-2020
BOD True Total	15-Jan-2020	15-Jan-2020	15-Jan-2020	15-Jan-2020	15-Jan-2020
COD Unfiltered	11-Jan-2020	11-Jan-2020	11-Jan-2020	11-Jan-2020	11-Jan-2020
Conductivity (at 20 deg.C)	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020
Dissolved Metals by ICP-MS	17-Jan-2020	17-Jan-2020	20-Jan-2020	17-Jan-2020	17-Jan-2020
SVOC MS (W) - Aqueous	14-Jan-2020	14-Jan-2020	15-Jan-2020	15-Jan-2020	15-Jan-2020
Total Metals by ICP-MS	20-Jan-2020	20-Jan-2020	20-Jan-2020	20-Jan-2020	20-Jan-2020
Total Organic and Inorganic Carbon	11-Jan-2020	11-Jan-2020	11-Jan-2020	11-Jan-2020	11-Jan-2020
VOC MS (W)	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020	10-Jan-2020

Appendix General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**

19. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2107).*

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528700
Fax: (01244) 528701
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

CWM Environmental Ltd
Nantyclaws Landfill Site
Llanddarg Road
Carmarthen
Carmarthenshire
SA32 8BG

Attention: Darren Sanders

CERTIFICATE OF ANALYSIS

Date of report Generation:	18 February 2020
Customer:	CWM Environmental Ltd
Sample Delivery Group (SDG):	200212-31
Your Reference:	
Location:	SA32 8BG
Report No:	541782

We received 23 samples on Wednesday February 12, 2020 and 23 of these samples were scheduled for analysis which was completed on Tuesday February 18, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan
Operations Manager

ALS Life Sciences Limited. Registered Office: Units 7 & 8 Hawarden Business Park, Manor Road, Hawarden, Deeside, CH5 3US. Registered in England and Wales No. 4057291.

Version: 2.3 Version Issued: 18/02/2020

CERTIFICATE OF ANALYSIS

SDG:	200212-31	**Client Reference:**		**Report Number:**	541782
Location:	SA32 8BG	**Order Number:**	14310LAN	**Superseded Report:**	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
21668382	BH 3/4			11/02/2020
21668378	BH 208			11/02/2020
21668379	BH 5/02			11/02/2020
21668372	CELL 5			11/02/2020
21668373	CELL 7			11/02/2020
21668370	CELL 1-2 SUMP			11/02/2020
21668371	CELL 3-4 SUMP			11/02/2020
21668374	LEACHATE HOLDING LAGOON			11/02/2020
21668375	NACW 203			11/02/2020
21668377	NACW 205			11/02/2020
21668380	NACW 212			11/02/2020
21668381	NACW228			11/02/2020
21668387	SW201			11/02/2020
21668388	SW202			11/02/2020
21668389	SW203			11/02/2020
21668391	SW204			11/02/2020
21668392	SW205			11/02/2020
21668393	SW206			11/02/2020
21668394	SW207			11/02/2020
21668383	UD1			11/02/2020
21668384	UD3			11/02/2020
21668385	UD4			11/02/2020
21668386	UD5			11/02/2020

Maximum Sample/Coolbox Temperature (°C) :

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

6.2

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG:	200212-31	**Client Reference:**		**Report Number:**	541782
Location:	SA32 8BG	**Order Number:**	14310LAN	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)	21668382		21668378		21668379		21668372		21668373		21668370		21668371		21668374		21668375		21668377	
Customer Sample Reference	BH 3/4		BH 208		BH 5/02		CELL 5		CELL 7		CELL 1-2 SUMP		CELL 3-4 SUMP		LEACHATE HOLDING LAGOON		NACW 203		NACW 205	
AGS Reference																				
Depth (m)																				
Container	500ml Plastic (ALE208)	H2SO4 (ALE244)	500ml Plastic (ALE208)	H2SO4 (ALE244)	500ml Plastic (ALE208)	H2SO4 (ALE244)	500ml Plastic (ALE208)	H2SO4 (ALE244)	500ml Plastic (ALE208)	H2SO4 (ALE244)	500ml Plastic (ALE208)	H2SO4 (ALE244)	500ml Plastic (ALE208)	H2SO4 (ALE244)	500ml Plastic (ALE208)	H2SO4 (ALE244)	500ml Plastic (ALE208)	H2SO4 (ALE244)	500ml Plastic (ALE208)	H2SO4 (ALE244)
Sample Type	GW	GW	GW	GW	GW	GW	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	GW	GW	GW	GW
Ammoniacal Nitrogen — All — NDPs: 0 Tests: 23		X		X		X		X		X		X		X		X		X		
Anions by Kone (w) — All — NDPs: 0 Tests: 23	X		X		X		X		X		X		X		X		X		X	
Conductivity (at 20 deg.C) — All — NDPs: 0 Tests: 23	X		X		X		X		X		X		X		X		X		X	
pH Value — All — NDPs: 0 Tests: 7																				
Suspended Solids — All — NDPs: 0 Tests: 7																				

21668383	UD1			H2SO4 (ALE244)	GW	X					
				500ml Plastic (ALE208)	GW		X	X			
21668394	SW207			H2SO4 (ALE244)	SW	X					
				500ml Plastic (ALE208)	SW		X	X	X	X	
21668393	SW206			H2SO4 (ALE244)	SW	X					
				500ml Plastic (ALE208)	SW		X	X	X	X	
21668392	SW205			H2SO4 (ALE244)	SW	X					
				500ml Plastic (ALE208)	SW		X	X	X	X	
21668391	SW204			H2SO4 (ALE244)	SW	X					
				500ml Plastic (ALE208)	SW		X	X	X	X	
21668389	SW203			H2SO4 (ALE244)	SW	X					
				500ml Plastic (ALE208)	SW		X	X	X	X	
21668388	SW202			H2SO4 (ALE244)	SW	X					
				500ml Plastic (ALE208)	SW		X	X	X	X	
21668387	SW201			H2SO4 (ALE244)	SW	X					
				500ml Plastic (ALE208)	SW		X	X	X	X	
21668381	NACW228			H2SO4 (ALE244)	GW	X					
				500ml Plastic (ALE208)	GW		X	X			
21668380	NACW 212			H2SO4 (ALE244)	GW	X					
				500ml Plastic (ALE208)	GW		X	X			
21668377	NACW 205			H2SO4 (ALE244)	GW	X					

Validated

CERTIFICATE OF ANALYSIS

SDG:	200212-31	**Client Reference:**		**Report Number:**	541782
Location:	SA32 8BG	**Order Number:**	14310LAN	**Superseded Report:**	

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			21668384		21668385		21668386					
Customer Sample Reference			UD3		UD4		UD5					
AGS Reference												
Depth (m)												
Container			500ml Plastic (ALE208)	H2SO4 (ALE244)	500ml Plastic (ALE208)	H2SO4 (ALE244)	500ml Plastic (ALE208)	H2SO4 (ALE244)				
Sample Type			GW	GW	GW	GW	GW	GW				
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 23		X		X		X				
Anions by Kone (w)	All	NDPs: 0 Tests: 23	X		X		X					
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 23	X		X		X					

Validated

CERTIFICATE OF ANALYSIS

SDG:	200212-31	**Client Reference:**		**Report Number:**	541782
Location:	SA32 8BG	**Order Number:**	14310LAN	**Superseded Report:**	

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH 3/4	BH 208	BH 5/02	CELL 5	CELL 7	CELL 1-2 SUMP
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
			Date Sampled	11/02/2020	11/02/2020	11/02/2020	11/02/2020	11/02/2020	11/02/2020
			Sample Time	.	.	.	.	.	.
			Date Received	12/02/2020	12/02/2020	12/02/2020	12/02/2020	12/02/2020	12/02/2020
			SDG Ref	200212-31	200212-31	200212-31	200212-31	200212-31	200212-31
			Lab Sample No.(s)	21668382	21668378	21668379	21668372	21668373	21668370
			AGS Reference						
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 #	<0.2 #	<0.2 #	909	1200	2450
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120		0.144 #	0.385 #	0.412 #	13.4 #	12.4 #	0.402 #
Chloride	<2 mg/l	TM184		8.3 #	15.1 #	20.2 #	3130	1550	11100

Validated

CERTIFICATE OF ANALYSIS

SDG:	200212-31	**Client Reference:**		**Report Number:**	541782
Location:	SA32 8BG	**Order Number:**	14310LAN	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	CELL 3-4 SUMP	LEACHATE HOLDING LAG OON	NACW 203	NACW 205	NACW 212	NACW228
			Depth (m)	.	.	.	.	.	.
			Sample Type	Land Leachate (LE)	Land Leachate (LE)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	11/02/2020	11/02/2020	11/02/2020	11/02/2020	11/02/2020	11/02/2020
			Sample Time	.	.	.	.	.	.
			Date Received	12/02/2020	12/02/2020	12/02/2020	12/02/2020	12/02/2020	12/02/2020
			SDG Ref	200212-31	200212-31	200212-31	200212-31	200212-31	200212-31
			Lab Sample No.(s)	21668371	21668374	21668375	21668377	21668380	21668381
			AGS Reference						
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		776	1210	<0.2 #	<0.2 #	<0.2 #	<0.2 #
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120		8.99 #	17.5 #	0.0765 #	0.46 #	0.245 #	0.319 #
Chloride	<2 mg/l	TM184		1160	3840	10.1 #	30.6 #	17 #	30.9 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	200212-31	**Client Reference:**		**Report Number:**	541782
Location:	SA32 8BG	**Order Number:**	14310LAN	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW201	SW202	SW203	SW204	SW205	SW206
			Depth (m)	.	.	.	.	.	.
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
			Date Sampled	11/02/2020	11/02/2020	11/02/2020	11/02/2020	11/02/2020	11/02/2020
			Sample Time	.	.	.	.	.	.
			Date Received	12/02/2020	12/02/2020	12/02/2020	12/02/2020	12/02/2020	12/02/2020
			SDG Ref	200212-31	200212-31	200212-31	200212-31	200212-31	200212-31
			Lab Sample No.(s)	21668387	21668388	21668389	21668391	21668392	21668393
			AGS Reference						
Suspended solids, Total	<2 mg/l	TM022		11.9 #	11.8 #	4.05 #	6.4 #	7.7 #	24.5 #
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 #	<0.2 #	<0.2 #	<0.2 #	0.262 #	0.301 #
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120		0.166 #	0.163 #	0.442 #	0.381 #	0.393 #	0.461 #
Chloride	<2 mg/l	TM184		17.8 #	17.8 #	25 #	33.2 #	34 #	36.6 #
pH	<1 pH Units	TM256		7.71 #	7.67 #	7.93 #	7.73 #	8.02 #	7.97 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	200212-31	**Client Reference:**		**Report Number:**	541782
Location:	SA32 8BG	**Order Number:**	14310LAN	**Superseded Report:**	

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW207	UD1	UD3	UD4	UD5	
			Depth (m)	.	.	.	.	.	
			Sample Type	Surface Water (SW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	
			Date Sampled	11/02/2020	11/02/2020	11/02/2020	11/02/2020	11/02/2020	
			Sample Time	.	.	.	.	.	
			Date Received	12/02/2020	12/02/2020	12/02/2020	12/02/2020	12/02/2020	
			SDG Ref	200212-31	200212-31	200212-31	200212-31	200212-31	
			Lab Sample No.(s)	21668394	21668383	21668384	21668385	21668386	
			AGS Reference						
Suspended solids, Total	<2 mg/l	TM022		14.9 #					
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 #	<0.2 #	<0.2 #	0.588 #	<0.2 #	
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120		0.268 #	0.537 #	0.34 #	0.489 #	0.392 #	
Chloride	<2 mg/l	TM184		23 #	40.7 #	16.1 #	14.6 #	34.3 #	
pH	<1 pH Units	TM256		7.84 #					

CERTIFICATE OF ANALYSIS

SDG:	200212-31	**Client Reference:**		**Report Number:**	541782
Location:	SA32 8BG	**Order Number:**	14310LAN	**Superseded Report:**	

Table of Results - Appendix

Method No	Reference	Description
TM022	Method 2540D, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part120 1981;BS EN 872	Determination of total suspended solids in waters
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG:	200212-31	**Client Reference:**		**Report Number:**	541782
Location:	SA32 8BG	**Order Number:**	14310LAN	**Superseded Report:**	

Test Completion Dates

Lab Sample No(s)	21668378	21668382	21668379	21668372	21668373	21668370	21668371	21668374	21668375	21668377
Customer Sample Ref.	BH 208	BH 3/4	BH 5/02	CELL 5	CELL 7	CELL 1-2 SUMP	CELL 3-4 SUMP	LEACHATE HOLDIN G LAGOON	NACW 203	NACW 205
AGS Ref.										
Depth										
Type	Ground Water	Ground Water	Ground Water	Land Leachate	Land Leachate	Land Leachate	Land Leachate	Land Leachate	Ground Water	Ground Water
Ammoniacal Nitrogen	13-Feb-2020	13-Feb-2020	13-Feb-2020	14-Feb-2020	14-Feb-2020	14-Feb-2020	14-Feb-2020	14-Feb-2020	13-Feb-2020	13-Feb-2020
Anions by Kone (w)	13-Feb-2020	13-Feb-2020	13-Feb-2020	14-Feb-2020	14-Feb-2020	14-Feb-2020	14-Feb-2020	14-Feb-2020	13-Feb-2020	13-Feb-2020
Conductivity (at 20 deg.C)	17-Feb-2020	17-Feb-2020	17-Feb-2020	17-Feb-2020	17-Feb-2020	14-Feb-2020	17-Feb-2020	17-Feb-2020	17-Feb-2020	17-Feb-2020

Lab Sample No(s)	21668381	21668380	21668387	21668388	21668389	21668391	21668392	21668393	21668394	21668383
Customer Sample Ref.	NACW228	NACW 212	SW201	SW202	SW203	SW204	SW205	SW206	SW207	UD1
AGS Ref.										
Depth										
Type	Ground Water	Ground Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Ground Water
Ammoniacal Nitrogen	13-Feb-2020	13-Feb-2020	13-Feb-2020	13-Feb-2020	13-Feb-2020	13-Feb-2020	13-Feb-2020	13-Feb-2020	13-Feb-2020	13-Feb-2020
Anions by Kone (w)	13-Feb-2020	13-Feb-2020	13-Feb-2020	13-Feb-2020	13-Feb-2020	13-Feb-2020	13-Feb-2020	13-Feb-2020	13-Feb-2020	13-Feb-2020
Conductivity (at 20 deg.C)	17-Feb-2020	17-Feb-2020	17-Feb-2020	17-Feb-2020	17-Feb-2020	17-Feb-2020	17-Feb-2020	17-Feb-2020	17-Feb-2020	14-Feb-2020
pH Value			18-Feb-2020	18-Feb-2020	18-Feb-2020	18-Feb-2020	18-Feb-2020	14-Feb-2020	18-Feb-2020	
Suspended Solids			14-Feb-2020	14-Feb-2020	14-Feb-2020	14-Feb-2020	14-Feb-2020	14-Feb-2020	14-Feb-2020	

Lab Sample No(s)	21668384	21668385	21668386
Customer Sample Ref.	UD3	UD4	UD5
AGS Ref.			
Depth			
Type	Ground Water	Ground Water	Ground Water
Ammoniacal Nitrogen	13-Feb-2020	13-Feb-2020	13-Feb-2020
Anions by Kone (w)	13-Feb-2020	13-Feb-2020	13-Feb-2020
Conductivity (at 20 deg.C)	17-Feb-2020	14-Feb-2020	17-Feb-2020

Appendix General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**

19. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2107).*

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528700
Fax: (01244) 528701
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

CWM Environmental Ltd
Nantyclaws Landfill Site
Llanddarg Road
Carmarthen
Carmarthenshire
SA32 8BG

Attention: Darren Sanders

CERTIFICATE OF ANALYSIS

Date of report Generation:	23 March 2020
Customer:	CWM Environmental Ltd
Sample Delivery Group (SDG):	200312-40
Your Reference:	
Location:	SA32 8BG
Report No:	546998

We received 24 samples on Thursday March 12, 2020 and 24 of these samples were scheduled for analysis which was completed on Monday March 23, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG:	200312-40	**Client Reference:**		**Report Number:**	546998
Location:	SA32 8BG	**Order Number:**	14336LAN	**Superseded Report:**	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
21871082	BH3/4			11/03/2020
21871078	BH 208			11/03/2020
21871079	BH5/02			11/03/2020
21871072	CELL 5 SUMP			11/03/2020
21871073	CELL 6 SUMP			11/03/2020
21871074	CELL 7 SUMP			11/03/2020
21871070	CELL 1-2 SUMP			11/03/2020
21871071	CELL 3/4 SUMP			11/03/2020
21871075	LEACHATE HOLDING LAGOON			11/03/2020
21871076	NACW 203			11/03/2020
21871077	NACW 205			11/03/2020
21871080	NACW 212			11/03/2020
21871081	NACW 228			11/03/2020
21871063	SW 201			11/03/2020
21871064	SW 202			11/03/2020
21871065	SW203			11/03/2020
21871066	SW 204			11/03/2020
21871067	SW 205			11/03/2020
21871068	SW 206			11/03/2020
21871069	SW0207			11/03/2020
21871083	UD1			11/03/2020
21871084	UD3			11/03/2020
21871085	UD4			11/03/2020
21871086	UD5			11/03/2020

Maximum Sample/Coolbox Temperature (°C) : **6.6**

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG:	200312-40	**Client Reference:**		**Report Number:**	546998
Location:	SA32 8BG	**Order Number:**	14336LAN	**Superseded Report:**	

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			21871082	21871078	21871079	21871072	21871073	21871074	21871070	21871071	21871075	21871076								
Customer Sample Reference			BH3/4	BH 208	BH5/02	CELL 5 SUMP	CELL 6 SUMP	CELL 7 SUMP	CELL 1-2 SUMP	CELL 3/4 SUMP	LEACHATE HOLDING LAGOON	NACW 203								
AGS Reference																				
Depth (m)																				
Container			500ml Plastic (ALE208)	H2SO4 (ALE244)	500ml Plastic (ALE208)	H2SO4 (ALE244)	500ml Plastic (ALE208)	H2SO4 (ALE244)	500ml Plastic (ALE208)	H2SO4 (ALE244)	500ml Plastic (ALE208)	H2SO4 (ALE244)	500ml Plastic (ALE208)	H2SO4 (ALE244)	500ml Plastic (ALE208)	H2SO4 (ALE244)	500ml Plastic (ALE208)	H2SO4 (ALE244)	500ml Plastic (ALE208)	H2SO4 (ALE244)	500ml Plastic (ALE208)
Sample Type			GW	GW	GW	GW	GW	GW	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 24		X		X		X		X		X		X		X		X		X	
Anions by Kone (w)	All	NDPs: 0 Tests: 24	X		X		X		X		X		X		X		X		X		X	
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 24	X		X		X		X		X		X		X		X		X		X	
pH Value	All	NDPs: 0 Tests: 7																				
Suspended Solids	All	NDPs: 0 Tests: 7																				

| | | |

Validated

CERTIFICATE OF ANALYSIS

SDG:	200312-40	**Client Reference:**		**Report Number:**	546998
Location:	SA32 8BG	**Order Number:**	14336LAN	**Superseded Report:**	

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			21871083		21871084		21871085		21871086
Customer Sample Reference			UD1		UD3		UD4		UD5
AGS Reference									
Depth (m)									
Container			500ml Plastic (ALE208)	H2SO4 (ALE244)	500ml Plastic (ALE208)	H2SO4 (ALE244)	500ml Plastic (ALE208)	H2SO4 (ALE244)	500ml Plastic (ALE208)	H2SO4 (ALE244)
Sample Type			GW	GW	GW	GW	GW	GW	GW	GW
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 24		X		X		X		X
Anions by Kone (w)	All	NDPs: 0 Tests: 24	X		X		X		X	
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 24	X		X		X		X	

Validated

CERTIFICATE OF ANALYSIS

SDG:	200312-40	**Client Reference:**		**Report Number:**	546998
Location:	SA32 8BG	**Order Number:**	14336LAN	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/4	BH 208	BH5/02	CELL 5 SUMP	CELL 6 SUMP	CELL 7 SUMP
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
			Date Sampled	11/03/2020	11/03/2020	11/03/2020	11/03/2020	11/03/2020	11/03/2020
			Sample Time	.	.	.	.	.	.
			Date Received	12/03/2020	12/03/2020	12/03/2020	12/03/2020	12/03/2020	12/03/2020
			SDG Ref	200312-40	200312-40	200312-40	200312-40	200312-40	200312-40
			Lab Sample No.(s)	21871082	21871078	21871079	21871072	21871073	21871074
			AGS Reference						
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 #	<0.2 #	<0.2 #	831	422	621
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120		0.23 #	0.388 #	0.407 #	15.4 #	5.39 #	8.29 #
Chloride	<2 mg/l	TM184		8.5 #	14.9 #	20.4 #	3850	605	1090

Validated

CERTIFICATE OF ANALYSIS

SDG:	200312-40	**Client Reference:**		**Report Number:**	546998
Location:	SA32 8BG	**Order Number:**	14336LAN	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	CELL 1-2 SUMP	CELL 3/4 SUMP	LEACHATE HOLDING LAG OON	NACW 203	NACW 205	NACW 212
			Depth (m)	.	.	.	.	.	.
			Sample Type	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	11/03/2020	11/03/2020	11/03/2020	11/03/2020	11/03/2020	11/03/2020
			Sample Time	.	.	.	.	.	.
			Date Received	12/03/2020	12/03/2020	12/03/2020	12/03/2020	12/03/2020	12/03/2020
			SDG Ref	200312-40	200312-40	200312-40	200312-40	200312-40	200312-40
			Lab Sample No.(s)	21871070	21871071	21871075	21871076	21871077	21871080
			AGS Reference						
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		1980	824	983	<0.2 #	<0.2 #	<0.2 #
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120		34.4 #	9.18 #	16.2 #	0.228 #	0.428 #	0.267 #
Chloride	<2 mg/l	TM184		10300	1380	3520	8.8 #	26.4 #	16.3 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	200312-40	**Client Reference:**		**Report Number:**	546998
Location:	SA32 8BG	**Order Number:**	14336LAN	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	NACW 228	SW 201	SW 202	SW203	SW 204	SW 205
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
			Date Sampled	11/03/2020	11/03/2020	11/03/2020	11/03/2020	11/03/2020	11/03/2020
			Sample Time	.	.	.	.	.	.
			Date Received	12/03/2020	12/03/2020	12/03/2020	12/03/2020	12/03/2020	12/03/2020
			SDG Ref	200312-40	200312-40	200312-40	200312-40	200312-40	200312-40
			Lab Sample No.(s)	21871081	21871063	21871064	21871065	21871066	21871067
			AGS Reference						
Suspended solids, Total	<2 mg/l	TM022			4.1 #	12.7 #	5.65 #	3 #	3.1 #
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 #	<0.2 #	0.419 #	0.503 #	<0.2 #	<0.2 #
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120		0.447 #	0.148 #	0.391 #	0.442 #	0.334 #	0.302 #
Chloride	<2 mg/l	TM184		34.9 #	13.6 #	30.2 #	17.1 #	22 #	21.9 #
pH	<1 pH Units	TM256			7.49 #	7.78 #	7.58 #	7.79 #	7.96 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	200312-40	**Client Reference:**		**Report Number:**	546998
Location:	SA32 8BG	**Order Number:**	14336LAN	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW 206	SW0207	UD1	UD3	UD4	UD5
			Depth (m)	.	.	.	.	.	.
			Sample Type	Surface Water (SW)	Surface Water (SW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	11/03/2020	11/03/2020	11/03/2020	11/03/2020	11/03/2020	11/03/2020
			Sample Time	.	.	.	.	.	.
			Date Received	12/03/2020	12/03/2020	12/03/2020	12/03/2020	12/03/2020	12/03/2020
			SDG Ref	200312-40	200312-40	200312-40	200312-40	200312-40	200312-40
			Lab Sample No.(s)	21871068	21871069	21871083	21871084	21871085	21871086
			AGS Reference						
Suspended solids, Total	<2 mg/l	TM022		2.05 #	7.7 #				
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 #	<0.2 #	<0.2 #	<0.2 #	0.479 #	<0.2 #
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120		0.18 #	0.216 #	0.469 #	0.347 #	0.432 #	0.409 #
Chloride	<2 mg/l	TM184		18.1 #	20.7 #	40.5 #	16.2 #	13.4 #	22 #
pH	<1 pH Units	TM256		7.59 #	7.82 #				

CERTIFICATE OF ANALYSIS

SDG:	200312-40	**Client Reference:**		**Report Number:**	546998
Location:	SA32 8BG	**Order Number:**	14336LAN	**Superseded Report:**	

Table of Results - Appendix

Method No	Reference	Description
TM022	Method 2540D, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part120 1981;BS EN 872	Determination of total suspended solids in waters
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG:	200312-40	**Client Reference:**		**Report Number:**	546998
Location:	SA32 8BG	**Order Number:**	14336LAN	**Superseded Report:**	

Test Completion Dates

Lab Sample No(s)	21871078	21871082	21871079	21871072	21871073	21871074	21871070	21871071	21871075	21871076
Customer Sample Ref.	BH 208	BH3/4	BH5/02	CELL 5 SUMP	CELL 6 SUMP	CELL 7 SUMP	CELL 1-2 SUMP	CELL 3/4 SUMP	LEACHATE HOLDING LAGOON	NACW 203
AGS Ref.										
Depth										
Type	Ground Water	Ground Water	Ground Water	Land Leachate	Land Leachate	Land Leachate	Land Leachate	Land Leachate	Land Leachate	Ground Water
Ammoniacal Nitrogen	23-Mar-2020	23-Mar-2020	23-Mar-2020	23-Mar-2020	23-Mar-2020	23-Mar-2020	23-Mar-2020	23-Mar-2020	23-Mar-2020	23-Mar-2020
Anions by Kone (w)	14-Mar-2020	21-Mar-2020	14-Mar-2020	14-Mar-2020	14-Mar-2020	14-Mar-2020	14-Mar-2020	14-Mar-2020	14-Mar-2020	14-Mar-2020
Conductivity (at 20 deg.C)	16-Mar-2020	18-Mar-2020	16-Mar-2020	18-Mar-2020	16-Mar-2020	16-Mar-2020	16-Mar-2020	16-Mar-2020	16-Mar-2020	16-Mar-2020

Lab Sample No(s)	21871077	21871080	21871081	21871065	21871069	21871063	21871064	21871066	21871067	21871068
Customer Sample Ref.	NACW 205	NACW 212	NACW 228	SW203	SW0207	SW 201	SW 202	SW 204	SW 205	SW 206
AGS Ref.										
Depth										
Type	Ground Water	Ground Water	Ground Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Ammoniacal Nitrogen	23-Mar-2020	23-Mar-2020	23-Mar-2020	23-Mar-2020	23-Mar-2020	23-Mar-2020	23-Mar-2020	23-Mar-2020	23-Mar-2020	23-Mar-2020
Anions by Kone (w)	21-Mar-2020	21-Mar-2020	14-Mar-2020	21-Mar-2020	14-Mar-2020	21-Mar-2020	21-Mar-2020	14-Mar-2020	14-Mar-2020	14-Mar-2020
Conductivity (at 20 deg.C)	16-Mar-2020	18-Mar-2020	16-Mar-2020	18-Mar-2020	16-Mar-2020	18-Mar-2020	18-Mar-2020	16-Mar-2020	16-Mar-2020	16-Mar-2020
pH Value				20-Mar-2020	20-Mar-2020	19-Mar-2020	20-Mar-2020	20-Mar-2020	20-Mar-2020	20-Mar-2020
Suspended Solids				23-Mar-2020	23-Mar-2020	23-Mar-2020	23-Mar-2020	23-Mar-2020	23-Mar-2020	23-Mar-2020

Lab Sample No(s)	21871083	21871084	21871085	21871086
Customer Sample Ref.	UD1	UD3	UD4	UD5
AGS Ref.				
Depth				
Type	Ground Water	Ground Water	Ground Water	Ground Water
Ammoniacal Nitrogen	23-Mar-2020	23-Mar-2020	23-Mar-2020	23-Mar-2020
Anions by Kone (w)	14-Mar-2020	14-Mar-2020	21-Mar-2020	14-Mar-2020
Conductivity (at 20 deg.C)	16-Mar-2020	16-Mar-2020	18-Mar-2020	16-Mar-2020

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**

19. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2107).*

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528700
Fax: (01244) 528701
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

CWM Environmental Ltd
Nantyclaws Landfill Site
Llanddarg Road
Carmarthen
Carmarthenshire
SA32 8BG

Attention: Darren Sanders

CERTIFICATE OF ANALYSIS

Date of report Generation:	21 April 2020
Customer:	CWM Environmental Ltd
Sample Delivery Group (SDG):	200408-33
Your Reference:	
Location:	SA32 8BG
Report No:	549972

We received 10 samples on Wednesday April 08, 2020 and 10 of these samples were scheduled for analysis which was completed on Tuesday April 21, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG:	200408-33	**Client Reference:**		**Report Number:**	549972
Location:	SA32 8BG	**Order Number:**	15751 LAN	**Superseded Report:**	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
22009849	SW201			07/04/2020
22009850	SW202			07/04/2020
22009851	SW204			07/04/2020
22009852	SW205			07/04/2020
22009853	SW206			07/04/2020
22009854	SW207			07/04/2020
22009855	UD1			07/04/2020
22009856	UD3			07/04/2020
22009857	UD4			07/04/2020
22009858	UD5			07/04/2020

Maximum Sample/Coolbox Temperature (°C) :

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

12.2

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG:	200408-33	**Client Reference:**		**Report Number:**	549972
Location:	SA32 8BG	**Order Number:**	15751 LAN	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	22009849						22009850						22009851						22009852
			Customer Sample Reference	SW201						SW202						SW204						SW205
			AGS Reference																			
			Depth (m)																			
			Container	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)
			Sample Type	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW
Acid Herbicides by GCMS	All	NDPs: 0 Tests: 10		X						X						X						X
Alkalinity as CaCO3	All	NDPs: 0 Tests: 10			X						X						X					
Alkalinity Filtered as CaCO3	All	NDPs: 0 Tests: 6			X						X						X					
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 10				X						X						X				
Anions by Kone (w)	All	NDPs: 0 Tests: 10			X						X						X					
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 10			X						X						X					
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 10					X						X							X		
Ionic Balance	All	NDPs: 0 Tests: 6			X						X						X					
Nitrite by Kone (w)	All	NDPs: 0 Tests: 10						X							X						X	
pH Value	All	NDPs: 0 Tests: 6			X						X						X					
Suspended Solids	All	NDPs: 0 Tests: 6			X						X						X					
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 10		X						X						X						X
Total Organic and Inorganic Carbon	All	NDPs: 0 Tests: 6				X						X						X				
VOC MS (W)	All	NDPs: 0 Tests: 10							X						X						X	

| | | |

Validated

CERTIFICATE OF ANALYSIS

SDG:	200408-33	**Client Reference:**		**Report Number:**	549972
Location:	SA32 8BG	**Order Number:**	15751 LAN	**Superseded Report:**	

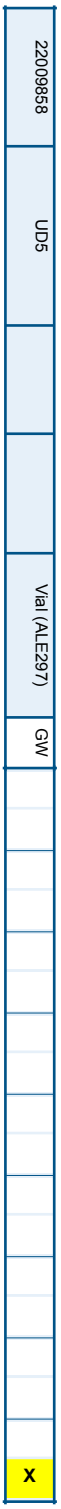
Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			22009855		22009856						22009857						22009858				
Customer Sample Reference			UD1		UD3						UD4						UD5				
AGS Reference																					
Depth (m)																					
Container			NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)
Sample Type			GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
Acid Herbicides by GCMS	All	NDPs: 0 Tests: 10			X						X						X				
Alkalinity as CaCO3	All	NDPs: 0 Tests: 10				X						X						X			
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 10					X						X						X		
Anions by Kone (w)	All	NDPs: 0 Tests: 10				X						X						X			
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 10				X						X						X			
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 10						X						X						X	
Nitrite by Kone (w)	All	NDPs: 0 Tests: 10	X						X						X						X
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 10			X						X						X				
VOC MS (W)	All	NDPs: 0 Tests: 10		X						X						X					


22009858
UD5
Vial (ALE297)
GW
X

Validated

CERTIFICATE OF ANALYSIS

SDG:	200408-33	**Client Reference:**		**Report Number:**	549972
Location:	SA32 8BG	**Order Number:**	15751 LAN	**Superseded Report:**	

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW201	SW202	SW204	SW205	SW206	SW207
			Depth (m)	.	.	.	.	.	.
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
			Date Sampled	07/04/2020	07/04/2020	07/04/2020	07/04/2020	07/04/2020	07/04/2020
			Sample Time	.	.	.	.	.	.
			Date Received	08/04/2020	08/04/2020	08/04/2020	08/04/2020	08/04/2020	08/04/2020
			SDG Ref	200408-33	200408-33	200408-33	200408-33	200408-33	200408-33
			Lab Sample No.(s)	22009849	22009850	22009851	22009852	22009853	22009854
			AGS Reference						
Ionic balance	% Diff	Calulation		0.162	-1.49	-0.949	0.0736	-1.19	1.58
Suspended solids, Total	<2 mg/l	TM022		7 #	4.45 #	2.25 #	5.7 #	4.85 #	5.55 #
Alkalinity, Total as CaCO3	<2 mg/l	TM043		123 #	127 #	150 #	131 #	135 #	200 #
Alkalinity,Total as CaCO3 (diss.filt)	<2 mg/l	TM043		125	135	155	135	135	200
Alkalinity, Bicarbonate as CaCO3 (diss.filt)	<2 mg/l	TM043		125	135	155	135	135	200
Organic Carbon, Total	<3 mg/l	TM090		4.42 ♦ #	3.99 #	4.07 ♦ #	3.88 #	3.39 #	4.26 ♦ #
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 #	<0.2 #	<0.2 #	<0.2 #	<0.2 #	<0.2 #
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120		0.267 #	0.277 #	0.316 #	0.282 #	0.274 #	0.455 #
Cadmium (diss.filt)	<0.08 µg/l	TM152		<0.08 #	<0.08 #	<0.08 #	<0.08 #	<0.08 #	<0.08 #
Chromium (diss.filt)	<1 µg/l	TM152		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Copper (diss.filt)	<0.3 µg/l	TM152		1.19 #	1.31 #	1.47 #	1.5 #	1.08 #	0.978 #
Lead (diss.filt)	<0.2 µg/l	TM152		<0.2 #	<0.2 #	<0.2 #	<0.2 #	<0.2 #	<0.2 #
Manganese (diss.filt)	<3 µg/l	TM152		28.4 #	23.4 #	53.5 #	18.5 #	17.9 #	88.7 #
Nickel (diss.filt)	<0.4 µg/l	TM152		0.46 #	0.693 #	0.592 #	0.645 #	0.446 #	0.831 #
Zinc (diss.filt)	<1 µg/l	TM152		4.76 #	6.91 #	4.84 #	6.92 #	4.73 #	2.85 #
Sodium (Dis.Filt)	<0.076 mg/l	TM152		8.52 #	8.75 #	7.84 #	9.23 #	8.79 #	13 #
Magnesium (Dis.Filt)	<0.036 mg/l	TM152		4.41 #	4.46 #	4.44 #	4.67 #	4.49 #	8.23 #
Potassium (Dis.Filt)	<0.2 mg/l	TM152		0.906 #	1.25 #	7.89 #	1.7 #	1.63 #	10.9 #
Calcium (Dis.Filt)	<0.2 mg/l	TM152		47.5 #	49.2 #	55.8 #	51.4 #	49.5 #	82.5 #
Iron (Dis.Filt)	<0.019 mg/l	TM152		0.159 #	0.143 #	0.0364 #	0.115 #	0.112 #	0.0553 #
Nitrite as NO2	<0.05 mg/l	TM184		<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #
Sulphate	<2 mg/l	TM184		6.2 #	6.6 #	11.1 #	9.1 #	7 #	28.6 #
Chloride	<2 mg/l	TM184		13 #	13.5 #	13.3 #	13.5 #	13.3 #	27.4 #
Nitrate as NO3	<0.3 mg/l	TM184		7.47	7.04	3.64	7.25	7.36	5.75
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184		1.69 #	1.6 #	0.827 #	1.65 #	1.67 #	1.31 #
pH	<1 pH Units	TM256		7.98 #	8.07 #	8.08 #	8.03 #	8.05 #	8.17 #
Mecoprop	<0.04 µg/l	TM411		<0.04	<0.04	<0.04	<0.04	0.043	<0.04

Validated

CERTIFICATE OF ANALYSIS

SDG:	200408-33	**Client Reference:**		**Report Number:**	549972
Location:	SA32 8BG	**Order Number:**	15751 LAN	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	UD1	UD3	UD4	UD5		
			Depth (m)	.	.	.	.		
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)		
			Date Sampled	07/04/2020	07/04/2020	07/04/2020	07/04/2020		
			Sample Time	.	.	.	.		
			Date Received	08/04/2020	08/04/2020	08/04/2020	08/04/2020		
			SDG Ref	200408-33	200408-33	200408-33	200408-33		
			Lab Sample No.(s)	22009855	22009856	22009857	22009858		
			AGS Reference						
Alkalinity, Total as CaCO3	<2 mg/l	TM043		237 #	172 #	186 #	153 #		
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 #	<0.2 #	<0.2 #	<0.2 #		
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120		0.564 #	0.374 #	0.37 #	0.309 #		
Cadmium (diss.filt)	<0.08 µg/l	TM152		<0.08 #	<0.08 #	<0.08 #	<0.08 #		
Chromium (diss.filt)	<1 µg/l	TM152		<1 #	<1 #	<1 #	<1 #		
Copper (diss.filt)	<0.3 µg/l	TM152		0.441 #	<0.3 #	0.377 #	1.03 #		
Lead (diss.filt)	<0.2 µg/l	TM152		<0.2 #	<0.2 #	<0.2 #	<0.2 #		
Manganese (diss.filt)	<3 µg/l	TM152		27.9 #	10.2 #	35.5 #	95.5 #		
Nickel (diss.filt)	<0.4 µg/l	TM152		<0.4 #	<0.4 #	<0.4 #	0.59 #		
Zinc (diss.filt)	<1 µg/l	TM152		8.01 #	2.13 #	21 #	6.41 #		
Sodium (Dis.Filt)	<0.076 mg/l	TM152		13.3 #	12.2 #	11.3 #	8.09 #		
Magnesium (Dis.Filt)	<0.036 mg/l	TM152		11.8 #	7.53 #	7.08 #	4.92 #		
Potassium (Dis.Filt)	<0.2 mg/l	TM152		1.73 #	0.984 #	1.14 #	6.15 #		
Calcium (Dis.Filt)	<0.2 mg/l	TM152		99.5 #	66.9 #	71.2 #	60.7 #		
Iron (Dis.Filt)	<0.019 mg/l	TM152		<0.019 #	<0.019 #	0.174 #	0.16 #		
Nitrite as NO2	<0.05 mg/l	TM184		<0.05 #	<0.05 #	<0.05 #	<0.05 #		
Sulphate	<2 mg/l	TM184		13.4 #	11.3 #	11.2 #	10.1 #		
Chloride	<2 mg/l	TM184		41.7 #	16.3 #	15 #	12.6 #		
Nitrate as NO3	<0.3 mg/l	TM184		8.78	5.51	6.51	3.06		
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184		1.99 #	1.25 #	1.48 #	0.695 #		
Mecoprop	<0.04 µg/l	TM411		<0.04	<0.04	<0.04	<0.04		

Validated

CERTIFICATE OF ANALYSIS

SDG:	200408-33	**Client Reference:**		**Report Number:**	549972
Location:	SA32 8BG	**Order Number:**	15751 LAN	**Superseded Report:**	

SVOC MS (W) - Aqueous

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW201	SW202	SW204	SW205	SW206	SW207
			Depth (m)	.	.	.	.	.	.
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
			Date Sampled	07/04/2020	07/04/2020	07/04/2020	07/04/2020	07/04/2020	07/04/2020
			Sample Time	.	.	.	.	.	.
			Date Received	08/04/2020	08/04/2020	08/04/2020	08/04/2020	08/04/2020	08/04/2020
			SDG Ref	200408-33	200408-33	200408-33	200408-33	200408-33	200408-33
			Lab Sample No.(s)	22009849	22009850	22009851	22009852	22009853	22009854
			AGS Reference						
4-Methylphenol (aq)	<1 µg/l	TM176		<1 ♦ #	<1 ♦ #	<1 ♦ #	<1 ♦ #	<1 ♦ #	<1 ♦ #
Diethyl phthalate (aq)	<1 µg/l	TM176		<1 ♦ #	<1 ♦ #	<1 ♦ #	<1 ♦ #	<1 ♦ #	<1 ♦ #

CERTIFICATE OF ANALYSIS

SDG:	200408-33	**Client Reference:**		**Report Number:**	549972
Location:	SA32 8BG	**Order Number:**	15751 LAN	**Superseded Report:**	

SVOC MS (W) - Aqueous

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	UD1	UD3	UD4	UD5		
			Depth (m)	.	.	.	.		
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)		
			Date Sampled	07/04/2020	07/04/2020	07/04/2020	07/04/2020		
			Sample Time	.	.	.	.		
			Date Received	08/04/2020	08/04/2020	08/04/2020	08/04/2020		
			SDG Ref	200408-33	200408-33	200408-33	200408-33		
			Lab Sample No.(s)	22009855	22009856	22009857	22009858		
			AGS Reference						
4-Methylphenol (aq)	<1 µg/l	TM176		<1 ♦ #	<1 ♦ #	<1 ♦ #	<1 ♦ #		
Diethyl phthalate (aq)	<1 µg/l	TM176		<1 ♦ #	<1 ♦ #	<1 ♦ #	<1 ♦ #		

Validated

CERTIFICATE OF ANALYSIS

SDG:	200408-33	**Client Reference:**		**Report Number:**	549972
Location:	SA32 8BG	**Order Number:**	15751 LAN	**Superseded Report:**	

VOC MS (W)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW201	SW202	SW204	SW205	SW206	SW207
			Depth (m)	.	.	.	.	.	.
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
			Date Sampled	07/04/2020	07/04/2020	07/04/2020	07/04/2020	07/04/2020	07/04/2020
			Sample Time	.	.	.	.	.	.
			Date Received	08/04/2020	08/04/2020	08/04/2020	08/04/2020	08/04/2020	08/04/2020
			SDG Ref	200408-33	200408-33	200408-33	200408-33	200408-33	200408-33
			Lab Sample No.(s)	22009849	22009850	22009851	22009852	22009853	22009854
			AGS Reference						
Dichloromethane	<3 µg/l	TM208		<3 #	<3 #	<3 #	<3 #	<3 #	<3 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	200408-33	**Client Reference:**		**Report Number:**	549972
Location:	SA32 8BG	**Order Number:**	15751 LAN	**Superseded Report:**	

VOC MS (W)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	UD1	UD3	UD4	UD5		
			Depth (m)	.	.	.	.		
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)		
			Date Sampled	07/04/2020	07/04/2020	07/04/2020	07/04/2020		
			Sample Time	.	.	.	.		
			Date Received	08/04/2020	08/04/2020	08/04/2020	08/04/2020		
			SDG Ref	200408-33	200408-33	200408-33	200408-33		
			Lab Sample No.(s)	22009855	22009856	22009857	22009858		
			AGS Reference						
Dichloromethane	<3 µg/l	TM208		<3 #	<3 #	<3 #	<3 #		

CERTIFICATE OF ANALYSIS

SDG:	200408-33	**Client Reference:**		**Report Number:**	549972
Location:	SA32 8BG	**Order Number:**	15751 LAN	**Superseded Report:**	

Table of Results - Appendix

Method No	Reference	Description
Calulation		
TM022	Method 2540D, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part120 1981;BS EN 872	Determination of total suspended solids in waters
TM043	Method 2320B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part109 1984	Determination of alkalinity in aqueous samples
TM090	Method 5310, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 415.1 & 9060	Determination of Total Organic Carbon/Total Inorganic Carbon in Water and Waste Water
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM176	EPA 8270D Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of SVOCs in Water by GCMS
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter
TM411	Acid_Herbs_GCMS	Acid Herbs in Water by GCMS

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG:	200408-33	**Client Reference:**		**Report Number:**	549972
Location:	SA32 8BG	**Order Number:**	15751 LAN	**Superseded Report:**	

Test Completion Dates

Lab Sample No(s)	22009849	22009850	22009851	22009852	22009853	22009854	22009855	22009856	22009857	22009858
Customer Sample Ref.	SW201	SW202	SW204	SW205	SW206	SW207	UD1	UD3	UD4	UD5
AGS Ref.										
Depth										
Type	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Ground Water	Ground Water	Ground Water	Ground Water
Acid Herbicides by GCMS	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020
Alkalinity as CaCO3	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020
Alkalinity Filtered as CaCO3	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020				
Ammoniacal Nitrogen	14-Apr-2020	14-Apr-2020	14-Apr-2020	14-Apr-2020	14-Apr-2020	14-Apr-2020	14-Apr-2020	14-Apr-2020	14-Apr-2020	14-Apr-2020
Anions by Kone (w)	14-Apr-2020	14-Apr-2020	14-Apr-2020	14-Apr-2020	14-Apr-2020	14-Apr-2020	14-Apr-2020	14-Apr-2020	14-Apr-2020	14-Apr-2020
Conductivity (at 20 deg.C)	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020
Dissolved Metals by ICP-MS	16-Apr-2020	16-Apr-2020	16-Apr-2020	16-Apr-2020	16-Apr-2020	16-Apr-2020	16-Apr-2020	16-Apr-2020	16-Apr-2020	16-Apr-2020
Ionic Balance	16-Apr-2020	16-Apr-2020	16-Apr-2020	16-Apr-2020	16-Apr-2020	16-Apr-2020				
Nitrite by Kone (w)	14-Apr-2020	14-Apr-2020	14-Apr-2020	14-Apr-2020	14-Apr-2020	14-Apr-2020	14-Apr-2020	14-Apr-2020	14-Apr-2020	14-Apr-2020
pH Value	14-Apr-2020	14-Apr-2020	14-Apr-2020	14-Apr-2020	14-Apr-2020	14-Apr-2020				
Suspended Solids	14-Apr-2020	15-Apr-2020	14-Apr-2020	14-Apr-2020	14-Apr-2020	15-Apr-2020				
SVOC MS (W) - Aqueous	21-Apr-2020	21-Apr-2020	21-Apr-2020	21-Apr-2020	21-Apr-2020	21-Apr-2020	21-Apr-2020	21-Apr-2020	21-Apr-2020	21-Apr-2020
Total Organic and Inorganic Carbon	14-Apr-2020	14-Apr-2020	14-Apr-2020	14-Apr-2020	14-Apr-2020	14-Apr-2020				
VOC MS (W)	09-Apr-2020	09-Apr-2020	09-Apr-2020	09-Apr-2020	09-Apr-2020	09-Apr-2020	09-Apr-2020	09-Apr-2020	09-Apr-2020	09-Apr-2020

Appendix General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**

19. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2017).*

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528700
Fax: (01244) 528701
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

CWM Environmental Ltd
Nantyclaws Landfill Site
Llanddarg Road
Carmarthen
Carmarthenshire
SA32 8BG

Attention: Darren Sanders

CERTIFICATE OF ANALYSIS

Date of report Generation:	25 April 2020
Customer:	CWM Environmental Ltd
Sample Delivery Group (SDG):	200409-52
Your Reference:	
Location:	SA32 8BG
Report No:	550347

This report has been revised and directly supersedes 550147 in its entirety.

We received 15 samples on Thursday April 09, 2020 and 15 of these samples were scheduled for analysis which was completed on Friday April 24, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG:	200409-52	**Client Reference:**		**Report Number:**	550347
Location:	SA32 8BG	**Order Number:**	15751 LAN	**Superseded Report:**	550147

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
22017009	BH3/2			08/04/2020
22017010	BH3/3			08/04/2020
22017011	BH3/4			08/04/2020
22017012	BH3/5			08/04/2020
22017013	BH3/6			08/04/2020
22017014	BH3/8			08/04/2020
22017015	BH3/9			08/04/2020
22017005	BH208			08/04/2020
22017006	BH5/02			08/04/2020
22017003	NACW203			08/04/2020
22017004	NACW205			08/04/2020
22017007	NACW212			08/04/2020
22017008	NACW219			08/04/2020
22017016	NACW228			08/04/2020
22017017	NACW229			08/04/2020

Maximum Sample/Coolbox Temperature (°C) : **9.2**

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG:	200409-52	**Client Reference:**		**Report Number:**	550347
Location:	SA32 8BG	**Order Number:**	15751 LAN	**Superseded Report:**	550147

Results Legend

X Test

N No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)								22017009							22017010						22017011	22017012
Customer Sample Reference								BH3/2							BH3/3						BH3/4	BH3/5
AGS Reference																						
Depth (m)																						
Container								0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)
Sample Type								GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
Acid Herbicides by GCMS	All	NDPs: 0 Tests: 15						X						X						X						X
Alkalinity as CaCO3	All	NDPs: 0 Tests: 15							X						X						X					
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 15								X						X						X				
Anions by Kone (w)	All	NDPs: 0 Tests: 15							X						X						X					
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 15							X						X						X					
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 15									X							X						X		
Nitrite by Kone (w)	All	NDPs: 0 Tests: 15										X							X						X	
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 15						X						X						X						X
VOC MS (W)	All	NDPs: 0 Tests: 15											X						X						X	

| | | |

Validated

CERTIFICATE OF ANALYSIS

SDG:	200409-52	**Client Reference:**		**Report Number:**	550347
Location:	SA32 8BG	**Order Number:**	15751 LAN	**Superseded Report:**	550147

Results Legend

X Test

N No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			22017015		22017005						22017006						22017003				
Customer Sample Reference			BH3/9		BH208						BH5/02						NACW203				
AGS Reference																					
Depth (m)																					
Container			NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)
Sample Type			GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
Acid Herbicides by GCMS	All	NDPs: 0 Tests: 15			X						X						X				
Alkalinity as CaCO3	All	NDPs: 0 Tests: 15				X						X						X			
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 15					X						X						X		
Anions by Kone (w)	All	NDPs: 0 Tests: 15				X						X						X			
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 15				X						X						X			
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 15						X						X						X	
Nitrite by Kone (w)	All	NDPs: 0 Tests: 15	X						X						X						X
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 15			X						X						X				
VOC MS (W)	All	NDPs: 0 Tests: 15		X						X						X					

22017016	NACW228			500ml Plastic (ALE208)	GW		X
				0.5l glass bottle (ALE227)	GW	X	
22017008	NACW219			Vial (ALE297)	GW		X
				NaOH (ALE245)	GW	X	
				HNO3 Filtered (ALE204)	GW		X
				H2SO4 (ALE244)	GW	X	
				500ml Plastic (ALE208)	GW		X
				0.5l glass bottle (ALE227)	GW	X	
22017007	NACW212			Vial (ALE297)	GW		X
				NaOH (ALE245)	GW	X	
				HNO3 Filtered (ALE204)	GW		X
				H2SO4 (ALE244)	GW	X	
				500ml Plastic (ALE208)	GW		X
				0.5l glass bottle (ALE227)	GW	X	
22017004	NACW205			Vial (ALE297)	GW		X
				NaOH (ALE245)	GW	X	
				HNO3 Filtered (ALE204)	GW		X
				H2SO4 (ALE244)	GW	X	
				500ml Plastic (ALE208)	GW		X
				0.5l glass bottle (ALE227)	GW	X	
22017003	NACW203			Vial (ALE297)	GW		X

Validated

CERTIFICATE OF ANALYSIS

SDG:	200409-52	**Client Reference:**		**Report Number:**	550347
Location:	SA32 8BG	**Order Number:**	15751 LAN	**Superseded Report:**	550147

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			22017016				22017017					
Customer Sample Reference			NACW228				NACW229					
AGS Reference												
Depth (m)												
Container			H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)
Sample Type			GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
Acid Herbicides by GCMS	All	NDPs: 0 Tests: 15					X					
Alkalinity as CaCO3	All	NDPs: 0 Tests: 15						X				
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 15	X						X			
Anions by Kone (w)	All	NDPs: 0 Tests: 15						X				
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 15						X				
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 15		X						X		
Nitrite by Kone (w)	All	NDPs: 0 Tests: 15			X						X	
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 15					X					
VOC MS (W)	All	NDPs: 0 Tests: 15				X						X

Validated

CERTIFICATE OF ANALYSIS

SDG:	200409-52	**Client Reference:**		**Report Number:**	550347
Location:	SA32 8BG	**Order Number:**	15751 LAN	**Superseded Report:**	550147

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/2	BH3/3	BH3/4	BH3/5	BH3/6	BH3/8
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	08/04/2020	08/04/2020	08/04/2020	08/04/2020	08/04/2020	08/04/2020
			Sample Time	.	.	.	.	.	.
			Date Received	09/04/2020	09/04/2020	09/04/2020	09/04/2020	09/04/2020	09/04/2020
			SDG Ref	200409-52	200409-52	200409-52	200409-52	200409-52	200409-52
			Lab Sample No.(s)	22017009	22017010	22017011	22017012	22017013	22017014
			AGS Reference						
Alkalinity, Total as CaCO3	<2 mg/l	TM043		7.5 #	14 #	125 #	8 #	225 #	75 #
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 #	<0.2 #	<0.2 #	<0.2 #	<0.2 #	<0.2 #
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120		0.0628 #	0.0712 #	0.317 #	0.0615 #	0.452 #	0.839 #
Cadmium (diss.filt)	<0.08 µg/l	TM152		<0.08 #	<0.08 #	<0.08 #	<0.08 #	<0.08 #	<0.08 #
Chromium (diss.filt)	<1 µg/l	TM152		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Copper (diss.filt)	<0.3 µg/l	TM152		3.81 #	4.61 #	2.36 #	3.14 #	<0.3 #	0.841 #
Lead (diss.filt)	<0.2 µg/l	TM152		0.378 #	1.33 #	<0.2 #	<0.2 #	<0.2 #	<0.2 #
Manganese (diss.filt)	<3 µg/l	TM152		6.64 #	6.15 #	1130 #	4.9 #	9.34 #	489 #
Nickel (diss.filt)	<0.4 µg/l	TM152		0.481 #	<0.4 #	1.64 #	<0.4 #	<0.4 #	4.42 #
Zinc (diss.filt)	<1 µg/l	TM152		5.09 #	4.24 #	3.55 #	6.28 #	1.4 #	10.8 #
Sodium (Dis.Filt)	<0.076 mg/l	TM152		7.4 #	7.38 #	7.73 #	7.68 #	11.7 #	44.4 #
Magnesium (Dis.Filt)	<0.036 mg/l	TM152		0.883 #	1.76 #	6.98 #	0.896 #	9.79 #	12 #
Potassium (Dis.Filt)	<0.2 mg/l	TM152		0.646 #	0.878 #	0.857 #	0.674 #	1.55 #	14.1 #
Calcium (Dis.Filt)	<0.2 mg/l	TM152		2.67 #	20.4 #	52.5 #	2.6 #	85.4 #	134 #
Iron (Dis.Filt)	<0.019 mg/l	TM152		0.0756 #	0.0202 #	<0.019 #	0.0315 #	<0.019 #	0.291 #
Nitrite as NO2	<0.05 mg/l	TM184		<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #
Sulphate	<2 mg/l	TM184		<2 #	<2 #	6.5 #	<2 #	13.3 #	355 #
Chloride	<2 mg/l	TM184		13.9 #	13.3 #	36.1 #	13.7 #	21.2 #	54.9 #
Nitrate as NO3	<0.3 mg/l	TM184		<0.3	<0.3	0.311	<0.3	10.4	0.678
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184		<0.1 #	<0.1 #	<0.1 #	<0.1 #	2.36 #	0.159 #
Mecoprop	<0.04 µg/l	TM411		<0.04	<0.04	0.131	<0.08	<0.04	<0.04

Validated

CERTIFICATE OF ANALYSIS

SDG:	200409-52	**Client Reference:**		**Report Number:**	550347
Location:	SA32 8BG	**Order Number:**	15751 LAN	**Superseded Report:**	550147

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/9	BH208	BH5/02	NACW203	NACW205	NACW212
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	08/04/2020	08/04/2020	08/04/2020	08/04/2020	08/04/2020	08/04/2020
			Sample Time	.	.	.	.	.	.
			Date Received	09/04/2020	09/04/2020	09/04/2020	09/04/2020	09/04/2020	09/04/2020
			SDG Ref	200409-52	200409-52	200409-52	200409-52	200409-52	200409-52
			Lab Sample No.(s)	22017015	22017005	22017006	22017003	22017004	22017007
			AGS Reference						
Alkalinity, Total as CaCO3	<2 mg/l	TM043		235 #	240 #	225 #	245 #	235 #	80 #
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 #	<0.2 #	<0.2 #	<0.2 #	<0.2 #	<0.2 #
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120		0.561 #	0.487 #	0.444 #	0.509 #	0.499 #	0.239 #
Cadmium (diss.filt)	<0.08 µg/l	TM152		<0.08 #	<0.08 #	<0.08 #	<0.08 #	<0.08 #	<0.08 #
Chromium (diss.filt)	<1 µg/l	TM152		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Copper (diss.filt)	<0.3 µg/l	TM152		1.25 #	<0.3 #	<0.3 #	<0.3 #	<0.3 #	5.59 #
Lead (diss.filt)	<0.2 µg/l	TM152		<0.2 #	<0.2 #	<0.2 #	<0.2 #	<0.2 #	<0.2 #
Manganese (diss.filt)	<3 µg/l	TM152		568 #	<3 #	<3 #	27.3 #	<3 #	469 #
Nickel (diss.filt)	<0.4 µg/l	TM152		1.03 #	<0.4 #	<0.4 #	<0.4 #	<0.4 #	0.764 #
Zinc (diss.filt)	<1 µg/l	TM152		3.56 #	3.1 #	2.85 #	1.05 #	2.15 #	34.9 #
Sodium (Dis.Filt)	<0.076 mg/l	TM152		14.4 #	10.7 #	11.6 #	13.6 #	11.3 #	10.4 #
Magnesium (Dis.Filt)	<0.036 mg/l	TM152		9.19 #	9.16 #	9.95 #	10.1 #	9.53 #	4.08 #
Potassium (Dis.Filt)	<0.2 mg/l	TM152		8.55 #	1.17 #	1.4 #	1.13 #	1.16 #	3.41 #
Calcium (Dis.Filt)	<0.2 mg/l	TM152		93.9 #	90.9 #	85.6 #	93.4 #	96.3 #	38.5 #
Iron (Dis.Filt)	<0.019 mg/l	TM152		<0.019 #	<0.019 #	<0.019 #	<0.019 #	<0.019 #	0.0269 #
Nitrite as NO2	<0.05 mg/l	TM184		<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #
Sulphate	<2 mg/l	TM184		76.9 #	11.5 #	67.8 #	20.5 #	12.1 #	17.5 #
Chloride	<2 mg/l	TM184		20.9 #	28.9 #	21.7 #	30.2 #	32.4 #	19.3 #
Nitrate as NO3	<0.3 mg/l	TM184		<0.3	8.25	11.9	8.96	7.97	7.96
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184		<0.1 #	1.87 #	2.7 #	2.03 #	1.8 #	1.81 #
Mecoprop	<0.04 µg/l	TM411		<0.04	<0.04	<0.04	<0.04	<0.04	<0.08

Validated

CERTIFICATE OF ANALYSIS

SDG:	200409-52	**Client Reference:**		**Report Number:**	550347
Location:	SA32 8BG	**Order Number:**	15751 LAN	**Superseded Report:**	550147

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	NACW219	NACW228	NACW229			
			Depth (m)	.	.	.			
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)			
			Date Sampled	08/04/2020	08/04/2020	08/04/2020			
			Sample Time	.	.	.			
			Date Received	09/04/2020	09/04/2020	09/04/2020			
			SDG Ref	200409-52	200409-52	200409-52			
			Lab Sample No.(s)	22017008	22017016	22017017			
			AGS Reference						
Alkalinity, Total as CaCO3	<2 mg/l	TM043		190 #	160 #	55 #			
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 #	<0.2 #	<0.2 #			
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120		0.41 #	0.547 #	0.129 #			
Cadmium (diss.filt)	<0.08 µg/l	TM152		<0.08 #	0.237 #	<0.08 #			
Chromium (diss.filt)	<1 µg/l	TM152		<1 #	<1 #	<1 #			
Copper (diss.filt)	<0.3 µg/l	TM152		0.919 #	1.52 #	2.89 #			
Lead (diss.filt)	<0.2 µg/l	TM152		<0.2 #	0.365 #	<0.2 #			
Manganese (diss.filt)	<3 µg/l	TM152		1620 #	1850 #	28.9 #			
Nickel (diss.filt)	<0.4 µg/l	TM152		1.94 #	2.24 #	<0.4 #			
Zinc (diss.filt)	<1 µg/l	TM152		2.23 #	6.44 #	3.53 #			
Sodium (Dis.Filt)	<0.076 mg/l	TM152		11.4 #	21.5 #	8.18 #			
Magnesium (Dis.Filt)	<0.036 mg/l	TM152		6.84 #	11.4 #	1.49 #			
Potassium (Dis.Filt)	<0.2 mg/l	TM152		1.16 #	7.65 #	0.488 #			
Calcium (Dis.Filt)	<0.2 mg/l	TM152		76.7 #	85.1 #	20.4 #			
Iron (Dis.Filt)	<0.019 mg/l	TM152		0.0192 #	<0.019 #	<0.019 #			
Nitrite as NO2	<0.05 mg/l	TM184		<0.05 #	<0.05 #	<0.05 #			
Sulphate	<2 mg/l	TM184		26.4 #	106 #	2 #			
Chloride	<2 mg/l	TM184		22.3 #	27.9 #	14.7 #			
Nitrate as NO3	<0.3 mg/l	TM184		0.329	<0.3	1.19			
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184		<0.1 #	<0.1 #	0.272 #			
Mecoprop	<0.04 µg/l	TM411		<0.04	<0.08	<0.08			

Validated

CERTIFICATE OF ANALYSIS

SDG:	200409-52	**Client Reference:**		**Report Number:**	550347
Location:	SA32 8BG	**Order Number:**	15751 LAN	**Superseded Report:**	550147

SVOC MS (W) - Aqueous

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/2	BH3/3	BH3/4	BH3/5	BH3/6	BH3/8
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	08/04/2020	08/04/2020	08/04/2020	08/04/2020	08/04/2020	08/04/2020
			Sample Time	.	.	.	.	.	.
			Date Received	09/04/2020	09/04/2020	09/04/2020	09/04/2020	09/04/2020	09/04/2020
			SDG Ref	200409-52	200409-52	200409-52	200409-52	200409-52	200409-52
			Lab Sample No.(s)	22017009	22017010	22017011	22017012	22017013	22017014
			AGS Reference						
4-Methylphenol (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 ♦ #	<1 #	<1 #	<1 #
Diethyl phthalate (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 ♦ #	<1 #	<1 #	<1 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	200409-52	**Client Reference:**		**Report Number:**	550347
Location:	SA32 8BG	**Order Number:**	15751 LAN	**Superseded Report:**	550147

SVOC MS (W) - Aqueous

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/9	BH208	BH5/02	NACW203	NACW205	NACW212
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	08/04/2020	08/04/2020	08/04/2020	08/04/2020	08/04/2020	08/04/2020
			Sample Time	.	.	.	.	.	.
			Date Received	09/04/2020	09/04/2020	09/04/2020	09/04/2020	09/04/2020	09/04/2020
			SDG Ref	200409-52	200409-52	200409-52	200409-52	200409-52	200409-52
			Lab Sample No.(s)	22017015	22017005	22017006	22017003	22017004	22017007
			AGS Reference						
4-Methylphenol (aq)	<1 µg/l	TM176		<1 ♦ #	<1 #	<1 #	<1 #	<1 #	<1 ♦ #
Diethyl phthalate (aq)	<1 µg/l	TM176		<1 ♦ #	<1 #	<1 #	<1 #	<1 #	<1 ♦ #

Validated

CERTIFICATE OF ANALYSIS

SDG:	200409-52	**Client Reference:**		**Report Number:**	550347
Location:	SA32 8BG	**Order Number:**	15751 LAN	**Superseded Report:**	550147

SVOC MS (W) - Aqueous

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	NACW219	NACW228	NACW229
			Depth (m)	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	08/04/2020	08/04/2020	08/04/2020
			Sample Time	.	.	.
			Date Received	09/04/2020	09/04/2020	09/04/2020
			SDG Ref	200409-52	200409-52	200409-52
			Lab Sample No.(s)	22017008	22017016	22017017
			AGS Reference			
4-Methylphenol (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #
Diethyl phthalate (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	200409-52	**Client Reference:**		**Report Number:**	550347
Location:	SA32 8BG	**Order Number:**	15751 LAN	**Superseded Report:**	550147

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/2	BH3/3	BH3/4	BH3/5	BH3/6	BH3/8
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	08/04/2020	08/04/2020	08/04/2020	08/04/2020	08/04/2020	08/04/2020
			Sample Time	.	.	.	.	.	.
			Date Received	09/04/2020	09/04/2020	09/04/2020	09/04/2020	09/04/2020	09/04/2020
			SDG Ref	200409-52	200409-52	200409-52	200409-52	200409-52	200409-52
			Lab Sample No.(s)	22017009	22017010	22017011	22017012	22017013	22017014
			AGS Reference						
Dichloromethane	<3 µg/l	TM208		<3 #	<3 #	<3 #	<3 #	<3 #	<3 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	200409-52	**Client Reference:**		**Report Number:**	550347
Location:	SA32 8BG	**Order Number:**	15751 LAN	**Superseded Report:**	550147

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/9	BH208	BH5/02	NACW203	NACW205	NACW212
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	08/04/2020	08/04/2020	08/04/2020	08/04/2020	08/04/2020	08/04/2020
			Sample Time	.	.	.	.	.	.
			Date Received	09/04/2020	09/04/2020	09/04/2020	09/04/2020	09/04/2020	09/04/2020
			SDG Ref	200409-52	200409-52	200409-52	200409-52	200409-52	200409-52
			Lab Sample No.(s)	22017015	22017005	22017006	22017003	22017004	22017007
			AGS Reference						
Dichloromethane	<3 µg/l	TM208		<3 #	<3 #	<3 #	<3 #	<3 #	<3 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	200409-52	**Client Reference:**		**Report Number:**	550347
Location:	SA32 8BG	**Order Number:**	15751 LAN	**Superseded Report:**	550147

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	NACW219	NACW228	NACW229			
			Depth (m)	.	.	.			
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)			
			Date Sampled	08/04/2020	08/04/2020	08/04/2020			
			Sample Time	.	.	.			
			Date Received	09/04/2020	09/04/2020	09/04/2020			
			SDG Ref	200409-52	200409-52	200409-52			
			Lab Sample No.(s)	22017008	22017016	22017017			
			AGS Reference						
Dichloromethane	<3 µg/l	TM208		<3 #	<3 #	<3 #			

CERTIFICATE OF ANALYSIS

SDG:	200409-52	**Client Reference:**		**Report Number:**	550347
Location:	SA32 8BG	**Order Number:**	15751 LAN	**Superseded Report:**	550147

Table of Results - Appendix

Method No	Reference	Description
TM043	Method 2320B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part109 1984	Determination of alkalinity in aqueous samples
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM176	EPA 8270D Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of SVOCs in Water by GCMS
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters
TM411	Acid_Herbs_GCMS	Acid Herbs in Water by GCMS

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG:	200409-52	**Client Reference:**		**Report Number:**	550347
Location:	SA32 8BG	**Order Number:**	15751 LAN	**Superseded Report:**	550147

Test Completion Dates

Lab Sample No(s)	22017005	22017009	22017010	22017011	22017012	22017013	22017014	22017015	22017006	22017003
Customer Sample Ref.	BH208	BH3/2	BH3/3	BH3/4	BH3/5	BH3/6	BH3/8	BH3/9	BH5/02	NACW203
AGS Ref.										
Depth										
Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Acid Herbicides by GCMS	24-Apr-2020	17-Apr-2020	17-Apr-2020	24-Apr-2020	17-Apr-2020	17-Apr-2020	17-Apr-2020	17-Apr-2020	24-Apr-2020	17-Apr-2020
Alkalinity as CaCO3	15-Apr-2020	17-Apr-2020	17-Apr-2020	15-Apr-2020	17-Apr-2020	15-Apr-2020	15-Apr-2020	16-Apr-2020	15-Apr-2020	15-Apr-2020
Ammoniacal Nitrogen	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020
Anions by Kone (w)	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020
Conductivity (at 20 deg.C)	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020
Dissolved Metals by ICP-MS	16-Apr-2020	16-Apr-2020	17-Apr-2020	16-Apr-2020	17-Apr-2020	16-Apr-2020	16-Apr-2020	16-Apr-2020	16-Apr-2020	16-Apr-2020
Nitrite by Kone (w)	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020
SVOC MS (W) - Aqueous	23-Apr-2020	23-Apr-2020	23-Apr-2020	21-Apr-2020	23-Apr-2020	23-Apr-2020	23-Apr-2020	22-Apr-2020	23-Apr-2020	23-Apr-2020
VOC MS (W)	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020

Lab Sample No(s)	22017004	22017007	22017008	22017016	22017017
Customer Sample Ref.	NACW205	NACW212	NACW219	NACW228	NACW229
AGS Ref.					
Depth					
Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Acid Herbicides by GCMS	17-Apr-2020	17-Apr-2020	17-Apr-2020	17-Apr-2020	17-Apr-2020
Alkalinity as CaCO3	15-Apr-2020	17-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020
Ammoniacal Nitrogen	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020
Anions by Kone (w)	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020
Conductivity (at 20 deg.C)	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020
Dissolved Metals by ICP-MS	16-Apr-2020	16-Apr-2020	17-Apr-2020	16-Apr-2020	16-Apr-2020
Nitrite by Kone (w)	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020
SVOC MS (W) - Aqueous	23-Apr-2020	22-Apr-2020	23-Apr-2020	23-Apr-2020	23-Apr-2020
VOC MS (W)	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020	15-Apr-2020

SDG:	200409-52	**Client Reference:**		**Report Number:**	550347
Location:	SA32 8BG	**Order Number:**	15751 LAN	**Superseded Report:**	550147

Appendix General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**

19. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2017).*

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528700
Fax: (01244) 528701
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

CWM Environmental Ltd
Nantyclaws Landfill Site
Llanddarg Road
Carmarthen
Carmarthenshire
SA32 8BG

Attention: Darren Sanders

PRELIMINARY/INTERIM REPORT

Date of report Generation:	27 April 2020
Customer:	CWM Environmental Ltd
Sample Delivery Group (SDG):	200415-1
Your Reference:	
Location:	SA32 8BG
Report No:	550377

This report has been revised and directly supersedes 550348 in its entirety.

We received 5 samples on Wednesday April 15, 2020 and 5 of these samples were scheduled for analysis which was completed on Monday April 27, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

This is a preliminary report which has not had final authorisation

Approved By:

PRELIMINARY/INTERIM REPORT

SDG:	200415-1	**Client Reference:**		**Report Number:**	550377
Location:	SA32 8BG	**Order Number:**	15751 LAN	**Superseded Report:**	550348

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
22026385	CELL 5 SUMP			14/04/2020
22026386	CELL 7 SUMP			14/04/2020
22026383	CELL 1-2 SUMP			14/04/2020
22026384	CELL 3-4 SUMP			14/04/2020
22026387	LEACHATE HOLDING LAGOON			14/04/2020

Maximum Sample/Coolbox Temperature (°C) :

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

6.2

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

PRELIMINARY/INTERIM REPORT

SDG:	200415-1	**Client Reference:**		**Report Number:**	550377
Location:	SA32 8BG	**Order Number:**	15751 LAN	**Superseded Report:**	550348

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	2026384	2026387
			Customer Sample Reference	CELL 3-4 SUMP	LEACHATE HOLDING LAGOON
			AGS Reference		
			Depth (m)		
			Container		
			Sample Type	LE	LE
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 5		X	X

Preliminary

PRELIMINARY/INTERIM REPORT

SDG:	200415-1	**Client Reference:**		**Report Number:**	550377
Location:	SA32 8BG	**Order Number:**	15751 LAN	**Superseded Report:**	550348

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)								22026385							22026386						22026383						22026384					
Customer Sample Reference								CELL 5 SUMP							CELL 7 SUMP						CELL 1-2 SUMP						CELL 3-4 SUMP					
AGS Reference																																
Depth (m)																																
Container								0.5l glass bottle (ALE227)	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	Vial (ALE297)		0.5l glass bottle (ALE227)	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	Vial (ALE297)		0.5l glass bottle (ALE227)	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	Vial (ALE297)		0.5l glass bottle (ALE227)	250ml BOD (ALE212)	500ml Plastic (ALE208)			
Sample Type								LE	LE	LE	LE	LE	LE		LE	LE	LE	LE	LE		LE	LE	LE	LE	LE		LE	LE	LE			
Acid Herbicides by GCMS	All	NDPs: 0 Tests: 5							X							X						X						X					
Alkalinity as CaCO3	All	NDPs: 0 Tests: 5								X							X						X						X				
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 5									X							X						X									
Anions by Kone (w)	All	NDPs: 0 Tests: 5								X							X						X						X				
BOD True Total	All	NDPs: 0 Tests: 5							X							X						X						X					
COD Unfiltered	All	NDPs: 0 Tests: 5							X							X						X						X					
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 5								X							X						X						X				
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 5										X					X						X						X				
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 5							X							X						X						X					
Total Organic and Inorganic Carbon	All	NDPs: 0 Tests: 5									X							X						X									
VOC MS (W)	All	NDPs: 0 Tests: 5											X							X						X							

22026387	LEACHATE HOLDING LAGOON			Vial (ALE297)	LE														X
				HNO3 Filtered (ALE204)	LE										X				
				H2SO4 (ALE244)	LE			X									X		
				500ml Plastic (ALE208)	LE		X		X				X						
				250ml BOD (ALE212)	LE					X		X							
				0.5l glass bottle (ALE227)	LE	X													
22026384	CELL 3-4 SUMP			Vial (ALE297)	LE														X
				H2SO4 (ALE244)	LE			X									X		

PRELIMINARY/INTERIM REPORT

SDG:	200415-1	**Client Reference:**		**Report Number:**	550377
Location:	SA32 8BG	**Order Number:**	15751 LAN	**Superseded Report:**	550348

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	CELL 5 SUMP	CELL 7 SUMP	CELL 1-2 SUMP	CELL 3-4 SUMP	LEACHATE HOLDING LAGOON
			Depth (m)	.	.	.	.	.
			Sample Type	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
			Date Sampled	14/04/2020	14/04/2020	14/04/2020	14/04/2020	14/04/2020
			Sample Time	.	.	.	.	.
			Date Received	15/04/2020	15/04/2020	15/04/2020	15/04/2020	15/04/2020
			SDG Ref	200415-1	200415-1	200415-1	200415-1	200415-1
			Lab Sample No.(s)	22026385	22026386	22026383	22026384	22026387
			AGS Reference					
Alkalinity, Total as CaCO3	<2 mg/l	TM043		4700 #	10100 #	8680 #	4770 #	5240 #
BOD, unfiltered	<1 mg/l	TM045		58 #	262 #	159 #	63 #	96.6 #
Organic Carbon, Total	<3 mg/l	TM090		395	1560	800	393	481
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		1180	2140	2390	1190	1160
COD, unfiltered	<7 mg/l	TM107		1200 #	5260 #	2560 #	1270 #	1340 #
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120		22.3 #	21.6 #	39.5 #	22.8 #	18.5 #
Cadmium (diss.filt)	<0.08 µg/l	TM152		<0.08 #	<0.8 2 #	0.832 2 #	<0.8 2 #	<0.08 #
Chromium (diss.filt)	<1 µg/l	TM152		1.42 #	865 2 #	192 2 #	84.2 2 #	<1 #
Copper (diss.filt)	<0.3 µg/l	TM152		1.3 #	23.1 2 #	27.3 2 #	12.7 2 #	<0.3 #
Lead (diss.filt)	<0.2 µg/l	TM152		0.73 #	14.1 2 #	17.8 2 #	4.03 2 #	7.36 #
Manganese (diss.filt)	<3 µg/l	TM152		204 #	1480 2 #	92.3 2 #	1030 2 #	<3 #
Nickel (diss.filt)	<0.4 µg/l	TM152		3.55 #	288 2 #	277 2 #	115 2 #	0.811 #
Zinc (diss.filt)	<1 µg/l	TM152		22.4 #	369 2 #	146 2 #	122 2 #	<1 #
Sodium (Dis.Filt)	<0.076 mg/l	TM152		41.2 #	2290 2 #	3950 2 #	2330 2 #	1.68 #
Magnesium (Dis.Filt)	<0.036 mg/l	TM152		10.9 #	80.5 2 #	47 2 #	93.2 2 #	0.173 #
Potassium (Dis.Filt)	<0.2 mg/l	TM152		6.75 #	1150 2 #	2620 2 #	1480 2 #	0.911 #
Calcium (Dis.Filt)	<0.2 mg/l	TM152		141 #	179 2 #	29.2 2 #	104 2 #	0.268 #
Iron (Dis.Filt)	<0.019 mg/l	TM152		0.353 #	16.5 2 #	3.69 2 #	3.9 2 #	<0.019 #
Sulphate	<2 mg/l	TM184		<20	648	48.7	<20	<20
Chloride	<2 mg/l	TM184		6040	3090	11600	6290	4120
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184		9.6	8.61	<1	9.71	<1
Mecoprop	<0.04 µg/l	TM411		37.8	36.6	126	38.8	32.5

PRELIMINARY/INTERIM REPORT

SDG:	200415-1	**Client Reference:**		**Report Number:**	550377
Location:	SA32 8BG	**Order Number:**	15751 LAN	**Superseded Report:**	550348

SVOC MS (W) - Aqueous

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	CELL 5 SUMP	CELL 7 SUMP	CELL 1-2 SUMP	CELL 3-4 SUMP	LEACHATE HOLDING LAG OON
			Depth (m)	.	.	.	.	.
			Sample Type	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
			Date Sampled	14/04/2020	14/04/2020	14/04/2020	14/04/2020	14/04/2020
			Sample Time	.	.	.	.	.
			Date Received	15/04/2020	15/04/2020	15/04/2020	15/04/2020	15/04/2020
			SDG Ref	200415-1	200415-1	200415-1	200415-1	200415-1
			Lab Sample No.(s)	22026385	22026386	22026383	22026384	22026387
			AGS Reference					
4-Methylphenol (aq)	<1 µg/l	TM176		<40	<100	<100	incomplete	incomplete
Diethyl phthalate (aq)	<1 µg/l	TM176		<40	<100	<100	incomplete	incomplete

PRELIMINARY/INTERIM REPORT

SDG:	200415-1	**Client Reference:**		**Report Number:**	550377
Location:	SA32 8BG	**Order Number:**	15751 LAN	**Superseded Report:**	550348

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	CELL 5 SUMP	CELL 7 SUMP	CELL 1-2 SUMP	CELL 3-4 SUMP	LEACHATE HOLDING LAG OON
			Depth (m)	.	.	.	.	.
			Sample Type	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
			Date Sampled	14/04/2020	14/04/2020	14/04/2020	14/04/2020	14/04/2020
			Sample Time	.	.	.	.	.
			Date Received	15/04/2020	15/04/2020	15/04/2020	15/04/2020	15/04/2020
			SDG Ref	200415-1	200415-1	200415-1	200415-1	200415-1
			Lab Sample No.(s)	22026385	22026386	22026383	22026384	22026387
			AGS Reference					
Dichloromethane	<3 µg/l	TM208		<3 #	<3 #	<3 #	<3 #	<3 #

PRELIMINARY/INTERIM REPORT

SDG:	200415-1	**Client Reference:**		**Report Number:**	550377
Location:	SA32 8BG	**Order Number:**	15751 LAN	**Superseded Report:**	550348

Table of Results - Appendix

Method No	Reference	Description
TM043	Method 2320B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part109 1984	Determination of alkalinity in aqueous samples
TM045	MEWAM BOD5 2nd Ed.HMSO 1988 / Method 5210B, AWWA/APHA, 20th Ed., 1999; SCA Blue Book 130	Determination of BOD5 (ATU) Filtered by Oxygen Meter on liquids
TM090	Method 5310, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 415.1 & 9060	Determination of Total Organic Carbon/Total Inorganic Carbon in Water and Waste Water
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM107	ISO 6060-1989	Determination of Chemical Oxygen Demand using COD Dr Lange Kit
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM176	EPA 8270D Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of SVOCs in Water by GCMS
TM176	EPA 8270D Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of SVOCs in Water by GCMS
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters
TM411	Acid_Herbs_GCMS	Acid Herbs in Water by GCMS

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

PRELIMINARY/INTERIM REPORT

SDG:	200415-1	**Client Reference:**		**Report Number:**	550377
Location:	SA32 8BG	**Order Number:**	15751 LAN	**Superseded Report:**	550348

Test Completion Dates

Lab Sample No(s)	22026385	22026386	22026383	22026384	22026387
Customer Sample Ref.	CELL 5 SUMP	CELL 7 SUMP	CELL 1-2 SUMP	CELL 3-4 SUMP	LEACHATE HOLDING LAGOON
AGS Ref.					
Depth					
Type	Land Leachate	Land Leachate	Land Leachate	Land Leachate	Land Leachate
Acid Herbicides by GCMS	24-Apr-2020	24-Apr-2020	24-Apr-2020	24-Apr-2020	24-Apr-2020
Alkalinity as CaCO3	20-Apr-2020	20-Apr-2020	20-Apr-2020	20-Apr-2020	21-Apr-2020
Ammoniacal Nitrogen	16-Apr-2020	16-Apr-2020	16-Apr-2020	16-Apr-2020	16-Apr-2020
Anions by Kone (w)	20-Apr-2020	20-Apr-2020	20-Apr-2020	20-Apr-2020	20-Apr-2020
BOD True Total	21-Apr-2020	21-Apr-2020	21-Apr-2020	21-Apr-2020	21-Apr-2020
COD Unfiltered	16-Apr-2020	16-Apr-2020	16-Apr-2020	16-Apr-2020	16-Apr-2020
Conductivity (at 20 deg.C)	17-Apr-2020	17-Apr-2020	17-Apr-2020	17-Apr-2020	17-Apr-2020
Dissolved Metals by ICP-MS	23-Apr-2020	23-Apr-2020	23-Apr-2020	23-Apr-2020	23-Apr-2020
SVOC MS (W) - Aqueous	27-Apr-2020	27-Apr-2020	27-Apr-2020		
Total Organic and Inorganic Carbon	17-Apr-2020	17-Apr-2020	17-Apr-2020	17-Apr-2020	17-Apr-2020
VOC MS (W)	16-Apr-2020	16-Apr-2020	16-Apr-2020	16-Apr-2020	16-Apr-2020

SDG:	200415-1	**Client Reference:**		**Report Number:**	550377
Location:	SA32 8BG	**Order Number:**	15751 LAN	**Superseded Report:**	550348

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**

19. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2017).*

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528700
Fax: (01244) 528701
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

CWM Environmental Ltd
Nantyclaws Landfill Site
Llanddarg Road
Carmarthen
Carmarthenshire
SA32 8BG

Attention: Sean Gallagher

CERTIFICATE OF ANALYSIS

Date of report Generation:	21 May 2020
Customer:	CWM Environmental Ltd
Sample Delivery Group (SDG):	200514-35
Your Reference:	
Location:	Nantycaws Landfill
Report No:	552839

We received 26 samples on Thursday May 14, 2020 and 26 of these samples were scheduled for analysis which was completed on Wednesday May 20, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager

ALS Life Sciences Limited. Registered Office: Units 7 & 8 Hawarden Business Park, Manor Road, Hawarden, Deeside, CH5 3US. Registered in England and Wales No. 4057291.

Version: 2.4 Version Issued: 21/05/2020

CERTIFICATE OF ANALYSIS

SDG:	200514-35	**Client Reference:**		**Report Number:**	552839
Location:	Nantycaws Landfill	**Order Number:**	15777 LAN	**Superseded Report:**	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
22143272	BH3/4			13/05/2020
22143274	BH208			13/05/2020
22143273	BH5/02			13/05/2020
22143263	CELL 5 SUMP			13/05/2020
22143264	CELL 6 SUMP			13/05/2020
22143265	CELL 7 SUMP			13/05/2020
22143261	CELL 1/2 SUMP			13/05/2020
22143262	CELL 3/4 SUMP			13/05/2020
22143260	LEACHATE HOLDING LAGOON			13/05/2020
22143270	NACW203			13/05/2020
22143271	NACW205			13/05/2020
22143269	NACW212			13/05/2020
22143267	NACW227			13/05/2020
22143268	NACW228			13/05/2020
22143253	SW201			13/05/2020
22143254	SW202			13/05/2020
22143255	SW203			13/05/2020
22143256	SW204			13/05/2020
22143257	SW205			13/05/2020
22143258	SW206			13/05/2020
22143259	SW207			13/05/2020
22143275	UD1			13/05/2020
22143276	UD2			13/05/2020
22143277	UD3			13/05/2020
22143278	UD4			13/05/2020
22143279	UD5			13/05/2020

Maximum Sample/Coolbox Temperature (°C) : **6.8**

ISO5667-3 Water quality - Sampling - Part3 -
During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG:	200514-35	**Client Reference:**		**Report Number:**	552839
Location:	Nantycaws Landfill	**Order Number:**	15777 LAN	**Superseded Report:**	

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type
			22143272	BH3/4			500ml Plastic (ALE208)	GW
							H2SO4 (ALE244)	GW
			22143274	BH208			500ml Plastic (ALE208)	GW
							H2SO4 (ALE244)	GW
			22143273	BH5/02			500ml Plastic (ALE208)	GW
							H2SO4 (ALE244)	GW
			22143263	CELL 5 SUMP			500ml Plastic (ALE208)	LE
							H2SO4 (ALE244)	LE
			22143265	CELL 7 SUMP			500ml Plastic (ALE208)	LE
							H2SO4 (ALE244)	LE
			22143261	CELL 1/2 SUMP			500ml Plastic (ALE208)	LE
							H2SO4 (ALE244)	LE
			22143262	CELL 3/4 SUMP			500ml Plastic (ALE208)	LE
							H2SO4 (ALE244)	LE
			22143260	LEACHATE HOLDING LAGOON			500ml Plastic (ALE208)	LE
							H2SO4 (ALE244)	LE
			22143270	NACW203			500ml Plastic (ALE208)	GW
							H2SO4 (ALE244)	GW
			22143271	NACW205			500ml Plastic (ALE208)	GW
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 22		X				X		X		X		X		X		X		X		X		X		X
Anions by Kone (w)	All	NDPs: 0 Tests: 22	X		X		X		X		X		X		X		X		X		X		X		X		X
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 22	X		X		X		X		X		X		X		X		X		X		X		X		X
pH Value	All	NDPs: 0 Tests: 6																									
Suspended Solids	All	NDPs: 0 Tests: 6																									

22143277	UD3			H2SO4 (ALE244)	GW	X					
				500ml Plastic (ALE208)	GW		X	X			
22143275	UD1			H2SO4 (ALE244)	GW	X					
				500ml Plastic (ALE208)	GW		X	X			
22143259	SW207			H2SO4 (ALE244)	SW	X					
				500ml Plastic (ALE208)	SW		X	X	X	X	
22143258	SW206			H2SO4 (ALE244)	SW	X					
				500ml Plastic (ALE208)	SW		X	X	X	X	
22143257	SW205			H2SO4 (ALE244)	SW	X					
				500ml Plastic (ALE208)	SW		X	X	X	X	
22143256	SW204			H2SO4 (ALE244)	SW	X					
				500ml Plastic (ALE208)	SW		X	X	X	X	
22143254	SW202			H2SO4 (ALE244)	SW	X					
				500ml Plastic (ALE208)	SW		X	X	X	X	
22143253	SW201			H2SO4 (ALE244)	SW	X					
				500ml Plastic (ALE208)	SW		X	X	X	X	
22143268	NACW228			H2SO4 (ALE244)	GW	X					
				500ml Plastic (ALE208)	GW		X	X			
22143269	NACW212			H2SO4 (ALE244)	GW	X					
				500ml Plastic (ALE208)	GW		X	X			
22143271	NACW205			H2SO4 (ALE244)	GW	X					

Validated

CERTIFICATE OF ANALYSIS

SDG:	200514-35	**Client Reference:**		**Report Number:**	552839
Location:	Nantycaws Landfill	**Order Number:**	15777 LAN	**Superseded Report:**	

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			22143278		22143279	
Customer Sample Reference			UD4		UD5	
AGS Reference						
Depth (m)						
Container			500ml Plastic (ALE208)	H2SO4 (ALE244)	500ml Plastic (ALE208)	H2SO4 (ALE244)
Sample Type			GW	GW	GW	GW
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 22		X		X
Anions by Kone (w)	All	NDPs: 0 Tests: 22	X		X	
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 22	X		X	

Validated

CERTIFICATE OF ANALYSIS

SDG:	200514-35	**Client Reference:**		**Report Number:**	552839
Location:	Nantycaws Landfill	**Order Number:**	15777 LAN	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/4	BH208	BH5/02	CELL 5 SUMP	CELL 7 SUMP	CELL 1/2 SUMP
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
			Date Sampled	13/05/2020	13/05/2020	13/05/2020	13/05/2020	13/05/2020	13/05/2020
			Sample Time	.	.	.	.	.	.
			Date Received	14/05/2020	14/05/2020	14/05/2020	14/05/2020	14/05/2020	14/05/2020
			SDG Ref	200514-35	200514-35	200514-35	200514-35	200514-35	200514-35
			Lab Sample No.(s)	22143272	22143274	22143273	22143263	22143265	22143261
			AGS Reference						
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 #	<0.2 #	<0.2 #	1260	921	2240
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120		0.252 #	0.439 #	0.435 #	23.7 #	11.4 #	39.1 #
Chloride	<2 mg/l	TM184		8.2 #	15.2 #	20.9 #	6440	1620	11000

Validated

CERTIFICATE OF ANALYSIS

SDG:	200514-35	**Client Reference:**		**Report Number:**	552839
Location:	Nantycaws Landfill	**Order Number:**	15777 LAN	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	CELL 3/4 SUMP	LEACHATE HOLDING LAG OON	NACW203	NACW205	NACW212	NACW228
			Depth (m)	.	.	.	.	.	.
			Sample Type	Land Leachate (LE)	Land Leachate (LE)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	13/05/2020	13/05/2020	13/05/2020	13/05/2020	13/05/2020	13/05/2020
			Sample Time	.	.	.	.	.	.
			Date Received	14/05/2020	14/05/2020	14/05/2020	14/05/2020	14/05/2020	14/05/2020
			SDG Ref	200514-35	200514-35	200514-35	200514-35	200514-35	200514-35
			Lab Sample No.(s)	22143262	22143260	22143270	22143271	22143269	22143268
			AGS Reference						
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		881	1120	<0.2 #	<0.2 #	<0.2 #	<0.2 #
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120		11.3 #	18.2 #	0.463 #	0.456 #	0.231 #	0.532 #
Chloride	<2 mg/l	TM184		1710	4110	26.1 #	28 #	18.2 #	33 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	200514-35	**Client Reference:**		**Report Number:**	552839
Location:	Nantycaws Landfill	**Order Number:**	15777 LAN	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW201	SW202	SW204	SW205	SW206	SW207
			Depth (m)	.	.	.	.	.	.
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
			Date Sampled	13/05/2020	13/05/2020	13/05/2020	13/05/2020	13/05/2020	13/05/2020
			Sample Time	.	.	.	.	.	.
			Date Received	14/05/2020	14/05/2020	14/05/2020	14/05/2020	14/05/2020	14/05/2020
			SDG Ref	200514-35	200514-35	200514-35	200514-35	200514-35	200514-35
			Lab Sample No.(s)	22143253	22143254	22143256	22143257	22143258	22143259
			AGS Reference						
Suspended solids, Total	<2 mg/l	TM022		4.7 #	6.05 #	6.6 #	2.65 #	2.85 #	2.95 #
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 #	<0.2 #	<0.2 #	<0.2 #	<0.2 #	<0.2 #
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120		0.534 #	0.421 #	0.328 #	0.409 #	0.437 #	0.306 #
Chloride	<2 mg/l	TM184		45.1 #	27 #	9.9 #	23.5 #	12.2 #	11.2 #
pH	<1 pH Units	TM256		8.08 #	8.24 #	7.88 #	8.4 #	8.36 #	8.37 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	200514-35	**Client Reference:**		**Report Number:**	552839
Location:	Nantycaws Landfill	**Order Number:**	15777 LAN	**Superseded Report:**	

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	UD1	UD3	UD4	UD5		
			Depth (m)	.	.	.	.		
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)		
			Date Sampled	13/05/2020	13/05/2020	13/05/2020	13/05/2020		
			Sample Time	.	.	.	.		
			Date Received	14/05/2020	14/05/2020	14/05/2020	14/05/2020		
			SDG Ref	200514-35	200514-35	200514-35	200514-35		
			Lab Sample No.(s)	22143275	22143277	22143278	22143279		
			AGS Reference						
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 #	<0.2 #	<0.2 #	<0.2 #		
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120		0.522 #	0.36 #	0.369 #	0.271 #		
Chloride	<2 mg/l	TM184		42.4 #	16.4 #	12.4 #	9.6 #		

CERTIFICATE OF ANALYSIS

SDG:	200514-35	**Client Reference:**		**Report Number:**	552839
Location:	Nantycaws Landfill	**Order Number:**	15777 LAN	**Superseded Report:**	

Table of Results - Appendix

Method No	Reference	Description
TM022	Method 2540D, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part120 1981;BS EN 872	Determination of total suspended solids in waters
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG:	200514-35	**Client Reference:**		**Report Number:**	552839
Location:	Nantycaws Landfill	**Order Number:**	15777 LAN	**Superseded Report:**	

Test Completion Dates

Lab Sample No(s)	22143274	22143272	22143273	22143263	22143265	22143261	22143262	22143260	22143270	22143271
Customer Sample Ref.	BH208	BH3/4	BH5/02	CELL 5 SUMP	CELL 7 SUMP	CELL 1/2 SUMP	CELL 3/4 SUMP	LEACHATE HOLDING LAGOON	NACW203	NACW205
AGS Ref.										
Depth										
Type	Ground Water	Ground Water	Ground Water	Land Leachate	Land Leachate	Land Leachate	Land Leachate	Land Leachate	Ground Water	Ground Water
Ammoniacal Nitrogen	18-May-2020	18-May-2020	18-May-2020	20-May-2020	18-May-2020	20-May-2020	20-May-2020	20-May-2020	18-May-2020	18-May-2020
Anions by Kone (w)	18-May-2020	18-May-2020	18-May-2020	18-May-2020	18-May-2020	18-May-2020	18-May-2020	18-May-2020	18-May-2020	18-May-2020
Conductivity (at 20 deg.C)	19-May-2020	19-May-2020	19-May-2020	19-May-2020	19-May-2020	19-May-2020	19-May-2020	19-May-2020	19-May-2020	19-May-2020

Lab Sample No(s)	22143269	22143268	22143253	22143254	22143256	22143257	22143258	22143259	22143275	22143277
Customer Sample Ref.	NACW212	NACW228	SW201	SW202	SW204	SW205	SW206	SW207	UD1	UD3
AGS Ref.										
Depth										
Type	Ground Water	Ground Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Ground Water	Ground Water
Ammoniacal Nitrogen	18-May-2020	18-May-2020	18-May-2020	18-May-2020	18-May-2020	18-May-2020	18-May-2020	18-May-2020	18-May-2020	18-May-2020
Anions by Kone (w)	18-May-2020	18-May-2020	18-May-2020	18-May-2020	18-May-2020	18-May-2020	18-May-2020	18-May-2020	18-May-2020	18-May-2020
Conductivity (at 20 deg.C)	19-May-2020	19-May-2020	19-May-2020	19-May-2020	19-May-2020	19-May-2020	19-May-2020	19-May-2020	19-May-2020	19-May-2020
pH Value			19-May-2020	19-May-2020	19-May-2020	19-May-2020	19-May-2020	19-May-2020		
Suspended Solids			20-May-2020	20-May-2020	20-May-2020	20-May-2020	20-May-2020	20-May-2020		

Lab Sample No(s)	22143278	22143279
Customer Sample Ref.	UD4	UD5
AGS Ref.		
Depth		
Type	Ground Water	Ground Water
Ammoniacal Nitrogen	18-May-2020	18-May-2020
Anions by Kone (w)	18-May-2020	18-May-2020
Conductivity (at 20 deg.C)	19-May-2020	19-May-2020

Appendix General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**

19. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2017).*

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528700
Fax: (01244) 528701
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

CWM Environmental Ltd
Nantyclaws Landfill Site
Llanddarg Road
Carmarthen
Carmarthenshire
SA32 8BG

Attention: Sean Gallagher

CERTIFICATE OF ANALYSIS

Date of report Generation:	02 July 2020
Customer:	CWM Environmental Ltd
Sample Delivery Group (SDG):	200616-19
Your Reference:	
Location:	Nantycaws Landfill
Report No:	557528

This report has been revised and directly supersedes 556456 in its entirety.

We received 26 samples on Tuesday June 16, 2020 and 25 of these samples were scheduled for analysis which was completed on Thursday July 02, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG:	200616-19	**Client Reference:**		**Report Number:**	557528
Location:	Nantycaws Landfill	**Order Number:**	16361 LAN	**Superseded Report:**	556456

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
22313173	BH3/4			
22313175	BH208			
22313174	BH5/02			
22313165	CELL 5 SUMP			
22313166	CELL 6 SUMP			
22313167	CELL 7 SUMP			
22313163	CELL 1/2 SUMP			
22313164	CELL 3/4 SUMP			
22313162	LEACHATE HOLDING LAGOON			
22313171	NACW203			
22313172	NACW205			
22313170	NACW212			
22313168	NACW227			
22313169	NACW228			
22313154	SW201			
22313155	SW202			
22313156	SW203			
22313158	SW204			
22313159	SW205			
22313160	SW206			
22313161	SW207			
22313176	UD1			
22313177	UD2			
22313178	UD3			
22313179	UD4			
22313180	UD5			

Maximum Sample/Coolbox Temperature (°C) : **19.6**

ISO5667-3 Water quality - Sampling - Part3 -
During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG:	200616-19	**Client Reference:**		**Report Number:**	557528
Location:	Nantycaws Landfill	**Order Number:**	16361 LAN	**Superseded Report:**	556456

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			22313173	22313175	22313174	22313165	22313166	22313167	22313163	22313164	22313162	22313171								
Customer Sample Reference			BH3/4	BH208	BH5/02	CELL 5 SUMP	CELL 6 SUMP	CELL 7 SUMP	CELL 1/2 SUMP	CELL 3/4 SUMP	LEACHATE HOLDING LAGOON	NACW203								
AGS Reference																				
Depth (m)																				
Container			250ml BOD (ALE212)	H2SO4 (ALE244)	250ml BOD (ALE212)	H2SO4 (ALE244)	250ml BOD (ALE212)	H2SO4 (ALE244)	250ml BOD (ALE212)	H2SO4 (ALE244)	250ml BOD (ALE212)	H2SO4 (ALE244)	250ml BOD (ALE212)	H2SO4 (ALE244)	250ml BOD (ALE212)	H2SO4 (ALE244)	250ml BOD (ALE212)	H2SO4 (ALE244)	250ml BOD (ALE212)	H2SO4 (ALE244)	250ml BOD (ALE212)
Sample Type			GW	GW	GW	GW	GW	GW	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	GW
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 23		X		X		X		X		X		X		X		X		X		
Anions by Kone (w)	All	NDPs: 0 Tests: 23	X		X		X		X		X		X		X		X		X		X	
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 23	X		X		X		X		X		X		X		X		X		X	
pH Value	All	NDPs: 0 Tests: 6																				
Suspended Solids	All	NDPs: 0 Tests: 6																				

22313176	UD1			H2SO4 (ALE244)	GW	X					
				250ml BOD (ALE212)	GW		X	X			
22313161	SW207			H2SO4 (ALE244)	SW	X					
				250ml BOD (ALE212)	SW		X	X	X	X	
22313160	SW206			H2SO4 (ALE244)	SW	X					
				250ml BOD (ALE212)	SW		X	X	X	X	
22313159	SW205			H2SO4 (ALE244)	SW	X					
				250ml BOD (ALE212)	SW		X	X	X	X	
22313158	SW204			H2SO4 (ALE244)	SW	X					
				250ml BOD (ALE212)	SW		X	X	X	X	
22313155	SW202			H2SO4 (ALE244)	SW	X					
				250ml BOD (ALE212)	SW		X	X	X	X	
22313154	SW201			H2SO4 (ALE244)	SW	X					
				250ml BOD (ALE212)	SW		X	X	X	X	
22313169	NACW228			H2SO4 (ALE244)	GW	X					
				250ml BOD (ALE212)	GW		X	X			
22313170	NACW212			H2SO4 (ALE244)	GW	X					
				250ml BOD (ALE212)	GW		X	X			
22313172	NACW205			H2SO4 (ALE244)	GW	X					
				250ml BOD (ALE212)	GW		X	X			
22313171	NACW203			H2SO4 (ALE244)	GW	X					

Validated

CERTIFICATE OF ANALYSIS

SDG:	200616-19	**Client Reference:**		**Report Number:**	557528
Location:	Nantycaws Landfill	**Order Number:**	16361 LAN	**Superseded Report:**	556456

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)									
			22313178		22313179		22313180					
			Customer Sample Reference									
			UD3		UD4		UD5					
			AGS Reference									
			Depth (m)									
			Container									
			250ml BOD (ALE212)	H2SO4 (ALE244)	250ml BOD (ALE212)	H2SO4 (ALE244)	250ml BOD (ALE212)	H2SO4 (ALE244)				
			Sample Type									
			GW	GW	GW	GW	GW	GW				
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 23		X		X		X				
Anions by Kone (w)	All	NDPs: 0 Tests: 23	X		X		X					
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 23	X		X		X					

Validated

CERTIFICATE OF ANALYSIS

SDG:	200616-19	**Client Reference:**		**Report Number:**	557528
Location:	Nantycaws Landfill	**Order Number:**	16361 LAN	**Superseded Report:**	556456

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/4	BH208	BH5/02	CELL 5 SUMP	CELL 6 SUMP	CELL 7 SUMP
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
			Date Sampled	-	-	-	-	-	-
			Sample Time	.	.	.	.	.	.
			Date Received	16/06/2020	16/06/2020	16/06/2020	16/06/2020	16/06/2020	16/06/2020
			SDG Ref	200616-19	200616-19	200616-19	200616-19	200616-19	200616-19
			Lab Sample No.(s)	22313173	22313175	22313174	22313165	22313166	22313167
			AGS Reference						
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 § #	<0.2 § #	<0.2 § #	1260 §	912 §	62.7 §
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120		0.248 § #	0.424 § #	0.45 § #	22.2 § #	16.7 § #	1.69 § #
Chloride	<2 mg/l	TM184		8.6 § #	16.3 § #	21.3 § #	6260 §	3960 §	186 §

Validated

CERTIFICATE OF ANALYSIS

SDG:	200616-19	**Client Reference:**		**Report Number:**	557528
Location:	Nantycaws Landfill	**Order Number:**	16361 LAN	**Superseded Report:**	556456

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	CELL 1/2 SUMP	CELL 3/4 SUMP	LEACHATE HOLDING LAG OON	NACW203	NACW205	NACW212
			Depth (m)	.	.	.	.	.	.
			Sample Type	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	-	-	-	-	-	-
			Sample Time	.	.	.	.	.	.
			Date Received	16/06/2020	16/06/2020	16/06/2020	16/06/2020	16/06/2020	16/06/2020
			SDG Ref	200616-19	200616-19	200616-19	200616-19	200616-19	200616-19
			Lab Sample No.(s)	22313163	22313164	22313162	22313171	22313172	22313170
			AGS Reference						
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		2490 §	1190 §	1150 §	<0.2 § #	<0.2 § #	<0.2 § #
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120		38.6 § #	21.5 § #	19.8 § #	0.567 § #	0.48 § #	0.344 § #
Chloride	<2 mg/l	TM184		11400 §	5670 §	4690 §	44.2 § #	30.2 § #	12.6 § #

Validated

CERTIFICATE OF ANALYSIS

SDG:	200616-19	**Client Reference:**		**Report Number:**	557528
Location:	Nantycaws Landfill	**Order Number:**	16361 LAN	**Superseded Report:**	556456

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	NACW228	SW201	SW202	SW204	SW205	SW206
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
			Date Sampled	-	-	-	-	-	-
			Sample Time	.	.	.	.	.	.
			Date Received	16/06/2020	16/06/2020	16/06/2020	16/06/2020	16/06/2020	16/06/2020
			SDG Ref	200616-19	200616-19	200616-19	200616-19	200616-19	200616-19
			Lab Sample No.(s)	22313169	22313154	22313155	22313158	22313159	22313160
			AGS Reference						
Suspended solids, Total	<2 mg/l	TM022			6.53 § #	3.1 § #	<4 § #	4.54 § #	<4 § #
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		1.79 § #	<0.2 § #	<0.2 § #	<0.2 § #	<0.2 § #	<0.2 § #
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120		0.573 § #	0.264 § #	0.548 § #	0.55 § #	0.553 § #	0.338 § #
Chloride	<2 mg/l	TM184		34.6 § #	13.3 § #	22.4 § #	12.3 § #	22.3 § #	11.4 § #
pH	<1 pH Units	TM256			7.73 § #	8.18 § #	7.39 § #	8.19 § #	8.36 § #

Validated

CERTIFICATE OF ANALYSIS

SDG:	200616-19	**Client Reference:**		**Report Number:**	557528
Location:	Nantycaws Landfill	**Order Number:**	16361 LAN	**Superseded Report:**	556456

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW207	UD1	UD3	UD4	UD5
			Depth (m)	.	.	.	.	.
			Sample Type	Surface Water (SW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	-	-	-	-	-
			Sample Time	.	.	.	.	.
			Date Received	16/06/2020	16/06/2020	16/06/2020	16/06/2020	16/06/2020
			SDG Ref	200616-19	200616-19	200616-19	200616-19	200616-19
			Lab Sample No.(s)	22313161	22313176	22313178	22313179	22313180
			AGS Reference					
Suspended solids, Total	<2 mg/l	TM022		6 § #				
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 § #	<0.2 § #	<0.2 § #	0.321 § #	<0.2 § #
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120		0.297 § #	0.536 § #	0.362 § #	0.158 § #	0.526 § #
Chloride	<2 mg/l	TM184		13.1 § #	41.6 § #	16.9 § #	16.1 § #	12.7 § #
pH	<1 pH Units	TM256		8.09 § #				

CERTIFICATE OF ANALYSIS

SDG:	200616-19	**Client Reference:**		**Report Number:**	557528
Location:	Nantycaws Landfill	**Order Number:**	16361 LAN	**Superseded Report:**	556456

Table of Results - Appendix

Method No	Reference	Description
TM022	Method 2540D, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part120 1981;BS EN 872	Determination of total suspended solids in waters
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

Validated

CERTIFICATE OF ANALYSIS

SDG:	200616-19	**Client Reference:**		**Report Number:**	557528
Location:	Nantycaws Landfill	**Order Number:**	16361 LAN	**Superseded Report:**	556456

Test Completion Dates

Lab Sample No(s)	22313175	22313173	22313174	22313165	22313166	22313167	22313163	22313164	22313162	22313171
Customer Sample Ref.	BH208	BH3/4	BH5/02	CELL 5 SUMP	CELL 6 SUMP	CELL 7 SUMP	CELL 1/2 SUMP	CELL 3/4 SUMP	LEACHATE HOLDING LAGOON	NACW203
AGS Ref.										
Depth										
Type	Ground Water	Ground Water	Ground Water	Land Leachate	Land Leachate	Land Leachate	Land Leachate	Land Leachate	Land Leachate	Ground Water
Ammoniacal Nitrogen	30-Jun-2020	30-Jun-2020	30-Jun-2020	20-Jun-2020	20-Jun-2020	18-Jun-2020	20-Jun-2020	20-Jun-2020	20-Jun-2020	30-Jun-2020
Anions by Kone (w)	30-Jun-2020	30-Jun-2020	30-Jun-2020	18-Jun-2020	18-Jun-2020	18-Jun-2020	18-Jun-2020	18-Jun-2020	18-Jun-2020	30-Jun-2020
Conductivity (at 20 deg.C)	02-Jul-2020	02-Jul-2020	02-Jul-2020	19-Jun-2020	24-Jun-2020	24-Jun-2020	19-Jun-2020	24-Jun-2020	24-Jun-2020	02-Jul-2020

Lab Sample No(s)	22313172	22313170	22313169	22313154	22313155	22313158	22313159	22313160	22313161	22313176
Customer Sample Ref.	NACW205	NACW212	NACW228	SW201	SW202	SW204	SW205	SW206	SW207	UD1
AGS Ref.										
Depth										
Type	Ground Water	Ground Water	Ground Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Ground Water
Ammoniacal Nitrogen	30-Jun-2020	30-Jun-2020	30-Jun-2020	18-Jun-2020	18-Jun-2020	18-Jun-2020	18-Jun-2020	18-Jun-2020	18-Jun-2020	30-Jun-2020
Anions by Kone (w)	30-Jun-2020	30-Jun-2020	30-Jun-2020	18-Jun-2020	18-Jun-2020	18-Jun-2020	18-Jun-2020	18-Jun-2020	18-Jun-2020	30-Jun-2020
Conductivity (at 20 deg.C)	02-Jul-2020	02-Jul-2020	02-Jul-2020	24-Jun-2020	24-Jun-2020	24-Jun-2020	24-Jun-2020	24-Jun-2020	24-Jun-2020	02-Jul-2020
pH Value				19-Jun-2020	19-Jun-2020	19-Jun-2020	19-Jun-2020	19-Jun-2020	19-Jun-2020	
Suspended Solids				23-Jun-2020	23-Jun-2020	23-Jun-2020	23-Jun-2020	23-Jun-2020	23-Jun-2020	

Lab Sample No(s)	22313178	22313179	22313180
Customer Sample Ref.	UD3	UD4	UD5
AGS Ref.			
Depth			
Type	Ground Water	Ground Water	Ground Water
Ammoniacal Nitrogen	30-Jun-2020	30-Jun-2020	30-Jun-2020
Anions by Kone (w)	30-Jun-2020	30-Jun-2020	30-Jun-2020
Conductivity (at 20 deg.C)	02-Jul-2020	02-Jul-2020	02-Jul-2020

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**

19. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2017).*

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528700
Fax: (01244) 528701
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

CWM Environmental Ltd
Nantyclaws Landfill Site
Llanddarg Road
Carmarthen
Carmarthenshire
SA32 8BG

Attention: Sean Gallagher

CERTIFICATE OF ANALYSIS

Date of report Generation:	22 July 2020
Customer:	CWM Environmental Ltd
Sample Delivery Group (SDG):	200714-27
Your Reference:	
Location:	Nantycaws Landfill
Report No:	559914

We received 18 samples on Tuesday July 14, 2020 and 16 of these samples were scheduled for analysis which was completed on Tuesday July 21, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager

ALS Life Sciences Limited. Registered Office: Units 7 & 8 Hawarden Business Park, Manor Road, Hawarden, Deeside, CH5 3US. Registered in England and Wales No. 4057291.

CERTIFICATE OF ANALYSIS

SDG:	200714-27	**Client Reference:**		**Report Number:**	559914
Location:	Nantycaws Landfill	**Order Number:**	16383 LAN	**Superseded Report:**	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
22468844	Cell 5 Sump			13/07/2020
22468848	Cell 6 Sump			13/07/2020
22468847	Cell 7 Sump			13/07/2020
22468846	Cell 1/2 Sump			13/07/2020
22468845	Cell 3/4 Sump			13/07/2020
22468843	Leachate Holding Lagoon			13/07/2020
22468856	SW201			13/07/2020
22468855	SW202			13/07/2020
22468854	SW203			13/07/2020
22468857	SW204			13/07/2020
22468853	SW205			13/07/2020
22468849	SW206			13/07/2020
22468860	SW207			13/07/2020
22468858	UD1			13/07/2020
22468850	UD2			13/07/2020
22468852	UD3			13/07/2020
22468851	UD4			13/07/2020
22468859	UD5			13/07/2020

Maximum Sample/Coolbox Temperature (°C) : **16.2**

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG:	200714-27	**Client Reference:**		**Report Number:**	559914
Location:	Nantycaws Landfill	**Order Number:**	16383 LAN	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			22468844							22468847							22468846					22468845	
Customer Sample Reference			Cell 5 Sump							Cell 7 Sump							Cell 1/2 Sump					Cell 3/4 Sump	
AGS Reference																							
Depth (m)																							
Container			0.5l glass bottle (ALE227)	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	Vial (ALE297)	0.5l glass bottle (ALE227)	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	Vial (ALE297)	0.5l glass bottle (ALE227)	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	Vial (ALE297)	0.5l glass bottle (ALE227)	250ml BOD (ALE212)
Sample Type			LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE
Acid Herbicides by GCMS	All	NDPs: 0 Tests: 16	X						X						X					X	
Alkalinity as CaCO3	All	NDPs: 0 Tests: 16			X						X						X			X	
Alkalinity Filtered as CaCO3	All	NDPs: 0 Tests: 7																			
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 16				X						X						X			
Anions by Kone (w)	All	NDPs: 0 Tests: 16			X						X						X			X	
BOD True Total	All	NDPs: 0 Tests: 5		X						X						X					X
COD Unfiltered	All	NDPs: 0 Tests: 5		X						X						X					X
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 16			X						X						X			X	
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 16					X						X				X				
Ionic Balance	All	NDPs: 0 Tests: 7																			
Nitrite by Kone (w)	All	NDPs: 0 Tests: 11																			
pH Value	All	NDPs: 0 Tests: 7																			
Suspended Solids	All	NDPs: 0 Tests: 7																			
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 16	X						X						X					X	
Total Organic and Inorganic Carbon	All	NDPs: 0 Tests: 12				X						X						X			

22468855	SW202			Vial (ALE297)	SW																	
				NaOH (ALE245)	SW													X				
				HNO3 Filtered (ALE204)	SW											X						
				H2SO4 (ALE244)	SW				X													X
				500ml Plastic (ALE208)	SW		X	X		X			X			X			X	X		
				0.5l glass bottle (ALE227)	SW	X															X		
22468856	SW201			Vial (ALE297)	SW																	
				NaOH (ALE245)	SW													X				
				HNO3 Filtered (ALE204)	SW											X						
				H2SO4 (ALE244)	SW				X													X
				500ml Plastic (ALE208)	SW		X	X		X			X			X			X	X		
				0.5l glass bottle (ALE227)	SW	X															X		
22468843	Leachate Holding Lagoon			Vial (ALE297)	LE																	
				HNO3 Filtered (ALE204)	LE											X						
				H2SO4 (ALE244)	LE				X													X
				250ml BOD (ALE212)	LE						X	X										
				1lplastic (ALE221)	LE		X			X			X									
				0.5l glass bottle (ALE227)	LE	X															X		
22468845	Cell 3/4 Sump			Vial (ALE297)	LE																	
				HNO3 Filtered (ALE204)	LE											X						
				H2SO4 (ALE244)	LE				X													X

Validated

CERTIFICATE OF ANALYSIS

SDG:	200714-27	**Client Reference:**		**Report Number:**	559914
Location:	Nantycaws Landfill	**Order Number:**	16383 LAN	**Superseded Report:**	

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)							22468844							22468847							22468846				22468845	
Customer Sample Reference							Cell 5 Sump							Cell 7 Sump							Cell 1/2 Sump				Cell 3/4 Sump	
AGS Reference																										
Depth (m)																										
Container	0.5l glass bottle (ALE227)	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	Vial (ALE297)	0.5l glass bottle (ALE227)	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	Vial (ALE297)	0.5l glass bottle (ALE227)	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	Vial (ALE297)	0.5l glass bottle (ALE227)	250ml BOD (ALE212)						
Sample Type	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE						
VOC MS (W)						X						X					X								

All

NDPs: 0
Tests: 16

22468855	SW202			Vial (ALE297)	SW		X
				NaOH (ALE245)	SW		
				HNO3 Filtered (ALE204)	SW		
				H2SO4 (ALE244)	SW		
				500ml Plastic (ALE208)	SW		
				0.5l glass bottle (ALE227)	SW		
22468856	SW201			Vial (ALE297)	SW		X
				NaOH (ALE245)	SW		
				HNO3 Filtered (ALE204)	SW		
				H2SO4 (ALE244)	SW		
				500ml Plastic (ALE208)	SW		
				0.5l glass bottle (ALE227)	SW		
22468843	Leachate Holding Lagoon			Vial (ALE297)	LE		X
				HNO3 Filtered (ALE204)	LE		
				H2SO4 (ALE244)	LE		
				250ml BOD (ALE212)	LE		
				1lplastic (ALE221)	LE		
				0.5l glass bottle (ALE227)	LE		
22468845	Cell 3/4 Sump			Vial (ALE297)	LE		X
				HNO3 Filtered (ALE204)	LE		
				H2SO4 (ALE244)	LE		

Validated

CERTIFICATE OF ANALYSIS

SDG:	200714-27	**Client Reference:**		**Report Number:**	559914
Location:	Nantycaws Landfill	**Order Number:**	16383 LAN	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	22468854						22468857						22468853						22468849
			Customer Sample Reference	SW203						SW204						SW205						SW206
			AGS Reference																			
			Depth (m)																			
			Container	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)
			Sample Type	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW
Acid Herbicides by GCMS	All	NDPs: 0 Tests: 16		X						X						X						X
Alkalinity as CaCO3	All	NDPs: 0 Tests: 16			X						X						X					
Alkalinity Filtered as CaCO3	All	NDPs: 0 Tests: 7			X						X						X					
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 16				X						X						X				
Anions by Kone (w)	All	NDPs: 0 Tests: 16			X						X						X					
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 16			X						X						X					
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 16					X						X							X		
Ionic Balance	All	NDPs: 0 Tests: 7			X						X						X					
Nitrite by Kone (w)	All	NDPs: 0 Tests: 11						X						X						X		
pH Value	All	NDPs: 0 Tests: 7			X						X						X					
Suspended Solids	All	NDPs: 0 Tests: 7			X						X						X					
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 16		X						X						X						X
Total Organic and Inorganic Carbon	All	NDPs: 0 Tests: 12				X						X						X				
VOC MS (W)	All	NDPs: 0 Tests: 16							X						X						X	

| | | |

CERTIFICATE OF ANALYSIS

SDG:	200714-27	**Client Reference:**		**Report Number:**	559914
Location:	Nantycaws Landfill	**Order Number:**	16383 LAN	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			22468852		22468851						22468859						
Customer Sample Reference			UD3		UD4						UD5						
AGS Reference																	
Depth (m)																	
Container			NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	
Sample Type			GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	
Acid Herbicides by GCMS	All	NDPs: 0 Tests: 16			X						X						
Alkalinity as CaCO3	All	NDPs: 0 Tests: 16				X						X					
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 16					X						X				
Anions by Kone (w)	All	NDPs: 0 Tests: 16				X						X					
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 16				X						X					
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 16						X						X			
Nitrite by Kone (w)	All	NDPs: 0 Tests: 11	X						X						X		
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 16			X						X						
VOC MS (W)	All	NDPs: 0 Tests: 16		X						X						X	

Validated

CERTIFICATE OF ANALYSIS

SDG: 200714-27 **Client Reference:** **Report Number:** 559914
Location: Nantycaws Landfill **Order Number:** 16383 LAN **Superseded Report:**

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	Cell 5 Sump	Cell 7 Sump	Cell 1/2 Sump	Cell 3/4 Sump	Leachate Holding Lagoon	SW201
			Depth (m)	.	.	.	.	.	.
			Sample Type	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Surface Water (SW)
			Date Sampled	13/07/2020	13/07/2020	13/07/2020	13/07/2020	13/07/2020	13/07/2020
			Sample Time	.	.	.	.	.	.
			Date Received	14/07/2020	14/07/2020	14/07/2020	14/07/2020	14/07/2020	14/07/2020
			SDG Ref	200714-27	200714-27	200714-27	200714-27	200714-27	200714-27
			Lab Sample No.(s)	22468844	22468847	22468846	22468845	22468843	22468856
			AGS Reference						
Ionic balance	% Diff	Calulation							1.46
Suspended solids, Total	<2 mg/l	TM022							<2 #
Alkalinity, Total as CaCO3	<2 mg/l	TM043		5900 #	455 #	8770 #	2050 #	5430 #	116 #
Alkalinity,Total as CaCO3 (diss.filt)	<2 mg/l	TM043							113
Alkalinity, Bicarbonate as CaCO3 (diss.filt)	<2 mg/l	TM043							113
BOD, unfiltered	<1 mg/l	TM045		130 #	<10 #	134 #	21.6 #	87.4 #	
Organic Carbon, Total	<3 mg/l	TM090		514	47.8	816	137	464	4.57 #
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		1560	96.4	2450	443	1160	<0.2 #
COD, unfiltered	<7 mg/l	TM107		1800 #	193 #	3070 #	505 #	1470 #	
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120		26.5 #	1.86 #	39.8 #	6.01 #	19.2 #	0.256 #
Cadmium (diss.filt)	<0.08 µg/l	TM152		<0.8 #	<0.08 #	<0.8 2 #	<0.08 #	0.192 #	<0.08 #
Chromium (diss.filt)	<1 µg/l	TM152		140 #	19 #	195 2 #	30.8 #	121 #	1.02 #
Copper (diss.filt)	<0.3 µg/l	TM152		20.1 #	14.9 #	27.1 2 #	3.87 #	6.88 #	1.97 #
Lead (diss.filt)	<0.2 µg/l	TM152		11.4 #	1.88 #	17.1 2 #	1.82 #	3.19 #	0.344 #
Manganese (diss.filt)	<3 µg/l	TM152		208 #	117 #	98.6 2 #	453 #	1050 #	15.8 #
Nickel (diss.filt)	<0.4 µg/l	TM152		208 #	16.6 #	290 2 #	58.6 #	143 #	0.789 #
Zinc (diss.filt)	<1 µg/l	TM152		138 #	127 #	153 2 #	74.7 #	62.5 #	3.7 #
Sodium (Dis.Filt)	<0.076 mg/l	TM152		2510 #	155 #	4090 2 #	631 #	2640 #	6.58 #
Magnesium (Dis.Filt)	<0.036 mg/l	TM152		42.1 #	9.87 #	55.7 2 #	15.9 #	85.1 #	3.43 #
Potassium (Dis.Filt)	<0.2 mg/l	TM152		2070 #	105 #	2880 2 #	349 #	1630 #	1.3 #
Calcium (Dis.Filt)	<0.2 mg/l	TM152		37 #	41.1 #	32.3 2 #	52.1 #	122 #	49.6 #
Iron (Dis.Filt)	<0.019 mg/l	TM152		3.16 #	0.671 #	4.33 2 #	1.28 #	2.89 #	0.144 #
Nitrite as NO2	<0.05 mg/l	TM184							<0.05 #
Sulphate	<2 mg/l	TM184		<10	<20	<20	<10	<20	8.6 #
Chloride	<2 mg/l	TM184		7160	271	11700	997	4550	11.9 #
Nitrate as NO3	<0.3 mg/l	TM184							13
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184		0.187	29.1	1.61	0.194	0.176	2.94 #
pH	<1 pH Units	TM256							7.89 #
Mecoprop	<0.04 µg/l	TM411		77.6	<8	129	7.52	34.2	<0.04

Validated

CERTIFICATE OF ANALYSIS

SDG:	200714-27	**Client Reference:**		**Report Number:**	559914
Location:	Nantycaws Landfill	**Order Number:**	16383 LAN	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW202	SW203	SW204	SW205	SW206	SW207
			Depth (m)	.	.	.	.	.	.
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
			Date Sampled	13/07/2020	13/07/2020	13/07/2020	13/07/2020	13/07/2020	13/07/2020
			Sample Time	.	.	.	.	.	.
			Date Received	14/07/2020	14/07/2020	14/07/2020	14/07/2020	14/07/2020	14/07/2020
			SDG Ref	200714-27	200714-27	200714-27	200714-27	200714-27	200714-27
			Lab Sample No.(s)	22468855	22468854	22468857	22468853	22468849	22468860
			AGS Reference						
Ionic balance	% Diff	Calulation		-0.317	-2.41	0.962	-1.27	-6.33	-0.598
Suspended solids, Total	<2 mg/l	TM022		4.9 #	5.85 #	<2 #	3.5 #	6.45 #	4.79 #
Alkalinity, Total as CaCO3	<2 mg/l	TM043		234 #	236 #	207 #	195 #	146 #	170 #
Alkalinity,Total as CaCO3 (diss.filt)	<2 mg/l	TM043		240	240	206	195	150	172
Alkalinity, Bicarbonate as CaCO3 (diss.filt)	<2 mg/l	TM043		240	240	206	195	140	172
Organic Carbon, Total	<3 mg/l	TM090		6.1 #	6.19 #	7.32 #	14.5 #	<3 #	11.6 #
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 #	<0.2 #	<0.2 #	<0.2 #	<0.2 #	<0.2 #
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120		0.513 #	0.512 #	0.445 #	0.529 #	0.292 #	0.453 #
Cadmium (diss.filt)	<0.08 µg/l	TM152		<0.08 #	<0.08 #	<0.08 #	<0.08 #	<0.08 #	<0.08 #
Chromium (diss.filt)	<1 µg/l	TM152		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Copper (diss.filt)	<0.3 µg/l	TM152		2.06 #	1.93 #	2.04 #	3.75 #	0.851 #	3.31 #
Lead (diss.filt)	<0.2 µg/l	TM152		0.603 #	0.65 #	<0.2 #	0.208 #	<0.2 #	0.407 #
Manganese (diss.filt)	<3 µg/l	TM152		97.6 #	97.9 #	65.9 #	44.6 #	26.3 #	37.5 #
Nickel (diss.filt)	<0.4 µg/l	TM152		1.23 #	1.22 #	1.76 #	2.15 #	<0.4 #	1.71 #
Zinc (diss.filt)	<1 µg/l	TM152		2.55 #	3.18 #	1.75 #	1.72 #	3.4 #	3.25 #
Sodium (Dis.Filt)	<0.076 mg/l	TM152		13.2 #	12.5 #	7.72 #	15.7 #	6.88 #	11.7 #
Magnesium (Dis.Filt)	<0.036 mg/l	TM152		8.35 #	7.93 #	4.97 #	8.18 #	3.86 #	6.24 #
Potassium (Dis.Filt)	<0.2 mg/l	TM152		14.6 #	14.3 #	11.5 #	31 #	2.28 #	20.2 #
Calcium (Dis.Filt)	<0.2 mg/l	TM152		94.2 #	90.7 #	89.5 #	80.8 #	51.1 #	75.3 #
Iron (Dis.Filt)	<0.019 mg/l	TM152		0.177 #	0.167 #	0.0666 #	0.166 #	0.102 #	0.145 #
Nitrite as NO2	<0.05 mg/l	TM184		<0.05 #	<0.05 #	<0.05 #	0.094 #	<0.05 #	0.058 #
Sulphate	<2 mg/l	TM184		37.5 #	36.5 #	42.9 #	72.7 #	11.6 #	54.5 #
Chloride	<2 mg/l	TM184		25.4 #	26.5 #	12.7 #	31.7 #	10.9 #	24.7 #
Nitrate as NO3	<0.3 mg/l	TM184		4.72	4.9	1.82	2.04	7.06	5.11
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184		1.08 #	1.12 #	0.419 #	0.491 #	1.6 #	1.17 #
pH	<1 pH Units	TM256		7.94 #	8.17 #	8.01 #	8.2 #	8.08 #	8.05 #
Mecoprop	<0.04 µg/l	TM411		<0.04	<0.04	<0.04	<0.08	<0.08	0.055

Validated

CERTIFICATE OF ANALYSIS

SDG:	200714-27	**Client Reference:**		**Report Number:**	559914
Location:	Nantycaws Landfill	**Order Number:**	16383 LAN	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	UD1	UD3	UD4	UD5		
			Depth (m)	.	.	.	.		
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)		
			Date Sampled	13/07/2020	13/07/2020	13/07/2020	13/07/2020		
			Sample Time	.	.	.	.		
			Date Received	14/07/2020	14/07/2020	14/07/2020	14/07/2020		
			SDG Ref	200714-27	200714-27	200714-27	200714-27		
			Lab Sample No.(s)	22468858	22468852	22468851	22468859		
			AGS Reference						
Alkalinity, Total as CaCO3	<2 mg/l	TM043		240 #	182 #	218 #	209 #		
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 #	<0.2 #	0.474 #	<0.2 #		
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120		0.532 #	0.381 #	0.418 #	0.433 #		
Cadmium (diss.filt)	<0.08 µg/l	TM152		<0.08 #	<0.08 #	<0.08 #	<0.08 #		
Chromium (diss.filt)	<1 µg/l	TM152		<1 #	<1 #	<1 #	<1 #		
Copper (diss.filt)	<0.3 µg/l	TM152		<0.3 #	<0.3 #	<0.3 #	1.93 #		
Lead (diss.filt)	<0.2 µg/l	TM152		<0.2 #	<0.2 #	<0.2 #	<0.2 #		
Manganese (diss.filt)	<3 µg/l	TM152		35.2 #	4.63 #	183 #	64.2 #		
Nickel (diss.filt)	<0.4 µg/l	TM152		<0.4 #	<0.4 #	<0.4 #	1.55 #		
Zinc (diss.filt)	<1 µg/l	TM152		<1 #	2.51 #	<1 #	2.03 #		
Sodium (Dis.Filt)	<0.076 mg/l	TM152		10.4 #	10.9 #	8.82 #	7.63 #		
Magnesium (Dis.Filt)	<0.036 mg/l	TM152		9.57 #	6.92 #	5.57 #	4.92 #		
Potassium (Dis.Filt)	<0.2 mg/l	TM152		1.33 #	1.49 #	2.47 #	11.4 #		
Calcium (Dis.Filt)	<0.2 mg/l	TM152		101 #	64.9 #	80.5 #	88.8 #		
Iron (Dis.Filt)	<0.019 mg/l	TM152		0.0377 #	<0.019 #	0.794 #	0.0642 #		
Nitrite as NO2	<0.05 mg/l	TM184		<0.05 #	<0.05 #	0.051 #	<0.05 #		
Sulphate	<2 mg/l	TM184		14.2 #	12.1 #	15.2 #	43.2 #		
Chloride	<2 mg/l	TM184		42.1 #	17 #	14 #	12.5 #		
Nitrate as NO3	<0.3 mg/l	TM184		8.7	5.74	4.5	1.78		
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184		1.98 #	1.3 #	1.03 #	0.41 #		
Mecoprop	<0.04 µg/l	TM411		<0.08	<0.08	<0.04	<0.08		

CERTIFICATE OF ANALYSIS

SDG:	200714-27	**Client Reference:**		**Report Number:**	559914
Location:	Nantycaws Landfill	**Order Number:**	16383 LAN	**Superseded Report:**	

SVOC MS (W) - Aqueous

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	Cell 5 Sump	Cell 7 Sump	Cell 1/2 Sump	Cell 3/4 Sump	Leachate Holding Lagoon	SW201
			Depth (m)	.	.	.	.	.	.
			Sample Type	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Surface Water (SW)
			Date Sampled	13/07/2020	13/07/2020	13/07/2020	13/07/2020	13/07/2020	13/07/2020
			Sample Time	.	.	.	.	.	.
			Date Received	14/07/2020	14/07/2020	14/07/2020	14/07/2020	14/07/2020	14/07/2020
			SDG Ref	200714-27	200714-27	200714-27	200714-27	200714-27	200714-27
			Lab Sample No.(s)	22468844	22468847	22468846	22468845	22468843	22468856
			AGS Reference						
4-Methylphenol (aq)	<1 µg/l	TM176		<20	<10	<50	<10	<20	<1 #
Diethyl phthalate (aq)	<1 µg/l	TM176		<20	<10	<50	<10	<20	<1 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	200714-27	**Client Reference:**		**Report Number:**	559914
Location:	Nantycaws Landfill	**Order Number:**	16383 LAN	**Superseded Report:**	

SVOC MS (W) - Aqueous

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW202	SW203	SW204	SW205	SW206	SW207
			Depth (m)	.	.	.	.	.	.
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
			Date Sampled	13/07/2020	13/07/2020	13/07/2020	13/07/2020	13/07/2020	13/07/2020
			Sample Time	.	.	.	.	.	.
			Date Received	14/07/2020	14/07/2020	14/07/2020	14/07/2020	14/07/2020	14/07/2020
			SDG Ref	200714-27	200714-27	200714-27	200714-27	200714-27	200714-27
			Lab Sample No.(s)	22468855	22468854	22468857	22468853	22468849	22468860
			AGS Reference						
4-Methylphenol (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Diethyl phthalate (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #

CERTIFICATE OF ANALYSIS

SDG:	200714-27	**Client Reference:**		**Report Number:**	559914
Location:	Nantycaws Landfill	**Order Number:**	16383 LAN	**Superseded Report:**	

SVOC MS (W) - Aqueous

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	UD1	UD3	UD4	UD5		
			Depth (m)	.	.	.	.		
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)		
			Date Sampled	13/07/2020	13/07/2020	13/07/2020	13/07/2020		
			Sample Time	.	.	.	.		
			Date Received	14/07/2020	14/07/2020	14/07/2020	14/07/2020		
			SDG Ref	200714-27	200714-27	200714-27	200714-27		
			Lab Sample No.(s)	22468858	22468852	22468851	22468859		
			AGS Reference						
4-Methylphenol (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #		
Diethyl phthalate (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #		

Validated

CERTIFICATE OF ANALYSIS

SDG:	200714-27	**Client Reference:**		**Report Number:**	559914
Location:	Nantycaws Landfill	**Order Number:**	16383 LAN	**Superseded Report:**	

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	Cell 5 Sump	Cell 7 Sump	Cell 1/2 Sump	Cell 3/4 Sump	Leachate Holding Lag oon	SW201
			Depth (m)	.	.	.	.	.	.
			Sample Type	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Surface Water (SW)
			Date Sampled	13/07/2020	13/07/2020	13/07/2020	13/07/2020	13/07/2020	13/07/2020
			Sample Time	.	.	.	.	.	.
			Date Received	14/07/2020	14/07/2020	14/07/2020	14/07/2020	14/07/2020	14/07/2020
			SDG Ref	200714-27	200714-27	200714-27	200714-27	200714-27	200714-27
			Lab Sample No.(s)	22468844	22468847	22468846	22468845	22468843	22468856
			AGS Reference						
Dichloromethane	<3 µg/l	TM208		<3 #	<3 #	<3 #	<3 #	<3 #	<3 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	200714-27	**Client Reference:**		**Report Number:**	559914
Location:	Nantycaws Landfill	**Order Number:**	16383 LAN	**Superseded Report:**	

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW202	SW203	SW204	SW205	SW206	SW207
			Depth (m)	.	.	.	.	.	.
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
			Date Sampled	13/07/2020	13/07/2020	13/07/2020	13/07/2020	13/07/2020	13/07/2020
			Sample Time	.	.	.	.	.	.
			Date Received	14/07/2020	14/07/2020	14/07/2020	14/07/2020	14/07/2020	14/07/2020
			SDG Ref	200714-27	200714-27	200714-27	200714-27	200714-27	200714-27
			Lab Sample No.(s)	22468855	22468854	22468857	22468853	22468849	22468860
			AGS Reference						
Dichloromethane	<3 µg/l	TM208		<3 #	<3 #	<3 #	<3 #	<3 #	<3 #

CERTIFICATE OF ANALYSIS

SDG:	200714-27	**Client Reference:**		**Report Number:**	559914
Location:	Nantycaws Landfill	**Order Number:**	16383 LAN	**Superseded Report:**	

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	UD1	UD3	UD4	UD5		
			Depth (m)	.	.	.	.		
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)		
			Date Sampled	13/07/2020	13/07/2020	13/07/2020	13/07/2020		
			Sample Time	.	.	.	.		
			Date Received	14/07/2020	14/07/2020	14/07/2020	14/07/2020		
			SDG Ref	200714-27	200714-27	200714-27	200714-27		
			Lab Sample No.(s)	22468858	22468852	22468851	22468859		
			AGS Reference						
Dichloromethane	<3 µg/l	TM208		<3 #	<3 #	<3 #	<3 #		

CERTIFICATE OF ANALYSIS

SDG:	200714-27	**Client Reference:**		**Report Number:**	559914
Location:	Nantycaws Landfill	**Order Number:**	16383 LAN	**Superseded Report:**	

Table of Results - Appendix

Method No	Reference	Description
Calulation		
TM022	Method 2540D, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part120 1981;BS EN 872	Determination of total suspended solids in waters
TM043	Method 2320B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part109 1984	Determination of alkalinity in aqueous samples
TM045	MEWAM BOD5 2nd Ed.HMSO 1988 / Method 5210B, AWWA/APHA, 20th Ed., 1999; SCA Blue Book 130	Determination of BOD5 (ATU) Filtered by Oxygen Meter on liquids
TM090	Method 5310, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 415.1 & 9060	Determination of Total Organic Carbon/Total Inorganic Carbon in Water and Waste Water
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM107	ISO 6060-1989	Determination of Chemical Oxygen Demand using COD Dr Lange Kit
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM176	EPA 8270D Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of SVOCs in Water by GCMS
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter
TM411	Acid_Herbs_GCMS	Acid Herbs in Water by GCMS

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG:	200714-27	**Client Reference:**		**Report Number:**	559914
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Test Completion Dates

Lab Sample No(s)	22468844	22468847	22468846	22468845	22468843	22468856	22468855	22468854	22468857	22468853
Customer Sample Ref.	Cell 5 Sump	Cell 7 Sump	Cell 1/2 Sump	Cell 3/4 Sump	Leachate Holding Lagoon	SW201	SW202	SW203	SW204	SW205
AGS Ref.										
Depth										
Type	Land Leachate	Land Leachate	Land Leachate	Land Leachate	Land Leachate	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Acid Herbicides by GCMS	21-Jul-2020	17-Jul-2020	17-Jul-2020	21-Jul-2020	21-Jul-2020	21-Jul-2020	17-Jul-2020	17-Jul-2020	21-Jul-2020	17-Jul-2020
Alkalinity as CaCO3	18-Jul-2020	16-Jul-2020	18-Jul-2020	18-Jul-2020	18-Jul-2020	18-Jul-2020	16-Jul-2020	16-Jul-2020	18-Jul-2020	16-Jul-2020
Alkalinity Filtered as CaCO3						20-Jul-2020	16-Jul-2020	16-Jul-2020	20-Jul-2020	16-Jul-2020
Ammoniacal Nitrogen	18-Jul-2020	14-Jul-2020	18-Jul-2020	18-Jul-2020	18-Jul-2020	16-Jul-2020	15-Jul-2020	15-Jul-2020	16-Jul-2020	15-Jul-2020
Anions by Kone (w)	17-Jul-2020	15-Jul-2020	15-Jul-2020	17-Jul-2020	17-Jul-2020	17-Jul-2020	15-Jul-2020	15-Jul-2020	17-Jul-2020	15-Jul-2020
BOD True Total	20-Jul-2020	20-Jul-2020	20-Jul-2020	20-Jul-2020	20-Jul-2020					
COD Unfiltered	16-Jul-2020	18-Jul-2020	18-Jul-2020	18-Jul-2020	18-Jul-2020					
Conductivity (at 20 deg.C)	16-Jul-2020	16-Jul-2020	16-Jul-2020	16-Jul-2020	16-Jul-2020	16-Jul-2020	16-Jul-2020	16-Jul-2020	16-Jul-2020	16-Jul-2020
Dissolved Metals by ICP-MS	21-Jul-2020	20-Jul-2020	21-Jul-2020	21-Jul-2020	21-Jul-2020	21-Jul-2020	20-Jul-2020	20-Jul-2020	21-Jul-2020	20-Jul-2020
Ionic Balance						21-Jul-2020	20-Jul-2020	20-Jul-2020	21-Jul-2020	20-Jul-2020
Nitrite by Kone (w)						17-Jul-2020	15-Jul-2020	15-Jul-2020	17-Jul-2020	15-Jul-2020
pH Value						16-Jul-2020	15-Jul-2020	15-Jul-2020	16-Jul-2020	15-Jul-2020
Suspended Solids						16-Jul-2020	15-Jul-2020	15-Jul-2020	16-Jul-2020	15-Jul-2020
SVOC MS (W) - Aqueous	19-Jul-2020	16-Jul-2020	16-Jul-2020	19-Jul-2020	19-Jul-2020	20-Jul-2020	16-Jul-2020	16-Jul-2020	20-Jul-2020	16-Jul-2020
Total Organic and Inorganic Carbon	17-Jul-2020	16-Jul-2020	16-Jul-2020	17-Jul-2020	17-Jul-2020	17-Jul-2020	16-Jul-2020	16-Jul-2020	17-Jul-2020	16-Jul-2020
VOC MS (W)	20-Jul-2020	20-Jul-2020	20-Jul-2020	20-Jul-2020	20-Jul-2020	20-Jul-2020	20-Jul-2020	20-Jul-2020	20-Jul-2020	20-Jul-2020

Lab Sample No(s)	22468849	22468860	22468858	22468852	22468851	22468859
Customer Sample Ref.	SW206	SW207	UD1	UD3	UD4	UD5
AGS Ref.						
Depth						
Type	Surface Water	Surface Water	Ground Water	Ground Water	Ground Water	Ground Water
Acid Herbicides by GCMS	17-Jul-2020	21-Jul-2020	21-Jul-2020	17-Jul-2020	17-Jul-2020	21-Jul-2020
Alkalinity as CaCO3	16-Jul-2020	18-Jul-2020	18-Jul-2020	16-Jul-2020	16-Jul-2020	18-Jul-2020
Alkalinity Filtered as CaCO3	16-Jul-2020	20-Jul-2020				
Ammoniacal Nitrogen	14-Jul-2020	16-Jul-2020	16-Jul-2020	15-Jul-2020	15-Jul-2020	16-Jul-2020
Anions by Kone (w)	15-Jul-2020	17-Jul-2020	17-Jul-2020	15-Jul-2020	15-Jul-2020	17-Jul-2020
Conductivity (at 20 deg.C)	16-Jul-2020	16-Jul-2020	16-Jul-2020	16-Jul-2020	16-Jul-2020	16-Jul-2020
Dissolved Metals by ICP-MS	20-Jul-2020	21-Jul-2020	21-Jul-2020	20-Jul-2020	20-Jul-2020	21-Jul-2020
Ionic Balance	20-Jul-2020	21-Jul-2020				
Nitrite by Kone (w)	15-Jul-2020	17-Jul-2020	17-Jul-2020	15-Jul-2020	15-Jul-2020	17-Jul-2020
pH Value	15-Jul-2020	16-Jul-2020				
Suspended Solids	15-Jul-2020	16-Jul-2020				
SVOC MS (W) - Aqueous	16-Jul-2020	20-Jul-2020	19-Jul-2020	16-Jul-2020	16-Jul-2020	20-Jul-2020
Total Organic and Inorganic Carbon	16-Jul-2020	17-Jul-2020				
VOC MS (W)	20-Jul-2020	20-Jul-2020	20-Jul-2020	20-Jul-2020	20-Jul-2020	20-Jul-2020

Appendix General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**

19. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2017).*

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

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Website: www.alsenvironmental.co.uk

CWM Environmental Ltd
Nantyclaws Landfill Site
Llanddarg Road
Carmarthen
Carmarthenshire
SA32 8BG

Attention: Sean Gallagher

CERTIFICATE OF ANALYSIS

Date of report Generation:	22 July 2020
Customer:	CWM Environmental Ltd
Sample Delivery Group (SDG):	200715-143
Your Reference:	
Location:	Nantycaws Landfill
Report No:	560020

We received 16 samples on Wednesday July 15, 2020 and 15 of these samples were scheduled for analysis which was completed on Wednesday July 22, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager

ALS Life Sciences Limited. Registered Office: Units 7 & 8 Hawarden Business Park, Manor Road, Hawarden, Deeside, CH5 3US. Registered in England and Wales No. 4057291.

CERTIFICATE OF ANALYSIS

SDG:	200715-143	**Client Reference:**		**Report Number:**	560020
Location:	Nantycaws Landfill	**Order Number:**	16383	**Superseded Report:**	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
22478461	BH3/2			14/07/2020
22478462	BH3/3			14/07/2020
22478474	BH3/4			14/07/2020
22478463	BH3/5			14/07/2020
22478464	BH3/6			14/07/2020
22478465	BH3/8			14/07/2020
22478466	BH3/9			14/07/2020
22478476	BH208			14/07/2020
22478475	BH5/02			14/07/2020
22478472	NACW203			14/07/2020
22478473	NACW205			14/07/2020
22478471	NACW212			14/07/2020
22478467	NACW219			14/07/2020
22478469	NACW227			14/07/2020
22478470	NACW228			14/07/2020
22478468	NACW229			14/07/2020

Maximum Sample/Coolbox Temperature (°C) : **15.2**

ISO5667-3 Water quality - Sampling - Part3 -
During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG:	200715-143	**Client Reference:**		**Report Number:**	560020
Location:	Nantycaws Landfill	**Order Number:**	16383	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			22478461						22478462						22478474						22478463
Customer Sample Reference			BH3/2						BH3/3						BH3/4						BH3/5
AGS Reference																					
Depth (m)																					
Container			0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)
Sample Type			GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
Acid Herbicides by GCMS	All	NDPs: 0 Tests: 15	X						X						X						X
Alkalinity as CaCO3	All	NDPs: 0 Tests: 15		X						X						X					
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 15			X						X						X				
Anions by Kone (w)	All	NDPs: 0 Tests: 15		X						X						X					
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 15		X						X						X					
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 15				X						X						X			
Nitrite by Kone (w)	All	NDPs: 0 Tests: 15					X						X						X		
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 15	X						X						X						X
VOC MS (W)	All	NDPs: 0 Tests: 15						X						X						X	

22478466	BH3/9			HNO3 Filtered (ALE204)	GW		
				H2SO4 (ALE244)	GW		X
				500ml Plastic (ALE208)	GW	X	
				0.5l glass bottle (ALE227)	GW		X
22478465	BH3/8			Vial (ALE297)	GW	X	
				NaOH (ALE245)	GW		X
				HNO3 Filtered (ALE204)	GW	X	
				H2SO4 (ALE244)	GW		X
22478464	BH3/6			500ml Plastic (ALE208)	GW	X	
				0.5l glass bottle (ALE227)	GW	X	
				Vial (ALE297)	GW	X	
				NaOH (ALE245)	GW	X	
				HNO3 Filtered (ALE204)	GW	X	
				H2SO4 (ALE244)	GW	X	
				500ml Plastic (ALE208)	GW	X	
				0.5l glass bottle (ALE227)	GW	X	
22478463	BH3/5			Vial (ALE297)	GW	X	
				NaOH (ALE245)	GW	X	
				HNO3 Filtered (ALE204)	GW	X	
				H2SO4 (ALE244)	GW	X	
				500ml Plastic (ALE208)	GW	X	

Validated

CERTIFICATE OF ANALYSIS

SDG:	200715-143	**Client Reference:**		**Report Number:**	560020
Location:	Nantycaws Landfill	**Order Number:**	16383	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			22478466		22478476						22478475						22478472			
Customer Sample Reference			BH3/9		BH208						BH5/02						NACW203			
AGS Reference																				
Depth (m)																				
Container			NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)
Sample Type			GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
Acid Herbicides by GCMS	All	NDPs: 0 Tests: 15			X						X						X				
Alkalinity as CaCO3	All	NDPs: 0 Tests: 15				X						X						X			
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 15					X						X						X		
Anions by Kone (w)	All	NDPs: 0 Tests: 15				X						X						X			
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 15				X						X						X			
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 15						X						X						X	
Nitrite by Kone (w)	All	NDPs: 0 Tests: 15	X						X						X						X
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 15			X						X						X				
VOC MS (W)	All	NDPs: 0 Tests: 15		X						X						X					

| 22478470 | NACW228 | | | H2SO4 (ALE244) | GW | | |

CERTIFICATE OF ANALYSIS

SDG:	200715-143	**Client Reference:**		**Report Number:**	560020
Location:	Nantycaws Landfill	**Order Number:**	16383	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			22478470								22478468
Customer Sample Reference			NACW228								NACW229
AGS Reference											
Depth (m)											
Container			HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)
Sample Type			GW	GW	GW	GW	GW	GW	GW	GW	GW
Acid Herbicides by GCMS	All	NDPs: 0 Tests: 15				X					
Alkalinity as CaCO3	All	NDPs: 0 Tests: 15					X				
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 15						X			
Anions by Kone (w)	All	NDPs: 0 Tests: 15					X				
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 15					X				
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 15	X						X		
Nitrite by Kone (w)	All	NDPs: 0 Tests: 15		X						X	
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 15				X					
VOC MS (W)	All	NDPs: 0 Tests: 15			X						X

Validated

CERTIFICATE OF ANALYSIS

SDG:	200715-143	**Client Reference:**		**Report Number:**	560020
Location:	Nantycaws Landfill	**Order Number:**	16383	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/2	BH3/3	BH3/4	BH3/5	BH3/6	BH3/8
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	14/07/2020	14/07/2020	14/07/2020	14/07/2020	14/07/2020	14/07/2020
			Sample Time	.	.	.	.	.	.
			Date Received	15/07/2020	15/07/2020	15/07/2020	15/07/2020	15/07/2020	15/07/2020
			SDG Ref	200715-143	200715-143	200715-143	200715-143	200715-143	200715-143
			Lab Sample No.(s)	22478461	22478462	22478474	22478463	22478464	22478465
			AGS Reference						
Alkalinity, Total as CaCO3	<2 mg/l	TM043		47.3 #	98.6 #	129 #	64.8 #	49.9 #	136 #
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 #	0.215 #	<0.2 #	<0.2 #	<0.2 #	<0.2 #
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120		0.108 #	0.198 #	0.314 #	0.144 #	0.127 #	0.107 #
Cadmium (diss.filt)	<0.08 µg/l	TM152		<0.08 #	<0.08 #	<0.08 #	<0.08 #	<0.08 #	<0.08 #
Chromium (diss.filt)	<1 µg/l	TM152		3.98 #	<1 #	<1 #	1.65 #	2.17 #	<1 #
Copper (diss.filt)	<0.3 µg/l	TM152		4.25 #	2.17 #	6.39 #	2.21 #	6.2 #	2.35 #
Lead (diss.filt)	<0.2 µg/l	TM152		1.1 #	<0.2 #	<0.2 #	0.391 #	0.264 #	<0.2 #
Manganese (diss.filt)	<3 µg/l	TM152		17.9 #	5.69 #	76 #	32.9 #	6.63 #	6.42 #
Nickel (diss.filt)	<0.4 µg/l	TM152		1.73 #	<0.4 #	0.856 #	0.625 #	0.677 #	<0.4 #
Zinc (diss.filt)	<1 µg/l	TM152		5.49 #	4.56 #	4.04 #	5.45 #	4 #	1.9 #
Sodium (Dis.Filt)	<0.076 mg/l	TM152		4.46 #	8.73 #	7.85 #	5.95 #	8.97 #	8.37 #
Magnesium (Dis.Filt)	<0.036 mg/l	TM152		2.22 #	3.52 #	6.86 #	3.76 #	1.68 #	1.13 #
Potassium (Dis.Filt)	<0.2 mg/l	TM152		0.941 #	0.409 #	1.08 #	0.829 #	1.05 #	0.267 #
Calcium (Dis.Filt)	<0.2 mg/l	TM152		14.6 #	32 #	48.9 #	20.8 #	18.2 #	12.9 #
Iron (Dis.Filt)	<0.019 mg/l	TM152		1.02 #	0.0264 #	0.0303 #	0.201 #	0.386 #	0.0813 #
Nitrite as NO2	<0.05 mg/l	TM184		<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #
Sulphate	<2 mg/l	TM184		3.9 #	4 #	7.1 #	<2 #	10.8 #	<2 #
Chloride	<2 mg/l	TM184		8.5 #	12.1 #	33.3 #	9.1 #	11.3 #	14.9 #
Nitrate as NO3	<0.3 mg/l	TM184		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184		<0.1 #	<0.1 #	<0.1 #	<0.1 #	<0.1 #	<0.1 #
Mecoprop	<0.04 µg/l	TM411		<0.08	<0.08	0.0687	<0.08	<0.08	<0.08

Validated

CERTIFICATE OF ANALYSIS

SDG:	200715-143	**Client Reference:**		**Report Number:**	560020
Location:	Nantycaws Landfill	**Order Number:**	16383	**Superseded Report:**	

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/9	BH208	BH5/02	NACW203	NACW205	NACW212
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	14/07/2020	14/07/2020	14/07/2020	14/07/2020	14/07/2020	14/07/2020
			Sample Time	.	.	.	.	.	.
			Date Received	15/07/2020	15/07/2020	15/07/2020	15/07/2020	15/07/2020	15/07/2020
			SDG Ref	200715-143	200715-143	200715-143	200715-143	200715-143	200715-143
			Lab Sample No.(s)	22478466	22478476	22478475	22478472	22478473	22478471
			AGS Reference						
Alkalinity, Total as CaCO3	<2 mg/l	TM043		23.5 #	195 #	220 #	101 #	240 #	191 #
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 #	<0.2 #	<0.2 #	<0.2 #	<0.2 #	<0.2 #
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120		0.694 #	0.38 #	0.447 #	0.394 #	0.491 #	0.223 #
Cadmium (diss.filt)	<0.08 µg/l	TM152		<0.08 #	<0.08 #	<0.08 #	<0.08 #	<0.08 #	<0.08 #
Chromium (diss.filt)	<1 µg/l	TM152		<1 #	<1 #	1.21 #	<1 #	<1 #	6.11 #
Copper (diss.filt)	<0.3 µg/l	TM152		3.3 #	1.2 #	4.5 #	0.422 #	0.702 #	18.6 #
Lead (diss.filt)	<0.2 µg/l	TM152		<0.2 #	1.87 #	2.03 #	0.214 #	0.412 #	2.08 #
Manganese (diss.filt)	<3 µg/l	TM152		8.03 #	6.44 #	63.2 #	107 #	28.4 #	36.1 #
Nickel (diss.filt)	<0.4 µg/l	TM152		1.31 #	<0.4 #	0.467 #	0.459 #	<0.4 #	3.16 #
Zinc (diss.filt)	<1 µg/l	TM152		4.53 #	4.04 #	6.32 #	1.03 #	4.34 #	38.3 #
Sodium (Dis.Filt)	<0.076 mg/l	TM152		36.5 #	10.8 #	10.6 #	26.1 #	10.8 #	9.33 #
Magnesium (Dis.Filt)	<0.036 mg/l	TM152		10.2 #	8.5 #	9.2 #	10.1 #	9.23 #	4.13 #
Potassium (Dis.Filt)	<0.2 mg/l	TM152		11.3 #	1.38 #	1.42 #	1.33 #	1.19 #	4.78 #
Calcium (Dis.Filt)	<0.2 mg/l	TM152		102 #	65.1 #	81.6 #	46.6 #	90.3 #	32.2 #
Iron (Dis.Filt)	<0.019 mg/l	TM152		0.0371 #	0.0305 #	0.324 #	0.171 #	0.0518 #	3.04 #
Nitrite as NO2	<0.05 mg/l	TM184		<0.05 #	<0.05 #	0.231 #	<0.05 #	<0.05 #	<0.05 #
Sulphate	<2 mg/l	TM184		302 #	9.5 #	13 #	46.4 #	12.4 #	27.3 #
Chloride	<2 mg/l	TM184		41.2 #	14.8 #	20.4 #	47.5 #	29.6 #	11.9 #
Nitrate as NO3	<0.3 mg/l	TM184		1.86	9.59	9.48	1.63	9.29	12
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184		0.426 #	2.18 #	2.21 #	0.373 #	2.1 #	2.71 #
Mecoprop	<0.04 µg/l	TM411		<0.08	<0.08	<0.08	<0.04	<0.08	<0.08

Validated

CERTIFICATE OF ANALYSIS

SDG:	200715-143	**Client Reference:**		**Report Number:**	560020
Location:	Nantycaws Landfill	**Order Number:**	16383	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	NACW219	NACW228	NACW229			
			Depth (m)	.	.	.			
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)			
			Date Sampled	14/07/2020	14/07/2020	14/07/2020			
			Sample Time	.	.	.			
			Date Received	15/07/2020	15/07/2020	15/07/2020			
			SDG Ref	200715-143	200715-143	200715-143			
			Lab Sample No.(s)	22478467	22478470	22478468			
			AGS Reference						
Alkalinity, Total as CaCO3	<2 mg/l	TM043		39.5 #	26 #	155 #			
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 #	<0.2 #	<0.2 #			
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120		0.169 #	0.115 #	0.564 #			
Cadmium (diss.filt)	<0.08 µg/l	TM152		<0.08 #	<0.08 #	<0.08 #			
Chromium (diss.filt)	<1 µg/l	TM152		<1 #	<1 #	1.05 #			
Copper (diss.filt)	<0.3 µg/l	TM152		2.96 #	2.56 #	6.12 #			
Lead (diss.filt)	<0.2 µg/l	TM152		0.326 #	<0.2 #	<0.2 #			
Manganese (diss.filt)	<3 µg/l	TM152		27 #	32.2 #	8.88 #			
Nickel (diss.filt)	<0.4 µg/l	TM152		0.527 #	1.97 #	1.16 #			
Zinc (diss.filt)	<1 µg/l	TM152		4.3 #	2.59 #	1.45 #			
Sodium (Dis.Filt)	<0.076 mg/l	TM152		8.68 #	8.14 #	13.4 #			
Magnesium (Dis.Filt)	<0.036 mg/l	TM152		4.02 #	2.77 #	6.95 #			
Potassium (Dis.Filt)	<0.2 mg/l	TM152		0.581 #	2.16 #	13.8 #			
Calcium (Dis.Filt)	<0.2 mg/l	TM152		22 #	11.4 #	105 #			
Iron (Dis.Filt)	<0.019 mg/l	TM152		0.18 #	0.105 #	0.024 #			
Nitrite as NO2	<0.05 mg/l	TM184		<0.05 #	<0.05 #	<0.05 #			
Sulphate	<2 mg/l	TM184		18.1 #	14.3 #	153 #			
Chloride	<2 mg/l	TM184		16.2 #	14 #	16.7 #			
Nitrate as NO3	<0.3 mg/l	TM184		<0.3	<0.3	4.67			
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184		<0.1 #	<0.1 #	1.06 #			
Mecoprop	<0.04 µg/l	TM411		<0.08	<0.08	<0.08			

Validated

CERTIFICATE OF ANALYSIS

SDG:	200715-143	**Client Reference:**		**Report Number:**	560020
Location:	Nantycaws Landfill	**Order Number:**	16383	**Superseded Report:**	

SVOC MS (W) - Aqueous

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/2	BH3/3	BH3/4	BH3/5	BH3/6	BH3/8
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	14/07/2020	14/07/2020	14/07/2020	14/07/2020	14/07/2020	14/07/2020
			Sample Time	.	.	.	.	.	.
			Date Received	15/07/2020	15/07/2020	15/07/2020	15/07/2020	15/07/2020	15/07/2020
			SDG Ref	200715-143	200715-143	200715-143	200715-143	200715-143	200715-143
			Lab Sample No.(s)	22478461	22478462	22478474	22478463	22478464	22478465
			AGS Reference						
4-Methylphenol (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Diethyl phthalate (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	200715-143	**Client Reference:**		**Report Number:**	560020
Location:	Nantycaws Landfill	**Order Number:**	16383	**Superseded Report:**	

SVOC MS (W) - Aqueous

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/9	BH208	BH5/02	NACW203	NACW205	NACW212
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	14/07/2020	14/07/2020	14/07/2020	14/07/2020	14/07/2020	14/07/2020
			Sample Time	.	.	.	.	.	.
			Date Received	15/07/2020	15/07/2020	15/07/2020	15/07/2020	15/07/2020	15/07/2020
			SDG Ref	200715-143	200715-143	200715-143	200715-143	200715-143	200715-143
			Lab Sample No.(s)	22478466	22478476	22478475	22478472	22478473	22478471
			AGS Reference						
4-Methylphenol (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Diethyl phthalate (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #

CERTIFICATE OF ANALYSIS

SDG:	200715-143	**Client Reference:**		**Report Number:**	560020
Location:	Nantycaws Landfill	**Order Number:**	16383	**Superseded Report:**	

SVOC MS (W) - Aqueous

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	NACW219	NACW228	NACW229			
			Depth (m)	.	.	.			
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)			
			Date Sampled	14/07/2020	14/07/2020	14/07/2020			
			Sample Time	.	.	.			
			Date Received	15/07/2020	15/07/2020	15/07/2020			
			SDG Ref	200715-143	200715-143	200715-143			
			Lab Sample No.(s)	22478467	22478470	22478468			
			AGS Reference						
4-Methylphenol (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #			
Diethyl phthalate (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #			

Validated

CERTIFICATE OF ANALYSIS

SDG:	200715-143	**Client Reference:**		**Report Number:**	560020
Location:	Nantycaws Landfill	**Order Number:**	16383	**Superseded Report:**	

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/2	BH3/3	BH3/4	BH3/5	BH3/6	BH3/8
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	14/07/2020	14/07/2020	14/07/2020	14/07/2020	14/07/2020	14/07/2020
			Sample Time	.	.	.	.	.	.
			Date Received	15/07/2020	15/07/2020	15/07/2020	15/07/2020	15/07/2020	15/07/2020
			SDG Ref	200715-143	200715-143	200715-143	200715-143	200715-143	200715-143
			Lab Sample No.(s)	22478461	22478462	22478474	22478463	22478464	22478465
			AGS Reference						
Dichloromethane	<3 µg/l	TM208		<3 #	<3 #	<3 #	<3 #	<3 #	<3 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	200715-143	**Client Reference:**		**Report Number:**	560020
Location:	Nantycaws Landfill	**Order Number:**	16383	**Superseded Report:**	

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/9	BH208	BH5/02	NACW203	NACW205	NACW212
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	14/07/2020	14/07/2020	14/07/2020	14/07/2020	14/07/2020	14/07/2020
			Sample Time	.	.	.	.	.	.
			Date Received	15/07/2020	15/07/2020	15/07/2020	15/07/2020	15/07/2020	15/07/2020
			SDG Ref	200715-143	200715-143	200715-143	200715-143	200715-143	200715-143
			Lab Sample No.(s)	22478466	22478476	22478475	22478472	22478473	22478471
			AGS Reference						
Dichloromethane	<3 µg/l	TM208		<3 #	<3 #	<3 #	<3 #	<3 #	<3 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	200715-143	**Client Reference:**		**Report Number:**	560020
Location:	Nantycaws Landfill	**Order Number:**	16383	**Superseded Report:**	

VOC MS (W)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	NACW219	NACW228	NACW229			
			Depth (m)	.	.	.			
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)			
			Date Sampled	14/07/2020	14/07/2020	14/07/2020			
			Sample Time	.	.	.			
			Date Received	15/07/2020	15/07/2020	15/07/2020			
			SDG Ref	200715-143	200715-143	200715-143			
			Lab Sample No.(s)	22478467	22478470	22478468			
			AGS Reference						
Dichloromethane	<3 µg/l	TM208		<3 #	<3 #	<3 #			

CERTIFICATE OF ANALYSIS

SDG:	200715-143	**Client Reference:**		**Report Number:**	560020
Location:	Nantycaws Landfill	**Order Number:**	16383	**Superseded Report:**	

Table of Results - Appendix

Method No	Reference	Description
TM043	Method 2320B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part109 1984	Determination of alkalinity in aqueous samples
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM176	EPA 8270D Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of SVOCs in Water by GCMS
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters
TM411	Acid_Herbs_GCMS	Acid Herbs in Water by GCMS

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG:	200715-143	**Client Reference:**		**Report Number:**	560020
Location:	Nantycaws Landfill	**Order Number:**	16383	**Superseded Report:**	

Test Completion Dates

Lab Sample No(s)	22478476	22478461	22478462	22478474	22478463	22478464	22478465	22478466	22478475	22478472
Customer Sample Ref.	BH208	BH3/2	BH3/3	BH3/4	BH3/5	BH3/6	BH3/8	BH3/9	BH5/02	NACW203
AGS Ref.										
Depth										
Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Acid Herbicides by GCMS	17-Jul-2020		21-Jul-2020	17-Jul-2020	21-Jul-2020	21-Jul-2020	21-Jul-2020	17-Jul-2020	21-Jul-2020	21-Jul-2020
Alkalinity as CaCO3	17-Jul-2020		17-Jul-2020	18-Jul-2020	17-Jul-2020	17-Jul-2020	17-Jul-2020	18-Jul-2020	17-Jul-2020	18-Jul-2020
Ammoniacal Nitrogen	16-Jul-2020		16-Jul-2020	16-Jul-2020	16-Jul-2020	16-Jul-2020	16-Jul-2020	16-Jul-2020	16-Jul-2020	18-Jul-2020
Anions by Kone (w)	17-Jul-2020		17-Jul-2020	17-Jul-2020	17-Jul-2020	16-Jul-2020	16-Jul-2020	17-Jul-2020	17-Jul-2020	17-Jul-2020
Conductivity (at 20 deg.C)	17-Jul-2020		16-Jul-2020	17-Jul-2020	16-Jul-2020	16-Jul-2020	16-Jul-2020	17-Jul-2020	17-Jul-2020	17-Jul-2020
Dissolved Metals by ICP-MS	22-Jul-2020		22-Jul-2020	22-Jul-2020	22-Jul-2020	22-Jul-2020	22-Jul-2020	22-Jul-2020	22-Jul-2020	22-Jul-2020
Nitrite by Kone (w)	16-Jul-2020		17-Jul-2020	17-Jul-2020	16-Jul-2020	16-Jul-2020	16-Jul-2020	17-Jul-2020	16-Jul-2020	17-Jul-2020
SVOC MS (W) - Aqueous	19-Jul-2020		17-Jul-2020	19-Jul-2020	17-Jul-2020	17-Jul-2020	17-Jul-2020	17-Jul-2020	17-Jul-2020	17-Jul-2020
VOC MS (W)	21-Jul-2020	21-Jul-2020	21-Jul-2020	21-Jul-2020	20-Jul-2020	21-Jul-2020	20-Jul-2020	21-Jul-2020	21-Jul-2020	21-Jul-2020

Lab Sample No(s)	22478473	22478471	22478467	22478470	22478468
Customer Sample Ref.	NACW205	NACW212	NACW219	NACW228	NACW229
AGS Ref.					
Depth					
Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Acid Herbicides by GCMS	21-Jul-2020	21-Jul-2020	17-Jul-2020	21-Jul-2020	21-Jul-2020
Alkalinity as CaCO3	17-Jul-2020	18-Jul-2020	18-Jul-2020	18-Jul-2020	17-Jul-2020
Ammoniacal Nitrogen	16-Jul-2020	18-Jul-2020	18-Jul-2020	18-Jul-2020	16-Jul-2020
Anions by Kone (w)	17-Jul-2020	17-Jul-2020	17-Jul-2020	17-Jul-2020	17-Jul-2020
Conductivity (at 20 deg.C)	17-Jul-2020	17-Jul-2020	17-Jul-2020	17-Jul-2020	17-Jul-2020
Dissolved Metals by ICP-MS	22-Jul-2020	22-Jul-2020	22-Jul-2020	22-Jul-2020	22-Jul-2020
Nitrite by Kone (w)	17-Jul-2020	17-Jul-2020	17-Jul-2020	17-Jul-2020	16-Jul-2020
SVOC MS (W) - Aqueous	17-Jul-2020	19-Jul-2020	17-Jul-2020	19-Jul-2020	19-Jul-2020
VOC MS (W)	21-Jul-2020	21-Jul-2020	20-Jul-2020	21-Jul-2020	21-Jul-2020

Appendix General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**

19. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2017).*

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528700
Fax: (01244) 528701
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

CWM Environmental Ltd
Nantyclaws Landfill Site
Llanddarg Road
Carmarthen
Carmarthenshire
SA32 8BG

Attention: Darren Sanders

CERTIFICATE OF ANALYSIS

Date of report Generation:	20 August 2020
Customer:	CWM Environmental Ltd
Sample Delivery Group (SDG):	200813-21
Your Reference:	
Location:	SA32 8BG
Report No:	563949

We received 23 samples on Thursday August 13, 2020 and 23 of these samples were scheduled for analysis which was completed on Thursday August 20, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG:	200813-21	**Client Reference:**		**Report Number:**	563949
Location:	SA32 8BG	**Order Number:**	15959 LAN	**Superseded Report:**	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
22646048	BH 3/4			12/08/2020
22646035	BH 5/2			12/08/2020
22646047	BH208			12/08/2020
22646042	Cell 5 Sump			12/08/2020
22646041	Cell 6 Sump			12/08/2020
22646043	Cell 7 Sump			12/08/2020
22646045	Cell 1/2 Sump			12/08/2020
22646032	Cell 3/4 Sump			12/08/2020
22646044	Leachate Holding Lagoon			12/08/2020
22646037	NACW203			12/08/2020
22646046	NACW212			12/08/2020
22646053	NACW228			12/08/2020
22646038	NAVW205			12/08/2020
22646033	SW201			12/08/2020
22646034	SW202			12/08/2020
22646052	SW204			12/08/2020
22646051	SW205			12/08/2020
22646036	SW206			12/08/2020
22646039	SW207			12/08/2020
22646040	UD1			12/08/2020
22646049	UD3			12/08/2020
22646054	UD4			12/08/2020
22646050	UD5			12/08/2020

Maximum Sample/Coolbox Temperature (°C) : **21.4**

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG:	200813-21	**Client Reference:**		**Report Number:**	563949
Location:	SA32 8BG	**Order Number:**	15959 LAN	**Superseded Report:**	

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type
			22646048	BH 3/4			500ml Plastic (ALE208)	GW
							H2SO4 (ALE244)	GW
			22646035	BH 5/2			500ml Plastic (ALE208)	GW
							H2SO4 (ALE244)	GW
			22646047	BH208			500ml Plastic (ALE208)	GW
							H2SO4 (ALE244)	GW
			22646042	Cell 5 Sump			500ml Plastic (ALE208)	LE
							H2SO4 (ALE244)	LE
			22646041	Cell 6 Sump			500ml Plastic (ALE208)	LE
							H2SO4 (ALE244)	LE
			22646043	Cell 7 Sump			500ml Plastic (ALE208)	LE
							H2SO4 (ALE244)	LE
			22646045	Cell 1/2 Sump			500ml Plastic (ALE208)	LE
							H2SO4 (ALE244)	LE
			22646032	Cell 3/4 Sump			500ml Plastic (ALE208)	LE
							H2SO4 (ALE244)	LE
			22646044	Leachate Holding Lagoon			500ml Plastic (ALE208)	LE
							H2SO4 (ALE244)	LE
			22646037	NACW203			500ml Plastic (ALE208)	GW
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 23		X				X		X		X		X		X		X		X		X		X		X		X		X
Anions by Kone (w)	All	NDPs: 0 Tests: 23	X		X		X		X		X		X		X		X		X		X		X		X		X		X		X
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 23	X		X		X		X		X		X		X		X		X		X		X		X		X		X		X
pH Value	All	NDPs: 0 Tests: 6																														
Suspended Solids	All	NDPs: 0 Tests: 6																														

22646040	UD1			H2SO4 (ALE244)	GW						
				500ml Plastic (ALE208)	GW		X				
				H2SO4 (ALE244)	SW	X					
22646039	SW207			500ml Plastic (ALE208)	SW		X				
				H2SO4 (ALE244)	SW	X					
22646036	SW206			500ml Plastic (ALE208)	SW		X				
				H2SO4 (ALE244)	SW	X					
22646051	SW205			500ml Plastic (ALE208)	SW		X				
				H2SO4 (ALE244)	SW	X					
22646052	SW204			500ml Plastic (ALE208)	SW		X				
				H2SO4 (ALE244)	SW	X					
22646034	SW202			500ml Plastic (ALE208)	SW		X				
				H2SO4 (ALE244)	SW	X					
22646033	SW201			500ml Plastic (ALE208)	SW		X				
				H2SO4 (ALE244)	SW	X					
22646038	NAVW205			500ml Plastic (ALE208)	GW						
				H2SO4 (ALE244)	GW	X					
22646053	NACW228			500ml Plastic (ALE208)	GW						
				H2SO4 (ALE244)	GW	X					
22646046	NACW212			500ml Plastic (ALE208)	GW		X				
				H2SO4 (ALE244)	GW	X					
22646037	NACW203			500ml Plastic (ALE208)	GW		X				
				H2SO4 (ALE244)	GW	X					

Validated

CERTIFICATE OF ANALYSIS

SDG:	200813-21	**Client Reference:**		**Report Number:**	563949
Location:	SA32 8BG	**Order Number:**	15959 LAN	**Superseded Report:**	

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	22646049		22646054		22646050	
			Customer Sample Reference	UD3		UD4		UD5	
			AGS Reference						
			Depth (m)						
			Container	500ml Plastic (ALE208)	H2SO4 (ALE244)	500ml Plastic (ALE208)	H2SO4 (ALE244)	500ml Plastic (ALE208)	H2SO4 (ALE244)
			Sample Type	GW	GW	GW	GW	GW	GW
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 23			X		X		X
Anions by Kone (w)	All	NDPs: 0 Tests: 23		X		X		X	
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 23		X		X		X	

Validated

CERTIFICATE OF ANALYSIS

SDG:	200813-21	**Client Reference:**		**Report Number:**	563949
Location:	SA32 8BG	**Order Number:**	15959 LAN	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH 3/4	BH 5/2	BH208	Cell 5 Sump	Cell 6 Sump	Cell 7 Sump
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
			Date Sampled	12/08/2020	12/08/2020	12/08/2020	12/08/2020	12/08/2020	12/08/2020
			Sample Time	.	.	.	.	.	.
			Date Received	13/08/2020	13/08/2020	13/08/2020	13/08/2020	13/08/2020	13/08/2020
			SDG Ref	200813-21	200813-21	200813-21	200813-21	200813-21	200813-21
			Lab Sample No.(s)	22646048	22646035	22646047	22646042	22646041	22646043
			AGS Reference						
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 #	<0.2 #	<0.2 #	1300	885	435
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120		0.243 #	0.457 #	0.44 #	22.3 #	13 #	6.59 #
Chloride	<2 mg/l	TM184		8.7 #	21.7 #	15.9 #	6300	2720	873

Validated

CERTIFICATE OF ANALYSIS

SDG:	200813-21	**Client Reference:**		**Report Number:**	563949
Location:	SA32 8BG	**Order Number:**	15959 LAN	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	Cell 1/2 Sump	Cell 3/4 Sump	Leachate Holding Lag oon	NACW203	NACW212	NACW228
			Depth (m)	.	.	.	.	.	.
			Sample Type	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	12/08/2020	12/08/2020	12/08/2020	12/08/2020	12/08/2020	12/08/2020
			Sample Time	.	.	.	.	.	.
			Date Received	13/08/2020	13/08/2020	13/08/2020	13/08/2020	13/08/2020	13/08/2020
			SDG Ref	200813-21	200813-21	200813-21	200813-21	200813-21	200813-21
			Lab Sample No.(s)	22646045	22646032	22646044	22646037	22646046	22646053
			AGS Reference						
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		621	157	1190	<0.2 #	<0.2 #	<0.2 #
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120		13.3 #	2.41 #	19.7 #	0.501 #	0.234 #	0.294 #
Chloride	<2 mg/l	TM184		3220	368	4800	28.9 #	12.1 #	12.3 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	200813-21	**Client Reference:**		**Report Number:**	563949
Location:	SA32 8BG	**Order Number:**	15959 LAN	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	NAVW205	SW201	SW202	SW204	SW205	SW206
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
			Date Sampled	12/08/2020	12/08/2020	12/08/2020	12/08/2020	12/08/2020	12/08/2020
			Sample Time	.	.	.	.	.	.
			Date Received	13/08/2020	13/08/2020	13/08/2020	13/08/2020	13/08/2020	13/08/2020
			SDG Ref	200813-21	200813-21	200813-21	200813-21	200813-21	200813-21
			Lab Sample No.(s)	22646038	22646033	22646034	22646052	22646051	22646036
			AGS Reference						
Suspended solids, Total	<2 mg/l	TM022			<2 #	2.8 #	2.1 #	31.5 #	6.8 #
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 #	<0.2 #	<0.2 #	<0.2 #	<0.2 #	<0.2 #
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120		0.509 #	0.271 #	0.349 #	0.395 #	0.552 #	0.306 #
Chloride	<2 mg/l	TM184		34.5 #	11.4 #	19.7 #	12.2 #	30.1 #	10.1 #
pH	<1 pH Units	TM256			7.68 #	7.77 #	7.9 #	7.96 #	7.88 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	200813-21	**Client Reference:**		**Report Number:**	563949
Location:	SA32 8BG	**Order Number:**	15959 LAN	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW207	UD1	UD3	UD4	UD5
			Depth (m)	.	.	.	.	.
			Sample Type	Surface Water (SW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	12/08/2020	12/08/2020	12/08/2020	12/08/2020	12/08/2020
			Sample Time	.	.	.	.	.
			Date Received	13/08/2020	13/08/2020	13/08/2020	13/08/2020	13/08/2020
			SDG Ref	200813-21	200813-21	200813-21	200813-21	200813-21
			Lab Sample No.(s)	22646039	22646040	22646049	22646054	22646050
			AGS Reference					
Suspended solids, Total	<2 mg/l	TM022		2.65 #				
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 #	<0.2 #	<0.2 #	0.405 #	<0.2 #
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120		0.393 #	0.555 #	0.387 #	0.448 #	0.393 #
Chloride	<2 mg/l	TM184		28.2 #	43 #	17.3 #	13.7 #	11.6 #
pH	<1 pH Units	TM256		7.87 #				

CERTIFICATE OF ANALYSIS

SDG:	200813-21	**Client Reference:**		**Report Number:**	563949
Location:	SA32 8BG	**Order Number:**	15959 LAN	**Superseded Report:**	

Table of Results - Appendix

Method No	Reference	Description
TM022	Method 2540D, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part120 1981;BS EN 872	Determination of total suspended solids in waters
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG:	200813-21	**Client Reference:**		**Report Number:**	563949
Location:	SA32 8BG	**Order Number:**	15959 LAN	**Superseded Report:**	

Test Completion Dates

Lab Sample No(s)	22646047	22646048	22646035	22646042	22646041	22646043	22646045	22646032	22646044	22646037
Customer Sample Ref.	BH208	BH 3/4	BH 5/2	Cell 5 Sump	Cell 6 Sump	Cell 7 Sump	Cell 1/2 Sump	Cell 3/4 Sump	Leachate Holding Lagoon	NACW203
AGS Ref.										
Depth										
Type	Ground Water	Ground Water	Ground Water	Land Leachate	Land Leachate	Land Leachate	Land Leachate	Land Leachate	Land Leachate	Ground Water
Ammoniacal Nitrogen	17-Aug-2020	17-Aug-2020	17-Aug-2020	17-Aug-2020	17-Aug-2020	17-Aug-2020	17-Aug-2020	17-Aug-2020	17-Aug-2020	17-Aug-2020
Anions by Kone (w)	18-Aug-2020	18-Aug-2020	18-Aug-2020	18-Aug-2020	18-Aug-2020	18-Aug-2020	18-Aug-2020	18-Aug-2020	18-Aug-2020	18-Aug-2020
Conductivity (at 20 deg.C)	19-Aug-2020	19-Aug-2020	19-Aug-2020	19-Aug-2020	19-Aug-2020	19-Aug-2020	19-Aug-2020	19-Aug-2020	19-Aug-2020	19-Aug-2020

Lab Sample No(s)	22646046	22646053	22646038	22646033	22646034	22646052	22646051	22646036	22646039	22646040
Customer Sample Ref.	NACW212	NACW228	NAVW205	SW201	SW202	SW204	SW205	SW206	SW207	UD1
AGS Ref.										
Depth										
Type	Ground Water	Ground Water	Ground Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Ground Water
Ammoniacal Nitrogen	17-Aug-2020	17-Aug-2020	17-Aug-2020	17-Aug-2020	17-Aug-2020	17-Aug-2020	17-Aug-2020	17-Aug-2020	17-Aug-2020	17-Aug-2020
Anions by Kone (w)	18-Aug-2020	18-Aug-2020	20-Aug-2020	20-Aug-2020	20-Aug-2020	18-Aug-2020	18-Aug-2020	18-Aug-2020	20-Aug-2020	18-Aug-2020
Conductivity (at 20 deg.C)	19-Aug-2020	19-Aug-2020	19-Aug-2020	19-Aug-2020	19-Aug-2020	19-Aug-2020	19-Aug-2020	19-Aug-2020	19-Aug-2020	19-Aug-2020
pH Value				17-Aug-2020	18-Aug-2020	14-Aug-2020	14-Aug-2020	18-Aug-2020	18-Aug-2020	
Suspended Solids				18-Aug-2020	18-Aug-2020	14-Aug-2020	14-Aug-2020	18-Aug-2020	18-Aug-2020	

Lab Sample No(s)	22646049	22646054	22646050
Customer Sample Ref.	UD3	UD4	UD5
AGS Ref.			
Depth			
Type	Ground Water	Ground Water	Ground Water
Ammoniacal Nitrogen	17-Aug-2020	17-Aug-2020	17-Aug-2020
Anions by Kone (w)	18-Aug-2020	18-Aug-2020	18-Aug-2020
Conductivity (at 20 deg.C)	19-Aug-2020	19-Aug-2020	19-Aug-2020

Appendix General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**

19. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2017).*

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528700
Fax: (01244) 528701
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

CWM Environmental Ltd
Nantyclaws Landfill Site
Llanddarg Road
Carmarthen
Carmarthenshire
SA32 8BG

Attention: Darren Sanders

CERTIFICATE OF ANALYSIS

Date of report Generation:	21 September 2020
Customer:	CWM Environmental Ltd
Sample Delivery Group (SDG):	200915-32
Your Reference:	
Location:	SA32 8BG
Report No:	567961

We received 26 samples on Tuesday September 15, 2020 and 23 of these samples were scheduled for analysis which was completed on Monday September 21, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG:	200915-32	**Client Reference:**		**Report Number:**	567961
Location:	SA32 8BG	**Order Number:**	POR000066	**Superseded Report:**	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
22824814	BH3/4			14/09/2020
22824810	BH208			14/09/2020
22824811	BH5/02			14/09/2020
22824832	Cell 5 Sump			14/09/2020
22824833	Cell 6 Sump			14/09/2020
22824834	Cell 7 Sump			14/09/2020
22824830	Cell 1/2 Sump			14/09/2020
22824831	Cell 3/4 Sump			14/09/2020
22824829	Leachate Holding Lagoon			14/09/2020
22824808	NACW203			14/09/2020
22824809	NACW205			14/09/2020
22824812	NACW212			14/09/2020
22824816	NACW227			14/09/2020
22824813	NACW228			14/09/2020
22824822	SW201			14/09/2020
22824823	SW202			14/09/2020
22824824	SW203			14/09/2020
22824825	SW204			14/09/2020
22824826	SW205			14/09/2020
22824827	SW206			14/09/2020
22824828	SW207			14/09/2020
22824817	UD 1			14/09/2020
22824818	UD 2			14/09/2020
22824819	UD 3			14/09/2020
22824820	UD 4			14/09/2020
22824821	UD 5			14/09/2020

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG:	200915-32	**Client Reference:**		**Report Number:**	567961
Location:	SA32 8BG	**Order Number:**	POR000066	**Superseded Report:**	

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type
			22824814	BH3/4			250ml BOD (ALE212)	GW
							H2SO4 (ALE244)	GW
			22824810	BH208			250ml BOD (ALE212)	GW
							H2SO4 (ALE244)	GW
			22824811	BH5/02			250ml BOD (ALE212)	GW
							H2SO4 (ALE244)	GW
			22824832	Cell 5 Sump			250ml BOD (ALE212)	LE
							H2SO4 (ALE244)	LE
			22824833	Cell 6 Sump			250ml BOD (ALE212)	LE
							H2SO4 (ALE244)	LE
			22824834	Cell 7 Sump			250ml BOD (ALE212)	LE
							H2SO4 (ALE244)	LE
			22824830	Cell 1/2 Sump			250ml BOD (ALE212)	LE
							H2SO4 (ALE244)	LE
			22824831	Cell 3/4 Sump			250ml BOD (ALE212)	LE
							H2SO4 (ALE244)	LE
			22824829	Leachate Holding Lagoon			250ml BOD (ALE212)	LE
							H2SO4 (ALE244)	LE
			22824808	NACW203			250ml BOD (ALE212)	GW
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 23						
				X		X		X		X		X		X		X		X		X		X	
Anions by Kone (w)	All	NDPs: 0 Tests: 23																						
			X		X		X		X		X		X		X		X		X		X		X	
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 23																						
			X		X		X		X		X		X		X		X		X		X		X	
pH Value	All	NDPs: 0 Tests: 5																						
Suspended Solids	All	NDPs: 0 Tests: 5																						

| | | |

Validated

CERTIFICATE OF ANALYSIS

SDG:	200915-32	**Client Reference:**		**Report Number:**	567961
Location:	SA32 8BG	**Order Number:**	POR000066	**Superseded Report:**	

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			22824819		22824820		22824821					
Customer Sample Reference			UD 3		UD 4		UD 5					
AGS Reference												
Depth (m)												
Container			250ml BOD (ALE212)	H2SO4 (ALE244)	250ml BOD (ALE212)	H2SO4 (ALE244)	250ml BOD (ALE212)	H2SO4 (ALE244)				
Sample Type			GW	GW	GW	GW	GW	GW				
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 23		X		X		X				
Anions by Kone (w)	All	NDPs: 0 Tests: 23	X		X		X					
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 23	X		X		X					

Validated

CERTIFICATE OF ANALYSIS

SDG:	200915-32	**Client Reference:**		**Report Number:**	567961
Location:	SA32 8BG	**Order Number:**	POR000066	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/4	BH208	BH5/02	Cell 5 Sump	Cell 6 Sump	Cell 7 Sump
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
			Date Sampled	14/09/2020	14/09/2020	14/09/2020	14/09/2020	14/09/2020	14/09/2020
			Sample Time	.	.	.	.	.	.
			Date Received	15/09/2020	15/09/2020	15/09/2020	15/09/2020	15/09/2020	15/09/2020
			SDG Ref	200915-32	200915-32	200915-32	200915-32	200915-32	200915-32
			Lab Sample No.(s)	22824814	22824810	22824811	22824832	22824833	22824834
			AGS Reference						
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 #	<0.2 #	<0.2 #	1180	1080	1740
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120		0.242 #	0.44 #	0.446 #	19.1 #	13.5 #	17.6 #
Chloride	<2 mg/l	TM184		8.7 #	16.6 #	22.3 #	4510	1660	2340

Validated

CERTIFICATE OF ANALYSIS

SDG:	200915-32	**Client Reference:**		**Report Number:**	567961
Location:	SA32 8BG	**Order Number:**	POR000066	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	Cell 1/2 Sump	Cell 3/4 Sump	Leachate Holding Lag oon	NACW203	NACW205	NACW212
			Depth (m)	.	.	.	.	.	.
			Sample Type	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	14/09/2020	14/09/2020	14/09/2020	14/09/2020	14/09/2020	14/09/2020
			Sample Time	.	.	.	.	.	.
			Date Received	15/09/2020	15/09/2020	15/09/2020	15/09/2020	15/09/2020	15/09/2020
			SDG Ref	200915-32	200915-32	200915-32	200915-32	200915-32	200915-32
			Lab Sample No.(s)	22824830	22824831	22824829	22824808	22824809	22824812
			AGS Reference						
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		701	1020	1230	<0.2 #	<0.2 #	<0.2 #
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120		9.11 #	11.6 #	19.4 #	0.51 #	0.485 #	0.225 #
Chloride	<2 mg/l	TM184		1070	1490	4740	30 #	30.7 #	12.7 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	200915-32	**Client Reference:**		**Report Number:**	567961
Location:	SA32 8BG	**Order Number:**	POR000066	**Superseded Report:**	

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	NACW228	SW201	SW202	SW204	SW205	SW206
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
			Date Sampled	14/09/2020	14/09/2020	14/09/2020	14/09/2020	14/09/2020	14/09/2020
			Sample Time	.	.	.	.	.	.
			Date Received	15/09/2020	15/09/2020	15/09/2020	15/09/2020	15/09/2020	15/09/2020
			SDG Ref	200915-32	200915-32	200915-32	200915-32	200915-32	200915-32
			Lab Sample No.(s)	22824813	22824822	22824823	22824825	22824826	22824827
			AGS Reference						
Suspended solids, Total	<2 mg/l	TM022			<4 #	<4 #	<4 #	<4 #	5.48 #
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 #	<0.2 #	<0.2 #	<0.2 #	<0.2 #	<0.2 #
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120		0.545 #	0.299 #	0.435 #	0.368 #	0.467 #	0.313 #
Chloride	<2 mg/l	TM184		32.4 #	12.1 #	22 #	12.1 #	26.3 #	10 #
pH	<1 pH Units	TM256			7.95 #	8.07 #	8.11 #	8.13 #	8.18 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	200915-32	**Client Reference:**		**Report Number:**	567961
Location:	SA32 8BG	**Order Number:**	POR000066	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW207	UD 1	UD 3	UD 4	UD 5
			Depth (m)	.	.	.	.	.
			Sample Type	Land Leachate (LE)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	14/09/2020	14/09/2020	14/09/2020	14/09/2020	14/09/2020
			Sample Time	.	.	.	.	.
			Date Received	15/09/2020	15/09/2020	15/09/2020	15/09/2020	15/09/2020
			SDG Ref	200915-32	200915-32	200915-32	200915-32	200915-32
			Lab Sample No.(s)	22824828	22824817	22824819	22824820	22824821
			AGS Reference					
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2	<0.2 #	<0.2 #	<0.2 #	<0.2 #
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120		0.321 #	0.541 #	0.367 #	0.496 #	0.406 #
Chloride	<2 mg/l	TM184		12.2	45.6 #	16.7 #	29.4 #	11.8 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	200915-32	**Client Reference:**		**Report Number:**	567961
Location:	SA32 8BG	**Order Number:**	POR000066	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW207	UD 1	UD 3	UD 4	UD 5
			Depth (m)	.	.	.	.	.
			Sample Type	Land Leachate (LE)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	14/09/2020	14/09/2020	14/09/2020	14/09/2020	14/09/2020
			Sample Time	.	.	.	.	.
			Date Received	15/09/2020	15/09/2020	15/09/2020	15/09/2020	15/09/2020
			SDG Ref	200915-32	200915-32	200915-32	200915-32	200915-32
			Lab Sample No.(s)	22824828	22824817	22824819	22824820	22824821
			AGS Reference					
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2	<0.2 #	<0.2 #	<0.2 #	<0.2 #
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120		0.321 #	0.541 #	0.367 #	0.496 #	0.406 #
Chloride	<2 mg/l	TM184		12.2	45.6 #	16.7 #	29.4 #	11.8 #

Table of Results - Appendix

Method No	Reference	Description
TM022	Method 2540D, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part120 1981;BS EN 872	Determination of total suspended solids in waters
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG:	200915-32	**Client Reference:**		**Report Number:**	567961
Location:	SA32 8BG	**Order Number:**	POR000066	**Superseded Report:**	

Test Completion Dates

Lab Sample No(s)	22824810	22824814	22824811	22824832	22824831	22824833	22824834	22824830	22824829	22824808
Customer Sample Ref.	BH208	BH3/4	BH5/02	Cell 5 Sump	Cell 3/4 Sump	Cell 6 Sump	Cell 7 Sump	Cell 1/2 Sump	Leachate Holding Lagoon	NACW203
AGS Ref.										
Depth										
Type	Ground Water	Ground Water	Ground Water	Land Leachate	Land Leachate	Land Leachate	Land Leachate	Land Leachate	Land Leachate	Ground Water
Ammoniacal Nitrogen	18-Sep-2020	18-Sep-2020	18-Sep-2020	21-Sep-2020	21-Sep-2020	21-Sep-2020	21-Sep-2020	21-Sep-2020	21-Sep-2020	18-Sep-2020
Anions by Kone (w)	18-Sep-2020	18-Sep-2020	18-Sep-2020	21-Sep-2020	21-Sep-2020	21-Sep-2020	21-Sep-2020	21-Sep-2020	21-Sep-2020	18-Sep-2020
Conductivity (at 20 deg.C)	18-Sep-2020	18-Sep-2020	18-Sep-2020	18-Sep-2020	18-Sep-2020	18-Sep-2020	18-Sep-2020	18-Sep-2020	18-Sep-2020	18-Sep-2020

Lab Sample No(s)	22824809	22824812	22824813	22824822	22824823	22824825	22824826	22824827	22824828	22824817
Customer Sample Ref.	NACW205	NACW212	NACW228	SW201	SW202	SW204	SW205	SW206	SW207	UD 1
AGS Ref.										
Depth										
Type	Ground Water	Ground Water	Ground Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Land Leachate	Ground Water
Ammoniacal Nitrogen	18-Sep-2020	18-Sep-2020	18-Sep-2020	18-Sep-2020	18-Sep-2020	18-Sep-2020	18-Sep-2020	18-Sep-2020	18-Sep-2020	18-Sep-2020
Anions by Kone (w)	18-Sep-2020	18-Sep-2020	18-Sep-2020	18-Sep-2020	18-Sep-2020	18-Sep-2020	18-Sep-2020	18-Sep-2020	18-Sep-2020	18-Sep-2020
Conductivity (at 20 deg.C)	18-Sep-2020	18-Sep-2020	18-Sep-2020	18-Sep-2020	18-Sep-2020	18-Sep-2020	18-Sep-2020	18-Sep-2020	18-Sep-2020	18-Sep-2020
pH Value				18-Sep-2020	18-Sep-2020	18-Sep-2020	18-Sep-2020	18-Sep-2020		
Suspended Solids				19-Sep-2020	18-Sep-2020	18-Sep-2020	19-Sep-2020	19-Sep-2020		

Lab Sample No(s)	22824819	22824820	22824821
Customer Sample Ref.	UD 3	UD 4	UD 5
AGS Ref.			
Depth			
Type	Ground Water	Ground Water	Ground Water
Ammoniacal Nitrogen	18-Sep-2020	18-Sep-2020	18-Sep-2020
Anions by Kone (w)	18-Sep-2020	18-Sep-2020	18-Sep-2020
Conductivity (at 20 deg.C)	18-Sep-2020	18-Sep-2020	18-Sep-2020

Appendix General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**

19. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2017).*

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528700
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email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

CWM Environmental Ltd
Nantyclaws Landfill Site
Llanddarg Road
Carmarthen
Carmarthenshire
SA32 8BG

Attention: Darren Sanders

CERTIFICATE OF ANALYSIS

Date of report Generation:	21 October 2020
Customer:	CWM Environmental Ltd
Sample Delivery Group (SDG):	201008-85
Your Reference:	
Location:	Nantycaws Landfill
Report No:	572091

We received 17 samples on Thursday October 08, 2020 and 15 of these samples were scheduled for analysis which was completed on Wednesday October 21, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
22989864	BH3/2			07/10/2020
22989860	BH3/3			07/10/2020
22991036	BH3/4			07/10/2020
22991037	BH3/5			07/10/2020
22989862	BH3/6			07/10/2020
22991039	BH3/8			07/10/2020
22989863	BH3/9			07/10/2020
22990239	BH208			07/10/2020
22990242	BH5/02			07/10/2020
22990240	NACW203			07/10/2020
22990241	NACW205			07/10/2020
22991043	NACW212			07/10/2020
22991042	NACW219			07/10/2020
22989859	NACW227			07/10/2020
22991040	NACW228			07/10/2020
22991041	NACW229			07/10/2020
22989858	UD2			07/10/2020

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

Validated

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			22989864							22989860								22991036						
Customer Sample Reference			BH3/2							BH3/3								BH3/4						
AGS Reference																								
Depth (m)																								
Container			1000ml glass bottle (ALE220)	1plastic (ALE221)	250ml Amber Gl. PTFE/PE	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	1000ml glass bottle (ALE220)	1plastic (ALE221)	250ml Amber Gl. PTFE/PE	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	1000ml glass bottle (ALE220)	1plastic (ALE221)	250ml Amber Gl. PTFE/PE	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)		
Sample Type			GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW		
Acid Herbicides by GCMS	All	NDPs: 0 Tests: 15	X							X							X							
Alkalinity as CaCO3	All	NDPs: 0 Tests: 15		X							X							X						
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 15				X							X								X			
Anions by Kone (w)	All	NDPs: 0 Tests: 15		X							X							X						
BOD True Total	All	NDPs: 0 Tests: 1									X													
COD Unfiltered	All	NDPs: 0 Tests: 1									X													
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 12									X							X						
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 15					X							X							X			
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 15			X							X							X					
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 15			X							X							X					
GRO by GC-FID (W)	All	NDPs: 0 Tests: 15							X							X								
Nitrite by Kone (w)	All	NDPs: 0 Tests: 15						X							X								X	
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 15			X							X							X					
Phenols by ms (w)	All	NDPs: 0 Tests: 15	X							X							X							
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 15	X							X							X							

| | | |

CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
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SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)								22989864							22989860							22991036				
Customer Sample Reference								BH3/2							BH3/3							BH3/4				
AGS Reference																										
Depth (m)																										
Container								1000ml glass bottle (ALE220)	1plastic (ALE221)	250ml Amber Gl. PTFE/PE	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	1000ml glass bottle (ALE220)	1plastic (ALE221)	250ml Amber Gl. PTFE/PE	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	1000ml glass bottle (ALE220)	1plastic (ALE221)	250ml Amber Gl. PTFE/PE	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)
Sample Type								GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
TPH CWG (W)	All	NDPs: 0 Tests: 15																									
								X							X							X				
VOC MS (W)	All	NDPs: 0 Tests: 15																									
														X							X					

22991039	BH3/8			HNO3 Filtered (ALE204)	GW		
				H2SO4 (ALE244)	GW		
				250ml Amber Gl. PTFE/PE	GW		
				1lplastic (ALE221)	GW		
				1000ml glass bottle (ALE220)	GW	X	
22989862	BH3/6			Vial (ALE297)	GW		X
				NaOH (ALE245)	GW		
				HNO3 Filtered (ALE204)	GW		
				H2SO4 (ALE244)	GW		
				250ml Amber Gl. PTFE/PE	GW		
				1lplastic (ALE221)	GW		
				1000ml glass bottle (ALE220)	GW	X	
22991037	BH3/5			Vial (ALE297)	GW		X
				NaOH (ALE245)	GW		
				HNO3 Filtered (ALE204)	GW		
				H2SO4 (ALE244)	GW		
				250ml Amber Gl. PTFE/PE	GW		
				1lplastic (ALE221)	GW		
				1000ml glass bottle (ALE220)	GW	X	
22991036	BH3/4			Vial (ALE297)	GW		X

CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
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LE - Land Leachate
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TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type
			22991039	BH3/8			NaOH (ALE245)	GW
							Vial (ALE297)	GW
							1000ml glass bottle (ALE220)	GW
							1plastic (ALE221)	GW
							250ml Amber Gl. PTFE/PE	GW
							H2SO4 (ALE244)	GW
							HNO3 Filtered (ALE204)	GW
			22989863	BH3/9			NaOH (ALE245)	GW
							Vial (ALE297)	GW
							1000ml glass bottle (ALE220)	GW
							1plastic (ALE221)	GW
							250ml Amber Gl. PTFE/PE	GW
							H2SO4 (ALE244)	GW
							HNO3 Filtered (ALE204)	GW
			22990239	BH208			NaOH (ALE245)	GW
							Vial (ALE297)	GW
							1000ml glass bottle (ALE220)	GW
							1plastic (ALE221)	GW
							250ml Amber Gl. PTFE/PE	GW
			22990242	BH5/02			H2SO4 (ALE244)	GW
Acid Herbicides by GCMS	All	NDPs: 0 Tests: 15						

| 22991043 | NACW212 | | | GW | 250ml Amber Gl. PTFE/PE 1liplastic (ALE221) | | |

CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)					22991043					22991042					22991040					22991041	
Customer Sample Reference					NACW212					NACW219					NACW228					NACW229	
AGS Reference																					
Depth (m)																					
Container					1000ml glass bottle (ALE220)	1plastic (ALE221)	250ml Amber Gl. PTFE/PE	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	1000ml glass bottle (ALE220)	1plastic (ALE221)	250ml Amber Gl. PTFE/PE	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	1000ml glass bottle (ALE220)	1plastic (ALE221)	
Sample Type					GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
Acid Herbicides by GCMS	All	NDPs: 0 Tests: 15			X							X							X		
Alkalinity as CaCO3	All	NDPs: 0 Tests: 15				X							X								X
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 15	X					X							X						
Anions by Kone (w)	All	NDPs: 0 Tests: 15				X							X								X
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 12				X							X								X
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 15		X						X						X					
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 15					X							X							
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 15					X							X							
GRO by GC-FID (W)	All	NDPs: 0 Tests: 15			X						X							X			
Nitrite by Kone (w)	All	NDPs: 0 Tests: 15		X						X						X					
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 15					X							X							
Phenols by ms (w)	All	NDPs: 0 Tests: 15			X							X							X		
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 15			X							X							X		
TPH CWG (W)	All	NDPs: 0 Tests: 15			X							X							X		
VOC MS (W)	All	NDPs: 0 Tests: 15			X						X							X			

| | | |

CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/2	BH3/3	BH3/4	BH3/5	BH3/6	BH3/8
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
			SDG Ref	201008-85	201008-85	201008-85	201008-85	201008-85	201008-85
			Lab Sample No.(s)	22989864	22989860	22991036	22991037	22989862	22991039
			AGS Reference						
Alkalinity, Total as CaCO3	<2 mg/l	TM043		135 #	132 #	125 #	277 #	79 #	38.9 #
BOD, unfiltered	<1 mg/l	TM045			<1 #				
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 #	<0.2 #	<0.2 #	<0.2 #	<0.2 #	<0.2 #
COD, unfiltered	<7 mg/l	TM107			11.5 #				
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120			0.276 #	0.254 #	0.557 #	0.18 #	0.796 #
Cadmium (diss.filt)	<0.08 µg/l	TM152		<0.08 #	<0.08 #	<0.08 #	<0.08 #	<0.08 #	0.119 #
Chromium (diss.filt)	<1 µg/l	TM152		<1 #	<1 #	<1 #	<1 #	<1 #	1.03 #
Copper (diss.filt)	<0.3 µg/l	TM152		1.34 #	1.62 #	<0.3 #	6.75 #	1.62 #	4.07 #
Lead (diss.filt)	<0.2 µg/l	TM152		0.269 #	0.218 #	<0.2 #	<0.2 #	0.639 #	0.324 #
Manganese (diss.filt)	<3 µg/l	TM152		212 #	7.77 #	23.4 #	4.23 #	45.2 #	154 #
Nickel (diss.filt)	<0.4 µg/l	TM152		0.592 #	<0.4 #	<0.4 #	1.86 #	0.587 #	3.01 #
Zinc (diss.filt)	<1 µg/l	TM152		2.44 #	6.63 #	3.65 #	9.69 #	4.79 #	4.97 #
Sodium (Dis.Filt)	<0.076 mg/l	TM152		9.21 #	10.3 #	6.16 #	10.3 #	6.84 #	42.8 #
Magnesium (Dis.Filt)	<0.036 mg/l	TM152		4.71 #	5.28 #	4 #	4.03 #	4.62 #	11.4 #
Potassium (Dis.Filt)	<0.2 mg/l	TM152		0.765 #	1.15 #	0.638 #	9.07 #	0.485 #	13.6 #
Calcium (Dis.Filt)	<0.2 mg/l	TM152		49.4 #	46.9 #	45.6 #	114 #	28.2 #	121 #
Iron (Dis.Filt)	<0.019 mg/l	TM152		0.0913 #	0.0748 #	0.036 #	0.0397 #	0.0805 #	0.299 #
Nitrite as NO2	<0.05 mg/l	TM184		<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #
Sulphate	<2 mg/l	TM184		4.4 #	9 #	4.8 #	35 #	6.2 #	324 #
Chloride	<2 mg/l	TM184		11.9 #	10 #	8.8 #	15.7 #	10.8 #	44.1 #
Nitrate as NO3	<0.3 mg/l	TM184		2.48	9.31	4.74	1.27	5.42	13.4
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184		0.564 #	2.01 #	1.08 #	0.29 #	1.23 #	3.03 #
Phenol	<0.5 µg/l	TM205		<2	<2	<2	<2	<1.5	<2.5
2-methylphenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
3-methylphenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
4-methylphenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2-chlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-dimethylphenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
4-chloro-3-methylphenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-dichlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-dichlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/2	BH3/3	BH3/4	BH3/5	BH3/6	BH3/8
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
			SDG Ref	201008-85	201008-85	201008-85	201008-85	201008-85	201008-85
			Lab Sample No.(s)	22989864	22989860	22991036	22991037	22989862	22991039
			AGS Reference						
2-nitrophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-trichlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-trichlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
4-nitrophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,3,5,6-tetrachlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,3,4,6-tetrachlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-dinitrophenol	<2.5 µg/l	TM205		<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
DNOC	<3 µg/l	TM205		<3	<3	<3	<3	<3	<3
Pentachlorophenol	<2 µg/l	TM205		<2	<2	<2	<2	<2	<2
Dinoseb	<4 µg/l	TM205		<4	<4	<4	<4	<4	<4
Dinitro-o-cresol	<0.1 µg/l	TM411		0.886	0.464	0.113	0.154	0.424	0.464
Clopyralid	<0.04 µg/l	TM411		<0.08	<0.04	<0.04	<0.04	<0.04	<0.04
MCPA	<0.05 µg/l	TM411		<0.1	<0.05	<0.05	<0.05	<0.05	<0.05
Mecoprop	<0.04 µg/l	TM411		<0.08	0.041	<0.04	<0.04	<0.04	<0.04
Dicamba	<0.04 µg/l	TM411		<0.08	<0.04	<0.04	<0.04	<0.04	<0.04
MCPB	<0.05 µg/l	TM411		<0.1	<0.05	<0.05	<0.05	<0.05	<0.05
2,4-DB	<0.1 µg/l	TM411		<0.2	<0.1	<0.1	<0.1	<0.1	<0.1
2,3,6-Trichlorobenzoic acid	<0.05 µg/l	TM411		<0.1	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorprop	<0.1 µg/l	TM411		<0.2	<0.1	<0.1	<0.1	<0.1	<0.1
Triclopyr	<0.05 µg/l	TM411		<0.1	<0.05	<0.05	<0.05	<0.05	<0.05
Fenoprop (Silvex)	<0.1 µg/l	TM411		<0.2	<0.1	<0.1	<0.1	<0.1	<0.1
2,4-Dichlorophenoxyacetic acid	<0.05 µg/l	TM411		<0.1	<0.05	<0.05	<0.05	<0.05	<0.05
2,4,5-Trichlorophenoxyacetic acid	<0.05 µg/l	TM411		<0.1	<0.05	<0.05	<0.05	<0.05	<0.05
Bromoxynil	<0.04 µg/l	TM411		<0.08	<0.04	<0.04	<0.04	<0.04	<0.04
Benazolin	<0.04 µg/l	TM411		<0.08	<0.04	<0.04	<0.04	<0.04	<0.04
Ioxynil	<0.05 µg/l	TM411		<0.1	<0.05	<0.05	<0.05	<0.05	<0.05
Pentachlorophenol	<0.04 µg/l	TM411		<0.08	<0.04	<0.04	<0.04	<0.04	<0.04
Fluoroxypyr	<0.1 µg/l	TM411		<0.2	<0.1	<0.1	<0.1	<0.1	<0.1

CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/9	BH208	BH5/02	NACW203	NACW205	NACW212
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
			SDG Ref	201008-85	201008-85	201008-85	201008-85	201008-85	201008-85
			Lab Sample No.(s)	22989863	22990239	22990242	22990240	22990241	22991043
			AGS Reference						
Alkalinity, Total as CaCO3	<2 mg/l	TM043		83.5 #	125 #	224 #	226 #	232 #	124 #
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 #	<0.2 #	<0.2 #	<0.2 #	<0.2 #	<0.2 #
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120		0.194 #		0.459 #		0.504 #	0.29 #
Cadmium (diss.filt)	<0.08 µg/l	TM152		<0.08 #	<0.8 #	<0.08 #	<0.08 #	<0.08 #	<0.08 #
Chromium (diss.filt)	<1 µg/l	TM152		<1 #	<10 #	<1 #	<1 #	<1 #	<1 #
Copper (diss.filt)	<0.3 µg/l	TM152		2.53 #	<3 #	2.59 #	<0.3 #	1.23 #	6.73 #
Lead (diss.filt)	<0.2 µg/l	TM152		1.16 #	<2 #	0.538 #	<0.2 #	0.419 #	0.575 #
Manganese (diss.filt)	<3 µg/l	TM152		37.4 #	<30 #	16.8 #	5.42 #	55 #	39.5 #
Nickel (diss.filt)	<0.4 µg/l	TM152		0.97 #	<4 #	0.65 #	<0.4 #	0.728 #	1.05 #
Zinc (diss.filt)	<1 µg/l	TM152		6.22 #	<10 #	4.3 #	3.34 #	5 #	14.4 #
Sodium (Dis.Filt)	<0.076 mg/l	TM152		9.77 #	10.1 #	11.1 #	12.2 #	13.4 #	10.3 #
Magnesium (Dis.Filt)	<0.036 mg/l	TM152		1.91 #	7.68 #	9.46 #	9.66 #	10.7 #	4.87 #
Potassium (Dis.Filt)	<0.2 mg/l	TM152		0.43 #	<2 #	1.43 #	1.28 #	1.51 #	4.9 #
Calcium (Dis.Filt)	<0.2 mg/l	TM152		33.9 #	40.6 #	87.3 #	93.4 #	110 #	49.8 #
Iron (Dis.Filt)	<0.019 mg/l	TM152		0.109 #	<0.19 #	0.075 #	<0.019 #	0.0932 #	0.0952 #
Nitrite as NO2	<0.05 mg/l	TM184		<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #
Sulphate	<2 mg/l	TM184		<2 #	7.7 #	12.5 #	15.5 #	12.5 #	19.3 #
Chloride	<2 mg/l	TM184		16.4 #	15.1 #	22.1 #	30.5 #	33.1 #	12.1 #
Nitrate as NO3	<0.3 mg/l	TM184		<0.3	6.64	11.4	10.3	9.61	5.31
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184		<0.1 #	1.5 #	2.57 #	2.33 #	2.18 #	1.2 #
Phenol	<0.5 µg/l	TM205		<2	<2.5	<1.5	<2	<2	<2
2-methylphenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
3-methylphenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
4-methylphenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2-chlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-dimethylphenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
4-chloro-3-methylphenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-dichlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-dichlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2-nitrophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-trichlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/9	BH208	BH5/02	NACW203	NACW205	NACW212
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
			SDG Ref	201008-85	201008-85	201008-85	201008-85	201008-85	201008-85
			Lab Sample No.(s)	22989863	22990239	22990242	22990240	22990241	22991043
			AGS Reference						
2,4,5-trichlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
4-nitrophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,3,5,6-tetrachlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,3,4,6-tetrachlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-dinitrophenol	<2.5 µg/l	TM205		<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
DNOC	<3 µg/l	TM205		<3	<3	<3	<3	<3	<3
Pentachlorophenol	<2 µg/l	TM205		<2	<2	<2	<2	<2	<2
Dinoseb	<4 µg/l	TM205		<4	<4	<4	<4	<4	<4
Dinitro-o-cresol	<0.1 µg/l	TM411		0.573	0.554	<0.1	<0.1	<0.1	<0.2
Clopyralid	<0.04 µg/l	TM411		<0.08	<0.08	<0.04	<0.04	<0.04	<0.08
MCPA	<0.05 µg/l	TM411		<0.1	<0.1	<0.05	<0.05	<0.05	<0.1
Mecoprop	<0.04 µg/l	TM411		<0.08	<0.08	<0.04	<0.04	<0.04	<0.08
Dicamba	<0.04 µg/l	TM411		<0.08	<0.08	<0.04	<0.04	<0.04	<0.08
MCPB	<0.05 µg/l	TM411		<0.1	<0.1	<0.05	<0.05	<0.05	<0.1
2,4-DB	<0.1 µg/l	TM411		<0.2	<0.2	<0.1	<0.1	<0.1	<0.2
2,3,6-Trichlorobenzoic acid	<0.05 µg/l	TM411		<0.1	<0.1	<0.05	<0.05	<0.05	<0.1
Dichlorprop	<0.1 µg/l	TM411		<0.2	<0.2	<0.1	<0.1	<0.1	<0.2
Triclopyr	<0.05 µg/l	TM411		<0.1	<0.1	<0.05	<0.05	<0.05	<0.1
Fenoprop (Silvex)	<0.1 µg/l	TM411		<0.2	<0.2	<0.1	<0.1	<0.1	<0.2
2,4-Dichlorophenoxyacetic acid	<0.05 µg/l	TM411		<0.1	<0.1	<0.05	<0.05	<0.05	<0.1
2,4,5-Trichlorophenoxyacetic acid	<0.05 µg/l	TM411		<0.1	<0.1	<0.05	<0.05	<0.05	<0.1
Bromoxynil	<0.04 µg/l	TM411		<0.08	<0.08	<0.04	<0.04	<0.04	<0.08
Benazolin	<0.04 µg/l	TM411		<0.08	<0.08	<0.04	<0.04	<0.04	<0.08
Ioxynil	<0.05 µg/l	TM411		<0.1	<0.1	<0.05	<0.05	<0.05	<0.1
Pentachlorophenol	<0.04 µg/l	TM411		<0.08	<0.08	<0.04	<0.04	<0.04	<0.08
Fluoroxypyr	<0.1 µg/l	TM411		<0.2	<0.2	<0.1	<0.1	<0.1	<0.2

CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	NACW219	NACW228	NACW229			
			Depth (m)	.	.	.			
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)			
			Date Sampled	07/10/2020	07/10/2020	07/10/2020			
			Sampled Time	.	.	.			
			Date Received	08/10/2020	08/10/2020	08/10/2020			
			SDG Ref	201008-85	201008-85	201008-85			
			Lab Sample No.(s)	22991042	22991040	22991041			
			AGS Reference						
Alkalinity, Total as CaCO3	<2 mg/l	TM043		191 #	30.4 #	231 #			
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 #	<0.2 #	0.499 #			
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120		0.416 #	0.122 #	0.593 #			
Cadmium (diss.filt)	<0.08 µg/l	TM152		<0.08 #	<0.08 #	<0.08 #			
Chromium (diss.filt)	<1 µg/l	TM152		<1 #	<1 #	<1 #			
Copper (diss.filt)	<0.3 µg/l	TM152		1.09 #	2.49 #	3.32 #			
Lead (diss.filt)	<0.2 µg/l	TM152		<0.2 #	0.214 #	0.642 #			
Manganese (diss.filt)	<3 µg/l	TM152		2500 #	24.5 #	70 #			
Nickel (diss.filt)	<0.4 µg/l	TM152		2.06 #	2.44 #	1.56 #			
Zinc (diss.filt)	<1 µg/l	TM152		3.53 #	3.45 #	4.61 #			
Sodium (Dis.Filt)	<0.076 mg/l	TM152		11.4 #	8.77 #	12.3 #			
Magnesium (Dis.Filt)	<0.036 mg/l	TM152		7.04 #	2.96 #	7.73 #			
Potassium (Dis.Filt)	<0.2 mg/l	TM152		2.07 #	2.52 #	14.9 #			
Calcium (Dis.Filt)	<0.2 mg/l	TM152		77.5 #	11.2 #	112 #			
Iron (Dis.Filt)	<0.019 mg/l	TM152		0.93 #	0.146 #	0.123 #			
Nitrite as NO2	<0.05 mg/l	TM184		<0.05 #	<0.05 #	<0.05 #			
Sulphate	<2 mg/l	TM184		24.8 #	11.2 #	93.8 #			
Chloride	<2 mg/l	TM184		21 #	16.9 #	19.7 #			
Nitrate as NO3	<0.3 mg/l	TM184		<0.3	4.5	1.46			
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184		<0.1 #	1.02 #	0.341 #			
Phenol	<0.5 µg/l	TM205		<2	<2	<2.5			
2-methylphenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5			
3-methylphenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5			
4-methylphenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5			
2-chlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5			
2,4-dimethylphenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5			
4-chloro-3-methylphenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5			
2,6-dichlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5			
4-Chlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5			
2,4-dichlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5			
2-nitrophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5			
2,4,6-trichlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5			

CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	NACW219	NACW228	NACW229			
			Depth (m)	.	.	.			
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)			
			Date Sampled	07/10/2020	07/10/2020	07/10/2020			
			Sampled Time	.	.	.			
			Date Received	08/10/2020	08/10/2020	08/10/2020			
			SDG Ref	201008-85	201008-85	201008-85			
			Lab Sample No.(s)	22991042	22991040	22991041			
			AGS Reference						
2,4,5-trichlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5			
4-nitrophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5			
2,3,5,6-tetrachlorophenol	<0.5 µg/l	TM205		<1	<0.5	<0.5			
2,3,4,6-tetrachlorophenol	<0.5 µg/l	TM205		<1	<0.5	<0.5			
2,4-dinitrophenol	<2.5 µg/l	TM205		<2.5	<2.5	<2.5			
DNOC	<3 µg/l	TM205		<3	<3	<3			
Pentachlorophenol	<2 µg/l	TM205		<6	<2	<2			
Dinoseb	<4 µg/l	TM205		<4	<4	<4			
Dinitro-o-cresol	<0.1 µg/l	TM411		<0.2	0.15	0.356			
Clopyralid	<0.04 µg/l	TM411		<0.08	<0.04	<0.04			
MCPA	<0.05 µg/l	TM411		<0.1	<0.05	<0.05			
Mecoprop	<0.04 µg/l	TM411		<0.08	<0.04	<0.04			
Dicamba	<0.04 µg/l	TM411		<0.08	<0.04	<0.04			
MCPB	<0.05 µg/l	TM411		<0.1	<0.05	<0.05			
2,4-DB	<0.1 µg/l	TM411		<0.2	<0.1	<0.1			
2,3,6-Trichlorobenzoic acid	<0.05 µg/l	TM411		<0.1	<0.05	<0.05			
Dichlorprop	<0.1 µg/l	TM411		<0.2	<0.1	<0.1			
Triclopyr	<0.05 µg/l	TM411		<0.1	<0.05	<0.05			
Fenoprop (Silvex)	<0.1 µg/l	TM411		<0.2	<0.1	<0.1			
2,4-Dichlorophenoxyacetic acid	<0.05 µg/l	TM411		<0.1	<0.05	<0.05			
2,4,5-Trichlorophenoxyacetic acid	<0.05 µg/l	TM411		<0.1	<0.05	<0.05			
Bromoxynil	<0.04 µg/l	TM411		<0.08	<0.04	<0.04			
Benazolin	<0.04 µg/l	TM411		<0.08	<0.04	<0.04			
Ioxynil	<0.05 µg/l	TM411		<0.1	<0.05	<0.05			
Pentachlorophenol	<0.04 µg/l	TM411		<0.08	<0.04	<0.04			
Fluoroxypyr	<0.1 µg/l	TM411		<0.2	<0.1	<0.1			

CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

PAH Spec MS - Aqueous (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/2	BH3/3	BH3/4	BH3/5	BH3/6	BH3/8
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
			SDG Ref	201008-85	201008-85	201008-85	201008-85	201008-85	201008-85
			Lab Sample No.(s)	22989864	22989860	22991036	22991037	22989862	22991039
			AGS Reference						
Naphthalene (aq)	<0.01 µg/l	TM178		<0.01 #	<0.01 #	<0.01 #	<0.01 #	<0.01 #	<0.01 #
Acenaphthene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	0.015 #	<0.005 #	<0.005 #
Acenaphthylene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Fluoranthene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Anthracene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Phenanthrene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Fluorene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Chrysene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Pyrene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Benzo(a)anthracene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Benzo(b)fluoranthene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Benzo(k)fluoranthene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Benzo(a)pyrene (aq)	<0.002 µg/l	TM178		<0.002 #	<0.002 #	<0.002 #	<0.002 #	<0.002 #	<0.002 #
Dibenzo(a,h)anthracene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Benzo(g,h,i)perylene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Indeno(1,2,3-cd)pyrene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
PAH, Total Detected USEPA 16 (aq)	<0.082 µg/l	TM178		<0.082 #	<0.082 #	<0.082 #	<0.082 #	<0.082 #	<0.082 #

CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

PAH Spec MS - Aqueous (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/9	BH208	BH5/02	NACW203	NACW205	NACW212
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
			SDG Ref	201008-85	201008-85	201008-85	201008-85	201008-85	201008-85
			Lab Sample No.(s)	22989863	22990239	22990242	22990240	22990241	22991043
			AGS Reference						
Naphthalene (aq)	<0.01 µg/l	TM178		<0.01 #	<0.01 #	<0.01 #	<0.01 #	<0.01 #	<0.01 #
Acenaphthene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Acenaphthylene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Fluoranthene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Anthracene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Phenanthrene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Fluorene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Chrysene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Pyrene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Benzo(a)anthracene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Benzo(b)fluoranthene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Benzo(k)fluoranthene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Benzo(a)pyrene (aq)	<0.002 µg/l	TM178		<0.002 #	<0.002 #	<0.002 #	<0.002 #	<0.002 #	<0.002 #
Dibenzo(a,h)anthracene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Benzo(g,h,i)perylene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Indeno(1,2,3-cd)pyrene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
PAH, Total Detected USEPA 16 (aq)	<0.082 µg/l	TM178		<0.082 #	<0.082 #	<0.082 #	<0.082 #	<0.082 #	<0.082 #

CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

PAH Spec MS - Aqueous (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Customer Sample Ref.	NACW219	NACW228	NACW229			
Depth (m)	.	.	.			
Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)			
Date Sampled	07/10/2020	07/10/2020	07/10/2020			
Sampled Time	.	.	.			
Date Received	08/10/2020	08/10/2020	08/10/2020			
SDG Ref	201008-85	201008-85	201008-85			
Lab Sample No.(s)	22991042	22991040	22991041			
AGS Reference						

Component	LOD/Units	Method						
Naphthalene (aq)	<0.01 µg/l	TM178	<0.01 #	<0.01 #	<0.01 #			
Acenaphthene (aq)	<0.005 µg/l	TM178	<0.005 #	<0.005 #	<0.005 #			
Acenaphthylene (aq)	<0.005 µg/l	TM178	<0.005 #	<0.005 #	<0.005 #			
Fluoranthene (aq)	<0.005 µg/l	TM178	<0.005 #	<0.005 #	<0.005 #			
Anthracene (aq)	<0.005 µg/l	TM178	<0.005 #	<0.005 #	<0.005 #			
Phenanthrene (aq)	<0.005 µg/l	TM178	<0.005 #	<0.005 #	<0.005 #			
Fluorene (aq)	<0.005 µg/l	TM178	<0.005 #	<0.005 #	<0.005 #			
Chrysene (aq)	<0.005 µg/l	TM178	<0.005 #	<0.005 #	<0.005 #			
Pyrene (aq)	<0.005 µg/l	TM178	<0.005 #	<0.005 #	<0.005 #			
Benzo(a)anthracene (aq)	<0.005 µg/l	TM178	<0.005 #	<0.005 #	<0.005 #			
Benzo(b)fluoranthene (aq)	<0.005 µg/l	TM178	<0.005 #	<0.005 #	<0.005 #			
Benzo(k)fluoranthene (aq)	<0.005 µg/l	TM178	<0.005 #	<0.005 #	<0.005 #			
Benzo(a)pyrene (aq)	<0.002 µg/l	TM178	<0.002 #	<0.002 #	<0.002 #			
Dibenzo(a,h)anthracene (aq)	<0.005 µg/l	TM178	<0.005 #	<0.005 #	<0.005 #			
Benzo(g,h,i)perylene (aq)	<0.005 µg/l	TM178	<0.005 #	<0.005 #	<0.005 #			
Indeno(1,2,3-cd)pyrene (aq)	<0.005 µg/l	TM178	<0.005 #	<0.005 #	<0.005 #			
PAH, Total Detected USEPA 16 (aq)	<0.082 µg/l	TM178	<0.082 #	<0.082 #	<0.082 #			

CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

SVOC MS (W) - Aqueous

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/2	BH3/3	BH3/4	BH3/5	BH3/6	BH3/8
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
			SDG Ref	201008-85	201008-85	201008-85	201008-85	201008-85	201008-85
			Lab Sample No.(s)	22989864	22989860	22991036	22991037	22989862	22991039
			AGS Reference						
4-Methylphenol (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Diethyl phthalate (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #

CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

SVOC MS (W) - Aqueous

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/9	BH208	BH5/02	NACW203	NACW205	NACW212
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
			SDG Ref	201008-85	201008-85	201008-85	201008-85	201008-85	201008-85
			Lab Sample No.(s)	22989863	22990239	22990242	22990240	22990241	22991043
			AGS Reference						
4-Methylphenol (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<2 #	<1 #	<1 #
Diethyl phthalate (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<2 #	<1 #	<1 #

CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

SVOC MS (W) - Aqueous

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.					
			NACW219	NACW228	NACW229			
			.	.	.			
			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)			
			07/10/2020	07/10/2020	07/10/2020			
			.	.	.			
			08/10/2020	08/10/2020	08/10/2020			
			201008-85	201008-85	201008-85			
			22991042	22991040	22991041			
4-Methylphenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<2 #			
Diethyl phthalate (aq)	<1 µg/l	TM176	<1 #	<1 #	<2 #			

CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

TPH CWG (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/2	BH3/3	BH3/4	BH3/5	BH3/6	BH3/8
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
			SDG Ref	201008-85	201008-85	201008-85	201008-85	201008-85	201008-85
			Lab Sample No.(s)	22989864	22989860	22991036	22991037	22989862	22991039
			AGS Reference						
GRO Surrogate % recovery**	%	TM245		108	118	117	114	110	120
GRO >C5-C12	<50 µg/l	TM245		<50 #	<50 #	<50 #	<50 #	<50 #	<50 #
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245		<3 #	<3 #	<3 #	<3 #	<3 #	<3 #
Benzene	<7 µg/l	TM245		<7 #	<7 #	<7 #	<7 #	<7 #	<7 #
Toluene	<4 µg/l	TM245		<4 #	<4 #	<4 #	<4 #	<4 #	<4 #
Ethylbenzene	<5 µg/l	TM245		<5 #	<5 #	<5 #	<5 #	<5 #	<5 #
m,p-Xylene	<8 µg/l	TM245		<8 #	<8 #	<8 #	<8 #	<8 #	<8 #
o-Xylene	<3 µg/l	TM245		<3 #	<3 #	<3 #	<3 #	<3 #	<3 #
Sum of detected Xylenes	<11 µg/l	TM245		<11	<11	<11	<11	<11	<11
Sum of detected BTEX	<28 µg/l	TM245		<28	<28	<28	<28	<28	<28
Aliphatics >C5-C6	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aliphatics >C6-C8	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aliphatics >C8-C10	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aliphatics >C10-C12	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Aromatics >EC5-EC7	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aromatics >EC10-EC12	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Aliphatics >C16-C35 Aqueous	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10

CERTIFICATE OF ANALYSIS

SDG: 201008-85 **Client Reference:** **Report Number:** 572091
Location: Nantycaws Landfill **Order Number:** POR000363 **Superseded Report:**

TPH CWG (W)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/9	BH208	BH5/02	NACW203	NACW205	NACW212
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
			SDG Ref	201008-85	201008-85	201008-85	201008-85	201008-85	201008-85
			Lab Sample No.(s)	22989863	22990239	22990242	22990240	22990241	22991043
			AGS Reference						
GRO Surrogate % recovery**	%	TM245		115	104	108	106	118	116
GRO >C5-C12	<50 µg/l	TM245		<50 #	<50 #	<50 #	<50 #	<50 #	<50 #
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245		<3 #	<3 #	<3 #	<3 #	<3 #	<3 #
Benzene	<7 µg/l	TM245		<7 #	<7 #	<7 #	<7 #	<7 #	<7 #
Toluene	<4 µg/l	TM245		<4 #	<4 #	<4 #	<4 #	<4 #	<4 #
Ethylbenzene	<5 µg/l	TM245		<5 #	<5 #	<5 #	<5 #	<5 #	<5 #
m,p-Xylene	<8 µg/l	TM245		<8 #	<8 #	<8 #	<8 #	<8 #	<8 #
o-Xylene	<3 µg/l	TM245		<3 #	<3 #	<3 #	<3 #	<3 #	<3 #
Sum of detected Xylenes	<11 µg/l	TM245		<11	<11	<11	<11	<11	<11
Sum of detected BTEX	<28 µg/l	TM245		<28	<28	<28	<28	<28	<28
Aliphatics >C5-C6	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aliphatics >C6-C8	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aliphatics >C8-C10	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aliphatics >C10-C12	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Aromatics >EC5-EC7	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aromatics >EC10-EC12	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Aliphatics >C16-C35 Aqueous	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10

CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

TPH CWG (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	NACW219	NACW228	NACW229			
			Depth (m)	.	.	.			
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)			
			Date Sampled	07/10/2020	07/10/2020	07/10/2020			
			Sampled Time	.	.	.			
			Date Received	08/10/2020	08/10/2020	08/10/2020			
			SDG Ref	201008-85	201008-85	201008-85			
			Lab Sample No.(s)	22991042	22991040	22991041			
			AGS Reference						
GRO Surrogate % recovery**	%	TM245		115	115	120			
GRO >C5-C12	<50 µg/l	TM245		<50 #	<50 #	<50 #			
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245		<3 #	<3 #	<3 #			
Benzene	<7 µg/l	TM245		<7 #	<7 #	<7 #			
Toluene	<4 µg/l	TM245		<4 #	<4 #	<4 #			
Ethylbenzene	<5 µg/l	TM245		<5 #	<5 #	<5 #			
m,p-Xylene	<8 µg/l	TM245		<8 #	<8 #	<8 #			
o-Xylene	<3 µg/l	TM245		<3 #	<3 #	<3 #			
Sum of detected Xylenes	<11 µg/l	TM245		<11	<11	<11			
Sum of detected BTEX	<28 µg/l	TM245		<28	<28	<28			
Aliphatics >C5-C6	<10 µg/l	TM245		<10	<10	<10			
Aliphatics >C6-C8	<10 µg/l	TM245		<10	<10	<10			
Aliphatics >C8-C10	<10 µg/l	TM245		<10	<10	<10			
Aliphatics >C10-C12	<10 µg/l	TM245		<10	<10	<10			
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174		<10	<10	<10			
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174		<10	<10	<10			
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174		<10	<10	<10			
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174		<10	<10	<10			
Aromatics >EC5-EC7	<10 µg/l	TM245		<10	<10	<10			
Aromatics >EC7-EC8	<10 µg/l	TM245		<10	<10	<10			
Aromatics >EC8-EC10	<10 µg/l	TM245		<10	<10	<10			
Aromatics >EC10-EC12	<10 µg/l	TM245		<10	<10	<10			
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174		<10	<10	<10			
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174		<10	<10	<10			
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174		<10	<10	<10			
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174		<10	<10	<10			
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174		<10	<10	<10			
Aliphatics >C16-C35 Aqueous	<10 µg/l	TM174		<10	<10	<10			

CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/2	BH3/3	BH3/4	BH3/5	BH3/6	BH3/8
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
			SDG Ref	201008-85	201008-85	201008-85	201008-85	201008-85	201008-85
			Lab Sample No.(s)	22989864	22989860	22991036	22991037	22989862	22991039
			AGS Reference						
Dichloromethane	<3 µg/l	TM208		<3 #	<3 #	<3 #	<3 #	<3 #	<3 #
Benzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Toluene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Ethylbenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
m,p-Xylene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
o-Xylene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Sum of detected Xylenes	<2 µg/l	TM208		<2	<2	<2	<2	<2	<2

CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/9	BH208	BH5/02	NACW203	NACW205	NACW212
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
			SDG Ref	201008-85	201008-85	201008-85	201008-85	201008-85	201008-85
			Lab Sample No.(s)	22989863	22990239	22990242	22990240	22990241	22991043
			AGS Reference						
Dichloromethane	<3 µg/l	TM208		<3 #	<3 #	<3 #	<3 #	<3 #	<3 #
Benzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Toluene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Ethylbenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
m,p-Xylene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
o-Xylene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Sum of detected Xylenes	<2 µg/l	TM208		<2	<2	<2	<2	<2	<2

CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	NACW219	NACW228	NACW229			
			Depth (m)	.	.	.			
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)			
			Date Sampled	07/10/2020	07/10/2020	07/10/2020			
			Sampled Time	.	.	.			
			Date Received	08/10/2020	08/10/2020	08/10/2020			
			SDG Ref	201008-85	201008-85	201008-85			
			Lab Sample No.(s)	22991042	22991040	22991041			
			AGS Reference						
Dichloromethane	<3 µg/l	TM208		<3 #	<3 #	<3 #			
Benzene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
Toluene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
Ethylbenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
m,p-Xylene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
o-Xylene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
Sum of detected Xylenes	<2 µg/l	TM208		<2	<2	<2			

Table of Results - Appendix

Method No	Reference	Description
TM043	Method 2320B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part109 1984	Determination of alkalinity in aqueous samples
TM045	MEWAM BOD5 2nd Ed.HMSO 1988 / Method 5210B, AWWA/APHA, 20th Ed., 1999; SCA Blue Book 130	Determination of BOD5 (ATU) Filtered by Oxygen Meter on liquids
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM107	ISO 6060-1989	Determination of Chemical Oxygen Demand using COD Dr Lange Kit
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM174	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID
TM176	EPA 8270D Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of SVOCs in Water by GCMS
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM205		Determination of Phenols in Waste Waters using Solid Phase Extraction, Acetylation, Gas Chromatography and Mass Selective Detection
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters
TM245	By GC-FID	Determination of GRO by Headspace in waters
TM411	Acid_Herbs_GCMS	Acid Herbs in Water by GCMS

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Test Completion Dates

Lab Sample No(s)	22990239	22989864	22989860	22991036	22991037	22989862	22991039	22989863	22990242	22990240
Customer Sample Ref.	BH208	BH3/2	BH3/3	BH3/4	BH3/5	BH3/6	BH3/8	BH3/9	BH5/02	NACW203
AGS Ref.										
Depth										
Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Acid Herbicides by GCMS	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
Alkalinity as CaCO3	16-Oct-2020	17-Oct-2020	17-Oct-2020	19-Oct-2020	19-Oct-2020	17-Oct-2020	19-Oct-2020	17-Oct-2020	19-Oct-2020	19-Oct-2020
Ammoniacal Nitrogen	15-Oct-2020	15-Oct-2020	15-Oct-2020	19-Oct-2020	19-Oct-2020	15-Oct-2020	19-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020
Anions by Kone (w)	16-Oct-2020	19-Oct-2020	16-Oct-2020	19-Oct-2020	19-Oct-2020	16-Oct-2020	19-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020
BOD True Total			15-Oct-2020							
COD Unfiltered			18-Oct-2020							
Conductivity (at 20 deg.C)			15-Oct-2020	18-Oct-2020	18-Oct-2020	15-Oct-2020	16-Oct-2020	16-Oct-2020	15-Oct-2020	
Dissolved Metals by ICP-MS	20-Oct-2020	19-Oct-2020	19-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020
EPH CWG (Aliphatic) Aqueous GC (W)	18-Oct-2020	18-Oct-2020	20-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020
EPH CWG (Aromatic) Aqueous GC (W)	18-Oct-2020	18-Oct-2020	20-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020
GRO by GC-FID (W)	15-Oct-2020	15-Oct-2020	15-Oct-2020	14-Oct-2020	14-Oct-2020	15-Oct-2020	14-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020
Nitrite by Kone (w)	16-Oct-2020	19-Oct-2020	16-Oct-2020	19-Oct-2020	19-Oct-2020	16-Oct-2020	19-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020
PAH Spec MS - Aqueous (W)	19-Oct-2020	19-Oct-2020	21-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	16-Oct-2020	19-Oct-2020
Phenols by ms (w)	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020
SVOC MS (W) - Aqueous	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020
TPH CWG (W)	18-Oct-2020	18-Oct-2020	20-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020
VOC MS (W)	14-Oct-2020	14-Oct-2020	14-Oct-2020	15-Oct-2020	15-Oct-2020	14-Oct-2020	14-Oct-2020	14-Oct-2020	14-Oct-2020	14-Oct-2020

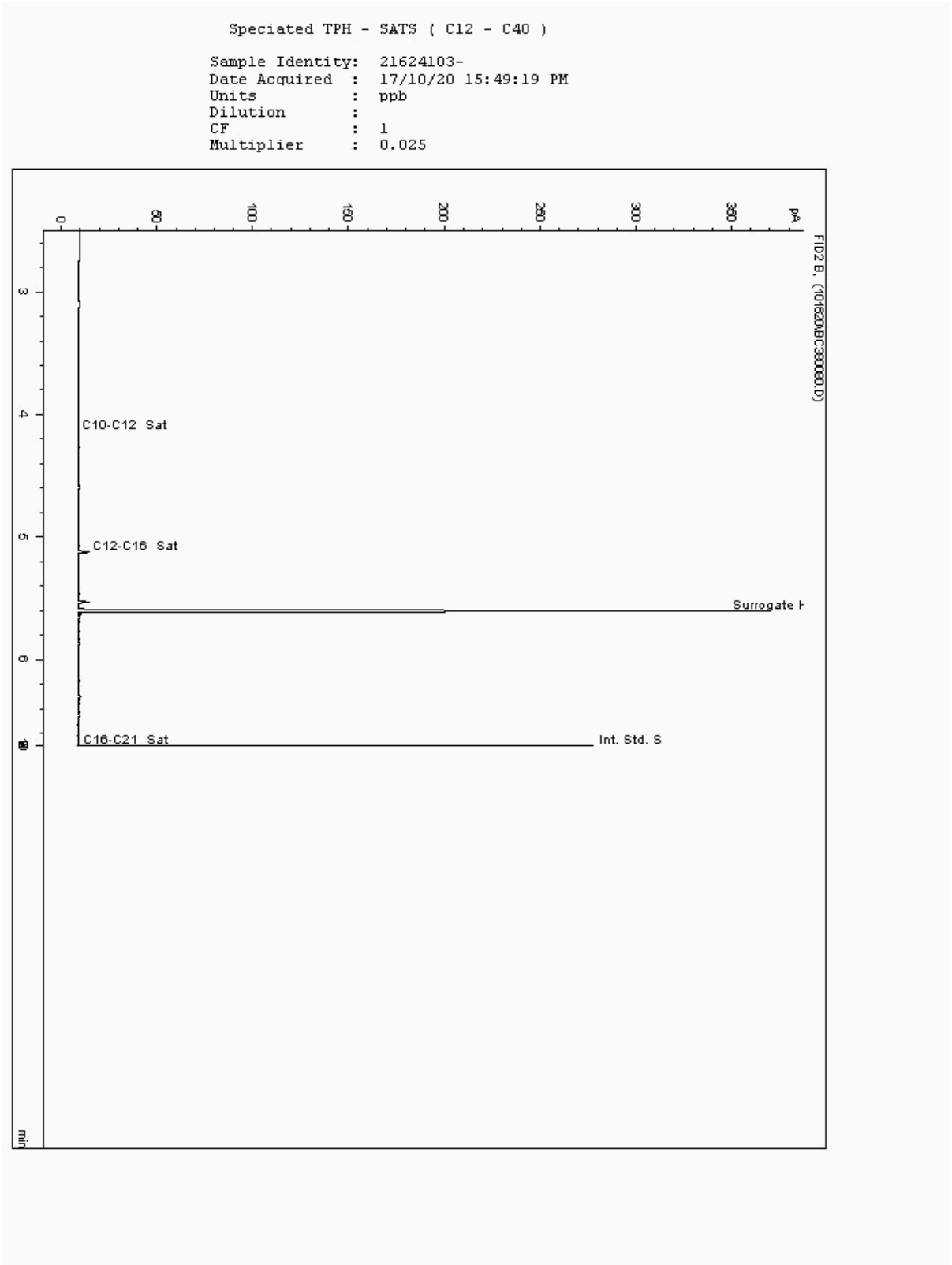
Lab Sample No(s)	22990241	22991043	22991042	22991040	22991041
Customer Sample Ref.	NACW205	NACW212	NACW219	NACW228	NACW229
AGS Ref.					
Depth					
Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Acid Herbicides by GCMS	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
Alkalinity as CaCO3	19-Oct-2020	17-Oct-2020	17-Oct-2020	19-Oct-2020	17-Oct-2020
Ammoniacal Nitrogen	15-Oct-2020	15-Oct-2020	15-Oct-2020	19-Oct-2020	15-Oct-2020
Anions by Kone (w)	16-Oct-2020	16-Oct-2020	16-Oct-2020	19-Oct-2020	16-Oct-2020
Conductivity (at 20 deg.C)	15-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020
Dissolved Metals by ICP-MS	19-Oct-2020	20-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020
EPH CWG (Aliphatic) Aqueous GC (W)	18-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020
EPH CWG (Aromatic) Aqueous GC (W)	18-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020
GRO by GC-FID (W)	14-Oct-2020	14-Oct-2020	14-Oct-2020	14-Oct-2020	14-Oct-2020
Nitrite by Kone (w)	16-Oct-2020	16-Oct-2020	16-Oct-2020	19-Oct-2020	16-Oct-2020
PAH Spec MS - Aqueous (W)	16-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020
Phenols by ms (w)	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020
SVOC MS (W) - Aqueous	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020
TPH CWG (W)	18-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020
VOC MS (W)	14-Oct-2020	14-Oct-2020	14-Oct-2020	14-Oct-2020	14-Oct-2020

CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23034590 **Sample ID :** NACW205 **Depth :**



CERTIFICATE OF ANALYSIS

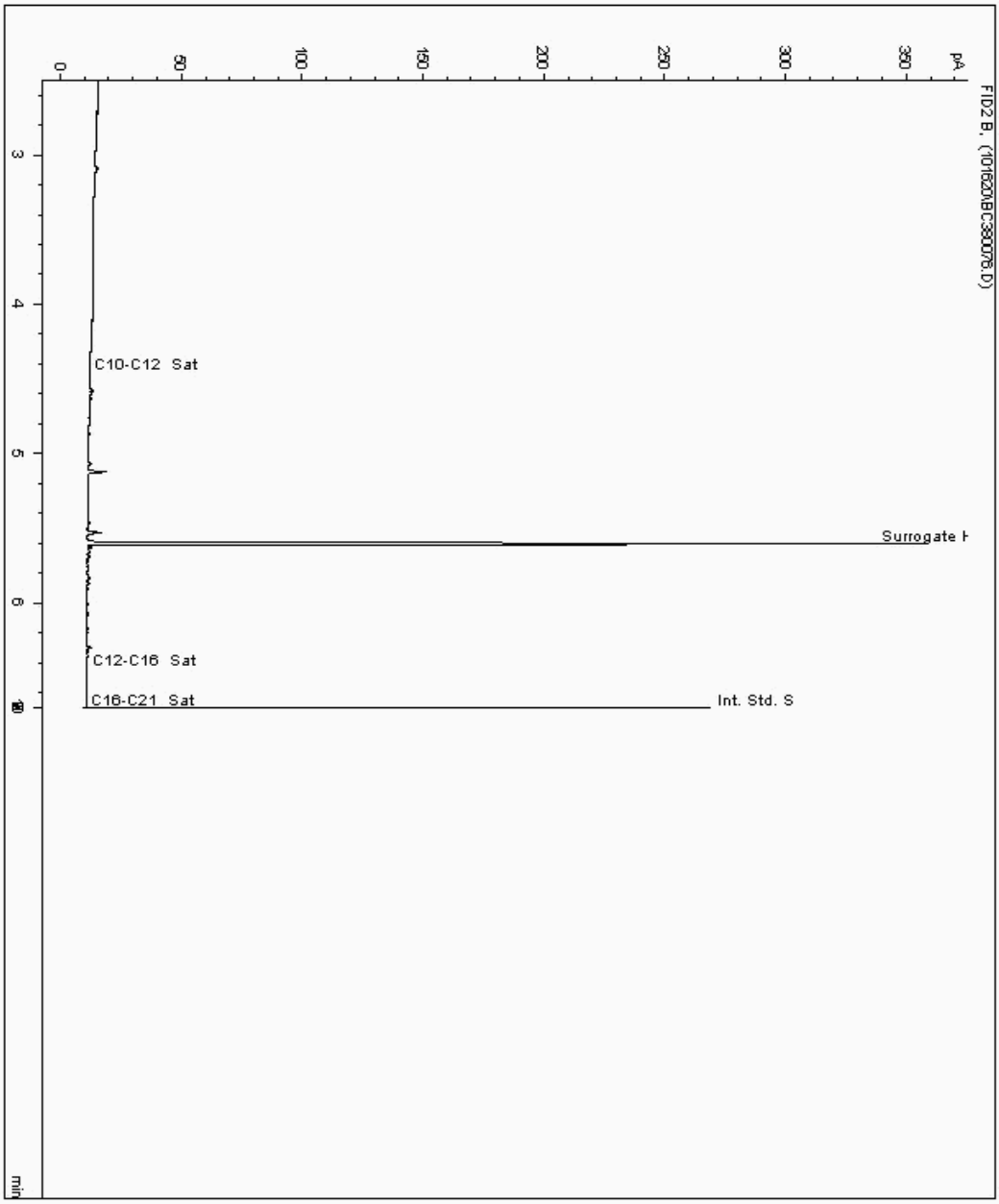
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23034594 **Depth :**
Sample ID : BH5/02

Speciated TPH - SATS (C12 - C40)

Sample Identity: 21624116-
Date Acquired : 17/10/20 14:15:33 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

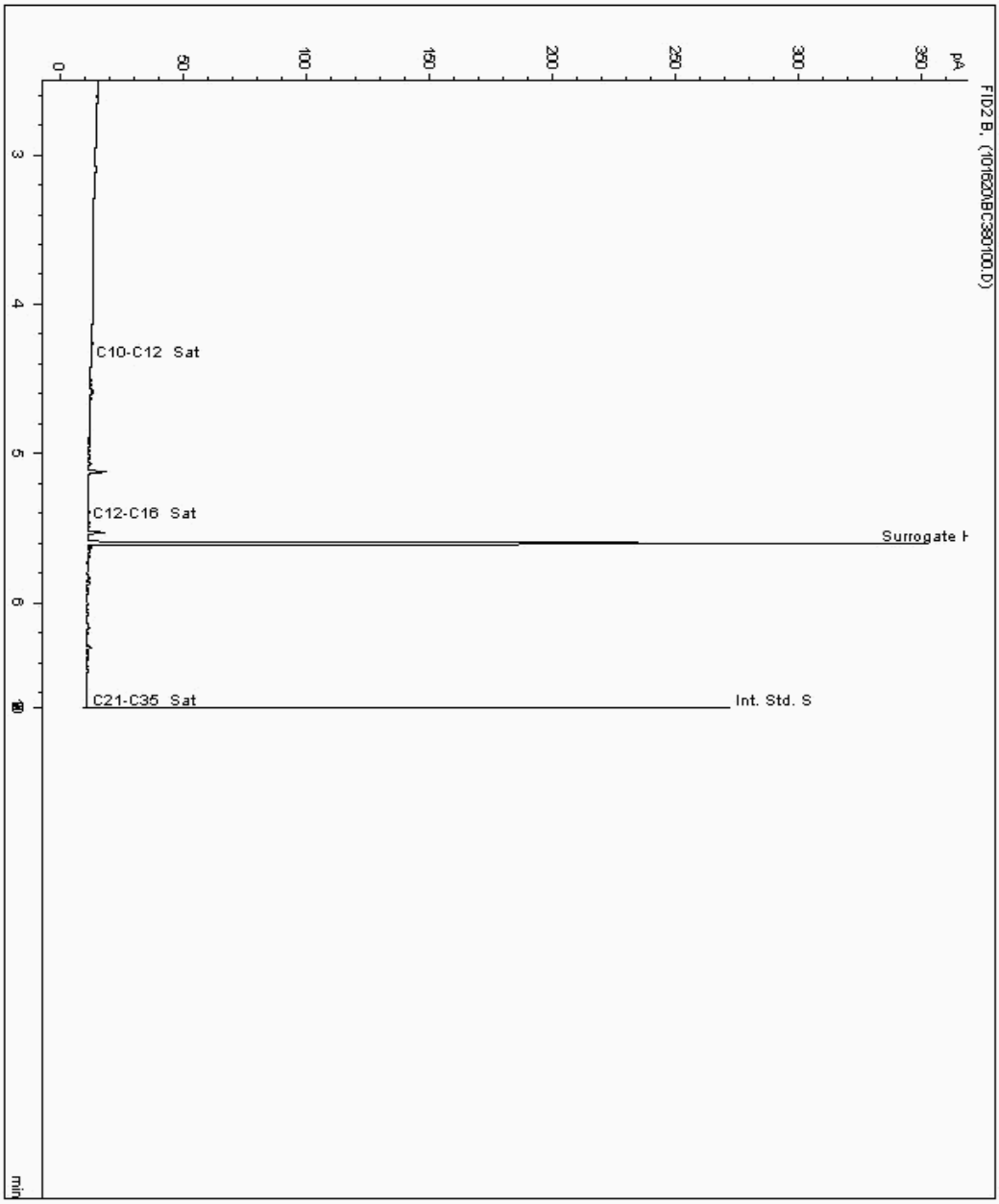
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23037282 **Sample ID :** NACW229 **Depth :**

Speciated TPH - SATS (C12 - C40)

Sample Identity: 21624189-
Date Acquired : 17/10/20 23:31:10 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

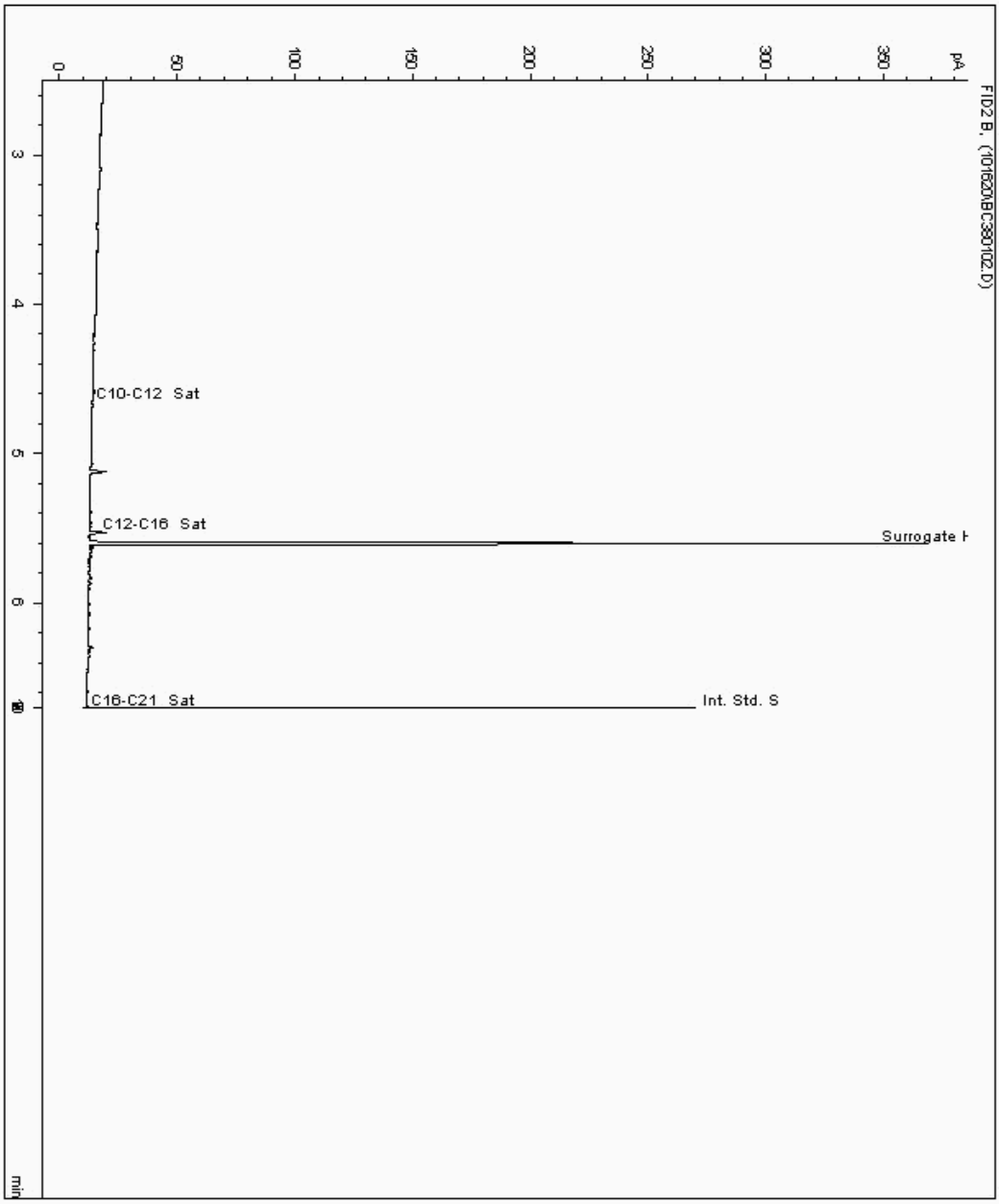
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23037287 **Sample ID :** NACW212 **Depth :**

Speciated TPH - SATS (C12 - C40)

Sample Identity: 21624220-
Date Acquired : 18/10/20 00:17:44 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

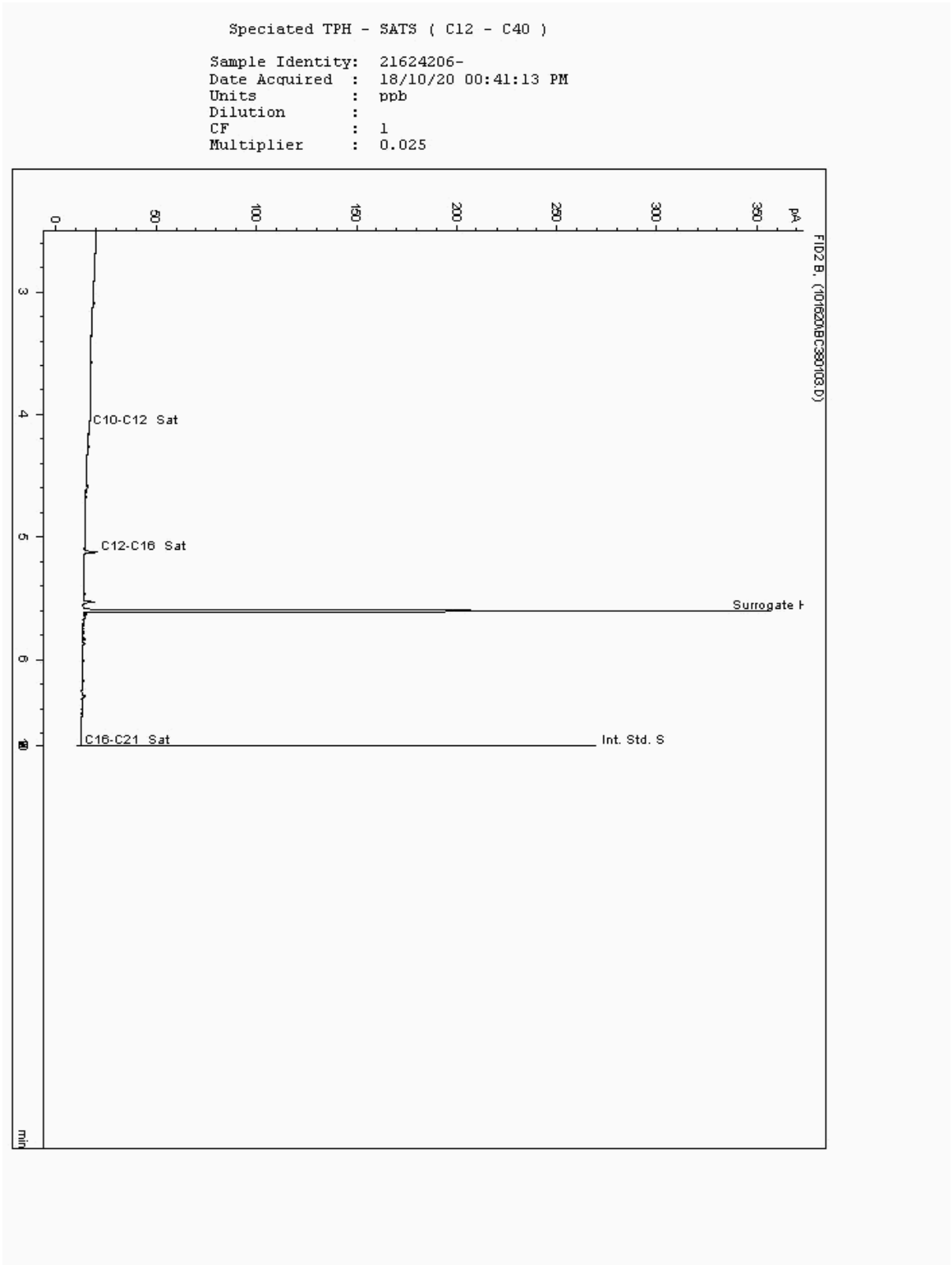


CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23037293 **Sample ID :** NACW219 **Depth :**



CERTIFICATE OF ANALYSIS

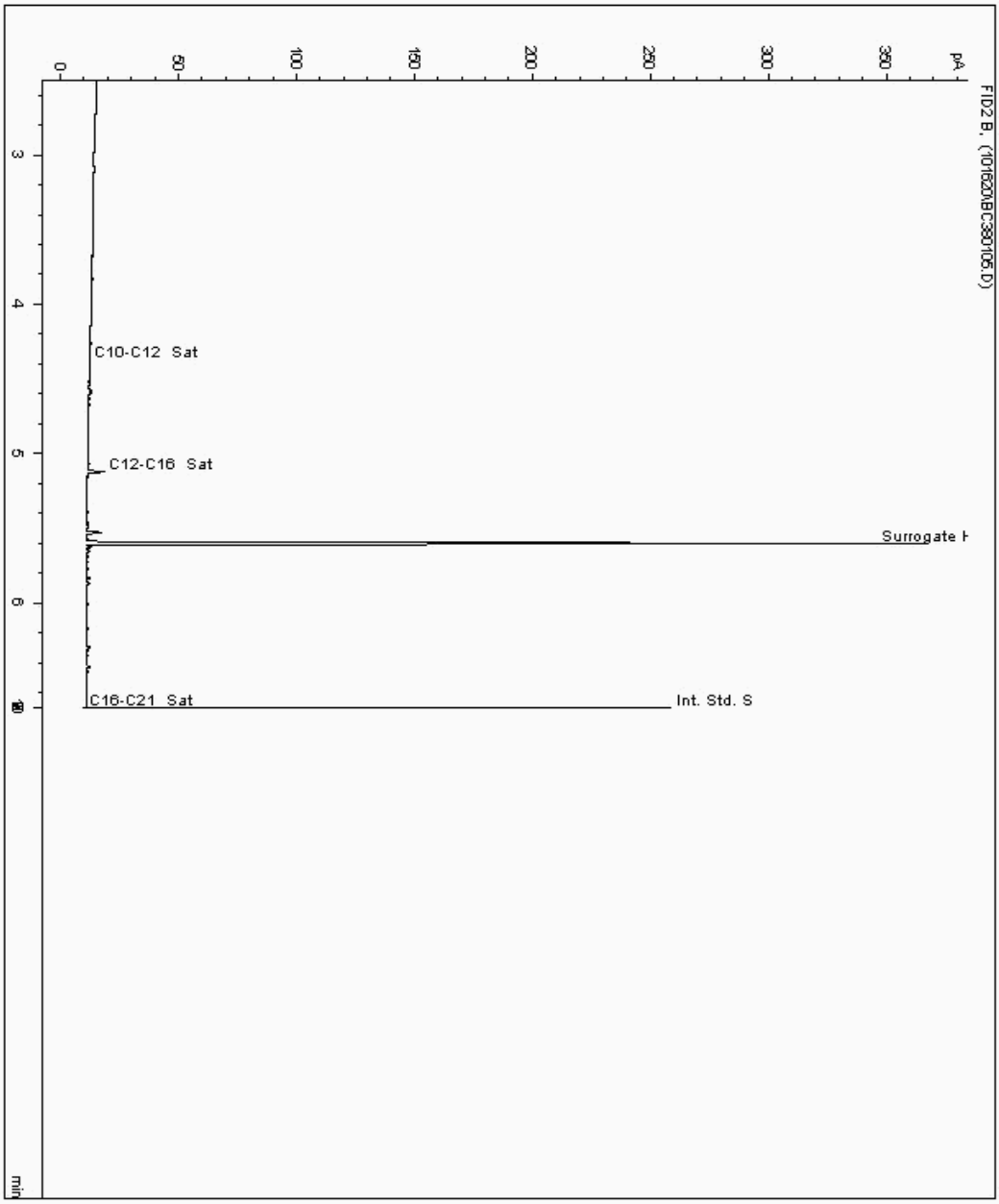
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23037446 **Depth :**
Sample ID : BH208

Speciated TPH - SATS (C12 - C40)

Sample Identity: 21624066-
Date Acquired : 18/10/20 01:27:44 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

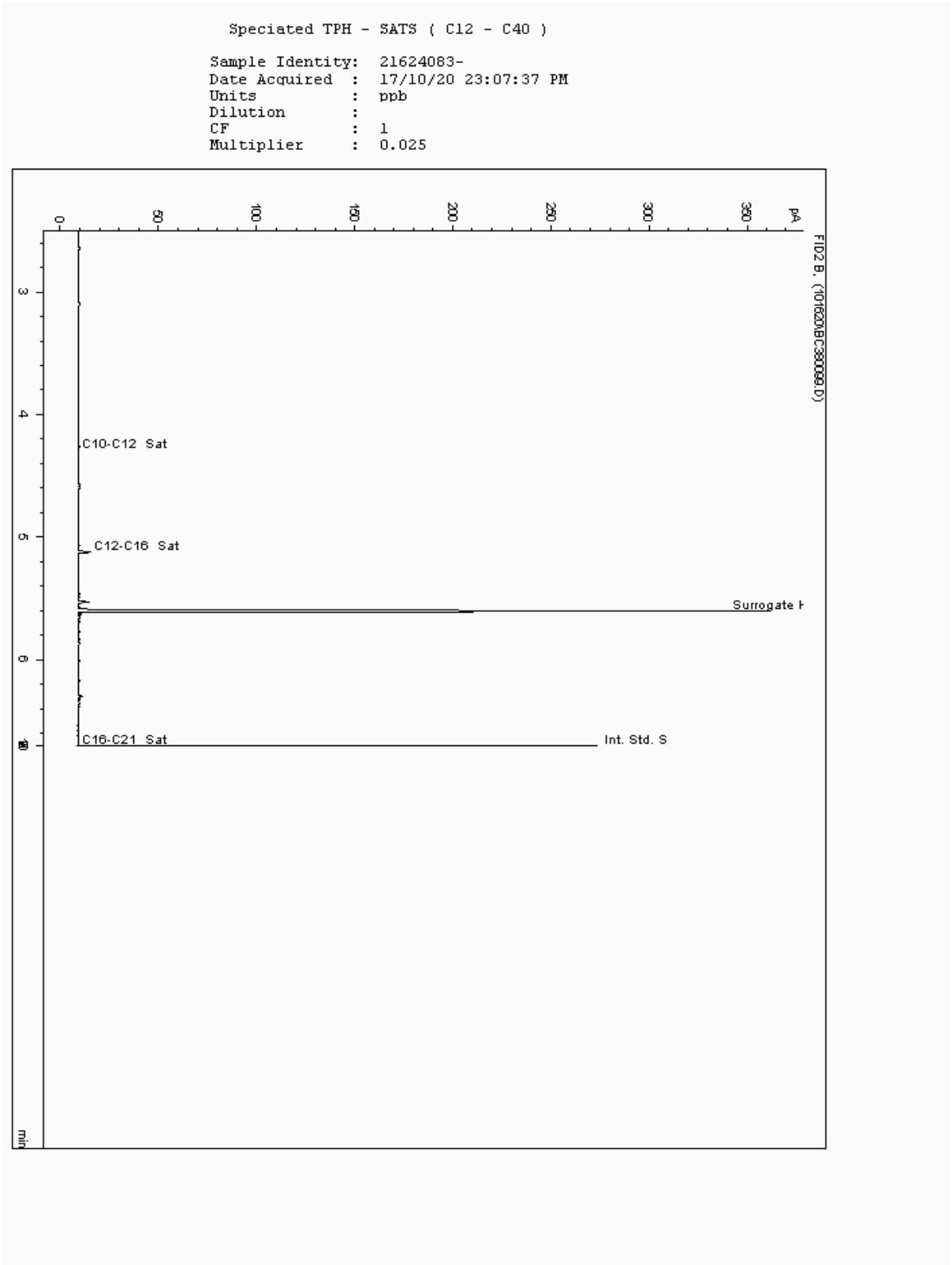


CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23037451 **Sample ID :** NACW203 **Depth :**

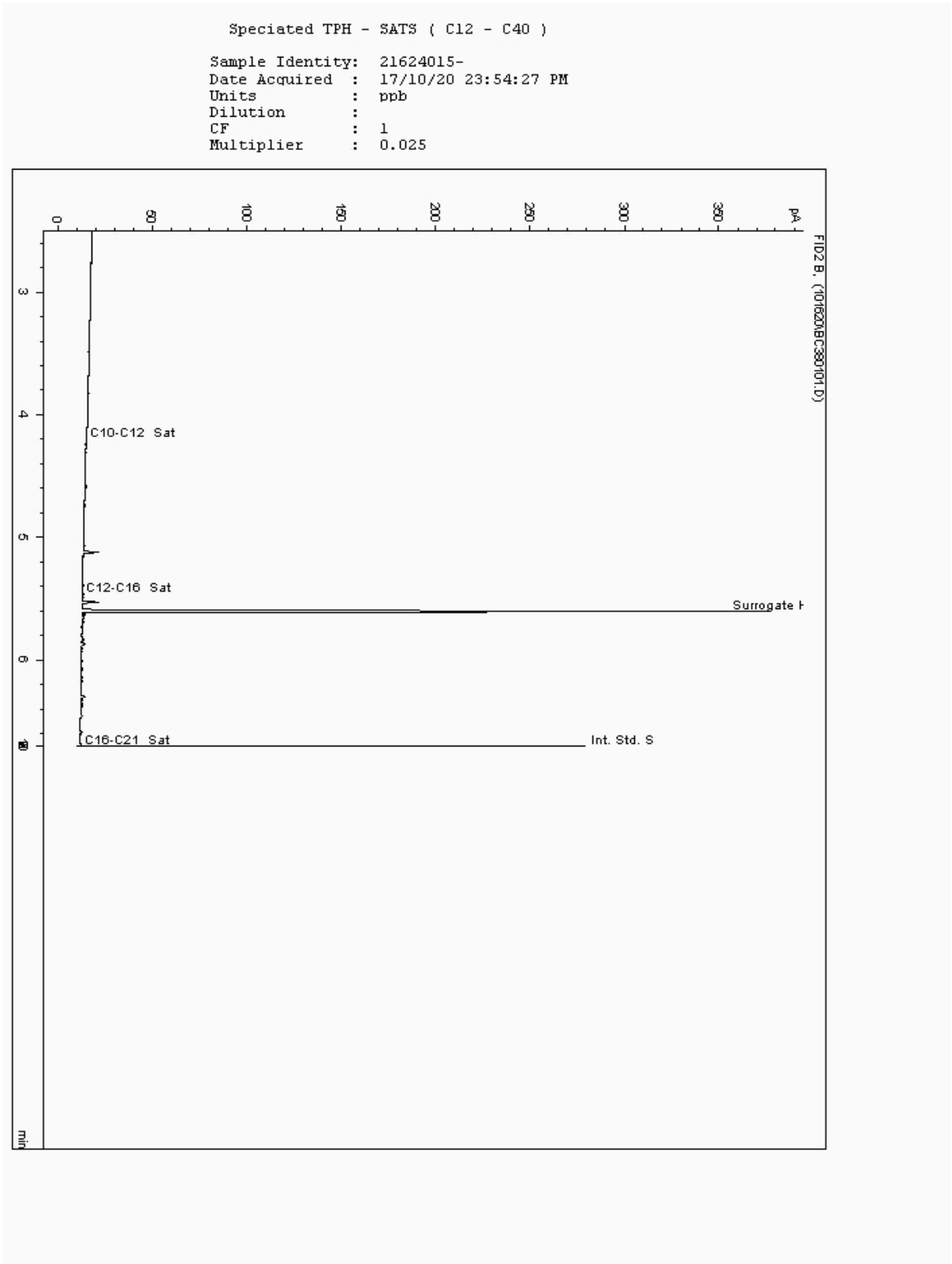


CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23037614 **Depth :**
Sample ID : BH3/6

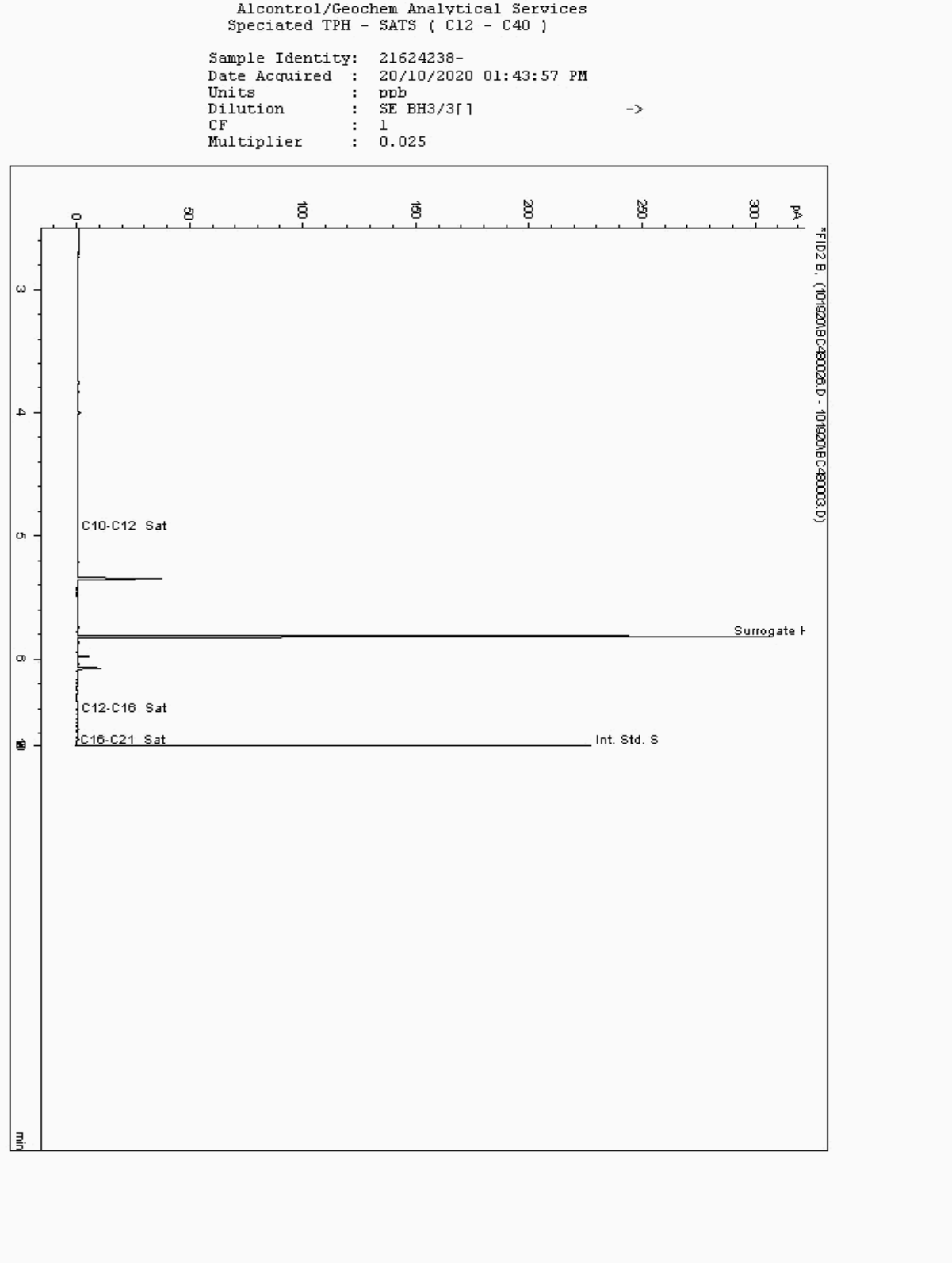


CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23037623 **Depth :**
Sample ID : BH3/3



CERTIFICATE OF ANALYSIS

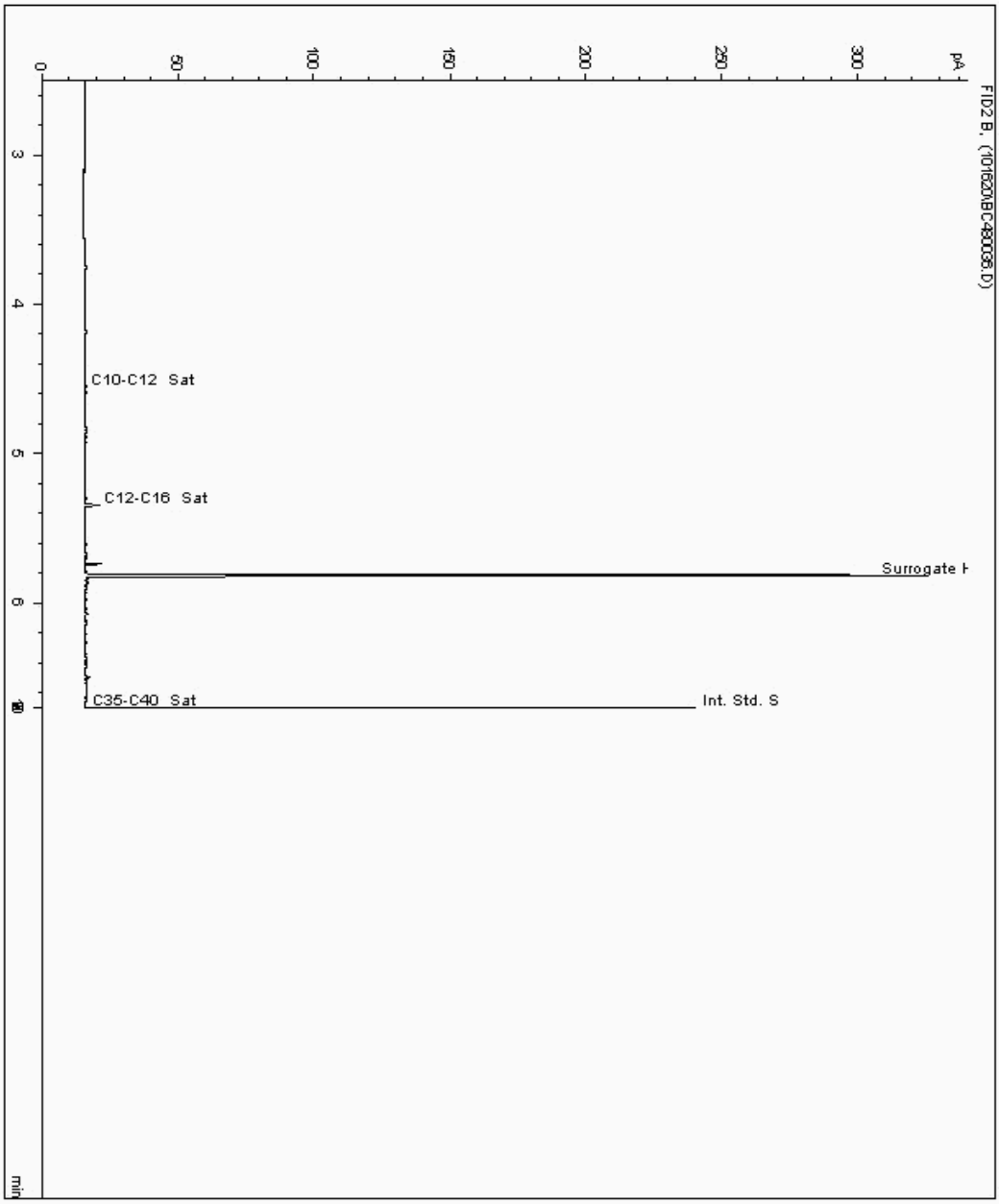
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23038668 **Depth :**
Sample ID : BH3/9

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 21624034-
Date Acquired : 17/10/2020 10:56:02 PM
Units : ppb
Dilution : SE BH3/9[] ->
CF : 1
Multiplier : 0.025

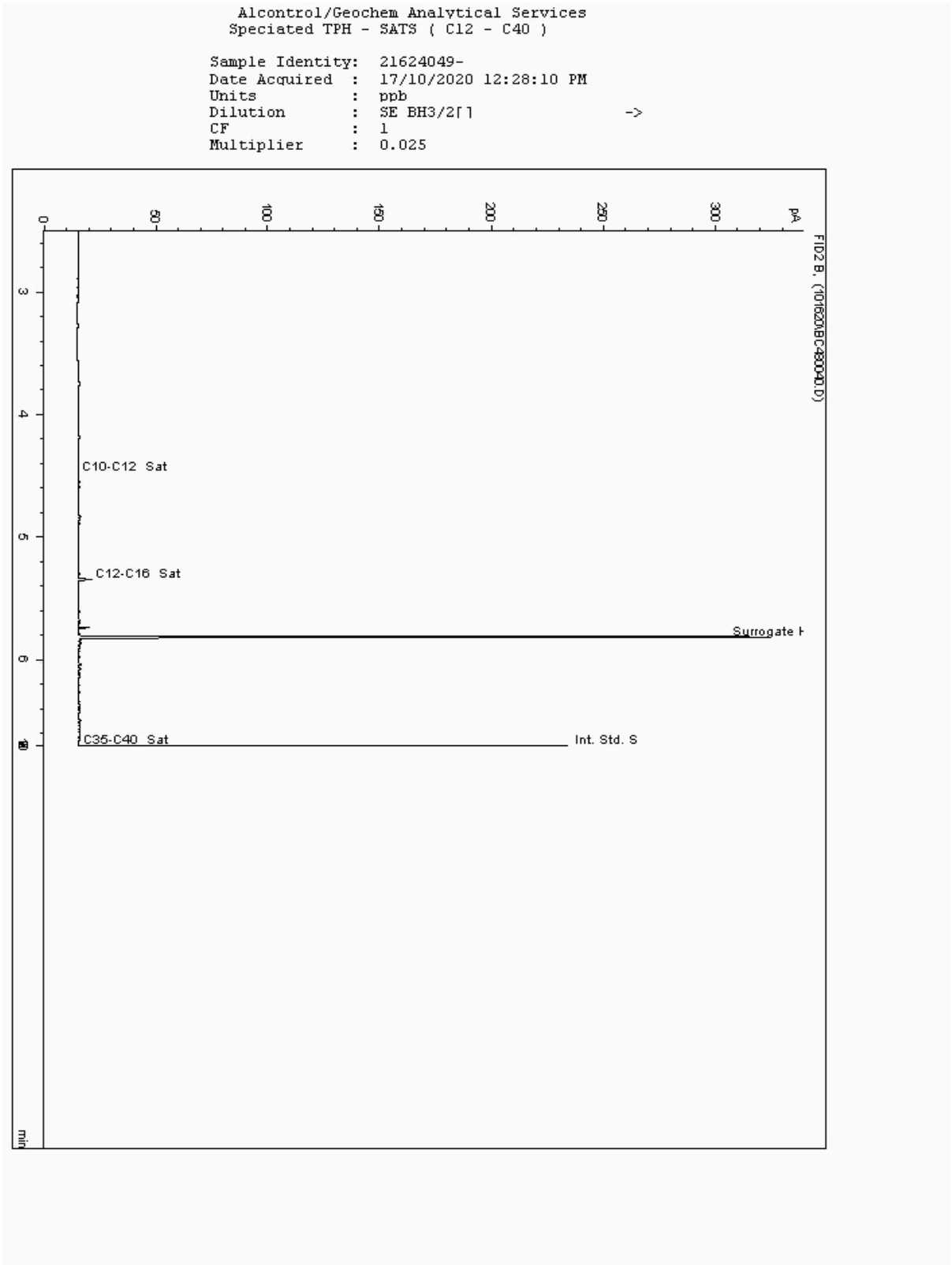


CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23038678 **Depth :**
Sample ID : BH3/2



CERTIFICATE OF ANALYSIS

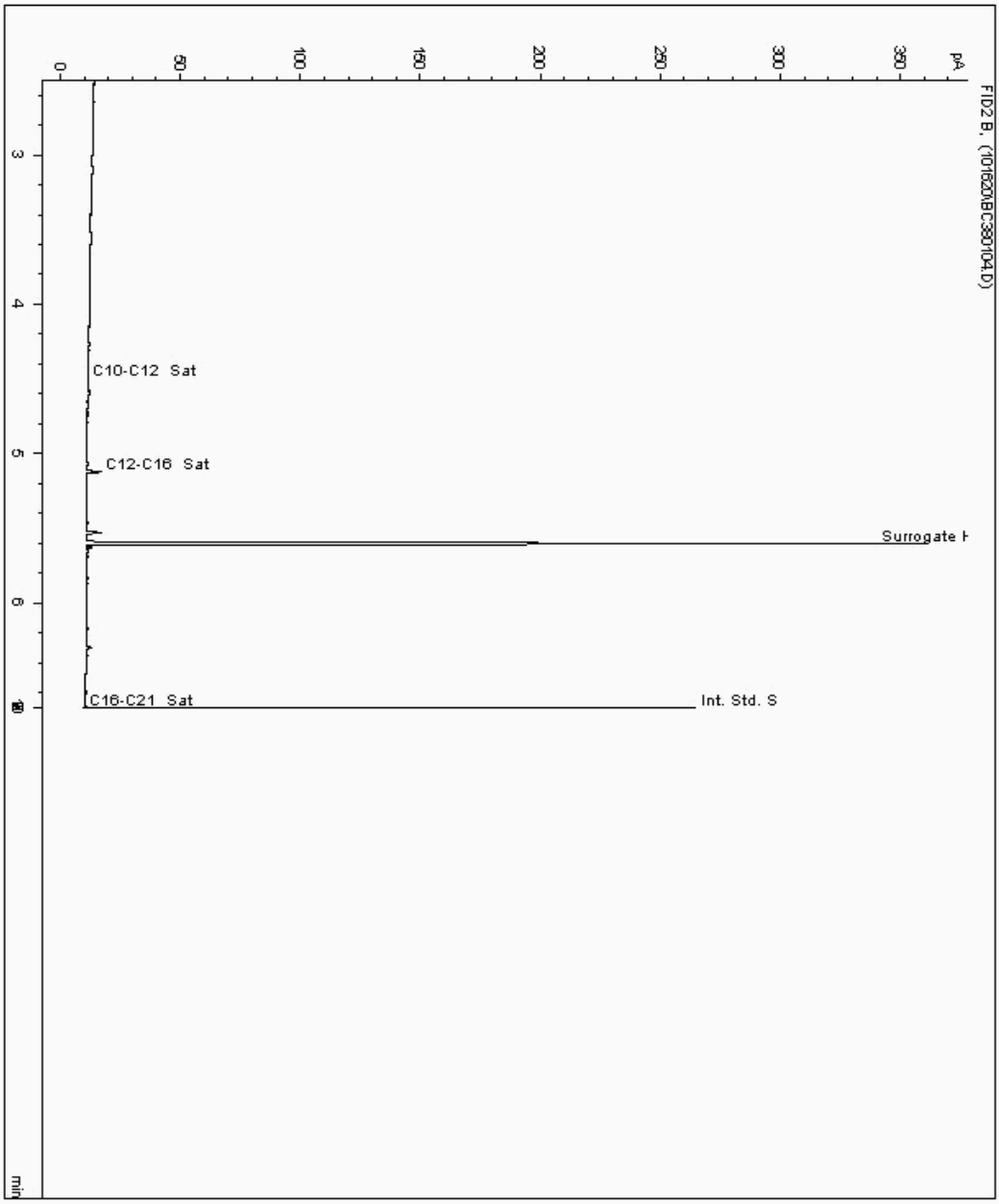
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23042905 **Sample ID :** NACW228 **Depth :**

Speciated TPH - SATS (C12 - C40)

Sample Identity: 21624259-
Date Acquired : 18/10/20 01:04:29 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

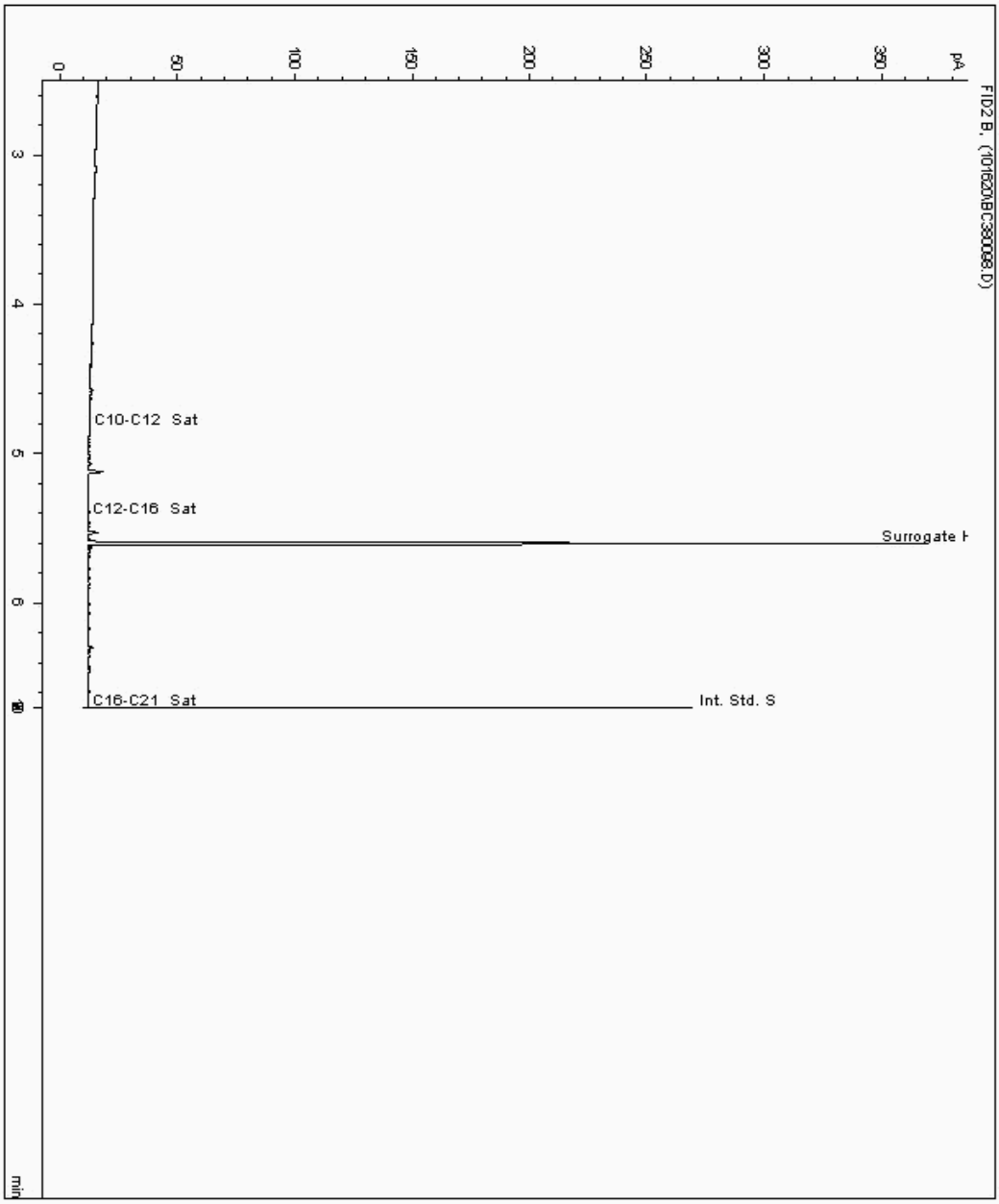
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Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23042911 **Depth :**
Sample ID : BH3/8

Speciated TPH - SATS (C12 - C40)

Sample Identity: 21624163-
Date Acquired : 17/10/20 22:44:50 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

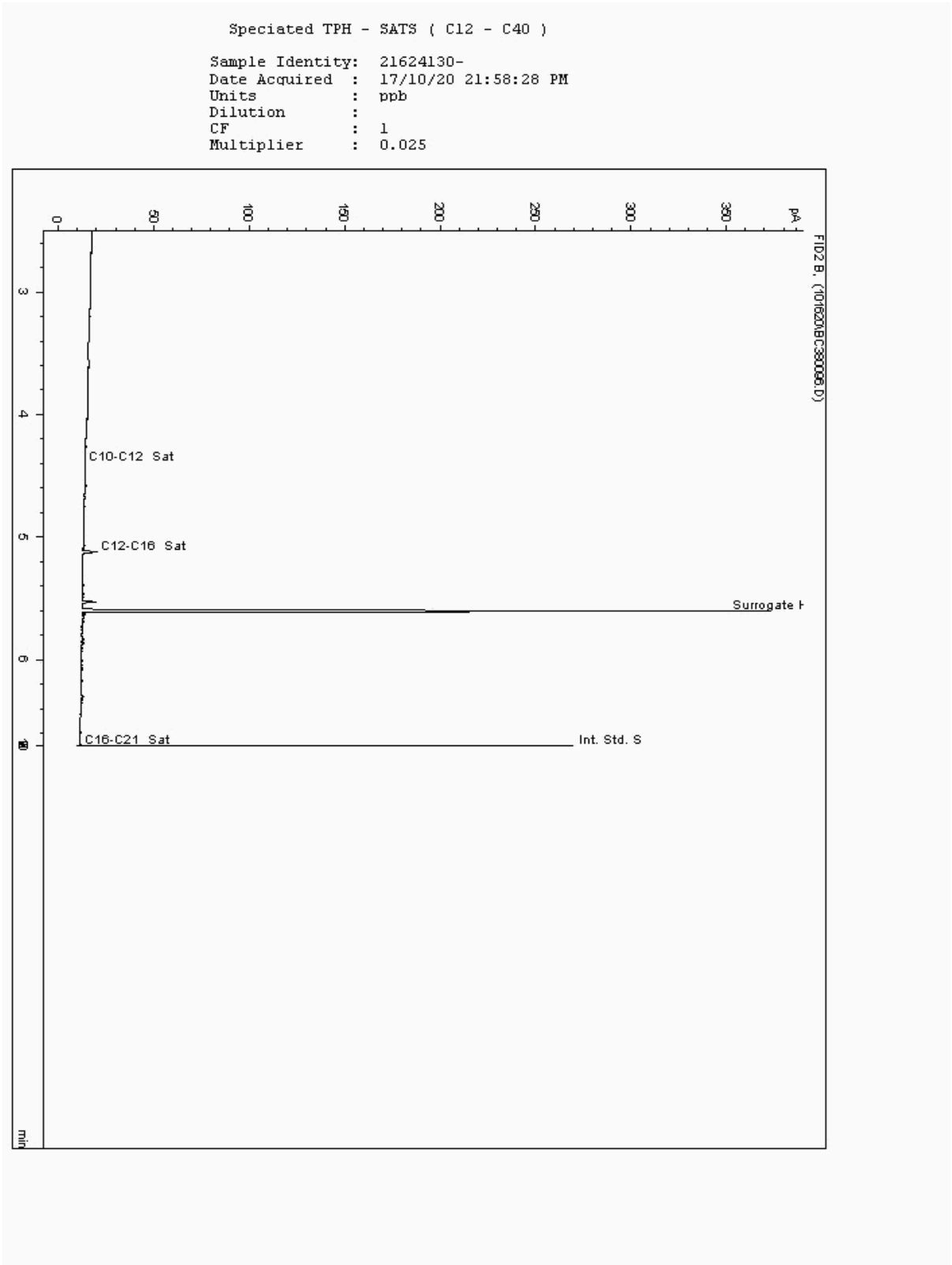


CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23044356 **Depth :**
Sample ID : BH3/4

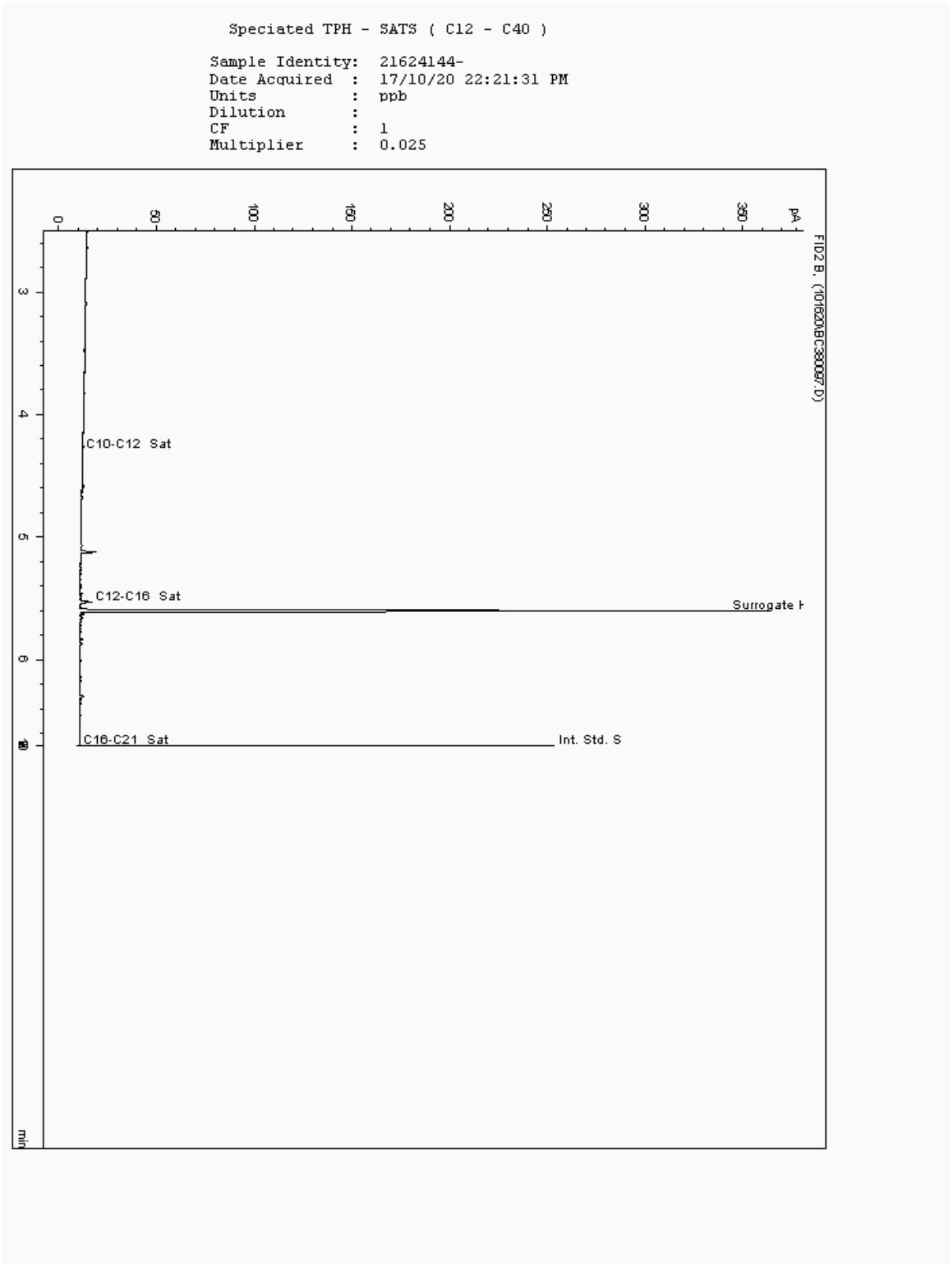


CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23044360 **Depth :**
Sample ID : BH3/5



CERTIFICATE OF ANALYSIS

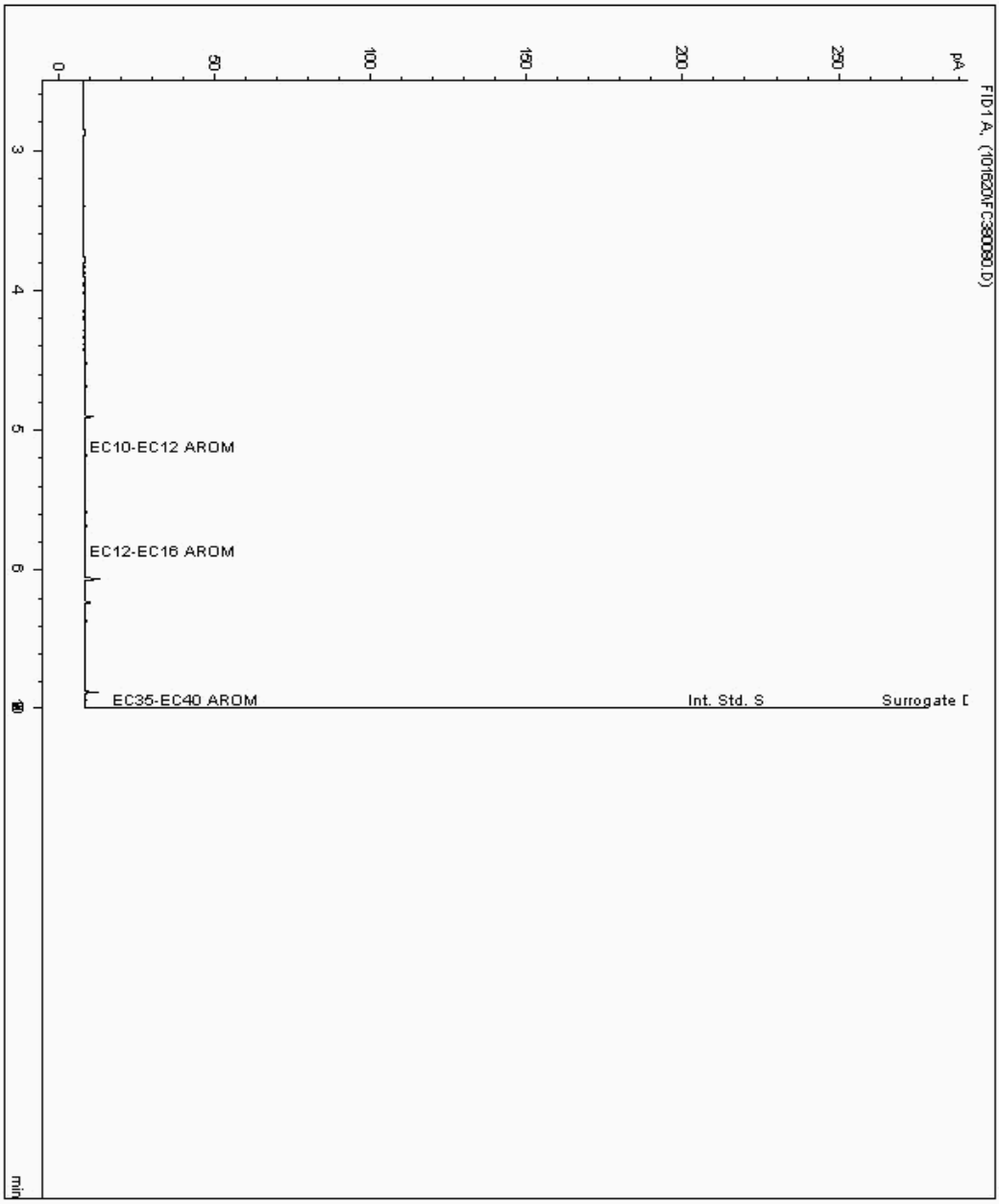
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23034590 **Sample ID :** NACW205 **Depth :**

Speciated TPH - AROM (C12 - C40)

Sample Identity: 21624104-
Date Acquired : 17/10/20 15:49:19 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

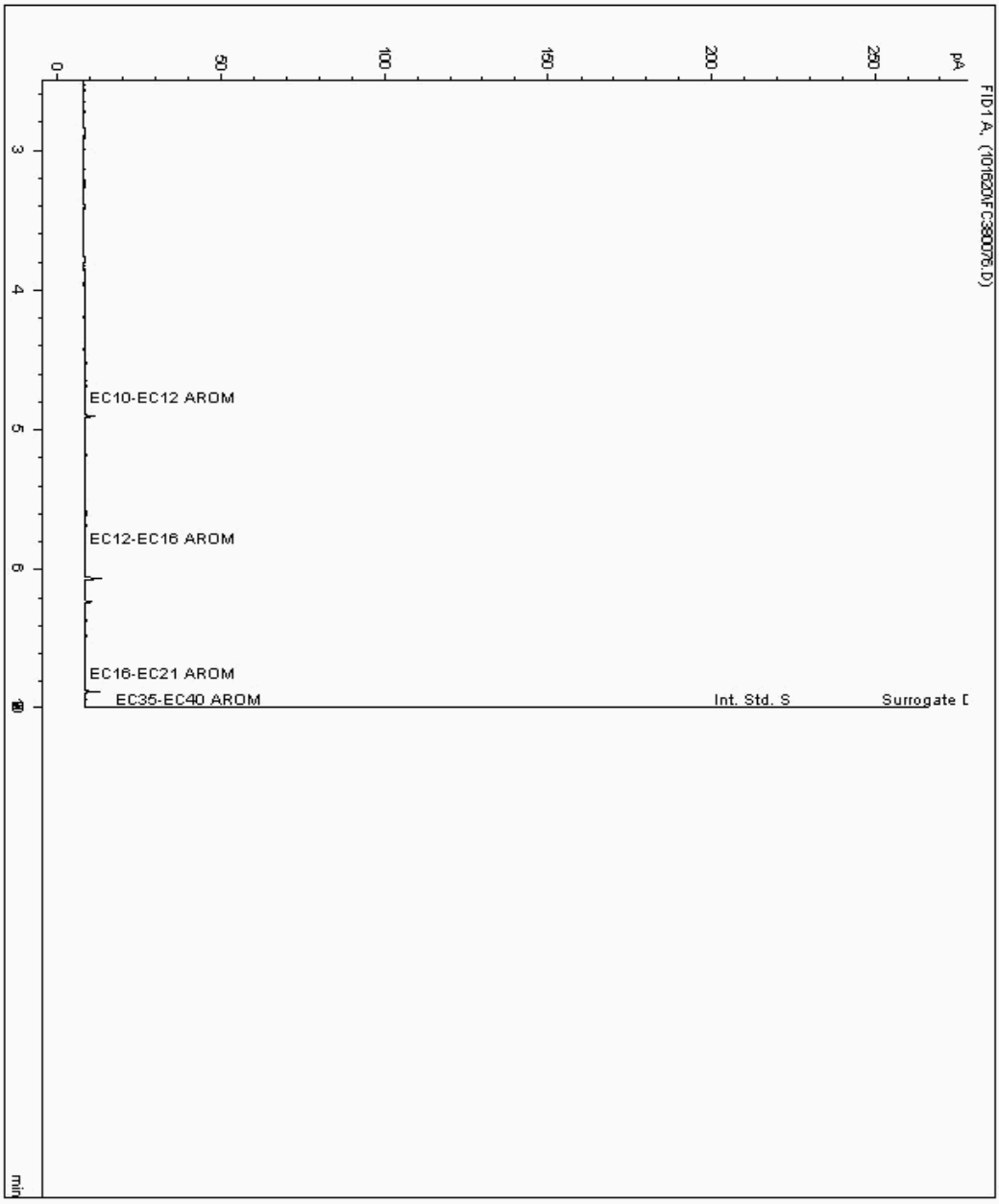
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23034594 **Sample ID :** BH5/02 **Depth :**

Speciated TPH - AROM (C12 - C40)

Sample Identity: 21624117-
Date Acquired : 17/10/20 14:15:33 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

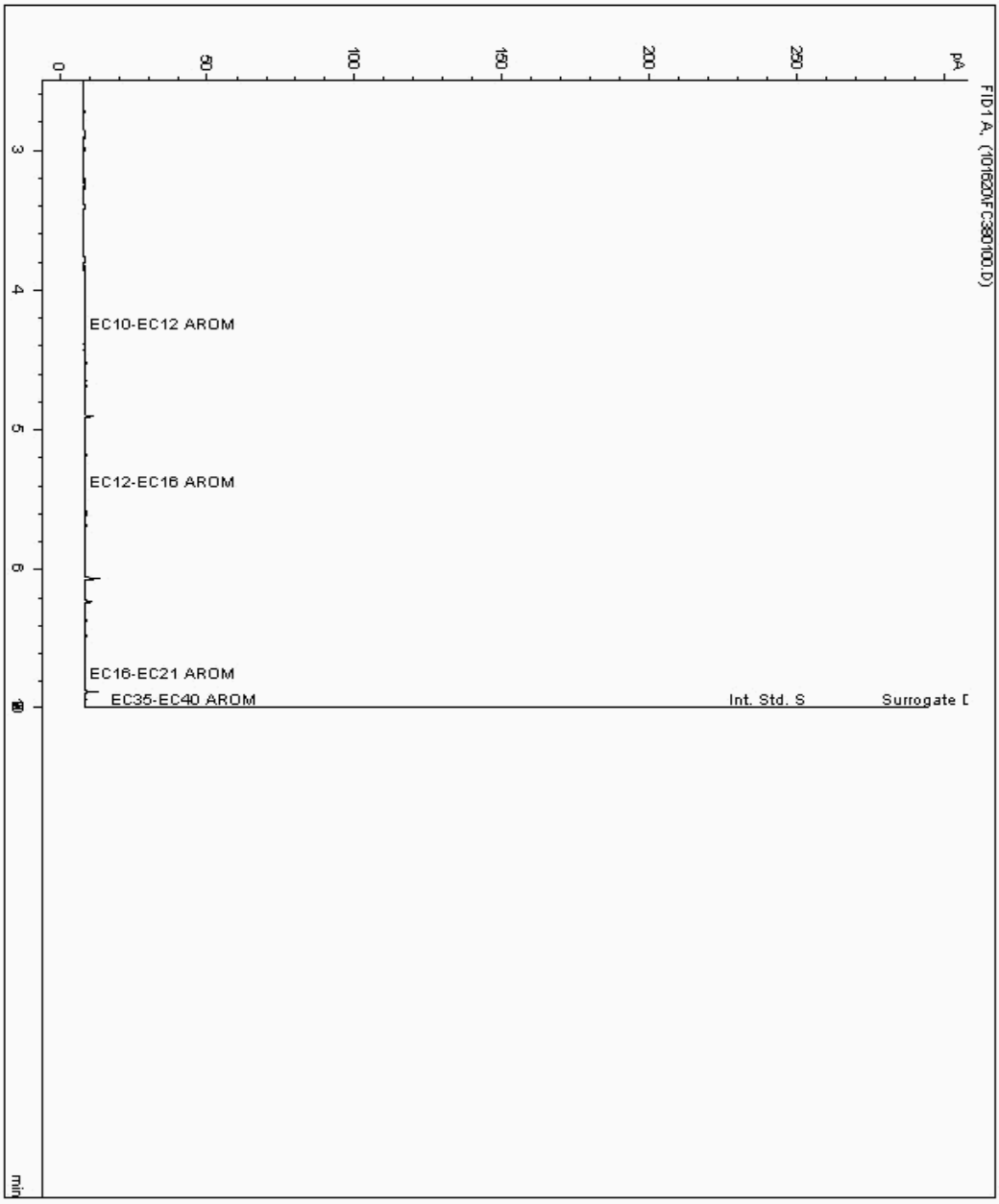
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23037282 **Sample ID :** NACW229 **Depth :**

Speciated TPH - AROM (C12 - C40)

Sample Identity: 21624190-
Date Acquired : 17/10/20 23:31:10 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

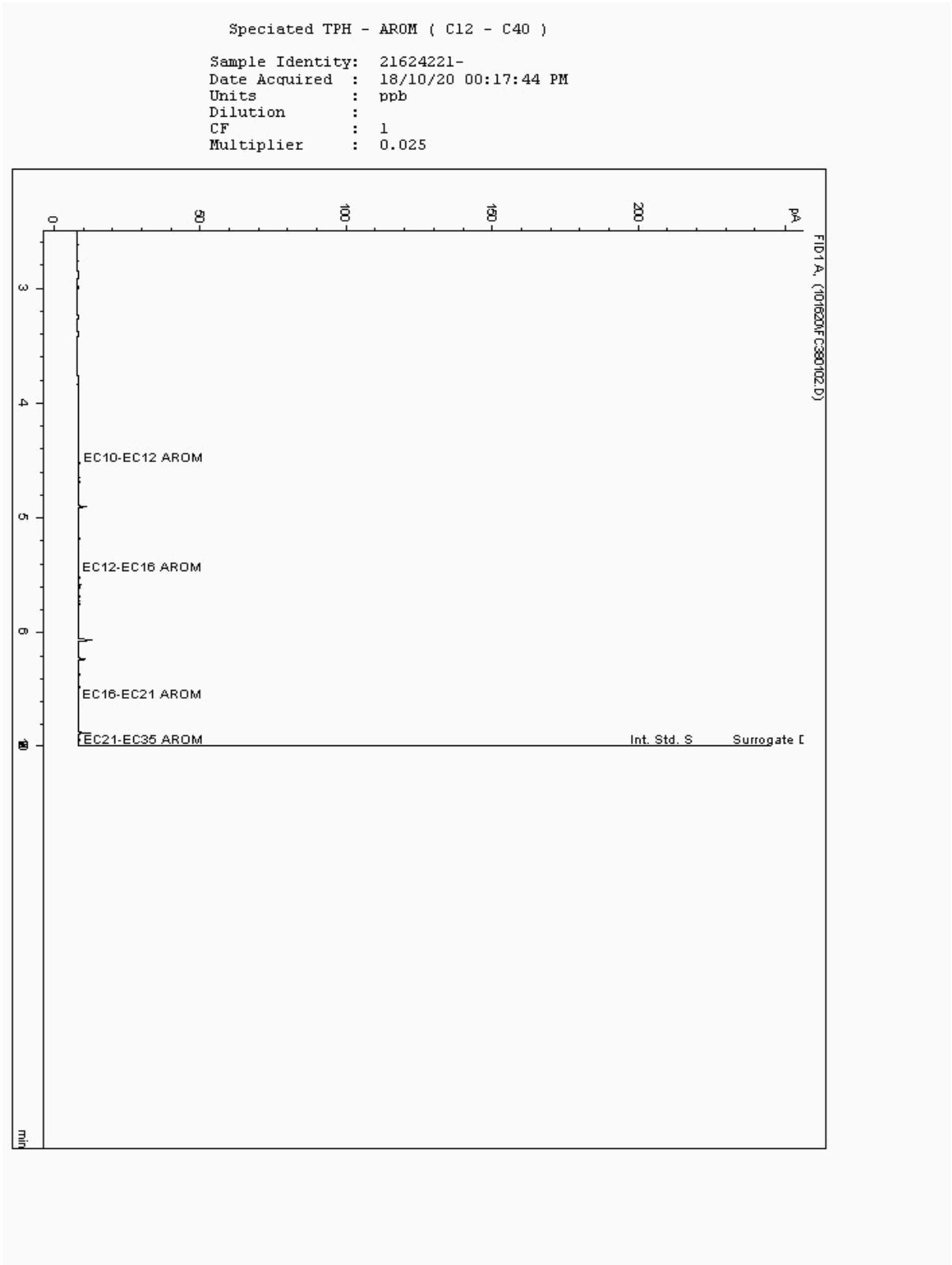


CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23037287 **Sample ID :** NACW212 **Depth :**

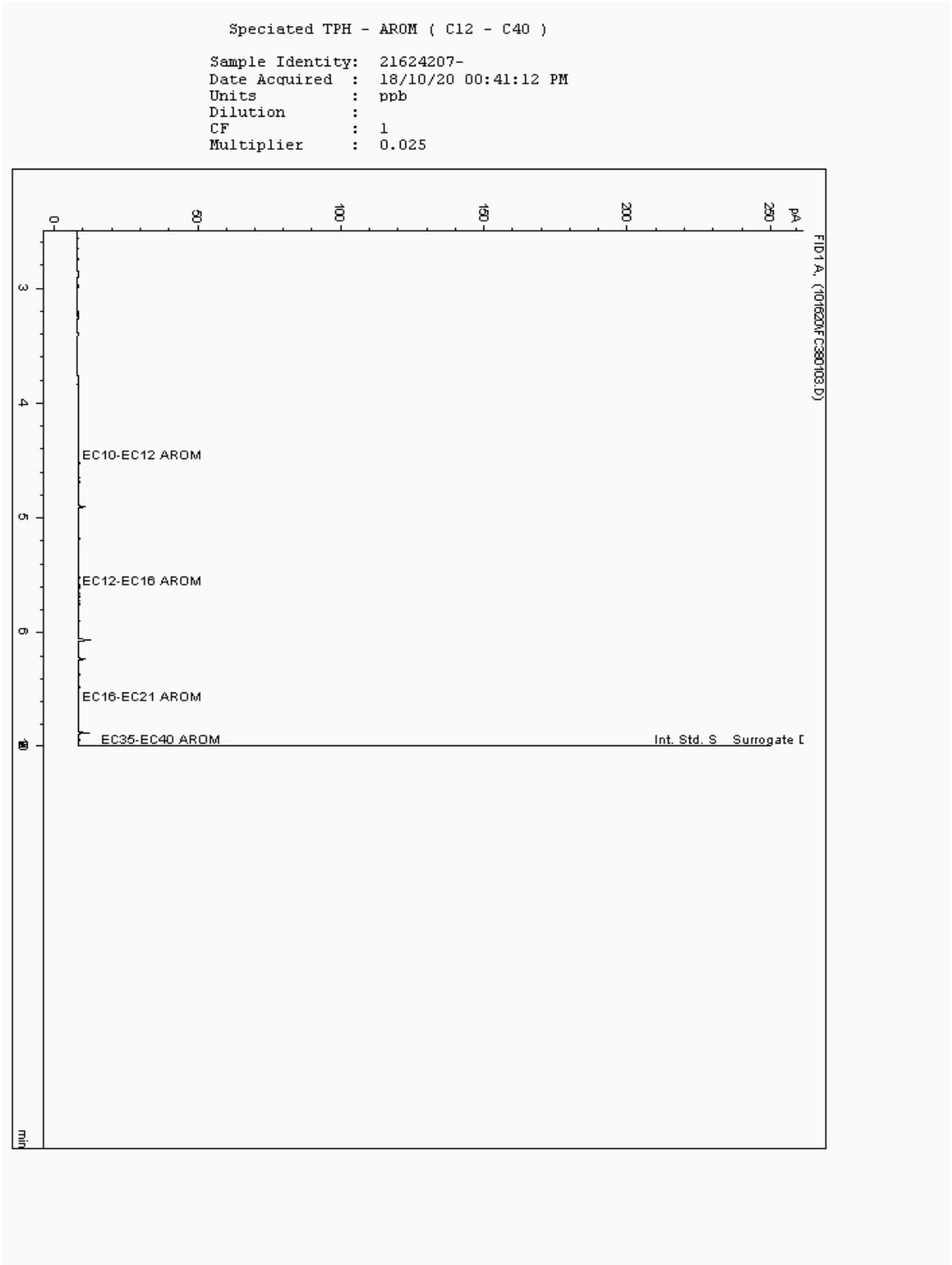


CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23037293 **Sample ID :** NACW219 **Depth :**



CERTIFICATE OF ANALYSIS

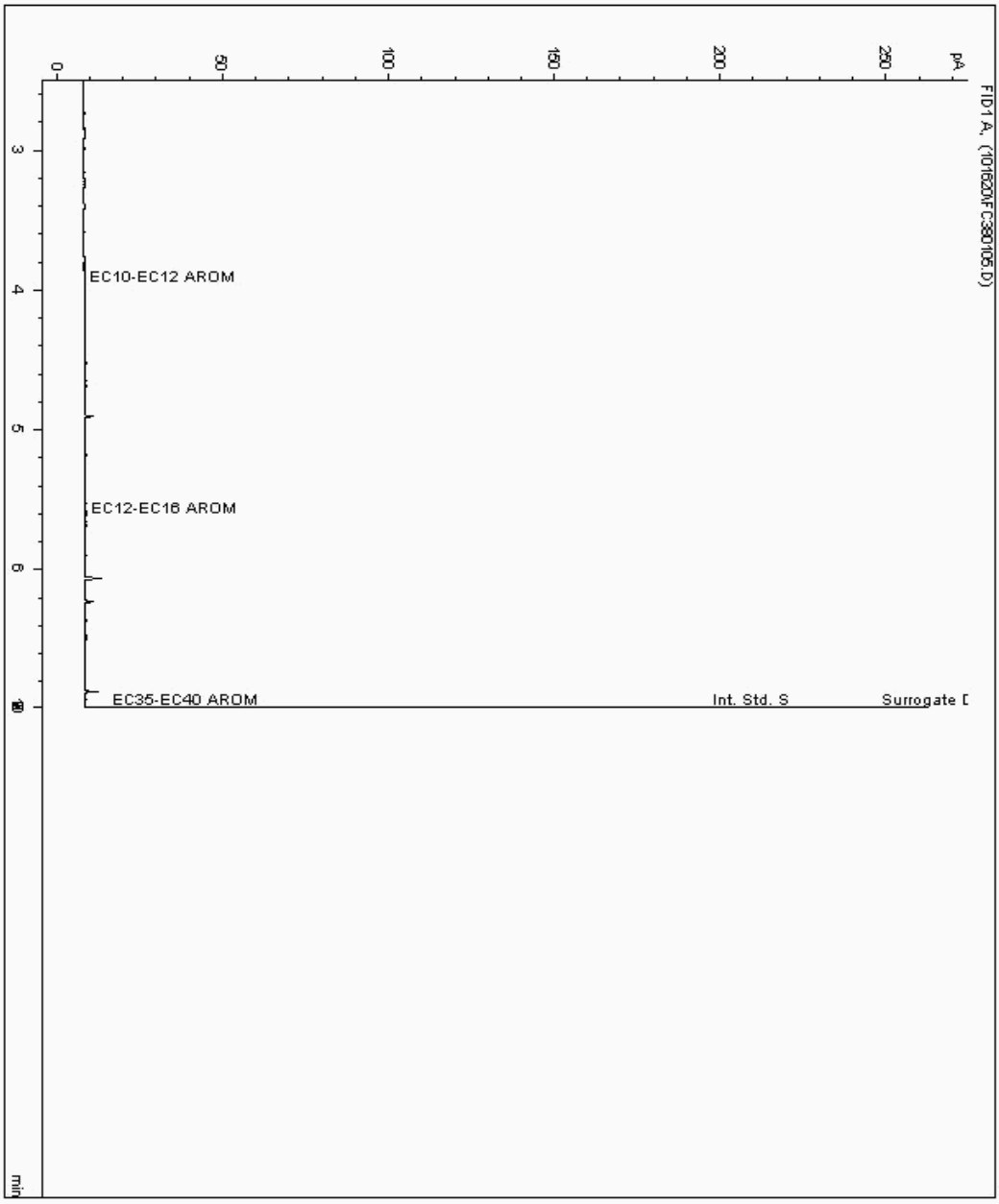
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23037446 **Sample ID :** BH208 **Depth :**

Speciated TPH - AROM (C12 - C40)

Sample Identity: 21624067-
Date Acquired : 18/10/20 01:27:43 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

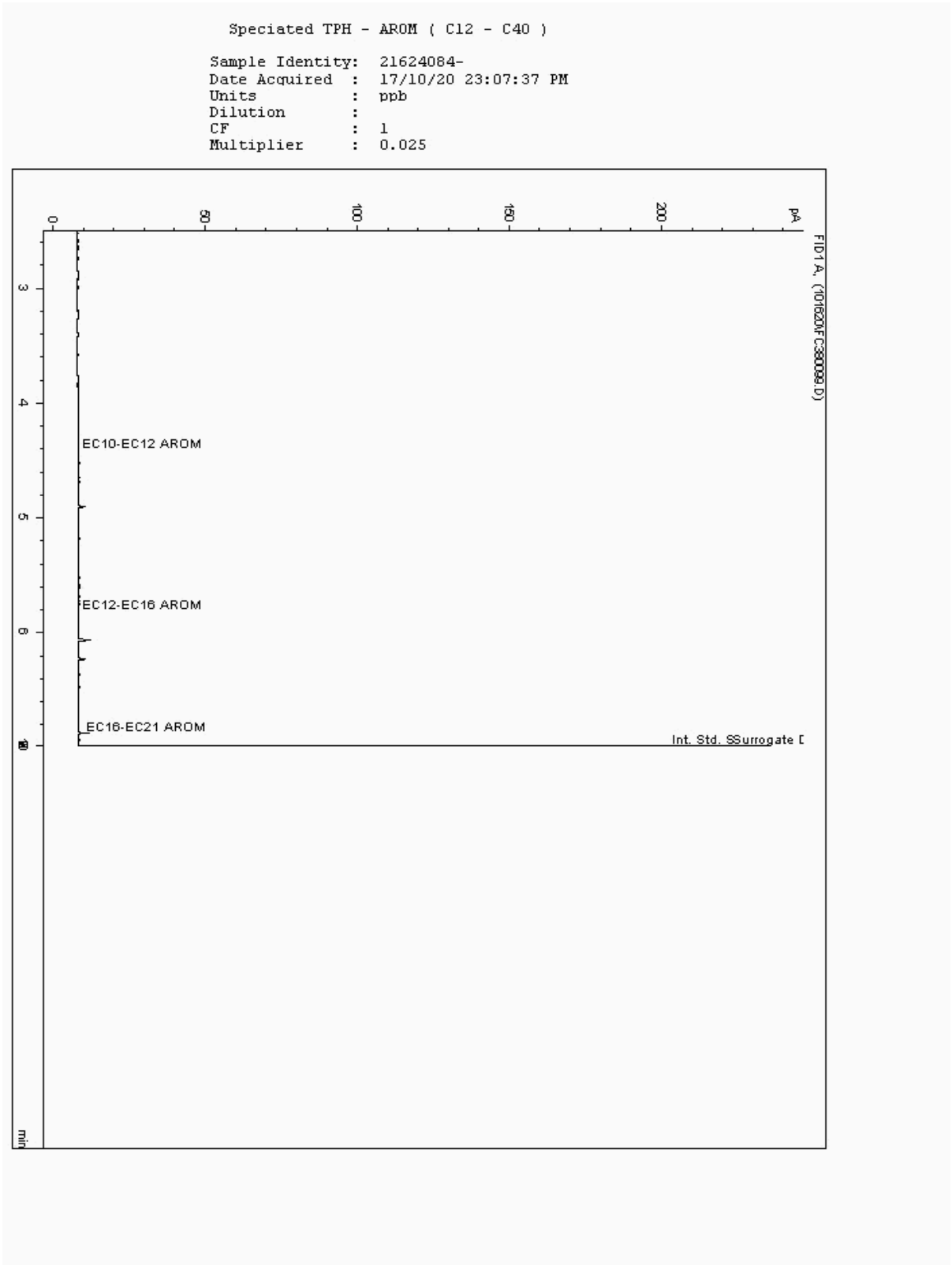


CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23037451 **Sample ID :** NACW203 **Depth :**



CERTIFICATE OF ANALYSIS

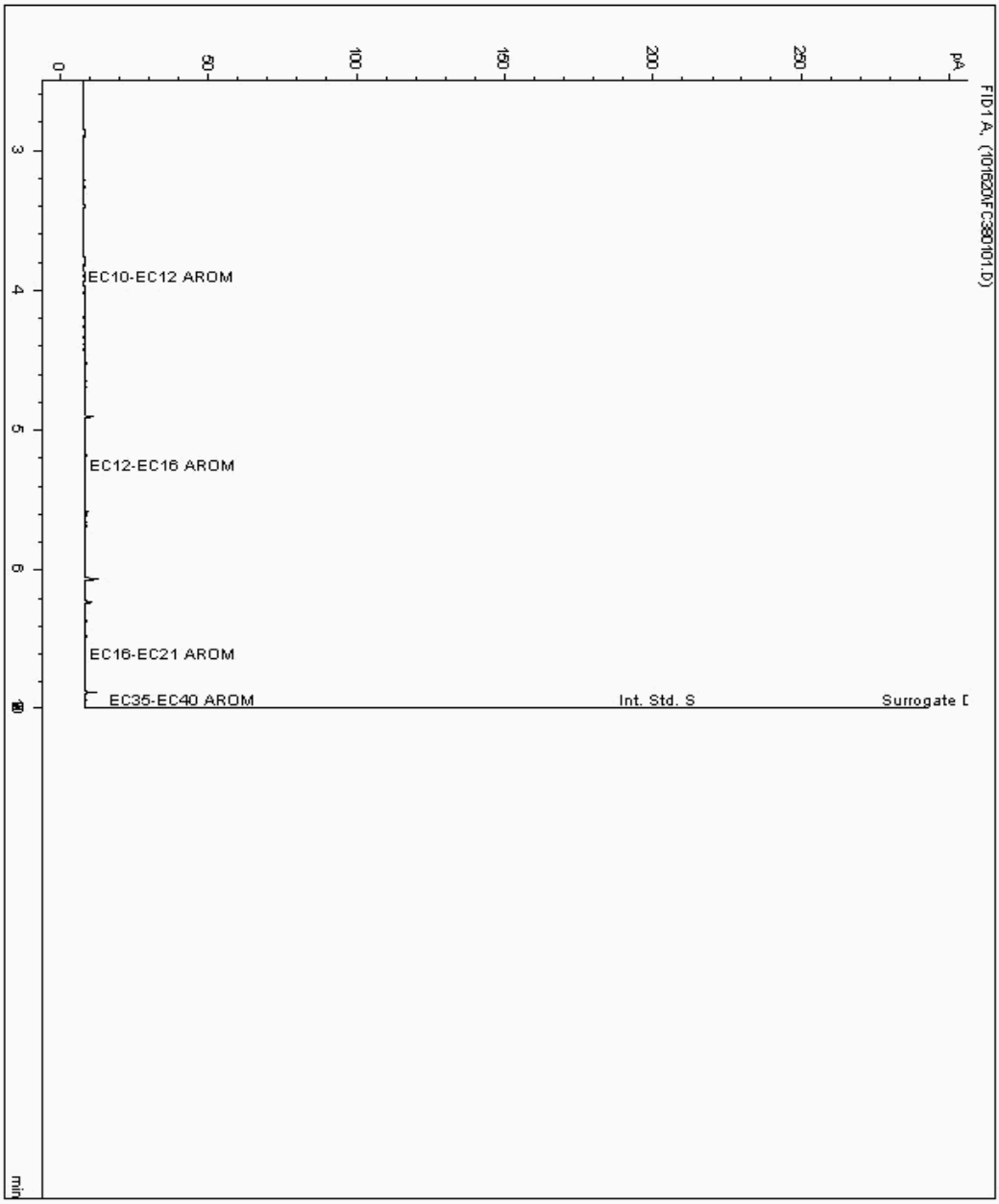
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23037614 **Sample ID :** BH3/6 **Depth :**

Speciated TPH - AROM (C12 - C40)

Sample Identity: 21624016-
Date Acquired : 17/10/20 23:54:28 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

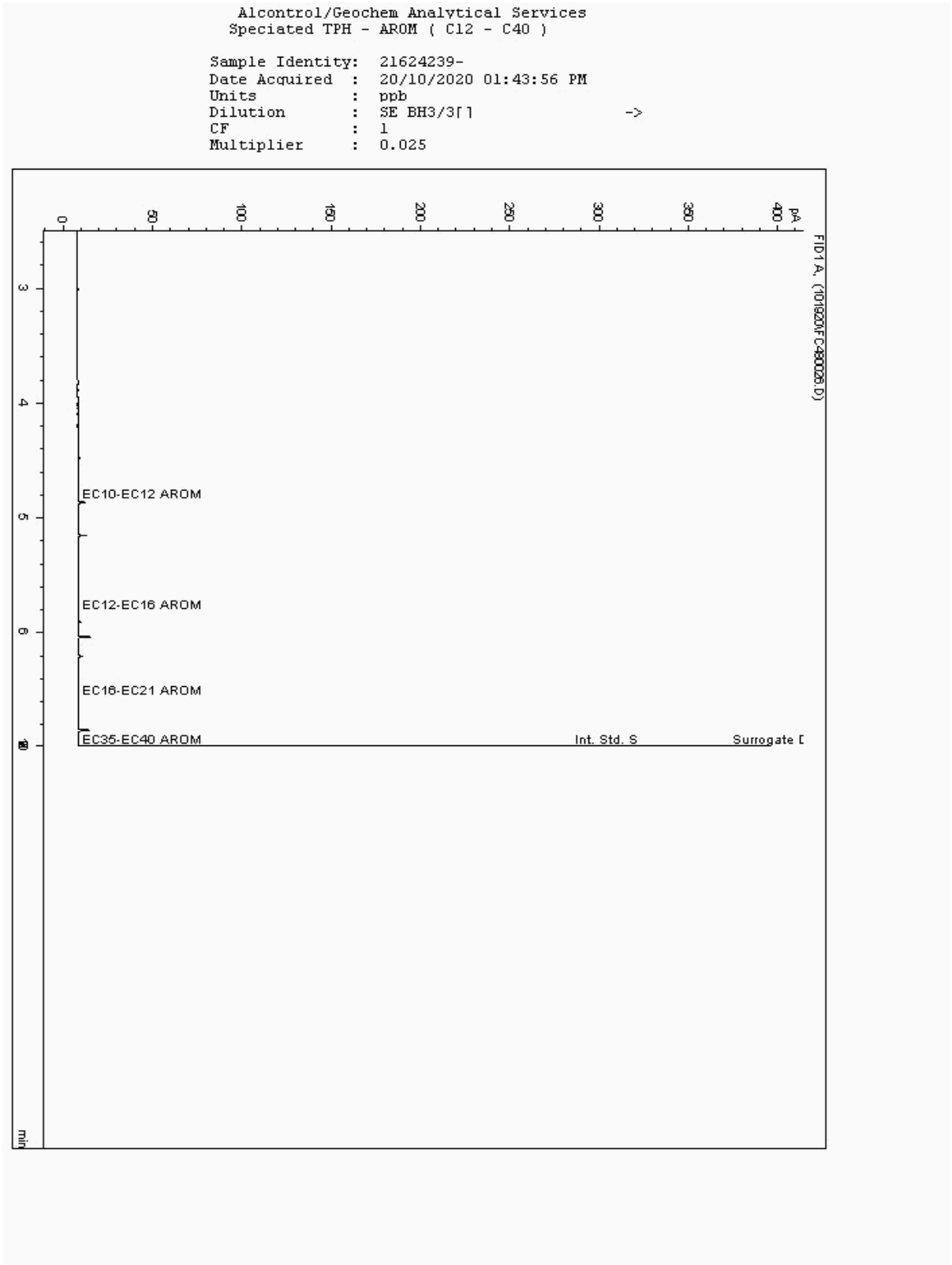


CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23037623 **Depth :**
Sample ID : BH3/3

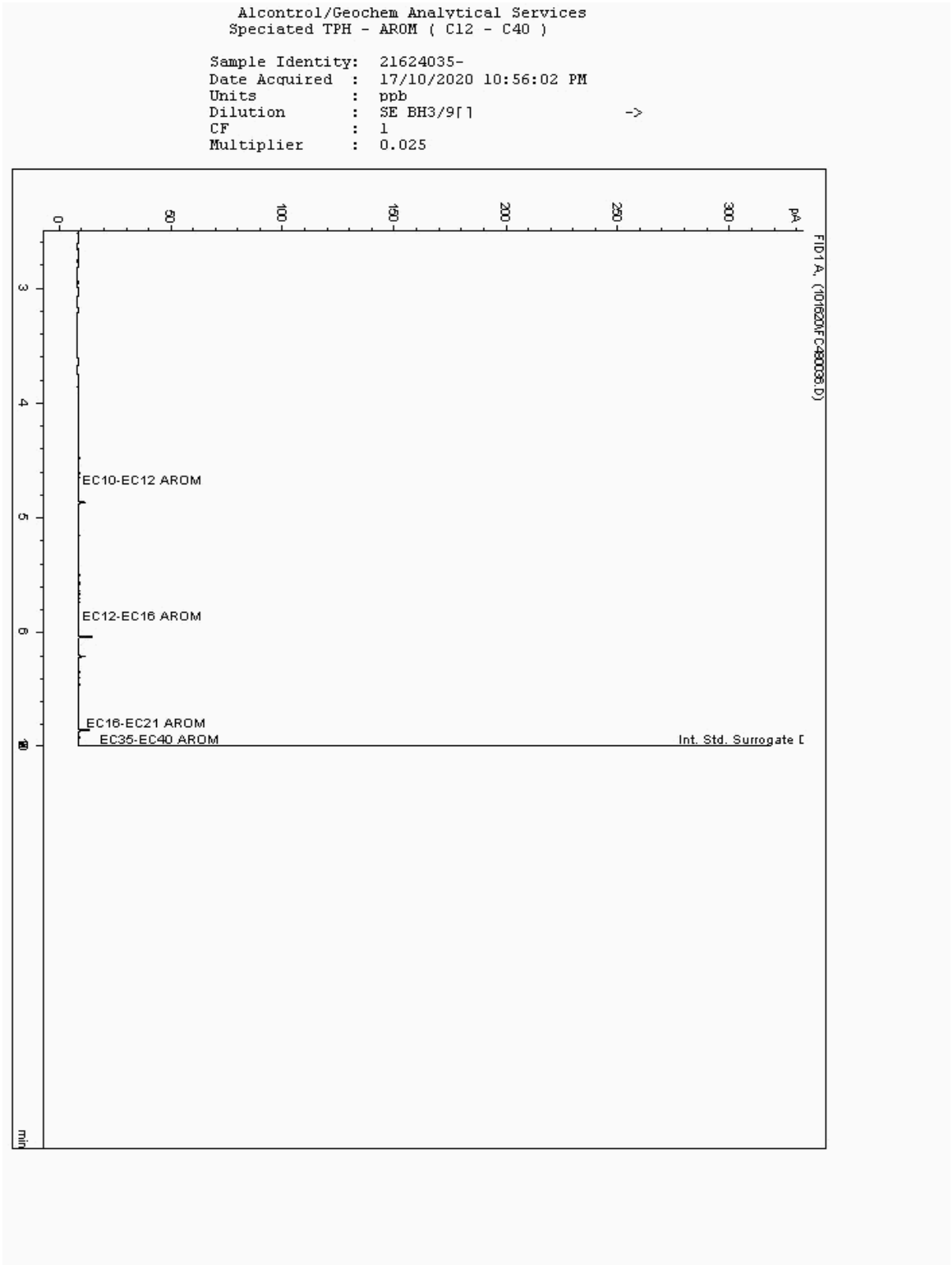


CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23038668 **Depth :**
Sample ID : BH3/9



CERTIFICATE OF ANALYSIS

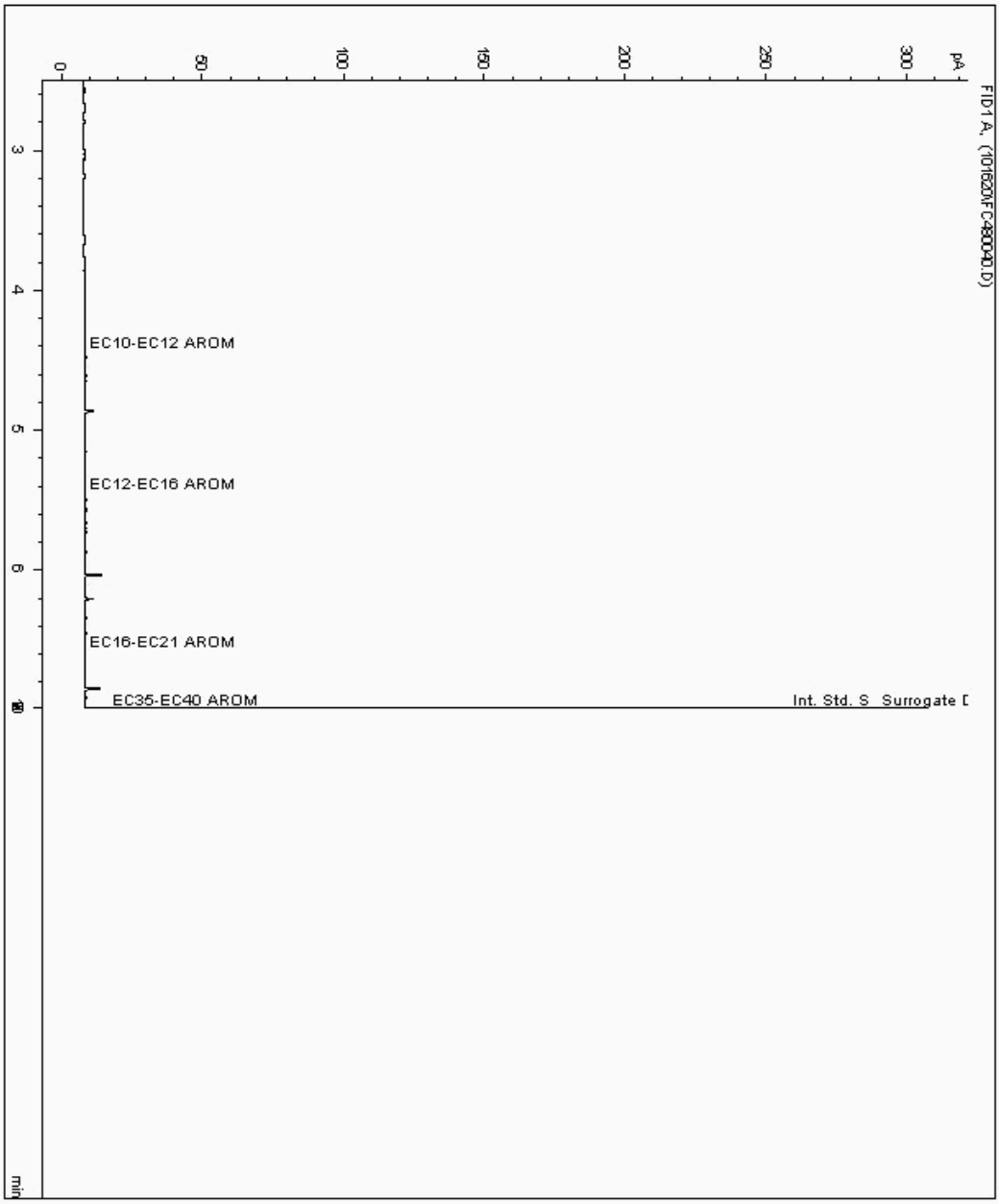
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23038678 **Depth :**
Sample ID : BH3/2

Alcontrol/Geochem Analytical Services
Speciated TPH - AROM (C12 - C40)

Sample Identity: 21624050-
Date Acquired : 17/10/2020 12:28:10 PM
Units : ppb
Dilution : SE BH3/2[]
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

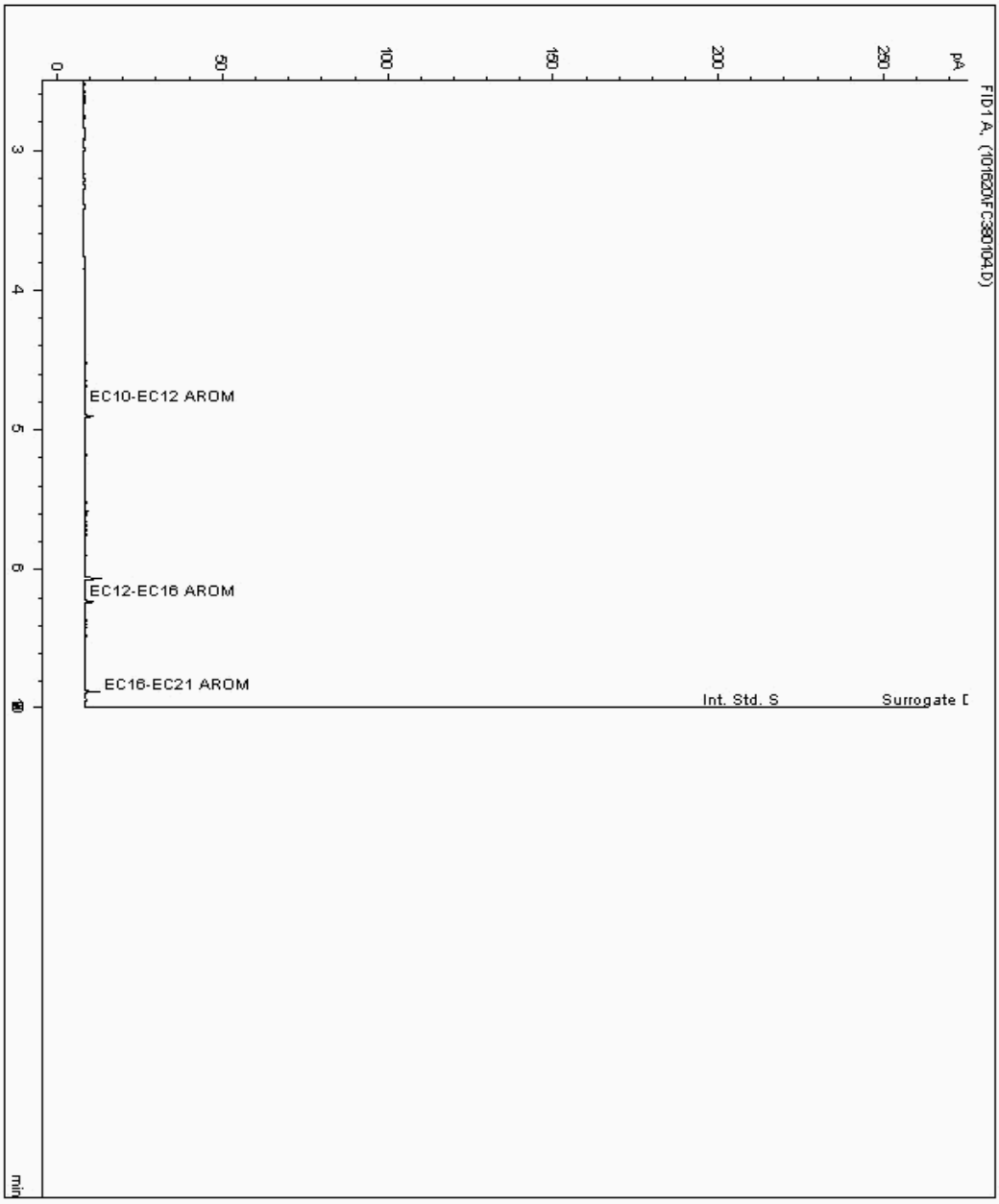
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23042905 **Sample ID :** NACW228 **Depth :**

Speciated TPH - AROM (C12 - C40)

Sample Identity: 21624260-
Date Acquired : 18/10/20 01:04:28 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

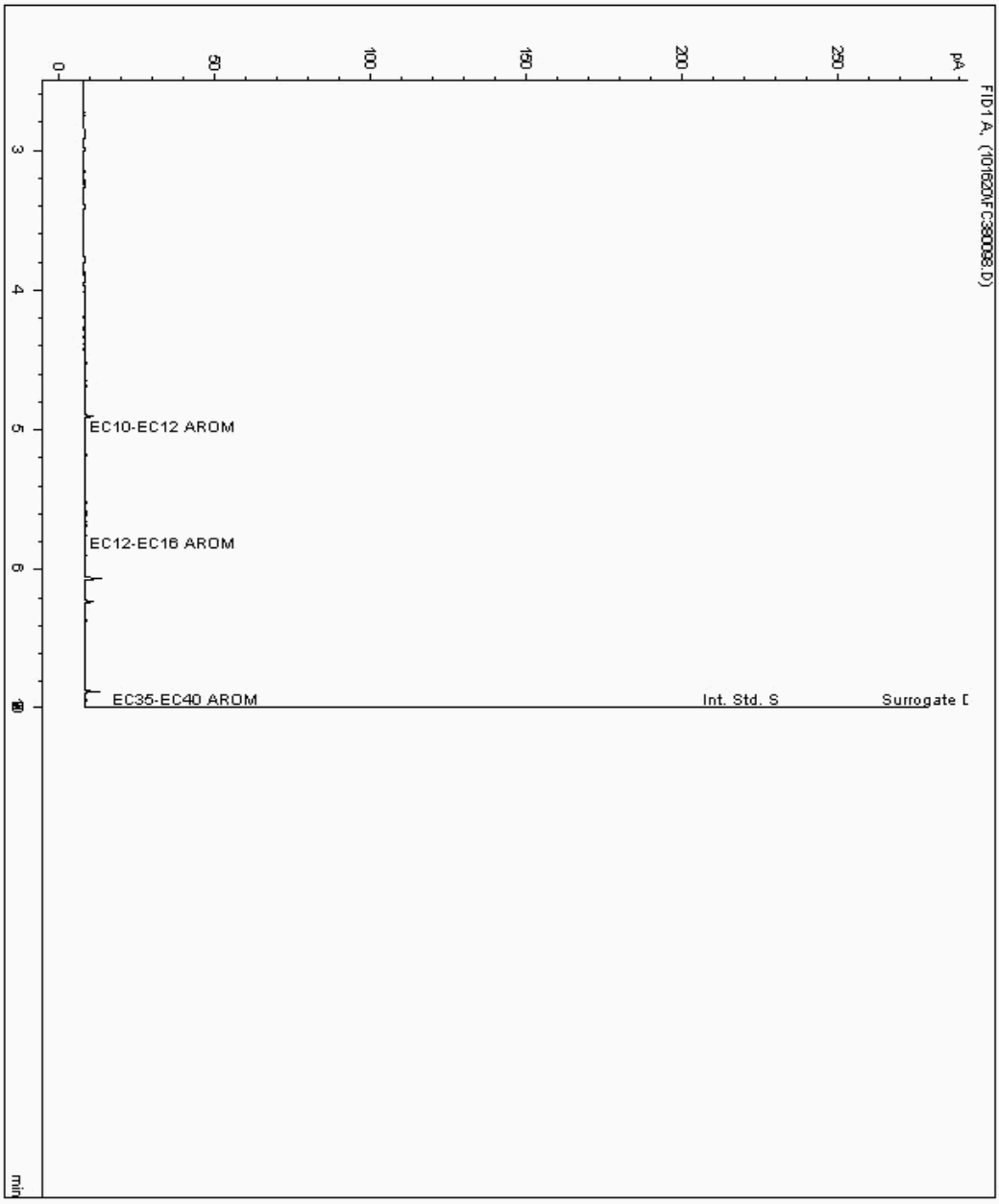
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23042911 **Sample ID :** BH3/8 **Depth :**

Speciated TPH - AROM (C12 - C40)

Sample Identity: 21624164-
Date Acquired : 17/10/20 22:44:50 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

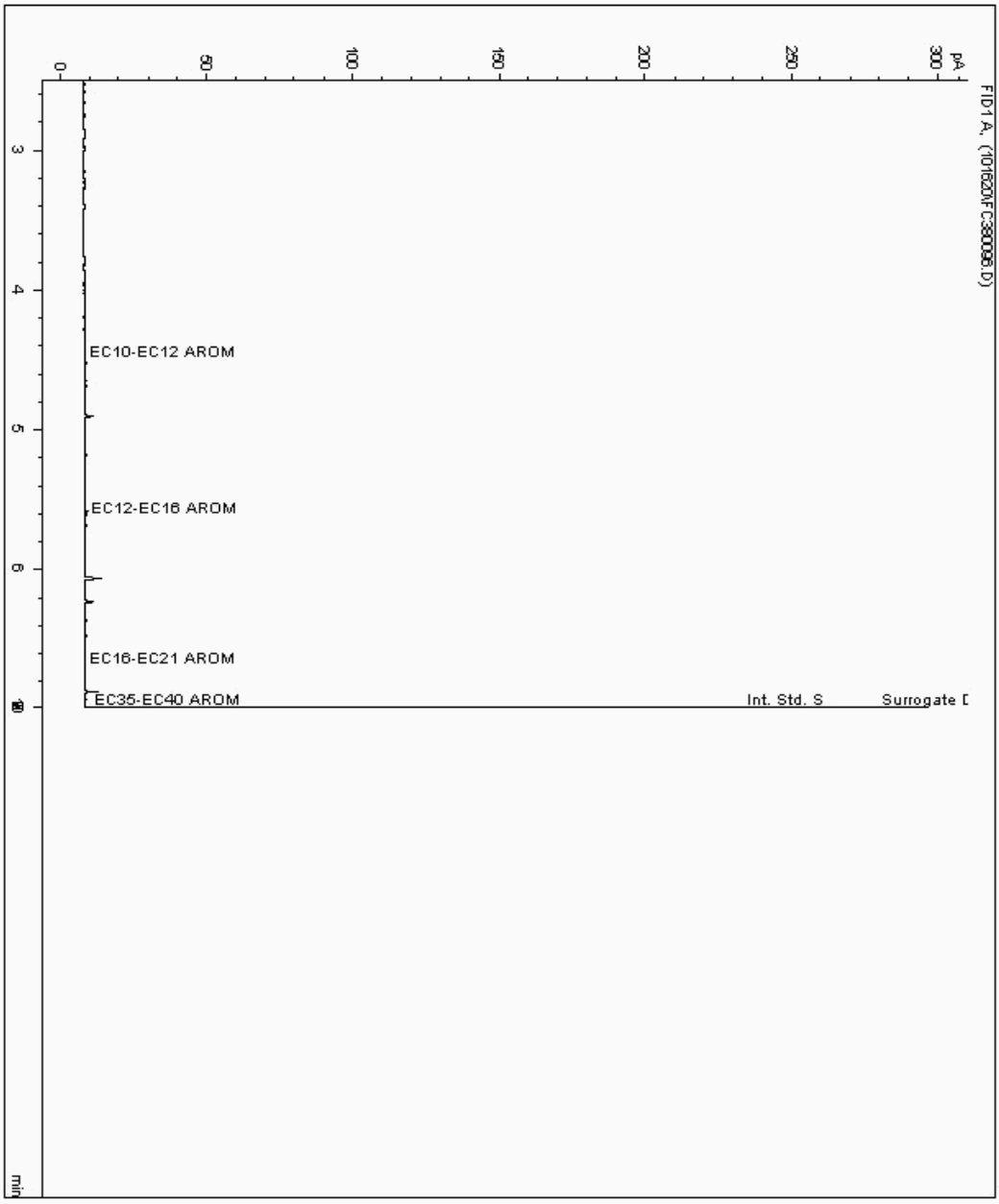
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Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23044356 **Sample ID :** BH3/4 **Depth :**

Speciated TPH - AROM (C12 - C40)

Sample Identity: 21624131-
Date Acquired : 17/10/20 21:58:28 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

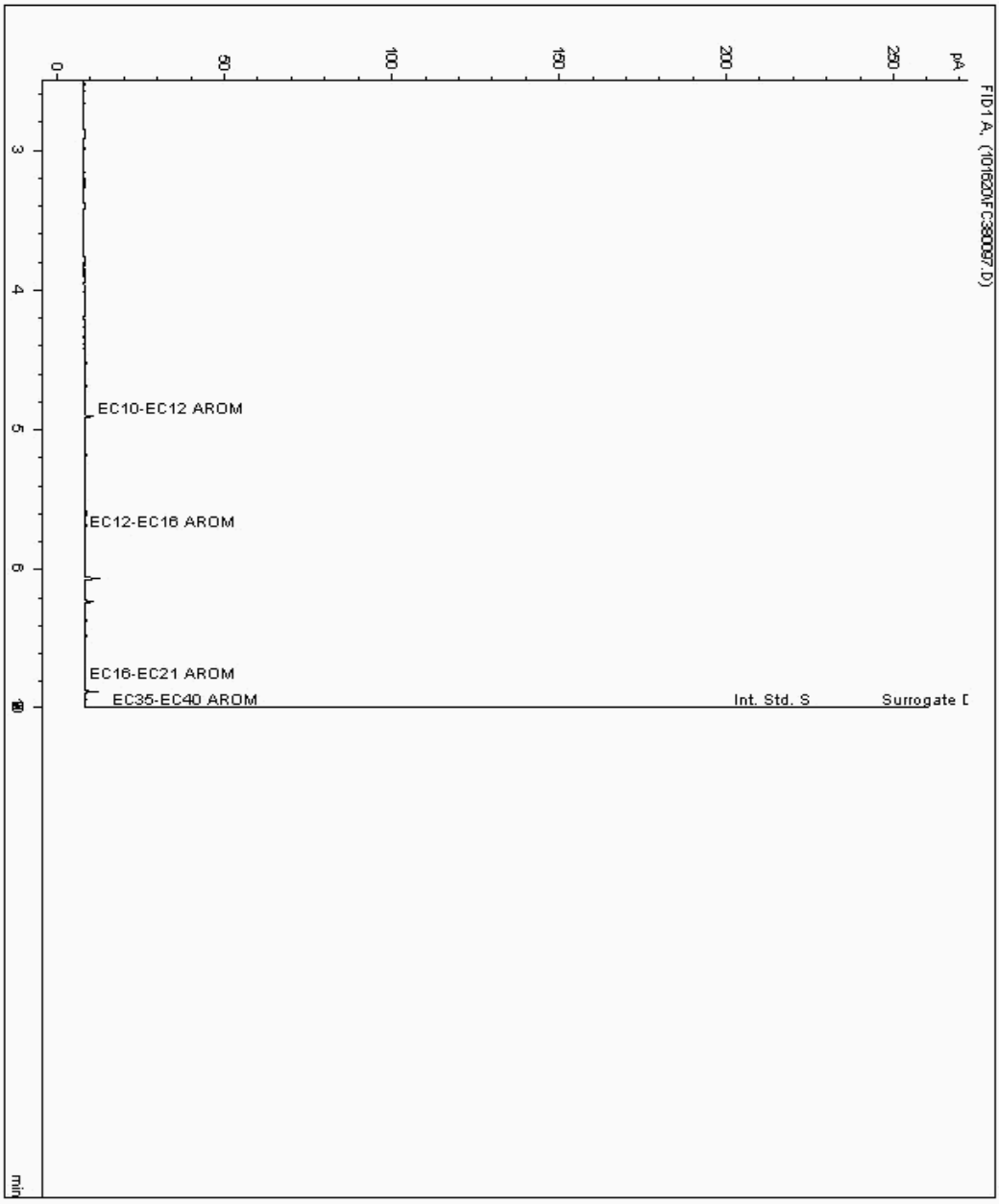
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23044360 **Sample ID :** BH3/5 **Depth :**

Speciated TPH - AROM (C12 - C40)

Sample Identity: 21624145-
Date Acquired : 17/10/20 22:21:31 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

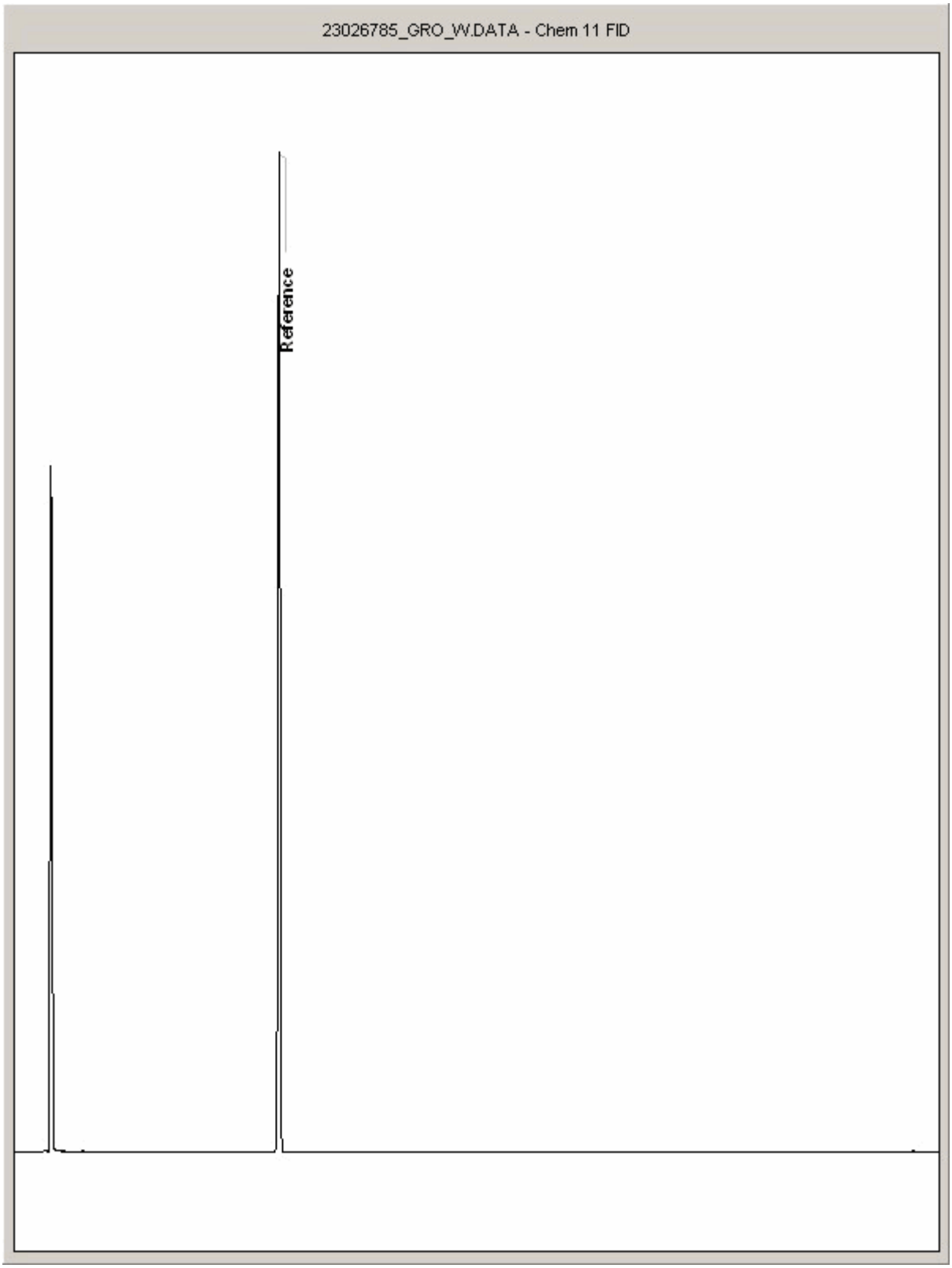
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23026785
Sample ID : BH3/4

Depth :



CERTIFICATE OF ANALYSIS

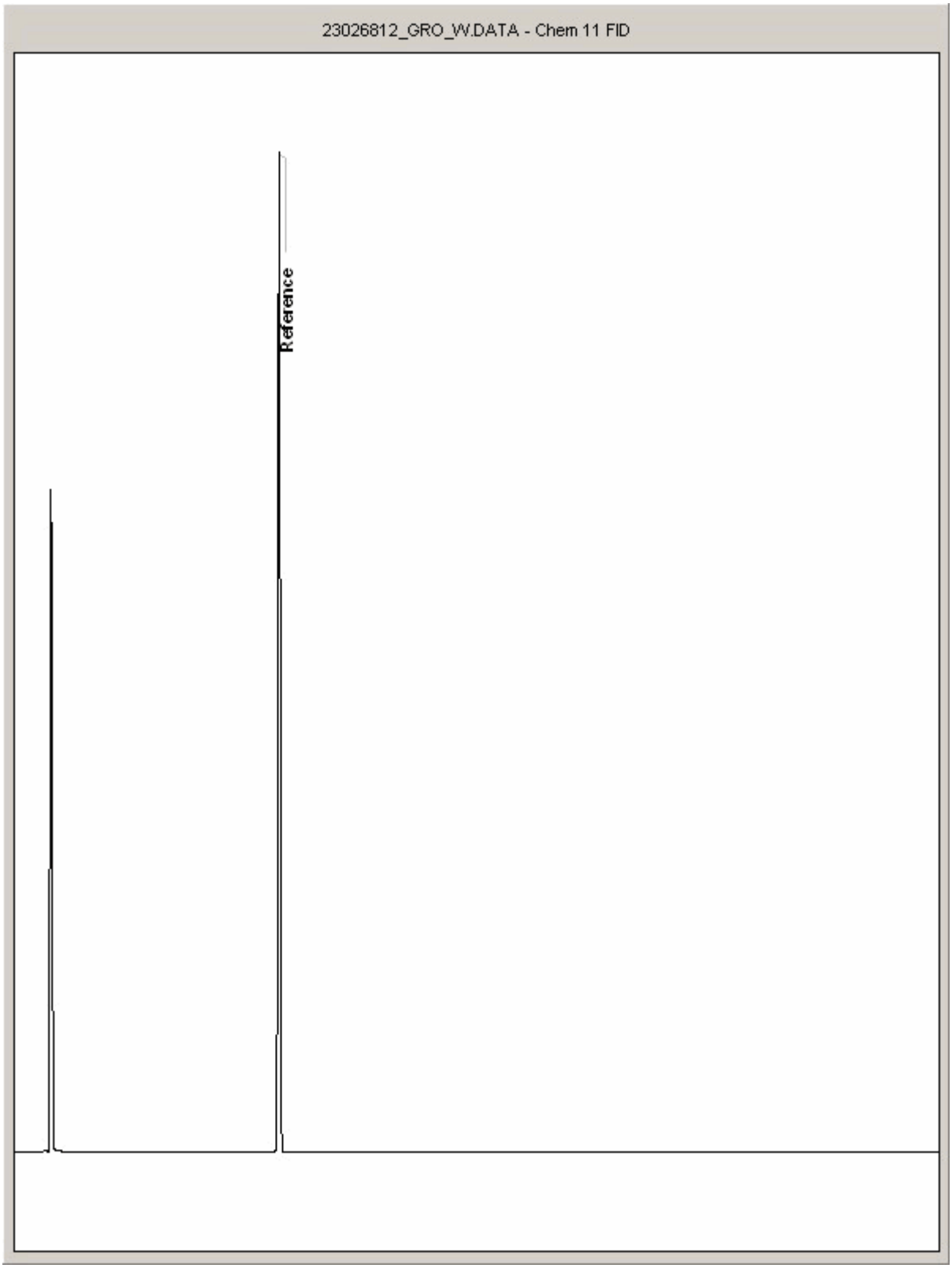
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Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23026812
Sample ID : BH3/5

Depth :



CERTIFICATE OF ANALYSIS

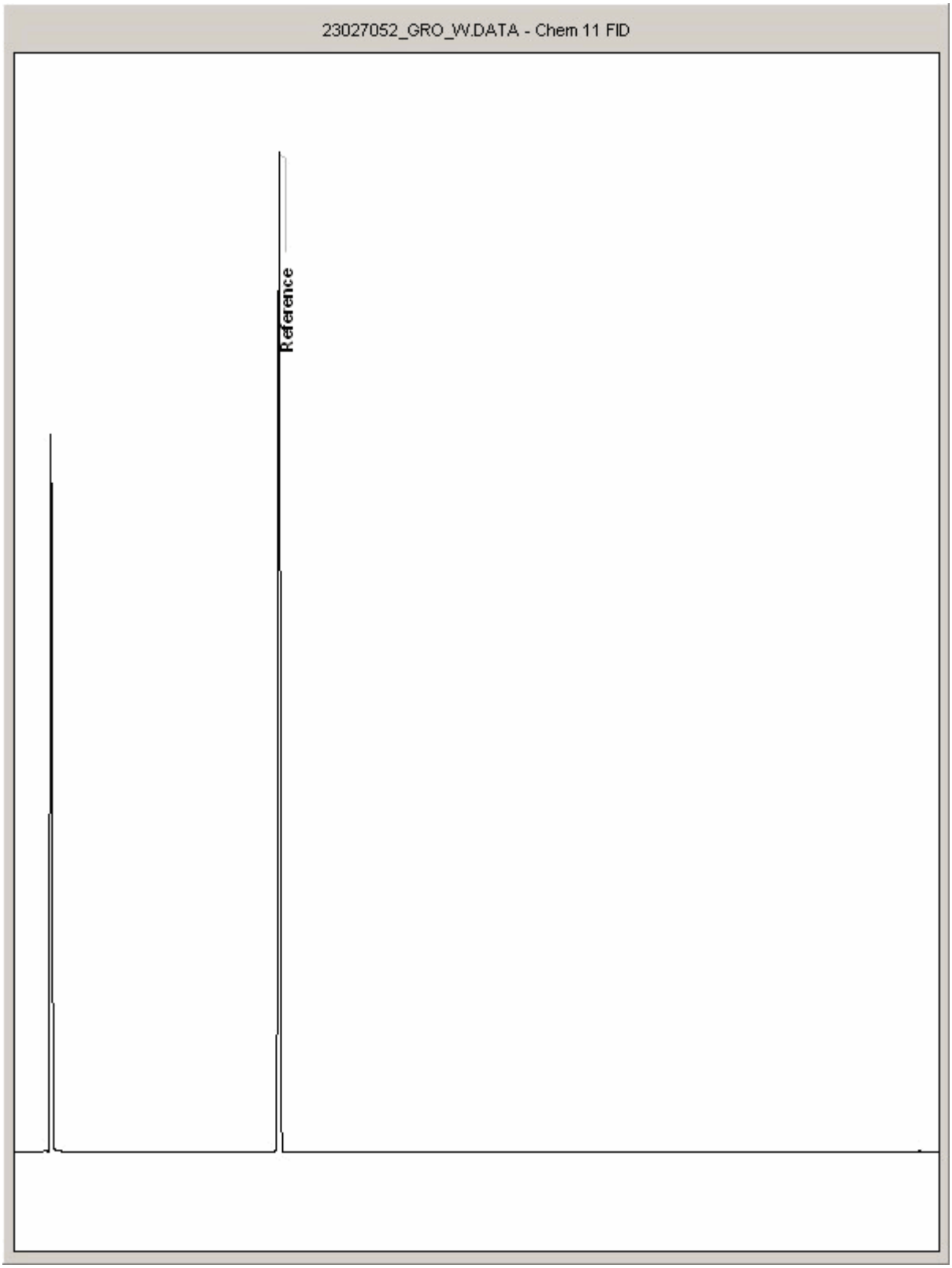
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Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23027052
Sample ID : NACW219

Depth :



CERTIFICATE OF ANALYSIS

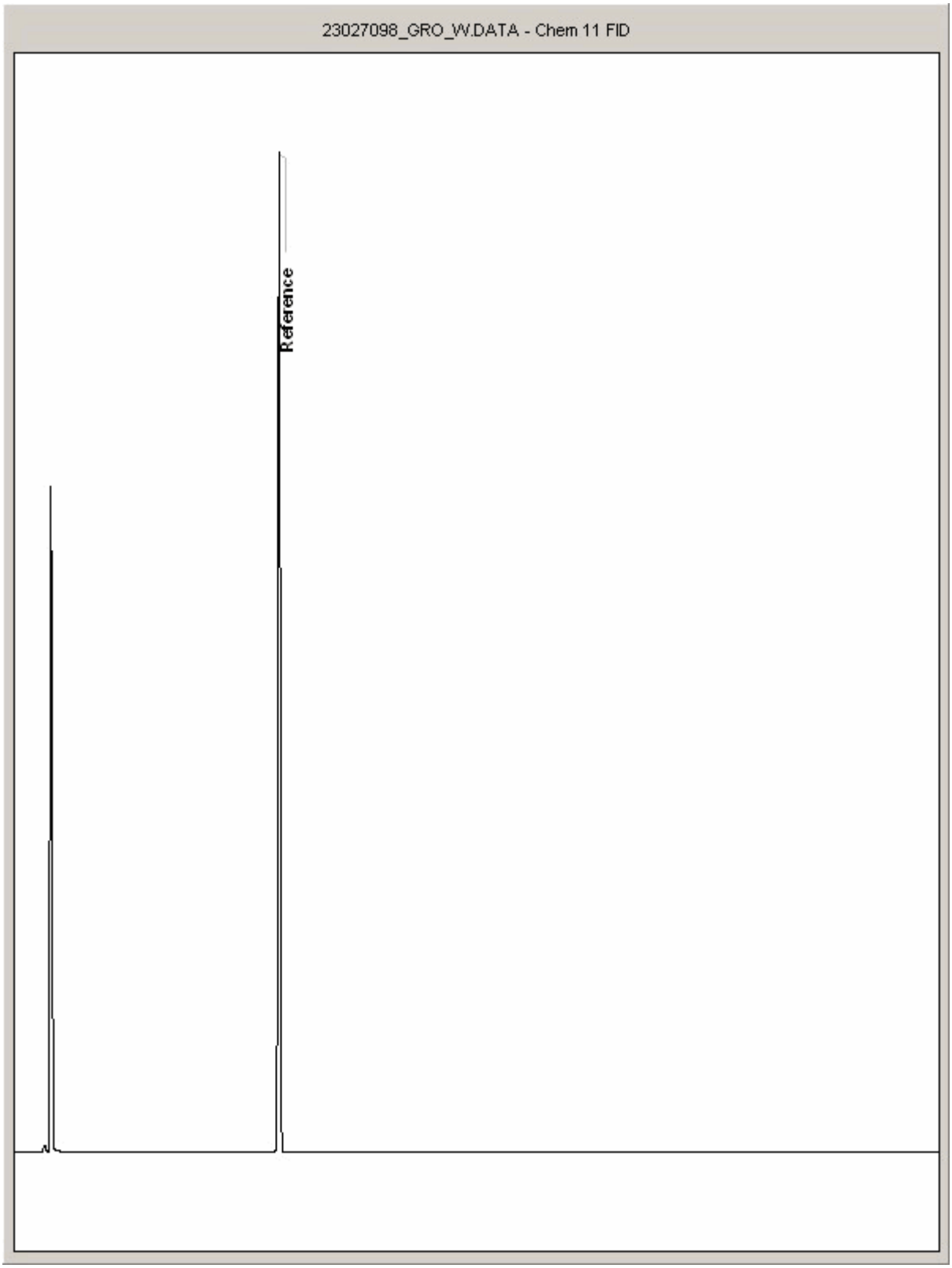
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Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23027098
Sample ID : NACW229

Depth :



CERTIFICATE OF ANALYSIS

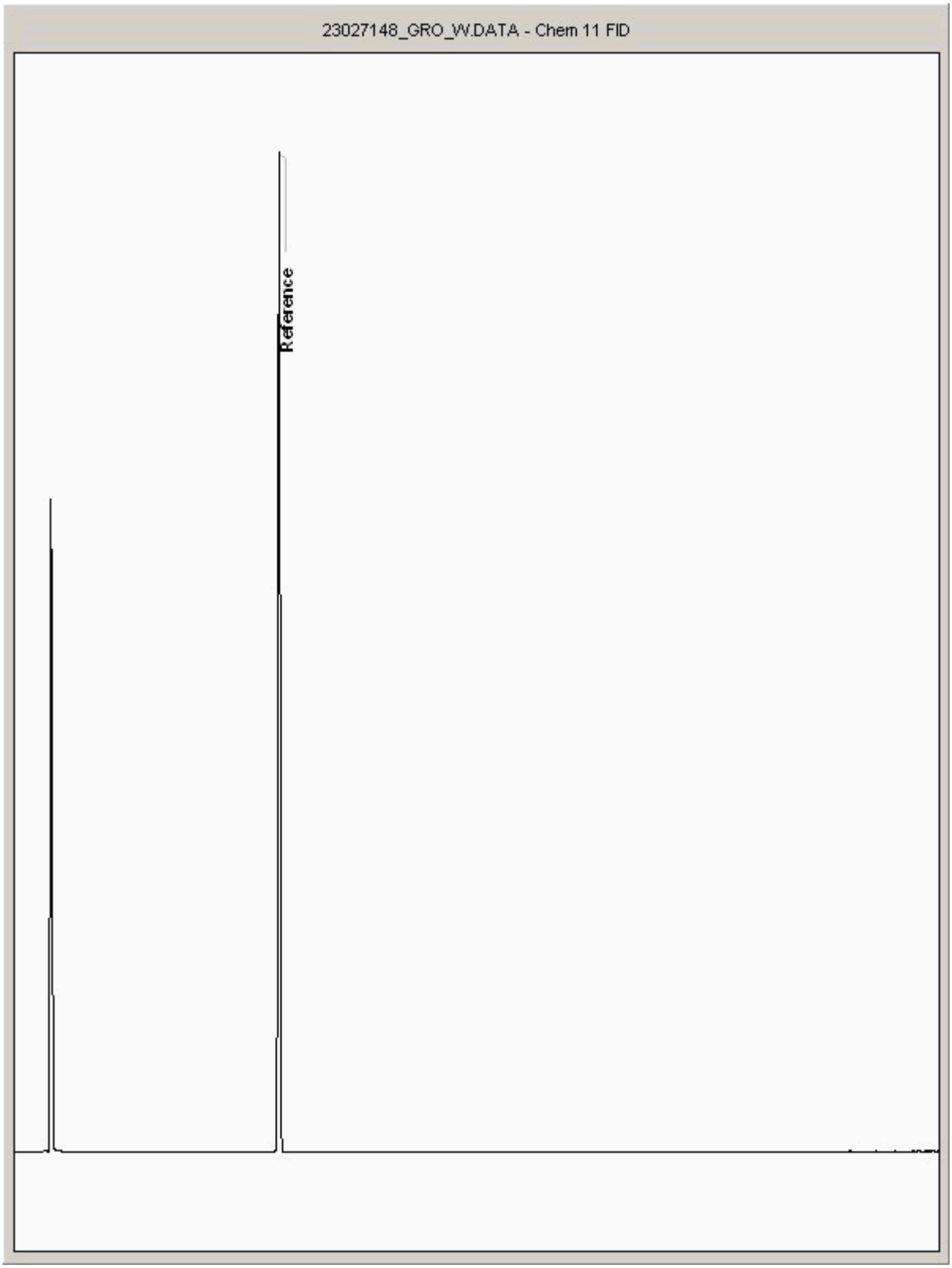
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Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23027148
Sample ID : BH3/8

Depth :



CERTIFICATE OF ANALYSIS

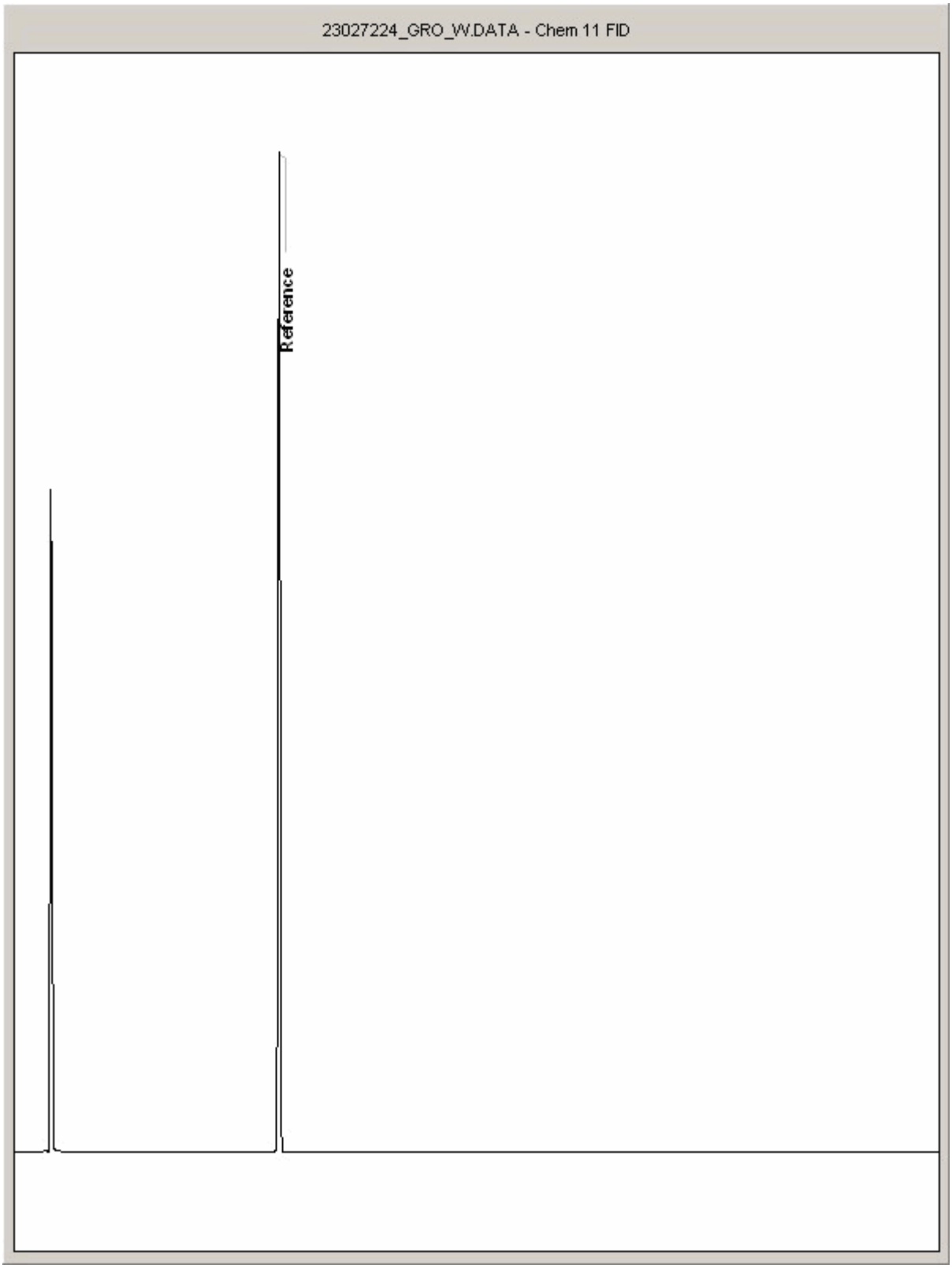
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Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23027224
Sample ID : NACW212

Depth :



CERTIFICATE OF ANALYSIS

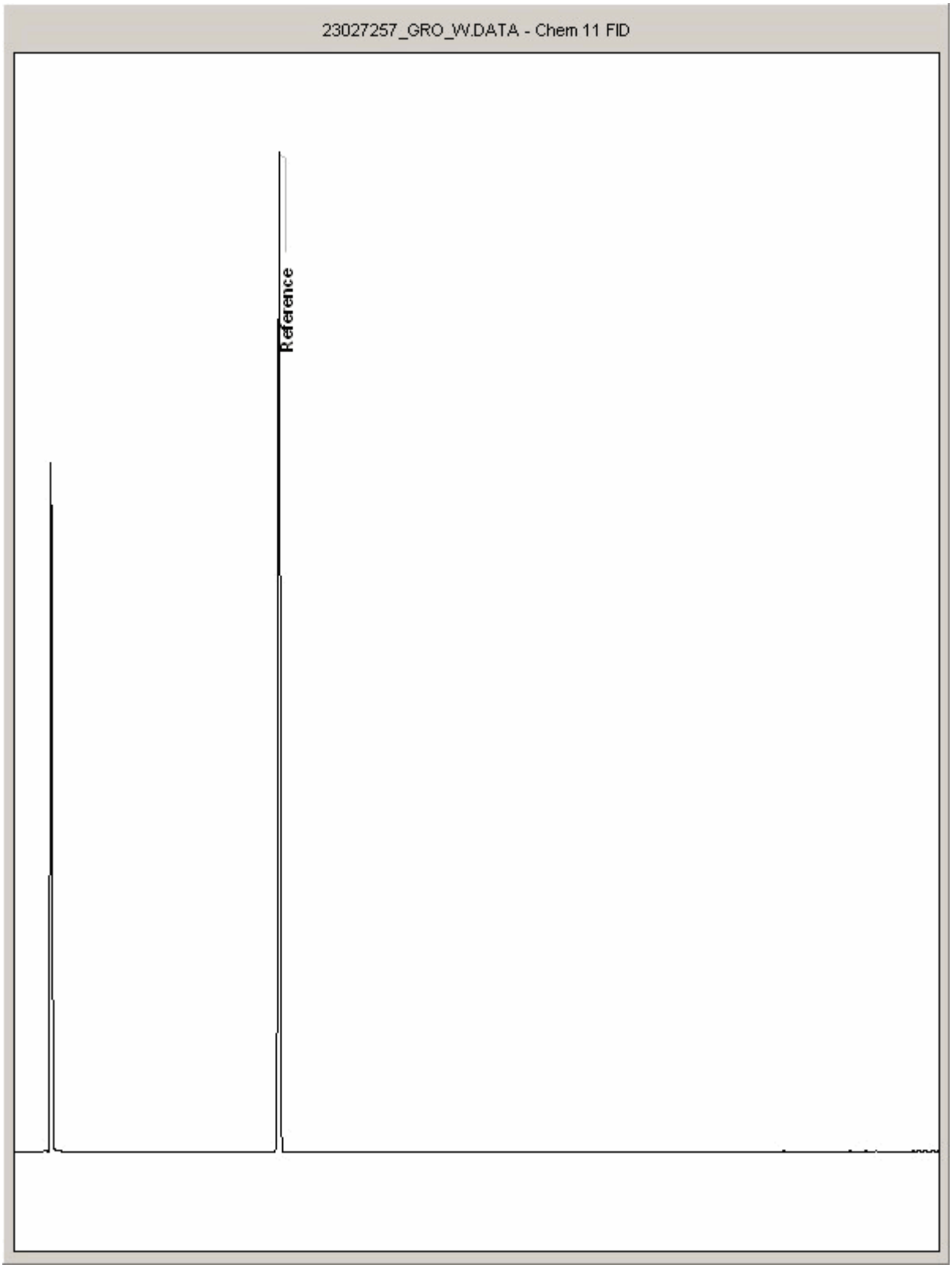
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23027257
Sample ID : NACW205

Depth :



CERTIFICATE OF ANALYSIS

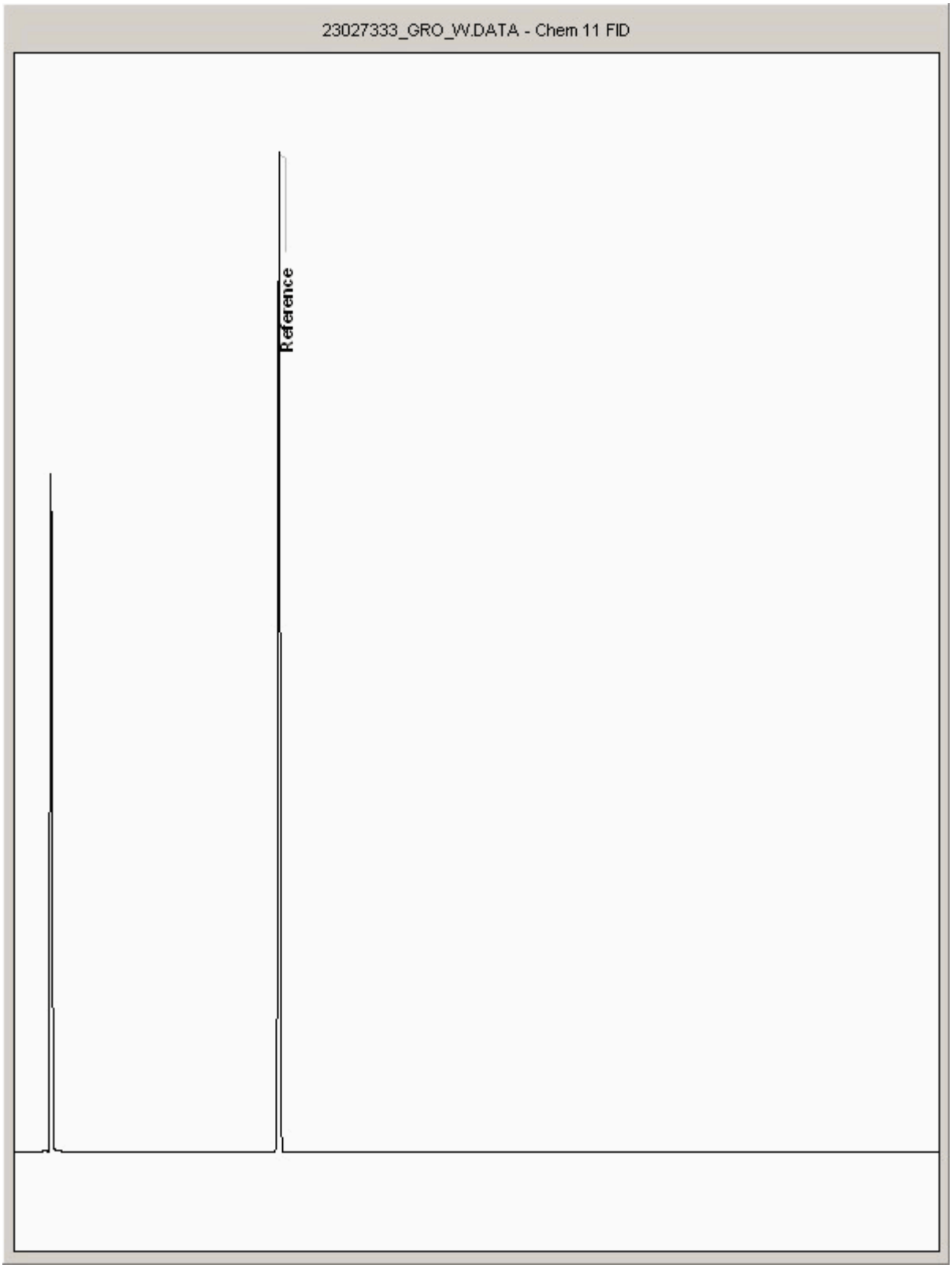
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23027333
Sample ID : NACW228

Depth :



CERTIFICATE OF ANALYSIS

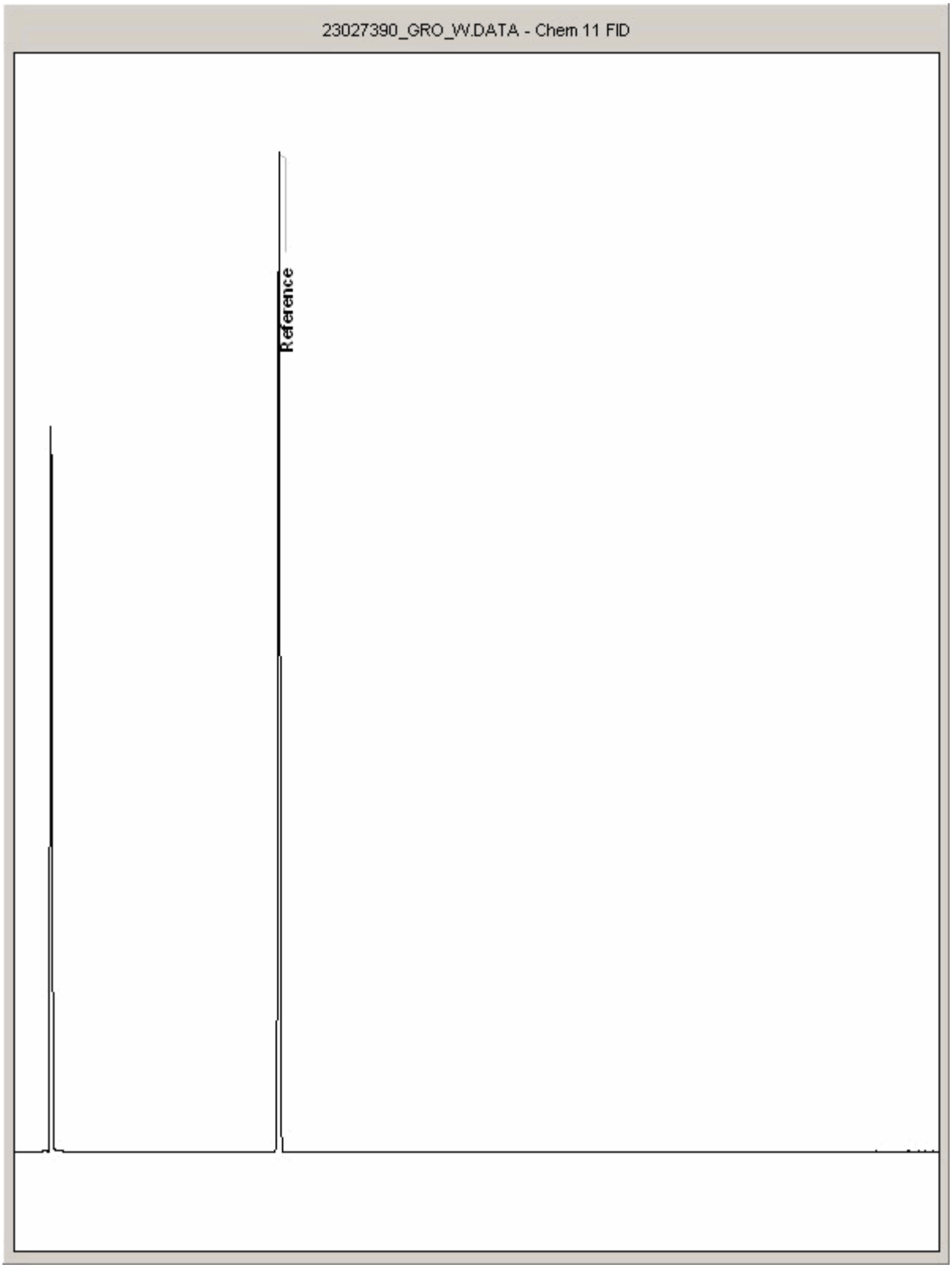
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Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23027390
Sample ID : NACW203

Depth :



CERTIFICATE OF ANALYSIS

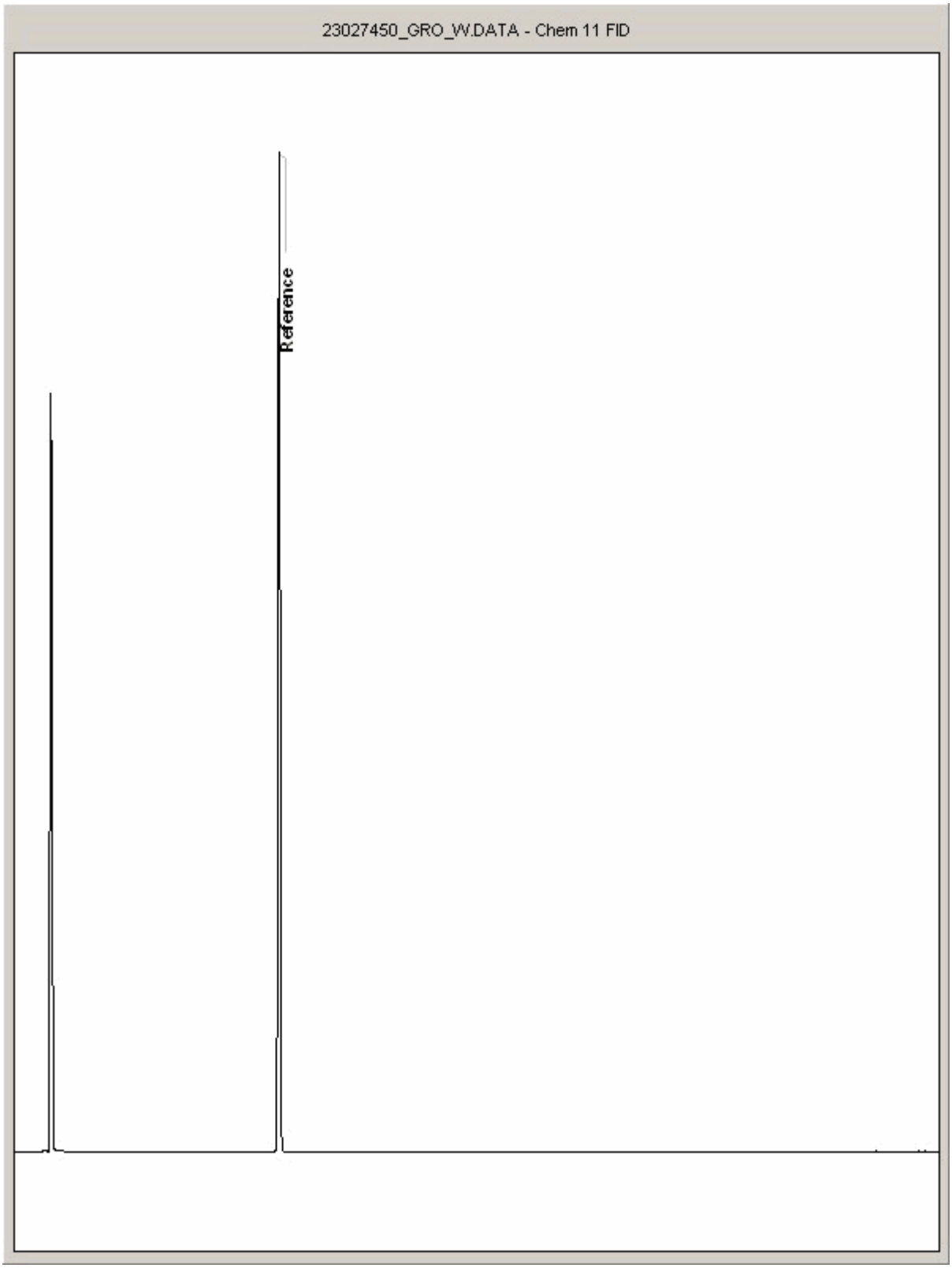
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Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23027450
Sample ID : BH3/6

Depth :



CERTIFICATE OF ANALYSIS

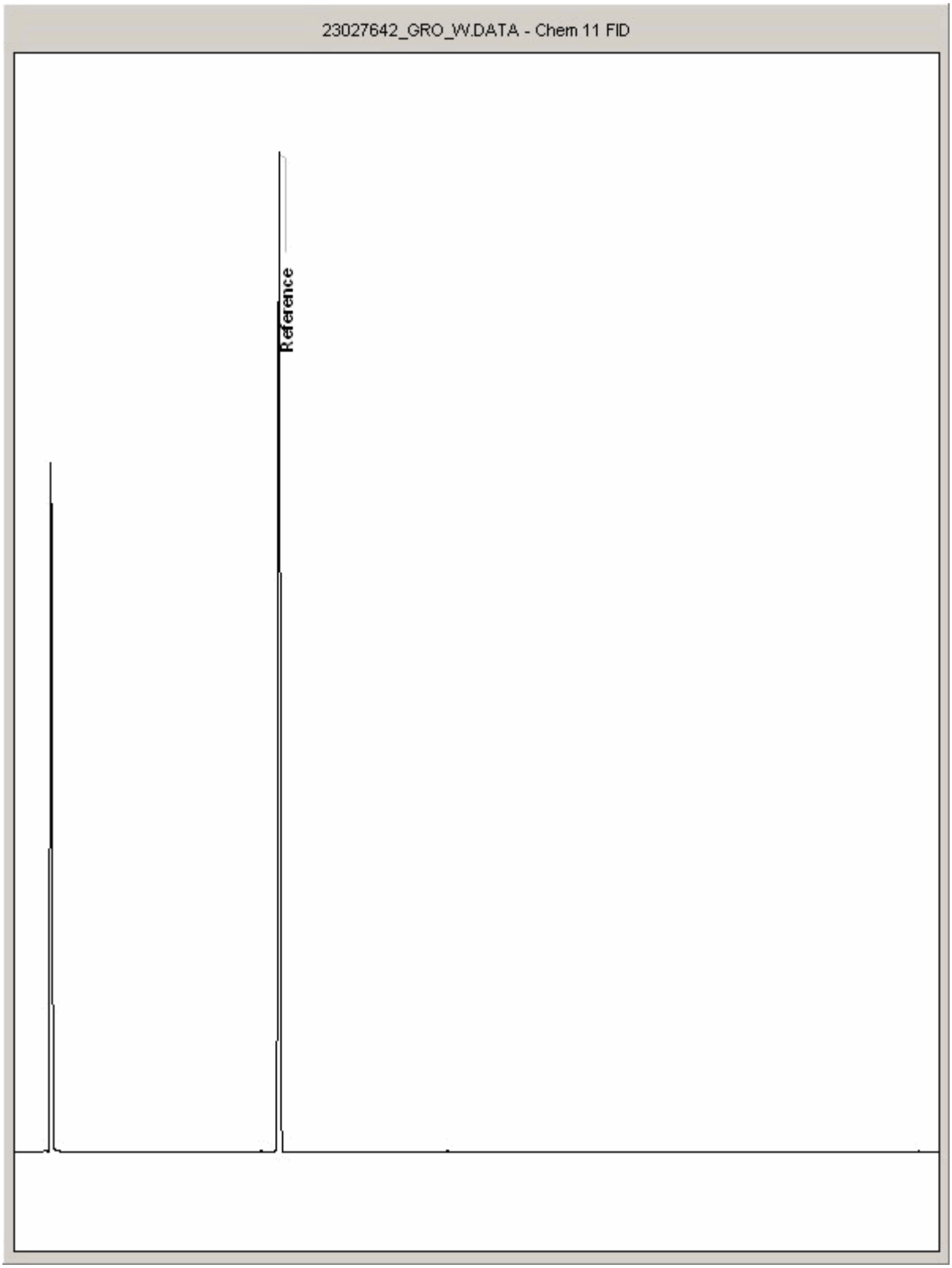
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23027642
Sample ID : BH3/9

Depth :



CERTIFICATE OF ANALYSIS

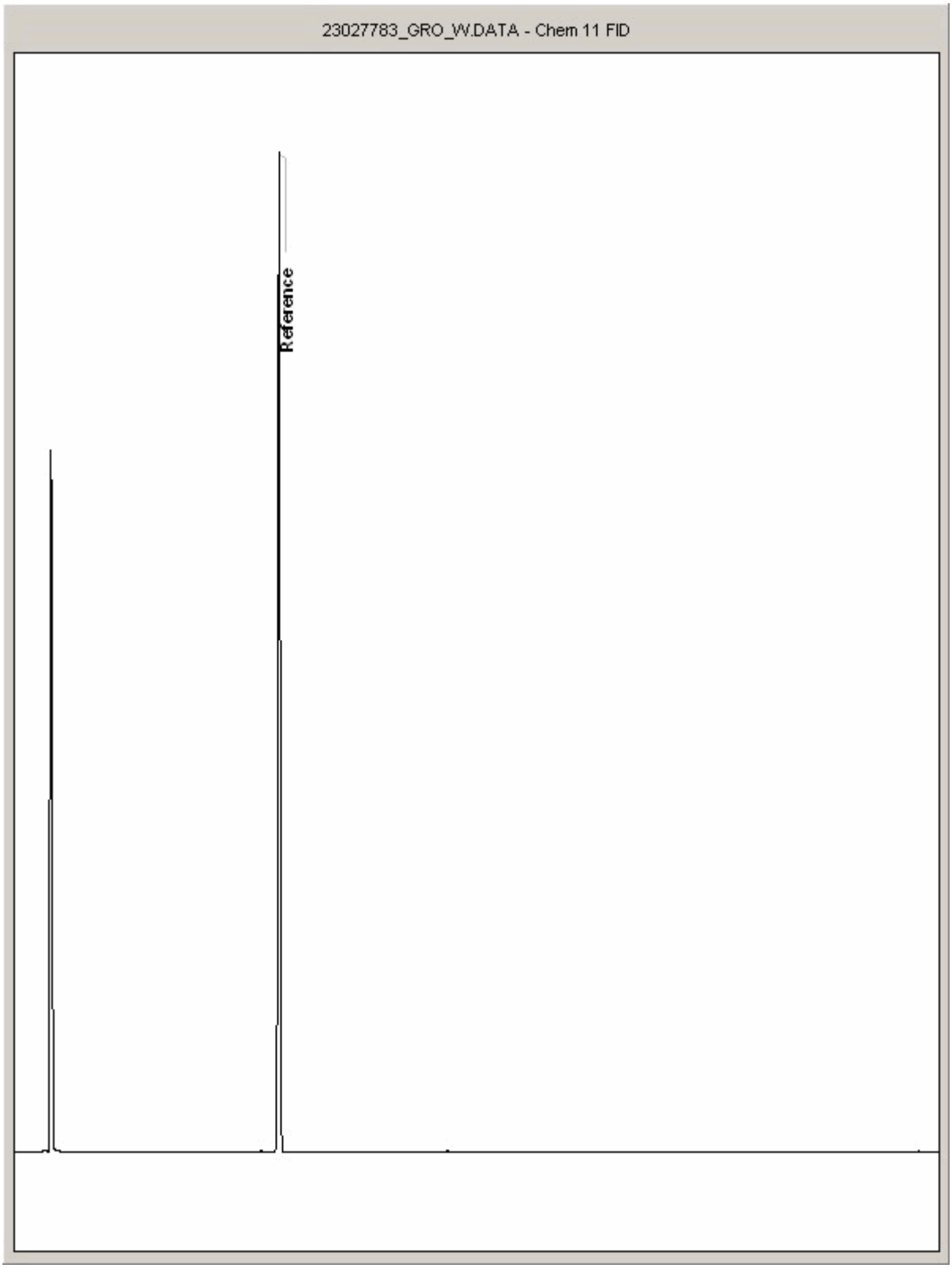
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23027783
Sample ID : BH5/02

Depth :



CERTIFICATE OF ANALYSIS

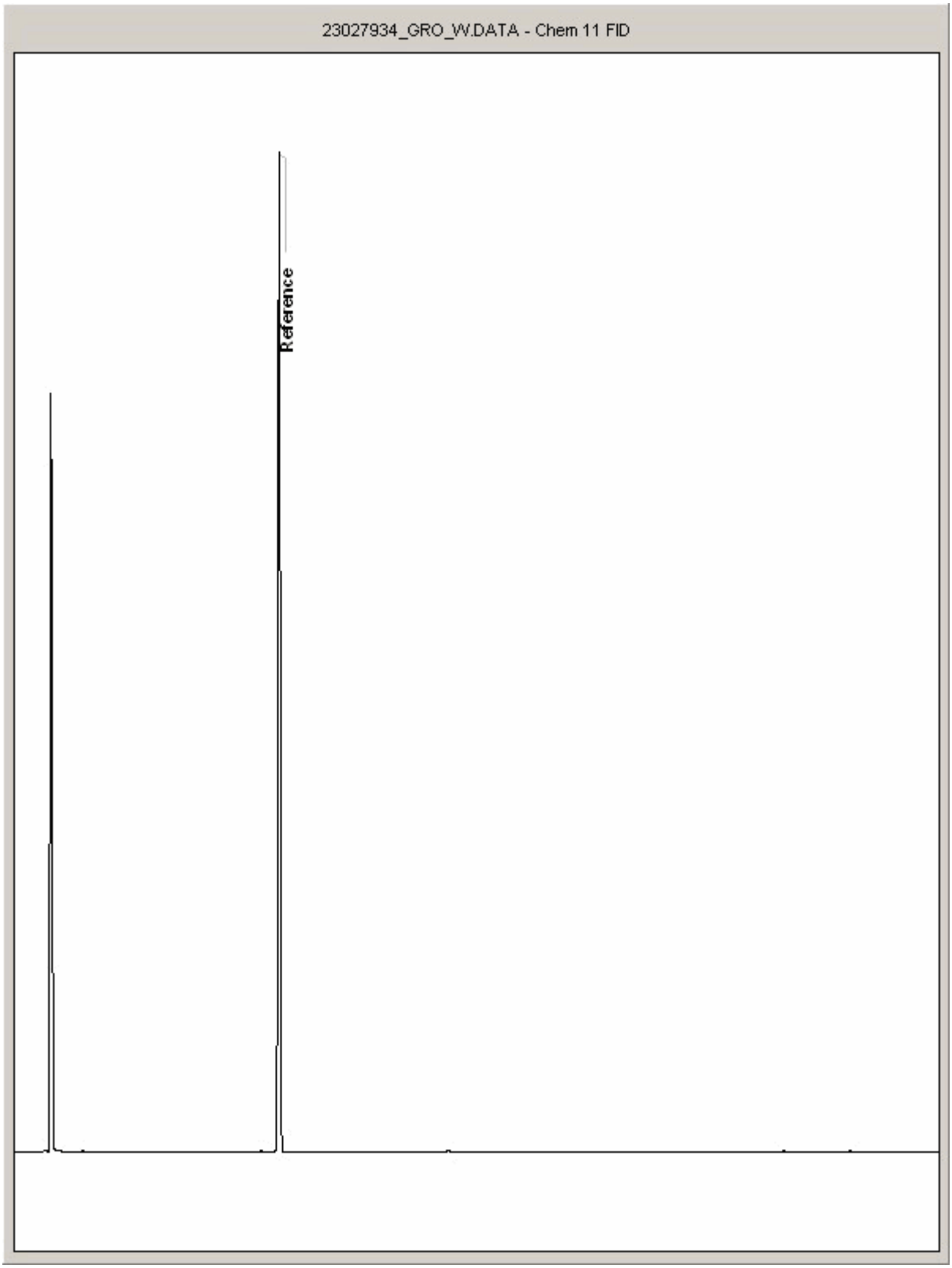
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23027934
Sample ID : BH208

Depth :



CERTIFICATE OF ANALYSIS

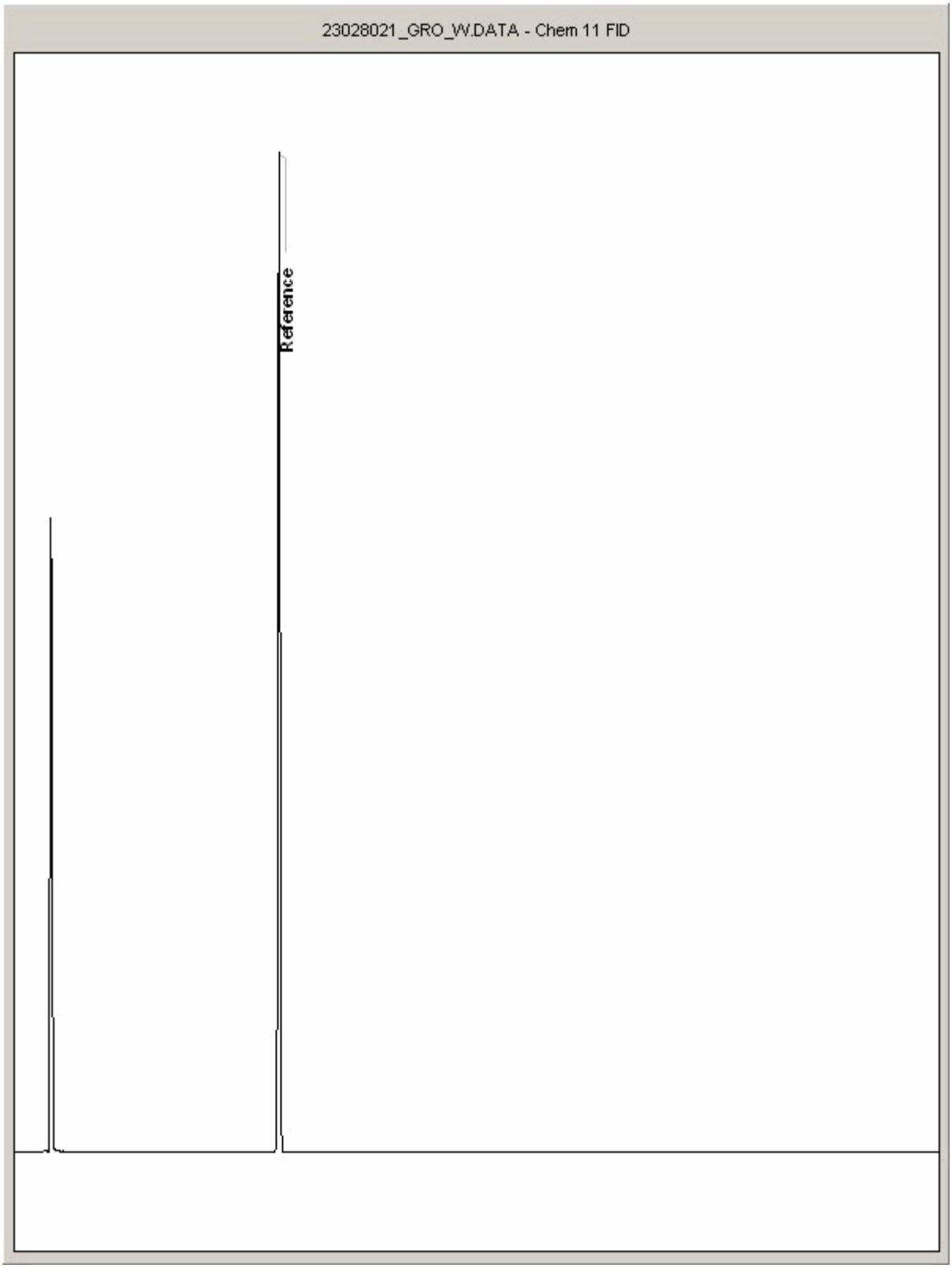
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23028021
Sample ID : BH3/3

Depth :



CERTIFICATE OF ANALYSIS

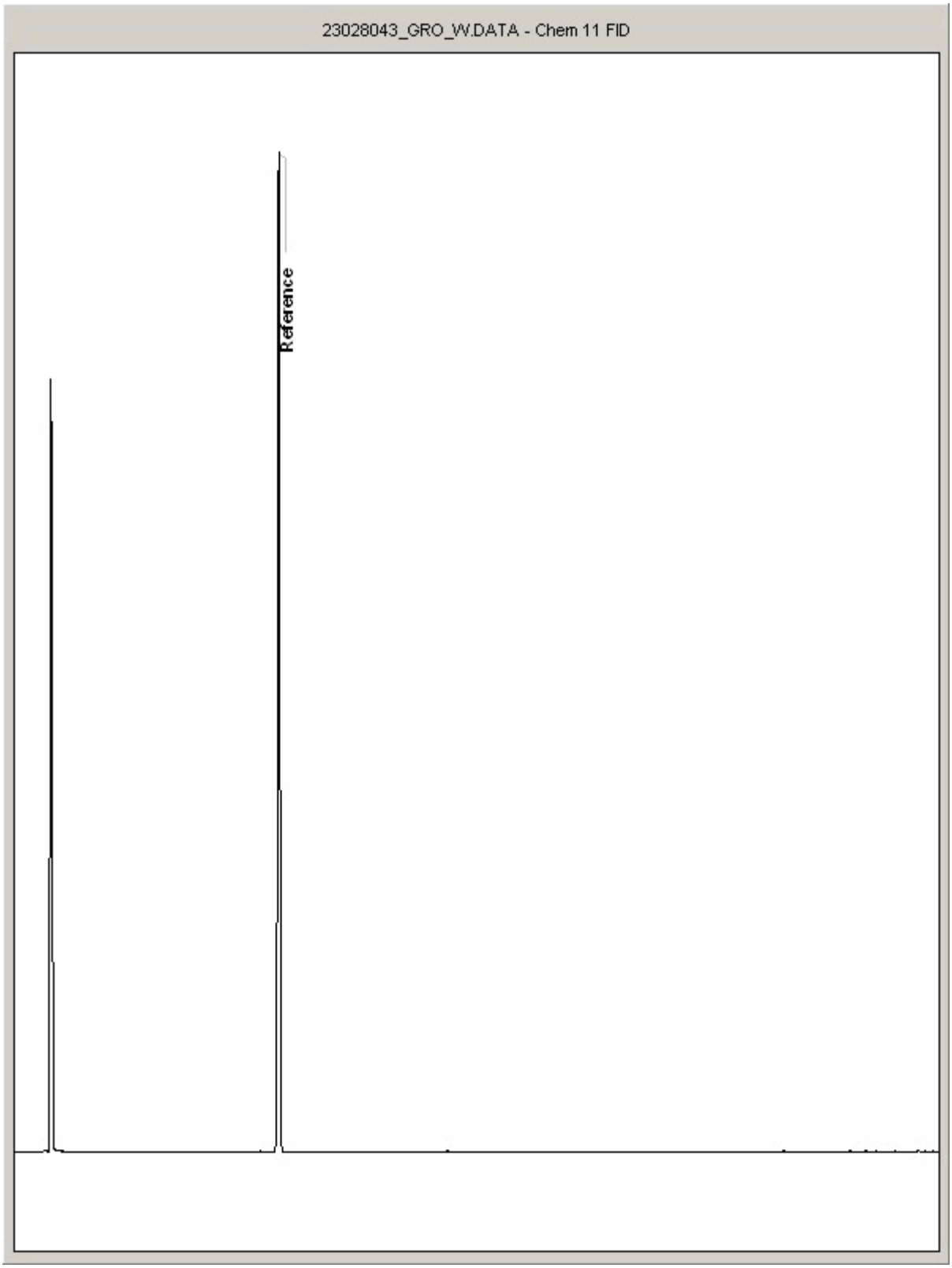
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23028043
Sample ID : BH3/2

Depth :



Appendix General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

19. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2017).*

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528700
Fax: (01244) 528701
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

CWM Environmental Ltd
Nantyclaws Landfill Site
Llanddarg Road
Carmarthen
Carmarthenshire
SA32 8BG

Attention: Darren Sanders

CERTIFICATE OF ANALYSIS

Date of report Generation:	20 October 2020
Customer:	CWM Environmental Ltd
Sample Delivery Group (SDG):	201007-14
Your Reference:	
Location:	Nantycaws Landfill
Report No:	571925

This report has been revised and directly supersedes 571691 in its entirety.

We received 17 samples on Wednesday October 07, 2020 and 17 of these samples were scheduled for analysis which was completed on Tuesday October 20, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
22976853	CELL 5 SUMP			
22976854	CELL 6 SUMP			
22976855	CELL 7 SUMP			
22976851	CELL 1/2 SUMP			
22976852	CELL 3/4 SUMP			
22976850	LEACHATE HOLDING LAGOON			
22976842	SW201			
22976843	SW202			
22976844	SW203			
22976846	SW204			
22976847	SW205			
22976848	SW206			
22976849	SW207			
22976856	UD1			
22976857	UD3			
22976858	UD4			
22976859	UD5			

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

Validated

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

| | | | | |

22976852	CELL 3/4 SUMP			Vial (ALE297)	LE														X			
				NaOH (ALE245)	LE										X							
				HNO3 Filtered (ALE204)	LE											X						
				H2SO4 (ALE244)	LE				X													
				250ml BOD (ALE212)	LE						X		X									
				250ml Amber Gl. PTFE/PE	LE												X		X		X		
				1lplastic (ALE221)	LE			X			X				X								
				1000ml glass bottle (ALE220)	LE		X															X		X
22976851	CELL 1/2 SUMP			Vial (ALE297)	LE														X			
				NaOH (ALE245)	LE										X							
				HNO3 Filtered (ALE204)	LE											X						
				H2SO4 (ALE244)	LE				X													
				250ml BOD (ALE212)	LE						X		X									
				250ml Amber Gl. PTFE/PE	LE												X		X		X		
				1lplastic (ALE221)	LE			X			X				X								
				1000ml glass bottle (ALE220)	LE		X															X		X
22976855	CELL 7 SUMP			Vial (ALE297)	LE														X			
				NaOH (ALE245)	LE										X							
				HNO3 Filtered (ALE204)	LE											X						
				H2SO4 (ALE244)	LE				X													

CERTIFICATE OF ANALYSIS

Validated

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
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PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

| | | | | |

22976852	CELL 3/4 SUMP			Vial (ALE297)	LE							X
				NaOH (ALE245)	LE							
				HNO3 Filtered (ALE204)	LE							
				H2SO4 (ALE244)	LE							
				250ml BOD (ALE212)	LE							
				250ml Amber Gl. PTFE/PE	LE							
				1lplastic (ALE221)	LE				X			
				1000ml glass bottle (ALE220)	LE	X	X	X		X		
22976851	CELL 1/2 SUMP			Vial (ALE297)	LE							X
				NaOH (ALE245)	LE							
				HNO3 Filtered (ALE204)	LE							
				H2SO4 (ALE244)	LE							
				250ml BOD (ALE212)	LE							
				250ml Amber Gl. PTFE/PE	LE							
				1lplastic (ALE221)	LE				X			
				1000ml glass bottle (ALE220)	LE	X	X	X		X		
22976855	CELL 7 SUMP			Vial (ALE297)	LE							X
				NaOH (ALE245)	LE							
				HNO3 Filtered (ALE204)	LE							
				H2SO4 (ALE244)	LE							

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	22976850	22976842	22976843
			Customer Sample Reference	LEACHATE HOLDING LAGOON	SW201	SW202
			AGS Reference			
			Depth (m)			
			Container	1000ml glass bottle (ALE220)	1plastic (ALE221)	250ml Amber Gl. PTFE/PE	250ml BOD (ALE212)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	1000ml glass bottle (ALE220)	1plastic (ALE221)	250ml Amber Gl. PTFE/PE	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	1000ml glass bottle (ALE220)	1plastic (ALE221)	250ml Amber Gl. PTFE/PE	H2SO4 (ALE244)	HNO3 Filtered (ALE204)
			Sample Type	LE	LE	LE	LE	LE	LE	LE	LE	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW
Acid Herbicides by GCMS	All	NDPs: 0 Tests: 17		X								X							X				
Alkalinity as CaCO3	All	NDPs: 0 Tests: 17			X								X							X				
Alkalinity Filtered as CaCO3	All	NDPs: 0 Tests: 7											X							X				
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 17						X							X								X	
Anions by Kone (w)	All	NDPs: 0 Tests: 17			X								X							X				
BOD True Total	All	NDPs: 0 Tests: 6					X																	
COD Unfiltered	All	NDPs: 0 Tests: 6					X																	
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 17			X								X							X				
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 6							X															
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 17						X									X							X
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 10				X																		
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 10				X																		
GRO by GC-FID (W)	All	NDPs: 0 Tests: 10								X														
Ionic Balance	All	NDPs: 0 Tests: 7											X							X				
Nitrite by Kone (w)	All	NDPs: 0 Tests: 11																X						

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CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			22976850	22976842	22976843
Lab Sample No(s)					
Customer Sample Reference			LEACHATE HOLDING LAGOON	SW201	SW202
AGS Reference					
Depth (m)					
Container			1000ml glass bottle (ALE220)	1plastic (ALE221)	250ml Amber Gl. PTFE/PE	250ml BOD (ALE212)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	1000ml glass bottle (ALE220)	1plastic (ALE221)	250ml Amber Gl. PTFE/PE	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	1000ml glass bottle (ALE220)	1plastic (ALE221)	250ml Amber Gl. PTFE/PE	H2SO4 (ALE244)	HNO3 Filtered (ALE204)
Sample Type			LE	LE	LE	LE	LE	LE	LE	LE	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 11											X								X		
PCB Congeners - Aqueous (W)	All	NDPs: 0 Tests: 6			X																		
Pesticides (Suite I) by GCMS	All	NDPs: 0 Tests: 6	X																				
Pesticides (Suite II) by GCMS	All	NDPs: 0 Tests: 6	X																				
Pesticides (Suite III) by GCMS	All	NDPs: 0 Tests: 6	X																				
pH Value	All	NDPs: 0 Tests: 7										X						X					
Phenols by ms (w)	All	NDPs: 0 Tests: 17	X								X						X						
Suspended Solids	All	NDPs: 0 Tests: 7										X						X					
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 17	X								X						X						
Total Organic Carbon*	All	NDPs: 0 Tests: 13		X								X						X					
TPH CWG (W)	All	NDPs: 0 Tests: 10	X																				
VOC MS (W)	All	NDPs: 0 Tests: 17								X						X							

22976847	SW205			H2SO4 (ALE244)	SW														
				250ml Amber Gl. PTFE/PE	SW	X													
				1lplastic (ALE221)	SW						X		X		X				
				1000ml glass bottle (ALE220)	SW							X		X					
22976846	SW204			Vial (ALE297)	SW														X
				NaOH (ALE245)	SW														
				HNO3 Filtered (ALE204)	SW														
				H2SO4 (ALE244)	SW														
				250ml Amber Gl. PTFE/PE	SW	X													
				1lplastic (ALE221)	SW						X		X		X				
				1000ml glass bottle (ALE220)	SW							X		X					
22976844	SW203			Vial (ALE297)	SW														X
				NaOH (ALE245)	SW														
				HNO3 Filtered (ALE204)	SW														
				H2SO4 (ALE244)	SW														
				250ml Amber Gl. PTFE/PE	SW	X													
				1lplastic (ALE221)	SW						X		X		X				
				1000ml glass bottle (ALE220)	SW							X		X					
22976843	SW202			Vial (ALE297)	SW														X
				NaOH (ALE245)	SW														

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)																				
			22976847			22976848							22976849							22976856			
			Customer Sample Reference			SW205							SW206							SW207							UD1		
			AGS Reference																				
			Depth (m)																				
			Container	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	1000ml glass bottle (ALE220)	1plastic (ALE221)	250ml Amber Gl. PTFE/PE	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	1000ml glass bottle (ALE220)	1plastic (ALE221)	250ml Amber Gl. PTFE/PE	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	1000ml glass bottle (ALE220)	1plastic (ALE221)	250ml Amber Gl. PTFE/PE
			Sample Type	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	GW	GW	GW
Acid Herbicides by GCMS	All	NDPs: 0 Tests: 17				X							X							X			
Alkalinity as CaCO3	All	NDPs: 0 Tests: 17					X							X							X		
Alkalinity Filtered as CaCO3	All	NDPs: 0 Tests: 7					X							X									
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 17							X							X							
Anions by Kone (w)	All	NDPs: 0 Tests: 17					X							X							X		
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 17					X							X							X		
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 17	X							X							X						
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 10																					X
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 10																					X
GRO by GC-FID (W)	All	NDPs: 0 Tests: 10																					
Ionic Balance	All	NDPs: 0 Tests: 7					X							X									
Nitrite by Kone (w)	All	NDPs: 0 Tests: 11		X								X							X				
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 11						X							X								X
pH Value	All	NDPs: 0 Tests: 7					X							X									
Phenols by ms (w)	All	NDPs: 0 Tests: 17				X							X							X			

| | | |

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			22976847					22976848							22976849							22976856		
Customer Sample Reference			SW205					SW206							SW207							UD1		
AGS Reference																								
Depth (m)																								
Container			HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	1000ml glass bottle (ALE220)	1plastic (ALE221)	250ml Amber Gl. PTFE/PE	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	1000ml glass bottle (ALE220)	1plastic (ALE221)	250ml Amber Gl. PTFE/PE	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	1000ml glass bottle (ALE220)	1plastic (ALE221)	250ml Amber Gl. PTFE/PE		
Sample Type			SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	GW	GW	GW	
Suspended Solids	All	NDPs: 0 Tests: 7					X							X										
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 17				X							X								X			
Total Organic Carbon*	All	NDPs: 0 Tests: 13					X							X										
TPH CWG (W)	All	NDPs: 0 Tests: 10																			X			
VOC MS (W)	All	NDPs: 0 Tests: 17			X							X								X				

| | | |

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Results Legend

X Test

N No Determination Possible

Sample Types -
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OTH - Other

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type
			22976859	UD5			250ml Amber Gl. PTFE/PE	GW
							H2SO4 (ALE244)	GW
							HNO3 Filtered (ALE204)	GW
							NaOH (ALE245)	GW
							Vial (ALE297)	GW
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 17		X				
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 17			X			
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 10	X					
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 10	X					
GRO by GC-FID (W)	All	NDPs: 0 Tests: 10					X	
Nitrite by Kone (w)	All	NDPs: 0 Tests: 11				X		
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 11	X					
VOC MS (W)	All	NDPs: 0 Tests: 17					X	

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	CELL 5 SUMP	CELL 6 SUMP	CELL 7 SUMP	CELL 1/2 SUMP	CELL 3/4 SUMP	LEACHATE HOLDING LAG OON
			Depth (m)	.	.	.	.	.	.
			Sample Type	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
			Date Sampled	-	-	-	-	-	-
			Sampled Time	.	.	.	.	.	.
			Date Received	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			SDG Ref	201007-14	201007-14	201007-14	201007-14	201007-14	201007-14
			Lab Sample No.(s)	22976853	22976854	22976855	22976851	22976852	22976850
			AGS Reference						
Total Organic Carbon, as C*	<0.7 mg/l	SUB		404 §	410 §	622 §	888 §	316 §	452 §
Alkalinity, Total as CaCO3	<2 mg/l	TM043		4940 § #	4170 § #	6990 § #	8980 § #	4090 § #	4910 § #
BOD, unfiltered	<1 mg/l	TM045		76 § #	69 § #	<10 § #	165 § #	66 § #	81.9 § #
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		1220 §	785 §	1440 §	2510 §	823 §	1060 §
COD, unfiltered	<7 mg/l	TM107		1560 § #	1630 § #	2800 § #	5080 § #	1160 § #	1870 § #
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120		21.6 § #	9.5 § #	16 § #	40.4 § #	9.86 § #	15 § #
Cadmium (diss.filt)	<0.08 µg/l	TM152		0.193 § #	0.106 § #	0.167 § #	0.761 § #	0.0914 § #	0.143 § #
Chromium (diss.filt)	<1 µg/l	TM152		98.3 § #	169 § #	256 § #	182 § #	79.1 § #	163 § #
Copper (diss.filt)	<0.3 µg/l	TM152		2.4 § #	5.75 § #	6.3 § #	185 § #	4.02 § #	5.29 § #
Lead (diss.filt)	<0.2 µg/l	TM152		3.84 § #	3.36 § #	6.37 § #	25.2 § #	0.455 § #	4.04 § #
Manganese (diss.filt)	<3 µg/l	TM152		976 § #	553 § #	1070 § #	99.7 § #	1420 § #	762 § #
Nickel (diss.filt)	<0.4 µg/l	TM152		132 § #	97.1 § #	183 § #	316 § #	116 § #	120 § #
Zinc (diss.filt)	<1 µg/l	TM152		53.5 § #	63.9 § #	104 § #	138 § #	21.7 § #	71.6 § #
Sodium (Dis.Filt)	<0.076 mg/l	TM152		1720 § #	793 § #	1620 § #	5080 § #	908 § #	1450 § #
Magnesium (Dis.Filt)	<0.036 mg/l	TM152		103 § #	40.4 § #	67.9 § #	55.2 § #	31.8 § #	59.7 § #
Potassium (Dis.Filt)	<0.2 mg/l	TM152		1240 § #	415 § #	719 § #	3130 § #	427 § #	805 § #
Calcium (Dis.Filt)	<0.2 mg/l	TM152		103 § #	90.9 § #	97.7 § #	32.6 § #	113 § #	99 § #
Iron (Dis.Filt)	<0.019 mg/l	TM152		7.89 § #	2.59 § #	4.84 § #	4.08 § #	5.64 § #	3.28 § #
Sulphate	<2 mg/l	TM184		20.8 §	<20 §	<20 §	<20 §	40 §	<20 §
Chloride	<2 mg/l	TM184		5690 §	1160 §	2050 §	11600 §	1320 §	2850 §
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184		<1 §	1.27 §	<2 §	1.11 §	2.19 §	<1 §
PCB congener 28	<0.015 µg/l	TM197		<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §
PCB congener 52	<0.015 µg/l	TM197		<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §
PCB congener 101	<0.015 µg/l	TM197		<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §
PCB congener 118	<0.015 µg/l	TM197		<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §
PCB congener 138	<0.015 µg/l	TM197		<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §
PCB congener 153	<0.015 µg/l	TM197		<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §
PCB congener 180	<0.015 µg/l	TM197		<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §
Sum of detected EC7 PCB's	<0.105 µg/l	TM197		<0.21 §	<0.21 §	<0.21 §	<0.21 §	<0.21 §	<0.21 §
PCB congener 77	<0.015 µg/l	TM197		<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §
PCB congener 81	<0.015 µg/l	TM197		<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §
PCB congener 105	<0.015 µg/l	TM197		<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Results Legend

#	ISO17025 accredited.
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diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
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Component	LOD/Units	Method	Customer Sample Ref.	CELL 5 SUMP	CELL 6 SUMP	CELL 7 SUMP	CELL 1/2 SUMP	CELL 3/4 SUMP	LEACHATE HOLDING LAG OON
			Depth (m)	.	.	.	.	.	.
			Sample Type	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
			Date Sampled	-	-	-	-	-	-
			Sampled Time	.	.	.	.	.	.
			Date Received	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			SDG Ref	201007-14	201007-14	201007-14	201007-14	201007-14	201007-14
			Lab Sample No.(s)	22976853	22976854	22976855	22976851	22976852	22976850
			AGS Reference						
PCB congener 114	<0.015 µg/l	TM197		<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §
PCB congener 123	<0.015 µg/l	TM197		<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §
PCB congener 126	<0.015 µg/l	TM197		<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §
PCB congener 156	<0.015 µg/l	TM197		<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §
PCB congener 157	<0.015 µg/l	TM197		<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §
PCB congener 167	<0.015 µg/l	TM197		<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §
PCB congener 169	<0.015 µg/l	TM197		<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §
PCB congener 189	<0.015 µg/l	TM197		<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §
Phenol	<0.5 µg/l	TM205		<5 §	<5 §	<5 §	10.8 §	<5 §	27.6 §
2-methylphenol	<0.5 µg/l	TM205		<5 §	<5 §	<5 §	21.5 §	<5 §	<5 §
3-methylphenol	<0.5 µg/l	TM205		<5 §	<5 §	<5 §	5.98 §	<5 §	<5 §
4-methylphenol	<0.5 µg/l	TM205		<5 §	<5 §	<5 §	<1 §	<5 §	<5 §
2-chlorophenol	<0.5 µg/l	TM205		<5 §	<5 §	<5 §	<1 §	<5 §	<5 §
2,4-dimethylphenol	<0.5 µg/l	TM205		<5 §	<5 §	<5 §	<1 §	<5 §	<5 §
4-chloro-3-methylphenol	<0.5 µg/l	TM205		<5 §	<5 §	<5 §	4.51 §	<5 §	<5 §
2,6-dichlorophenol	<0.5 µg/l	TM205		<5 §	<5 §	<5 §	<1 §	<5 §	<5 §
4-Chlorophenol	<0.5 µg/l	TM205		<5 §	<5 §	<5 §	<1 §	<5 §	<5 §
2,4-dichlorophenol	<0.5 µg/l	TM205		<5 §	<5 §	<5 §	<1 §	<5 §	<5 §
2-nitrophenol	<0.5 µg/l	TM205		<5 §	<5 §	<5 §	<1 §	<5 §	<5 §
2,4,6-trichlorophenol	<0.5 µg/l	TM205		<5 §	<5 §	<5 §	<1 §	<5 §	<5 §
2,4,5-trichlorophenol	<0.5 µg/l	TM205		<5 §	<5 §	<5 §	<1 §	<5 §	<5 §
4-nitrophenol	<0.5 µg/l	TM205		<5 §	<5 §	<5 §	<1 §	<5 §	<5 §
2,3,5,6-tetrachlorophenol	<0.5 µg/l	TM205		<5 §	<5 §	<5 §	<1 §	<5 §	<5 §
2,3,4,6-tetrachlorophenol	<0.5 µg/l	TM205		<5 §	<5 §	<5 §	<1 §	<5 §	<5 §
2,4-dinitrophenol	<2.5 µg/l	TM205		<25 §	<25 §	<25 §	<5 §	<25 §	<50 §
DNOC	<3 µg/l	TM205		<30 §	<30 §	<30 §	<6 §	<30 §	<30 §
Pentachlorophenol	<2 µg/l	TM205		<20 §	<20 §	<20 §	<4 §	<20 §	<20 §
Dinoseb	<4 µg/l	TM205		<40 §	<40 §	<40 §	<8 §	<40 §	<40 §
Cyanide, Total	<0.05 mg/l	TM227		<0.05 § #	<0.05 § #	<0.05 § #	<0.05 § #	<0.05 § #	<0.05 § #
Trifluralin	<0.01 µg/l	TM343		<0.4 §	<0.4 §	<0.4 §	<0.1 §	<0.1 §	<0.1 §
alpha-HCH	<0.01 µg/l	TM343		<0.4 §	<0.4 §	<0.4 §	<0.1 §	<0.1 §	<0.1 §
gamma-HCH (Lindane)	<0.01 µg/l	TM343		<0.4 §	<0.4 §	<0.4 §	<0.1 §	<0.1 §	<0.1 §

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Results Legend

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			Depth (m)	.	.	.	.	.	.
			Sample Type	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
			Date Sampled	-	-	-	-	-	-
			Sampled Time	.	.	.	.	.	.
			Date Received	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			SDG Ref	201007-14	201007-14	201007-14	201007-14	201007-14	201007-14
			Lab Sample No.(s)	22976853	22976854	22976855	22976851	22976852	22976850
			AGS Reference						
Heptachlor	<0.01 µg/l	TM343		<0.8 §	<0.8 §	<0.8 §	<0.2 §	<0.2 §	<0.2 §
Aldrin	<0.01 µg/l	TM343		<0.4 §	<0.4 §	<0.4 §	<0.1 §	<0.1 §	<0.1 §
beta-HCH	<0.01 µg/l	TM343		<0.4 §	<0.4 §	<0.4 §	<0.1 §	<0.1 §	<0.1 §
Isodrin	<0.01 µg/l	TM343		<0.4 §	<0.4 §	<0.4 §	<0.1 §	<0.1 §	<0.1 §
delta-HCH	<0.01 µg/l	TM343		<0.4 §	<0.4 §	<0.4 §	<0.1 §	<0.1 §	<0.1 §
Heptachlor epoxide	<0.01 µg/l	TM343		<0.4 §	<0.4 §	<0.4 §	<0.1 §	<0.1 §	<0.1 §
o,p'-DDE	<0.01 µg/l	TM343		<0.4 §	<0.4 §	<0.4 §	<0.1 §	<0.1 §	<0.1 §
Endosulphan I	<0.01 µg/l	TM343		<0.4 §	<0.4 §	<0.4 §	<0.1 §	<0.1 §	<0.1 §
trans-Chlordane	<0.01 µg/l	TM343		<0.4 §	<0.4 §	<0.4 §	<0.1 §	<0.1 §	<0.1 §
cis-Chlordane	<0.01 µg/l	TM343		<0.4 §	<0.4 §	<0.4 §	<0.1 §	<0.1 §	<0.1 §
p,p'-DDE	<0.01 µg/l	TM343		<0.4 §	<0.4 §	<0.4 §	<0.1 §	<0.1 §	<0.1 §
Dieldrin	<0.01 µg/l	TM343		<0.4 §	<0.4 §	<0.4 §	<0.1 §	<0.1 §	<0.1 §
o,p'-DDD (TDE)	<0.01 µg/l	TM343		<0.4 §	<0.4 §	<0.4 §	<0.1 §	<0.1 §	<0.1 §
Endrin	<0.01 µg/l	TM343		<0.8 §	<0.8 §	<0.8 §	<0.2 §	<0.2 §	<0.2 §
o,p'-DDT	<0.01 µg/l	TM343		<1.6 §	<1.6 §	<1.6 §	<0.4 §	<0.4 §	<0.4 §
p,p'-DDD (TDE)	<0.01 µg/l	TM343		<0.4 §	<0.4 §	<0.4 §	<0.1 §	<0.1 §	<0.1 §
Endosulphan II	<0.02 µg/l	TM343		<0.8 §	<0.8 §	<0.8 §	<0.2 §	<0.2 §	<0.2 §
p,p'-DDT	<0.01 µg/l	TM343		<2.4 §	<2.4 §	<2.4 §	<0.6 §	<0.6 §	<0.6 §
o,p'-Methoxychlor	<0.01 µg/l	TM343		<1.6 §	<1.6 §	<1.6 §	<0.4 §	<0.4 §	<0.4 §
p,p'-Methoxychlor	<0.01 µg/l	TM343		<2.4 §	<2.4 §	<2.4 §	<0.6 §	<0.6 §	<0.6 §
Endosulphan Sulphate	<0.02 µg/l	TM343		<1.6 §	<1.6 §	<1.6 §	<0.4 §	<0.4 §	<0.4 §
Permethrin I	<0.01 µg/l	TM343		<0.4 §	<0.4 §	<0.4 §	<0.1 §	<0.1 §	<0.1 §
Permethrin II	<0.01 µg/l	TM343		<0.4 §	<0.4 §	<0.4 §	<0.1 §	<0.1 §	<0.1 §
1,3,5-Trichlorobenzene	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Hexachlorobutadiene	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
1,2,4-Trichlorobenzene	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
1,2,3-Trichlorobenzene	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Dichlorvos	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Dichlobenil	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Mevinphos	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Tecnazene	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Hexachlorobenzene	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

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			Sample Type	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
			Date Sampled	-	-	-	-	-	-
			Sampled Time	.	.	.	.	.	.
			Date Received	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			SDG Ref	201007-14	201007-14	201007-14	201007-14	201007-14	201007-14
			Lab Sample No.(s)	22976853	22976854	22976855	22976851	22976852	22976850
			AGS Reference						
Demeton-S-methyl	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Phorate	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Diazinon	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Triallate	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Atrazine	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Simazine	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Disulfoton	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Propetamphos	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Chlorpyriphos-methyl	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Dimethoate	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Pirimiphos-methyl	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Chlorpyriphos	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Methyl Parathion	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Malathion	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Fenthion	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Fenitrothion	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Triadimefon	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Pendimethalin	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Parathion	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Chlorfenvinphos	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
trans-Chlordane	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
cis-Chlordane	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Ethion	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Carbophenothion	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Triazophos	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Phosalone	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Azinphos methyl	<0.02 µg/l	TM344		<0.2 §	<0.2 §	<0.2 §	<0.2 §	<0.2 §	<0.2 §
Azinphos ethyl	<0.02 µg/l	TM344		<0.2 §	<0.2 §	<0.2 §	<0.2 §	<0.2 §	<0.2 §
Etridiazole	<0.01 µg/l	TM345		<0.1 §	<0.1 §	<0.2 §	<0.2 §	<0.1 §	<0.1 §
Pentachlorobenzene	<0.01 µg/l	TM345		<0.1 §	<0.1 §	<0.2 §	<0.2 §	<0.1 §	<0.1 §
Propachlor	<0.01 µg/l	TM345		<0.1 §	<0.1 §	<0.2 §	<0.2 §	<0.1 §	<0.1 §
Quintozene (PCNB)	<0.01 µg/l	TM345		<0.1 §	<0.1 §	<0.2 §	<0.2 §	<0.1 §	<0.1 §

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	CELL 5 SUMP	CELL 6 SUMP	CELL 7 SUMP	CELL 1/2 SUMP	CELL 3/4 SUMP	LEACHATE HOLDING LAG OON
			Depth (m)	.	.	.	.	.	.
			Sample Type	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
			Date Sampled	-	-	-	-	-	-
			Sampled Time	.	.	.	.	.	.
			Date Received	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			SDG Ref	201007-14	201007-14	201007-14	201007-14	201007-14	201007-14
			Lab Sample No.(s)	22976853	22976854	22976855	22976851	22976852	22976850
			AGS Reference						
Omethoate	<0.01 µg/l	TM345		<0.1 §	<0.1 §	<0.2 §	<0.2 §	<0.1 §	<0.1 §
Propazine	<0.01 µg/l	TM345		<0.1 §	<0.1 §	<0.2 §	<0.2 §	<0.1 §	<0.1 §
Propyzamide	<0.01 µg/l	TM345		<0.1 §	<0.1 §	<0.2 §	<0.2 §	<0.1 §	<0.1 §
Alachlor	<0.01 µg/l	TM345		<0.1 §	<0.1 §	<0.2 §	<0.2 §	<0.1 §	<0.1 §
Prometryn	<0.01 µg/l	TM345		<0.1 §	<0.1 §	<0.2 §	<0.2 §	<0.1 §	<0.1 §
Telodrin	<0.01 µg/l	TM345		<0.1 §	<0.1 §	<0.2 §	<0.2 §	<0.1 §	<0.1 §
Terbutryn	<0.01 µg/l	TM345		0.16 §	0.225 §	0.416 §	0.201 §	0.246 §	0.242 §
Chlorothalonil	<0.01 µg/l	TM345		<0.1 §	<0.1 §	<0.2 §	<0.2 §	<0.1 §	<0.1 §
Etrimphos	<0.01 µg/l	TM345		<0.1 §	<0.1 §	<0.2 §	<0.2 §	<0.1 §	<0.1 §
Metazachlor	<0.01 µg/l	TM345		<0.1 §	<0.1 §	<0.2 §	<0.2 §	<0.1 §	<0.1 §
Cyanazine	<0.01 µg/l	TM345		<0.1 §	<0.1 §	<0.2 §	<0.2 §	<0.1 §	<0.1 §
Trietazine	<0.01 µg/l	TM345		<0.1 §	<0.1 §	<0.2 §	<0.2 §	<0.1 §	<0.1 §
Coumaphos	<0.01 µg/l	TM345		<0.1 §	<0.1 §	<0.2 §	<0.2 §	<0.1 §	<0.1 §
Phosphamidon I	<0.01 µg/l	TM345		<0.1 §	<0.1 §	<0.2 §	<0.2 §	<0.1 §	<0.1 §
Phosphamidon II	<0.01 µg/l	TM345		<0.1 §	<0.1 §	<0.2 §	<0.2 §	<0.1 §	<0.1 §
Dinitro-o-cresol	<0.1 µg/l	TM411		<20 §	<20 §	11.6 §	11 §	<10 §	<20 §
Clopyralid	<0.04 µg/l	TM411		<8 §	<8 §	7 §	10.3 §	<4 §	<8 §
MCPA	<0.05 µg/l	TM411		<10 §	<10 §	<5 §	<5 §	<5 §	<10 §
Mecoprop	<0.04 µg/l	TM411		31.3 §	13.1 §	20.2 §	111 §	23.7 §	23.2 §
Dicamba	<0.04 µg/l	TM411		<8 §	<8 §	<4 §	<4 §	<4 §	<8 §
MCPB	<0.05 µg/l	TM411		<10 §	<10 §	<5 §	<5 §	<5 §	<10 §
2,4-DB	<0.1 µg/l	TM411		<20 §	<20 §	<10 §	<10 §	<10 §	<20 §
2,3,6-Trichlorobenzoic acid	<0.05 µg/l	TM411		<10 §	<10 §	<5 §	<5 §	<5 §	<10 §
Dichlorprop	<0.1 µg/l	TM411		<20 §	<20 §	<10 §	<10 §	<10 §	<20 §
Triclopyr	<0.05 µg/l	TM411		<10 §	<10 §	<5 §	<5 §	<5 §	<10 §
Fenoprop (Silvex)	<0.1 µg/l	TM411		<20 §	<20 §	<10 §	<10 §	<10 §	<20 §
2,4-Dichlorophenoxyacetic acid	<0.05 µg/l	TM411		<10 §	<10 §	<5 §	<5 §	<5 §	<10 §
2,4,5-Trichlorophenoxyacetic acid	<0.05 µg/l	TM411		<10 §	<10 §	<5 §	<5 §	<5 §	<10 §
Bromoxynil	<0.04 µg/l	TM411		<8 §	<8 §	<4 §	<4 §	<4 §	<8 §
Benazolin	<0.04 µg/l	TM411		<8 §	<8 §	<4 §	<4 §	<4 §	<8 §
Ioxynil	<0.05 µg/l	TM411		<10 §	<10 §	<5 §	<5 §	<5 §	<10 §
Pentachlorophenol	<0.04 µg/l	TM411		<8 §	<8 §	<4 §	<4 §	<4 §	<8 §

Validated

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	CELL 5 SUMP	CELL 6 SUMP	CELL 7 SUMP	CELL 1/2 SUMP	CELL 3/4 SUMP	LEACHATE HOLDING LAG OON
			Depth (m)	.	.	.	.	.	.
			Sample Type	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
			Date Sampled	-	-	-	-	-	-
			Sampled Time	.	.	.	.	.	.
			Date Received	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			SDG Ref	201007-14	201007-14	201007-14	201007-14	201007-14	201007-14
			Lab Sample No.(s)	22976853	22976854	22976855	22976851	22976852	22976850
			AGS Reference						
Fluoroxypyr	<0.1 µg/l	TM411		<20 §	<20 §	<10 §	<10 §	<10 §	<20 §

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
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**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW201	SW202	SW203	SW204	SW205	SW206
			Depth (m)	.	.	.	.	.	.
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
			Date Sampled	-	-	-	-	-	-
			Sampled Time	.	.	.	.	.	.
			Date Received	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			SDG Ref	201007-14	201007-14	201007-14	201007-14	201007-14	201007-14
			Lab Sample No.(s)	22976842	22976843	22976844	22976846	22976847	22976848
			AGS Reference						
Ionic balance	% Diff	Calulation		-1.09 §	2.05 §	-10.3 §	0.363 §	1.1 §	-0.33 §
Total Organic Carbon, as C*	<0.7 mg/l	SUB		6.6 §	12.8 §	8.5 §	11.4 §	13.3 §	4.5 §
Suspended solids, Total	<2 mg/l	TM022		<2 § #	4.1 § #	3.65 § #	<2 § #	4.7 § #	4.4 § #
Alkalinity, Total as CaCO3	<2 mg/l	TM043		92.4 § #	230 § #	163 § #	177 § #	239 § #	135 § #
Alkalinity,Total as CaCO3 (diss.filt)	<2 mg/l	TM043		95 §	215 §	170 §	180 §	245 §	130 §
Alkalinity, Bicarbonate as CaCO3 (diss.filt)	<2 mg/l	TM043		95 §	215 §	170 §	180 §	245 §	130 §
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 § #	<0.2 § #	<0.2 § #	<0.2 § #	<0.2 § #	<0.2 § #
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120		0.229 § #	0.51 § #	0.406 § #	0.468 § #	0.592 § #	0.281 § #
Cadmium (diss.filt)	<0.08 µg/l	TM152		<0.08 § #	<0.08 § #	<0.08 § #	<0.08 § #	<0.08 § #	<0.08 § #
Chromium (diss.filt)	<1 µg/l	TM152		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Copper (diss.filt)	<0.3 µg/l	TM152		2.73 § #	5.96 § #	5.92 § #	3.75 § #	5.24 § #	2.91 § #
Lead (diss.filt)	<0.2 µg/l	TM152		0.39 § #	0.622 § #	1.03 § #	0.378 § #	0.552 § #	0.481 § #
Manganese (diss.filt)	<3 µg/l	TM152		17.3 § #	43.8 § #	28.7 § #	32.9 § #	42.4 § #	25.3 § #
Nickel (diss.filt)	<0.4 µg/l	TM152		1.38 § #	2.95 § #	5.38 § #	1.91 § #	2.55 § #	1.4 § #
Zinc (diss.filt)	<1 µg/l	TM152		5.81 § #	9.1 § #	13.8 § #	5.53 § #	12 § #	10.4 § #
Sodium (Dis.Filt)	<0.076 mg/l	TM152		7.12 § #	12.9 § #	9.9 § #	10.2 § #	14.2 § #	7.57 § #
Magnesium (Dis.Filt)	<0.036 mg/l	TM152		3 § #	7.58 § #	5.47 § #	6.01 § #	8.45 § #	3.66 § #
Potassium (Dis.Filt)	<0.2 mg/l	TM152		1.62 § #	23.9 § #	7.43 § #	18.3 § #	27.2 § #	2.48 § #
Calcium (Dis.Filt)	<0.2 mg/l	TM152		37.4 § #	93.6 § #	72.5 § #	80.4 § #	101 § #	51.5 § #
Iron (Dis.Filt)	<0.019 mg/l	TM152		0.245 § #	0.17 § #	0.256 § #	0.128 § #	0.136 § #	0.126 § #
Nitrite as NO2	<0.05 mg/l	TM184		<0.05 § #	<0.05 § #	<0.05 § #	<0.05 § #	0.053 § #	<0.05 § #
Sulphate	<2 mg/l	TM184		6.4 § #	55.9 § #	39.3 § #	56.7 § #	56.7 § #	11.7 § #
Chloride	<2 mg/l	TM184		12.1 § #	24.2 § #	50.8 § #	19.8 § #	26.2 § #	11 § #
Nitrate as NO3	<0.3 mg/l	TM184		9 §	3.95 §	6.96 §	2.44 §	5.77 §	8.08 §
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184		2.04 § #	0.904 § #	1.58 § #	0.556 § #	1.32 § #	1.83 § #
Phenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §	<7.5 §
2-methylphenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
3-methylphenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
4-methylphenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
2-chlorophenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
2,4-dimethylphenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
4-chloro-3-methylphenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
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**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
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1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW201	SW202	SW203	SW204	SW205	SW206
			Depth (m)	.	.	.	.	.	.
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
			Date Sampled	-	-	-	-	-	-
			Sampled Time	.	.	.	.	.	.
			Date Received	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			SDG Ref	201007-14	201007-14	201007-14	201007-14	201007-14	201007-14
			Lab Sample No.(s)	22976842	22976843	22976844	22976846	22976847	22976848
			AGS Reference						
2,6-dichlorophenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
4-Chlorophenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
2,4-dichlorophenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
2-nitrophenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
2,4,6-trichlorophenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
2,4,5-trichlorophenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
4-nitrophenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
2,3,5,6-tetrachlorophenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
2,3,4,6-tetrachlorophenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
2,4-dinitrophenol	<2.5 µg/l	TM205		<2.5 §	<2.5 §	<2.5 §	<2.5 §	<2.5 §	<5 §
DNOC	<3 µg/l	TM205		<3 §	<3 §	<3 §	<3 §	<3 §	<3 §
Pentachlorophenol	<2 µg/l	TM205		<2 §	<2 §	<2 §	<2 §	<2 §	<2 §
Dinoseb	<4 µg/l	TM205		<4 §	<4 §	<4 §	<4 §	<4 §	<4 §
pH	<1 pH Units	TM256		7.68 § #	8 § #	7.73 § #	7.89 § #	8.08 § #	7.84 § #
Dinitro-o-cresol	<0.1 µg/l	TM411		0.503 §	0.7 §	0.933 §	0.527 §	0.714 §	0.346 §
Clopyralid	<0.04 µg/l	TM411		<0.04 §	<0.04 §	<0.08 §	<0.04 §	<0.04 §	<0.08 §
MCPA	<0.05 µg/l	TM411		<0.05 §	<0.05 §	<0.1 §	<0.05 §	<0.05 §	<0.1 §
Mecoprop	<0.04 µg/l	TM411		<0.04 §	<0.04 §	<0.08 §	<0.04 §	<0.04 §	<0.08 §
Dicamba	<0.04 µg/l	TM411		<0.04 §	<0.04 §	<0.08 §	<0.04 §	<0.04 §	<0.08 §
MCPB	<0.05 µg/l	TM411		<0.05 §	<0.05 §	<0.1 §	<0.05 §	<0.05 §	<0.1 §
2,4-DB	<0.1 µg/l	TM411		<0.1 §	<0.1 §	<0.2 §	<0.1 §	<0.1 §	<0.2 §
2,3,6-Trichlorobenzoic acid	<0.05 µg/l	TM411		<0.05 §	<0.05 §	<0.1 §	<0.05 §	<0.05 §	<0.1 §
Dichlorprop	<0.1 µg/l	TM411		<0.1 §	<0.1 §	<0.2 §	<0.1 §	<0.1 §	<0.2 §
Triclopyr	<0.05 µg/l	TM411		<0.05 §	<0.05 §	<0.1 §	<0.05 §	<0.05 §	<0.1 §
Fenoprop (Silvex)	<0.1 µg/l	TM411		<0.1 §	<0.1 §	<0.2 §	<0.1 §	<0.1 §	<0.2 §
2,4-Dichlorophenoxyacetic acid	<0.05 µg/l	TM411		<0.05 §	<0.05 §	<0.1 §	<0.05 §	<0.05 §	<0.1 §
2,4,5-Trichlorophenoxyacetic acid	<0.05 µg/l	TM411		<0.05 §	<0.05 §	<0.1 §	<0.05 §	<0.05 §	<0.1 §
Bromoxynil	<0.04 µg/l	TM411		<0.04 §	<0.04 §	<0.08 §	<0.04 §	<0.04 §	<0.08 §
Benazolin	<0.04 µg/l	TM411		<0.04 §	<0.04 §	<0.08 §	<0.04 §	<0.04 §	<0.08 §
Ioxynil	<0.05 µg/l	TM411		<0.05 §	<0.05 §	<0.1 §	<0.05 §	<0.05 §	<0.1 §
Pentachlorophenol	<0.04 µg/l	TM411		<0.04 §	<0.04 §	<0.08 §	<0.04 §	<0.04 §	<0.08 §
Fluoroxypyr	<0.1 µg/l	TM411		<0.1 §	<0.1 §	<0.2 §	<0.1 §	<0.1 §	<0.2 §

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW207	UD1	UD3	UD4	UD5
			Depth (m)	.	.	.	.	.
			Sample Type	Surface Water (SW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	-	-	-	-	-
			Sampled Time	.	.	.	.	.
			Date Received	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			SDG Ref	201007-14	201007-14	201007-14	201007-14	201007-14
			Lab Sample No.(s)	22976849	22976856	22976857	22976858	22976859
			AGS Reference					
Ionic balance	% Diff	Calulation		-1.42 §				
Total Organic Carbon, as C*	<0.7 mg/l	SUB		8.4 §				
Suspended solids, Total	<2 mg/l	TM022		3.3 § #				
Alkalinity, Total as CaCO3	<2 mg/l	TM043		165 § #	245 § #	200 § #	233 § #	169 § #
Alkalinity,Total as CaCO3 (diss.filt)	<2 mg/l	TM043		165 §				
Alkalinity, Bicarbonate as CaCO3 (diss.filt)	<2 mg/l	TM043		165 §				
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 § #	<0.2 § #	<0.2 § #	<0.2 § #	<0.2 § #
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120		0.382 § #	0.559 § #	0.42 § #	0.527 § #	0.446 § #
Cadmium (diss.filt)	<0.08 µg/l	TM152		<0.08 § #	<0.08 § #	<0.08 § #	<0.08 § #	<0.08 § #
Chromium (diss.filt)	<1 µg/l	TM152		<1 § #	<1 § #	<1 § #	<1 § #	3.07 § #
Copper (diss.filt)	<0.3 µg/l	TM152		4.91 § #	0.862 § #	0.938 § #	3.6 § #	15.1 § #
Lead (diss.filt)	<0.2 µg/l	TM152		0.623 § #	<0.2 § #	<0.2 § #	1.25 § #	2.62 § #
Manganese (diss.filt)	<3 µg/l	TM152		22.1 § #	54.6 § #	26.4 § #	51.4 § #	49.6 § #
Nickel (diss.filt)	<0.4 µg/l	TM152		2.95 § #	0.637 § #	<0.4 § #	1.33 § #	3.75 § #
Zinc (diss.filt)	<1 µg/l	TM152		9.48 § #	6.2 § #	3.06 § #	10.9 § #	11.5 § #
Sodium (Dis.Filt)	<0.076 mg/l	TM152		10.9 § #	12.5 § #	12.5 § #	11.9 § #	9.38 § #
Magnesium (Dis.Filt)	<0.036 mg/l	TM152		5.57 § #	11.1 § #	7.78 § #	10.3 § #	5.44 § #
Potassium (Dis.Filt)	<0.2 mg/l	TM152		13.1 § #	1.65 § #	4.38 § #	1.6 § #	19.3 § #
Calcium (Dis.Filt)	<0.2 mg/l	TM152		63.1 § #	101 § #	71.9 § #	94.2 § #	76.5 § #
Iron (Dis.Filt)	<0.019 mg/l	TM152		0.17 § #	0.063 § #	0.0247 § #	0.186 § #	0.172 § #
Nitrite as NO2	<0.05 mg/l	TM184		0.073 § #	<0.05 § #	<0.05 § #	<0.05 § #	<0.05 § #
Sulphate	<2 mg/l	TM184		26.2 § #	13.1 § #	13.5 § #	13.9 § #	55.4 § #
Chloride	<2 mg/l	TM184		20.9 § #	44.5 § #	18.7 § #	34.3 § #	18.7 § #
Nitrate as NO3	<0.3 mg/l	TM184		6.65 §	8.72 §	5.89 §	8.58 §	0.819 §
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184		1.53 § #	1.98 § #	1.33 § #	1.94 § #	0.188 § #
Phenol	<0.5 µg/l	TM205		<6.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
2-methylphenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
3-methylphenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
4-methylphenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
2-chlorophenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
2,4-dimethylphenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
4-chloro-3-methylphenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW207	UD1	UD3	UD4	UD5
			Depth (m)	.	.	.	.	.
			Sample Type	Surface Water (SW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	-	-	-	-	-
			Sampled Time	.	.	.	.	.
			Date Received	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			SDG Ref	201007-14	201007-14	201007-14	201007-14	201007-14
			Lab Sample No.(s)	22976849	22976856	22976857	22976858	22976859
			AGS Reference					
2,6-dichlorophenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
4-Chlorophenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
2,4-dichlorophenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
2-nitrophenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
2,4,6-trichlorophenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
2,4,5-trichlorophenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
4-nitrophenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
2,3,5,6-tetrachlorophenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
2,3,4,6-tetrachlorophenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
2,4-dinitrophenol	<2.5 µg/l	TM205		<5 §	<2.5 §	<2.5 §	<2.5 §	<2.5 §
DNOC	<3 µg/l	TM205		<3 §	<3 §	<3 §	<3 §	<3 §
Pentachlorophenol	<2 µg/l	TM205		<2 §	<2 §	<2 §	<2 §	<2 §
Dinoseb	<4 µg/l	TM205		<4 §	<4 §	<4 §	<4 §	<4 §
pH	<1 pH Units	TM256		7.9 § #				
Dinitro-o-cresol	<0.1 µg/l	TM411		0.671 §	<0.2 §	0.379 §	0.483 §	0.538 §
Clopyralid	<0.04 µg/l	TM411		<0.04 §	<0.08 §	<0.04 §	<0.04 §	<0.04 §
MCPA	<0.05 µg/l	TM411		<0.05 §	<0.1 §	<0.05 §	<0.05 §	<0.05 §
Mecoprop	<0.04 µg/l	TM411		<0.04 §	<0.08 §	<0.04 §	<0.04 §	<0.04 §
Dicamba	<0.04 µg/l	TM411		<0.04 §	<0.08 §	<0.04 §	<0.04 §	<0.04 §
MCPB	<0.05 µg/l	TM411		<0.05 §	<0.1 §	<0.05 §	<0.05 §	<0.05 §
2,4-DB	<0.1 µg/l	TM411		<0.1 §	<0.2 §	<0.1 §	<0.1 §	<0.1 §
2,3,6-Trichlorobenzoic acid	<0.05 µg/l	TM411		<0.05 §	<0.1 §	<0.05 §	<0.05 §	<0.05 §
Dichlorprop	<0.1 µg/l	TM411		<0.1 §	<0.2 §	<0.1 §	<0.1 §	<0.1 §
Triclopyr	<0.05 µg/l	TM411		<0.05 §	<0.1 §	<0.05 §	<0.05 §	<0.05 §
Fenoprop (Silvex)	<0.1 µg/l	TM411		<0.1 §	<0.2 §	<0.1 §	<0.1 §	<0.1 §
2,4-Dichlorophenoxyacetic acid	<0.05 µg/l	TM411		<0.05 §	<0.1 §	<0.05 §	<0.05 §	<0.05 §
2,4,5-Trichlorophenoxyacetic acid	<0.05 µg/l	TM411		<0.05 §	<0.1 §	<0.05 §	<0.05 §	<0.05 §
Bromoxynil	<0.04 µg/l	TM411		<0.04 §	<0.08 §	<0.04 §	<0.04 §	<0.04 §
Benazolin	<0.04 µg/l	TM411		<0.04 §	<0.08 §	<0.04 §	<0.04 §	<0.04 §
Ioxynil	<0.05 µg/l	TM411		<0.05 §	<0.1 §	<0.05 §	<0.05 §	<0.05 §
Pentachlorophenol	<0.04 µg/l	TM411		<0.04 §	<0.08 §	<0.04 §	<0.04 §	<0.04 §
Fluoroxypyr	<0.1 µg/l	TM411		<0.1 §	<0.2 §	<0.1 §	<0.1 §	<0.1 §

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

PAH Spec MS - Aqueous (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW201	SW202	SW203	SW204	SW205	SW206
			Depth (m)	.	.	.	.	.	.
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
			Date Sampled	-	-	-	-	-	-
			Sampled Time	.	.	.	.	.	.
			Date Received	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			SDG Ref	201007-14	201007-14	201007-14	201007-14	201007-14	201007-14
			Lab Sample No.(s)	22976842	22976843	22976844	22976846	22976847	22976848
			AGS Reference						
Naphthalene (aq)	<0.01 µg/l	TM178		<0.01 § #	<0.01 § #	0.0144 § #	<0.01 § #	<0.01 § #	<0.01 § #
Acenaphthene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Acenaphthylene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Fluoranthene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Anthracene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Phenanthrene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Fluorene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Chrysene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Pyrene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Benzo(a)anthracene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Benzo(b)fluoranthene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Benzo(k)fluoranthene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Benzo(a)pyrene (aq)	<0.002 µg/l	TM178		<0.002 § #	<0.002 § #	<0.002 § #	<0.002 § #	<0.002 § #	<0.002 § #
Dibenzo(a,h)anthracene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Benzo(g,h,i)perylene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Indeno(1,2,3-cd)pyrene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
PAH, Total Detected USEPA 16 (aq)	<0.082 µg/l	TM178		<0.082 § #	<0.082 § #	<0.082 § #	<0.082 § #	<0.082 § #	<0.082 § #

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

PAH Spec MS - Aqueous (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW207	UD1	UD3	UD4	UD5
			Depth (m)	.	.	.	.	.
			Sample Type	Surface Water (SW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	-	-	-	-	-
			Sampled Time	.	.	.	.	.
			Date Received	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			SDG Ref	201007-14	201007-14	201007-14	201007-14	201007-14
			Lab Sample No.(s)	22976849	22976856	22976857	22976858	22976859
			AGS Reference					
Naphthalene (aq)	<0.01 µg/l	TM178		<0.01 § #	<0.01 § #	<0.01 § #	<0.01 § #	<0.01 § #
Acenaphthene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Acenaphthylene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Fluoranthene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Anthracene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Phenanthrene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Fluorene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Chrysene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Pyrene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Benzo(a)anthracene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Benzo(b)fluoranthene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Benzo(k)fluoranthene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Benzo(a)pyrene (aq)	<0.002 µg/l	TM178		<0.002 § #	<0.002 § #	<0.002 § #	<0.002 § #	<0.002 § #
Dibenzo(a,h)anthracene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Benzo(g,h,i)perylene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Indeno(1,2,3-cd)pyrene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
PAH, Total Detected USEPA 16 (aq)	<0.082 µg/l	TM178		<0.082 § #	<0.082 § #	<0.082 § #	<0.082 § #	<0.082 § #

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

SVOC MS (W) - Aqueous

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	CELL 5 SUMP	CELL 6 SUMP	CELL 7 SUMP	CELL 1/2 SUMP	CELL 3/4 SUMP	LEACHATE HOLDING LAG OON
			Depth (m)	.	.	.	.	.	.
			Sample Type	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
			Date Sampled	-	-	-	-	-	-
			Sampled Time	.	.	.	.	.	.
			Date Received	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			SDG Ref	201007-14	201007-14	201007-14	201007-14	201007-14	201007-14
			Lab Sample No.(s)	22976853	22976854	22976855	22976851	22976852	22976850
			AGS Reference						
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
2,4-Dichlorophenol (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
2,4-Dimethylphenol (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
2-Chloronaphthalene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
2-Chlorophenol (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
2-Methylnaphthalene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
2-Methylphenol (aq)	<1 µg/l	TM176		<20 §	<20 §	23 §	<20 §	<20 §	<20 §
2-Nitroaniline (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
2-Nitrophenol (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
3-Nitroaniline (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
4-Bromophenylphenylether (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
4-Chloroaniline (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
4-Methylphenol (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
4-Nitroaniline (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
4-Nitrophenol (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Azobenzene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Acenaphthylene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Acenaphthene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Anthracene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
bis(2-Chloroethoxy)methane (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176		<40 §	<40 §	165 §	<40 §	<40 §	<40 §
Butylbenzyl phthalate (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

SVOC MS (W) - Aqueous

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	CELL 5 SUMP	CELL 6 SUMP	CELL 7 SUMP	CELL 1/2 SUMP	CELL 3/4 SUMP	LEACHATE HOLDING LAG OON
			Depth (m)	.	.	.	.	.	.
			Sample Type	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
			Date Sampled	-	-	-	-	-	-
			Sampled Time	.	.	.	.	.	.
			Date Received	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			SDG Ref	201007-14	201007-14	201007-14	201007-14	201007-14	201007-14
			Lab Sample No.(s)	22976853	22976854	22976855	22976851	22976852	22976850
			AGS Reference						
Benzo(a)anthracene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Benzo(b)fluoranthene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Benzo(k)fluoranthene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Benzo(a)pyrene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Benzo(g,h,i)perylene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Carbazole (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Chrysene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Dibenzofuran (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
n-Dibutyl phthalate (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Diethyl phthalate (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Dibenzo(a,h)anthracene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Dimethyl phthalate (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
n-Dioctyl phthalate (aq)	<5 µg/l	TM176		<100 §	<100 §	<100 §	<100 §	<100 §	<100 §
Fluoranthene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Fluorene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Hexachlorobenzene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Hexachlorobutadiene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Pentachlorophenol (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Phenol (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
n-Nitroso-n-dipropylamine (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Hexachloroethane (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Nitrobenzene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Naphthalene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Isophorone (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Hexachlorocyclopentadiene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Phenanthrene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Indeno(1,2,3-cd)pyrene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Pyrene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

SVOC MS (W) - Aqueous

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW201	SW202	SW203	SW204	SW205	SW206
			Depth (m)	.	.	.	.	.	.
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
			Date Sampled	-	-	-	-	-	-
			Sampled Time	.	.	.	.	.	.
			Date Received	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			SDG Ref	201007-14	201007-14	201007-14	201007-14	201007-14	201007-14
			Lab Sample No.(s)	22976842	22976843	22976844	22976846	22976847	22976848
			AGS Reference						
4-Methylphenol (aq)	<1 µg/l	TM176		<1 § #	<1 § #	<1 § #	<1 § #	<2 § #	<1 § #
Diethyl phthalate (aq)	<1 µg/l	TM176		<1 § #	<1 § #	<1 § #	<1 § #	<2 § #	<1 § #

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

SVOC MS (W) - Aqueous

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.					
			SW207	UD1	UD3	UD4	UD5	
			.	.	.	.	.	
			Surface Water (SW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	
			-	-	-	-	-	
			.	.	.	.	.	
			07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	
			201007-14	201007-14	201007-14	201007-14	201007-14	
			22976849	22976856	22976857	22976858	22976859	
4-Methylphenol (aq)	<1 µg/l	TM176	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	
Diethyl phthalate (aq)	<1 µg/l	TM176	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

TPH CWG (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	CELL 5 SUMP	CELL 6 SUMP	CELL 7 SUMP	CELL 1/2 SUMP	CELL 3/4 SUMP	LEACHATE HOLDING LAG OON
			Depth (m)	.	.	.	.	.	.
			Sample Type	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
			Date Sampled	-	-	-	-	-	-
			Sampled Time	.	.	.	.	.	.
			Date Received	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			SDG Ref	201007-14	201007-14	201007-14	201007-14	201007-14	201007-14
			Lab Sample No.(s)	22976853	22976854	22976855	22976851	22976852	22976850
			AGS Reference						
GRO Surrogate % recovery**	%	TM245		78 §	84 §	72 §	72 §	84 §	83 §
GRO >C5-C12	<50 µg/l	TM245		440 §	432 §	755 §	703 §	364 §	452 §
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245		<3 §	<3 §	<3 §	<3 §	<3 §	<3 §
Benzene	<7 µg/l	TM245		<7 §	<7 §	<7 §	<7 §	<7 §	<7 §
Toluene	<4 µg/l	TM245		<4 §	<4 §	6 §	23 §	<4 §	<4 §
Ethylbenzene	<5 µg/l	TM245		<5 §	<5 §	10 §	8 §	<5 §	<5 §
m,p-Xylene	<8 µg/l	TM245		<8 §	<8 §	14 §	38 §	<8 §	<8 §
o-Xylene	<3 µg/l	TM245		3 §	5 §	8 §	18 §	4 §	3 §
Sum of detected Xylenes	<11 µg/l	TM245		<11 §	<11 §	22 §	56 §	<11 §	<11 §
Sum of detected BTEX	<28 µg/l	TM245		<28 §	<28 §	38 §	87 §	<28 §	<28 §
Aliphatics >C5-C6	<10 µg/l	TM245		140 §	148 §	247 §	148 §	129 §	157 §
Aliphatics >C6-C8	<10 µg/l	TM245		48 §	46 §	74 §	71 §	37 §	48 §
Aliphatics >C8-C10	<10 µg/l	TM245		36 §	26 §	44 §	65 §	30 §	30 §
Aliphatics >C10-C12	<10 µg/l	TM245		109 §	107 §	193 §	172 §	80 §	110 §
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174		<20 §	<20 §	<20 §	76 §	<20 §	<20 §
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174		<20 §	<20 §	<20 §	322 §	<20 §	<20 §
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174		<20 §	25 §	43 §	1020 §	<20 §	<20 §
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174		<20 §	25 §	43 §	1420 §	<20 §	<20 §
Aromatics >EC5-EC7	<10 µg/l	TM245		<10 §	<10 §	<10 §	<10 §	<10 §	<10 §
Aromatics >EC7-EC8	<10 µg/l	TM245		<10 §	<10 §	<10 §	23 §	<10 §	<10 §
Aromatics >EC8-EC10	<10 µg/l	TM245		33 §	29 §	61 §	108 §	33 §	31 §
Aromatics >EC10-EC12	<10 µg/l	TM245		73 §	72 §	128 §	115 §	53 §	73 §
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174		<20 §	<20 §	34 §	29 §	<20 §	<20 §
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174		<20 §	<20 §	<20 §	88 §	<20 §	<20 §
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174		<20 §	<20 §	34 §	117 §	<20 §	<20 §
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174		441 §	457 §	833 §	2240 §	364 §	452 §
Aliphatics >C16-C35 Aqueous	<10 µg/l	TM174		<20 §	25 §	43 §	1340 §	<20 §	<20 §

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

TPH CWG (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	UD1	UD3	UD4	UD5		
			Depth (m)	.	.	.	.		
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)		
			Date Sampled	-	-	-	-		
			Sampled Time	.	.	.	.		
			Date Received	07/10/2020	07/10/2020	07/10/2020	07/10/2020		
			SDG Ref	201007-14	201007-14	201007-14	201007-14		
			Lab Sample No.(s)	22976856	22976857	22976858	22976859		
			AGS Reference						
GRO Surrogate % recovery**	%	TM245		97 §	105 §	107 §	105 §		
GRO >C5-C12	<50 µg/l	TM245		<50 § #	<50 § #	<50 § #	<50 § #		
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245		<3 § #	<3 § #	<3 § #	<3 § #		
Benzene	<7 µg/l	TM245		<7 § #	<7 § #	<7 § #	<7 § #		
Toluene	<4 µg/l	TM245		<4 § #	<4 § #	<4 § #	<4 § #		
Ethylbenzene	<5 µg/l	TM245		<5 § #	<5 § #	<5 § #	<5 § #		
m,p-Xylene	<8 µg/l	TM245		<8 § #	<8 § #	<8 § #	<8 § #		
o-Xylene	<3 µg/l	TM245		<3 § #	<3 § #	<3 § #	<3 § #		
Sum of detected Xylenes	<11 µg/l	TM245		<11 §	<11 §	<11 §	<11 §		
Sum of detected BTEX	<28 µg/l	TM245		<28 §	<28 §	<28 §	<28 §		
Aliphatics >C5-C6	<10 µg/l	TM245		<10 §	<10 §	<10 §	<10 §		
Aliphatics >C6-C8	<10 µg/l	TM245		<10 §	<10 §	<10 §	<10 §		
Aliphatics >C8-C10	<10 µg/l	TM245		<10 §	<10 §	<10 §	<10 §		
Aliphatics >C10-C12	<10 µg/l	TM245		<10 §	<10 §	<10 §	<10 §		
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174		<10 §	<10 §	<10 §	<10 §		
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174		<10 §	<10 §	<10 §	<10 §		
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174		<10 §	<10 §	<10 §	<10 §		
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174		<10 §	<10 §	<10 §	<10 §		
Aromatics >EC5-EC7	<10 µg/l	TM245		<10 §	<10 §	<10 §	<10 §		
Aromatics >EC7-EC8	<10 µg/l	TM245		<10 §	<10 §	<10 §	<10 §		
Aromatics >EC8-EC10	<10 µg/l	TM245		<10 §	<10 §	<10 §	<10 §		
Aromatics >EC10-EC12	<10 µg/l	TM245		<10 §	<10 §	<10 §	<10 §		
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174		<10 §	<10 §	<10 §	<10 §		
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174		<10 §	<10 §	<10 §	<10 §		
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174		<10 §	<10 §	<10 §	<10 §		
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174		<10 §	<10 §	<10 §	<10 §		
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174		<10 §	<10 §	<10 §	<10 §		
Aliphatics >C16-C35 Aqueous	<10 µg/l	TM174		<10 §	<10 §	<10 §	<10 §		

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	CELL 5 SUMP	CELL 6 SUMP	CELL 7 SUMP	CELL 1/2 SUMP	CELL 3/4 SUMP	LEACHATE HOLDING LAG OON
			Depth (m)	.	.	.	.	.	.
			Sample Type	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
			Date Sampled	-	-	-	-	-	-
			Sampled Time	.	.	.	.	.	.
			Date Received	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			SDG Ref	201007-14	201007-14	201007-14	201007-14	201007-14	201007-14
			Lab Sample No.(s)	22976853	22976854	22976855	22976851	22976852	22976850
			AGS Reference						
Dibromofluoromethane**	%	TM208		110 §	113 §	109 §	106 §	113 §	109 §
Toluene-d8**	%	TM208		98.9 §	100 §	96.3 §	96.3 §	100 §	100 §
4-Bromofluorobenzene**	%	TM208		97.1 §	100 §	94.4 §	92.2 §	100 §	100 §
Dichlorodifluoromethane	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Chloromethane	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Vinyl chloride	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Bromomethane	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Chloroethane	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Trichlorofluoromethane	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
1,1-Dichloroethene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Carbon disulphide	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Dichloromethane	<3 µg/l	TM208		<3 § #	<3 § #	<3 § #	<3 § #	<3 § #	<3 § #
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
trans-1,2-Dichloroethene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
1,1-Dichloroethane	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
cis-1,2-Dichloroethene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
2,2-Dichloropropane	<1 µg/l	TM208		<1 §	<1 §	<1 §	<1 §	<1 §	<1 §
Bromochloromethane	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Chloroform	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
1,1,1-Trichloroethane	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
1,1-Dichloropropene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Carbontetrachloride	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
1,2-Dichloroethane	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Benzene	<1 µg/l	TM208		2.76 § #	2.55 § #	3.98 § #	2.51 § #	3.35 § #	2.04 § #
Trichloroethene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
1,2-Dichloropropane	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Dibromomethane	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Bromodichloromethane	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
cis-1,3-Dichloropropene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Toluene	<1 µg/l	TM208		<1 § #	4.26 § #	8.59 § #	37.8 § #	<1 § #	2.97 § #
trans-1,3-Dichloropropene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
1,1,2-Trichloroethane	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	CELL 5 SUMP	CELL 6 SUMP	CELL 7 SUMP	CELL 1/2 SUMP	CELL 3/4 SUMP	LEACHATE HOLDING LAG OON
			Depth (m)	.	.	.	.	.	.
			Sample Type	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
			Date Sampled	-	-	-	-	-	-
			Sampled Time	.	.	.	.	.	.
			Date Received	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			SDG Ref	201007-14	201007-14	201007-14	201007-14	201007-14	201007-14
			Lab Sample No.(s)	22976853	22976854	22976855	22976851	22976852	22976850
			AGS Reference						
1,3-Dichloropropane	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Tetrachloroethene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Dibromochloromethane	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
1,2-Dibromoethane	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Chlorobenzene	<1 µg/l	TM208		1 § #	<1 § #	<1 § #	5.6 § #	1.87 § #	<1 § #
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Ethylbenzene	<1 µg/l	TM208		3.26 § #	1.68 § #	11.6 § #	10.9 § #	3.79 § #	3.76 § #
m,p-Xylene	<1 µg/l	TM208		2.48 § #	4.45 § #	12.7 § #	45.6 § #	3.86 § #	4.06 § #
o-Xylene	<1 µg/l	TM208		2.49 § #	4.71 § #	7.71 § #	18.9 § #	3.42 § #	2.5 § #
Styrene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Bromoform	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Isopropylbenzene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
1,2,3-Trichloropropane	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Bromobenzene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Propylbenzene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
2-Chlorotoluene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
1,3,5-Trimethylbenzene	<1 µg/l	TM208		<1 § #	<1 § #	1.16 § #	2.26 § #	<1 § #	<1 § #
4-Chlorotoluene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
tert-Butylbenzene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
1,2,4-Trimethylbenzene	<1 µg/l	TM208		1.56 § #	1.24 § #	2.96 § #	6.59 § #	3.55 § #	1.33 § #
sec-Butylbenzene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
4-iso-Propyltoluene	<1 µg/l	TM208		<1 § #	2.38 § #	3.49 § #	<1 § #	<1 § #	<1 § #
1,3-Dichlorobenzene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
1,4-Dichlorobenzene	<1 µg/l	TM208		1.83 § #	<1 § #	<1 § #	3.72 § #	1.27 § #	<1 § #
n-Butylbenzene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
1,2-Dichlorobenzene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208		<1 §	<1 §	<1 §	<1 §	<1 §	<1 §
1,2,4-Trichlorobenzene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Hexachlorobutadiene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Naphthalene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	2.89 § #	1.09 § #	<1 § #

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	CELL 5 SUMP	CELL 6 SUMP	CELL 7 SUMP	CELL 1/2 SUMP	CELL 3/4 SUMP	LEACHATE HOLDING LAG OON
			Depth (m)	.	.	.	.	.	.
			Sample Type	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
			Date Sampled	-	-	-	-	-	-
			Sampled Time	.	.	.	.	.	.
			Date Received	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			SDG Ref	201007-14	201007-14	201007-14	201007-14	201007-14	201007-14
			Lab Sample No.(s)	22976853	22976854	22976855	22976851	22976852	22976850
			AGS Reference						
1,2,3-Trichlorobenzene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
1,3,5-Trichlorobenzene	<1 µg/l	TM208		<1 §	<1 §	<1 §	<1 §	<1 §	<1 §

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW201	SW202	SW203	SW204	SW205	SW206
			Depth (m)	.	.	.	.	.	.
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
			Date Sampled	-	-	-	-	-	-
			Sampled Time	.	.	.	.	.	.
			Date Received	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			SDG Ref	201007-14	201007-14	201007-14	201007-14	201007-14	201007-14
			Lab Sample No.(s)	22976842	22976843	22976844	22976846	22976847	22976848
			AGS Reference						
Dichloromethane	<3 µg/l	TM208		<3 § #	<3 § #	<3 § #	<3 § #	<3 § #	<3 § #
Benzene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Toluene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Ethylbenzene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
m,p-Xylene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
o-Xylene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Sum of detected Xylenes	<2 µg/l	TM208		<2 §	<2 §	<2 §	<2 §	<2 §	<2 §

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.				
			SW207	UD1	UD3	UD4	UD5
			.	.	.	.	.
Depth (m)							
Sample Type			Surface Water (SW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			-	-	-	-	-
Sampled Time			.	.	.	.	.
Date Received			07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
SDG Ref			201007-14	201007-14	201007-14	201007-14	201007-14
Lab Sample No.(s)			22976849	22976856	22976857	22976858	22976859
AGS Reference							
Dichloromethane	<3 µg/l	TM208	<3 § #	<3 § #	<3 § #	<3 § #	<3 § #
Benzene	<1 µg/l	TM208	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Toluene	<1 µg/l	TM208	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Ethylbenzene	<1 µg/l	TM208	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
m,p-Xylene	<1 µg/l	TM208	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
o-Xylene	<1 µg/l	TM208	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Sum of detected Xylenes	<2 µg/l	TM208	<2 §	<2 §	<2 §	<2 §	<2 §

Table of Results - Appendix

Method No	Reference	Description
Calulation		
SUB		Subcontracted Test
TM022	Method 2540D, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part120 1981;BS EN 872	Determination of total suspended solids in waters
TM043	Method 2320B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part109 1984	Determination of alkalinity in aqueous samples
TM045	MEWAM BOD5 2nd Ed.HMSO 1988 / Method 5210B, AWWA/APHA, 20th Ed., 1999; SCA Blue Book 130	Determination of BOD5 (ATU) Filtered by Oxygen Meter on liquids
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM107	ISO 6060-1989	Determination of Chemical Oxygen Demand using COD Dr Lange Kit
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM174	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID
TM176	EPA 8270D Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of SVOCs in Water by GCMS
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM197	Modified: US EPA Method 8082.EA Method 174 and 5109631	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Waters
TM205		Determination of Phenols in Waste Waters using Solid Phase Extraction, Acetylation, Gas Chromatography and Mass Selective Detection
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters
TM227	Standard methods for the examination of waters and wastewaters 20th Edition, AWWA/APHA Method 4500.	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate
TM245	By GC-FID	Determination of GRO by Headspace in waters
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter
TM343	EPA 8270D - Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of Selected Pesticides (Suite I) in Liquids by GCMS
TM344	EPA 8270D – Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of selected pesticides (Suite II) by GCMS
TM345	EPA 8270D – Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of selected pesticides (Suite III) by GCMS
TM411	Acid_Herbs_GCMS	Acid Herbs in Water by GCMS

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Test Completion Dates

Lab Sample No(s)	22976853	22976854	22976855	22976851	22976852	22976850	22976842	22976843	22976844	22976846
Customer Sample Ref.	CELL 5 SUMP	CELL 6 SUMP	CELL 7 SUMP	CELL 1/2 SUMP	CELL 3/4 SUMP	LEACHATE HOLDING LAGOON	SW201	SW202	SW203	SW204
AGS Ref.										
Depth										
Type	Land Leachate	Land Leachate	Land Leachate	Land Leachate	Land Leachate	Land Leachate	Surface Water	Surface Water	Surface Water	Surface Water
Acid Herbicides by GCMS	15-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020
Alkalinity as CaCO3	17-Oct-2020	17-Oct-2020	19-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020	19-Oct-2020	16-Oct-2020	19-Oct-2020	19-Oct-2020
Alkalinity Filtered as CaCO3							19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020
Ammoniacal Nitrogen	14-Oct-2020	19-Oct-2020	14-Oct-2020	19-Oct-2020	14-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020
Anions by Kone (w)	16-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020	19-Oct-2020	15-Oct-2020	19-Oct-2020	19-Oct-2020
BOD True Total	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020				
COD Unfiltered	18-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020				
Conductivity (at 20 deg.C)	16-Oct-2020	14-Oct-2020	16-Oct-2020	15-Oct-2020	14-Oct-2020	15-Oct-2020	18-Oct-2020	14-Oct-2020	18-Oct-2020	18-Oct-2020
Cyanide Comp/Free/Total/Thiocyanate	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020				
Dissolved Metals by ICP-MS	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	15-Oct-2020	15-Oct-2020	19-Oct-2020
EPH CWG (Aliphatic) Aqueous GC (W)	17-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020				
EPH CWG (Aromatic) Aqueous GC (W)	17-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020				
GRO by GC-FID (W)	13-Oct-2020	14-Oct-2020	13-Oct-2020	13-Oct-2020	14-Oct-2020	14-Oct-2020				
Ionic Balance							19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020
Nitrite by Kone (w)							19-Oct-2020	15-Oct-2020	19-Oct-2020	19-Oct-2020
PAH Spec MS - Aqueous (W)							16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020
PCB Congeners - Aqueous (W)	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020				
Pesticides (Suite I) by GCMS	15-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020				
Pesticides (Suite II) by GCMS	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020				
Pesticides (Suite III) by GCMS	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020				
pH Value							19-Oct-2020	15-Oct-2020	19-Oct-2020	19-Oct-2020
Phenols by ms (w)	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	15-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020
Suspended Solids							19-Oct-2020	17-Oct-2020	19-Oct-2020	19-Oct-2020
SVOC MS (W) - Aqueous	20-Oct-2020	20-Oct-2020	16-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	19-Oct-2020	20-Oct-2020	19-Oct-2020
Total Organic Carbon*	16-Oct-2020	19-Oct-2020	16-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020
TPH CWG (W)	17-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020				
VOC MS (W)	13-Oct-2020	14-Oct-2020	13-Oct-2020	13-Oct-2020	14-Oct-2020	14-Oct-2020	13-Oct-2020	13-Oct-2020	13-Oct-2020	13-Oct-2020

Lab Sample No(s)	22976847	22976848	22976849	22976856	22976857	22976858	22976859
Customer Sample Ref.	SW205	SW206	SW207	UD1	UD3	UD4	UD5
AGS Ref.							
Depth							
Type	Surface Water	Surface Water	Surface Water	Ground Water	Ground Water	Ground Water	Ground Water
Acid Herbicides by GCMS	15-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020
Alkalinity as CaCO3	19-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	19-Oct-2020	17-Oct-2020	17-Oct-2020
Alkalinity Filtered as CaCO3	19-Oct-2020	19-Oct-2020	15-Oct-2020				
Ammoniacal Nitrogen	15-Oct-2020	15-Oct-2020	15-Oct-2020	14-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020
Anions by Kone (w)	17-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020
Conductivity (at 20 deg.C)	18-Oct-2020	15-Oct-2020	15-Oct-2020	14-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020
Dissolved Metals by ICP-MS	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020
EPH CWG (Aliphatic) Aqueous GC (W)				17-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020
EPH CWG (Aromatic) Aqueous GC (W)				17-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020
GRO by GC-FID (W)				14-Oct-2020	14-Oct-2020	14-Oct-2020	14-Oct-2020
Ionic Balance	19-Oct-2020	19-Oct-2020	19-Oct-2020				
Nitrite by Kone (w)	15-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020
PAH Spec MS - Aqueous (W)	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020
pH Value	19-Oct-2020	16-Oct-2020	15-Oct-2020				
Phenols by ms (w)	16-Oct-2020	15-Oct-2020	15-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020
Suspended Solids	19-Oct-2020	17-Oct-2020	17-Oct-2020				
SVOC MS (W) - Aqueous	19-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	19-Oct-2020	20-Oct-2020
Total Organic Carbon*	16-Oct-2020	19-Oct-2020	19-Oct-2020				
TPH CWG (W)				17-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020
VOC MS (W)	13-Oct-2020	14-Oct-2020	13-Oct-2020	14-Oct-2020	14-Oct-2020	13-Oct-2020	13-Oct-2020

CERTIFICATE OF ANALYSIS

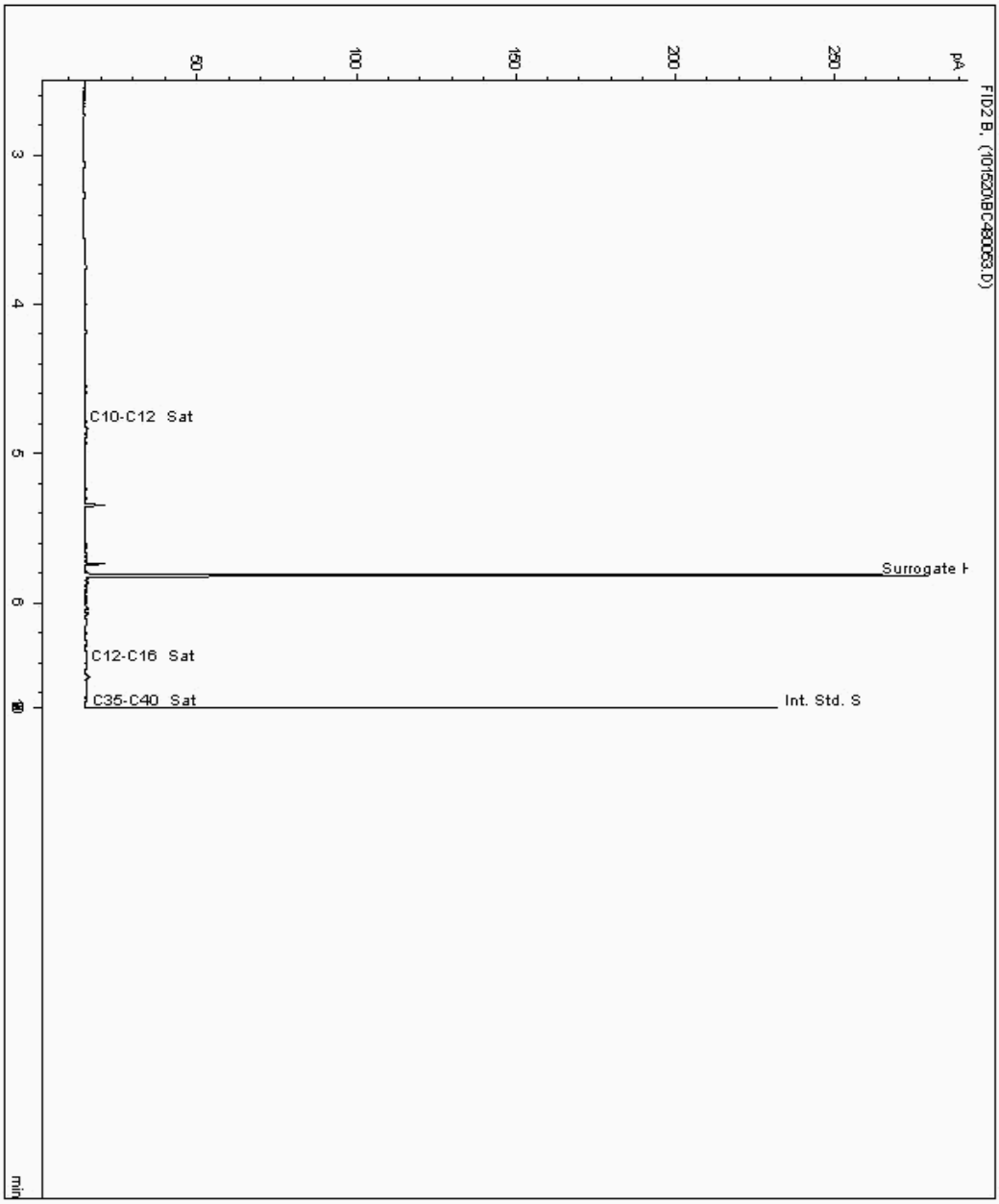
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23029548 **Sample ID :** UD5 **Depth :**

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 21585824-
Date Acquired : 16/10/2020 18:29:07 PM
Units : ppb
Dilution : SE UD5[] ->
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

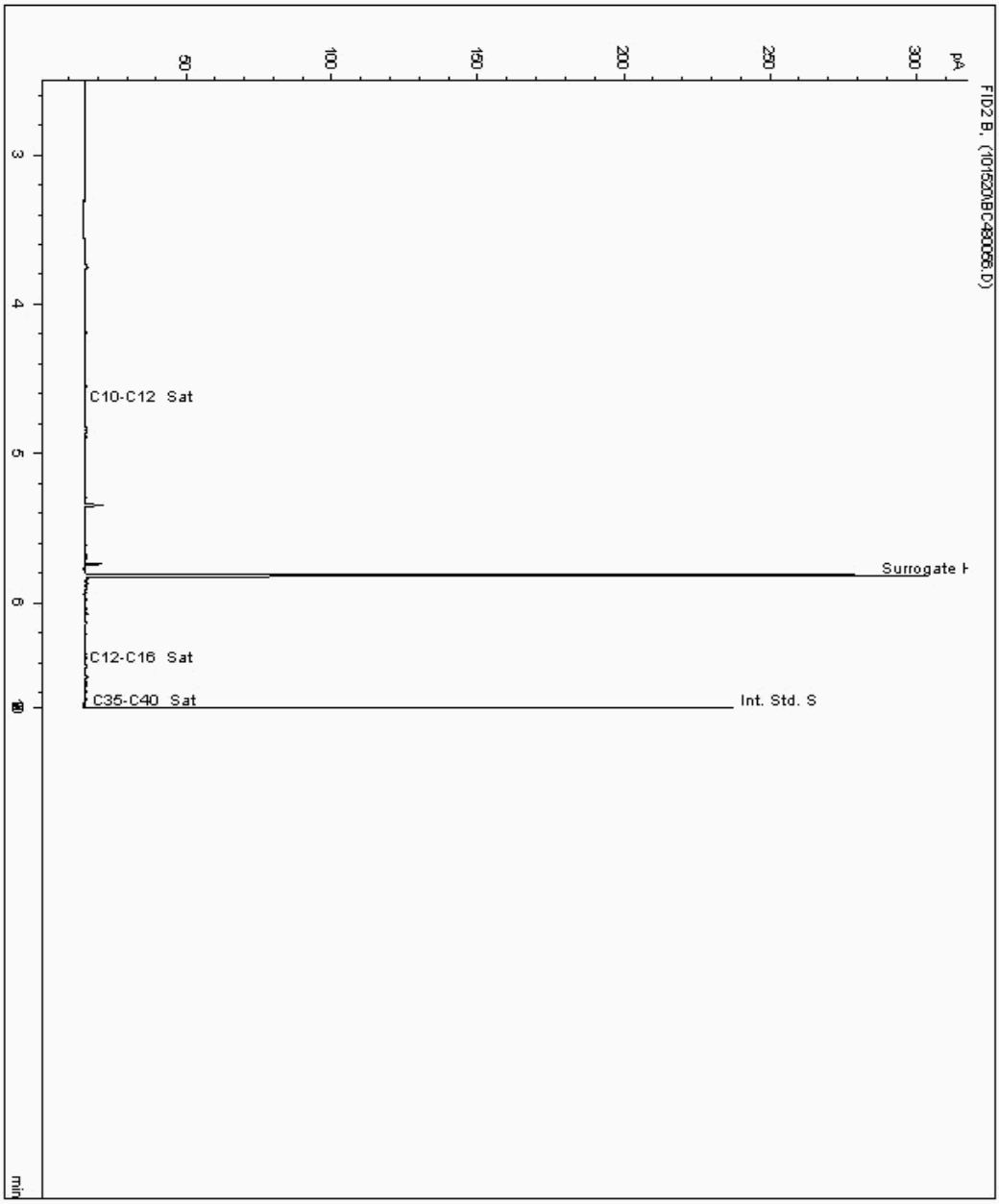
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23029563 **Depth :**
Sample ID : UD4

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 21585806-
Date Acquired : 16/10/2020 19:38:22 PM
Units : ppb
Dilution : SE UD4[ ] ->
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

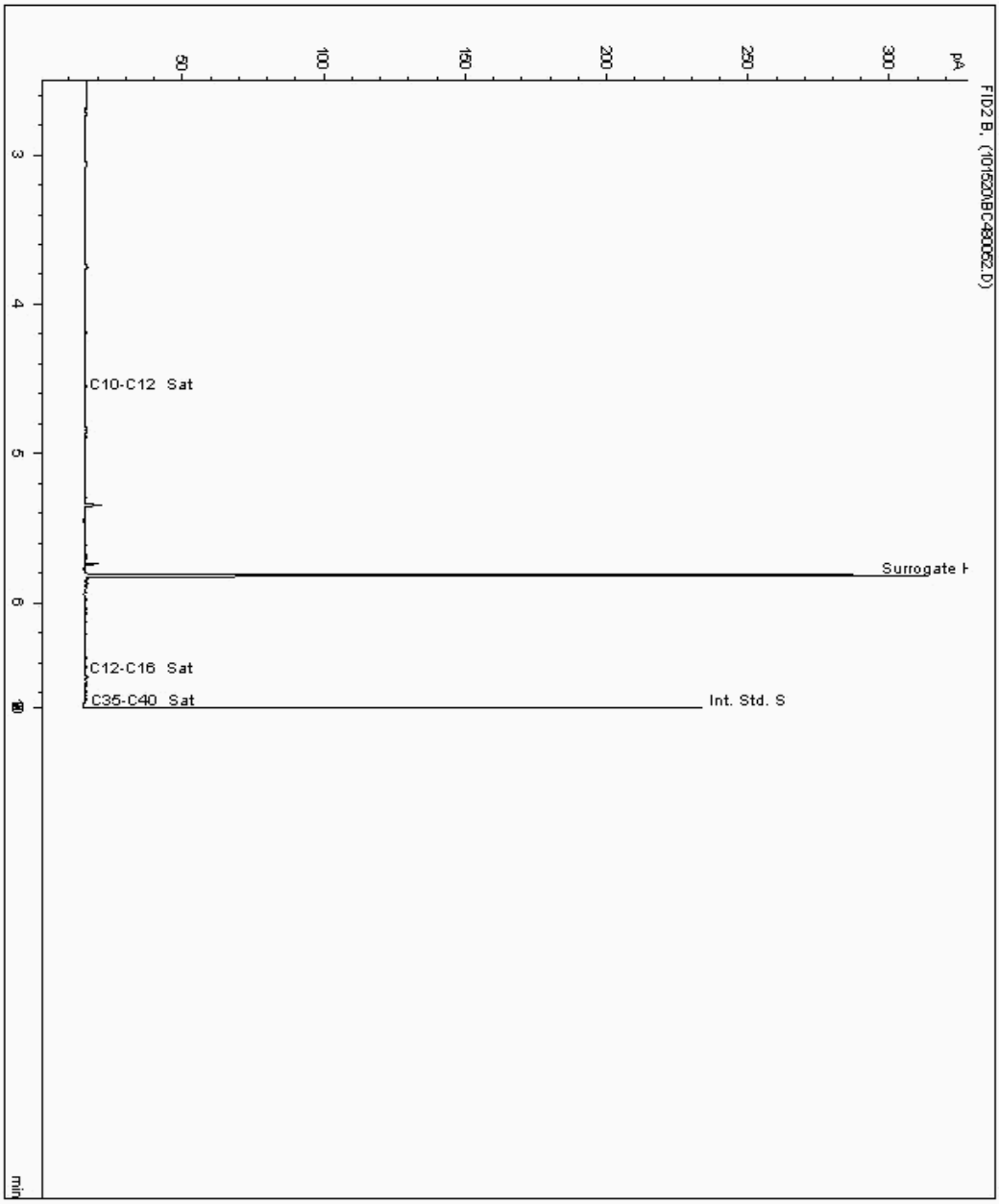
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23029578 **Depth :**
Sample ID : UD1

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 21585745-
Date Acquired : 16/10/2020 18:06:11 PM
Units : ppb
Dilution : SE UD1[ ] ->
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

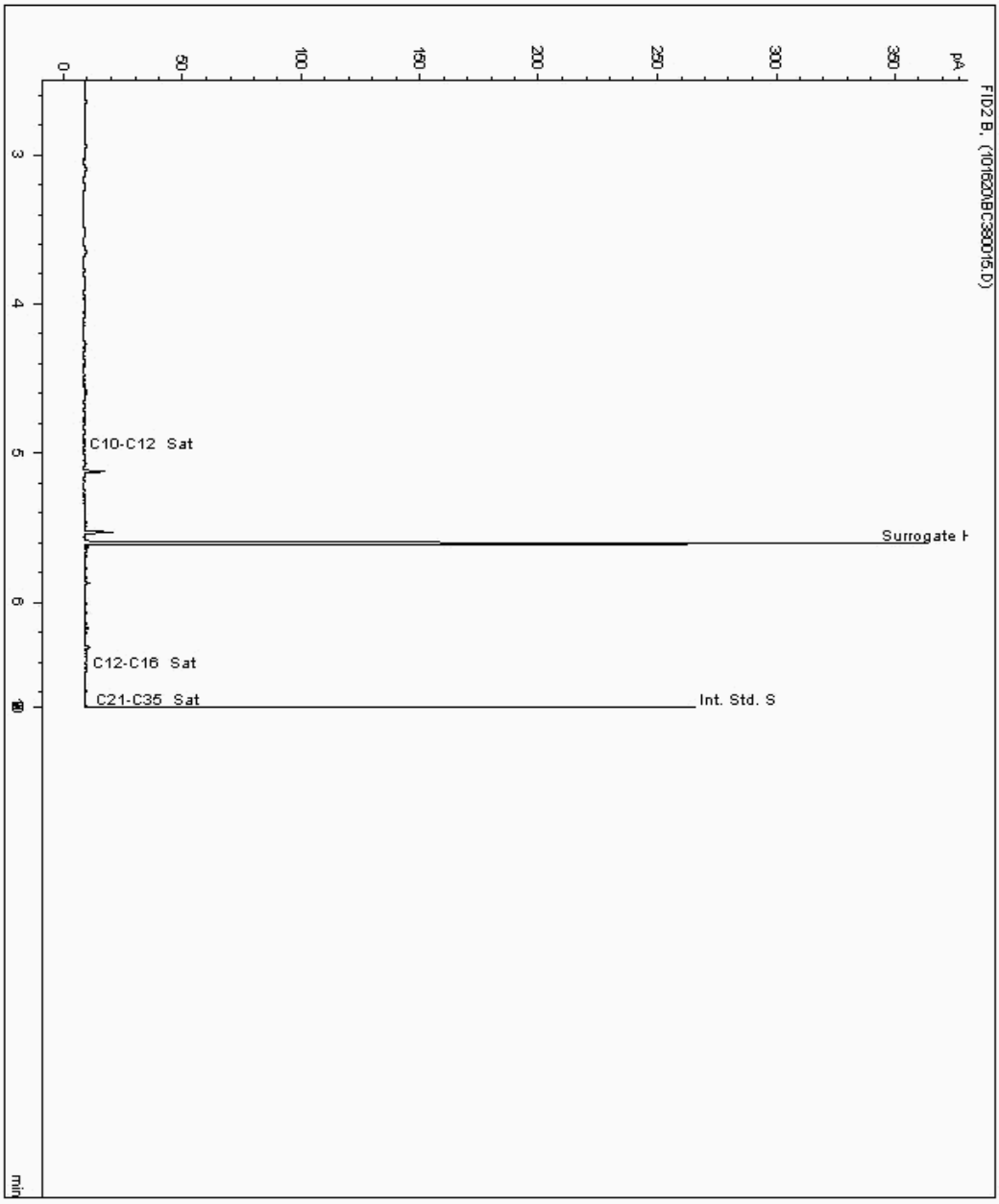
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23029579 **Sample ID :** CELL 7 SUMP **Depth :**

Speciated TPH - SATS (C12 - C40)

Sample Identity: 21585720-
Date Acquired : 16/10/20 14:49:00 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.050



CERTIFICATE OF ANALYSIS

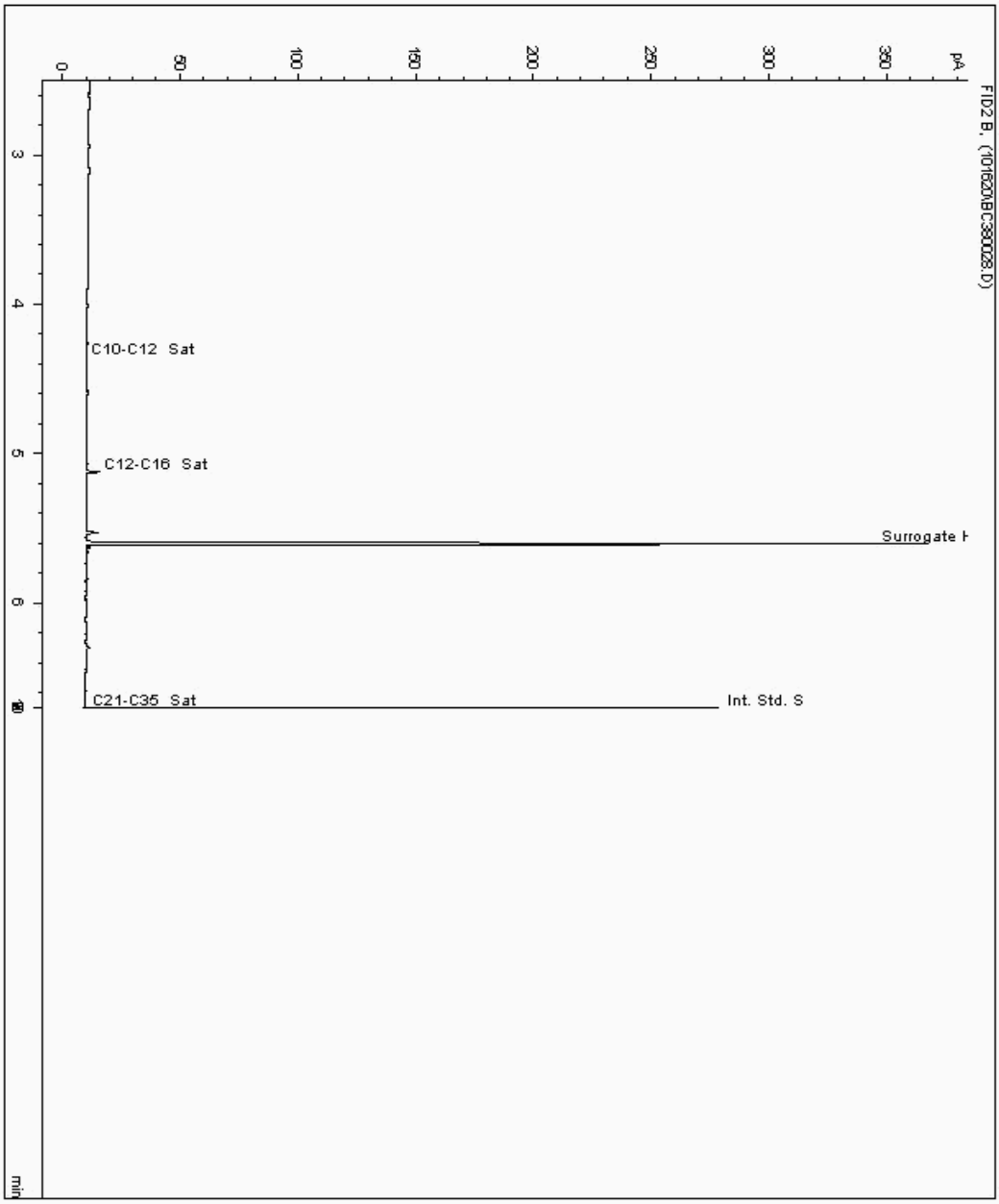
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23029585 **Sample ID :** CELL 5 SUMP **Depth :**

Speciated TPH - SATS (C12 - C40)

Sample Identity: 21585684-
Date Acquired : 16/10/20 19:49:58 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.050



CERTIFICATE OF ANALYSIS

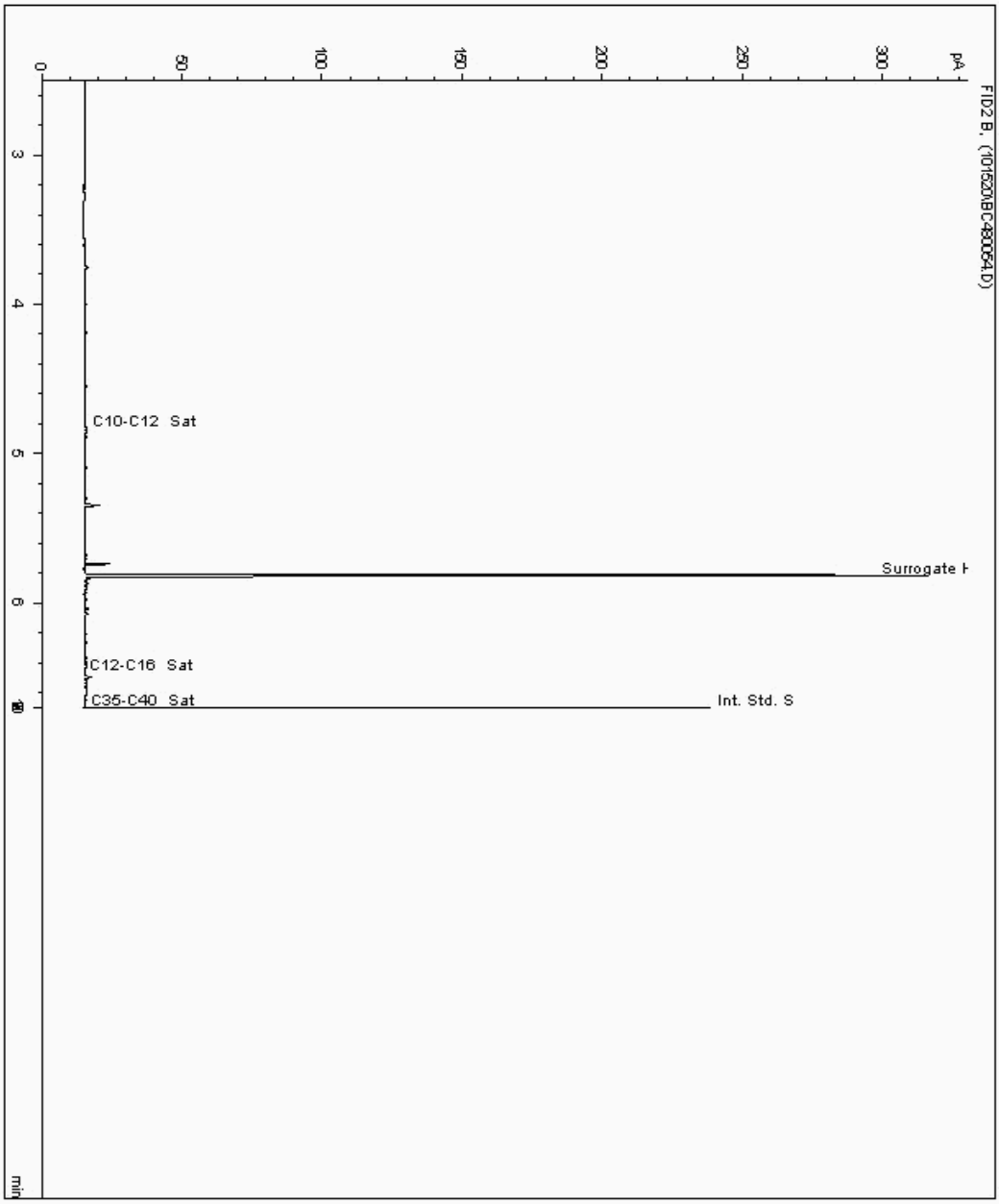
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Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23029595 **Depth :**
Sample ID : UD3

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 21585769-
Date Acquired : 16/10/2020 18:52:16 PM
Units : ppb
Dilution : SE UD3[ ] ->
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

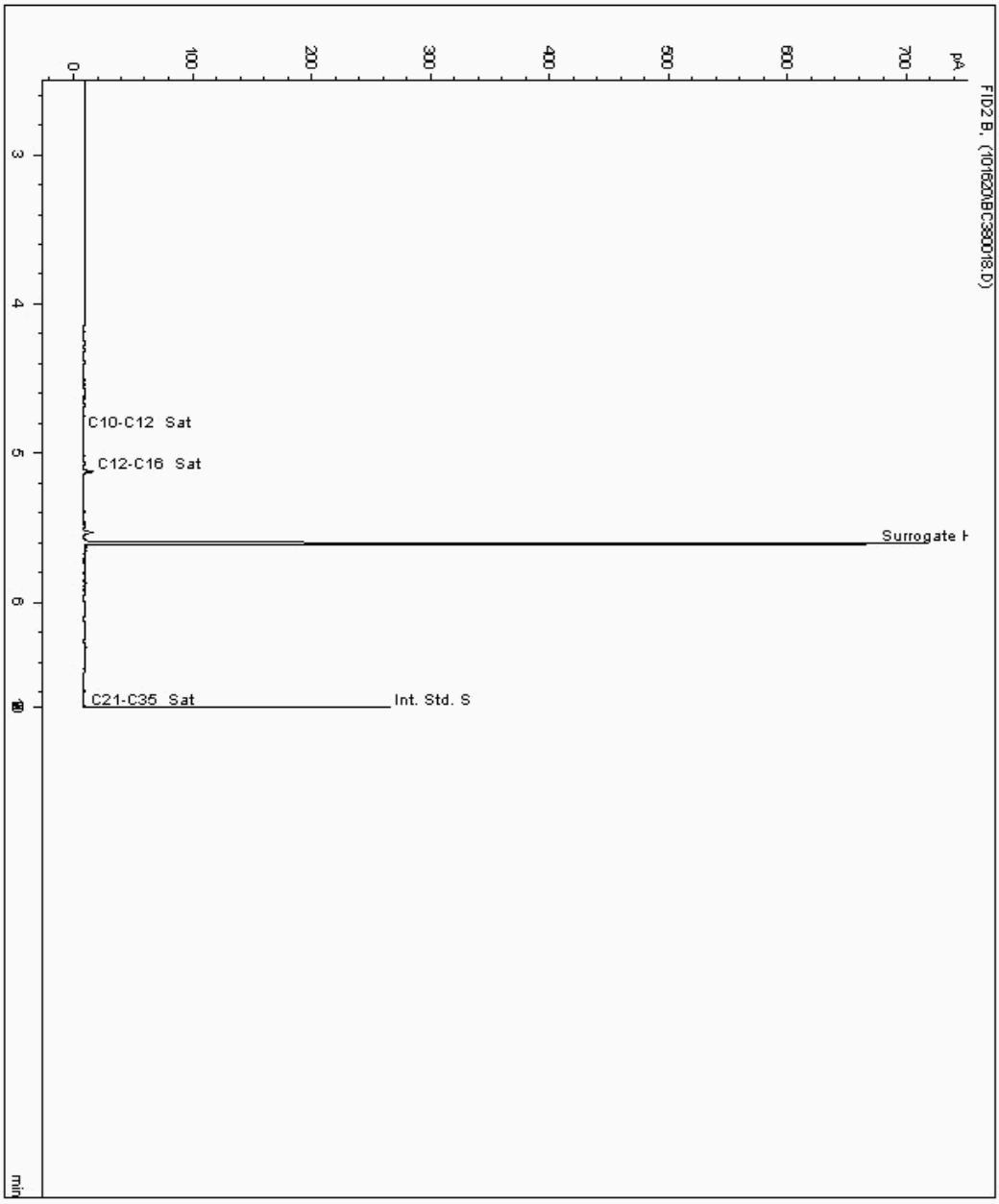
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23029606 **Sample ID :** CELL 6 SUMP **Depth :**

Speciated TPH - SATS (C12 - C40)

Sample Identity: 21585699-
Date Acquired : 16/10/20 15:58:56 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.050



CERTIFICATE OF ANALYSIS

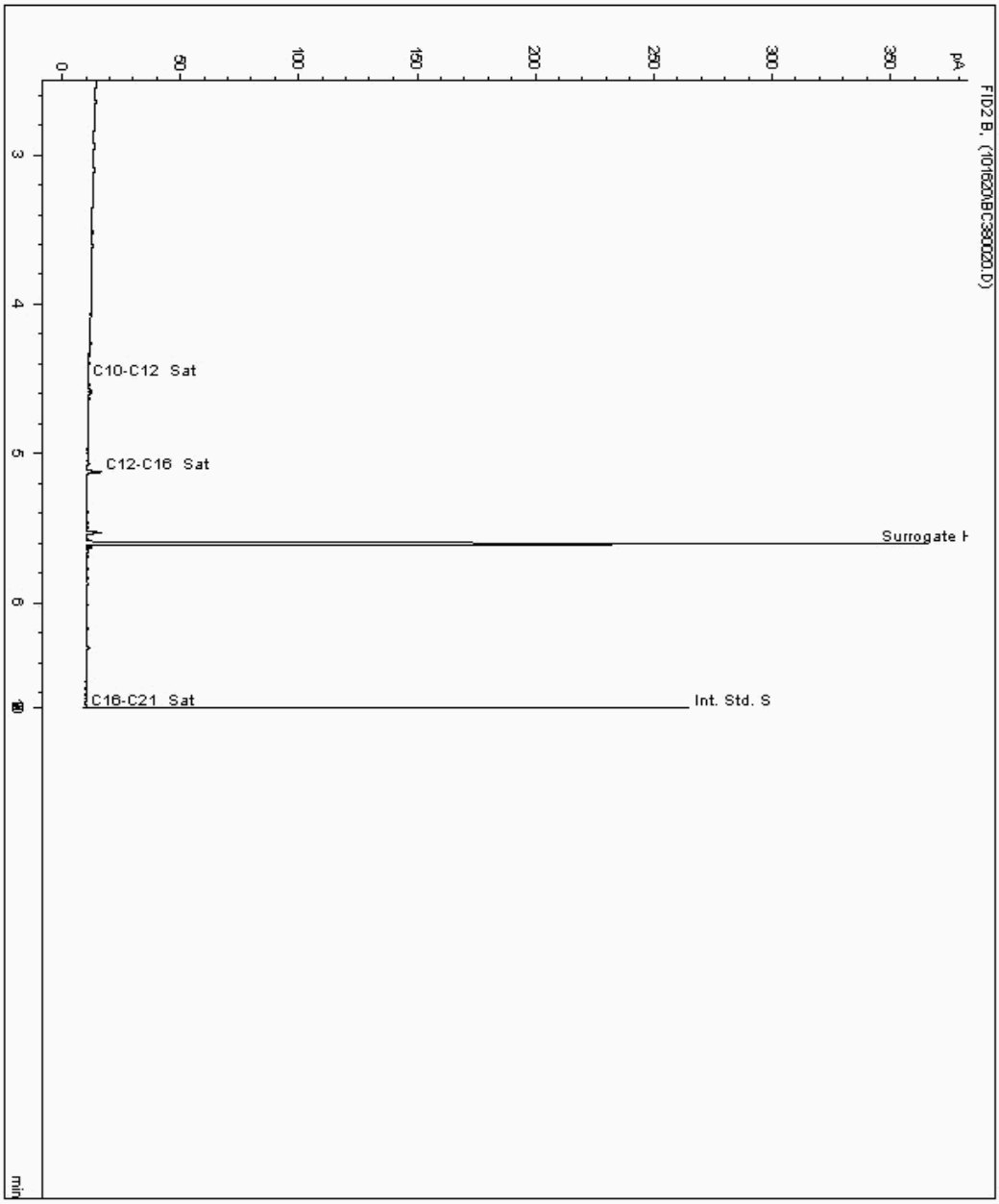
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23029613 **Depth :**
Sample ID : CELL 3/4 SUMP

Speciated TPH - SATS (C12 - C40)

Sample Identity: 21585667-
Date Acquired : 16/10/20 16:45:21 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.050



CERTIFICATE OF ANALYSIS

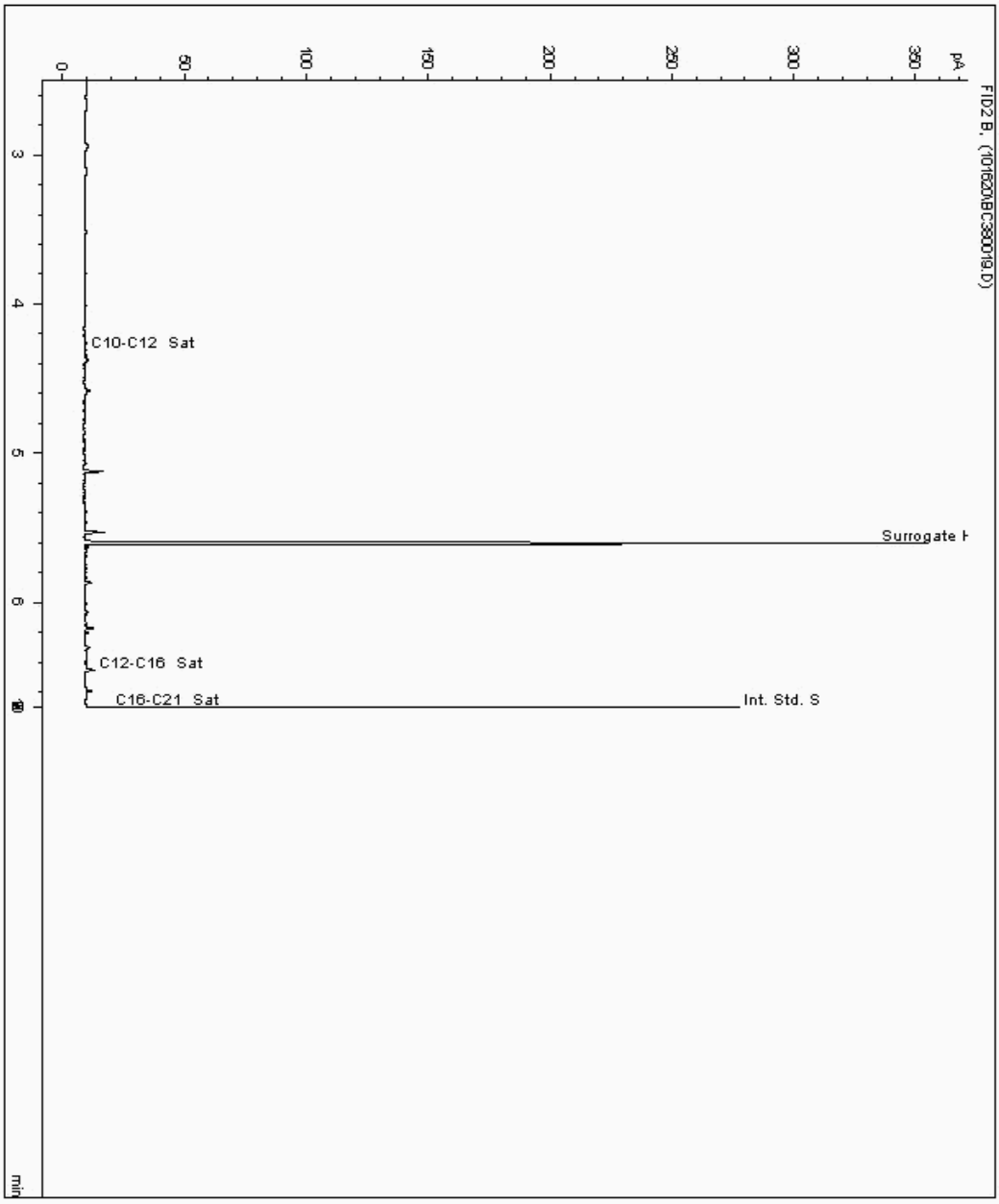
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Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23029619 **Depth :**
Sample ID : CELL 1/2 SUMP

Speciated TPH - SATS (C12 - C40)

Sample Identity: 21585611-
Date Acquired : 16/10/20 16:22:04 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.050



CERTIFICATE OF ANALYSIS

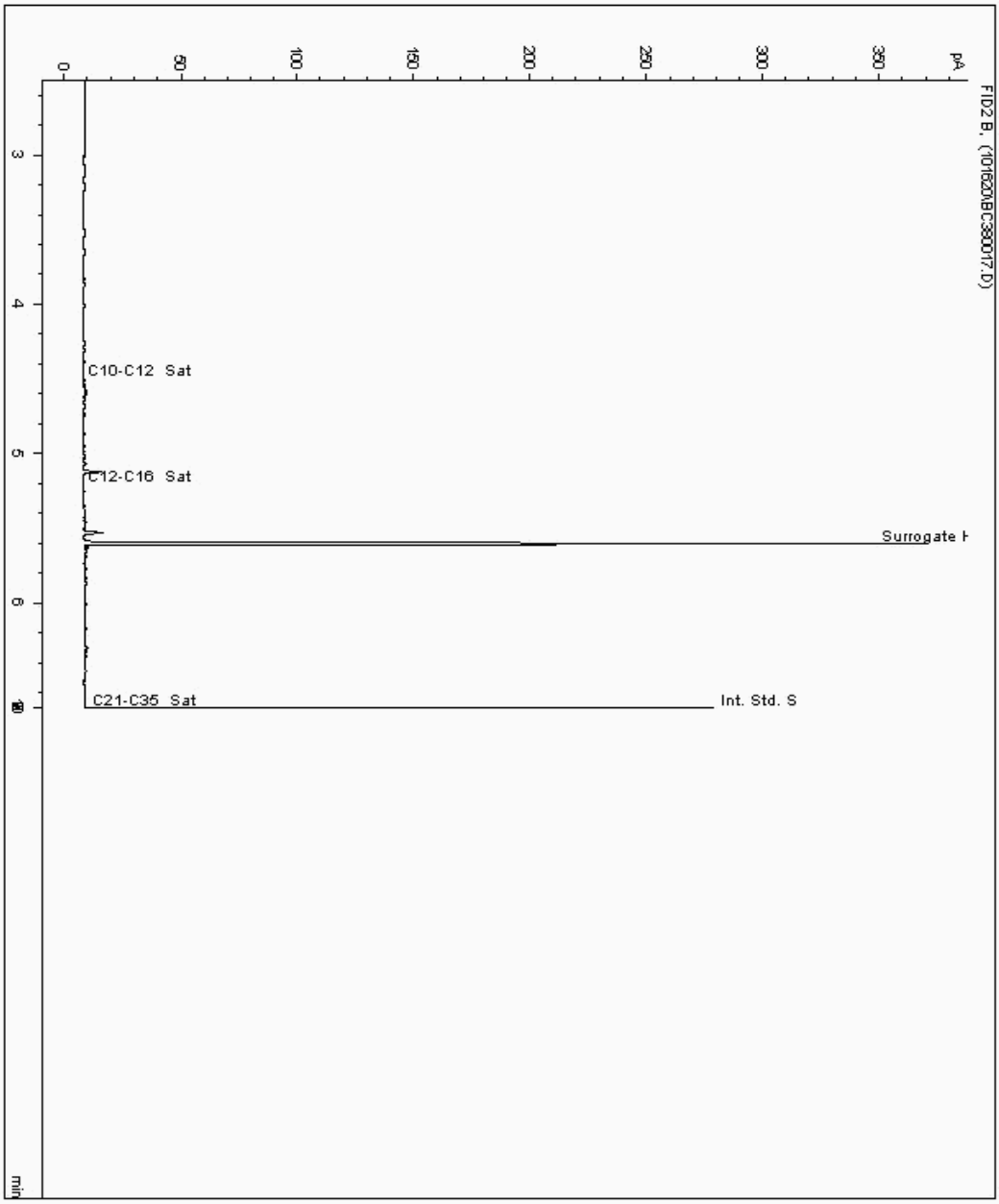
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23029663 **Depth :**
Sample ID : LEACHATE HOLDING LAGOC

Speciated TPH - SATS (C12 - C40)

Sample Identity: 21585589-
Date Acquired : 16/10/20 15:35:33 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.050



CERTIFICATE OF ANALYSIS

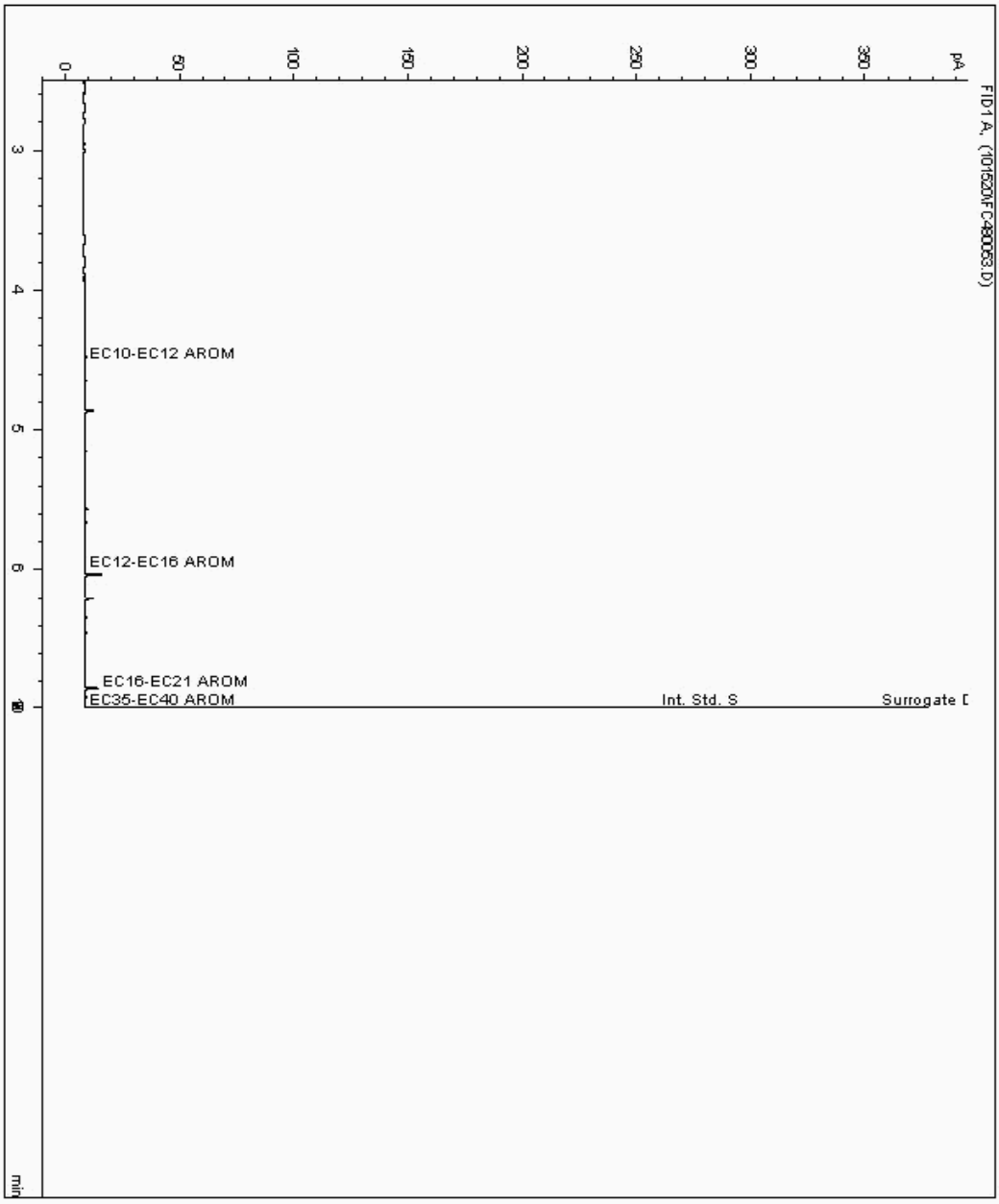
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23029548 **Sample ID :** UD5 **Depth :**

Alcontrol/Geochem Analytical Services
Speciated TPH - AROM (C12 - C40)

Sample Identity: 21585825-
Date Acquired : 16/10/2020 18:29:08 PM
Units : ppb
Dilution : SE UD5[ ] ->
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

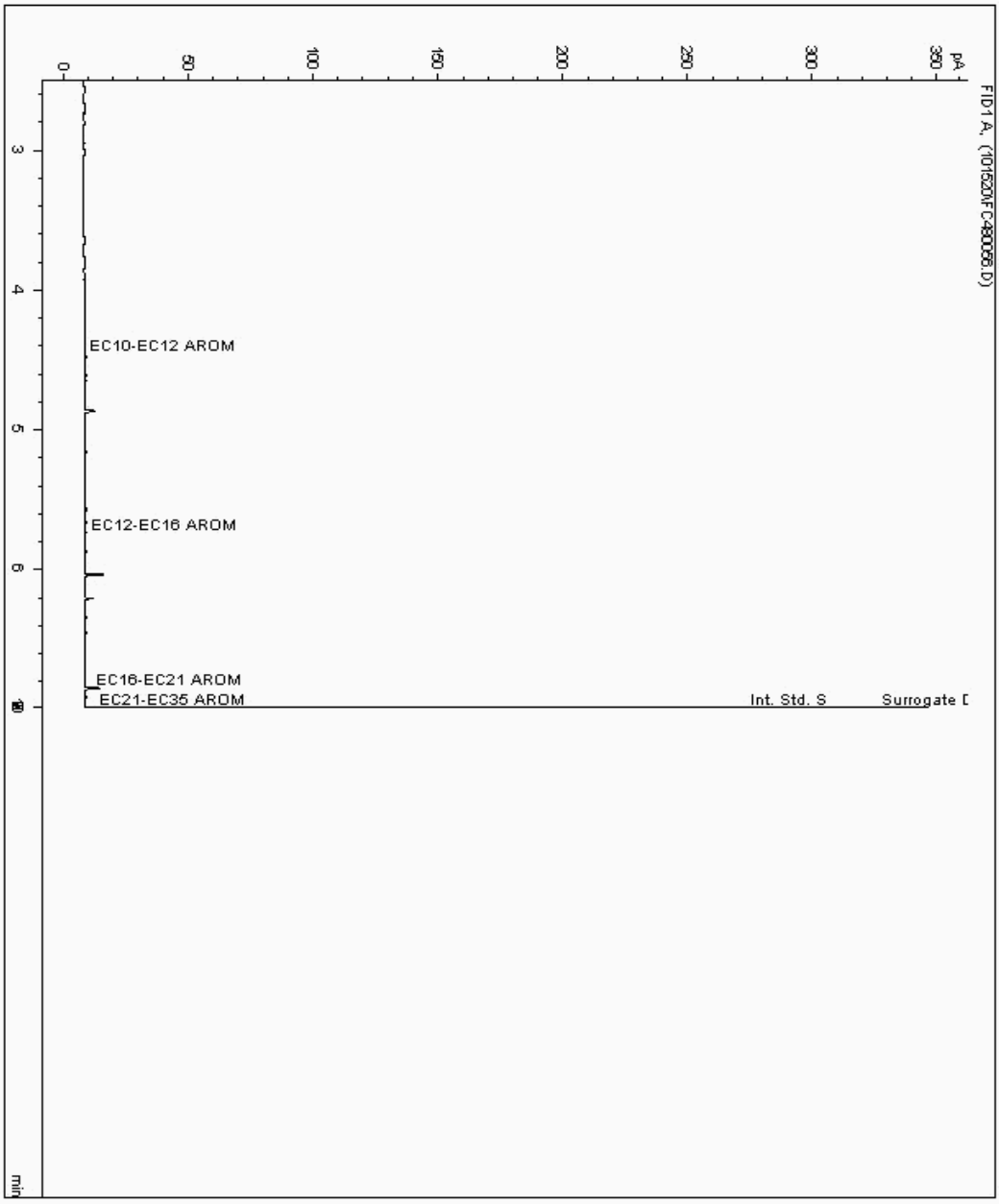
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23029563 **Depth :**
Sample ID : UD4

Alcontrol/Geochem Analytical Services
Speciated TPH - AROM (C12 - C40)

Sample Identity: 21585807-
Date Acquired : 16/10/2020 19:38:22 PM
Units : ppb
Dilution : SE UD4[ ] ->
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

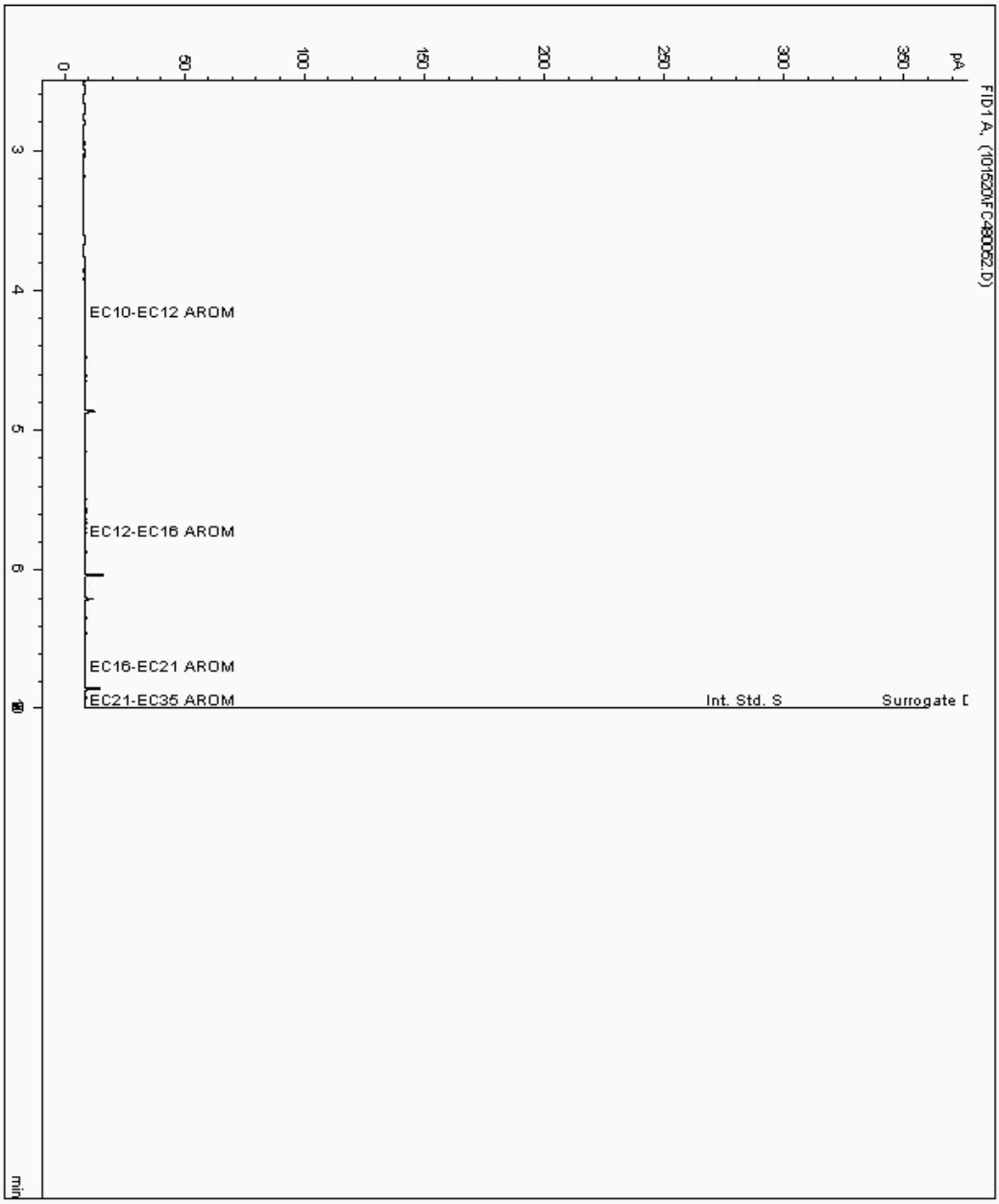
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23029578 **Depth :**
Sample ID : UD1

Alcontrol/Geochem Analytical Services
Speciated TPH - AROM (C12 - C40)

Sample Identity: 21585746-
Date Acquired : 16/10/2020 18:06:11 PM
Units : ppb
Dilution : SE UD1[ ] ->
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

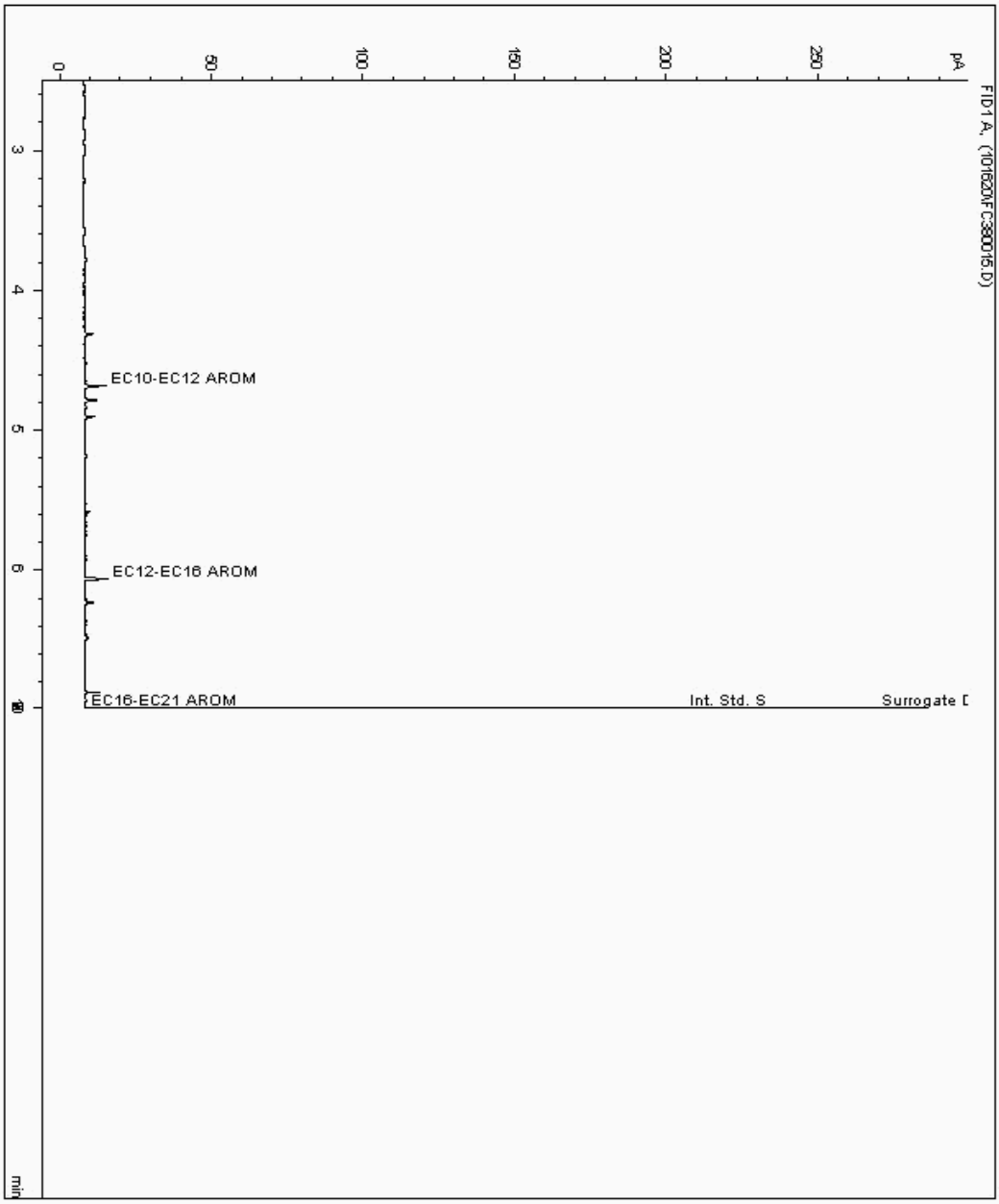
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23029579 **Sample ID :** CELL 7 SUMP **Depth :**

Speciated TPH - AROM (C12 - C40)

Sample Identity: 21585721-
Date Acquired : 16/10/20 14:49:00 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.050



CERTIFICATE OF ANALYSIS

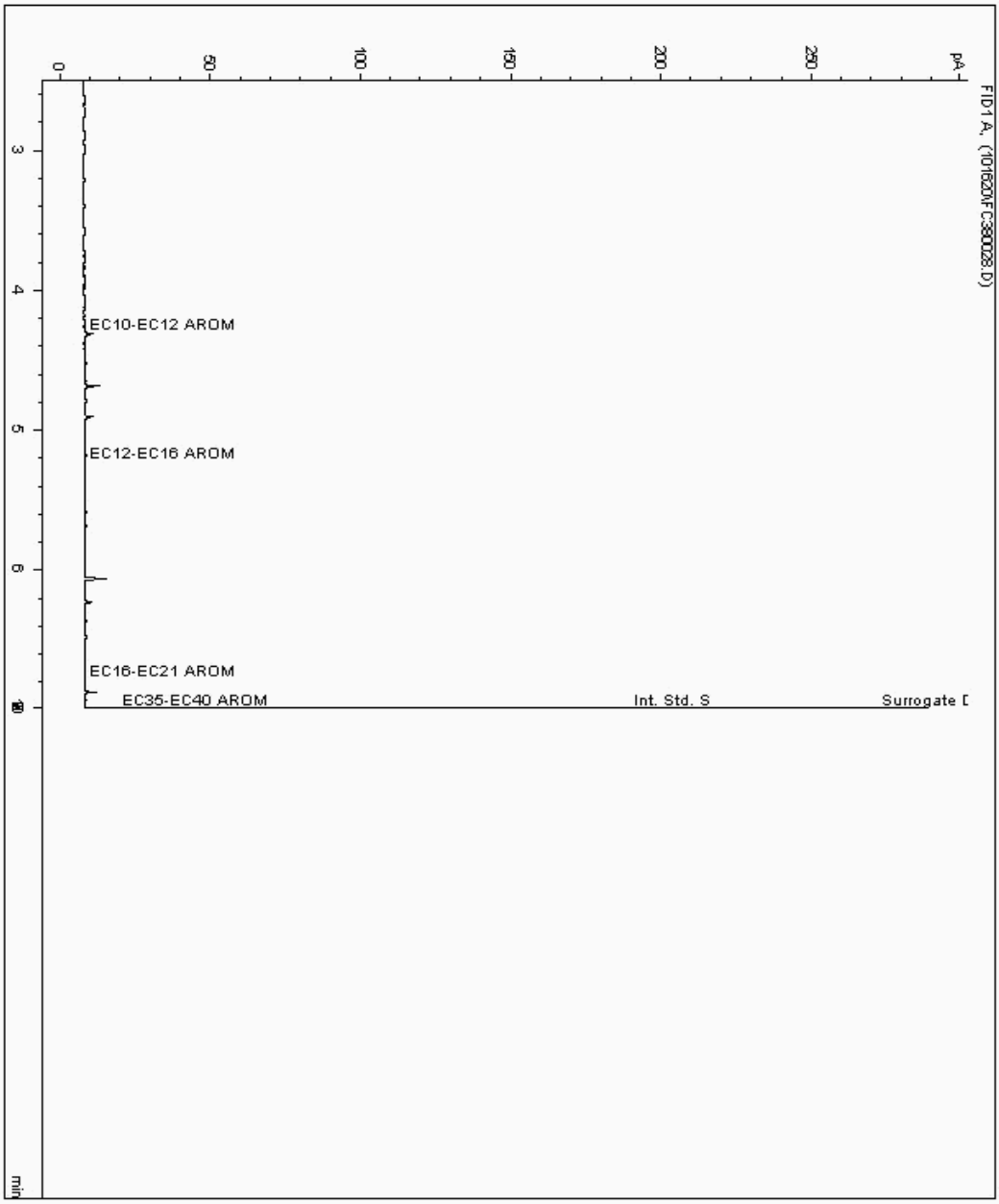
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23029585 **Depth :**
Sample ID : CELL 5 SUMP

Speciated TPH - AROM (C12 - C40)

Sample Identity: 21585685-
Date Acquired : 16/10/20 19:49:58 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.050



CERTIFICATE OF ANALYSIS

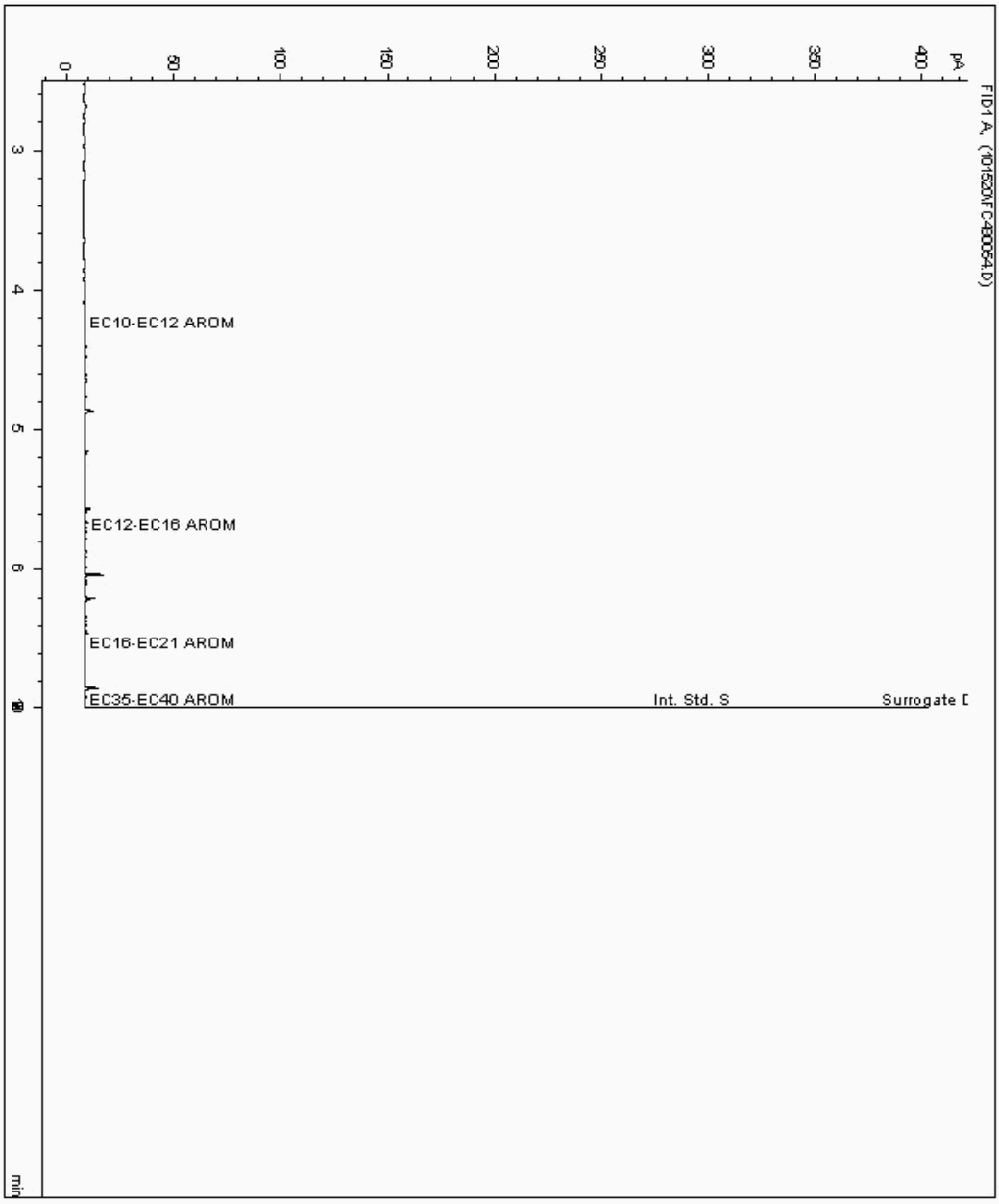
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23029595 **Sample ID :** UD3 **Depth :**

Alcontrol/Geochem Analytical Services
Speciated TPH - AROM (C12 - C40)

Sample Identity: 21585770-
Date Acquired : 16/10/2020 18:52:16 PM
Units : ppb
Dilution : SE UD3[ ] ->
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

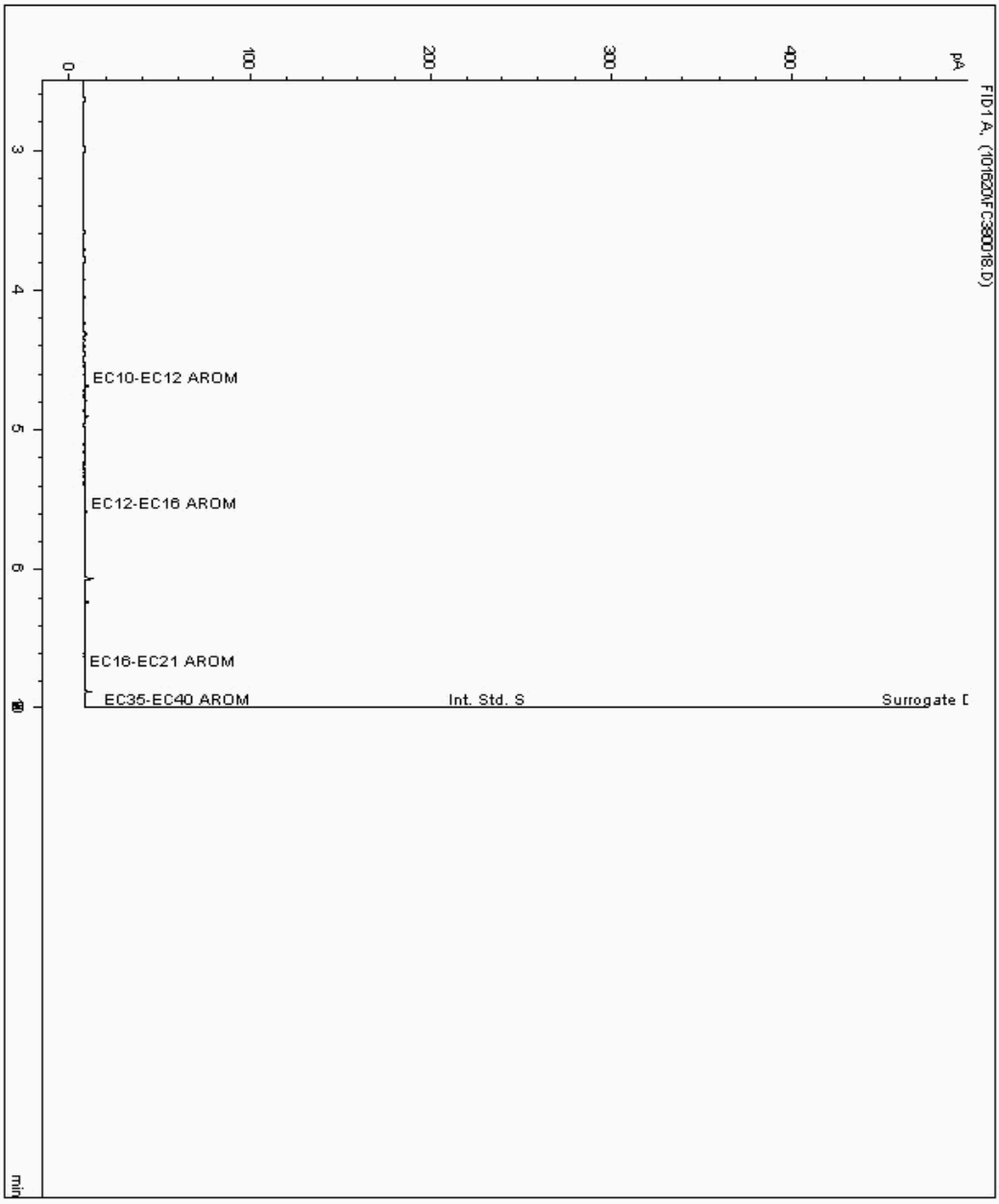
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Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23029606 **Sample ID :** CELL 6 SUMP **Depth :**

Speciated TPH - AROM (C12 - C40)

Sample Identity: 21585700-
Date Acquired : 16/10/20 15:58:56 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.050



CERTIFICATE OF ANALYSIS

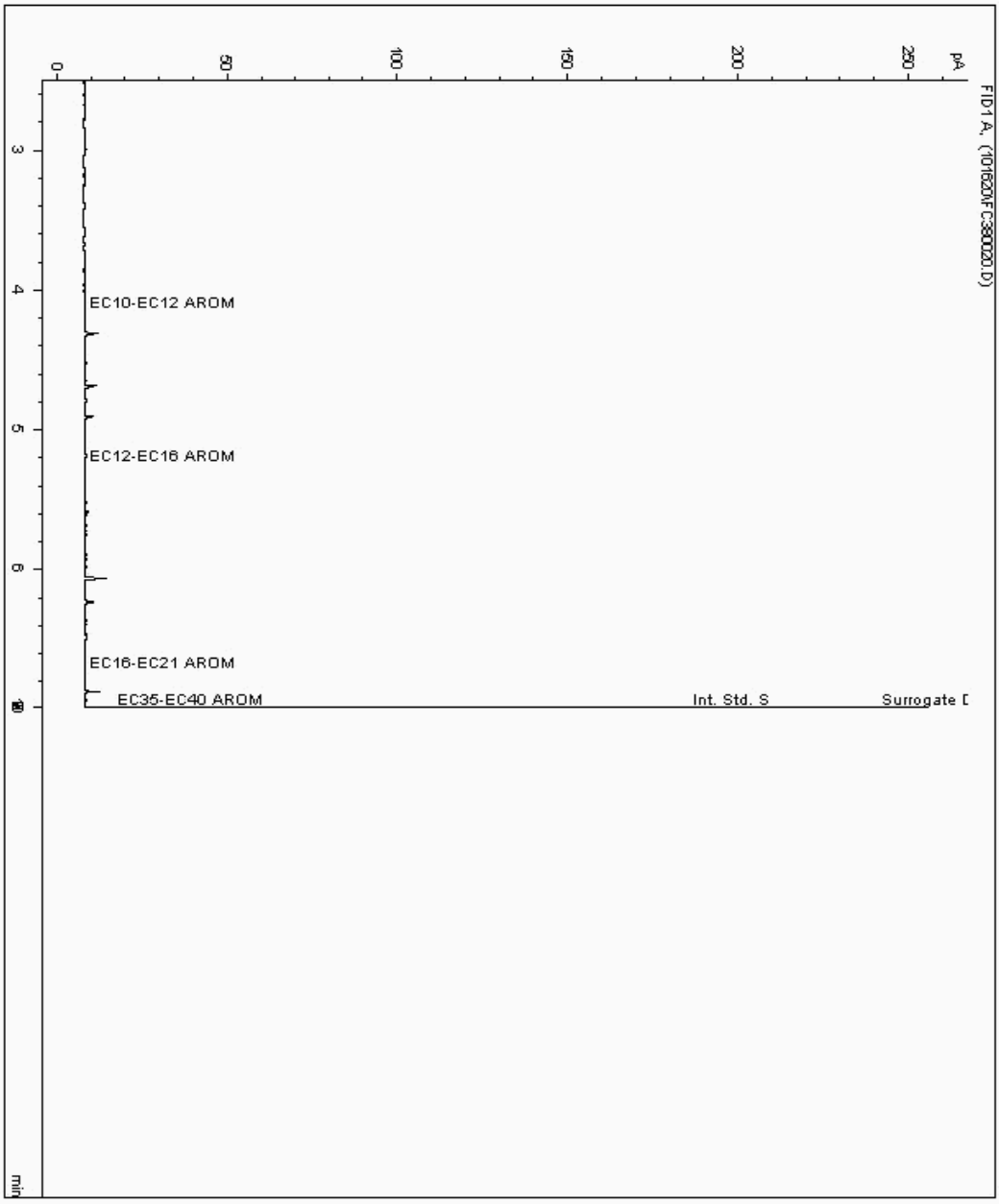
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Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23029613 **Sample ID :** CELL 3/4 SUMP **Depth :**

Speciated TPH - AROM (C12 - C40)

Sample Identity: 21585668-
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Units : ppb
Dilution :
CF : 1
Multiplier : 0.050



CERTIFICATE OF ANALYSIS

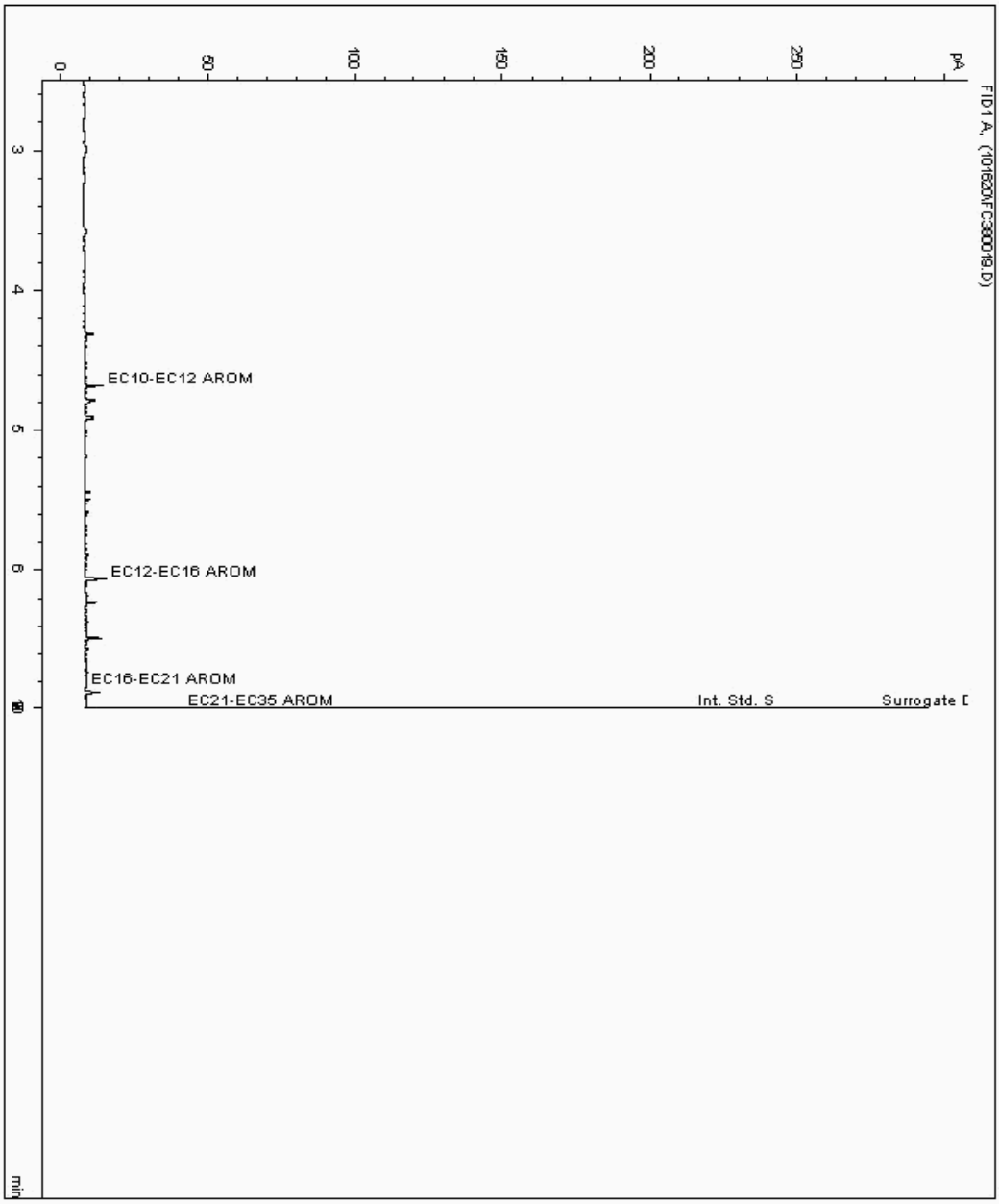
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Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23029619 **Depth :**
Sample ID : CELL 1/2 SUMP

Speciated TPH - AROM (C12 - C40)

Sample Identity: 21585612-
Date Acquired : 16/10/20 16:22:04 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.050



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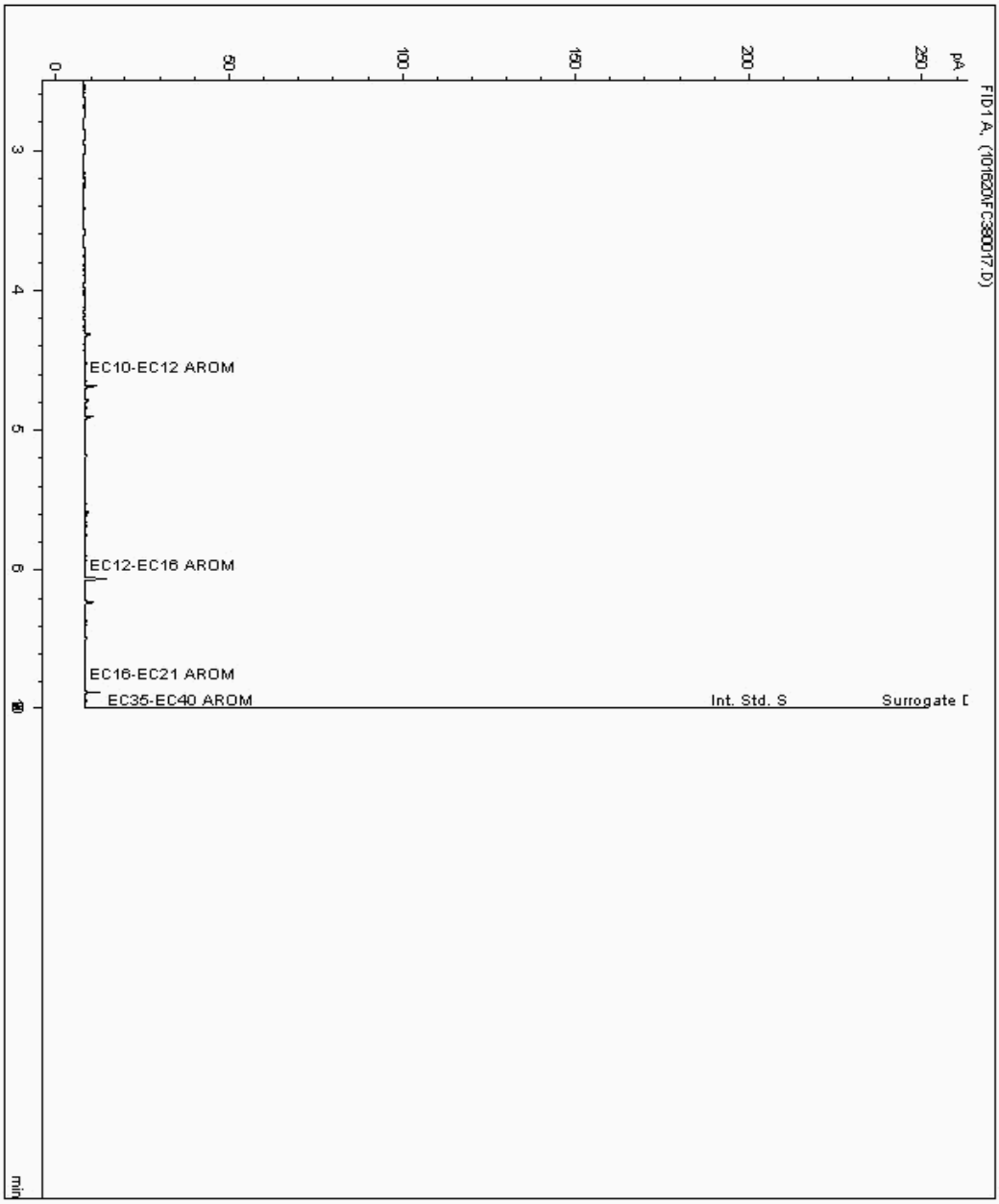
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Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23029663 **Depth :**
Sample ID : LEACHATE HOLDING LAGOC

Speciated TPH - AROM (C12 - C40)

Sample Identity: 21585590-
Date Acquired : 16/10/20 15:35:33 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.050



CERTIFICATE OF ANALYSIS

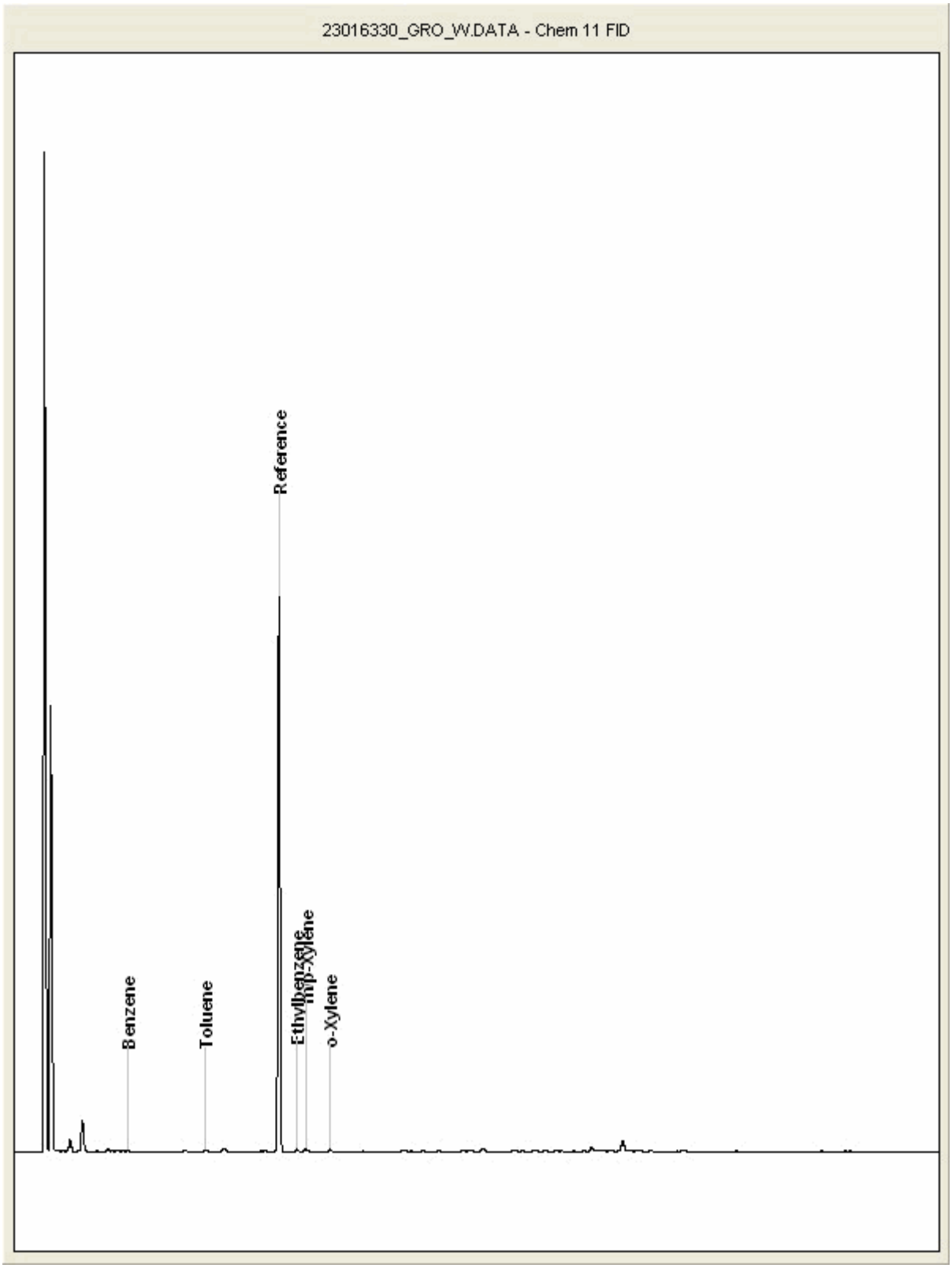
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23016330
Sample ID : CELL 7 SUMP

Depth :



CERTIFICATE OF ANALYSIS

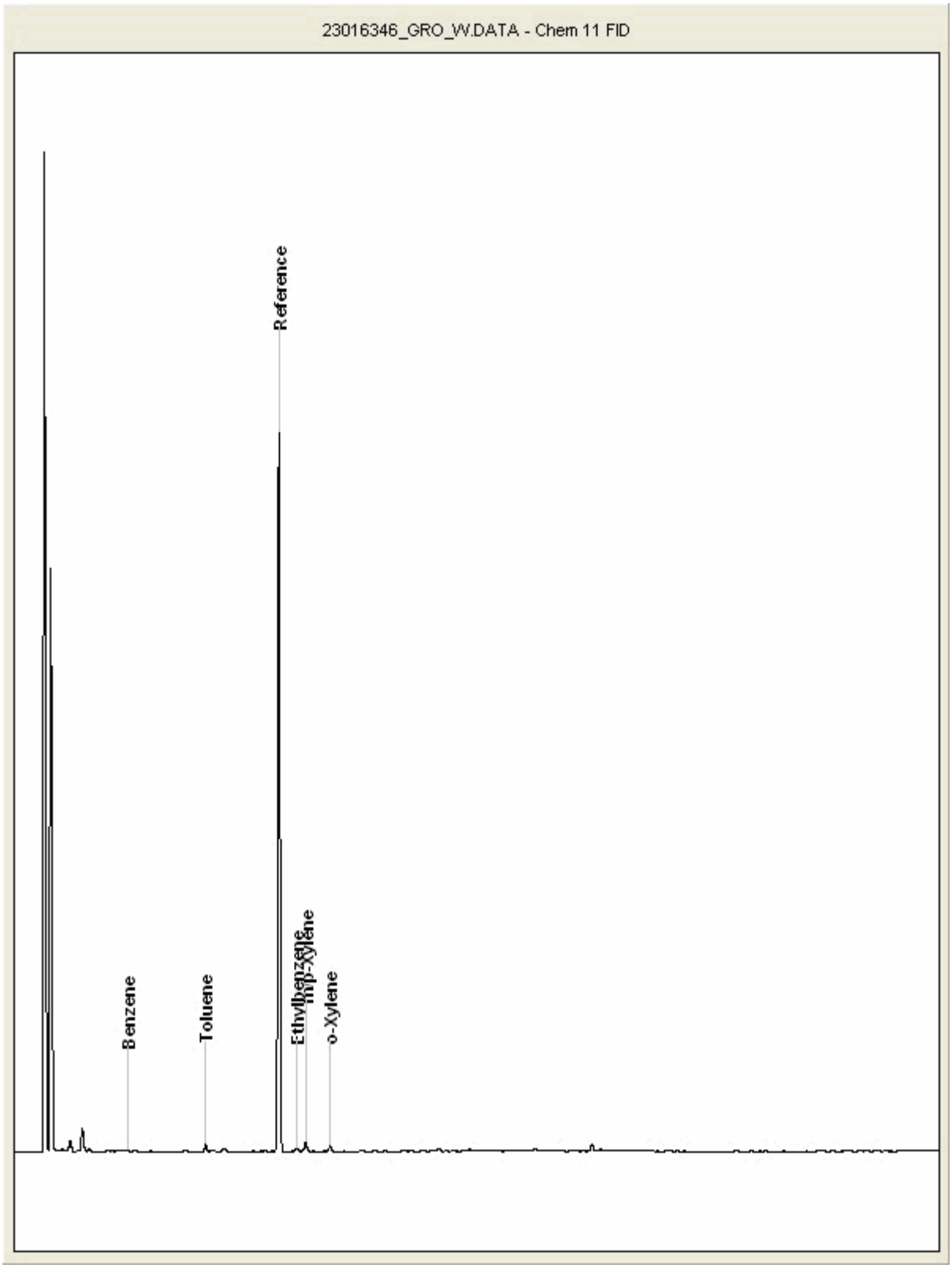
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23016346
Sample ID : CELL 1/2 SUMP

Depth :



CERTIFICATE OF ANALYSIS

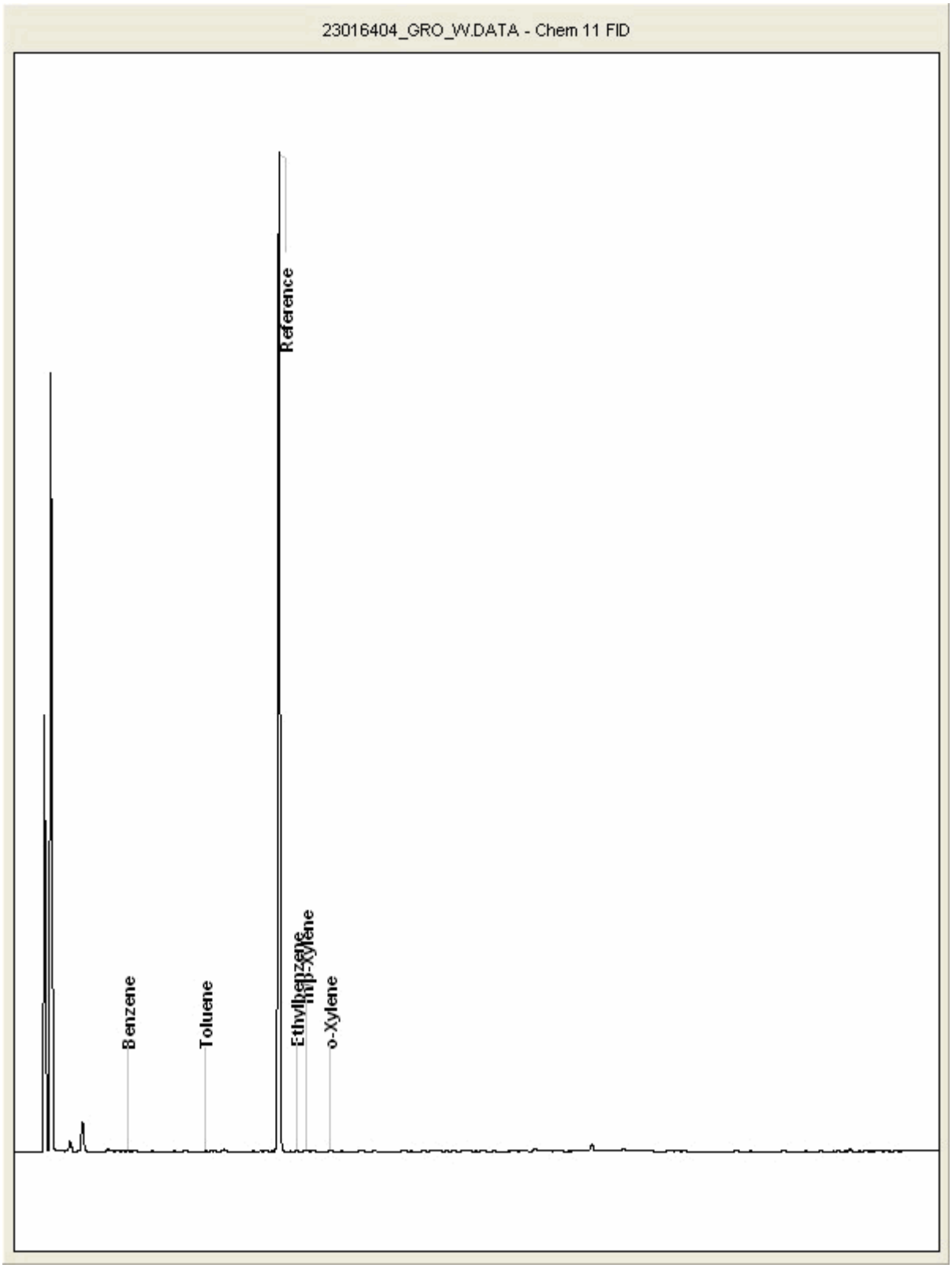
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23016404
Sample ID : CELL 5 SUMP

Depth :



CERTIFICATE OF ANALYSIS

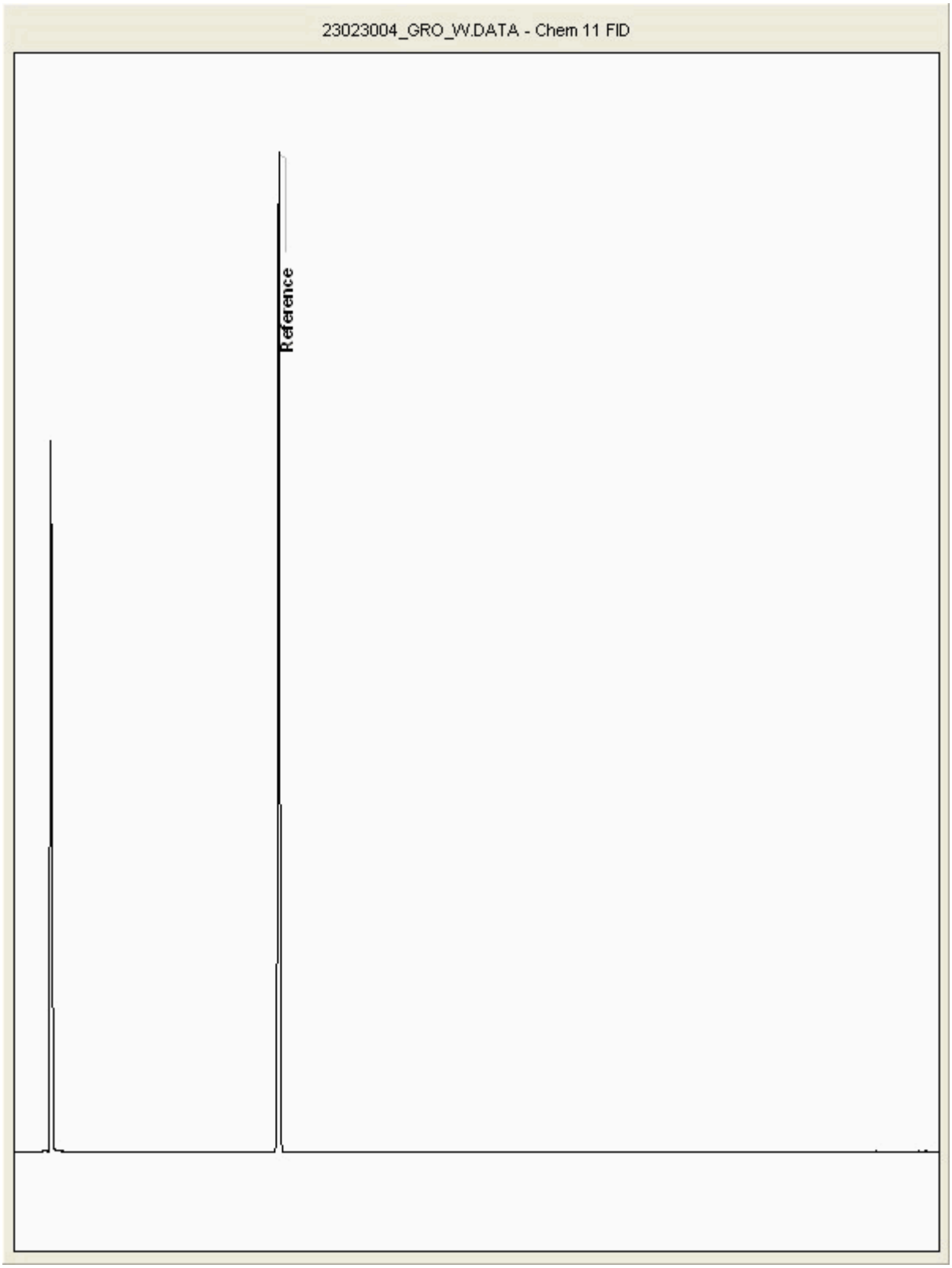
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23023004
Sample ID : UD5

Depth :



CERTIFICATE OF ANALYSIS

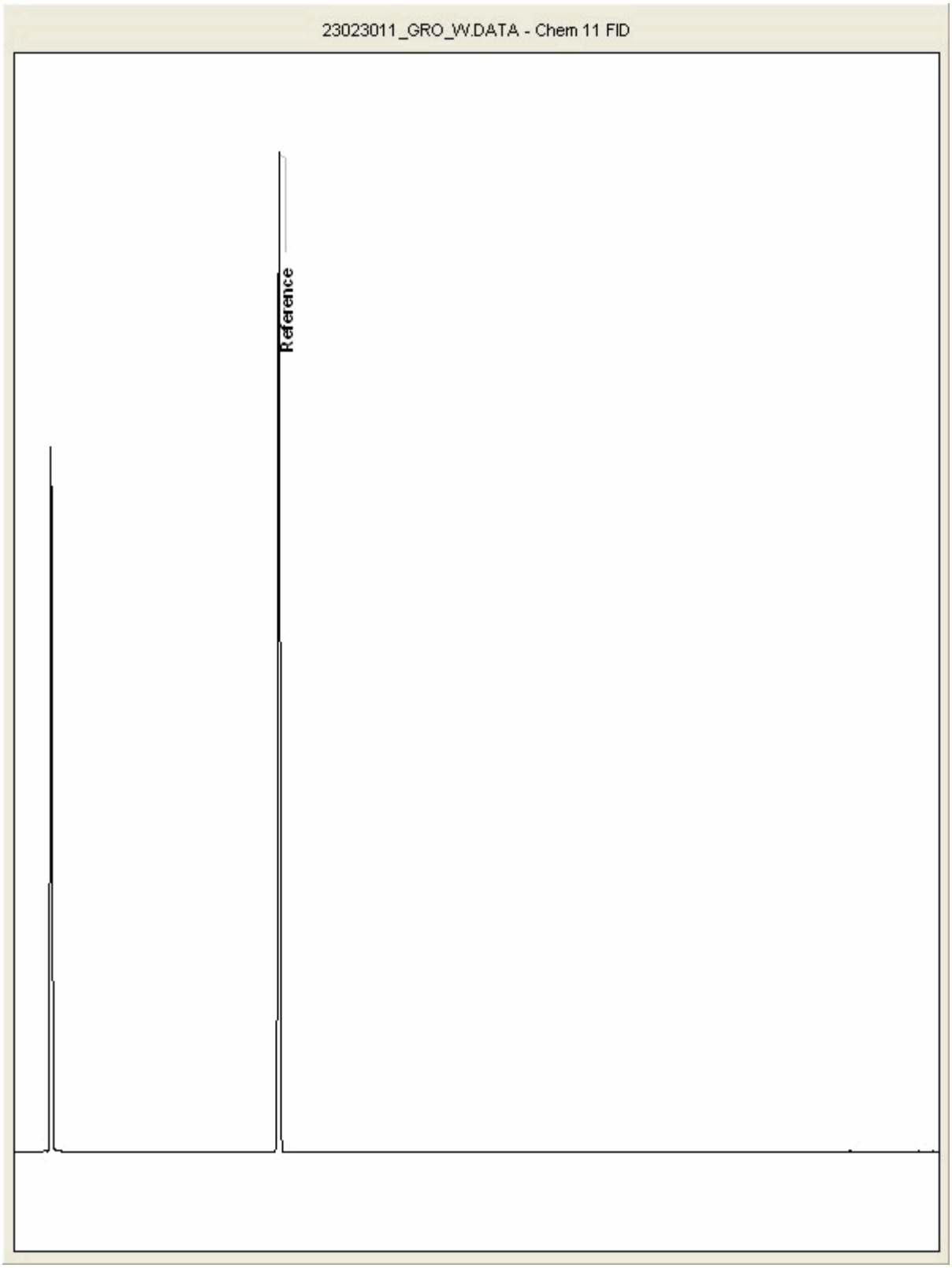
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23023011
Sample ID : UD4

Depth :



CERTIFICATE OF ANALYSIS

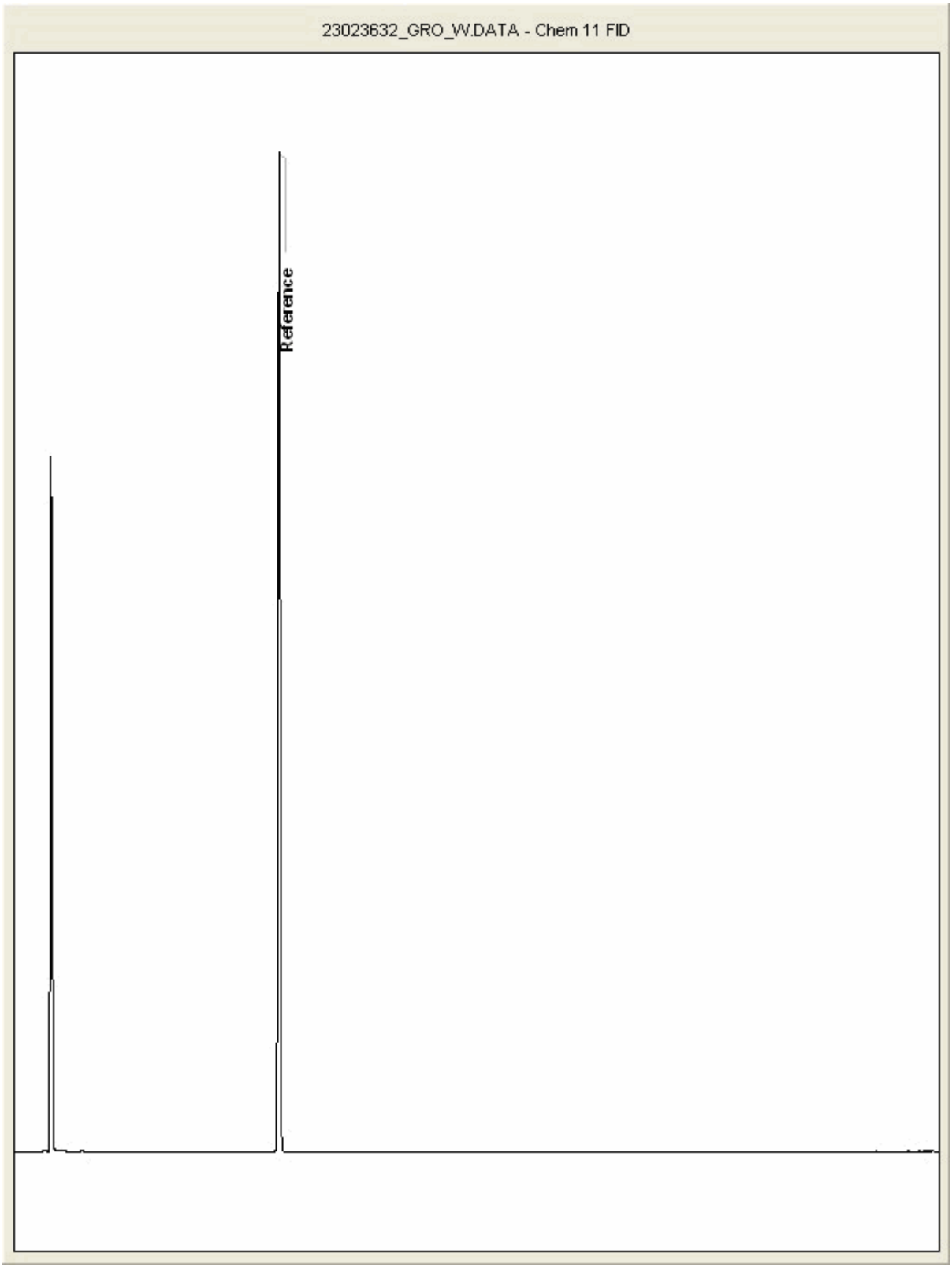
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23023632
Sample ID : UD1

Depth :



CERTIFICATE OF ANALYSIS

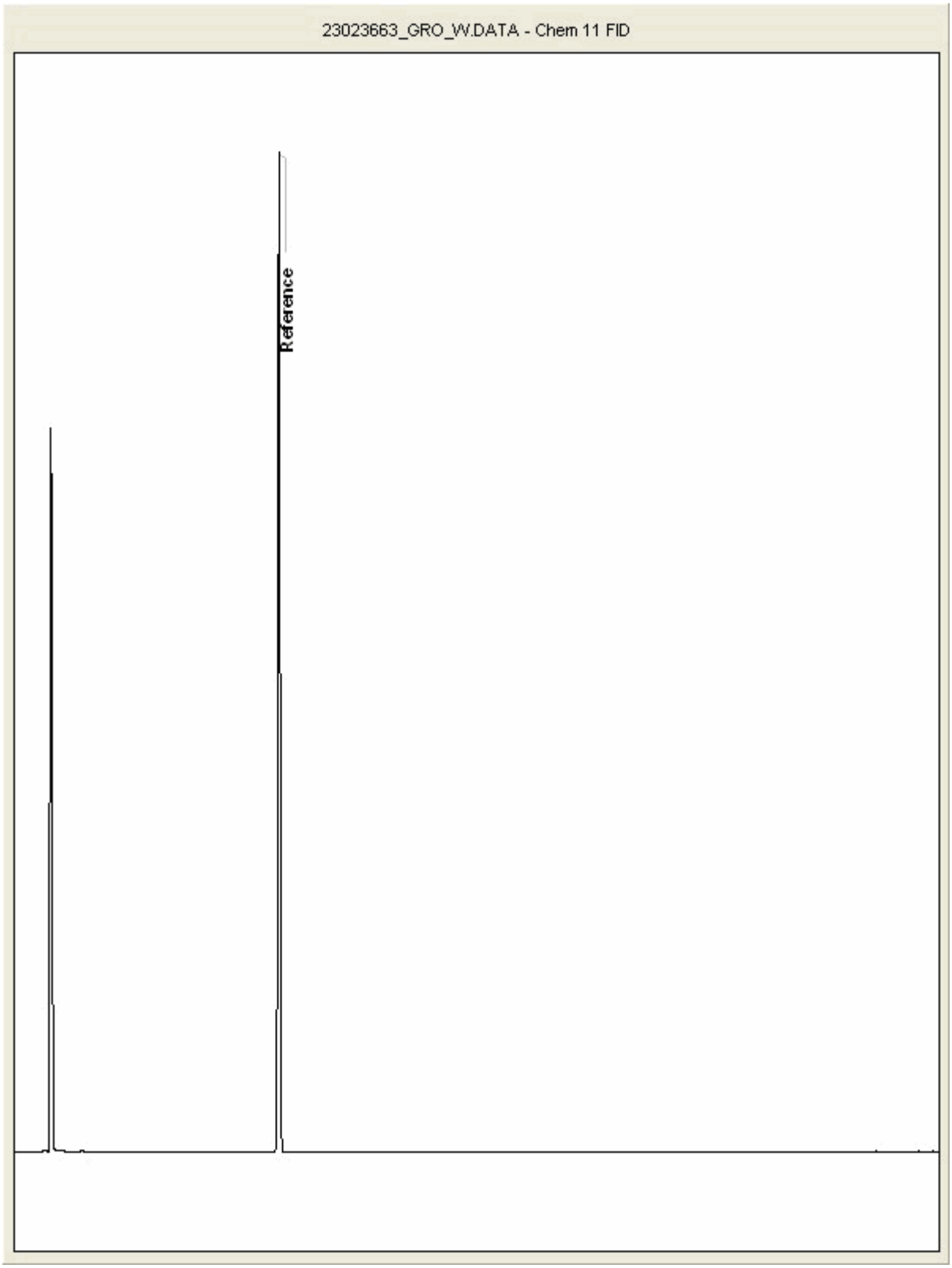
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23023663
Sample ID : UD3

Depth :



CERTIFICATE OF ANALYSIS

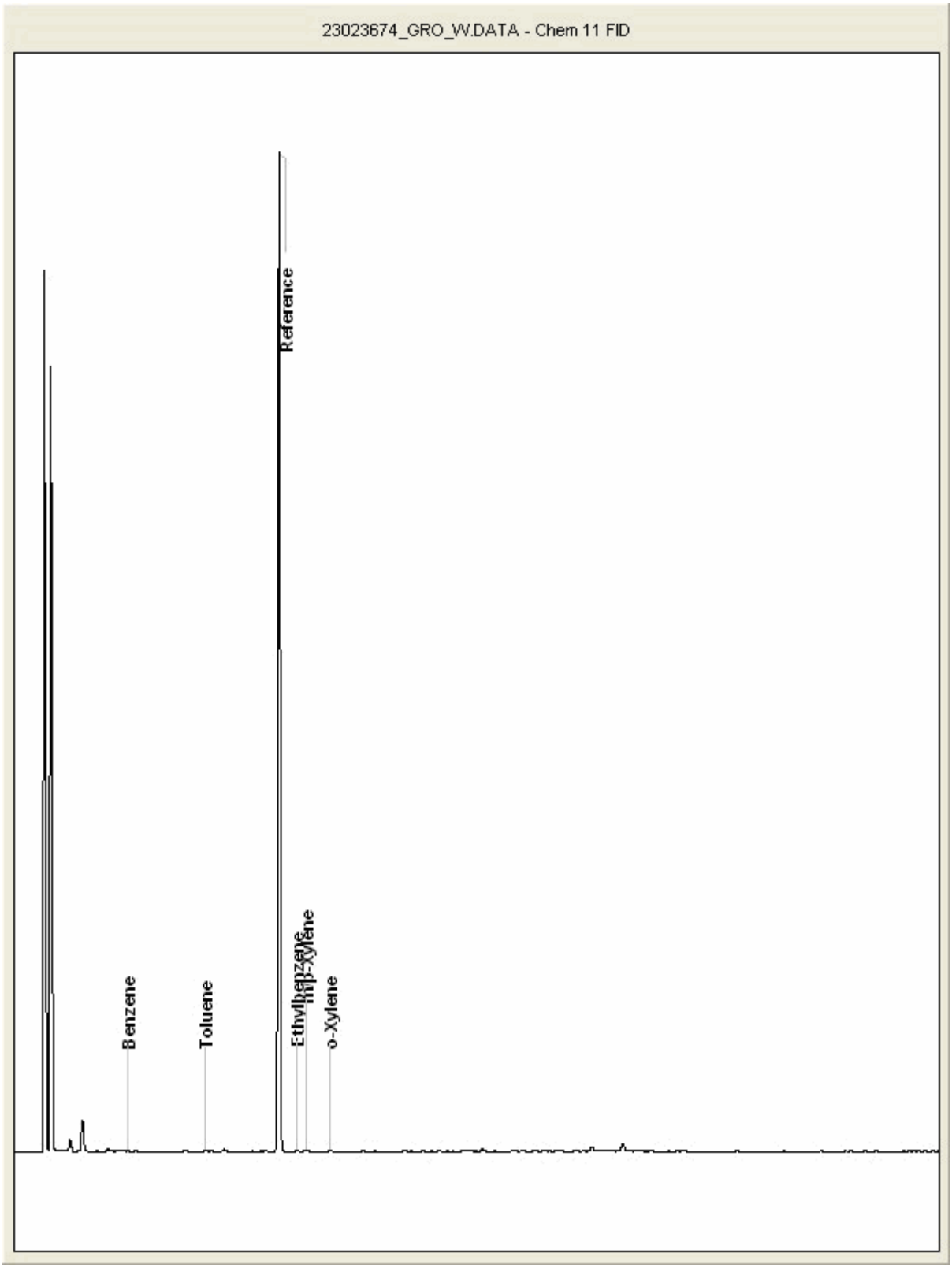
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23023674
Sample ID : LEACHATE HOLDING LAGOC

Depth :



CERTIFICATE OF ANALYSIS

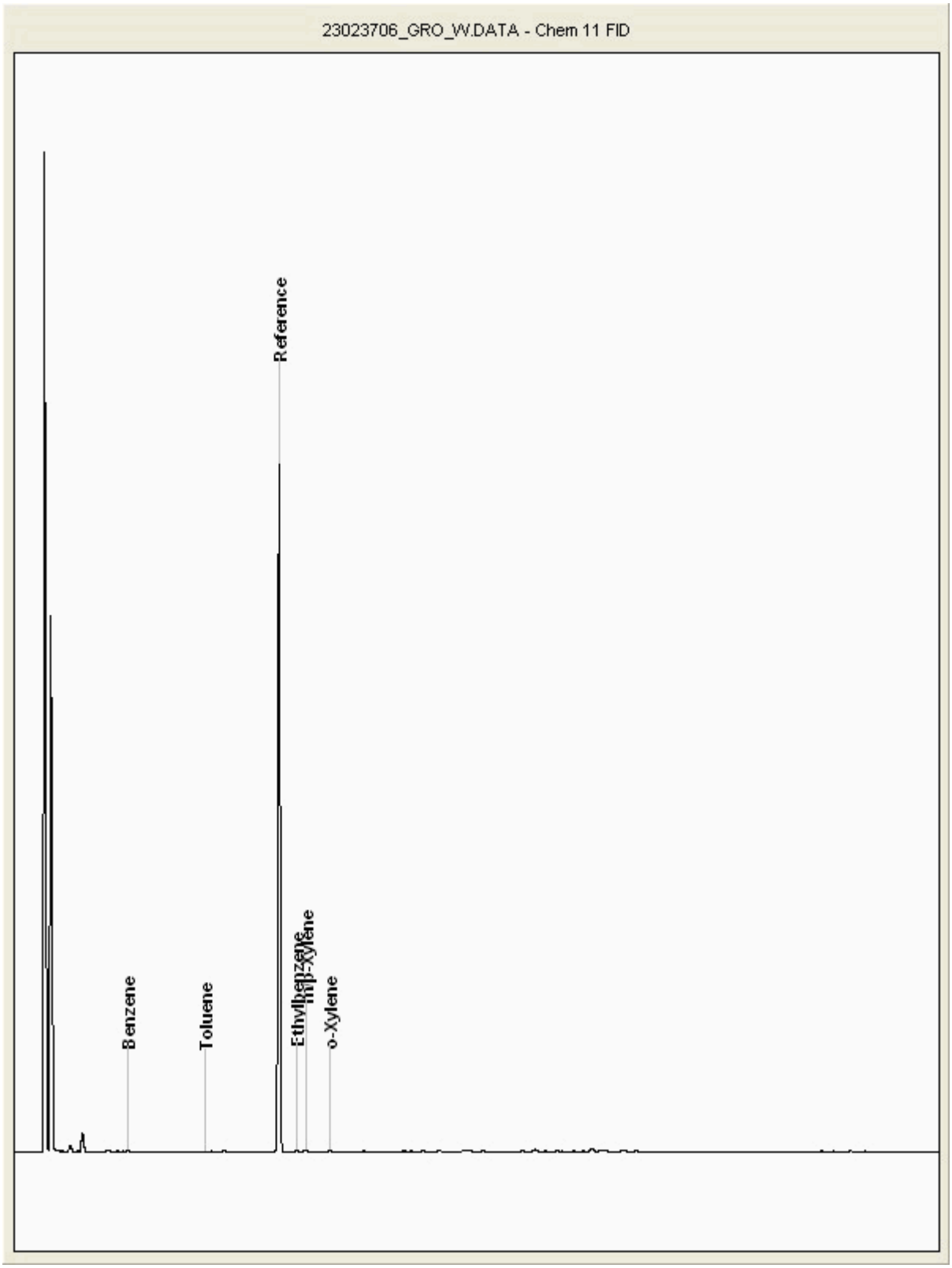
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23023706
Sample ID : CELL 3/4 SUMP

Depth :



CERTIFICATE OF ANALYSIS

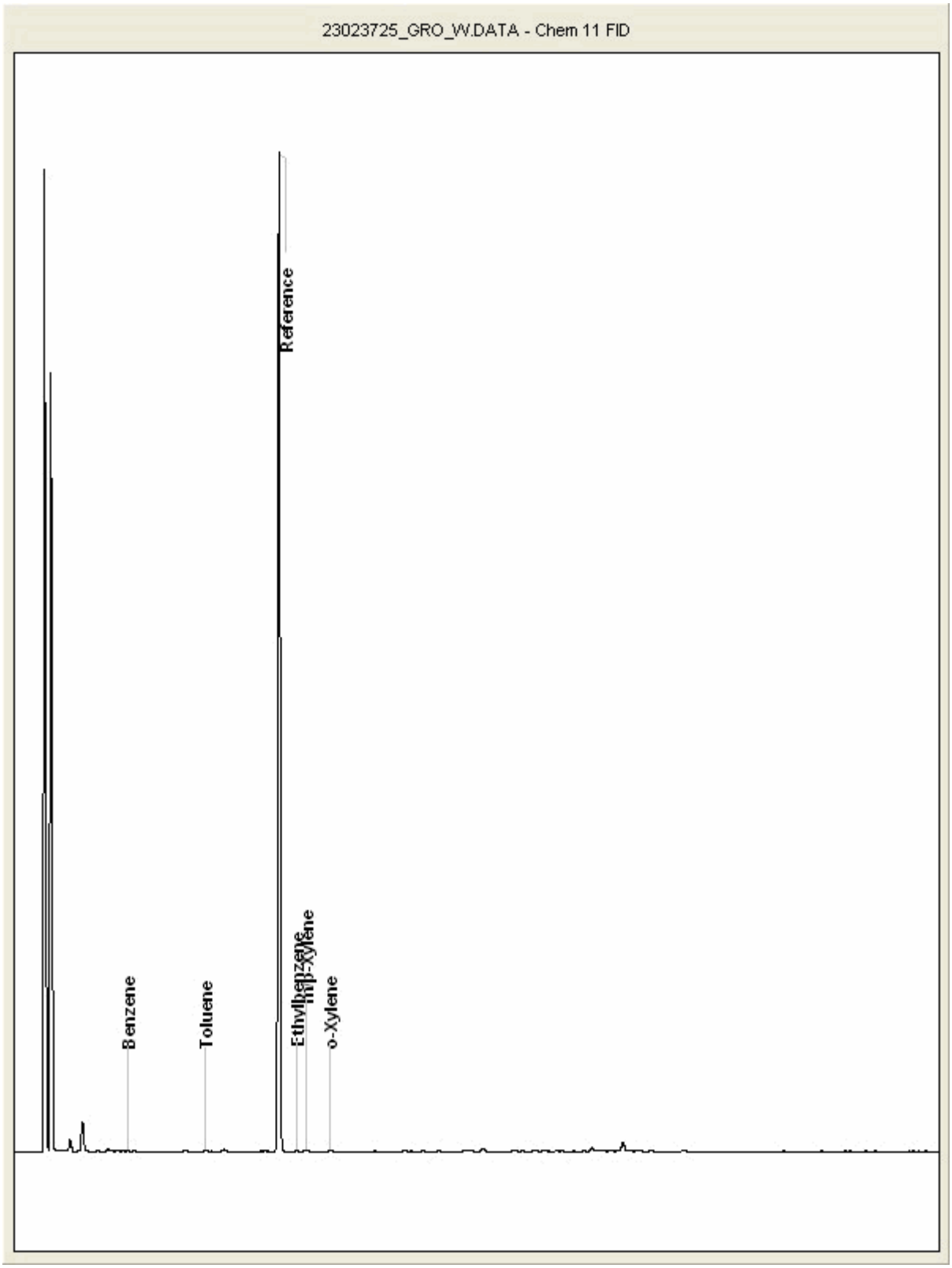
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23023725
Sample ID : CELL 6 SUMP

Depth :



ALS Environmental Ltd
Torrington Avenue
Coventry
CV4 9GU

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F: +44 (0)24 7685 6575
www.alsenvironmental.co.uk

Subcon Results
ALS Life Sciences Limited
Torrington Avenue
Tile Hill CV4 9GU

16 October 2020

Test Report: COV/1936759/2020

Dear Subcon Results

Analysis of your sample(s) received on 14 October 2020 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:

Name: A. Zunzunegui

Title: Dept Organic Technical Manager

UKAS TESTING 1314

bsi ISO 14001 Environmental Management CERTIFIED ISO 45001 Occupational Health and Safety Management CERTIFIED
EMS 675527 OHS 542058

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No.02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

Report Summary

ANALYSED BY

Hawarden Subcon Results
ALS Life Sciences Limited
Torrington Avenue
Tile Hill
CV4 9GU

Date of Issue: **16 October 2020**

Report Number: **COV/1936759/2020** Issue **1**

This issue replaces all previous issues

Job Description: 2020 Analysis

Job Location: 201007-14

Number of Samples included in this report **7**

Job Received: **14 October 2020**

Number of Test Results included in this report **7**

Analysis Commenced: **15 October 2020**

Signed:

Name: **A. Zunzunegui** Date: **16 October 2020**

Title: **Dept Organic Technical Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated.

Information on the methods of analysis and performance characteristics are available on request.
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested and where relevant sampled.
Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.
This test report is not a statement of conformity to any specification or standard.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.
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Certificate of Analysis

ANALYSED BY

UKAS TESTING 1314

ALS

Report Number:	**COV/1936759/2020**	Issue	**1**
Laboratory Number:	**19772775**	Sample	**1** of **7**
Sample Source:	**ALS Life Sciences Limited**		
Sample Point Description:			
Sample Description:	**23024086**		
Sample Matrix:	**Land Leachate**		
Sample Date/Time:			
Sample Received:	**14 October 2020**		
Analysis Complete:	**16 October 2020**		
SDG:	**201007-14**		
Sample Reference:	**CELL 5 SUMP**		

Test Description	Result	Units	Analysis Date	Accreditation	Method
TOC as C	404	mg/l	15/10/2020	Y Cov	WAS005

Analyst Comments for 19772775: The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues
Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.
Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.
I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed: Ainhoa

Name: **A. Zunzunegui** Date: **16 October 2020**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY

UKAS TESTING 1314

ALS

Report Number:	**COV/1936759/2020**	Issue	**1**
Laboratory Number:	**19772776**	Sample	**2** of **7**
Sample Source:	**ALS Life Sciences Limited**		
Sample Point Description:			
Sample Description:	**23024077**		
Sample Matrix:	**Land Leachate**		
Sample Date/Time:			
Sample Received:	**14 October 2020**		
Analysis Complete:	**16 October 2020**		
SDG:	**201007-14**		
Sample Reference:	**CELL 7 SUMP**		

Test Description	Result	Units	Analysis Date	Accreditation	Method
TOC as C	622	mg/l	15/10/2020	Y Cov	WAS005

Analyst Comments for 19772776: The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues
Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.
Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.
I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed: 

Name: **A. Zunzunegui** Date: **16 October 2020**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY

UKAS TESTING 1314

ALS

Report Number:	**COV/1936759/2020**	Issue	**1**
Laboratory Number:	**19772777**	Sample	**3** of **7**
Sample Source:	**ALS Life Sciences Limited**		
Sample Point Description:			
Sample Description:	**23024102**		
Sample Matrix:	**Surface Water**		
Sample Date/Time:			
Sample Received:	**14 October 2020**		
Analysis Complete:	**16 October 2020**		
SDG:	**201007-14**		
Sample Reference:	**SW201**		

Test Description	Result	Units	Analysis Date	Accreditation	Method
TOC as C	6.6	mg/l	15/10/2020	N Cov	WAS005

Analyst Comments for 19772777: The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues
Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.
Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.
I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed: 

Name: **A. Zunzunegui** Date: **16 October 2020**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY

UKAS TESTING 1314

ALS

Report Number:	**COV/1936759/2020**	Issue	**1**
Laboratory Number:	**19772778**	Sample	**4** of **7**
Sample Source:	**ALS Life Sciences Limited**		
Sample Point Description:			
Sample Description:	**23024139**		
Sample Matrix:	**Surface Water**		
Sample Date/Time:			
Sample Received:	**14 October 2020**		
Analysis Complete:	**16 October 2020**		
SDG:	**201007-14**		
Sample Reference:	**SW202**		

Test Description	Result	Units	Analysis Date	Accreditation	Method
TOC as C	12.8	mg/l	15/10/2020	N Cov	WAS005

Analyst Comments for 19772778: The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues
Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.
Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.
I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed: 

Name: **A. Zunzunegui** Date: **16 October 2020**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY

UKAS TESTING 1314

ALS

Report Number:	**COV/1936759/2020**	Issue	**1**
Laboratory Number:	**19772779**	Sample	**5** of **7**
Sample Source:	**ALS Life Sciences Limited**		
Sample Point Description:			
Sample Description:	**23024111**		
Sample Matrix:	**Surface Water**		
Sample Date/Time:			
Sample Received:	**14 October 2020**		
Analysis Complete:	**16 October 2020**		
SDG:	**201007-14**		
Sample Reference:	**SW203**		

Test Description	Result	Units	Analysis Date	Accreditation	Method
TOC as C	8.5	mg/l	15/10/2020	N Cov	WAS005

Analyst Comments for 19772779: The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues
Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.
Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.
I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed: Ainhoa

Name: **A. Zunzunegui** Date: **16 October 2020**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY

UKAS TESTING 1314

ALS

Report Number:	**COV/1936759/2020**	Issue	**1**
Laboratory Number:	**19772780**	Sample	**6** of **7**
Sample Source:	**ALS Life Sciences Limited**		
Sample Point Description:			
Sample Description:	**23024119**		
Sample Matrix:	**Surface Water**		
Sample Date/Time:			
Sample Received:	**14 October 2020**		
Analysis Complete:	**16 October 2020**		
SDG:	**201007-14**		
Sample Reference:	**SW204**		

Test Description	Result	Units	Analysis Date	Accreditation	Method
TOC as C	11.4	mg/l	15/10/2020	N Cov	WAS005

Analyst Comments for 19772780: The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues
Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.
Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.
I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed: 

Name: **A. Zunzunegui** Date: **16 October 2020**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY

UKAS TESTING 1314

ALS

Report Number:	**COV/1936759/2020**	Issue	**1**
Laboratory Number:	**19772781**	Sample	**7** of **7**
Sample Source:	**ALS Life Sciences Limited**		
Sample Point Description:			
Sample Description:	**23024128**		
Sample Matrix:	**Surface Water**		
Sample Date/Time:			
Sample Received:	**14 October 2020**		
Analysis Complete:	**16 October 2020**		
SDG:	**201007-14**		
Sample Reference:	**SW205**		

Test Description	Result	Units	Analysis Date	Accreditation	Method
TOC as C	13.3	mg/l	15/10/2020	N Cov	WAS005

Analyst Comments for 19772781: The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues
Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.
Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.
I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed: Ainhoa

Name: **A. Zunzunegui** Date: **16 October 2020**

Title: **Dept Organic Technical Manager**

ANALYST COMMENTS FOR REPORT COV/1936759/2020 Issue 1

This issue replaces all previous issues

Date of Issue: **16 October 2020**

Sample No	Analysis Comments
19772775	The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.
19772776	The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.
19772777	The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.
19772778	The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.
19772779	The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.
19772780	The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.
19772781	The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.

Signed: 

Name: **A. Zunzunegui** Date: **16 October 2020**

Title: **Dept Organic Technical Manager**

DETERMINAND COMMENTS FOR REPORT COV/1936759/2020

ISSUE 1

This issue replaces all previous issues

Date of Issue: 16 October 2020

Sample No	Description	Determinand	Comments

Signed: 

Name: **A. Zunzunegui** Date: **16 October 2020**

Title: **Dept Organic Technical Manager**

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ALS Environmental Ltd
Torrington Avenue
Coventry
CV4 9GU

T: +44 (0)24 7642 1213
F: +44 (0)24 7685 6575
www.alsenvironmental.co.uk

Subcon Results
ALS Life Sciences Limited
Torrington Avenue
Tile Hill CV4 9GU

19 October 2020

Test Report: COV/1936700/2020

Dear Subcon Results

Analysis of your sample(s) received on 14 October 2020 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:

Name: A. Zunzunegui

Title: Dept Organic Technical Manager

UKAS TESTING 1314

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EMS 675527 OHS 542058

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

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Report Summary

ANALYSED BY

Hawarden Subcon Results
ALS Life Sciences Limited
Torrington Avenue
Tile Hill
CV4 9GU

Date of Issue: **19 October 2020**

Report Number: **COV/1936700/2020** Issue **1**

This issue replaces all previous issues

Job Description: 2020 Analysis

Job Location: 201007-14

Number of Samples included in this report **6**

Job Received: **14 October 2020**

Number of Test Results included in this report **6**

Analysis Commenced: **15 October 2020**

Signed:

Name: **A. Zunzunegui** Date: **19 October 2020**

Title: **Dept Organic Technical Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated.

Information on the methods of analysis and performance characteristics are available on request.
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested and where relevant sampled.
Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.
This test report is not a statement of conformity to any specification or standard.

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Certificate of Analysis

ANALYSED BY

UKAS TESTING 1314

ALS

Report Number:	**COV/1936700/2020**	Issue	**1**
Laboratory Number:	**19772405**	Sample	**1** of **6**
Sample Source:	**ALS Life Sciences Limited**		
Sample Point Description:			
Sample Description:	**23022554**		
Sample Matrix:	**Land Leachate**		
Sample Date/Time:			
Sample Received:	**14 October 2020**		
Analysis Complete:	**19 October 2020**		
SDG:	**201007-14**		
Sample Reference:	**CELL 1/2 SUMP**		

Test Description	Result	Units	Analysis Date	Accreditation	Method
TOC as C	888	mg/l	15/10/2020	Y Cov	WAS005

Analyst Comments for 19772405: The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues
Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.
Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.
I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed: 

Name: **A. Zunzunegui** Date: **19 October 2020**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY

UKAS TESTING 1314

ALS

Report Number:	**COV/1936700/2020**	Issue	**1**
Laboratory Number:	**19772406**	Sample	**2** of **6**
Sample Source:	**ALS Life Sciences Limited**		
Sample Point Description:			
Sample Description:	**23022537**		
Sample Matrix:	**Land Leachate**		
Sample Date/Time:			
Sample Received:	**14 October 2020**		
Analysis Complete:	**19 October 2020**		
SDG:	**201007-14**		
Sample Reference:	**CELL 3/4 SUMP**		

Test Description	Result	Units	Analysis Date	Accreditation	Method
TOC as C	316	mg/l	15/10/2020	Y Cov	WAS005

Analyst Comments for 19772406: The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues
Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.
Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.
I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed: Ainhoa

Name: **A. Zunzunegui** Date: **19 October 2020**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY

Report Number:	**COV/1936700/2020**	Issue	**1**
Laboratory Number:	**19772407**	Sample	**3** of **6**
Sample Source:	**ALS Life Sciences Limited**		
Sample Point Description:			
Sample Description:	**23022568**		
Sample Matrix:	**Land Leachate**		
Sample Date/Time:			
Sample Received:	**14 October 2020**		
Analysis Complete:	**19 October 2020**		
SDG:	**201007-14**		
Sample Reference:	**CELL 6 SUMP**		

Test Description	Result	Units	Analysis Date	Accreditation	Method
TOC as C	410	mg/l	15/10/2020	Y Cov	WAS005

Analyst Comments for 19772407: The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues
Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.
Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.
I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed: 

Name: **A. Zunzunegui** Date: **19 October 2020**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY

UKAS TESTING 1314

ALS

Report Number:	**COV/1936700/2020**	Issue	**1**
Laboratory Number:	**19772408**	Sample	**4** of **6**
Sample Source:	**ALS Life Sciences Limited**		
Sample Point Description:			
Sample Description:	**23022558**		
Sample Matrix:	**Land Leachate**		
Sample Date/Time:			
Sample Received:	**14 October 2020**		
Analysis Complete:	**19 October 2020**		
SDG:	**201007-14**		
Sample Reference:	**LEACHATE HOLDING LAGOON**		

Test Description	Result	Units	Analysis Date	Accreditation	Method
TOC as C	452	mg/l	15/10/2020	Y Cov	WAS005

Analyst Comments for 19772408: The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues
Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.
Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.
I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed: 

Name: **A. Zunzunegui** Date: **19 October 2020**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY

UKAS TESTING 1314

ALS

Report Number:	**COV/1936700/2020**	Issue	**1**
Laboratory Number:	**19772409**	Sample	**5** of **6**
Sample Source:	**ALS Life Sciences Limited**		
Sample Point Description:			
Sample Description:	**23022917**		
Sample Matrix:	**Surface Water**		
Sample Date/Time:			
Sample Received:	**14 October 2020**		
Analysis Complete:	**19 October 2020**		
SDG:	**201007-14**		
Sample Reference:	**SW206**		

Test Description	Result	Units	Analysis Date	Accreditation	Method
TOC as C	4.5	mg/l	16/10/2020	N Cov	WAS005

Analyst Comments for 19772409: The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues
Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.
Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.
I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed: Ainhoa

Name: **A. Zunzunegui** Date: **19 October 2020**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY

UKAS TESTING 1314

ALS

Report Number:	**COV/1936700/2020**	Issue	**1**
Laboratory Number:	**19772410**	Sample	**6** of **6**
Sample Source:	**ALS Life Sciences Limited**		
Sample Point Description:			
Sample Description:	**23022548**		
Sample Matrix:	**Surface Water**		
Sample Date/Time:			
Sample Received:	**14 October 2020**		
Analysis Complete:	**19 October 2020**		
SDG:	**201007-14**		
Sample Reference:	**SW207**		

Test Description	Result	Units	Analysis Date	Accreditation	Method
TOC as C	8.4	mg/l	15/10/2020	N Cov	WAS005

Analyst Comments for 19772410: The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues
Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.
Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.
I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed: Ainhoa

Name: **A. Zunzunegui** Date: **19 October 2020**

Title: **Dept Organic Technical Manager**

ANALYST COMMENTS FOR REPORT COV/1936700/2020 Issue 1

This issue replaces all previous issues

Date of Issue: **19 October 2020**

Sample No	Analysis Comments
19772405	The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.
19772406	The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.
19772407	The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.
19772408	The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.
19772409	The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.
19772410	The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.

Signed: 

Name: **A. Zunzunegui** Date: **19 October 2020**

Title: **Dept Organic Technical Manager**

DETERMINAND COMMENTS FOR REPORT COV/1936700/2020

ISSUE 1

This issue replaces all previous issues

Date of Issue: 19 October 2020

Sample No	Description	Determinand	Comments

Signed: 

Name: **A. Zunzunegui** Date: **19 October 2020**

Title: **Dept Organic Technical Manager**

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Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

19. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2017).*

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528700
Fax: (01244) 528701
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

CWM Environmental Ltd
Nantyclaws Landfill Site
Llanddarg Road
Carmarthen
Carmarthenshire
SA32 8BG

Attention: Darren Sanders

CERTIFICATE OF ANALYSIS

Date of report Generation:	24 November 2020
Customer:	CWM Environmental Ltd
Sample Delivery Group (SDG):	201111-21
Your Reference:	
Location:	Nantycaws Landfill
Report No:	576995

This report has been revised and directly supersedes 576556 in its entirety.

We received 26 samples on Wednesday November 11, 2020 and 26 of these samples were scheduled for analysis which was completed on Friday November 20, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan
Operations Manager

CERTIFICATE OF ANALYSIS

SDG:	201111-21	**Client Reference:**		**Report Number:**	576995
Location:	Nantycaws Landfill	**Order Number:**	POR 000 656	**Superseded Report:**	576556

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
23215710	BH 3/4			10/11/2020
23215705	BH208			10/11/2020
23215706	BH5/02			10/11/2020
23215700	CELL 5 SUMP			10/11/2020
23215701	CELL 6 SUMP			10/11/2020
23215702	CELL 7 SUMP			10/11/2020
23215698	CELL 1/2 SUMP			10/11/2020
23215699	CELL 3/4 SUMP			10/11/2020
23215697	LEACHATE HOLDING LAGOON			10/11/2020
23215703	NACW203			10/11/2020
23215704	NACW205			10/11/2020
23215707	NACW212			10/11/2020
23215709	NACW227			10/11/2020
23215708	NACW228			10/11/2020
23215690	SW201			10/11/2020
23215691	SW202			10/11/2020
23215692	SW203			10/11/2020
23215693	SW204			10/11/2020
23215694	SW205			10/11/2020
23215695	SW206			10/11/2020
23215696	SW207			10/11/2020
23215711	UD1			10/11/2020
23215712	UD2			10/11/2020
23215713	UD3			10/11/2020
23215714	UD4			10/11/2020
23215715	UD5			10/11/2020

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG: 201111-21 **Client Reference:** **Report Number:** 576995
Location: Nantycaws Landfill **Order Number:** POR 000 656 **Superseded Report:** 576556

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water
Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			23215710		23215705		23215706		23215700		23215701		23215702		23215698		23215699		23215697		23215703	
Customer Sample Reference			BH 3/4		BH208		BH5/02		CELL 5 SUMP		CELL 6 SUMP		CELL 7 SUMP		CELL 1/2 SUMP		CELL 3/4 SUMP		LEACHATE HOLDING LAGOON		NACW203	
AGS Reference																						
Depth (m)																						
Container			250ml BOD (ALE212)	H2SO4 (ALE244)	250ml BOD (ALE212)	H2SO4 (ALE244)	250ml BOD (ALE212)	H2SO4 (ALE244)	250ml BOD (ALE212)	H2SO4 (ALE244)	250ml BOD (ALE212)	H2SO4 (ALE244)	250ml BOD (ALE212)	H2SO4 (ALE244)	250ml BOD (ALE212)	H2SO4 (ALE244)	250ml BOD (ALE212)	H2SO4 (ALE244)	250ml BOD (ALE212)	H2SO4 (ALE244)	250ml BOD (ALE212)	
Sample Type			GW	GW	GW	GW	GW	GW	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	GW	
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 24		X		X		X		X		X		X		X		X		X		
Anions by Kone (w)	All	NDPs: 0 Tests: 24	X		X		X		X		X		X		X		X		X		X	
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 24	X		X		X		X		X		X		X		X		X		X	
pH Value	All	NDPs: 0 Tests: 7																				
Suspended Solids	All	NDPs: 0 Tests: 7																				

23215711	UD1			250ml BOD (ALE212)	GW		X	X			
23215696	SW207			H2SO4 (ALE244)	SW	X					
				250ml BOD (ALE212)	SW		X	X	X	X	
23215695	SW206			H2SO4 (ALE244)	SW	X					
				250ml BOD (ALE212)	SW		X	X	X	X	
23215694	SW205			H2SO4 (ALE244)	SW	X					
				250ml BOD (ALE212)	SW		X	X	X	X	
23215693	SW204			H2SO4 (ALE244)	SW	X					
				250ml BOD (ALE212)	SW		X	X	X	X	
23215692	SW203			H2SO4 (ALE244)	SW	X					
				250ml BOD (ALE212)	SW		X	X	X	X	
23215691	SW202			H2SO4 (ALE244)	SW	X					
				250ml BOD (ALE212)	SW		X	X	X	X	
23215690	SW201			H2SO4 (ALE244)	SW	X					
				250ml BOD (ALE212)	SW		X	X	X	X	
23215708	NACW228			250ml BOD (ALE212)	GW	X	X	X			
23215707	NACW212			H2SO4 (ALE244)	GW	X					
				250ml BOD (ALE212)	GW		X	X			
23215704	NACW205			H2SO4 (ALE244)	GW	X					
				250ml BOD (ALE212)	GW		X	X			
23215703	NACW203			H2SO4 (ALE244)	GW	X					

Validated

CERTIFICATE OF ANALYSIS

SDG:	201111-21	**Client Reference:**		**Report Number:**	576995
Location:	Nantycaws Landfill	**Order Number:**	POR 000 656	**Superseded Report:**	576556

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water
Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			23215711		23215713	23215714		23215715
Customer Sample Reference			UD1		UD3	UD4		UD5
AGS Reference								
Depth (m)								
Container			H2SO4 (ALE244)	250ml BOD (ALE212)	H2SO4 (ALE244)	250ml BOD (ALE212)	H2SO4 (ALE244)	250ml BOD (ALE212)	H2SO4 (ALE244)
Sample Type			GW	GW	GW	GW	GW	GW	GW
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 24	X		X		X		X
Anions by Kone (w)	All	NDPs: 0 Tests: 24		X		X		X	
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 24		X		X		X	

Validated

CERTIFICATE OF ANALYSIS

SDG: 201111-21 **Client Reference:** **Report Number:** 576995
Location: Nantycaws Landfill **Order Number:** POR 000 656 **Superseded Report:** 576556

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4♦§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH 3/4	BH208	BH5/02	CELL 5 SUMP	CELL 6 SUMP	CELL 7 SUMP
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
			Date Sampled	10/11/2020	10/11/2020	10/11/2020	10/11/2020	10/11/2020	10/11/2020
			Sample Time	.	.	.	.	.	.
			Date Received	11/11/2020	11/11/2020	11/11/2020	11/11/2020	11/11/2020	11/11/2020
			SDG Ref	201111-21	201111-21	201111-21	201111-21	201111-21	201111-21
			Lab Sample No.(s)	23215710	23215705	23215706	23215700	23215701	23215702
			AGS Reference						
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 #	<0.2 #	<0.2 #	1080	756	1260
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120		0.25 #	0.429 #	0.462 #	19.3 #	9.41 #	13.5 #
Chloride	<2 mg/l	TM184		9.3 #	16.4 #	22.1 #	4840	1060	1720

Validated

CERTIFICATE OF ANALYSIS

SDG: 201111-21 **Client Reference:** **Report Number:** 576995
Location: Nantycaws Landfill **Order Number:** POR 000 656 **Superseded Report:** 576556

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4♦§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	CELL 1/2 SUMP	CELL 3/4 SUMP	LEACHATE HOLDING LAG OON	NACW203	NACW205	NACW212
			Depth (m)	.	.	.	.	.	.
			Sample Type	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	10/11/2020	10/11/2020	10/11/2020	10/11/2020	10/11/2020	10/11/2020
			Sample Time	.	.	.	.	.	.
			Date Received	11/11/2020	11/11/2020	11/11/2020	11/11/2020	11/11/2020	11/11/2020
			SDG Ref	201111-21	201111-21	201111-21	201111-21	201111-21	201111-21
			Lab Sample No.(s)	23215698	23215699	23215697	23215703	23215704	23215707
			AGS Reference						
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		2300	888	1270	<0.2 #	<0.2 #	<0.2 #
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120		39.8 #	11.3 #	20.6 #	0.484 #	0.478 #	0.281 #
Chloride	<2 mg/l	TM184		10800	1590	4450	28.8 #	35.4 #	12.7 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	201111-21	**Client Reference:**		**Report Number:**	576995
Location:	Nantycaws Landfill	**Order Number:**	POR 000 656	**Superseded Report:**	576556

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4♦§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	NACW228	SW201	SW202	SW203	SW204	SW205
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
			Date Sampled	10/11/2020	10/11/2020	10/11/2020	10/11/2020	10/11/2020	10/11/2020
			Sample Time	.	.	.	.	.	.
			Date Received	11/11/2020	11/11/2020	11/11/2020	11/11/2020	11/11/2020	11/11/2020
			SDG Ref	201111-21	201111-21	201111-21	201111-21	201111-21	201111-21
			Lab Sample No.(s)	23215708	23215690	23215691	23215692	23215693	23215694
			AGS Reference						
Suspended solids, Total	<2 mg/l	TM022			20.8 #	5.53 #	<4 #	<4 #	25.4 #
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 2 #	2.74 #	0.41 #	<0.2 #	<0.2 #	2.39 #
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120		0.522 #	0.679 #	0.402 #	0.595 #	0.385 #	0.665 #
Chloride	<2 mg/l	TM184		26.3 #	49 #	24.6 #	21.4 #	20.8 #	47.3 #
pH	<1 pH Units	TM256			7.49 #	7.64 #	7.65 #	7.84 #	7.63 #

Validated

CERTIFICATE OF ANALYSIS

SDG: 201111-21 **Client Reference:** **Report Number:** 576995
Location: Nantycaws Landfill **Order Number:** POR 000 656 **Superseded Report:** 576556

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4♦§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW206	SW207	UD1	UD3	UD4	UD5
			Depth (m)	.	.	.	.	.	.
			Sample Type	Surface Water (SW)	Surface Water (SW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	10/11/2020	10/11/2020	10/11/2020	10/11/2020	10/11/2020	10/11/2020
			Sample Time	.	.	.	.	.	.
			Date Received	11/11/2020	11/11/2020	11/11/2020	11/11/2020	11/11/2020	11/11/2020
			SDG Ref	201111-21	201111-21	201111-21	201111-21	201111-21	201111-21
			Lab Sample No.(s)	23215695	23215696	23215711	23215713	23215714	23215715
			AGS Reference						
Suspended solids, Total	<2 mg/l	TM022		6.76 #	5.67 #				
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 #	<0.2 #	<0.2 #	<0.2 #	0.267 #	<0.2 #
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120		0.164 #	0.214 #	0.548 #	0.382 #	0.435 #	0.39 #
Chloride	<2 mg/l	TM184		13.5 #	13.7 #	44.5 #	16.6 #	13.5 #	21.2 #
pH	<1 pH Units	TM256		7.29 #	7.81 #				

Table of Results - Appendix

Method No	Reference	Description
TM022	Method 2540D, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part120 1981;BS EN 872	Determination of total suspended solids in waters
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG:	201111-21	**Client Reference:**		**Report Number:**	576995
Location:	Nantycaws Landfill	**Order Number:**	POR 000 656	**Superseded Report:**	576556

Test Completion Dates

Lab Sample No(s)	23215705	23215710	23215706	23215700	23215701	23215702	23215698	23215699	23215697	23215703
Customer Sample Ref.	BH208	BH 3/4	BH5/02	CELL 5 SUMP	CELL 6 SUMP	CELL 7 SUMP	CELL 1/2 SUMP	CELL 3/4 SUMP	LEACHATE HOLDING LAGOON	NACW203
AGS Ref.										
Depth										
Type	Ground Water	Ground Water	Ground Water	Land	Land	Land	Land	Land	Land	Ground Water
Ammoniacal Nitrogen	18-Nov-2020	18-Nov-2020	17-Nov-2020	20-Nov-2020	20-Nov-2020	20-Nov-2020	20-Nov-2020	20-Nov-2020	20-Nov-2020	17-Nov-2020
Anions by Kone (w)	19-Nov-2020	19-Nov-2020	19-Nov-2020	19-Nov-2020	19-Nov-2020	19-Nov-2020	19-Nov-2020	19-Nov-2020	19-Nov-2020	19-Nov-2020
Conductivity (at 20 deg.C)	16-Nov-2020	13-Nov-2020	13-Nov-2020	16-Nov-2020	13-Nov-2020	16-Nov-2020	13-Nov-2020	13-Nov-2020	13-Nov-2020	16-Nov-2020

Lab Sample No(s)	23215704	23215707	23215708	23215690	23215691	23215692	23215693	23215694	23215695	23215696
Customer Sample Ref.	NACW205	NACW212	NACW228	SW201	SW202	SW203	SW204	SW205	SW206	SW207
AGS Ref.										
Depth										
Type	Ground Water	Ground Water	Ground Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Ammoniacal Nitrogen	18-Nov-2020	17-Nov-2020	18-Nov-2020	18-Nov-2020	17-Nov-2020	18-Nov-2020	17-Nov-2020	17-Nov-2020	17-Nov-2020	17-Nov-2020
Anions by Kone (w)	19-Nov-2020	19-Nov-2020	19-Nov-2020	19-Nov-2020	19-Nov-2020	19-Nov-2020	19-Nov-2020	19-Nov-2020	19-Nov-2020	19-Nov-2020
Conductivity (at 20 deg.C)	16-Nov-2020	13-Nov-2020	16-Nov-2020	13-Nov-2020	16-Nov-2020	16-Nov-2020	13-Nov-2020	13-Nov-2020	13-Nov-2020	13-Nov-2020
pH Value				13-Nov-2020	13-Nov-2020	13-Nov-2020	13-Nov-2020	13-Nov-2020	13-Nov-2020	13-Nov-2020
Suspended Solids				18-Nov-2020	18-Nov-2020	18-Nov-2020	18-Nov-2020	18-Nov-2020	18-Nov-2020	18-Nov-2020

Lab Sample No(s)	23215711	23215713	23215714	23215715
Customer Sample Ref.	UD1	UD3	UD4	UD5
AGS Ref.				
Depth				
Type	Ground Water	Ground Water	Ground Water	Ground Water
Ammoniacal Nitrogen	18-Nov-2020	18-Nov-2020	18-Nov-2020	18-Nov-2020
Anions by Kone (w)	19-Nov-2020	19-Nov-2020	19-Nov-2020	19-Nov-2020
Conductivity (at 20 deg.C)	16-Nov-2020	13-Nov-2020	13-Nov-2020	13-Nov-2020

ALS Environmental, Land	QF.7.5.1 Data Amendments Form (Issue No. 3)
	Date: 10/01/2020
	Issued and Authorised by Quality Manager

SDG	Sample Event	Sample ID	Date Amended	Amendment Reason	Previous Reference	New Reference	Supercedes Report
201111-21	23215707	NACW2/2	24/11/2020	Sample ID Change	NACW2/2	NACW212	576556

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

19. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2017).*

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528700
Fax: (01244) 528701
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

CWM Environmental Ltd
Nantyclaws Landfill Site
Llanddarg Road
Carmarthen
Carmarthenshire
SA32 8BG

Attention: Darren Sanders

CERTIFICATE OF ANALYSIS

Date of report Generation:	17 December 2020
Customer:	CWM Environmental Ltd
Sample Delivery Group (SDG):	201210-18
Your Reference:	Monthly
Location:	Nantycaws Landfill
Report No:	580637

We received 28 samples on Thursday December 10, 2020 and 24 of these samples were scheduled for analysis which was completed on Thursday December 17, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG:	201210-18	**Client Reference:**	Monthly	**Report Number:**	580637
Location:	Nantycaws Landfill	**Order Number:**	POR001010	**Superseded Report:**	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
23398889	BH3/4			09/12/2020
23398882	BH208			09/12/2020
23398884	BH5/02			09/12/2020
23398876	CELL 5 SUMP			09/12/2020
23398877	CELL 6 SUMP			09/12/2020
23398878	CELL 7 SUMP			09/12/2020
23398873	CELL 1/2 SUMP			09/12/2020
23398874	CELL 3/4 SUMP			09/12/2020
23398872	LEACHETE HOLDING LAGOON			09/12/2020
23398880	NAWC203			09/12/2020
23398881	NAWC205			09/12/2020
23398885	NAWC212			09/12/2020
23398888	NAWC227			09/12/2020
23398886	NAWC228			09/12/2020
23398898	NO ID			
23398899	NO ID			
23398865	SW201			09/12/2020
23398866	SW202			09/12/2020
23398867	SW203			09/12/2020
23398868	SW204			09/12/2020
23398869	SW205			09/12/2020
23398870	SW206			09/12/2020
23398871	SW207			09/12/2020
23398890	UD1			09/12/2020
23398892	UD2			09/12/2020
23398893	UD3			09/12/2020
23398895	UD4			09/12/2020
23398897	UD5			09/12/2020

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG:	201210-18	**Client Reference:**	Monthly	**Report Number:**	580637
Location:	Nantycaws Landfill	**Order Number:**	POR001010	**Superseded Report:**	

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			23398889	23398882	23398884	23398876	23398877	23398878	23398873	23398874	23398872	23398880
Customer Sample Reference			BH3/4	BH208	BH5/02	CELL 5 SUMP	CELL 6 SUMP	CELL 7 SUMP	CELL 1/2 SUMP	CELL 3/4 SUMP	LEACHETE HOLDING LAGOON	NAWC203
AGS Reference												
Depth (m)												
Container			250ml BOD (ALE212)	H2SO4 (ALE244)	250ml BOD (ALE212)	H2SO4 (ALE244)	250ml BOD (ALE212)	H2SO4 (ALE244)	250ml BOD (ALE212)	H2SO4 (ALE244)	250ml BOD (ALE212)	H2SO4 (ALE244)	250ml BOD (ALE212)	H2SO4 (ALE244)	250ml BOD (ALE212)	H2SO4 (ALE244)	250ml BOD (ALE212)	H2SO4 (ALE244)	250ml BOD (ALE212)	H2SO4 (ALE244)	250ml BOD (ALE212)
Sample Type			GW	GW	GW	GW	GW	GW	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	GW
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 24		X		X		X		X		X		X		X		X		X		
Anions by Kone (w)	All	NDPs: 0 Tests: 24	X		X		X		X		X		X		X		X		X		X	
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 24	X		X		X		X		X		X		X		X		X		X	
pH Value	All	NDPs: 0 Tests: 7																				
Suspended Solids	All	NDPs: 0 Tests: 7																				

| | | |

Validated

CERTIFICATE OF ANALYSIS

SDG:	201210-18	**Client Reference:**	Monthly	**Report Number:**	580637
Location:	Nantycaws Landfill	**Order Number:**	POR001010	**Superseded Report:**	

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)							
			23398890	23398893	23398895	23398897				
			Customer Sample Reference							
			UD1	UD3	UD4	UD5				
			AGS Reference							
			Depth (m)							
			Container							
			250ml BOD (ALE212)	H2SO4 (ALE244)	250ml BOD (ALE212)	H2SO4 (ALE244)	250ml BOD (ALE212)	H2SO4 (ALE244)	250ml BOD (ALE212)	H2SO4 (ALE244)
			Sample Type							
			GW	GW	GW	GW	GW	GW	GW	GW
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 24		X		X		X		X
Anions by Kone (w)	All	NDPs: 0 Tests: 24	X		X		X		X	
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 24	X		X		X		X	

Validated

CERTIFICATE OF ANALYSIS

SDG:	201210-18	**Client Reference:**	Monthly	**Report Number:**	580637
Location:	Nantycaws Landfill	**Order Number:**	POR001010	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/4	BH208	BH5/02	CELL 5 SUMP	CELL 6 SUMP	CELL 7 SUMP
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
			Date Sampled	09/12/2020	09/12/2020	09/12/2020	09/12/2020	09/12/2020	09/12/2020
			Sample Time	.	.	.	.	.	.
			Date Received	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020
			SDG Ref	201210-18	201210-18	201210-18	201210-18	201210-18	201210-18
			Lab Sample No.(s)	23398889	23398882	23398884	23398876	23398877	23398878
			AGS Reference						
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 #	<0.2 #	<0.2 #	932	1010	1570
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120		0.265 #	0.451 #	0.476 #	18.6 #	11.7 #	17 #
Chloride	<2 mg/l	TM184		9.6 #	17.2 #	21.7 #	5060	1410	2270

Validated

CERTIFICATE OF ANALYSIS

SDG:	201210-18	**Client Reference:**	Monthly	**Report Number:**	580637
Location:	Nantycaws Landfill	**Order Number:**	POR001010	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	CELL 1/2 SUMP	CELL 3/4 SUMP	LEACHETE HOLDING LAG OON	NAWC203	NAWC205	NAWC212
			Depth (m)	.	.	.	.	.	.
			Sample Type	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	09/12/2020	09/12/2020	09/12/2020	09/12/2020	09/12/2020	09/12/2020
			Sample Time	.	.	.	.	.	.
			Date Received	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020
			SDG Ref	201210-18	201210-18	201210-18	201210-18	201210-18	201210-18
			Lab Sample No.(s)	23398873	23398874	23398872	23398880	23398881	23398885
			AGS Reference						
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		2390	848	1280	<0.2 #	<0.2 #	<0.2 #
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120		39.4 #	15.8 #	20.1 #	0.513 #	0.517 #	0.307 #
Chloride	<2 mg/l	TM184		12000	4060	4890	28.9 #	34.8 #	14.6 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	201210-18	**Client Reference:**	Monthly	**Report Number:**	580637
Location:	Nantycaws Landfill	**Order Number:**	POR001010	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	NAWC228	SW201	SW202	SW203	SW204	SW205
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
			Date Sampled	09/12/2020	09/12/2020	09/12/2020	09/12/2020	09/12/2020	09/12/2020
			Sample Time	.	.	.	.	.	.
			Date Received	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020
			SDG Ref	201210-18	201210-18	201210-18	201210-18	201210-18	201210-18
			Lab Sample No.(s)	23398886	23398865	23398866	23398867	23398868	23398869
			AGS Reference						
Suspended solids, Total	<2 mg/l	TM022			<4 #	<4 #	<4 #	5.06 #	<4 #
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 #	1.22 #	0.762 #	<0.2 #	<0.2 #	0.652 #
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120		0.712 #	0.654 #	0.64 #	0.368 #	0.416 #	0.619 #
Chloride	<2 mg/l	TM184		46.1 #	62.4 #	61.3 #	38.6 #	22.1 #	55.4 #
pH	<1 pH Units	TM256			5.55 #	5.58 #	5.37 #	7.75 #	5.57 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	201210-18	**Client Reference:**	Monthly	**Report Number:**	580637
Location:	Nantycaws Landfill	**Order Number:**	POR001010	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW206	SW207	UD1	UD3	UD4	UD5
			Depth (m)	.	.	.	.	.	.
			Sample Type	Surface Water (SW)	Surface Water (SW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	09/12/2020	09/12/2020	09/12/2020	09/12/2020	09/12/2020	09/12/2020
			Sample Time	.	.	.	.	.	.
			Date Received	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020
			SDG Ref	201210-18	201210-18	201210-18	201210-18	201210-18	201210-18
			Lab Sample No.(s)	23398870	23398871	23398890	23398893	23398895	23398897
			AGS Reference						
Suspended solids, Total	<2 mg/l	TM022		<4 #	<4 #				
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 #	<0.2 #	<0.2 #	<0.2 #	0.219 #	<0.2 #
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120		0.261 #	0.269 #	0.566 #	0.391 #	0.464 #	0.414 #
Chloride	<2 mg/l	TM184		10.9 #	13.8 #	45.2 #	16.3 #	14 #	22.2 #
pH	<1 pH Units	TM256		7.95 #	8.06 #				

CERTIFICATE OF ANALYSIS

SDG:	201210-18	**Client Reference:**	Monthly	**Report Number:**	580637
Location:	Nantycaws Landfill	**Order Number:**	POR001010	**Superseded Report:**	

Table of Results - Appendix

Method No	Reference	Description
TM022	Method 2540D, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part120 1981;BS EN 872	Determination of total suspended solids in waters
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG:	201210-18	**Client Reference:**	Monthly	**Report Number:**	580637
Location:	Nantycaws Landfill	**Order Number:**	POR001010	**Superseded Report:**	

Test Completion Dates

Lab Sample No(s)	23398882	23398889	23398884	23398876	23398877	23398878	23398873	23398874	23398872	23398880
Customer Sample Ref.	BH208	BH3/4	BH5/02	CELL 5 SUMP	CELL 6 SUMP	CELL 7 SUMP	CELL 1/2 SUMP	CELL 3/4 SUMP	LEACHETE HOLDING LAGOON	NAWC203
AGS Ref.										
Depth										
Type	Ground Water	Ground Water	Ground Water	Land Leachate	Land Leachate	Land Leachate	Land Leachate	Land Leachate	Land Leachate	Ground Water
Ammoniacal Nitrogen	17-Dec-2020	17-Dec-2020	17-Dec-2020	16-Dec-2020	16-Dec-2020	16-Dec-2020	16-Dec-2020	16-Dec-2020	16-Dec-2020	17-Dec-2020
Anions by Kone (w)	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020
Conductivity (at 20 deg.C)	11-Dec-2020	11-Dec-2020	11-Dec-2020	11-Dec-2020	11-Dec-2020	11-Dec-2020	11-Dec-2020	11-Dec-2020	11-Dec-2020	11-Dec-2020

Lab Sample No(s)	23398881	23398885	23398886	23398865	23398866	23398867	23398868	23398869	23398870	23398871
Customer Sample Ref.	NAWC205	NAWC212	NAWC228	SW201	SW202	SW203	SW204	SW205	SW206	SW207
AGS Ref.										
Depth										
Type	Ground Water	Ground Water	Ground Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Ammoniacal Nitrogen	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020
Anions by Kone (w)	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020	16-Dec-2020	16-Dec-2020
Conductivity (at 20 deg.C)	11-Dec-2020	11-Dec-2020	11-Dec-2020	11-Dec-2020	11-Dec-2020	11-Dec-2020	11-Dec-2020	11-Dec-2020	11-Dec-2020	11-Dec-2020
pH Value				11-Dec-2020	11-Dec-2020	11-Dec-2020	11-Dec-2020	11-Dec-2020	11-Dec-2020	11-Dec-2020
Suspended Solids				11-Dec-2020	11-Dec-2020	11-Dec-2020	11-Dec-2020	11-Dec-2020	13-Dec-2020	13-Dec-2020

Lab Sample No(s)	23398890	23398893	23398895	23398897
Customer Sample Ref.	UD1	UD3	UD4	UD5
AGS Ref.				
Depth				
Type	Ground Water	Ground Water	Ground Water	Ground Water
Ammoniacal Nitrogen	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020
Anions by Kone (w)	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020
Conductivity (at 20 deg.C)	11-Dec-2020	11-Dec-2020	11-Dec-2020	11-Dec-2020

Appendix General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

19. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2017).*

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Appendix B

NOTE ON ANNUAL MONITORING SUITES AND “PROPOSED LIST 1 SCREEN”

NANTYCAWS LANDFILL SITE
NOTE ON ANNUAL MONITORING SUITES AND PROPOSED 'LIST 1 SCREEN'

Introduction

The following note has been prepared by WSP on behalf of CWM Environmental (CWM). It proposes which parameters should be included within the 'List 1 screen' required to be undertaken at the monitoring locations at Nantycaws Landfill Site (the site) on an annual frequency. The recommendations made are based on review of the results of previous List 1 screens, undertaken annually between 2010 and 2020.

List I Screen

The existing Environmental Permit for the site (Ref CP3735PB v.004, 23 September 2009) states that a 'List I screen' is to be undertaken on an annual basis at all leachate, groundwater and surface water monitoring locations included within the permit. It further states that the analysis to be included within the List I screen is to be defined through liaison with the Environment Agency.

In 2020 the following parameter groupings were included within the List I screen as detailed below. These are based on the suites analysed by AlControl (now ALS), the existing certified laboratory:

<u>Leachate and Underdrainage</u>

- Metals (including cadmium);
- Petroleum hydrocarbons, comprising:
    - speciated total petroleum hydrocarbons (TPH); and
    - benzene, ethlylbenzene, toluene and xylenes (BTEX);
- Semi-volatile organic compounds (SVOCs), including 4-methylphenol and speciated polycyclic aromatic hydrocarbons (PAH);
- Phenylurea herbicides;
- Phenoxyacid herbicides;
- Polychlorinated biphenyls (PCBs);
- Phenols (including 4-methylphenol);
- Volatile organic hydrocarbons (VOCs), including BTEX;
- Cyanides; and
- Organochlorine pesticides (OCPS).

<u>Groundwater</u>

- Metals (including cadmium);
- Petroleum hydrocarbons, comprising:
    - banded total petroleum hydrocarbons (TPH); and (if detected)
    - benzene, ethlylbenzene, toluene and xylenes (BTEX);
- Speciated polycyclic aromatic hydrocarbons (PAH);
- Phenoxyacid herbicides;
- Phenols (including 4-methylphenol);
- BTEX(as a screen for VOCs) *

<u>Surface water</u>

- Metals (including cadmium);
- Benzene, ethlylbenzene, toluene and xylenes (BTEX);
- Speciated polycyclic aromatic hydrocarbons (PAH);
- Phenoxyacid herbicides;
- Phenols (including 4-methylphenol);
- BTEX (as a screen for VOCs)*

* Should detections of any of the excluded suites in groundwater be recorded in any of the underdrainage samples, confirmatory analysis will be undertaken.

NANTYCAWS LANDFILL SITE
NOTE ON ANNUAL MONITORING SUITES AND PROPOSED 'LIST 1 SCREEN'

Proposed List I Screen

The following analytical suites are proposed for inclusion in the List I screen for 2020, based on review of the analytical results undertaken between 2010 and 2020. The results are summarised in Table 1 and Table 2 below.

This is identical to that undertaken in 2019.

NANTYCAWS LANDFILL SITE
NOTE ON ANNUAL MONITORING SUITES AND PROPOSED 'LIST 1 SCREEN'

Table 1 2020 monitoring suite

Suites	Leachate	Under drainage	Ground water / Surface water	Comment
Cyanides	Y	Y	N	Occasionally detected in source but not detected in underdrainage, groundwater or surface water since 2009.
Physiochemical Parameters	Y	Y	Y	Most physiochemical parameters to be kept with the exception of TOC and COD
Major ions / Nutrients	Y	Y	Y	Major ions to be kept as per current annual suite
Metals	Y	Y	Y	All metals to be kept as per current annual suite
Alkaline and alkali earth metals plus iron	Y	Y	Y	
Phenols	Y	Y	Y	Including 4-methylphenol, a COC. Included as List I screen for all media
Phenoxyacid herbicides	Y	Y	Y	Includes mecoprop, a COC. Included as List I screen for all media
Phenylurea herbicides	Y	Y	N	Substances commonly detected in leachate, however not detected as principal risk drivers. No detections of these substances in underdrainage, groundwater or surface water since 2009
PCBs	Y	Y	N	PCBs were detected in the leachate in 2011 and in 2013. PCBs are included in the revised HRA with PCB congener 28 as an indicator / surrogate No detections in 2014 but some detections in leachate in 2013.
SVOCs (inc PAH)	Y	Y	N*	SVOC suite TM176 to be included for leachates and underdrainage samples. *Groundwater samples to be run for PAHs (TM178) only. 4-methylphenol to be covered by phenol suite (TM205)
TPH	Y	Y	N*	Speciated TPH to be retained within List I suite for leachate provided no evidence of free phase is recorded. *Banded TPH to be used for groundwater, followed by BTEX analysis if detected.
VOC (Target List)	Y	Y	N*	Leachate and underdrainage to be analysed for full VOC suite (TM208). *Groundwater boreholes only to be analysed for BTEX (TM208) where TPH detections confirmed by banded TPH screen

Appendix C

LABORATORY CERTIFICATES (ANNUAL MONITORING)

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528700
Fax: (01244) 528701
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

CWM Environmental Ltd
Nantyclaws Landfill Site
Llanddarg Road
Carmarthen
Carmarthenshire
SA32 8BG

Attention: Darren Sanders

CERTIFICATE OF ANALYSIS

Date of report Generation:	20 October 2020
Customer:	CWM Environmental Ltd
Sample Delivery Group (SDG):	201007-14
Your Reference:	
Location:	Nantycaws Landfill
Report No:	571925

This report has been revised and directly supersedes 571691 in its entirety.

We received 17 samples on Wednesday October 07, 2020 and 17 of these samples were scheduled for analysis which was completed on Tuesday October 20, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
22976853	CELL 5 SUMP			
22976854	CELL 6 SUMP			
22976855	CELL 7 SUMP			
22976851	CELL 1/2 SUMP			
22976852	CELL 3/4 SUMP			
22976850	LEACHATE HOLDING LAGOON			
22976842	SW201			
22976843	SW202			
22976844	SW203			
22976846	SW204			
22976847	SW205			
22976848	SW206			
22976849	SW207			
22976856	UD1			
22976857	UD3			
22976858	UD4			
22976859	UD5			

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

Validated

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

| | | | | |

22976852	CELL 3/4 SUMP			Vial (ALE297)	LE														X			
				NaOH (ALE245)	LE										X							
				HNO3 Filtered (ALE204)	LE											X						
				H2SO4 (ALE244)	LE				X													
				250ml BOD (ALE212)	LE						X		X									
				250ml Amber Gl. PTFE/PE	LE												X		X		X		
				1lplastic (ALE221)	LE			X			X				X								
				1000ml glass bottle (ALE220)	LE		X															X		X
22976851	CELL 1/2 SUMP			Vial (ALE297)	LE														X			
				NaOH (ALE245)	LE										X							
				HNO3 Filtered (ALE204)	LE											X						
				H2SO4 (ALE244)	LE				X													
				250ml BOD (ALE212)	LE						X		X									
				250ml Amber Gl. PTFE/PE	LE												X		X		X		
				1lplastic (ALE221)	LE			X			X				X								
				1000ml glass bottle (ALE220)	LE		X															X		X
22976855	CELL 7 SUMP			Vial (ALE297)	LE														X			
				NaOH (ALE245)	LE										X							
				HNO3 Filtered (ALE204)	LE											X						
				H2SO4 (ALE244)	LE				X													

CERTIFICATE OF ANALYSIS

Validated

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

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22976852	CELL 3/4 SUMP			Vial (ALE297)	LE							X
				NaOH (ALE245)	LE							
				HNO3 Filtered (ALE204)	LE							
				H2SO4 (ALE244)	LE							
				250ml BOD (ALE212)	LE							
				250ml Amber Gl. PTFE/PE	LE							
				1lplastic (ALE221)	LE				X			
				1000ml glass bottle (ALE220)	LE	X	X	X		X		
22976851	CELL 1/2 SUMP			Vial (ALE297)	LE							X
				NaOH (ALE245)	LE							
				HNO3 Filtered (ALE204)	LE							
				H2SO4 (ALE244)	LE							
				250ml BOD (ALE212)	LE							
				250ml Amber Gl. PTFE/PE	LE							
				1lplastic (ALE221)	LE				X			
				1000ml glass bottle (ALE220)	LE	X	X	X		X		
22976855	CELL 7 SUMP			Vial (ALE297)	LE							X
				NaOH (ALE245)	LE							
				HNO3 Filtered (ALE204)	LE							
				H2SO4 (ALE244)	LE							

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	22976850	22976842	22976843
			Customer Sample Reference	LEACHATE HOLDING LAGOON	SW201	SW202
			AGS Reference			
			Depth (m)			
			Container	1000ml glass bottle (ALE220)	1plastic (ALE221)	250ml Amber Gl. PTFE/PE	250ml BOD (ALE212)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	1000ml glass bottle (ALE220)	1plastic (ALE221)	250ml Amber Gl. PTFE/PE	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	1000ml glass bottle (ALE220)	1plastic (ALE221)	250ml Amber Gl. PTFE/PE	H2SO4 (ALE244)	HNO3 Filtered (ALE204)
			Sample Type	LE	LE	LE	LE	LE	LE	LE	LE	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW
Acid Herbicides by GCMS	All	NDPs: 0 Tests: 17		X								X							X				
Alkalinity as CaCO3	All	NDPs: 0 Tests: 17			X								X							X				
Alkalinity Filtered as CaCO3	All	NDPs: 0 Tests: 7											X							X				
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 17						X							X								X	
Anions by Kone (w)	All	NDPs: 0 Tests: 17			X								X							X				
BOD True Total	All	NDPs: 0 Tests: 6					X																	
COD Unfiltered	All	NDPs: 0 Tests: 6					X																	
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 17			X								X							X				
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 6							X															
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 17						X									X							X
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 10				X																		
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 10				X																		
GRO by GC-FID (W)	All	NDPs: 0 Tests: 10								X														
Ionic Balance	All	NDPs: 0 Tests: 7											X							X				
Nitrite by Kone (w)	All	NDPs: 0 Tests: 11																X						

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CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			22976850	22976842	22976843
Lab Sample No(s)					
Customer Sample Reference			LEACHATE HOLDING LAGOON	SW201	SW202
AGS Reference					
Depth (m)					
Container			1000ml glass bottle (ALE220)	1plastic (ALE221)	250ml Amber Gl. PTFE/PE	250ml BOD (ALE212)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	1000ml glass bottle (ALE220)	1plastic (ALE221)	250ml Amber Gl. PTFE/PE	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	1000ml glass bottle (ALE220)	1plastic (ALE221)	250ml Amber Gl. PTFE/PE	H2SO4 (ALE244)	HNO3 Filtered (ALE204)
Sample Type			LE	LE	LE	LE	LE	LE	LE	LE	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 11											X								X		
PCB Congeners - Aqueous (W)	All	NDPs: 0 Tests: 6			X																		
Pesticides (Suite I) by GCMS	All	NDPs: 0 Tests: 6	X																				
Pesticides (Suite II) by GCMS	All	NDPs: 0 Tests: 6	X																				
Pesticides (Suite III) by GCMS	All	NDPs: 0 Tests: 6	X																				
pH Value	All	NDPs: 0 Tests: 7										X						X					
Phenols by ms (w)	All	NDPs: 0 Tests: 17	X								X						X						
Suspended Solids	All	NDPs: 0 Tests: 7										X						X					
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 17	X								X						X						
Total Organic Carbon*	All	NDPs: 0 Tests: 13		X								X						X					
TPH CWG (W)	All	NDPs: 0 Tests: 10	X																				
VOC MS (W)	All	NDPs: 0 Tests: 17								X						X							

22976847	SW205			H2SO4 (ALE244)	SW														
				250ml Amber Gl. PTFE/PE	SW	X													
				1lplastic (ALE221)	SW						X		X		X				
				1000ml glass bottle (ALE220)	SW							X		X					
22976846	SW204			Vial (ALE297)	SW														X
				NaOH (ALE245)	SW														
				HNO3 Filtered (ALE204)	SW														
				H2SO4 (ALE244)	SW														
				250ml Amber Gl. PTFE/PE	SW	X													
				1lplastic (ALE221)	SW						X		X		X				
				1000ml glass bottle (ALE220)	SW							X		X					
22976844	SW203			Vial (ALE297)	SW														X
				NaOH (ALE245)	SW														
				HNO3 Filtered (ALE204)	SW														
				H2SO4 (ALE244)	SW														
				250ml Amber Gl. PTFE/PE	SW	X													
				1lplastic (ALE221)	SW						X		X		X				
				1000ml glass bottle (ALE220)	SW							X		X					
22976843	SW202			Vial (ALE297)	SW														X
				NaOH (ALE245)	SW														

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)																				
			22976847			22976848							22976849							22976856			
			Customer Sample Reference			SW205							SW206							SW207							UD1		
			AGS Reference																				
			Depth (m)																				
			Container	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	1000ml glass bottle (ALE220)	1plastic (ALE221)	250ml Amber Gl. PTFE/PE	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	1000ml glass bottle (ALE220)	1plastic (ALE221)	250ml Amber Gl. PTFE/PE	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	1000ml glass bottle (ALE220)	1plastic (ALE221)	250ml Amber Gl. PTFE/PE
			Sample Type	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	GW	GW	GW
Acid Herbicides by GCMS	All	NDPs: 0 Tests: 17				X							X							X			
Alkalinity as CaCO3	All	NDPs: 0 Tests: 17					X							X							X		
Alkalinity Filtered as CaCO3	All	NDPs: 0 Tests: 7					X							X									
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 17							X							X							
Anions by Kone (w)	All	NDPs: 0 Tests: 17					X							X							X		
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 17					X							X							X		
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 17	X							X							X						
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 10																					X
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 10																					X
GRO by GC-FID (W)	All	NDPs: 0 Tests: 10																					
Ionic Balance	All	NDPs: 0 Tests: 7					X							X									
Nitrite by Kone (w)	All	NDPs: 0 Tests: 11		X								X							X				
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 11						X							X								X
pH Value	All	NDPs: 0 Tests: 7					X							X									
Phenols by ms (w)	All	NDPs: 0 Tests: 17				X							X							X			

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CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			22976847					22976848							22976849							22976856		
Customer Sample Reference			SW205					SW206							SW207							UD1		
AGS Reference																								
Depth (m)																								
Container			HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	1000ml glass bottle (ALE220)	1plastic (ALE221)	250ml Amber Gl. PTFE/PE	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	1000ml glass bottle (ALE220)	1plastic (ALE221)	250ml Amber Gl. PTFE/PE	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	1000ml glass bottle (ALE220)	1plastic (ALE221)	250ml Amber Gl. PTFE/PE		
Sample Type			SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	GW	GW	GW	
Suspended Solids	All	NDPs: 0 Tests: 7					X							X										
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 17				X							X								X			
Total Organic Carbon*	All	NDPs: 0 Tests: 13					X							X										
TPH CWG (W)	All	NDPs: 0 Tests: 10																			X			
VOC MS (W)	All	NDPs: 0 Tests: 17			X							X								X				

| | | |

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type
			22976859	UD5			250ml Amber Gl. PTFE/PE	GW
							H2SO4 (ALE244)	GW
							HNO3 Filtered (ALE204)	GW
							NaOH (ALE245)	GW
							Vial (ALE297)	GW
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 17		X				
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 17			X			
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 10	X					
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 10	X					
GRO by GC-FID (W)	All	NDPs: 0 Tests: 10					X	
Nitrite by Kone (w)	All	NDPs: 0 Tests: 11				X		
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 11	X					
VOC MS (W)	All	NDPs: 0 Tests: 17					X	

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	CELL 5 SUMP	CELL 6 SUMP	CELL 7 SUMP	CELL 1/2 SUMP	CELL 3/4 SUMP	LEACHATE HOLDING LAG OON
			Depth (m)	.	.	.	.	.	.
			Sample Type	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
			Date Sampled	-	-	-	-	-	-
			Sampled Time	.	.	.	.	.	.
			Date Received	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			SDG Ref	201007-14	201007-14	201007-14	201007-14	201007-14	201007-14
			Lab Sample No.(s)	22976853	22976854	22976855	22976851	22976852	22976850
			AGS Reference						
Total Organic Carbon, as C*	<0.7 mg/l	SUB		404 §	410 §	622 §	888 §	316 §	452 §
Alkalinity, Total as CaCO3	<2 mg/l	TM043		4940 § #	4170 § #	6990 § #	8980 § #	4090 § #	4910 § #
BOD, unfiltered	<1 mg/l	TM045		76 § #	69 § #	<10 § #	165 § #	66 § #	81.9 § #
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		1220 §	785 §	1440 §	2510 §	823 §	1060 §
COD, unfiltered	<7 mg/l	TM107		1560 § #	1630 § #	2800 § #	5080 § #	1160 § #	1870 § #
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120		21.6 § #	9.5 § #	16 § #	40.4 § #	9.86 § #	15 § #
Cadmium (diss.filt)	<0.08 µg/l	TM152		0.193 § #	0.106 § #	0.167 § #	0.761 § #	0.0914 § #	0.143 § #
Chromium (diss.filt)	<1 µg/l	TM152		98.3 § #	169 § #	256 § #	182 § #	79.1 § #	163 § #
Copper (diss.filt)	<0.3 µg/l	TM152		2.4 § #	5.75 § #	6.3 § #	185 § #	4.02 § #	5.29 § #
Lead (diss.filt)	<0.2 µg/l	TM152		3.84 § #	3.36 § #	6.37 § #	25.2 § #	0.455 § #	4.04 § #
Manganese (diss.filt)	<3 µg/l	TM152		976 § #	553 § #	1070 § #	99.7 § #	1420 § #	762 § #
Nickel (diss.filt)	<0.4 µg/l	TM152		132 § #	97.1 § #	183 § #	316 § #	116 § #	120 § #
Zinc (diss.filt)	<1 µg/l	TM152		53.5 § #	63.9 § #	104 § #	138 § #	21.7 § #	71.6 § #
Sodium (Dis.Filt)	<0.076 mg/l	TM152		1720 § #	793 § #	1620 § #	5080 § #	908 § #	1450 § #
Magnesium (Dis.Filt)	<0.036 mg/l	TM152		103 § #	40.4 § #	67.9 § #	55.2 § #	31.8 § #	59.7 § #
Potassium (Dis.Filt)	<0.2 mg/l	TM152		1240 § #	415 § #	719 § #	3130 § #	427 § #	805 § #
Calcium (Dis.Filt)	<0.2 mg/l	TM152		103 § #	90.9 § #	97.7 § #	32.6 § #	113 § #	99 § #
Iron (Dis.Filt)	<0.019 mg/l	TM152		7.89 § #	2.59 § #	4.84 § #	4.08 § #	5.64 § #	3.28 § #
Sulphate	<2 mg/l	TM184		20.8 §	<20 §	<20 §	<20 §	40 §	<20 §
Chloride	<2 mg/l	TM184		5690 §	1160 §	2050 §	11600 §	1320 §	2850 §
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184		<1 §	1.27 §	<2 §	1.11 §	2.19 §	<1 §
PCB congener 28	<0.015 µg/l	TM197		<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §
PCB congener 52	<0.015 µg/l	TM197		<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §
PCB congener 101	<0.015 µg/l	TM197		<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §
PCB congener 118	<0.015 µg/l	TM197		<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §
PCB congener 138	<0.015 µg/l	TM197		<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §
PCB congener 153	<0.015 µg/l	TM197		<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §
PCB congener 180	<0.015 µg/l	TM197		<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §
Sum of detected EC7 PCB's	<0.105 µg/l	TM197		<0.21 §	<0.21 §	<0.21 §	<0.21 §	<0.21 §	<0.21 §
PCB congener 77	<0.015 µg/l	TM197		<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §
PCB congener 81	<0.015 µg/l	TM197		<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §
PCB congener 105	<0.015 µg/l	TM197		<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	CELL 5 SUMP	CELL 6 SUMP	CELL 7 SUMP	CELL 1/2 SUMP	CELL 3/4 SUMP	LEACHATE HOLDING LAG OON
			Depth (m)	.	.	.	.	.	.
			Sample Type	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
			Date Sampled	-	-	-	-	-	-
			Sampled Time	.	.	.	.	.	.
			Date Received	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			SDG Ref	201007-14	201007-14	201007-14	201007-14	201007-14	201007-14
			Lab Sample No.(s)	22976853	22976854	22976855	22976851	22976852	22976850
			AGS Reference						
PCB congener 114	<0.015 µg/l	TM197		<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §
PCB congener 123	<0.015 µg/l	TM197		<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §
PCB congener 126	<0.015 µg/l	TM197		<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §
PCB congener 156	<0.015 µg/l	TM197		<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §
PCB congener 157	<0.015 µg/l	TM197		<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §
PCB congener 167	<0.015 µg/l	TM197		<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §
PCB congener 169	<0.015 µg/l	TM197		<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §
PCB congener 189	<0.015 µg/l	TM197		<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §	<0.03 §
Phenol	<0.5 µg/l	TM205		<5 §	<5 §	<5 §	10.8 §	<5 §	27.6 §
2-methylphenol	<0.5 µg/l	TM205		<5 §	<5 §	<5 §	21.5 §	<5 §	<5 §
3-methylphenol	<0.5 µg/l	TM205		<5 §	<5 §	<5 §	5.98 §	<5 §	<5 §
4-methylphenol	<0.5 µg/l	TM205		<5 §	<5 §	<5 §	<1 §	<5 §	<5 §
2-chlorophenol	<0.5 µg/l	TM205		<5 §	<5 §	<5 §	<1 §	<5 §	<5 §
2,4-dimethylphenol	<0.5 µg/l	TM205		<5 §	<5 §	<5 §	<1 §	<5 §	<5 §
4-chloro-3-methylphenol	<0.5 µg/l	TM205		<5 §	<5 §	<5 §	4.51 §	<5 §	<5 §
2,6-dichlorophenol	<0.5 µg/l	TM205		<5 §	<5 §	<5 §	<1 §	<5 §	<5 §
4-Chlorophenol	<0.5 µg/l	TM205		<5 §	<5 §	<5 §	<1 §	<5 §	<5 §
2,4-dichlorophenol	<0.5 µg/l	TM205		<5 §	<5 §	<5 §	<1 §	<5 §	<5 §
2-nitrophenol	<0.5 µg/l	TM205		<5 §	<5 §	<5 §	<1 §	<5 §	<5 §
2,4,6-trichlorophenol	<0.5 µg/l	TM205		<5 §	<5 §	<5 §	<1 §	<5 §	<5 §
2,4,5-trichlorophenol	<0.5 µg/l	TM205		<5 §	<5 §	<5 §	<1 §	<5 §	<5 §
4-nitrophenol	<0.5 µg/l	TM205		<5 §	<5 §	<5 §	<1 §	<5 §	<5 §
2,3,5,6-tetrachlorophenol	<0.5 µg/l	TM205		<5 §	<5 §	<5 §	<1 §	<5 §	<5 §
2,3,4,6-tetrachlorophenol	<0.5 µg/l	TM205		<5 §	<5 §	<5 §	<1 §	<5 §	<5 §
2,4-dinitrophenol	<2.5 µg/l	TM205		<25 §	<25 §	<25 §	<5 §	<25 §	<50 §
DNOC	<3 µg/l	TM205		<30 §	<30 §	<30 §	<6 §	<30 §	<30 §
Pentachlorophenol	<2 µg/l	TM205		<20 §	<20 §	<20 §	<4 §	<20 §	<20 §
Dinoseb	<4 µg/l	TM205		<40 §	<40 §	<40 §	<8 §	<40 §	<40 §
Cyanide, Total	<0.05 mg/l	TM227		<0.05 § #	<0.05 § #	<0.05 § #	<0.05 § #	<0.05 § #	<0.05 § #
Trifluralin	<0.01 µg/l	TM343		<0.4 §	<0.4 §	<0.4 §	<0.1 §	<0.1 §	<0.1 §
alpha-HCH	<0.01 µg/l	TM343		<0.4 §	<0.4 §	<0.4 §	<0.1 §	<0.1 §	<0.1 §
gamma-HCH (Lindane)	<0.01 µg/l	TM343		<0.4 §	<0.4 §	<0.4 §	<0.1 §	<0.1 §	<0.1 §

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	CELL 5 SUMP	CELL 6 SUMP	CELL 7 SUMP	CELL 1/2 SUMP	CELL 3/4 SUMP	LEACHATE HOLDING LAG OON
			Depth (m)	.	.	.	.	.	.
			Sample Type	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
			Date Sampled	-	-	-	-	-	-
			Sampled Time	.	.	.	.	.	.
			Date Received	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			SDG Ref	201007-14	201007-14	201007-14	201007-14	201007-14	201007-14
			Lab Sample No.(s)	22976853	22976854	22976855	22976851	22976852	22976850
			AGS Reference						
Heptachlor	<0.01 µg/l	TM343		<0.8 §	<0.8 §	<0.8 §	<0.2 §	<0.2 §	<0.2 §
Aldrin	<0.01 µg/l	TM343		<0.4 §	<0.4 §	<0.4 §	<0.1 §	<0.1 §	<0.1 §
beta-HCH	<0.01 µg/l	TM343		<0.4 §	<0.4 §	<0.4 §	<0.1 §	<0.1 §	<0.1 §
Isodrin	<0.01 µg/l	TM343		<0.4 §	<0.4 §	<0.4 §	<0.1 §	<0.1 §	<0.1 §
delta-HCH	<0.01 µg/l	TM343		<0.4 §	<0.4 §	<0.4 §	<0.1 §	<0.1 §	<0.1 §
Heptachlor epoxide	<0.01 µg/l	TM343		<0.4 §	<0.4 §	<0.4 §	<0.1 §	<0.1 §	<0.1 §
o,p'-DDE	<0.01 µg/l	TM343		<0.4 §	<0.4 §	<0.4 §	<0.1 §	<0.1 §	<0.1 §
Endosulphan I	<0.01 µg/l	TM343		<0.4 §	<0.4 §	<0.4 §	<0.1 §	<0.1 §	<0.1 §
trans-Chlordane	<0.01 µg/l	TM343		<0.4 §	<0.4 §	<0.4 §	<0.1 §	<0.1 §	<0.1 §
cis-Chlordane	<0.01 µg/l	TM343		<0.4 §	<0.4 §	<0.4 §	<0.1 §	<0.1 §	<0.1 §
p,p'-DDE	<0.01 µg/l	TM343		<0.4 §	<0.4 §	<0.4 §	<0.1 §	<0.1 §	<0.1 §
Dieldrin	<0.01 µg/l	TM343		<0.4 §	<0.4 §	<0.4 §	<0.1 §	<0.1 §	<0.1 §
o,p'-DDD (TDE)	<0.01 µg/l	TM343		<0.4 §	<0.4 §	<0.4 §	<0.1 §	<0.1 §	<0.1 §
Endrin	<0.01 µg/l	TM343		<0.8 §	<0.8 §	<0.8 §	<0.2 §	<0.2 §	<0.2 §
o,p'-DDT	<0.01 µg/l	TM343		<1.6 §	<1.6 §	<1.6 §	<0.4 §	<0.4 §	<0.4 §
p,p'-DDD (TDE)	<0.01 µg/l	TM343		<0.4 §	<0.4 §	<0.4 §	<0.1 §	<0.1 §	<0.1 §
Endosulphan II	<0.02 µg/l	TM343		<0.8 §	<0.8 §	<0.8 §	<0.2 §	<0.2 §	<0.2 §
p,p'-DDT	<0.01 µg/l	TM343		<2.4 §	<2.4 §	<2.4 §	<0.6 §	<0.6 §	<0.6 §
o,p'-Methoxychlor	<0.01 µg/l	TM343		<1.6 §	<1.6 §	<1.6 §	<0.4 §	<0.4 §	<0.4 §
p,p'-Methoxychlor	<0.01 µg/l	TM343		<2.4 §	<2.4 §	<2.4 §	<0.6 §	<0.6 §	<0.6 §
Endosulphan Sulphate	<0.02 µg/l	TM343		<1.6 §	<1.6 §	<1.6 §	<0.4 §	<0.4 §	<0.4 §
Permethrin I	<0.01 µg/l	TM343		<0.4 §	<0.4 §	<0.4 §	<0.1 §	<0.1 §	<0.1 §
Permethrin II	<0.01 µg/l	TM343		<0.4 §	<0.4 §	<0.4 §	<0.1 §	<0.1 §	<0.1 §
1,3,5-Trichlorobenzene	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Hexachlorobutadiene	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
1,2,4-Trichlorobenzene	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
1,2,3-Trichlorobenzene	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Dichlorvos	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Dichlobenil	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Mevinphos	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Tecnazene	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Hexachlorobenzene	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	CELL 5 SUMP	CELL 6 SUMP	CELL 7 SUMP	CELL 1/2 SUMP	CELL 3/4 SUMP	LEACHATE HOLDING LAG OON
			Depth (m)	.	.	.	.	.	.
			Sample Type	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
			Date Sampled	-	-	-	-	-	-
			Sampled Time	.	.	.	.	.	.
			Date Received	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			SDG Ref	201007-14	201007-14	201007-14	201007-14	201007-14	201007-14
			Lab Sample No.(s)	22976853	22976854	22976855	22976851	22976852	22976850
			AGS Reference						
Demeton-S-methyl	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Phorate	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Diazinon	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Triallate	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Atrazine	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Simazine	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Disulfoton	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Propetamphos	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Chlorpyriphos-methyl	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Dimethoate	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Pirimiphos-methyl	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Chlorpyriphos	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Methyl Parathion	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Malathion	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Fenthion	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Fenitrothion	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Triadimefon	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Pendimethalin	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Parathion	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Chlorfenvinphos	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
trans-Chlordane	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
cis-Chlordane	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Ethion	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Carbophenothion	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Triazophos	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Phosalone	<0.01 µg/l	TM344		<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §	<0.1 §
Azinphos methyl	<0.02 µg/l	TM344		<0.2 §	<0.2 §	<0.2 §	<0.2 §	<0.2 §	<0.2 §
Azinphos ethyl	<0.02 µg/l	TM344		<0.2 §	<0.2 §	<0.2 §	<0.2 §	<0.2 §	<0.2 §
Etridiazole	<0.01 µg/l	TM345		<0.1 §	<0.1 §	<0.2 §	<0.2 §	<0.1 §	<0.1 §
Pentachlorobenzene	<0.01 µg/l	TM345		<0.1 §	<0.1 §	<0.2 §	<0.2 §	<0.1 §	<0.1 §
Propachlor	<0.01 µg/l	TM345		<0.1 §	<0.1 §	<0.2 §	<0.2 §	<0.1 §	<0.1 §
Quintozene (PCNB)	<0.01 µg/l	TM345		<0.1 §	<0.1 §	<0.2 §	<0.2 §	<0.1 §	<0.1 §

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Results Legend

#	ISO17025 accredited.
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*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
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Component	LOD/Units	Method	Customer Sample Ref.	CELL 5 SUMP	CELL 6 SUMP	CELL 7 SUMP	CELL 1/2 SUMP	CELL 3/4 SUMP	LEACHATE HOLDING LAG OON
			Depth (m)	.	.	.	.	.	.
			Sample Type	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
			Date Sampled	-	-	-	-	-	-
			Sampled Time	.	.	.	.	.	.
			Date Received	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			SDG Ref	201007-14	201007-14	201007-14	201007-14	201007-14	201007-14
			Lab Sample No.(s)	22976853	22976854	22976855	22976851	22976852	22976850
			AGS Reference						
Omethoate	<0.01 µg/l	TM345		<0.1 §	<0.1 §	<0.2 §	<0.2 §	<0.1 §	<0.1 §
Propazine	<0.01 µg/l	TM345		<0.1 §	<0.1 §	<0.2 §	<0.2 §	<0.1 §	<0.1 §
Propyzamide	<0.01 µg/l	TM345		<0.1 §	<0.1 §	<0.2 §	<0.2 §	<0.1 §	<0.1 §
Alachlor	<0.01 µg/l	TM345		<0.1 §	<0.1 §	<0.2 §	<0.2 §	<0.1 §	<0.1 §
Prometryn	<0.01 µg/l	TM345		<0.1 §	<0.1 §	<0.2 §	<0.2 §	<0.1 §	<0.1 §
Telodrin	<0.01 µg/l	TM345		<0.1 §	<0.1 §	<0.2 §	<0.2 §	<0.1 §	<0.1 §
Terbutryn	<0.01 µg/l	TM345		0.16 §	0.225 §	0.416 §	0.201 §	0.246 §	0.242 §
Chlorothalonil	<0.01 µg/l	TM345		<0.1 §	<0.1 §	<0.2 §	<0.2 §	<0.1 §	<0.1 §
Etrimphos	<0.01 µg/l	TM345		<0.1 §	<0.1 §	<0.2 §	<0.2 §	<0.1 §	<0.1 §
Metazachlor	<0.01 µg/l	TM345		<0.1 §	<0.1 §	<0.2 §	<0.2 §	<0.1 §	<0.1 §
Cyanazine	<0.01 µg/l	TM345		<0.1 §	<0.1 §	<0.2 §	<0.2 §	<0.1 §	<0.1 §
Trietazine	<0.01 µg/l	TM345		<0.1 §	<0.1 §	<0.2 §	<0.2 §	<0.1 §	<0.1 §
Coumaphos	<0.01 µg/l	TM345		<0.1 §	<0.1 §	<0.2 §	<0.2 §	<0.1 §	<0.1 §
Phosphamidon I	<0.01 µg/l	TM345		<0.1 §	<0.1 §	<0.2 §	<0.2 §	<0.1 §	<0.1 §
Phosphamidon II	<0.01 µg/l	TM345		<0.1 §	<0.1 §	<0.2 §	<0.2 §	<0.1 §	<0.1 §
Dinitro-o-cresol	<0.1 µg/l	TM411		<20 §	<20 §	11.6 §	11 §	<10 §	<20 §
Clopyralid	<0.04 µg/l	TM411		<8 §	<8 §	7 §	10.3 §	<4 §	<8 §
MCPA	<0.05 µg/l	TM411		<10 §	<10 §	<5 §	<5 §	<5 §	<10 §
Mecoprop	<0.04 µg/l	TM411		31.3 §	13.1 §	20.2 §	111 §	23.7 §	23.2 §
Dicamba	<0.04 µg/l	TM411		<8 §	<8 §	<4 §	<4 §	<4 §	<8 §
MCPB	<0.05 µg/l	TM411		<10 §	<10 §	<5 §	<5 §	<5 §	<10 §
2,4-DB	<0.1 µg/l	TM411		<20 §	<20 §	<10 §	<10 §	<10 §	<20 §
2,3,6-Trichlorobenzoic acid	<0.05 µg/l	TM411		<10 §	<10 §	<5 §	<5 §	<5 §	<10 §
Dichlorprop	<0.1 µg/l	TM411		<20 §	<20 §	<10 §	<10 §	<10 §	<20 §
Triclopyr	<0.05 µg/l	TM411		<10 §	<10 §	<5 §	<5 §	<5 §	<10 §
Fenoprop (Silvex)	<0.1 µg/l	TM411		<20 §	<20 §	<10 §	<10 §	<10 §	<20 §
2,4-Dichlorophenoxyacetic acid	<0.05 µg/l	TM411		<10 §	<10 §	<5 §	<5 §	<5 §	<10 §
2,4,5-Trichlorophenoxyacetic acid	<0.05 µg/l	TM411		<10 §	<10 §	<5 §	<5 §	<5 §	<10 §
Bromoxynil	<0.04 µg/l	TM411		<8 §	<8 §	<4 §	<4 §	<4 §	<8 §
Benazolin	<0.04 µg/l	TM411		<8 §	<8 §	<4 §	<4 §	<4 §	<8 §
Ioxynil	<0.05 µg/l	TM411		<10 §	<10 §	<5 §	<5 §	<5 §	<10 §
Pentachlorophenol	<0.04 µg/l	TM411		<8 §	<8 §	<4 §	<4 §	<4 §	<8 §

Validated

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Results Legend

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			Sample Type	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
			Date Sampled	-	-	-	-	-	-
			Sampled Time	.	.	.	.	.	.
			Date Received	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			SDG Ref	201007-14	201007-14	201007-14	201007-14	201007-14	201007-14
			Lab Sample No.(s)	22976853	22976854	22976855	22976851	22976852	22976850
			AGS Reference						
Fluoroxypyr	<0.1 µg/l	TM411		<20 §	<20 §	<10 §	<10 §	<10 §	<20 §

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW201	SW202	SW203	SW204	SW205	SW206
			Depth (m)	.	.	.	.	.	.
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
			Date Sampled	-	-	-	-	-	-
			Sampled Time	.	.	.	.	.	.
			Date Received	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			SDG Ref	201007-14	201007-14	201007-14	201007-14	201007-14	201007-14
			Lab Sample No.(s)	22976842	22976843	22976844	22976846	22976847	22976848
			AGS Reference						
Ionic balance	% Diff	Calulation		-1.09 §	2.05 §	-10.3 §	0.363 §	1.1 §	-0.33 §
Total Organic Carbon, as C*	<0.7 mg/l	SUB		6.6 §	12.8 §	8.5 §	11.4 §	13.3 §	4.5 §
Suspended solids, Total	<2 mg/l	TM022		<2 § #	4.1 § #	3.65 § #	<2 § #	4.7 § #	4.4 § #
Alkalinity, Total as CaCO3	<2 mg/l	TM043		92.4 § #	230 § #	163 § #	177 § #	239 § #	135 § #
Alkalinity,Total as CaCO3 (diss.filt)	<2 mg/l	TM043		95 §	215 §	170 §	180 §	245 §	130 §
Alkalinity, Bicarbonate as CaCO3 (diss.filt)	<2 mg/l	TM043		95 §	215 §	170 §	180 §	245 §	130 §
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 § #	<0.2 § #	<0.2 § #	<0.2 § #	<0.2 § #	<0.2 § #
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120		0.229 § #	0.51 § #	0.406 § #	0.468 § #	0.592 § #	0.281 § #
Cadmium (diss.filt)	<0.08 µg/l	TM152		<0.08 § #	<0.08 § #	<0.08 § #	<0.08 § #	<0.08 § #	<0.08 § #
Chromium (diss.filt)	<1 µg/l	TM152		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Copper (diss.filt)	<0.3 µg/l	TM152		2.73 § #	5.96 § #	5.92 § #	3.75 § #	5.24 § #	2.91 § #
Lead (diss.filt)	<0.2 µg/l	TM152		0.39 § #	0.622 § #	1.03 § #	0.378 § #	0.552 § #	0.481 § #
Manganese (diss.filt)	<3 µg/l	TM152		17.3 § #	43.8 § #	28.7 § #	32.9 § #	42.4 § #	25.3 § #
Nickel (diss.filt)	<0.4 µg/l	TM152		1.38 § #	2.95 § #	5.38 § #	1.91 § #	2.55 § #	1.4 § #
Zinc (diss.filt)	<1 µg/l	TM152		5.81 § #	9.1 § #	13.8 § #	5.53 § #	12 § #	10.4 § #
Sodium (Dis.Filt)	<0.076 mg/l	TM152		7.12 § #	12.9 § #	9.9 § #	10.2 § #	14.2 § #	7.57 § #
Magnesium (Dis.Filt)	<0.036 mg/l	TM152		3 § #	7.58 § #	5.47 § #	6.01 § #	8.45 § #	3.66 § #
Potassium (Dis.Filt)	<0.2 mg/l	TM152		1.62 § #	23.9 § #	7.43 § #	18.3 § #	27.2 § #	2.48 § #
Calcium (Dis.Filt)	<0.2 mg/l	TM152		37.4 § #	93.6 § #	72.5 § #	80.4 § #	101 § #	51.5 § #
Iron (Dis.Filt)	<0.019 mg/l	TM152		0.245 § #	0.17 § #	0.256 § #	0.128 § #	0.136 § #	0.126 § #
Nitrite as NO2	<0.05 mg/l	TM184		<0.05 § #	<0.05 § #	<0.05 § #	<0.05 § #	0.053 § #	<0.05 § #
Sulphate	<2 mg/l	TM184		6.4 § #	55.9 § #	39.3 § #	56.7 § #	56.7 § #	11.7 § #
Chloride	<2 mg/l	TM184		12.1 § #	24.2 § #	50.8 § #	19.8 § #	26.2 § #	11 § #
Nitrate as NO3	<0.3 mg/l	TM184		9 §	3.95 §	6.96 §	2.44 §	5.77 §	8.08 §
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184		2.04 § #	0.904 § #	1.58 § #	0.556 § #	1.32 § #	1.83 § #
Phenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §	<7.5 §
2-methylphenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
3-methylphenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
4-methylphenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
2-chlorophenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
2,4-dimethylphenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
4-chloro-3-methylphenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW201	SW202	SW203	SW204	SW205	SW206
			Depth (m)	.	.	.	.	.	.
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
			Date Sampled	-	-	-	-	-	-
			Sampled Time	.	.	.	.	.	.
			Date Received	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			SDG Ref	201007-14	201007-14	201007-14	201007-14	201007-14	201007-14
			Lab Sample No.(s)	22976842	22976843	22976844	22976846	22976847	22976848
			AGS Reference						
2,6-dichlorophenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
4-Chlorophenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
2,4-dichlorophenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
2-nitrophenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
2,4,6-trichlorophenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
2,4,5-trichlorophenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
4-nitrophenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
2,3,5,6-tetrachlorophenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
2,3,4,6-tetrachlorophenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
2,4-dinitrophenol	<2.5 µg/l	TM205		<2.5 §	<2.5 §	<2.5 §	<2.5 §	<2.5 §	<5 §
DNOC	<3 µg/l	TM205		<3 §	<3 §	<3 §	<3 §	<3 §	<3 §
Pentachlorophenol	<2 µg/l	TM205		<2 §	<2 §	<2 §	<2 §	<2 §	<2 §
Dinoseb	<4 µg/l	TM205		<4 §	<4 §	<4 §	<4 §	<4 §	<4 §
pH	<1 pH Units	TM256		7.68 § #	8 § #	7.73 § #	7.89 § #	8.08 § #	7.84 § #
Dinitro-o-cresol	<0.1 µg/l	TM411		0.503 §	0.7 §	0.933 §	0.527 §	0.714 §	0.346 §
Clopyralid	<0.04 µg/l	TM411		<0.04 §	<0.04 §	<0.08 §	<0.04 §	<0.04 §	<0.08 §
MCPA	<0.05 µg/l	TM411		<0.05 §	<0.05 §	<0.1 §	<0.05 §	<0.05 §	<0.1 §
Mecoprop	<0.04 µg/l	TM411		<0.04 §	<0.04 §	<0.08 §	<0.04 §	<0.04 §	<0.08 §
Dicamba	<0.04 µg/l	TM411		<0.04 §	<0.04 §	<0.08 §	<0.04 §	<0.04 §	<0.08 §
MCPB	<0.05 µg/l	TM411		<0.05 §	<0.05 §	<0.1 §	<0.05 §	<0.05 §	<0.1 §
2,4-DB	<0.1 µg/l	TM411		<0.1 §	<0.1 §	<0.2 §	<0.1 §	<0.1 §	<0.2 §
2,3,6-Trichlorobenzoic acid	<0.05 µg/l	TM411		<0.05 §	<0.05 §	<0.1 §	<0.05 §	<0.05 §	<0.1 §
Dichlorprop	<0.1 µg/l	TM411		<0.1 §	<0.1 §	<0.2 §	<0.1 §	<0.1 §	<0.2 §
Triclopyr	<0.05 µg/l	TM411		<0.05 §	<0.05 §	<0.1 §	<0.05 §	<0.05 §	<0.1 §
Fenoprop (Silvex)	<0.1 µg/l	TM411		<0.1 §	<0.1 §	<0.2 §	<0.1 §	<0.1 §	<0.2 §
2,4-Dichlorophenoxyacetic acid	<0.05 µg/l	TM411		<0.05 §	<0.05 §	<0.1 §	<0.05 §	<0.05 §	<0.1 §
2,4,5-Trichlorophenoxyacetic acid	<0.05 µg/l	TM411		<0.05 §	<0.05 §	<0.1 §	<0.05 §	<0.05 §	<0.1 §
Bromoxynil	<0.04 µg/l	TM411		<0.04 §	<0.04 §	<0.08 §	<0.04 §	<0.04 §	<0.08 §
Benazolin	<0.04 µg/l	TM411		<0.04 §	<0.04 §	<0.08 §	<0.04 §	<0.04 §	<0.08 §
Ioxynil	<0.05 µg/l	TM411		<0.05 §	<0.05 §	<0.1 §	<0.05 §	<0.05 §	<0.1 §
Pentachlorophenol	<0.04 µg/l	TM411		<0.04 §	<0.04 §	<0.08 §	<0.04 §	<0.04 §	<0.08 §
Fluoroxypyr	<0.1 µg/l	TM411		<0.1 §	<0.1 §	<0.2 §	<0.1 §	<0.1 §	<0.2 §

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW207	UD1	UD3	UD4	UD5
			Depth (m)	.	.	.	.	.
			Sample Type	Surface Water (SW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	-	-	-	-	-
			Sampled Time	.	.	.	.	.
			Date Received	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			SDG Ref	201007-14	201007-14	201007-14	201007-14	201007-14
			Lab Sample No.(s)	22976849	22976856	22976857	22976858	22976859
			AGS Reference					
Ionic balance	% Diff	Calulation		-1.42 §				
Total Organic Carbon, as C*	<0.7 mg/l	SUB		8.4 §				
Suspended solids, Total	<2 mg/l	TM022		3.3 § #				
Alkalinity, Total as CaCO3	<2 mg/l	TM043		165 § #	245 § #	200 § #	233 § #	169 § #
Alkalinity,Total as CaCO3 (diss.filt)	<2 mg/l	TM043		165 §				
Alkalinity, Bicarbonate as CaCO3 (diss.filt)	<2 mg/l	TM043		165 §				
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 § #	<0.2 § #	<0.2 § #	<0.2 § #	<0.2 § #
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120		0.382 § #	0.559 § #	0.42 § #	0.527 § #	0.446 § #
Cadmium (diss.filt)	<0.08 µg/l	TM152		<0.08 § #	<0.08 § #	<0.08 § #	<0.08 § #	<0.08 § #
Chromium (diss.filt)	<1 µg/l	TM152		<1 § #	<1 § #	<1 § #	<1 § #	3.07 § #
Copper (diss.filt)	<0.3 µg/l	TM152		4.91 § #	0.862 § #	0.938 § #	3.6 § #	15.1 § #
Lead (diss.filt)	<0.2 µg/l	TM152		0.623 § #	<0.2 § #	<0.2 § #	1.25 § #	2.62 § #
Manganese (diss.filt)	<3 µg/l	TM152		22.1 § #	54.6 § #	26.4 § #	51.4 § #	49.6 § #
Nickel (diss.filt)	<0.4 µg/l	TM152		2.95 § #	0.637 § #	<0.4 § #	1.33 § #	3.75 § #
Zinc (diss.filt)	<1 µg/l	TM152		9.48 § #	6.2 § #	3.06 § #	10.9 § #	11.5 § #
Sodium (Dis.Filt)	<0.076 mg/l	TM152		10.9 § #	12.5 § #	12.5 § #	11.9 § #	9.38 § #
Magnesium (Dis.Filt)	<0.036 mg/l	TM152		5.57 § #	11.1 § #	7.78 § #	10.3 § #	5.44 § #
Potassium (Dis.Filt)	<0.2 mg/l	TM152		13.1 § #	1.65 § #	4.38 § #	1.6 § #	19.3 § #
Calcium (Dis.Filt)	<0.2 mg/l	TM152		63.1 § #	101 § #	71.9 § #	94.2 § #	76.5 § #
Iron (Dis.Filt)	<0.019 mg/l	TM152		0.17 § #	0.063 § #	0.0247 § #	0.186 § #	0.172 § #
Nitrite as NO2	<0.05 mg/l	TM184		0.073 § #	<0.05 § #	<0.05 § #	<0.05 § #	<0.05 § #
Sulphate	<2 mg/l	TM184		26.2 § #	13.1 § #	13.5 § #	13.9 § #	55.4 § #
Chloride	<2 mg/l	TM184		20.9 § #	44.5 § #	18.7 § #	34.3 § #	18.7 § #
Nitrate as NO3	<0.3 mg/l	TM184		6.65 §	8.72 §	5.89 §	8.58 §	0.819 §
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184		1.53 § #	1.98 § #	1.33 § #	1.94 § #	0.188 § #
Phenol	<0.5 µg/l	TM205		<6.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
2-methylphenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
3-methylphenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
4-methylphenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
2-chlorophenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
2,4-dimethylphenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
4-chloro-3-methylphenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW207	UD1	UD3	UD4	UD5
			Depth (m)	.	.	.	.	.
			Sample Type	Surface Water (SW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	-	-	-	-	-
			Sampled Time	.	.	.	.	.
			Date Received	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			SDG Ref	201007-14	201007-14	201007-14	201007-14	201007-14
			Lab Sample No.(s)	22976849	22976856	22976857	22976858	22976859
			AGS Reference					
2,6-dichlorophenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
4-Chlorophenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
2,4-dichlorophenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
2-nitrophenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
2,4,6-trichlorophenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
2,4,5-trichlorophenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
4-nitrophenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
2,3,5,6-tetrachlorophenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
2,3,4,6-tetrachlorophenol	<0.5 µg/l	TM205		<0.5 §	<0.5 §	<0.5 §	<0.5 §	<0.5 §
2,4-dinitrophenol	<2.5 µg/l	TM205		<5 §	<2.5 §	<2.5 §	<2.5 §	<2.5 §
DNOC	<3 µg/l	TM205		<3 §	<3 §	<3 §	<3 §	<3 §
Pentachlorophenol	<2 µg/l	TM205		<2 §	<2 §	<2 §	<2 §	<2 §
Dinoseb	<4 µg/l	TM205		<4 §	<4 §	<4 §	<4 §	<4 §
pH	<1 pH Units	TM256		7.9 § #				
Dinitro-o-cresol	<0.1 µg/l	TM411		0.671 §	<0.2 §	0.379 §	0.483 §	0.538 §
Clopyralid	<0.04 µg/l	TM411		<0.04 §	<0.08 §	<0.04 §	<0.04 §	<0.04 §
MCPA	<0.05 µg/l	TM411		<0.05 §	<0.1 §	<0.05 §	<0.05 §	<0.05 §
Mecoprop	<0.04 µg/l	TM411		<0.04 §	<0.08 §	<0.04 §	<0.04 §	<0.04 §
Dicamba	<0.04 µg/l	TM411		<0.04 §	<0.08 §	<0.04 §	<0.04 §	<0.04 §
MCPB	<0.05 µg/l	TM411		<0.05 §	<0.1 §	<0.05 §	<0.05 §	<0.05 §
2,4-DB	<0.1 µg/l	TM411		<0.1 §	<0.2 §	<0.1 §	<0.1 §	<0.1 §
2,3,6-Trichlorobenzoic acid	<0.05 µg/l	TM411		<0.05 §	<0.1 §	<0.05 §	<0.05 §	<0.05 §
Dichlorprop	<0.1 µg/l	TM411		<0.1 §	<0.2 §	<0.1 §	<0.1 §	<0.1 §
Triclopyr	<0.05 µg/l	TM411		<0.05 §	<0.1 §	<0.05 §	<0.05 §	<0.05 §
Fenoprop (Silvex)	<0.1 µg/l	TM411		<0.1 §	<0.2 §	<0.1 §	<0.1 §	<0.1 §
2,4-Dichlorophenoxyacetic acid	<0.05 µg/l	TM411		<0.05 §	<0.1 §	<0.05 §	<0.05 §	<0.05 §
2,4,5-Trichlorophenoxyacetic acid	<0.05 µg/l	TM411		<0.05 §	<0.1 §	<0.05 §	<0.05 §	<0.05 §
Bromoxynil	<0.04 µg/l	TM411		<0.04 §	<0.08 §	<0.04 §	<0.04 §	<0.04 §
Benazolin	<0.04 µg/l	TM411		<0.04 §	<0.08 §	<0.04 §	<0.04 §	<0.04 §
Ioxynil	<0.05 µg/l	TM411		<0.05 §	<0.1 §	<0.05 §	<0.05 §	<0.05 §
Pentachlorophenol	<0.04 µg/l	TM411		<0.04 §	<0.08 §	<0.04 §	<0.04 §	<0.04 §
Fluoroxypyr	<0.1 µg/l	TM411		<0.1 §	<0.2 §	<0.1 §	<0.1 §	<0.1 §

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

PAH Spec MS - Aqueous (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW201	SW202	SW203	SW204	SW205	SW206
			Depth (m)	.	.	.	.	.	.
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
			Date Sampled	-	-	-	-	-	-
			Sampled Time	.	.	.	.	.	.
			Date Received	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			SDG Ref	201007-14	201007-14	201007-14	201007-14	201007-14	201007-14
			Lab Sample No.(s)	22976842	22976843	22976844	22976846	22976847	22976848
			AGS Reference						
Naphthalene (aq)	<0.01 µg/l	TM178		<0.01 § #	<0.01 § #	0.0144 § #	<0.01 § #	<0.01 § #	<0.01 § #
Acenaphthene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Acenaphthylene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Fluoranthene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Anthracene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Phenanthrene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Fluorene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Chrysene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Pyrene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Benzo(a)anthracene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Benzo(b)fluoranthene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Benzo(k)fluoranthene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Benzo(a)pyrene (aq)	<0.002 µg/l	TM178		<0.002 § #	<0.002 § #	<0.002 § #	<0.002 § #	<0.002 § #	<0.002 § #
Dibenzo(a,h)anthracene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Benzo(g,h,i)perylene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Indeno(1,2,3-cd)pyrene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
PAH, Total Detected USEPA 16 (aq)	<0.082 µg/l	TM178		<0.082 § #	<0.082 § #	<0.082 § #	<0.082 § #	<0.082 § #	<0.082 § #

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

PAH Spec MS - Aqueous (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW207	UD1	UD3	UD4	UD5
			Depth (m)	.	.	.	.	.
			Sample Type	Surface Water (SW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	-	-	-	-	-
			Sampled Time	.	.	.	.	.
			Date Received	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			SDG Ref	201007-14	201007-14	201007-14	201007-14	201007-14
			Lab Sample No.(s)	22976849	22976856	22976857	22976858	22976859
			AGS Reference					
Naphthalene (aq)	<0.01 µg/l	TM178		<0.01 § #	<0.01 § #	<0.01 § #	<0.01 § #	<0.01 § #
Acenaphthene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Acenaphthylene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Fluoranthene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Anthracene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Phenanthrene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Fluorene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Chrysene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Pyrene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Benzo(a)anthracene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Benzo(b)fluoranthene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Benzo(k)fluoranthene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Benzo(a)pyrene (aq)	<0.002 µg/l	TM178		<0.002 § #	<0.002 § #	<0.002 § #	<0.002 § #	<0.002 § #
Dibenzo(a,h)anthracene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Benzo(g,h,i)perylene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
Indeno(1,2,3-cd)pyrene (aq)	<0.005 µg/l	TM178		<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #	<0.005 § #
PAH, Total Detected USEPA 16 (aq)	<0.082 µg/l	TM178		<0.082 § #	<0.082 § #	<0.082 § #	<0.082 § #	<0.082 § #

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

SVOC MS (W) - Aqueous

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	CELL 5 SUMP	CELL 6 SUMP	CELL 7 SUMP	CELL 1/2 SUMP	CELL 3/4 SUMP	LEACHATE HOLDING LAG OON
			Depth (m)	.	.	.	.	.	.
			Sample Type	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
			Date Sampled	-	-	-	-	-	-
			Sampled Time	.	.	.	.	.	.
			Date Received	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			SDG Ref	201007-14	201007-14	201007-14	201007-14	201007-14	201007-14
			Lab Sample No.(s)	22976853	22976854	22976855	22976851	22976852	22976850
			AGS Reference						
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
2,4-Dichlorophenol (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
2,4-Dimethylphenol (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
2-Chloronaphthalene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
2-Chlorophenol (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
2-Methylnaphthalene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
2-Methylphenol (aq)	<1 µg/l	TM176		<20 §	<20 §	23 §	<20 §	<20 §	<20 §
2-Nitroaniline (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
2-Nitrophenol (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
3-Nitroaniline (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
4-Bromophenylphenylether (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
4-Chloroaniline (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
4-Methylphenol (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
4-Nitroaniline (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
4-Nitrophenol (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Azobenzene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Acenaphthylene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Acenaphthene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Anthracene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
bis(2-Chloroethoxy)methane (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176		<40 §	<40 §	165 §	<40 §	<40 §	<40 §
Butylbenzyl phthalate (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

SVOC MS (W) - Aqueous

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	CELL 5 SUMP	CELL 6 SUMP	CELL 7 SUMP	CELL 1/2 SUMP	CELL 3/4 SUMP	LEACHATE HOLDING LAG OON
			Depth (m)	.	.	.	.	.	.
			Sample Type	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
			Date Sampled	-	-	-	-	-	-
			Sampled Time	.	.	.	.	.	.
			Date Received	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			SDG Ref	201007-14	201007-14	201007-14	201007-14	201007-14	201007-14
			Lab Sample No.(s)	22976853	22976854	22976855	22976851	22976852	22976850
			AGS Reference						
Benzo(a)anthracene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Benzo(b)fluoranthene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Benzo(k)fluoranthene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Benzo(a)pyrene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Benzo(g,h,i)perylene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Carbazole (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Chrysene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Dibenzofuran (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
n-Dibutyl phthalate (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Diethyl phthalate (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Dibenzo(a,h)anthracene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Dimethyl phthalate (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
n-Dioctyl phthalate (aq)	<5 µg/l	TM176		<100 §	<100 §	<100 §	<100 §	<100 §	<100 §
Fluoranthene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Fluorene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Hexachlorobenzene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Hexachlorobutadiene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Pentachlorophenol (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Phenol (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
n-Nitroso-n-dipropylamine (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Hexachloroethane (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Nitrobenzene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Naphthalene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Isophorone (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Hexachlorocyclopentadiene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Phenanthrene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Indeno(1,2,3-cd)pyrene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Pyrene (aq)	<1 µg/l	TM176		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

SVOC MS (W) - Aqueous

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW201	SW202	SW203	SW204	SW205	SW206
			Depth (m)	.	.	.	.	.	.
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
			Date Sampled	-	-	-	-	-	-
			Sampled Time	.	.	.	.	.	.
			Date Received	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			SDG Ref	201007-14	201007-14	201007-14	201007-14	201007-14	201007-14
			Lab Sample No.(s)	22976842	22976843	22976844	22976846	22976847	22976848
			AGS Reference						
4-Methylphenol (aq)	<1 µg/l	TM176		<1 § #	<1 § #	<1 § #	<1 § #	<2 § #	<1 § #
Diethyl phthalate (aq)	<1 µg/l	TM176		<1 § #	<1 § #	<1 § #	<1 § #	<2 § #	<1 § #

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

SVOC MS (W) - Aqueous

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.					
			SW207	UD1	UD3	UD4	UD5	
			.	.	.	.	.	
			Surface Water (SW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	
			-	-	-	-	-	
			.	.	.	.	.	
			07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	
			201007-14	201007-14	201007-14	201007-14	201007-14	
			22976849	22976856	22976857	22976858	22976859	
4-Methylphenol (aq)	<1 µg/l	TM176	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	
Diethyl phthalate (aq)	<1 µg/l	TM176	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

TPH CWG (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	CELL 5 SUMP	CELL 6 SUMP	CELL 7 SUMP	CELL 1/2 SUMP	CELL 3/4 SUMP	LEACHATE HOLDING LAG OON
			Depth (m)	.	.	.	.	.	.
			Sample Type	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
			Date Sampled	-	-	-	-	-	-
			Sampled Time	.	.	.	.	.	.
			Date Received	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			SDG Ref	201007-14	201007-14	201007-14	201007-14	201007-14	201007-14
			Lab Sample No.(s)	22976853	22976854	22976855	22976851	22976852	22976850
			AGS Reference						
GRO Surrogate % recovery**	%	TM245		78 §	84 §	72 §	72 §	84 §	83 §
GRO >C5-C12	<50 µg/l	TM245		440 §	432 §	755 §	703 §	364 §	452 §
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245		<3 §	<3 §	<3 §	<3 §	<3 §	<3 §
Benzene	<7 µg/l	TM245		<7 §	<7 §	<7 §	<7 §	<7 §	<7 §
Toluene	<4 µg/l	TM245		<4 §	<4 §	6 §	23 §	<4 §	<4 §
Ethylbenzene	<5 µg/l	TM245		<5 §	<5 §	10 §	8 §	<5 §	<5 §
m,p-Xylene	<8 µg/l	TM245		<8 §	<8 §	14 §	38 §	<8 §	<8 §
o-Xylene	<3 µg/l	TM245		3 §	5 §	8 §	18 §	4 §	3 §
Sum of detected Xylenes	<11 µg/l	TM245		<11 §	<11 §	22 §	56 §	<11 §	<11 §
Sum of detected BTEX	<28 µg/l	TM245		<28 §	<28 §	38 §	87 §	<28 §	<28 §
Aliphatics >C5-C6	<10 µg/l	TM245		140 §	148 §	247 §	148 §	129 §	157 §
Aliphatics >C6-C8	<10 µg/l	TM245		48 §	46 §	74 §	71 §	37 §	48 §
Aliphatics >C8-C10	<10 µg/l	TM245		36 §	26 §	44 §	65 §	30 §	30 §
Aliphatics >C10-C12	<10 µg/l	TM245		109 §	107 §	193 §	172 §	80 §	110 §
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174		<20 §	<20 §	<20 §	76 §	<20 §	<20 §
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174		<20 §	<20 §	<20 §	322 §	<20 §	<20 §
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174		<20 §	25 §	43 §	1020 §	<20 §	<20 §
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174		<20 §	25 §	43 §	1420 §	<20 §	<20 §
Aromatics >EC5-EC7	<10 µg/l	TM245		<10 §	<10 §	<10 §	<10 §	<10 §	<10 §
Aromatics >EC7-EC8	<10 µg/l	TM245		<10 §	<10 §	<10 §	23 §	<10 §	<10 §
Aromatics >EC8-EC10	<10 µg/l	TM245		33 §	29 §	61 §	108 §	33 §	31 §
Aromatics >EC10-EC12	<10 µg/l	TM245		73 §	72 §	128 §	115 §	53 §	73 §
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174		<20 §	<20 §	34 §	29 §	<20 §	<20 §
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174		<20 §	<20 §	<20 §	88 §	<20 §	<20 §
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174		<20 §	<20 §	34 §	117 §	<20 §	<20 §
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174		441 §	457 §	833 §	2240 §	364 §	452 §
Aliphatics >C16-C35 Aqueous	<10 µg/l	TM174		<20 §	25 §	43 §	1340 §	<20 §	<20 §

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

TPH CWG (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	UD1	UD3	UD4	UD5		
			Depth (m)	.	.	.	.		
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)		
			Date Sampled	-	-	-	-		
			Sampled Time	.	.	.	.		
			Date Received	07/10/2020	07/10/2020	07/10/2020	07/10/2020		
			SDG Ref	201007-14	201007-14	201007-14	201007-14		
			Lab Sample No.(s)	22976856	22976857	22976858	22976859		
			AGS Reference						
GRO Surrogate % recovery**	%	TM245		97 §	105 §	107 §	105 §		
GRO >C5-C12	<50 µg/l	TM245		<50 § #	<50 § #	<50 § #	<50 § #		
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245		<3 § #	<3 § #	<3 § #	<3 § #		
Benzene	<7 µg/l	TM245		<7 § #	<7 § #	<7 § #	<7 § #		
Toluene	<4 µg/l	TM245		<4 § #	<4 § #	<4 § #	<4 § #		
Ethylbenzene	<5 µg/l	TM245		<5 § #	<5 § #	<5 § #	<5 § #		
m,p-Xylene	<8 µg/l	TM245		<8 § #	<8 § #	<8 § #	<8 § #		
o-Xylene	<3 µg/l	TM245		<3 § #	<3 § #	<3 § #	<3 § #		
Sum of detected Xylenes	<11 µg/l	TM245		<11 §	<11 §	<11 §	<11 §		
Sum of detected BTEX	<28 µg/l	TM245		<28 §	<28 §	<28 §	<28 §		
Aliphatics >C5-C6	<10 µg/l	TM245		<10 §	<10 §	<10 §	<10 §		
Aliphatics >C6-C8	<10 µg/l	TM245		<10 §	<10 §	<10 §	<10 §		
Aliphatics >C8-C10	<10 µg/l	TM245		<10 §	<10 §	<10 §	<10 §		
Aliphatics >C10-C12	<10 µg/l	TM245		<10 §	<10 §	<10 §	<10 §		
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174		<10 §	<10 §	<10 §	<10 §		
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174		<10 §	<10 §	<10 §	<10 §		
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174		<10 §	<10 §	<10 §	<10 §		
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174		<10 §	<10 §	<10 §	<10 §		
Aromatics >EC5-EC7	<10 µg/l	TM245		<10 §	<10 §	<10 §	<10 §		
Aromatics >EC7-EC8	<10 µg/l	TM245		<10 §	<10 §	<10 §	<10 §		
Aromatics >EC8-EC10	<10 µg/l	TM245		<10 §	<10 §	<10 §	<10 §		
Aromatics >EC10-EC12	<10 µg/l	TM245		<10 §	<10 §	<10 §	<10 §		
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174		<10 §	<10 §	<10 §	<10 §		
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174		<10 §	<10 §	<10 §	<10 §		
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174		<10 §	<10 §	<10 §	<10 §		
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174		<10 §	<10 §	<10 §	<10 §		
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174		<10 §	<10 §	<10 §	<10 §		
Aliphatics >C16-C35 Aqueous	<10 µg/l	TM174		<10 §	<10 §	<10 §	<10 §		

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	CELL 5 SUMP	CELL 6 SUMP	CELL 7 SUMP	CELL 1/2 SUMP	CELL 3/4 SUMP	LEACHATE HOLDING LAG OON
			Depth (m)	.	.	.	.	.	.
			Sample Type	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
			Date Sampled	-	-	-	-	-	-
			Sampled Time	.	.	.	.	.	.
			Date Received	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			SDG Ref	201007-14	201007-14	201007-14	201007-14	201007-14	201007-14
			Lab Sample No.(s)	22976853	22976854	22976855	22976851	22976852	22976850
			AGS Reference						
Dibromofluoromethane**	%	TM208		110 §	113 §	109 §	106 §	113 §	109 §
Toluene-d8**	%	TM208		98.9 §	100 §	96.3 §	96.3 §	100 §	100 §
4-Bromofluorobenzene**	%	TM208		97.1 §	100 §	94.4 §	92.2 §	100 §	100 §
Dichlorodifluoromethane	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Chloromethane	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Vinyl chloride	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Bromomethane	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Chloroethane	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Trichlorofluoromethane	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
1,1-Dichloroethene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Carbon disulphide	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Dichloromethane	<3 µg/l	TM208		<3 § #	<3 § #	<3 § #	<3 § #	<3 § #	<3 § #
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
trans-1,2-Dichloroethene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
1,1-Dichloroethane	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
cis-1,2-Dichloroethene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
2,2-Dichloropropane	<1 µg/l	TM208		<1 §	<1 §	<1 §	<1 §	<1 §	<1 §
Bromochloromethane	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Chloroform	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
1,1,1-Trichloroethane	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
1,1-Dichloropropene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Carbontetrachloride	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
1,2-Dichloroethane	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Benzene	<1 µg/l	TM208		2.76 § #	2.55 § #	3.98 § #	2.51 § #	3.35 § #	2.04 § #
Trichloroethene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
1,2-Dichloropropane	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Dibromomethane	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Bromodichloromethane	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
cis-1,3-Dichloropropene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Toluene	<1 µg/l	TM208		<1 § #	4.26 § #	8.59 § #	37.8 § #	<1 § #	2.97 § #
trans-1,3-Dichloropropene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
1,1,2-Trichloroethane	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	CELL 5 SUMP	CELL 6 SUMP	CELL 7 SUMP	CELL 1/2 SUMP	CELL 3/4 SUMP	LEACHATE HOLDING LAG OON
			Depth (m)	.	.	.	.	.	.
			Sample Type	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
			Date Sampled	-	-	-	-	-	-
			Sampled Time	.	.	.	.	.	.
			Date Received	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			SDG Ref	201007-14	201007-14	201007-14	201007-14	201007-14	201007-14
			Lab Sample No.(s)	22976853	22976854	22976855	22976851	22976852	22976850
			AGS Reference						
1,3-Dichloropropane	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Tetrachloroethene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Dibromochloromethane	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
1,2-Dibromoethane	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Chlorobenzene	<1 µg/l	TM208		1 § #	<1 § #	<1 § #	5.6 § #	1.87 § #	<1 § #
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Ethylbenzene	<1 µg/l	TM208		3.26 § #	1.68 § #	11.6 § #	10.9 § #	3.79 § #	3.76 § #
m,p-Xylene	<1 µg/l	TM208		2.48 § #	4.45 § #	12.7 § #	45.6 § #	3.86 § #	4.06 § #
o-Xylene	<1 µg/l	TM208		2.49 § #	4.71 § #	7.71 § #	18.9 § #	3.42 § #	2.5 § #
Styrene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Bromoform	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Isopropylbenzene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
1,2,3-Trichloropropane	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Bromobenzene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Propylbenzene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
2-Chlorotoluene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
1,3,5-Trimethylbenzene	<1 µg/l	TM208		<1 § #	<1 § #	1.16 § #	2.26 § #	<1 § #	<1 § #
4-Chlorotoluene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
tert-Butylbenzene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
1,2,4-Trimethylbenzene	<1 µg/l	TM208		1.56 § #	1.24 § #	2.96 § #	6.59 § #	3.55 § #	1.33 § #
sec-Butylbenzene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
4-iso-Propyltoluene	<1 µg/l	TM208		<1 § #	2.38 § #	3.49 § #	<1 § #	<1 § #	<1 § #
1,3-Dichlorobenzene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
1,4-Dichlorobenzene	<1 µg/l	TM208		1.83 § #	<1 § #	<1 § #	3.72 § #	1.27 § #	<1 § #
n-Butylbenzene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
1,2-Dichlorobenzene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208		<1 §	<1 §	<1 §	<1 §	<1 §	<1 §
1,2,4-Trichlorobenzene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Hexachlorobutadiene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Naphthalene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	2.89 § #	1.09 § #	<1 § #

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	CELL 5 SUMP	CELL 6 SUMP	CELL 7 SUMP	CELL 1/2 SUMP	CELL 3/4 SUMP	LEACHATE HOLDING LAG OON
			Depth (m)	.	.	.	.	.	.
			Sample Type	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
			Date Sampled	-	-	-	-	-	-
			Sampled Time	.	.	.	.	.	.
			Date Received	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			SDG Ref	201007-14	201007-14	201007-14	201007-14	201007-14	201007-14
			Lab Sample No.(s)	22976853	22976854	22976855	22976851	22976852	22976850
			AGS Reference						
1,2,3-Trichlorobenzene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
1,3,5-Trichlorobenzene	<1 µg/l	TM208		<1 §	<1 §	<1 §	<1 §	<1 §	<1 §

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SW201	SW202	SW203	SW204	SW205	SW206
			Depth (m)	.	.	.	.	.	.
			Sample Type	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)	Surface Water (SW)
			Date Sampled	-	-	-	-	-	-
			Sampled Time	.	.	.	.	.	.
			Date Received	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			SDG Ref	201007-14	201007-14	201007-14	201007-14	201007-14	201007-14
			Lab Sample No.(s)	22976842	22976843	22976844	22976846	22976847	22976848
			AGS Reference						
Dichloromethane	<3 µg/l	TM208		<3 § #	<3 § #	<3 § #	<3 § #	<3 § #	<3 § #
Benzene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Toluene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Ethylbenzene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
m,p-Xylene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
o-Xylene	<1 µg/l	TM208		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Sum of detected Xylenes	<2 µg/l	TM208		<2 §	<2 §	<2 §	<2 §	<2 §	<2 §

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.				
			SW207	UD1	UD3	UD4	UD5
			.	.	.	.	.
Depth (m)							
Sample Type			Surface Water (SW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			-	-	-	-	-
Sampled Time			.	.	.	.	.
Date Received			07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
SDG Ref			201007-14	201007-14	201007-14	201007-14	201007-14
Lab Sample No.(s)			22976849	22976856	22976857	22976858	22976859
AGS Reference							
Dichloromethane	<3 µg/l	TM208	<3 § #	<3 § #	<3 § #	<3 § #	<3 § #
Benzene	<1 µg/l	TM208	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Toluene	<1 µg/l	TM208	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Ethylbenzene	<1 µg/l	TM208	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
m,p-Xylene	<1 µg/l	TM208	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
o-Xylene	<1 µg/l	TM208	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Sum of detected Xylenes	<2 µg/l	TM208	<2 §	<2 §	<2 §	<2 §	<2 §

Table of Results - Appendix

Method No	Reference	Description
Calulation		
SUB		Subcontracted Test
TM022	Method 2540D, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part120 1981;BS EN 872	Determination of total suspended solids in waters
TM043	Method 2320B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part109 1984	Determination of alkalinity in aqueous samples
TM045	MEWAM BOD5 2nd Ed.HMSO 1988 / Method 5210B, AWWA/APHA, 20th Ed., 1999; SCA Blue Book 130	Determination of BOD5 (ATU) Filtered by Oxygen Meter on liquids
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM107	ISO 6060-1989	Determination of Chemical Oxygen Demand using COD Dr Lange Kit
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM174	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID
TM176	EPA 8270D Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of SVOCs in Water by GCMS
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM197	Modified: US EPA Method 8082.EA Method 174 and 5109631	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Waters
TM205		Determination of Phenols in Waste Waters using Solid Phase Extraction, Acetylation, Gas Chromatography and Mass Selective Detection
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters
TM227	Standard methods for the examination of waters and wastewaters 20th Edition, AWWA/APHA Method 4500.	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate
TM245	By GC-FID	Determination of GRO by Headspace in waters
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter
TM343	EPA 8270D - Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of Selected Pesticides (Suite I) in Liquids by GCMS
TM344	EPA 8270D – Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of selected pesticides (Suite II) by GCMS
TM345	EPA 8270D – Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of selected pesticides (Suite III) by GCMS
TM411	Acid_Herbs_GCMS	Acid Herbs in Water by GCMS

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Test Completion Dates

Lab Sample No(s)	22976853	22976854	22976855	22976851	22976852	22976850	22976842	22976843	22976844	22976846
Customer Sample Ref.	CELL 5 SUMP	CELL 6 SUMP	CELL 7 SUMP	CELL 1/2 SUMP	CELL 3/4 SUMP	LEACHATE HOLDING LAGOON	SW201	SW202	SW203	SW204
AGS Ref.										
Depth										
Type	Land Leachate	Land Leachate	Land Leachate	Land Leachate	Land Leachate	Land Leachate	Surface Water	Surface Water	Surface Water	Surface Water
Acid Herbicides by GCMS	15-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020
Alkalinity as CaCO3	17-Oct-2020	17-Oct-2020	19-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020	19-Oct-2020	16-Oct-2020	19-Oct-2020	19-Oct-2020
Alkalinity Filtered as CaCO3							19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020
Ammoniacal Nitrogen	14-Oct-2020	19-Oct-2020	14-Oct-2020	19-Oct-2020	14-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020
Anions by Kone (w)	16-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020	19-Oct-2020	15-Oct-2020	19-Oct-2020	19-Oct-2020
BOD True Total	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020				
COD Unfiltered	18-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020				
Conductivity (at 20 deg.C)	16-Oct-2020	14-Oct-2020	16-Oct-2020	15-Oct-2020	14-Oct-2020	15-Oct-2020	18-Oct-2020	14-Oct-2020	18-Oct-2020	18-Oct-2020
Cyanide Comp/Free/Total/Thiocyanate	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020				
Dissolved Metals by ICP-MS	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	15-Oct-2020	15-Oct-2020	19-Oct-2020
EPH CWG (Aliphatic) Aqueous GC (W)	17-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020				
EPH CWG (Aromatic) Aqueous GC (W)	17-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020				
GRO by GC-FID (W)	13-Oct-2020	14-Oct-2020	13-Oct-2020	13-Oct-2020	14-Oct-2020	14-Oct-2020				
Ionic Balance							19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020
Nitrite by Kone (w)							19-Oct-2020	15-Oct-2020	19-Oct-2020	19-Oct-2020
PAH Spec MS - Aqueous (W)							16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020
PCB Congeners - Aqueous (W)	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020				
Pesticides (Suite I) by GCMS	15-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020				
Pesticides (Suite II) by GCMS	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020				
Pesticides (Suite III) by GCMS	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020				
pH Value							19-Oct-2020	15-Oct-2020	19-Oct-2020	19-Oct-2020
Phenols by ms (w)	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	15-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020
Suspended Solids							19-Oct-2020	17-Oct-2020	19-Oct-2020	19-Oct-2020
SVOC MS (W) - Aqueous	20-Oct-2020	20-Oct-2020	16-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	19-Oct-2020	20-Oct-2020	19-Oct-2020
Total Organic Carbon*	16-Oct-2020	19-Oct-2020	16-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020
TPH CWG (W)	17-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020				
VOC MS (W)	13-Oct-2020	14-Oct-2020	13-Oct-2020	13-Oct-2020	14-Oct-2020	14-Oct-2020	13-Oct-2020	13-Oct-2020	13-Oct-2020	13-Oct-2020

Lab Sample No(s)	22976847	22976848	22976849	22976856	22976857	22976858	22976859
Customer Sample Ref.	SW205	SW206	SW207	UD1	UD3	UD4	UD5
AGS Ref.							
Depth							
Type	Surface Water	Surface Water	Surface Water	Ground Water	Ground Water	Ground Water	Ground Water
Acid Herbicides by GCMS	15-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020
Alkalinity as CaCO3	19-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	19-Oct-2020	17-Oct-2020	17-Oct-2020
Alkalinity Filtered as CaCO3	19-Oct-2020	19-Oct-2020	15-Oct-2020				
Ammoniacal Nitrogen	15-Oct-2020	15-Oct-2020	15-Oct-2020	14-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020
Anions by Kone (w)	17-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020
Conductivity (at 20 deg.C)	18-Oct-2020	15-Oct-2020	15-Oct-2020	14-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020
Dissolved Metals by ICP-MS	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020
EPH CWG (Aliphatic) Aqueous GC (W)				17-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020
EPH CWG (Aromatic) Aqueous GC (W)				17-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020
GRO by GC-FID (W)				14-Oct-2020	14-Oct-2020	14-Oct-2020	14-Oct-2020
Ionic Balance	19-Oct-2020	19-Oct-2020	19-Oct-2020				
Nitrite by Kone (w)	15-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020
PAH Spec MS - Aqueous (W)	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020
pH Value	19-Oct-2020	16-Oct-2020	15-Oct-2020				
Phenols by ms (w)	16-Oct-2020	15-Oct-2020	15-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020
Suspended Solids	19-Oct-2020	17-Oct-2020	17-Oct-2020				
SVOC MS (W) - Aqueous	19-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	19-Oct-2020	20-Oct-2020
Total Organic Carbon*	16-Oct-2020	19-Oct-2020	19-Oct-2020				
TPH CWG (W)				17-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020
VOC MS (W)	13-Oct-2020	14-Oct-2020	13-Oct-2020	14-Oct-2020	14-Oct-2020	13-Oct-2020	13-Oct-2020

CERTIFICATE OF ANALYSIS

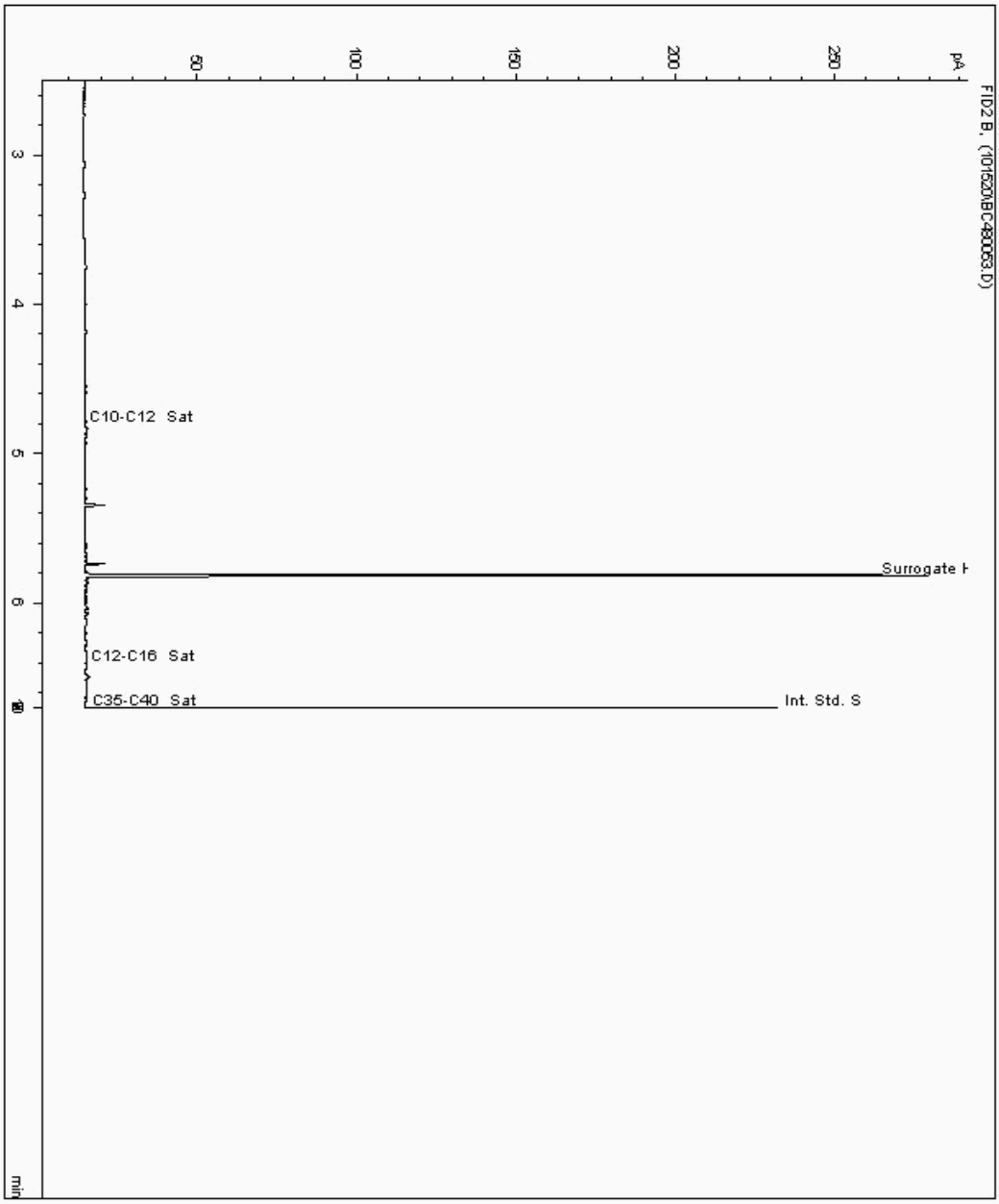
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23029548 **Sample ID :** UD5 **Depth :**

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 21585824-
Date Acquired : 16/10/2020 18:29:07 PM
Units : ppb
Dilution : SE UD5[] ->
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

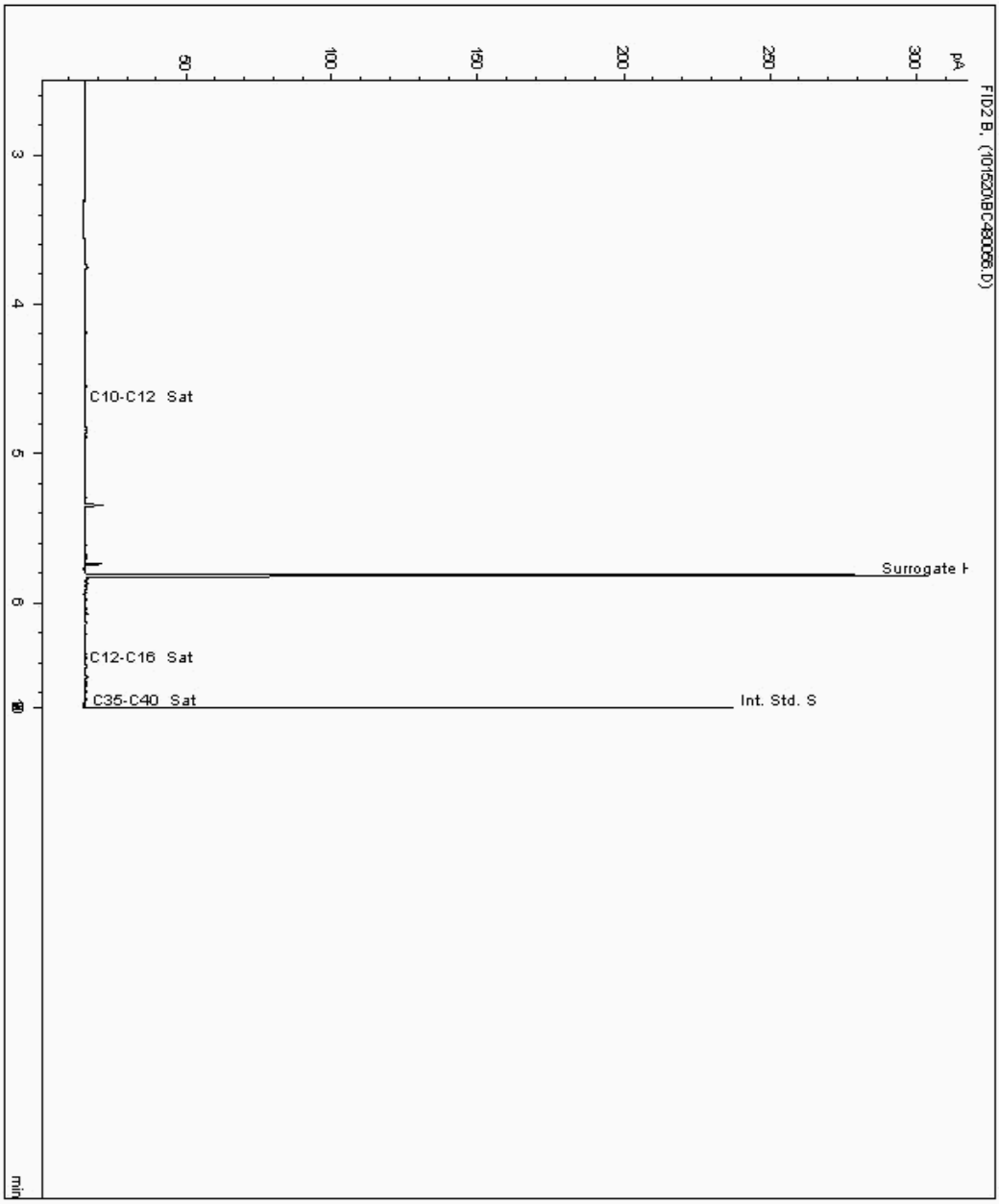
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23029563 **Depth :**
Sample ID : UD4

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 21585806-
Date Acquired : 16/10/2020 19:38:22 PM
Units : ppb
Dilution : SE UD4[ ] ->
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

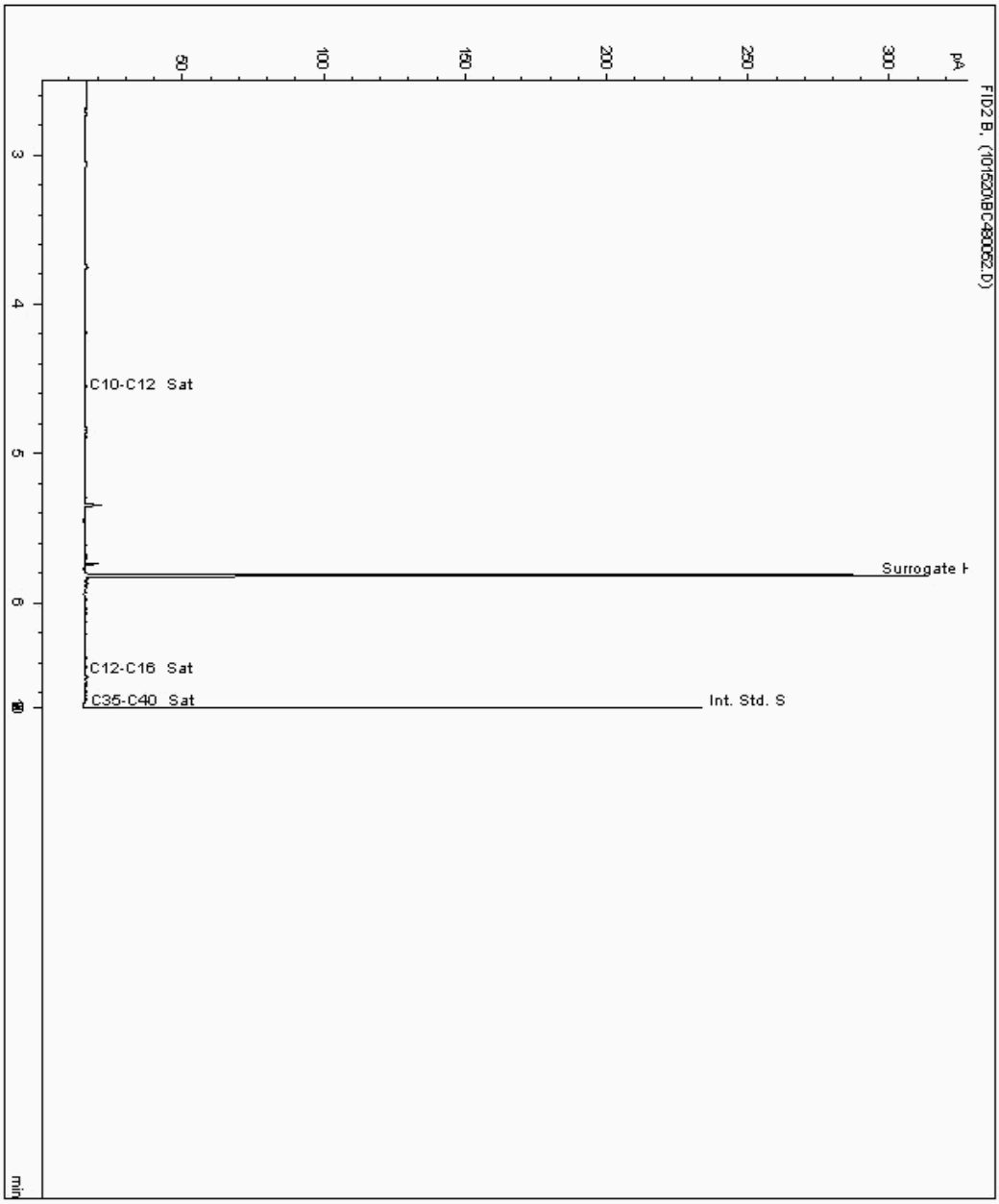
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23029578 **Depth :**
Sample ID : UD1

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 21585745-
Date Acquired : 16/10/2020 18:06:11 PM
Units : ppb
Dilution : SE UD1[ ] ->
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

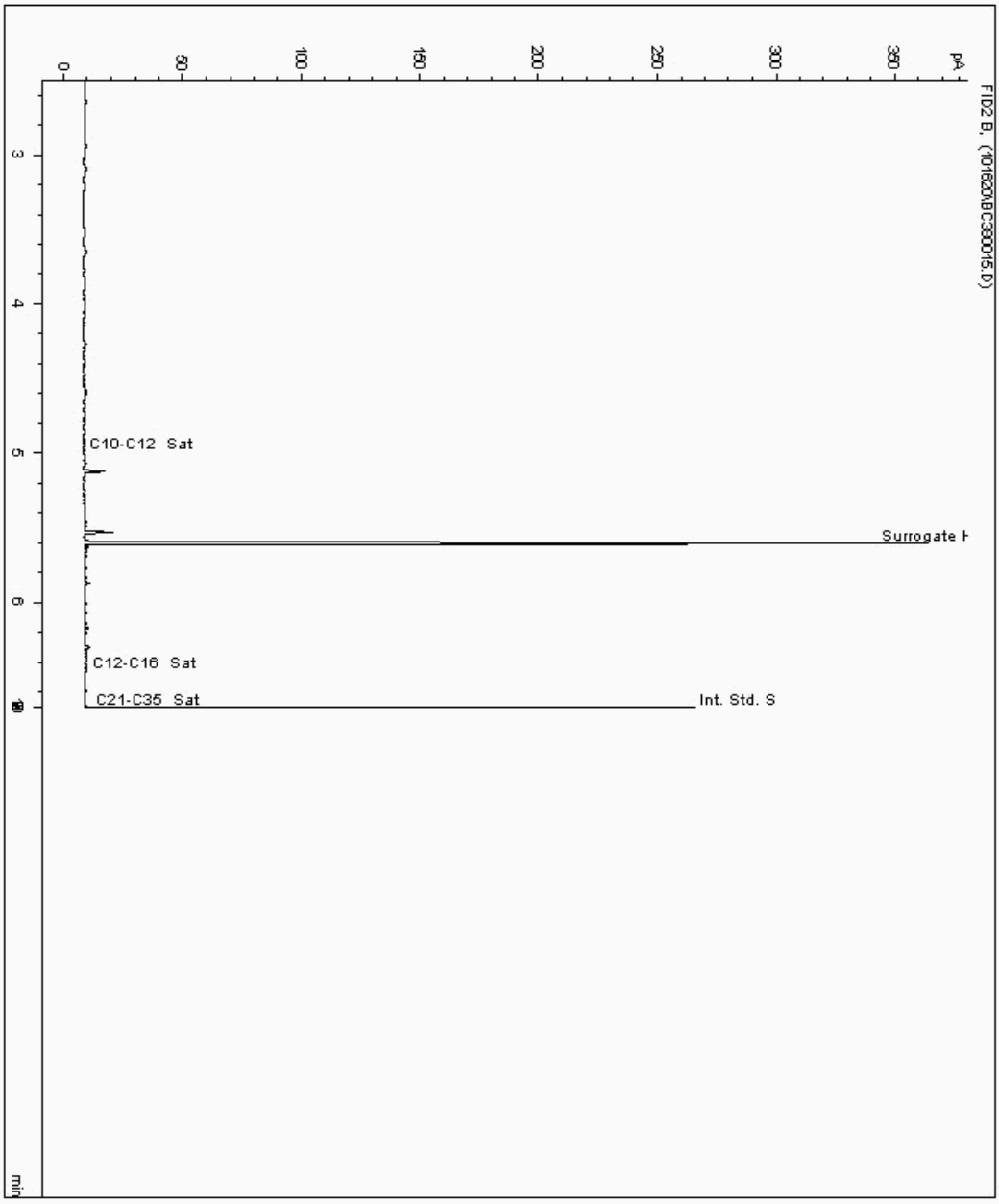
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23029579 **Sample ID :** CELL 7 SUMP **Depth :**

Speciated TPH - SATS (C12 - C40)

Sample Identity: 21585720-
Date Acquired : 16/10/20 14:49:00 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.050



CERTIFICATE OF ANALYSIS

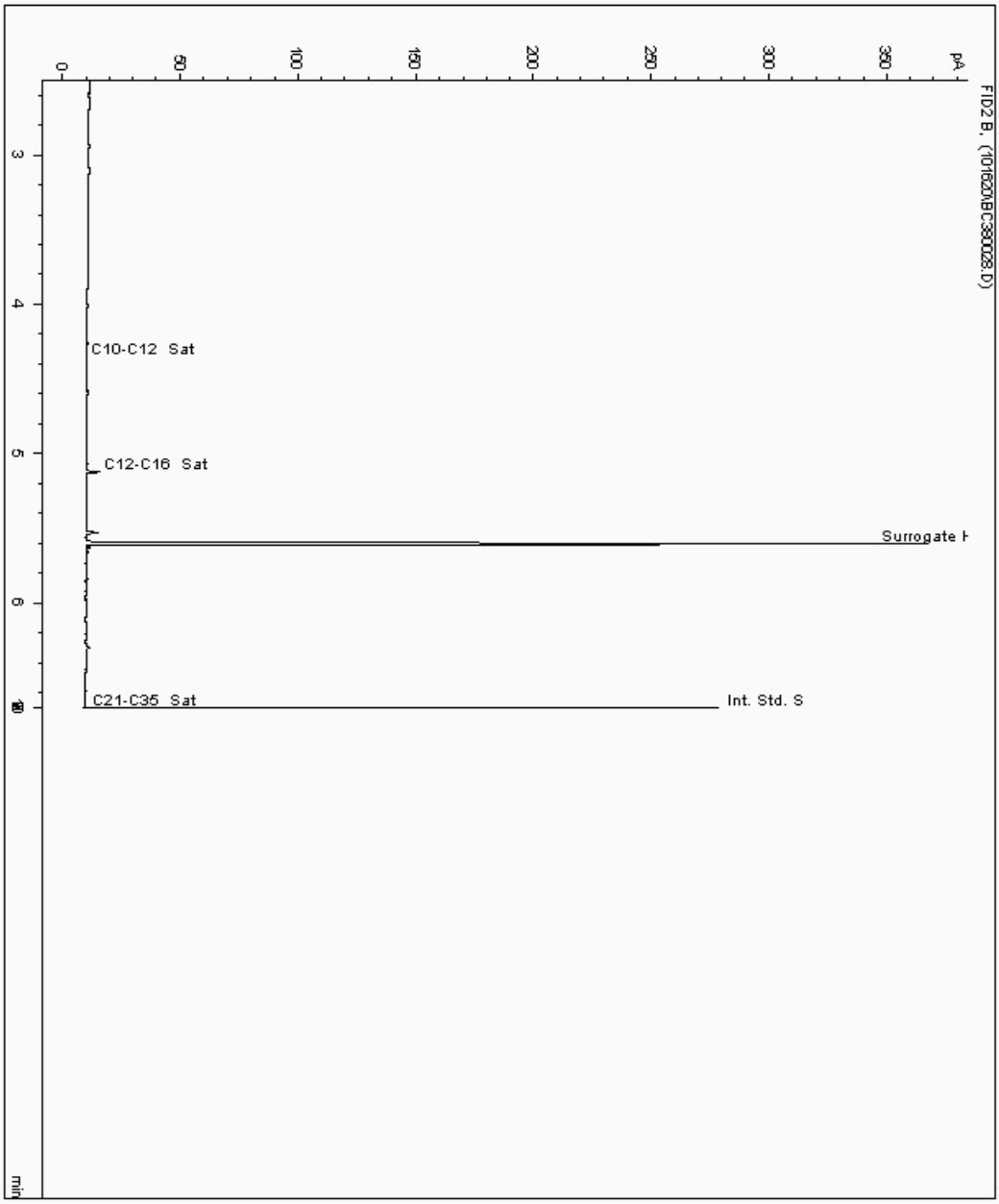
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23029585 **Sample ID :** CELL 5 SUMP **Depth :**

Speciated TPH - SATS (C12 - C40)

Sample Identity: 21585684-
Date Acquired : 16/10/20 19:49:58 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.050



CERTIFICATE OF ANALYSIS

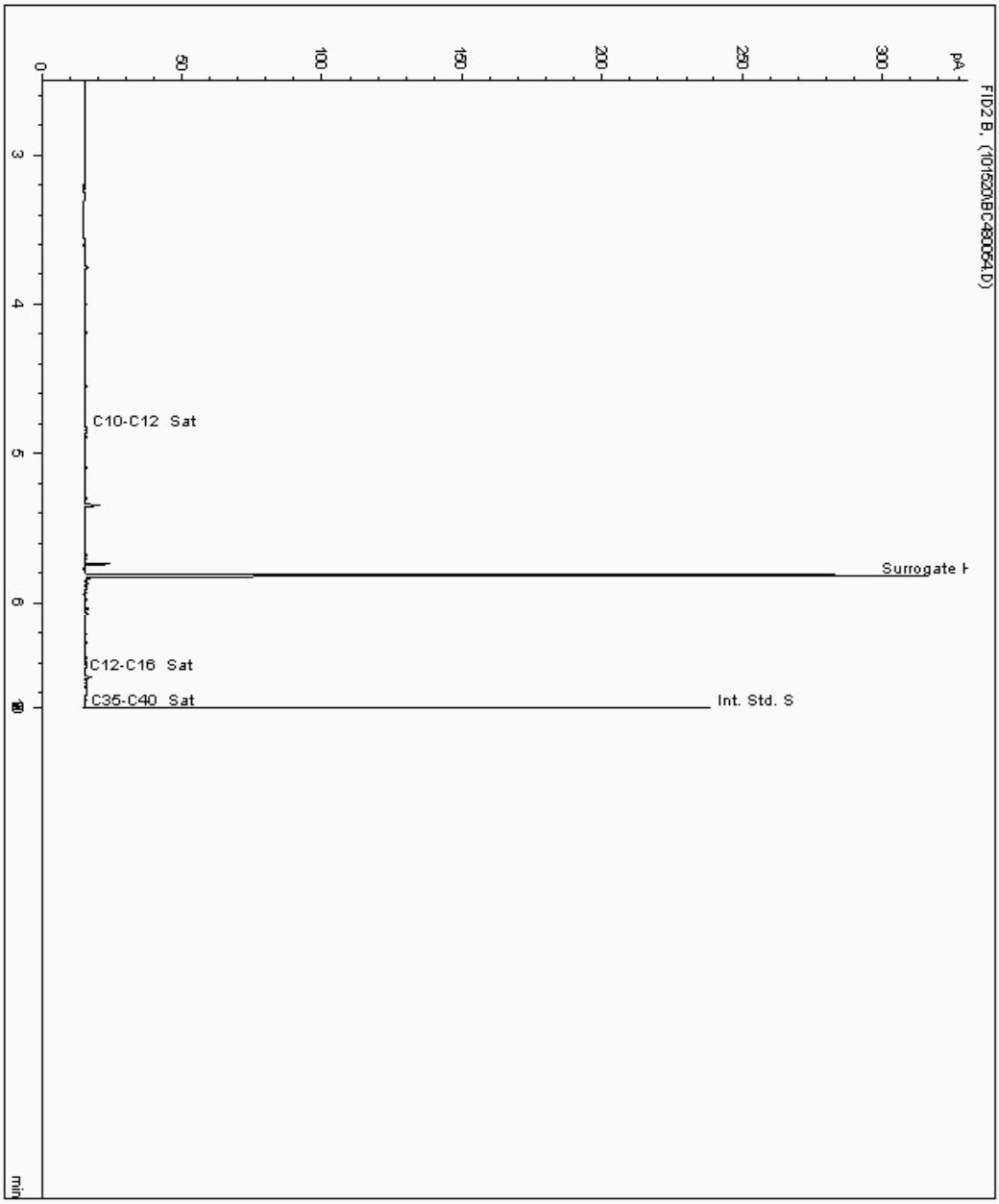
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23029595 **Depth :**
Sample ID : UD3

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 21585769-
Date Acquired : 16/10/2020 18:52:16 PM
Units : ppb
Dilution : SE UD3[ ] ->
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

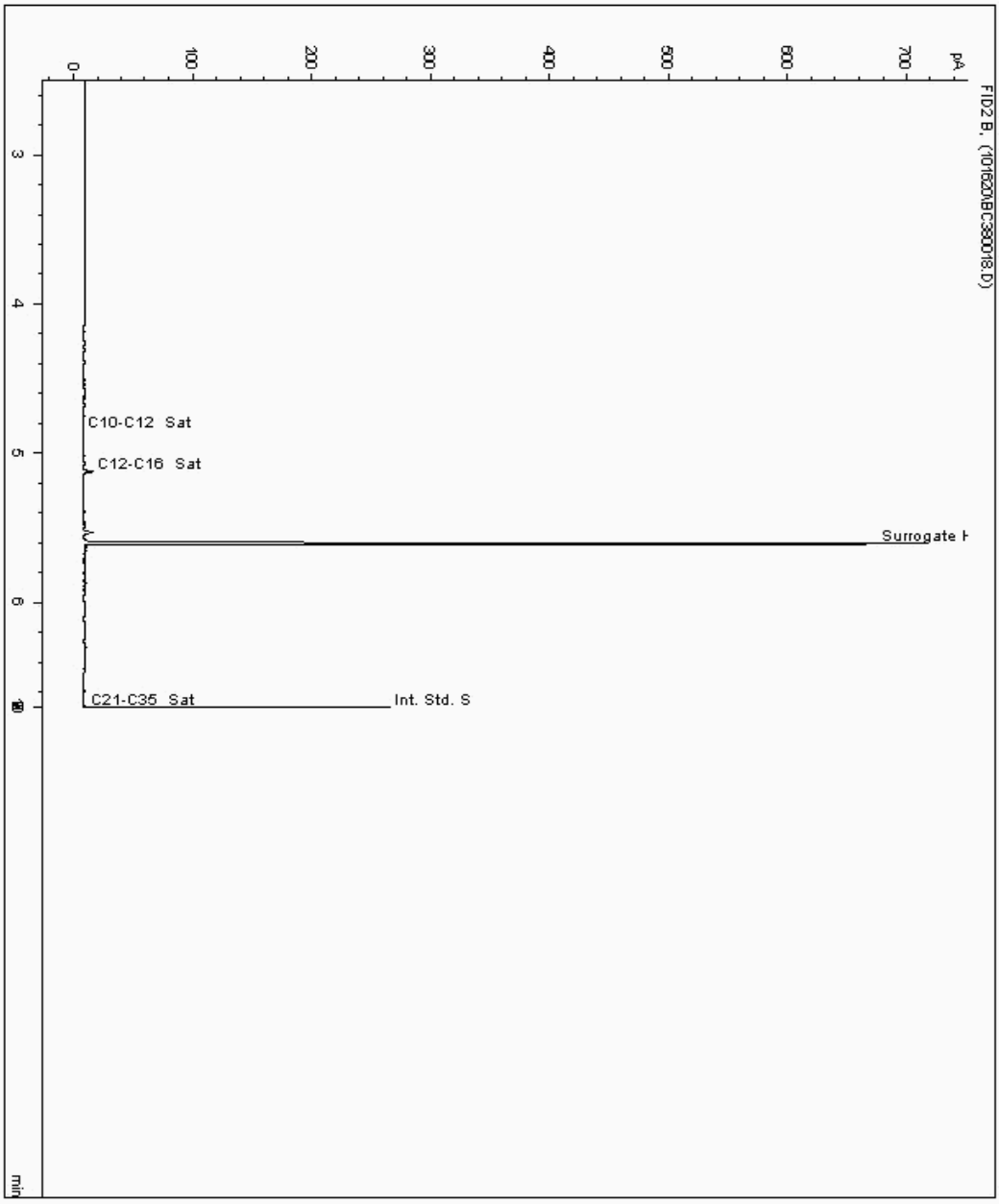
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23029606 **Sample ID :** CELL 6 SUMP **Depth :**

Speciated TPH - SATS (C12 - C40)

Sample Identity: 21585699-
Date Acquired : 16/10/20 15:58:56 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.050



CERTIFICATE OF ANALYSIS

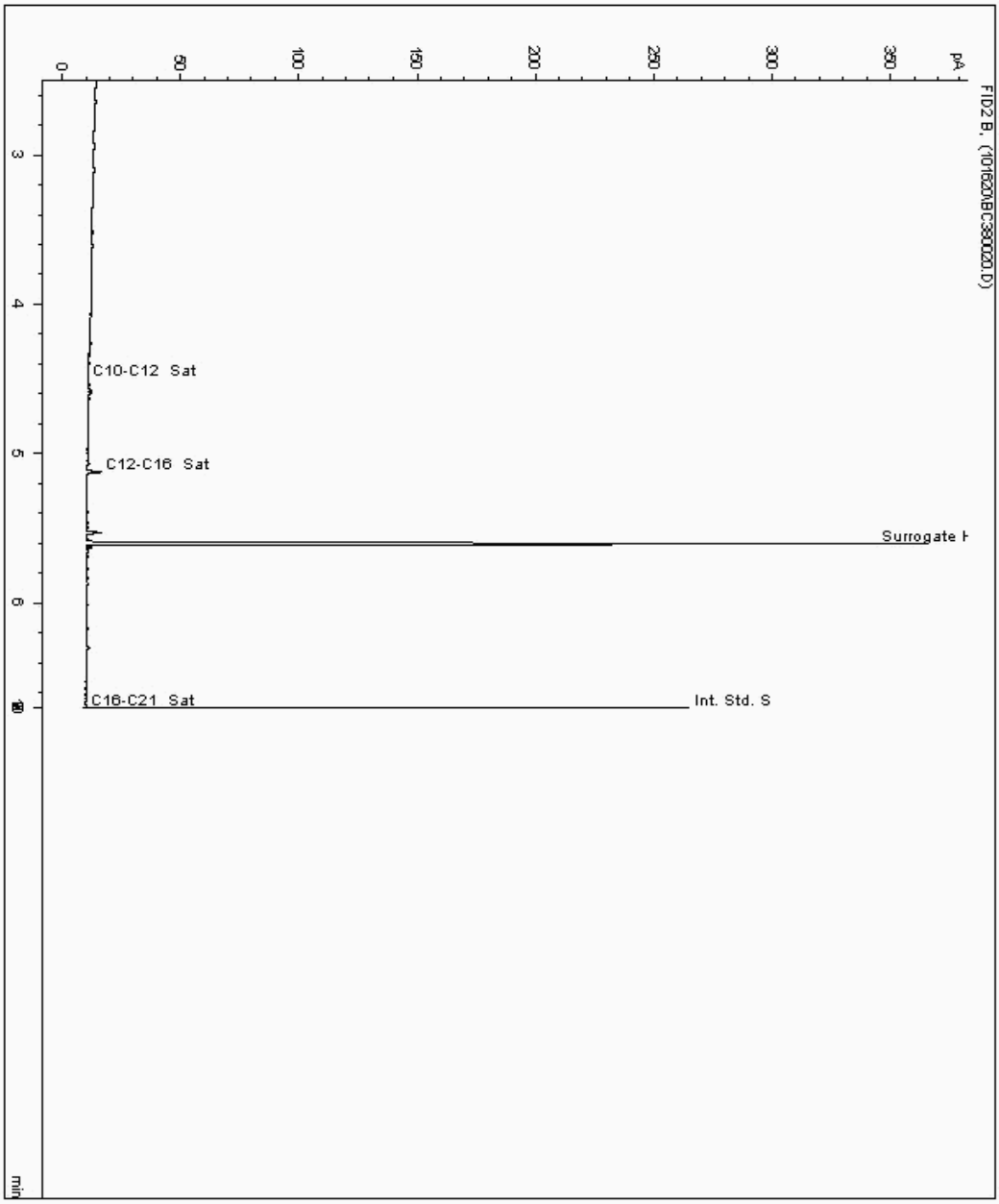
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23029613 **Depth :**
Sample ID : CELL 3/4 SUMP

Speciated TPH - SATS (C12 - C40)

Sample Identity: 21585667-
Date Acquired : 16/10/20 16:45:21 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.050



CERTIFICATE OF ANALYSIS

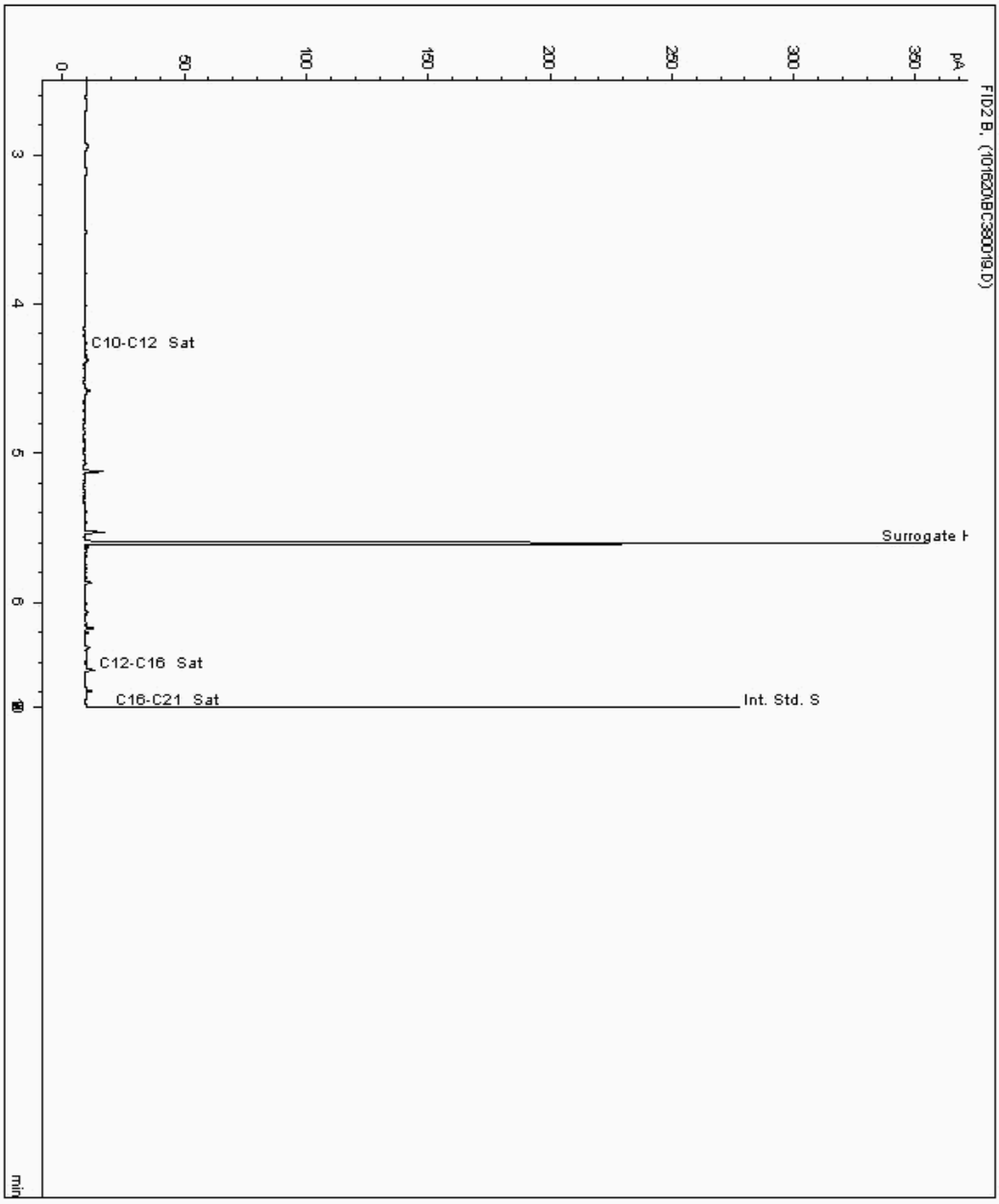
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23029619 **Depth :**
Sample ID : CELL 1/2 SUMP

Speciated TPH - SATS (C12 - C40)

Sample Identity: 21585611-
Date Acquired : 16/10/20 16:22:04 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.050



CERTIFICATE OF ANALYSIS

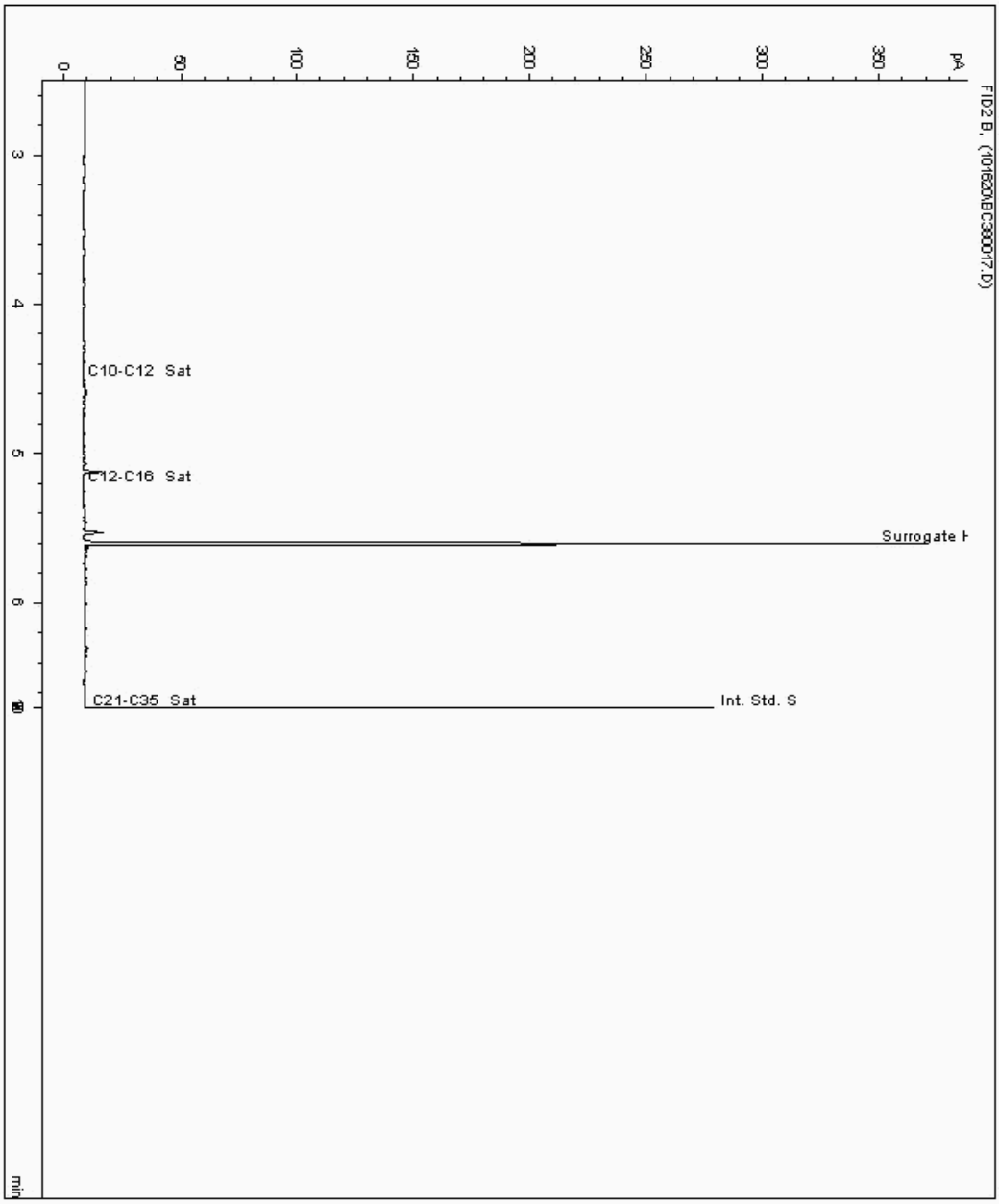
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23029663 **Depth :**
Sample ID : LEACHATE HOLDING LAGOC

Speciated TPH - SATS (C12 - C40)

Sample Identity: 21585589-
Date Acquired : 16/10/20 15:35:33 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.050



CERTIFICATE OF ANALYSIS

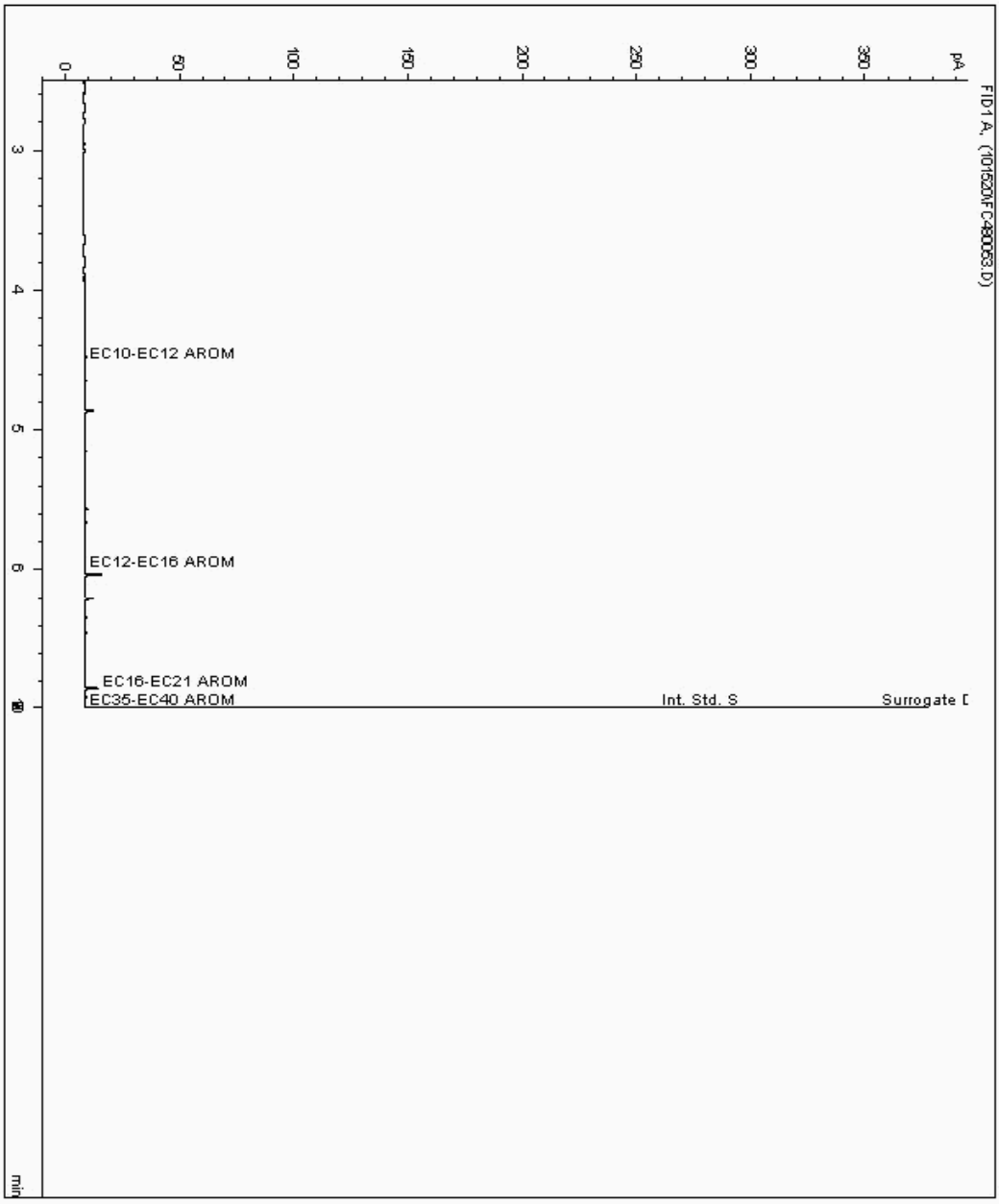
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23029548 **Sample ID :** UD5 **Depth :**

Alcontrol/Geochem Analytical Services
Speciated TPH - AROM (C12 - C40)

Sample Identity: 21585825-
Date Acquired : 16/10/2020 18:29:08 PM
Units : ppb
Dilution : SE UD5[ ] ->
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

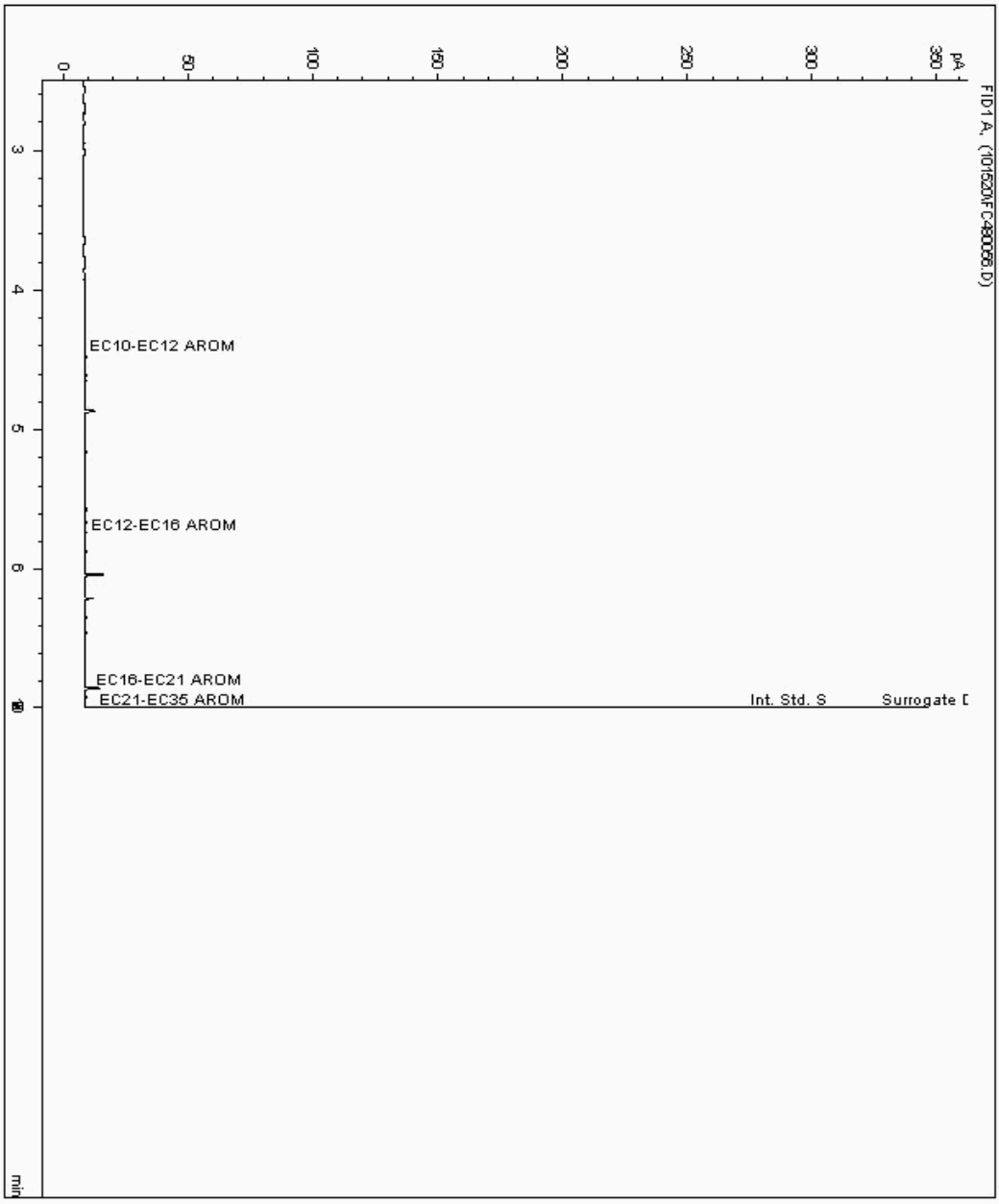
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23029563 **Depth :**
Sample ID : UD4

Alcontrol/Geochem Analytical Services
Speciated TPH - AROM (C12 - C40)

Sample Identity: 21585807-
Date Acquired : 16/10/2020 19:38:22 PM
Units : ppb
Dilution : SE UD4[ ] ->
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

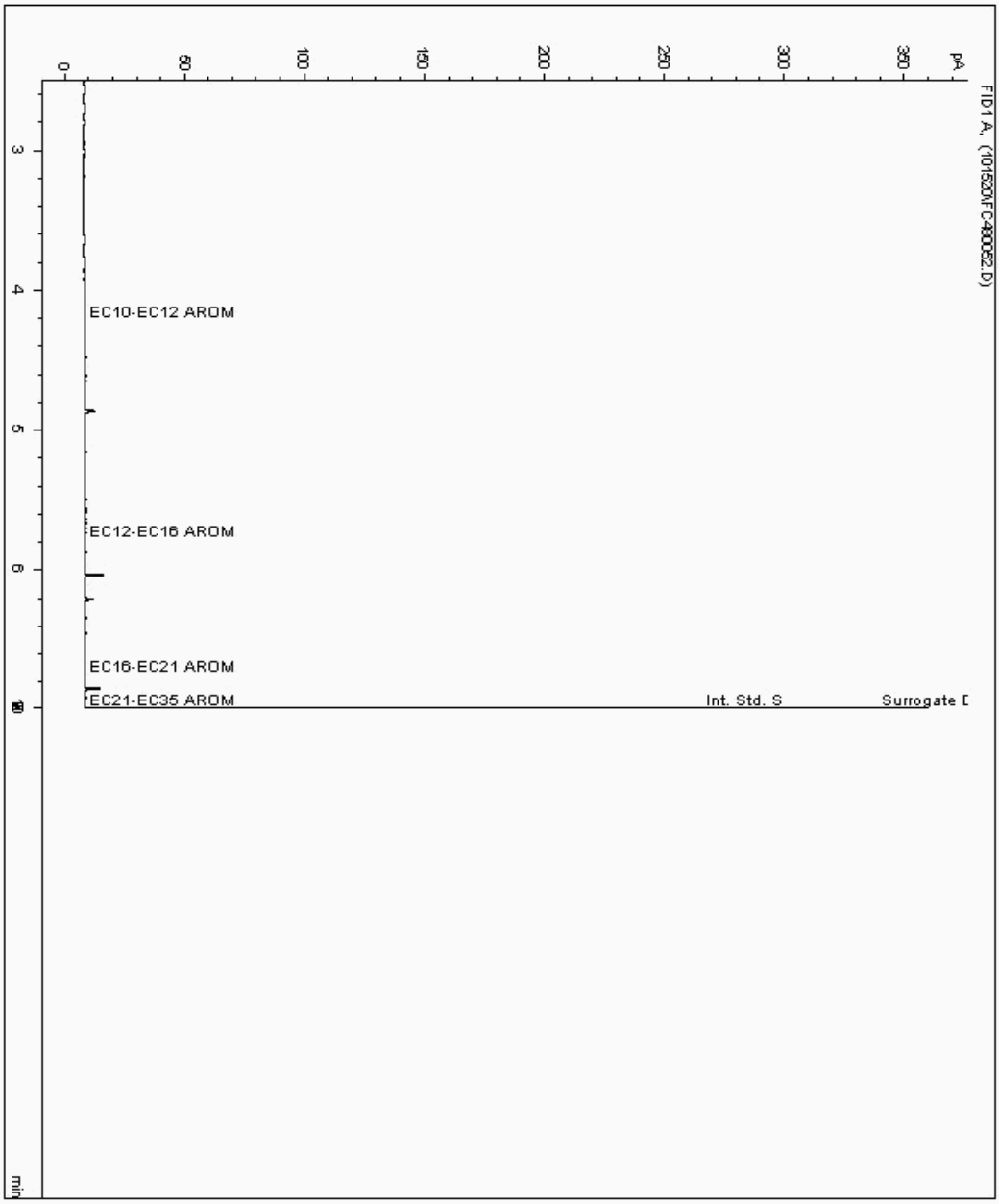
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23029578 **Depth :**
Sample ID : UD1

Alcontrol/Geochem Analytical Services
Speciated TPH - AROM (C12 - C40)

Sample Identity: 21585746-
Date Acquired : 16/10/2020 18:06:11 PM
Units : ppb
Dilution : SE UD1[ ] ->
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

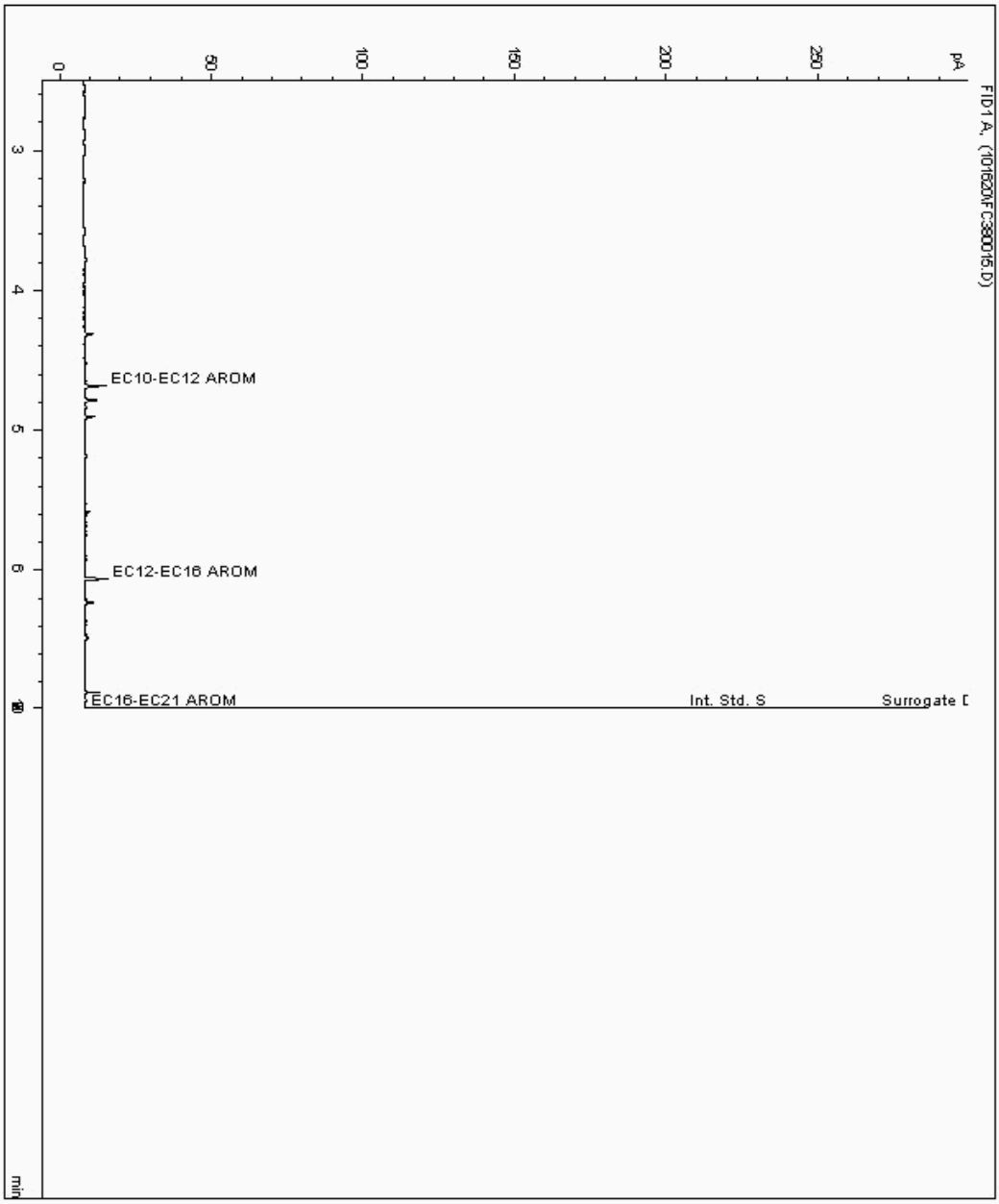
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23029579 **Sample ID :** CELL 7 SUMP **Depth :**

Speciated TPH - AROM (C12 - C40)

Sample Identity: 21585721-
Date Acquired : 16/10/20 14:49:00 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.050



CERTIFICATE OF ANALYSIS

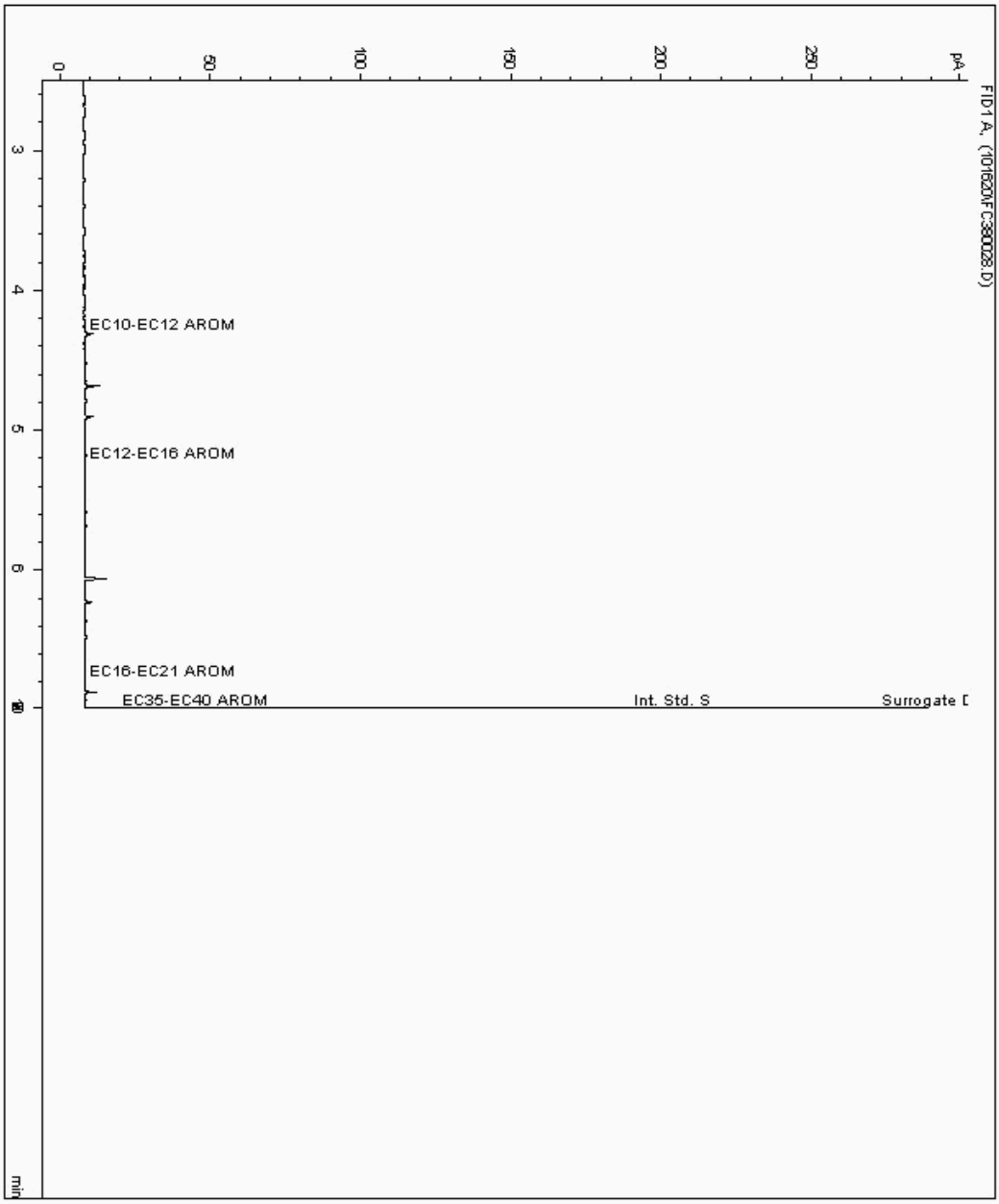
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23029585 **Depth :**
Sample ID : CELL 5 SUMP

Speciated TPH - AROM (C12 - C40)

Sample Identity: 21585685-
Date Acquired : 16/10/20 19:49:58 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.050



CERTIFICATE OF ANALYSIS

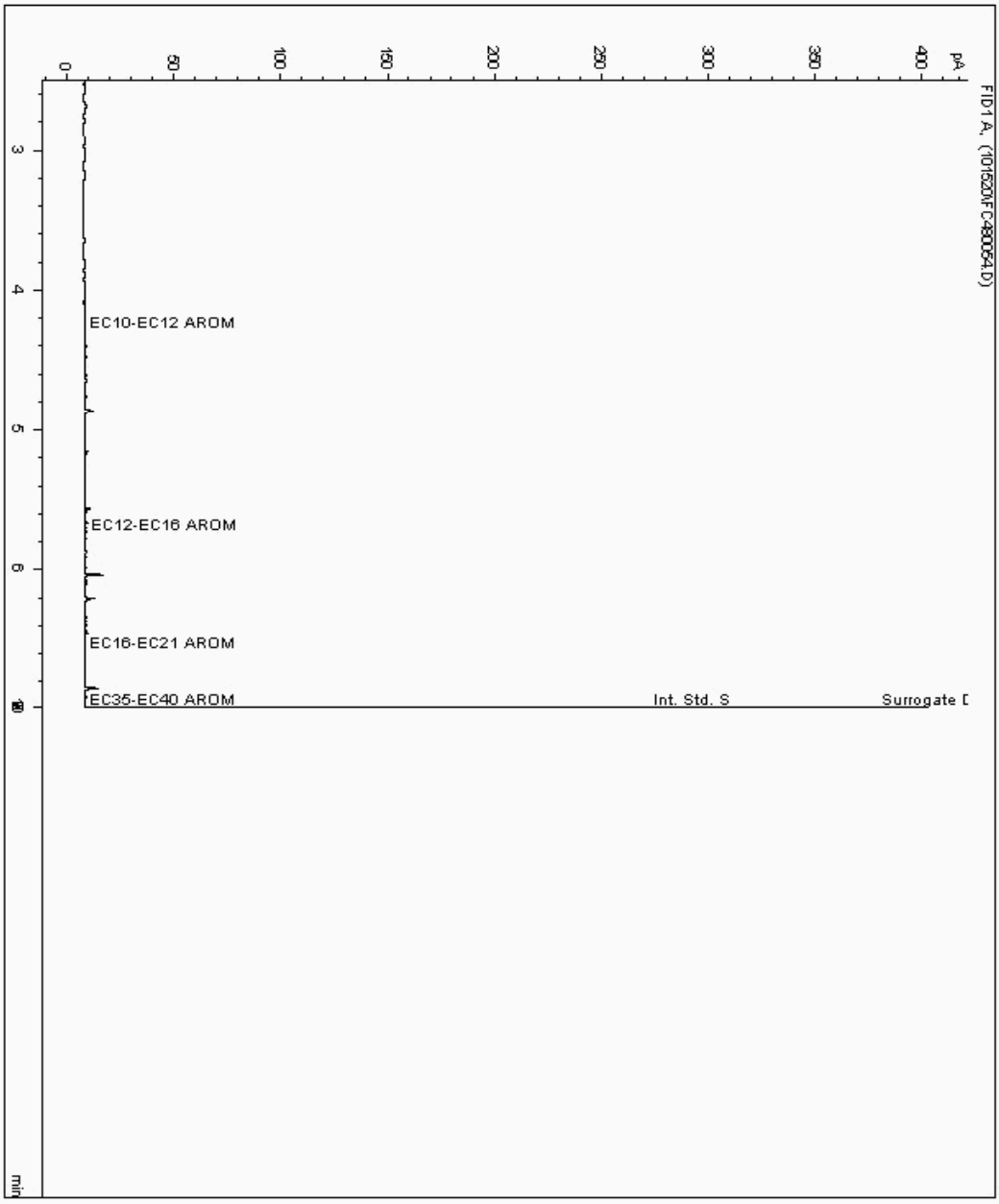
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23029595 **Sample ID :** UD3 **Depth :**

Alcontrol/Geochem Analytical Services
Speciated TPH - AROM (C12 - C40)

Sample Identity: 21585770-
Date Acquired : 16/10/2020 18:52:16 PM
Units : ppb
Dilution : SE UD3[ ] ->
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

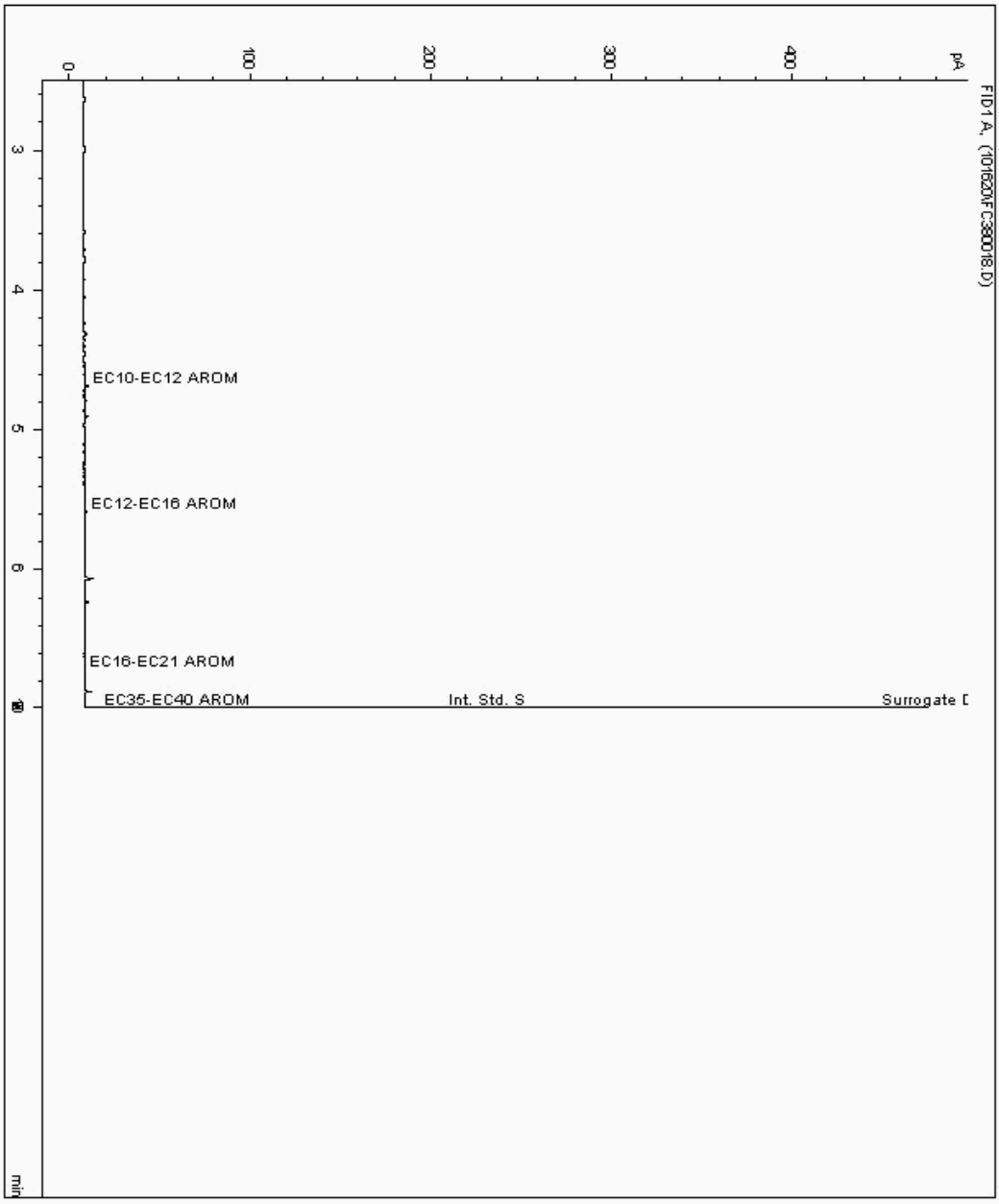
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23029606 **Sample ID :** CELL 6 SUMP **Depth :**

Speciated TPH - AROM (C12 - C40)

Sample Identity: 21585700-
Date Acquired : 16/10/20 15:58:56 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.050



CERTIFICATE OF ANALYSIS

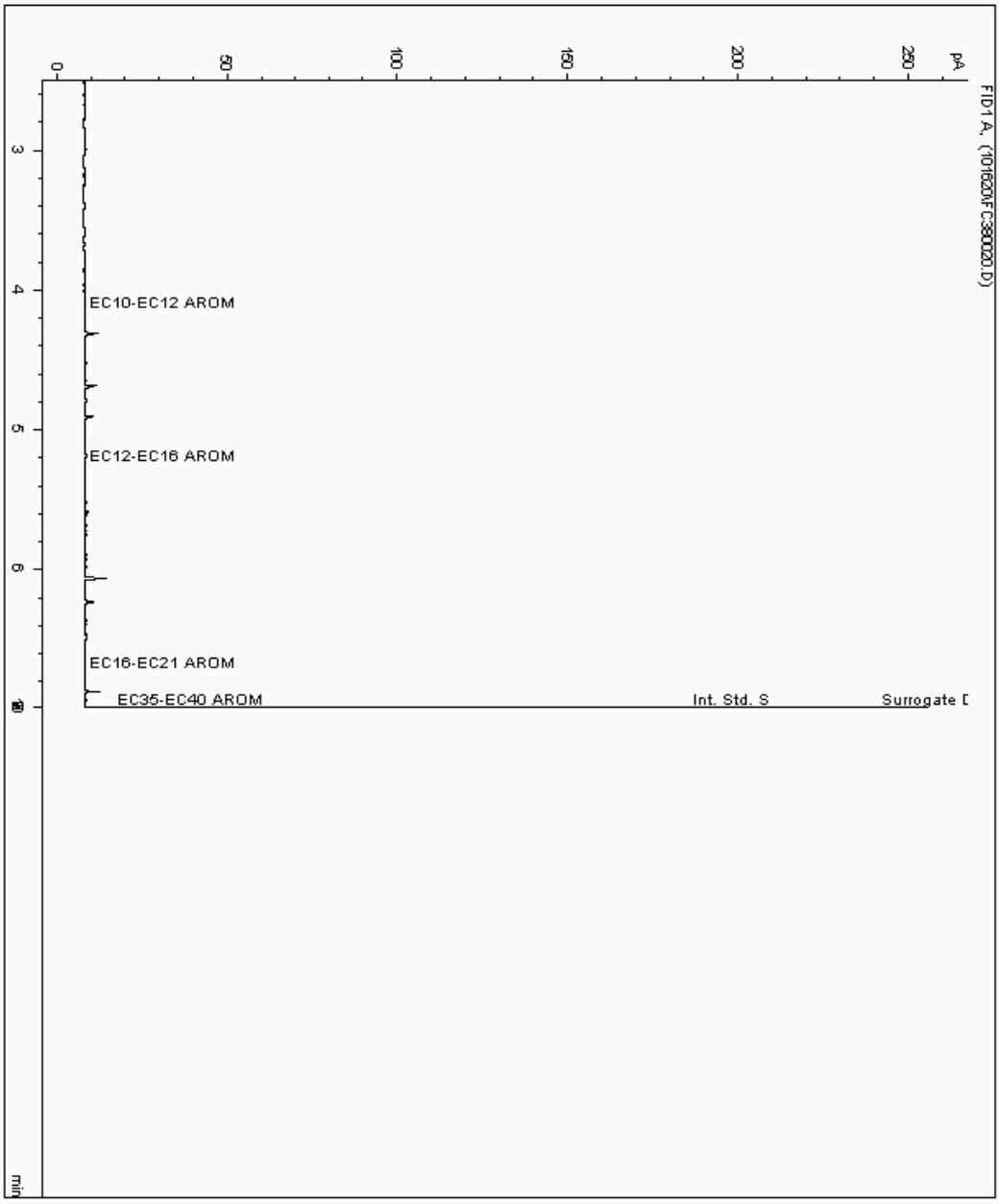
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23029613 **Sample ID :** CELL 3/4 SUMP **Depth :**

Speciated TPH - AROM (C12 - C40)

Sample Identity: 21585668-
Date Acquired : 16/10/20 16:45:21 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.050



CERTIFICATE OF ANALYSIS

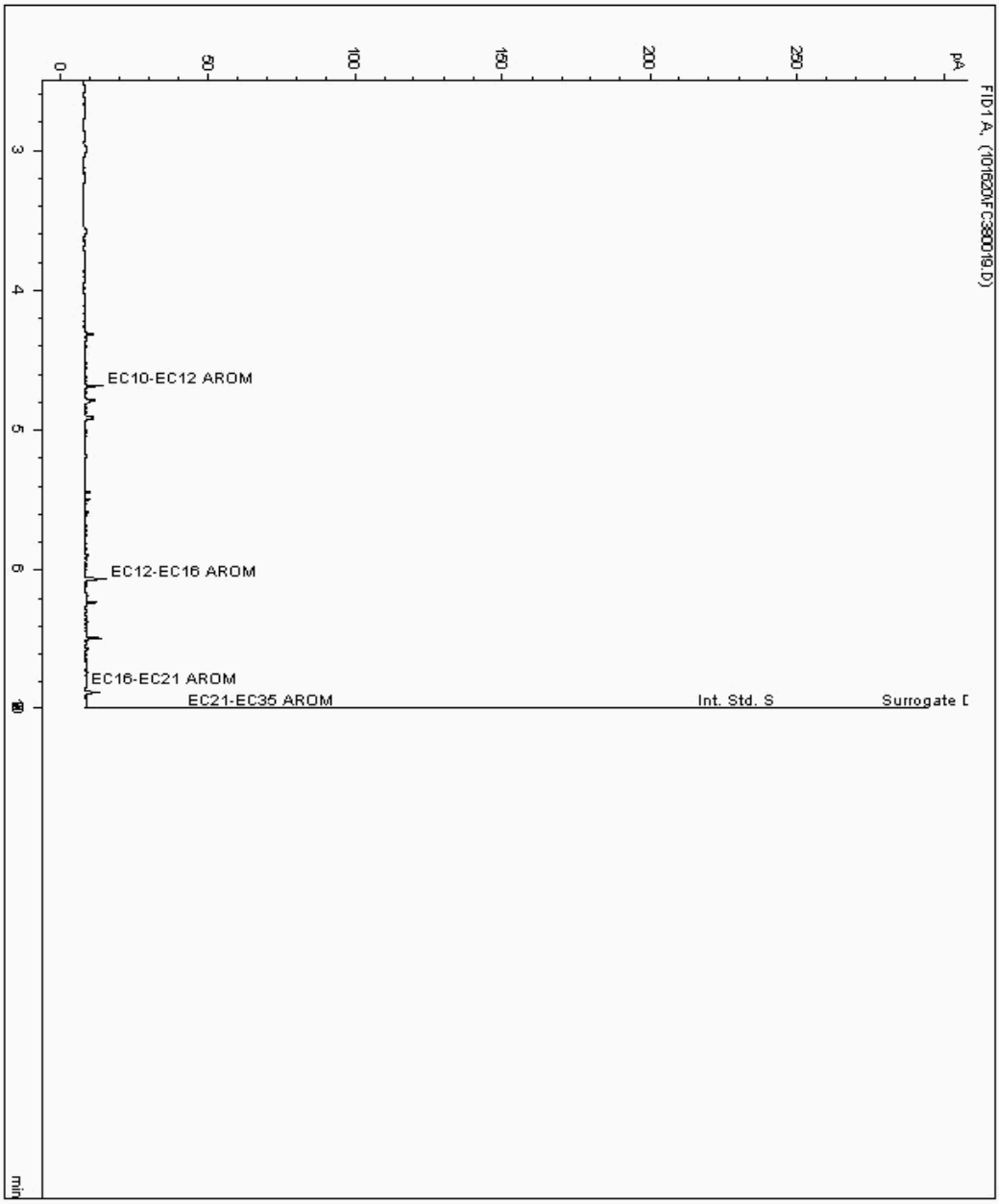
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23029619 **Depth :**
Sample ID : CELL 1/2 SUMP

Speciated TPH - AROM (C12 - C40)

Sample Identity: 21585612-
Date Acquired : 16/10/20 16:22:04 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.050



CERTIFICATE OF ANALYSIS

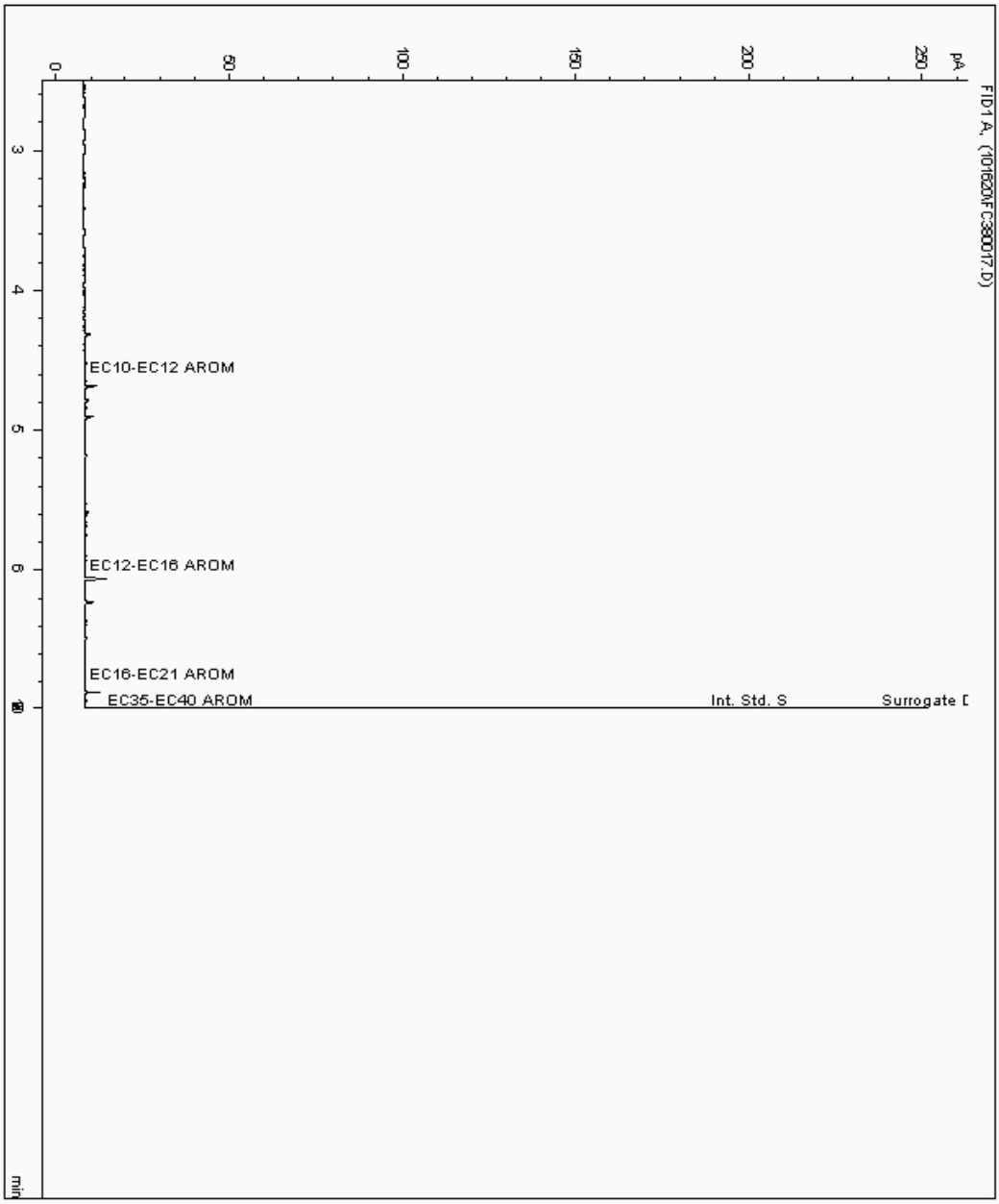
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23029663 **Depth :**
Sample ID : LEACHATE HOLDING LAGOC

Speciated TPH - AROM (C12 - C40)

Sample Identity: 21585590-
Date Acquired : 16/10/20 15:35:33 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.050



CERTIFICATE OF ANALYSIS

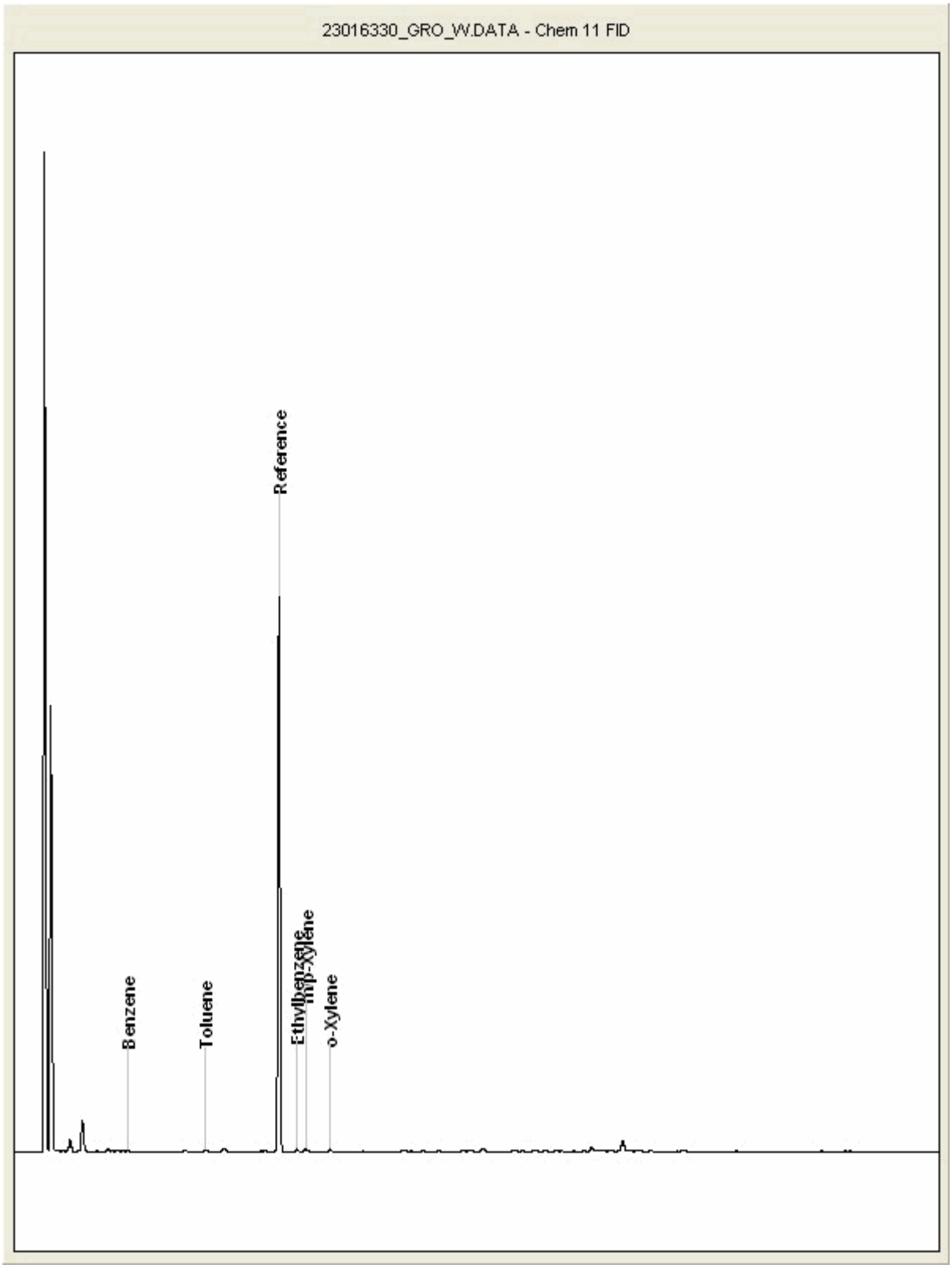
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23016330
Sample ID : CELL 7 SUMP

Depth :



CERTIFICATE OF ANALYSIS

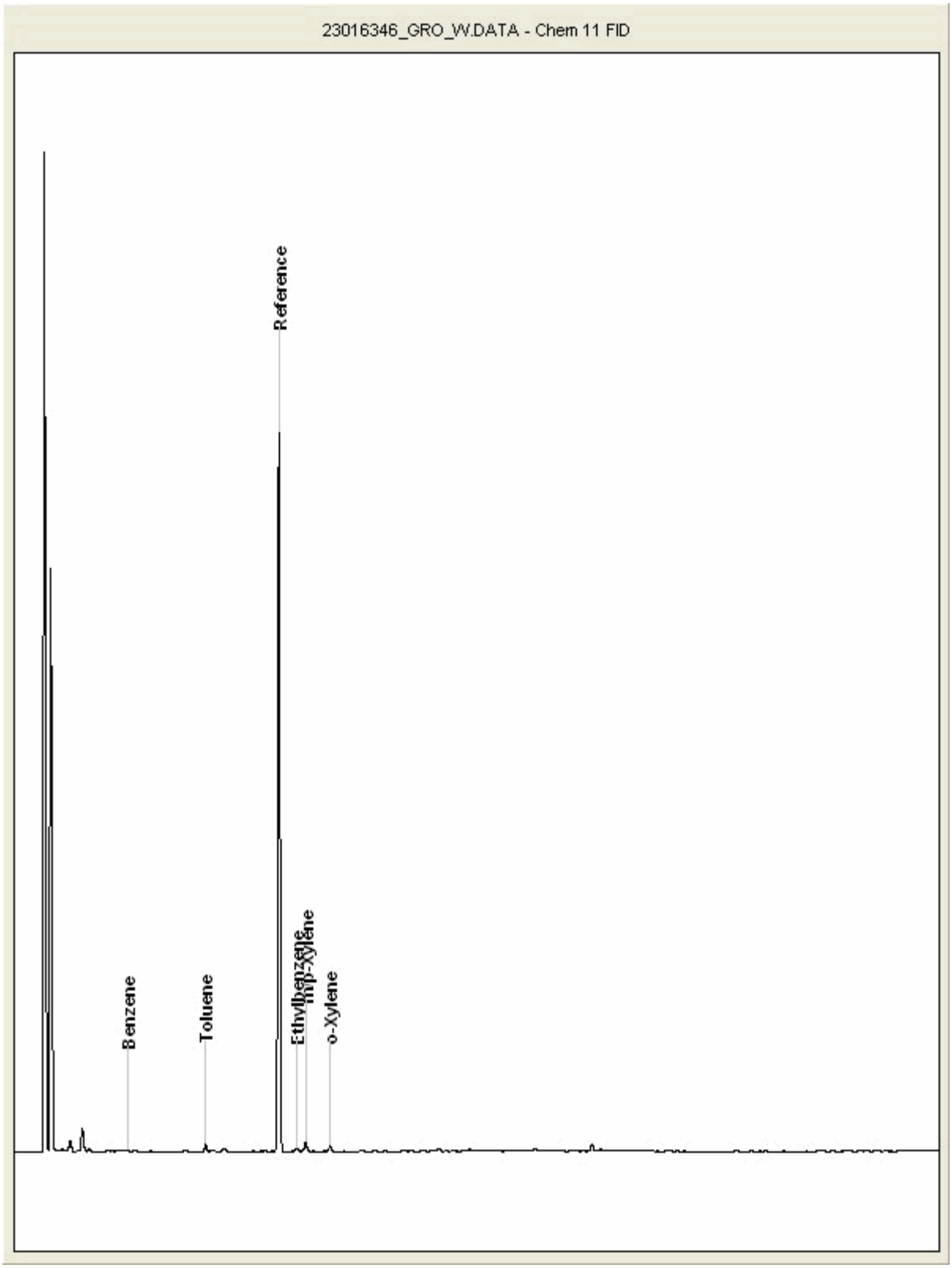
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23016346
Sample ID : CELL 1/2 SUMP

Depth :



CERTIFICATE OF ANALYSIS

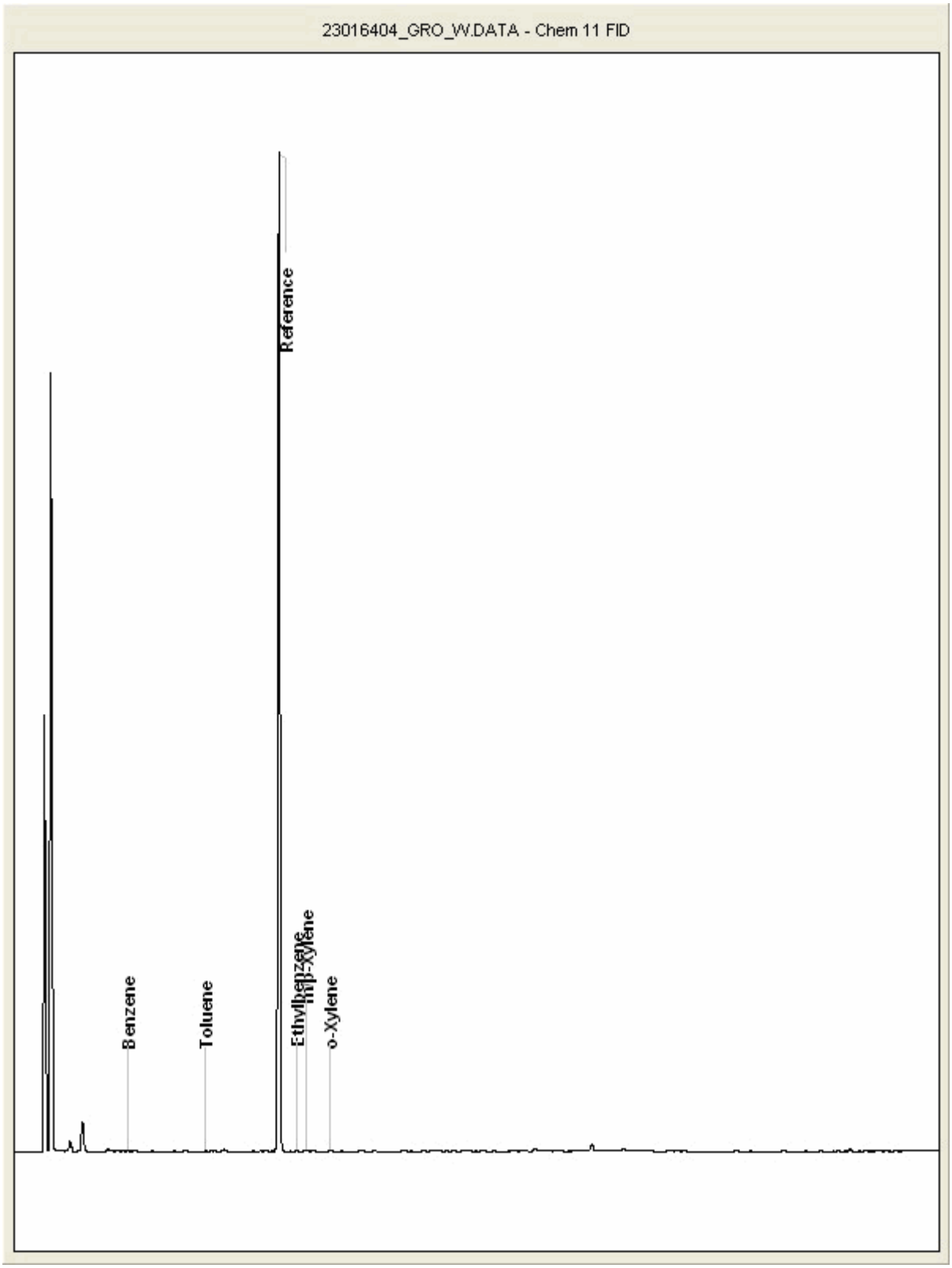
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23016404
Sample ID : CELL 5 SUMP

Depth :



CERTIFICATE OF ANALYSIS

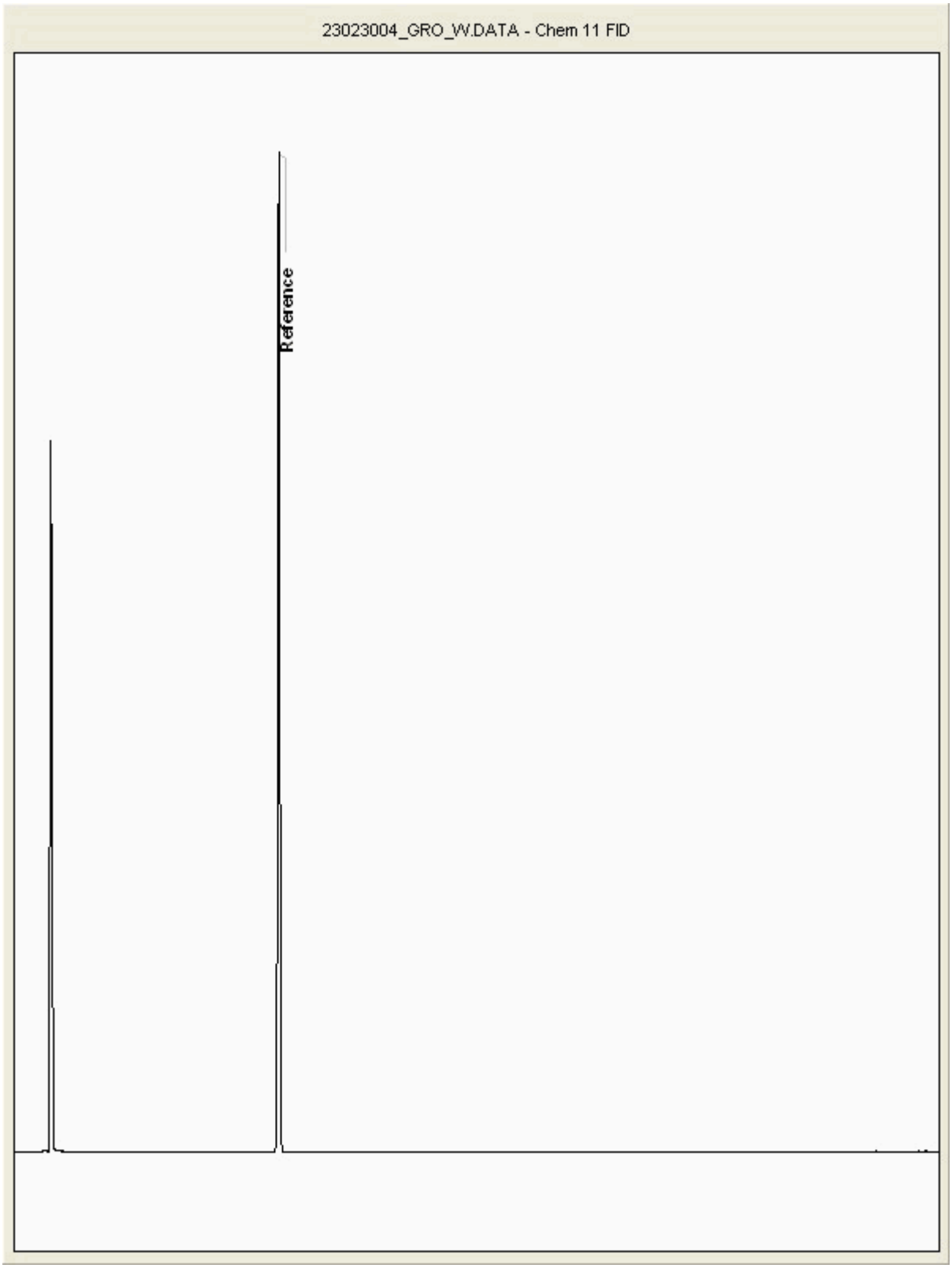
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23023004
Sample ID : UD5

Depth :



CERTIFICATE OF ANALYSIS

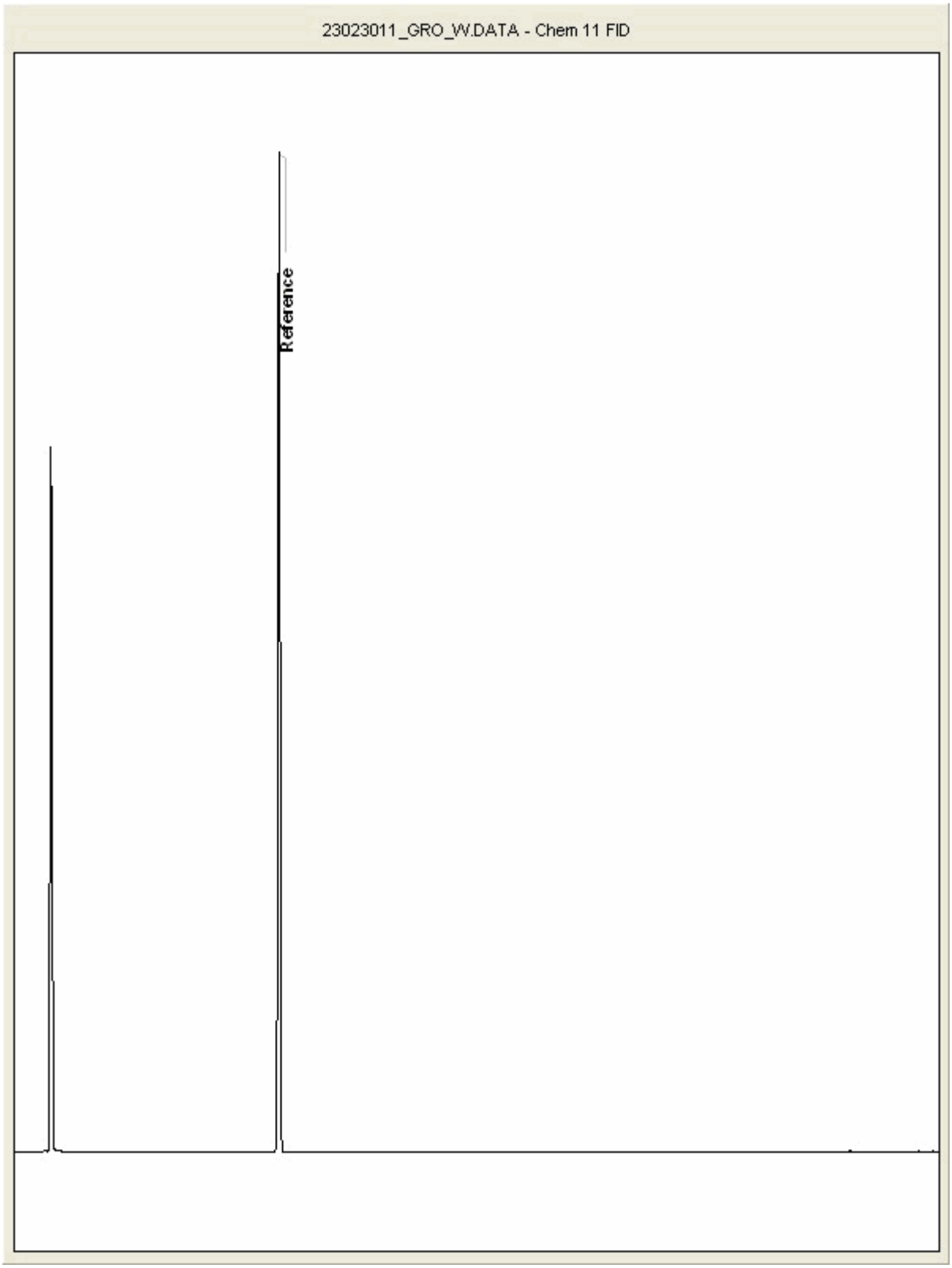
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23023011
Sample ID : UD4

Depth :



CERTIFICATE OF ANALYSIS

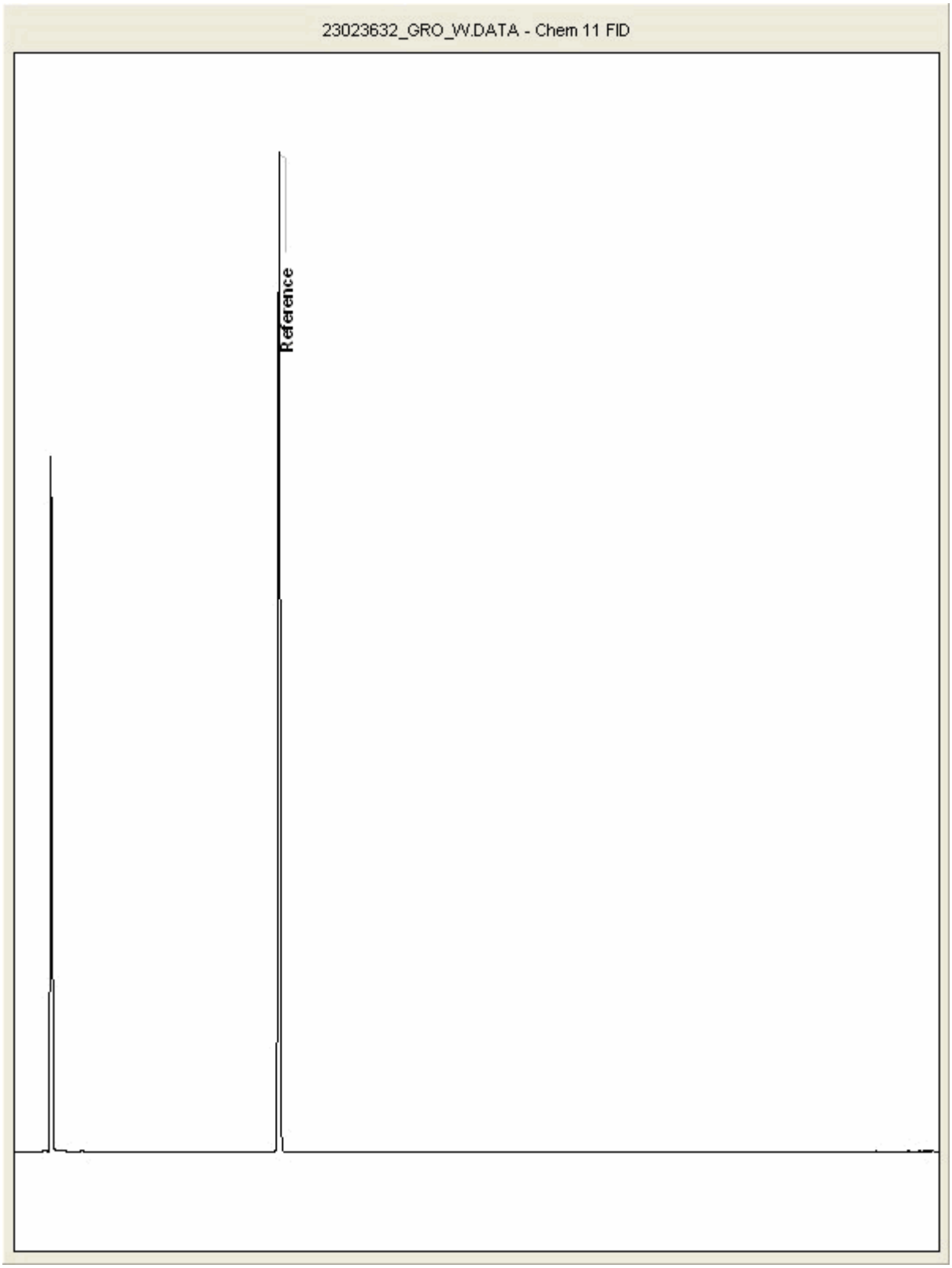
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23023632
Sample ID : UD1

Depth :



CERTIFICATE OF ANALYSIS

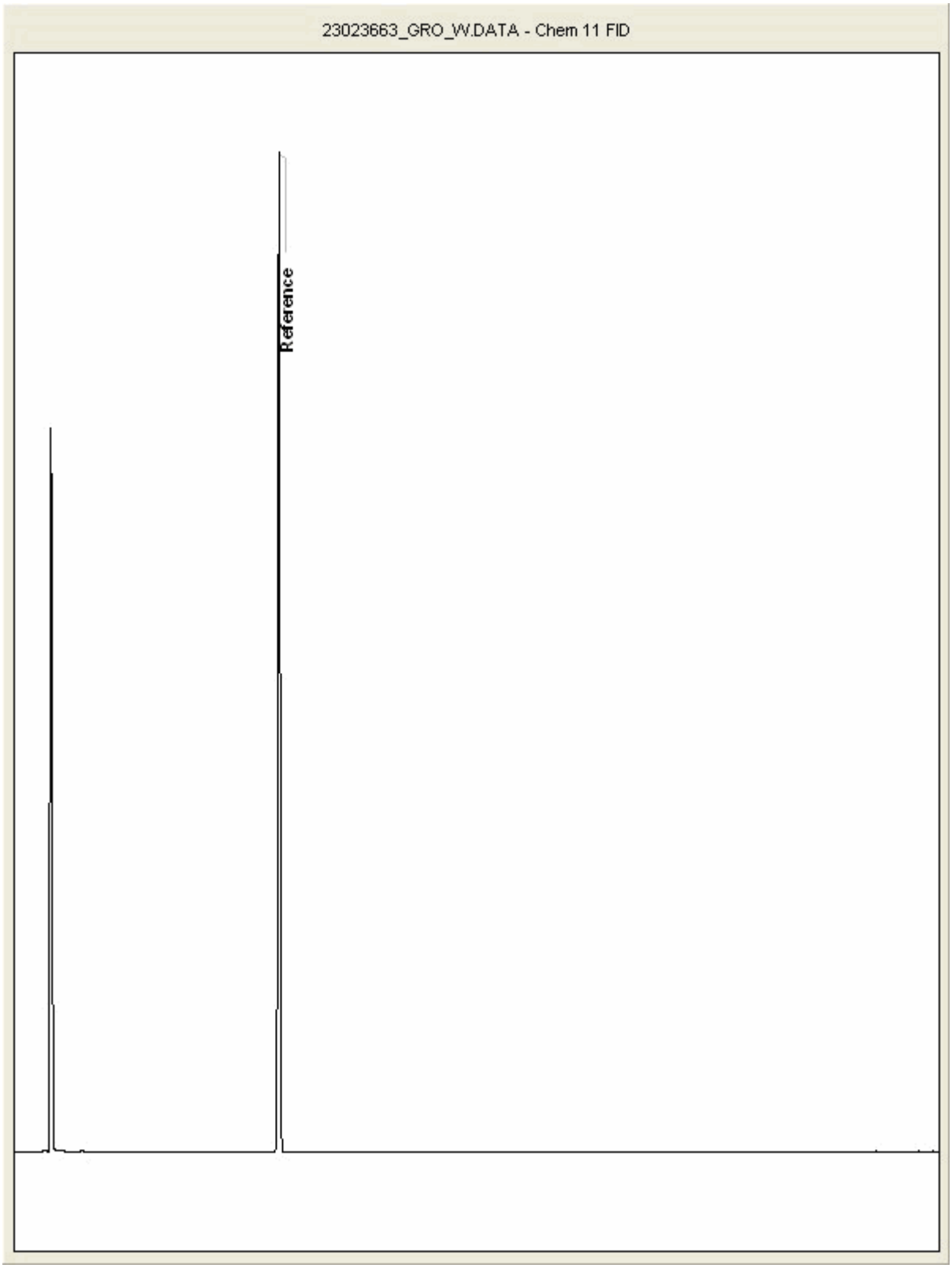
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23023663
Sample ID : UD3

Depth :



CERTIFICATE OF ANALYSIS

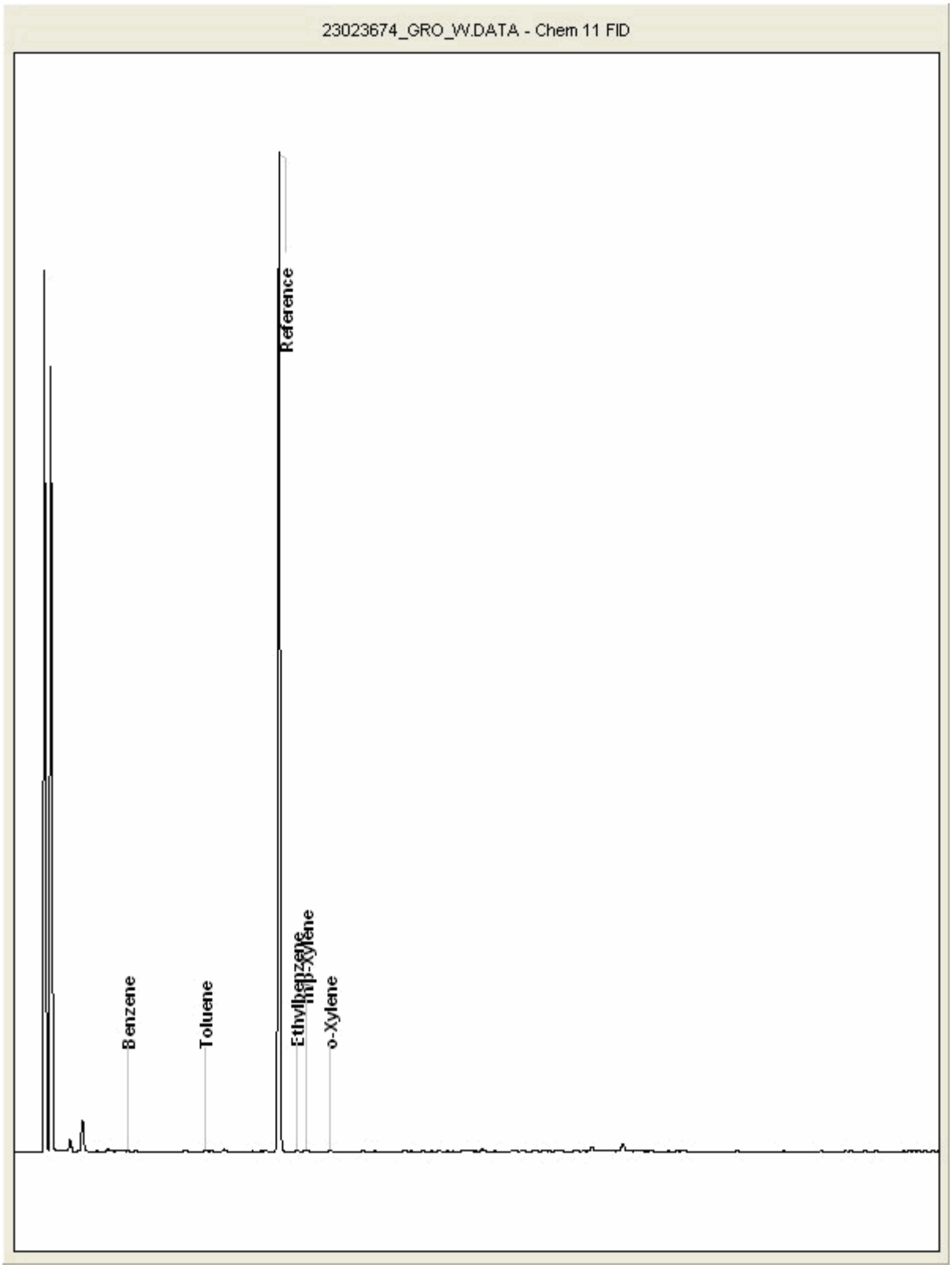
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23023674
Sample ID : LEACHATE HOLDING LAGOC

Depth :



CERTIFICATE OF ANALYSIS

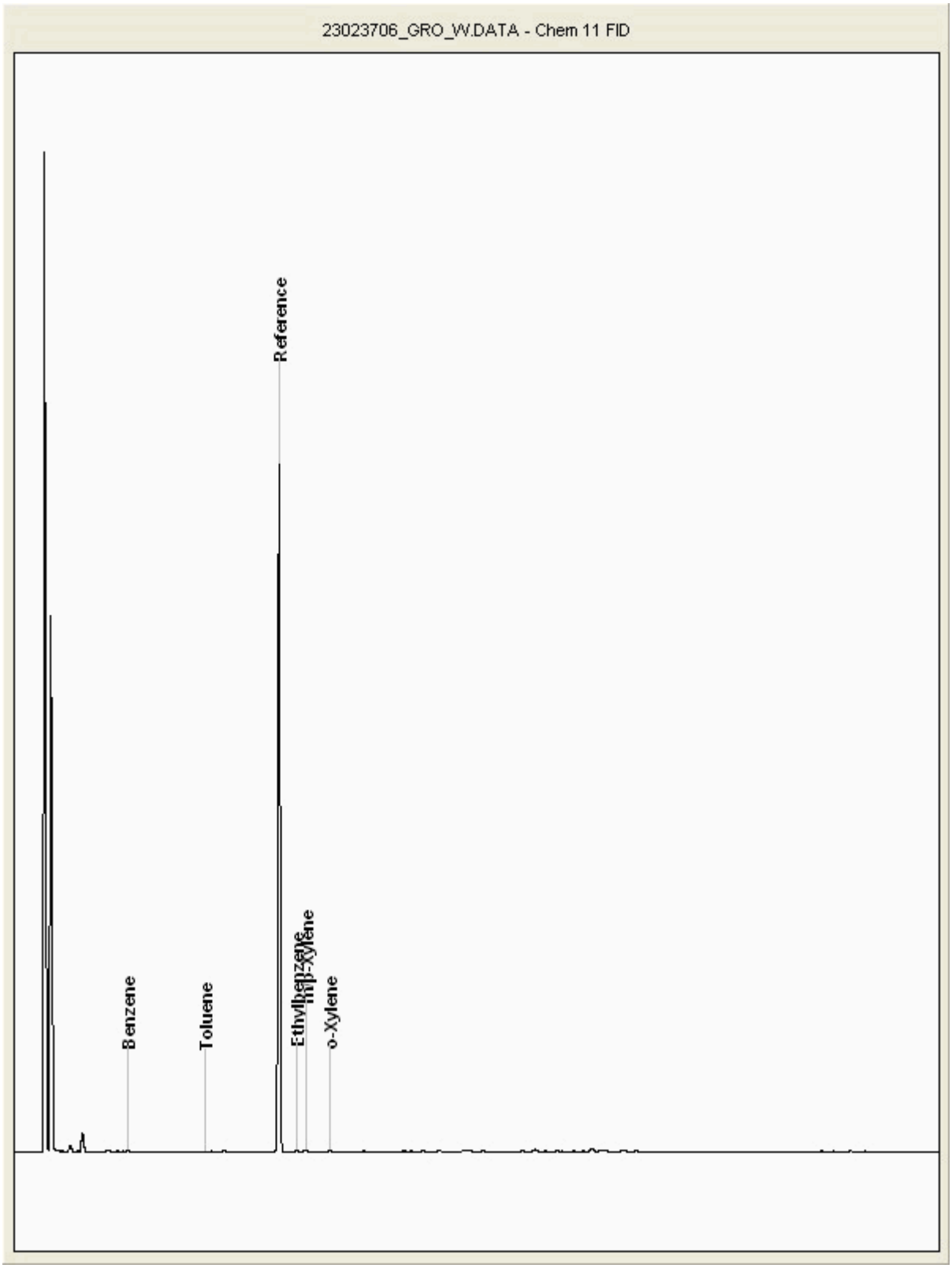
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23023706
Sample ID : CELL 3/4 SUMP

Depth :



CERTIFICATE OF ANALYSIS

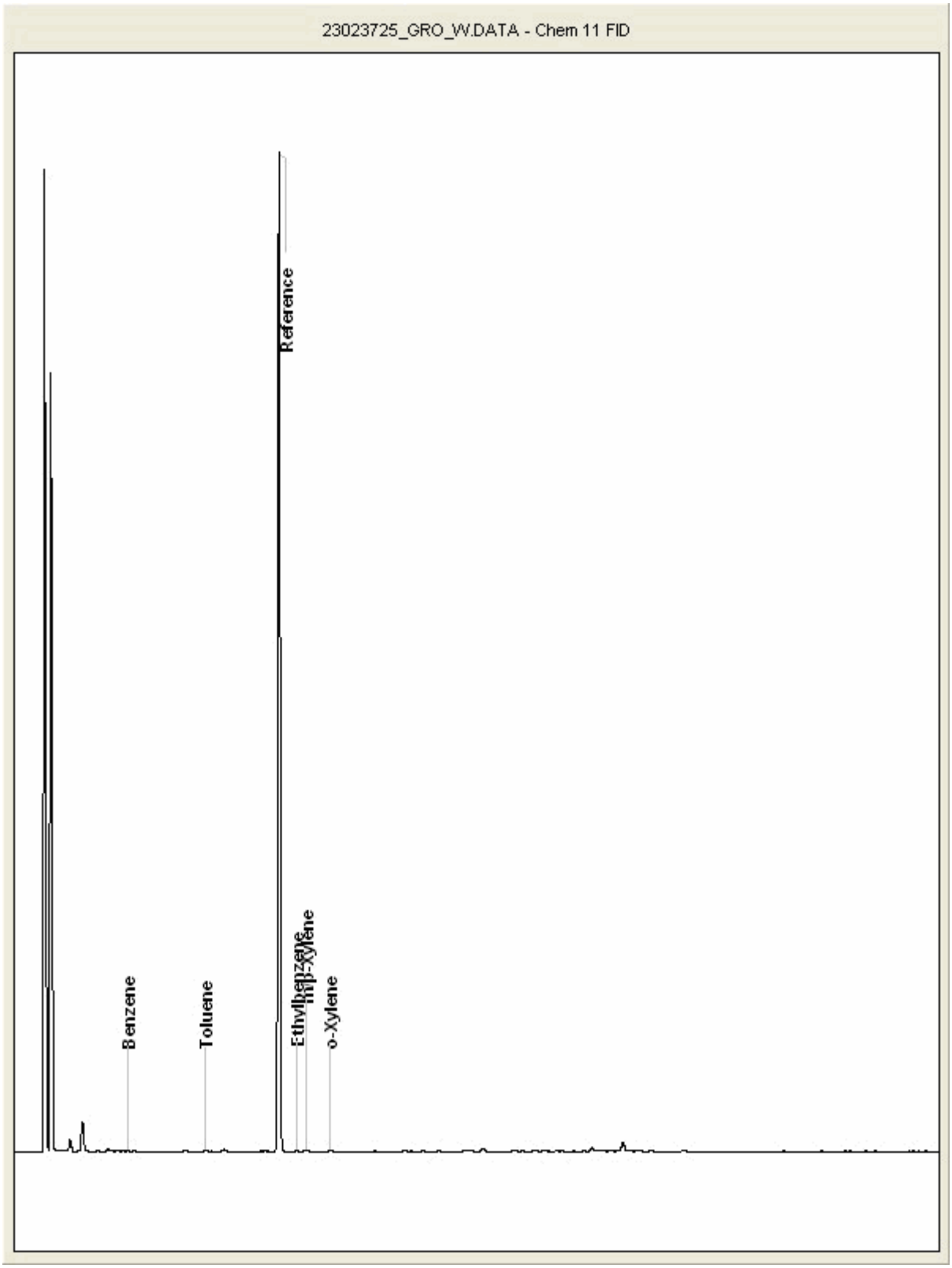
SDG:	201007-14	**Client Reference:**		**Report Number:**	571925
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	571691

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23023725
Sample ID : CELL 6 SUMP

Depth :



ALS Environmental Ltd
Torrington Avenue
Coventry
CV4 9GU

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F: +44 (0)24 7685 6575
www.alsenvironmental.co.uk

Subcon Results
ALS Life Sciences Limited
Torrington Avenue
Tile Hill CV4 9GU

16 October 2020

Test Report: COV/1936759/2020

Dear Subcon Results

Analysis of your sample(s) received on 14 October 2020 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:

Name: A. Zunzunegui

Title: Dept Organic Technical Manager

UKAS TESTING 1314

bsi ISO 14001 Environmental Management CERTIFIED ISO 45001 Occupational Health and Safety Management CERTIFIED
EMS 675527 OHS 542058

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No.02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

Report Summary

ANALYSED BY

Hawarden Subcon Results
ALS Life Sciences Limited
Torrington Avenue
Tile Hill
CV4 9GU

Date of Issue: **16 October 2020**

Report Number: **COV/1936759/2020** Issue **1**

This issue replaces all previous issues

Job Description: 2020 Analysis

Job Location: 201007-14

Number of Samples included in this report **7**

Job Received: **14 October 2020**

Number of Test Results included in this report **7**

Analysis Commenced: **15 October 2020**

Signed:

Name: **A. Zunzunegui** Date: **16 October 2020**

Title: **Dept Organic Technical Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated.

Information on the methods of analysis and performance characteristics are available on request.
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested and where relevant sampled.
Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.
This test report is not a statement of conformity to any specification or standard.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.
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Certificate of Analysis

ANALYSED BY

UKAS TESTING 1314

ALS

Report Number:	**COV/1936759/2020**	Issue	**1**
Laboratory Number:	**19772775**	Sample	**1** of **7**
Sample Source:	**ALS Life Sciences Limited**		
Sample Point Description:			
Sample Description:	**23024086**		
Sample Matrix:	**Land Leachate**		
Sample Date/Time:			
Sample Received:	**14 October 2020**		
Analysis Complete:	**16 October 2020**		
SDG:	**201007-14**		
Sample Reference:	**CELL 5 SUMP**		

Test Description	Result	Units	Analysis Date	Accreditation	Method
TOC as C	404	mg/l	15/10/2020	Y Cov	WAS005

Analyst Comments for 19772775: The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues
Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.
Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.
I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed: Ainhoa

Name: **A. Zunzunegui** Date: **16 October 2020**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY

UKAS TESTING 1314

ALS

Report Number:	**COV/1936759/2020**	Issue	**1**
Laboratory Number:	**19772776**	Sample	**2** of **7**
Sample Source:	**ALS Life Sciences Limited**		
Sample Point Description:			
Sample Description:	**23024077**		
Sample Matrix:	**Land Leachate**		
Sample Date/Time:			
Sample Received:	**14 October 2020**		
Analysis Complete:	**16 October 2020**		
SDG:	**201007-14**		
Sample Reference:	**CELL 7 SUMP**		

Test Description	Result	Units	Analysis Date	Accreditation	Method
TOC as C	622	mg/l	15/10/2020	Y Cov	WAS005

Analyst Comments for 19772776: The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues
Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.
Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.
I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed: 

Name: **A. Zunzunegui** Date: **16 October 2020**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY

UKAS TESTING 1314

ALS

Report Number:	**COV/1936759/2020**	Issue	**1**
Laboratory Number:	**19772777**	Sample	**3** of **7**
Sample Source:	**ALS Life Sciences Limited**		
Sample Point Description:			
Sample Description:	**23024102**		
Sample Matrix:	**Surface Water**		
Sample Date/Time:			
Sample Received:	**14 October 2020**		
Analysis Complete:	**16 October 2020**		
SDG:	**201007-14**		
Sample Reference:	**SW201**		

Test Description	Result	Units	Analysis Date	Accreditation	Method
TOC as C	6.6	mg/l	15/10/2020	N Cov	WAS005

Analyst Comments for 19772777: The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues
Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.
Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.
I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed: 

Name: **A. Zunzunegui** Date: **16 October 2020**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY

UKAS TESTING 1314

ALS

Report Number:	**COV/1936759/2020**	Issue	**1**
Laboratory Number:	**19772778**	Sample	**4** of **7**
Sample Source:	**ALS Life Sciences Limited**		
Sample Point Description:			
Sample Description:	**23024139**		
Sample Matrix:	**Surface Water**		
Sample Date/Time:			
Sample Received:	**14 October 2020**		
Analysis Complete:	**16 October 2020**		
SDG:	**201007-14**		
Sample Reference:	**SW202**		

Test Description	Result	Units	Analysis Date	Accreditation	Method
TOC as C	12.8	mg/l	15/10/2020	N Cov	WAS005

Analyst Comments for 19772778: The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues
Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.
Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.
I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed: 

Name: **A. Zunzunegui** Date: **16 October 2020**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY

UKAS TESTING 1314

ALS

Report Number:	**COV/1936759/2020**	Issue	**1**
Laboratory Number:	**19772779**	Sample	**5** of **7**
Sample Source:	**ALS Life Sciences Limited**		
Sample Point Description:			
Sample Description:	**23024111**		
Sample Matrix:	**Surface Water**		
Sample Date/Time:			
Sample Received:	**14 October 2020**		
Analysis Complete:	**16 October 2020**		
SDG:	**201007-14**		
Sample Reference:	**SW203**		

Test Description	Result	Units	Analysis Date	Accreditation	Method
TOC as C	8.5	mg/l	15/10/2020	N Cov	WAS005

Analyst Comments for 19772779: The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues
Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.
Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.
I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed: Ainhoa

Name: **A. Zunzunegui** Date: **16 October 2020**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY

UKAS TESTING 1314

ALS

Report Number:	**COV/1936759/2020**	Issue	**1**
Laboratory Number:	**19772780**	Sample	**6** of **7**
Sample Source:	**ALS Life Sciences Limited**		
Sample Point Description:			
Sample Description:	**23024119**		
Sample Matrix:	**Surface Water**		
Sample Date/Time:			
Sample Received:	**14 October 2020**		
Analysis Complete:	**16 October 2020**		
SDG:	**201007-14**		
Sample Reference:	**SW204**		

Test Description	Result	Units	Analysis Date	Accreditation	Method
TOC as C	11.4	mg/l	15/10/2020	N Cov	WAS005

Analyst Comments for 19772780: The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues
Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.
Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.
I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed: 

Name: **A. Zunzunegui** Date: **16 October 2020**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY

UKAS TESTING 1314

ALS

Report Number:	**COV/1936759/2020**	Issue	**1**
Laboratory Number:	**19772781**	Sample	**7** of **7**
Sample Source:	**ALS Life Sciences Limited**		
Sample Point Description:			
Sample Description:	**23024128**		
Sample Matrix:	**Surface Water**		
Sample Date/Time:			
Sample Received:	**14 October 2020**		
Analysis Complete:	**16 October 2020**		
SDG:	**201007-14**		
Sample Reference:	**SW205**		

Test Description	Result	Units	Analysis Date	Accreditation	Method
TOC as C	13.3	mg/l	15/10/2020	N Cov	WAS005

Analyst Comments for 19772781: The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues
Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.
Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.
I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed: Ainhoa

Name: **A. Zunzunegui** Date: **16 October 2020**

Title: **Dept Organic Technical Manager**

ANALYST COMMENTS FOR REPORT COV/1936759/2020 Issue 1

This issue replaces all previous issues

Date of Issue: **16 October 2020**

Sample No	Analysis Comments
19772775	The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.
19772776	The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.
19772777	The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.
19772778	The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.
19772779	The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.
19772780	The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.
19772781	The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.

Signed: 

Name: **A. Zunzunegui** Date: **16 October 2020**

Title: **Dept Organic Technical Manager**

DETERMINAND COMMENTS FOR REPORT COV/1936759/2020

ISSUE 1

This issue replaces all previous issues

Date of Issue: 16 October 2020

Sample No	Description	Determinand	Comments

Signed: 

Name: **A. Zunzunegui** Date: **16 October 2020**

Title: **Dept Organic Technical Manager**

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ALS Environmental Ltd
Torrington Avenue
Coventry
CV4 9GU

T: +44 (0)24 7642 1213
F: +44 (0)24 7685 6575
www.alsenvironmental.co.uk

Subcon Results
ALS Life Sciences Limited
Torrington Avenue
Tile Hill CV4 9GU

19 October 2020

Test Report: COV/1936700/2020

Dear Subcon Results

Analysis of your sample(s) received on 14 October 2020 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:

Name: A. Zunzunegui

Title: Dept Organic Technical Manager

UKAS TESTING 1314

bsi ISO 14001 Environmental Management CERTIFIED ISO 45001 Occupational Health and Safety Management CERTIFIED
EMS 675527 OHS 542058

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No.02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

Report Summary

ANALYSED BY

Hawarden Subcon Results
ALS Life Sciences Limited
Torrington Avenue
Tile Hill
CV4 9GU

Date of Issue: **19 October 2020**

Report Number: **COV/1936700/2020** Issue **1**

This issue replaces all previous issues

Job Description: 2020 Analysis

Job Location: 201007-14

Number of Samples included in this report **6**

Job Received: **14 October 2020**

Number of Test Results included in this report **6**

Analysis Commenced: **15 October 2020**

Signed:

Name: **A. Zunzunegui** Date: **19 October 2020**

Title: **Dept Organic Technical Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated.

Information on the methods of analysis and performance characteristics are available on request.
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested and where relevant sampled.
Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.
This test report is not a statement of conformity to any specification or standard.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.
(c) ALS Environmental Ltd 2020. All rights reserved. We, ALS Environmental Ltd, are the owner of all copyright in this report. You must not copy, reproduce, amend or adapt this report, its contents or any format in which it is delivered without our prior written agreement. If you copy, reproduce, amend, or adapt this report in any way without our agreement you will be liable for any damage or loss to us. In the event of a dispute the copy of the report held by us shall be the reference copy.

Certificate of Analysis

ANALYSED BY

UKAS TESTING 1314

ALS

Report Number:	**COV/1936700/2020**	Issue	**1**
Laboratory Number:	**19772405**	Sample	**1** of **6**
Sample Source:	**ALS Life Sciences Limited**		
Sample Point Description:			
Sample Description:	**23022554**		
Sample Matrix:	**Land Leachate**		
Sample Date/Time:			
Sample Received:	**14 October 2020**		
Analysis Complete:	**19 October 2020**		
SDG:	**201007-14**		
Sample Reference:	**CELL 1/2 SUMP**		

Test Description	Result	Units	Analysis Date	Accreditation	Method
TOC as C	888	mg/l	15/10/2020	Y Cov	WAS005

Analyst Comments for 19772405: The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues
Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.
Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.
I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed: 

Name: **A. Zunzunegui** Date: **19 October 2020**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY

UKAS TESTING 1314

ALS

Report Number:	**COV/1936700/2020**	Issue	**1**
Laboratory Number:	**19772406**	Sample	**2** of **6**
Sample Source:	**ALS Life Sciences Limited**		
Sample Point Description:			
Sample Description:	**23022537**		
Sample Matrix:	**Land Leachate**		
Sample Date/Time:			
Sample Received:	**14 October 2020**		
Analysis Complete:	**19 October 2020**		
SDG:	**201007-14**		
Sample Reference:	**CELL 3/4 SUMP**		

Test Description	Result	Units	Analysis Date	Accreditation	Method
TOC as C	316	mg/l	15/10/2020	Y Cov	WAS005

Analyst Comments for 19772406: The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues
Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.
Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.
I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed: Ainhoa

Name: **A. Zunzunegui** Date: **19 October 2020**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY

Report Number:	**COV/1936700/2020**	Issue	**1**
Laboratory Number:	**19772407**	Sample	**3** of **6**
Sample Source:	**ALS Life Sciences Limited**		
Sample Point Description:			
Sample Description:	**23022568**		
Sample Matrix:	**Land Leachate**		
Sample Date/Time:			
Sample Received:	**14 October 2020**		
Analysis Complete:	**19 October 2020**		
SDG:	**201007-14**		
Sample Reference:	**CELL 6 SUMP**		

Test Description	Result	Units	Analysis Date	Accreditation	Method
TOC as C	410	mg/l	15/10/2020	Y Cov	WAS005

Analyst Comments for 19772407: The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues
Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.
Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.
I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed: 

Name: **A. Zunzunegui** Date: **19 October 2020**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY

UKAS TESTING 1314

ALS

Report Number:	**COV/1936700/2020**	Issue	**1**
Laboratory Number:	**19772408**	Sample	**4** of **6**
Sample Source:	**ALS Life Sciences Limited**		
Sample Point Description:			
Sample Description:	**23022558**		
Sample Matrix:	**Land Leachate**		
Sample Date/Time:			
Sample Received:	**14 October 2020**		
Analysis Complete:	**19 October 2020**		
SDG:	**201007-14**		
Sample Reference:	**LEACHATE HOLDING LAGOON**		

Test Description	Result	Units	Analysis Date	Accreditation	Method
TOC as C	452	mg/l	15/10/2020	Y Cov	WAS005

Analyst Comments for 19772408: The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues
Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.
Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.
I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed: 

Name: **A. Zunzunegui** Date: **19 October 2020**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY

UKAS TESTING 1314

ALS

Report Number:	**COV/1936700/2020**	Issue	**1**
Laboratory Number:	**19772409**	Sample	**5** of **6**
Sample Source:	**ALS Life Sciences Limited**		
Sample Point Description:			
Sample Description:	**23022917**		
Sample Matrix:	**Surface Water**		
Sample Date/Time:			
Sample Received:	**14 October 2020**		
Analysis Complete:	**19 October 2020**		
SDG:	**201007-14**		
Sample Reference:	**SW206**		

Test Description	Result	Units	Analysis Date	Accreditation	Method
TOC as C	4.5	mg/l	16/10/2020	N Cov	WAS005

Analyst Comments for 19772409: The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues
Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.
Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.
I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed: Ainhoa

Name: **A. Zunzunegui** Date: **19 October 2020**

Title: **Dept Organic Technical Manager**

Certificate of Analysis

ANALYSED BY

UKAS TESTING 1314

ALS

Report Number:	**COV/1936700/2020**	Issue	**1**
Laboratory Number:	**19772410**	Sample	**6** of **6**
Sample Source:	**ALS Life Sciences Limited**		
Sample Point Description:			
Sample Description:	**23022548**		
Sample Matrix:	**Surface Water**		
Sample Date/Time:			
Sample Received:	**14 October 2020**		
Analysis Complete:	**19 October 2020**		
SDG:	**201007-14**		
Sample Reference:	**SW207**		

Test Description	Result	Units	Analysis Date	Accreditation	Method
TOC as C	8.4	mg/l	15/10/2020	N Cov	WAS005

Analyst Comments for 19772410: The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues
Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.
Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.
I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed: Ainhoa

Name: **A. Zunzunegui** Date: **19 October 2020**

Title: **Dept Organic Technical Manager**

ANALYST COMMENTS FOR REPORT COV/1936700/2020 Issue 1

This issue replaces all previous issues

Date of Issue: **19 October 2020**

Sample No	Analysis Comments
19772405	The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.
19772406	The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.
19772407	The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.
19772408	The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.
19772409	The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.
19772410	The date of sampling has not been provided and therefore sample stability times cannot be assessed. It is therefore possible that the results provided may be compromised.

Signed: 

Name: **A. Zunzunegui** Date: **19 October 2020**

Title: **Dept Organic Technical Manager**

DETERMINAND COMMENTS FOR REPORT COV/1936700/2020

ISSUE 1

This issue replaces all previous issues

Date of Issue: 19 October 2020

Sample No	Description	Determinand	Comments

Signed: 

Name: **A. Zunzunegui** Date: **19 October 2020**

Title: **Dept Organic Technical Manager**

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Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

19. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2017).*

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

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CWM Environmental Ltd
Nantyclaws Landfill Site
Llanddarg Road
Carmarthen
Carmarthenshire
SA32 8BG

Attention: Darren Sanders

CERTIFICATE OF ANALYSIS

Date of report Generation:	21 October 2020
Customer:	CWM Environmental Ltd
Sample Delivery Group (SDG):	201008-85
Your Reference:	
Location:	Nantycaws Landfill
Report No:	572091

We received 17 samples on Thursday October 08, 2020 and 15 of these samples were scheduled for analysis which was completed on Wednesday October 21, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
22989864	BH3/2			07/10/2020
22989860	BH3/3			07/10/2020
22991036	BH3/4			07/10/2020
22991037	BH3/5			07/10/2020
22989862	BH3/6			07/10/2020
22991039	BH3/8			07/10/2020
22989863	BH3/9			07/10/2020
22990239	BH208			07/10/2020
22990242	BH5/02			07/10/2020
22990240	NACW203			07/10/2020
22990241	NACW205			07/10/2020
22991043	NACW212			07/10/2020
22991042	NACW219			07/10/2020
22989859	NACW227			07/10/2020
22991040	NACW228			07/10/2020
22991041	NACW229			07/10/2020
22989858	UD2			07/10/2020

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

Validated

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			22989864							22989860								22991036						
Customer Sample Reference			BH3/2							BH3/3								BH3/4						
AGS Reference																								
Depth (m)																								
Container			1000ml glass bottle (ALE220)	1plastic (ALE221)	250ml Amber Gl. PTFE/PE	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	1000ml glass bottle (ALE220)	1plastic (ALE221)	250ml Amber Gl. PTFE/PE	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	1000ml glass bottle (ALE220)	1plastic (ALE221)	250ml Amber Gl. PTFE/PE	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)		
Sample Type			GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW		
Acid Herbicides by GCMS	All	NDPs: 0 Tests: 15	X							X							X							
Alkalinity as CaCO3	All	NDPs: 0 Tests: 15		X							X							X						
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 15				X							X								X			
Anions by Kone (w)	All	NDPs: 0 Tests: 15		X							X							X						
BOD True Total	All	NDPs: 0 Tests: 1									X													
COD Unfiltered	All	NDPs: 0 Tests: 1									X													
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 12									X							X						
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 15					X							X							X			
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 15			X							X							X					
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 15			X							X							X					
GRO by GC-FID (W)	All	NDPs: 0 Tests: 15							X							X								
Nitrite by Kone (w)	All	NDPs: 0 Tests: 15						X							X								X	
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 15			X							X							X					
Phenols by ms (w)	All	NDPs: 0 Tests: 15	X							X							X							
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 15	X							X							X							

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CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Results Legend

X Test

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UNL - Unspecified Liquid
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Lab Sample No(s)								22989864							22989860							22991036				
Customer Sample Reference								BH3/2							BH3/3							BH3/4				
AGS Reference																										
Depth (m)																										
Container								1000ml glass bottle (ALE220)	1plastic (ALE221)	250ml Amber Gl. PTFE/PE	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	1000ml glass bottle (ALE220)	1plastic (ALE221)	250ml Amber Gl. PTFE/PE	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	1000ml glass bottle (ALE220)	1plastic (ALE221)	250ml Amber Gl. PTFE/PE	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)
Sample Type								GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
TPH CWG (W)	All	NDPs: 0 Tests: 15																									
								X							X							X				
VOC MS (W)	All	NDPs: 0 Tests: 15																									
														X							X					

22991039	BH3/8			HNO3 Filtered (ALE204)	GW		
				H2SO4 (ALE244)	GW		
				250ml Amber Gl. PTFE/PE	GW		
				1lplastic (ALE221)	GW		
				1000ml glass bottle (ALE220)	GW	X	
22989862	BH3/6			Vial (ALE297)	GW		X
				NaOH (ALE245)	GW		
				HNO3 Filtered (ALE204)	GW		
				H2SO4 (ALE244)	GW		
				250ml Amber Gl. PTFE/PE	GW		
				1lplastic (ALE221)	GW		
				1000ml glass bottle (ALE220)	GW	X	
22991037	BH3/5			Vial (ALE297)	GW		X
				NaOH (ALE245)	GW		
				HNO3 Filtered (ALE204)	GW		
				H2SO4 (ALE244)	GW		
				250ml Amber Gl. PTFE/PE	GW		
				1lplastic (ALE221)	GW		
				1000ml glass bottle (ALE220)	GW	X	
22991036	BH3/4			Vial (ALE297)	GW		X

CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Results Legend

X Test

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DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type
			22991039	BH3/8			NaOH (ALE245)	GW
							Vial (ALE297)	GW
							1000ml glass bottle (ALE220)	GW
							1plastic (ALE221)	GW
							250ml Amber Gl. PTFE/PE	GW
							H2SO4 (ALE244)	GW
							HNO3 Filtered (ALE204)	GW
			22989863	BH3/9			NaOH (ALE245)	GW
							Vial (ALE297)	GW
							1000ml glass bottle (ALE220)	GW
							1plastic (ALE221)	GW
							250ml Amber Gl. PTFE/PE	GW
							H2SO4 (ALE244)	GW
							HNO3 Filtered (ALE204)	GW
			22990239	BH208			NaOH (ALE245)	GW
							Vial (ALE297)	GW
							1000ml glass bottle (ALE220)	GW
							1plastic (ALE221)	GW
							250ml Amber Gl. PTFE/PE	GW
			22990242	BH5/02			H2SO4 (ALE244)	GW
Acid Herbicides by GCMS	All	NDPs: 0 Tests: 15						

| 22991043 | NACW212 | | | GW | 250ml Amber Gl. PTFE/PE 1liplastic (ALE221) | | |

CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
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PR - Process Water
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US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)					22991043					22991042					22991040					22991041	
Customer Sample Reference					NACW212					NACW219					NACW228					NACW229	
AGS Reference																					
Depth (m)																					
Container					1000ml glass bottle (ALE220)	1plastic (ALE221)	250ml Amber Gl. PTFE/PE	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	1000ml glass bottle (ALE220)	1plastic (ALE221)	250ml Amber Gl. PTFE/PE	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	1000ml glass bottle (ALE220)	1plastic (ALE221)	
Sample Type					GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
Acid Herbicides by GCMS	All	NDPs: 0 Tests: 15			X							X							X		
Alkalinity as CaCO3	All	NDPs: 0 Tests: 15				X							X								X
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 15	X					X							X						
Anions by Kone (w)	All	NDPs: 0 Tests: 15				X							X								X
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 12				X							X								X
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 15		X						X						X					
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 15					X							X							
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 15					X							X							
GRO by GC-FID (W)	All	NDPs: 0 Tests: 15			X						X							X			
Nitrite by Kone (w)	All	NDPs: 0 Tests: 15		X						X						X					
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 15					X							X							
Phenols by ms (w)	All	NDPs: 0 Tests: 15			X							X							X		
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 15			X							X							X		
TPH CWG (W)	All	NDPs: 0 Tests: 15			X							X							X		
VOC MS (W)	All	NDPs: 0 Tests: 15			X						X							X			

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CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/2	BH3/3	BH3/4	BH3/5	BH3/6	BH3/8
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
			SDG Ref	201008-85	201008-85	201008-85	201008-85	201008-85	201008-85
			Lab Sample No.(s)	22989864	22989860	22991036	22991037	22989862	22991039
			AGS Reference						
Alkalinity, Total as CaCO3	<2 mg/l	TM043		135 #	132 #	125 #	277 #	79 #	38.9 #
BOD, unfiltered	<1 mg/l	TM045			<1 #				
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 #	<0.2 #	<0.2 #	<0.2 #	<0.2 #	<0.2 #
COD, unfiltered	<7 mg/l	TM107			11.5 #				
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120			0.276 #	0.254 #	0.557 #	0.18 #	0.796 #
Cadmium (diss.filt)	<0.08 µg/l	TM152		<0.08 #	<0.08 #	<0.08 #	<0.08 #	<0.08 #	0.119 #
Chromium (diss.filt)	<1 µg/l	TM152		<1 #	<1 #	<1 #	<1 #	<1 #	1.03 #
Copper (diss.filt)	<0.3 µg/l	TM152		1.34 #	1.62 #	<0.3 #	6.75 #	1.62 #	4.07 #
Lead (diss.filt)	<0.2 µg/l	TM152		0.269 #	0.218 #	<0.2 #	<0.2 #	0.639 #	0.324 #
Manganese (diss.filt)	<3 µg/l	TM152		212 #	7.77 #	23.4 #	4.23 #	45.2 #	154 #
Nickel (diss.filt)	<0.4 µg/l	TM152		0.592 #	<0.4 #	<0.4 #	1.86 #	0.587 #	3.01 #
Zinc (diss.filt)	<1 µg/l	TM152		2.44 #	6.63 #	3.65 #	9.69 #	4.79 #	4.97 #
Sodium (Dis.Filt)	<0.076 mg/l	TM152		9.21 #	10.3 #	6.16 #	10.3 #	6.84 #	42.8 #
Magnesium (Dis.Filt)	<0.036 mg/l	TM152		4.71 #	5.28 #	4 #	4.03 #	4.62 #	11.4 #
Potassium (Dis.Filt)	<0.2 mg/l	TM152		0.765 #	1.15 #	0.638 #	9.07 #	0.485 #	13.6 #
Calcium (Dis.Filt)	<0.2 mg/l	TM152		49.4 #	46.9 #	45.6 #	114 #	28.2 #	121 #
Iron (Dis.Filt)	<0.019 mg/l	TM152		0.0913 #	0.0748 #	0.036 #	0.0397 #	0.0805 #	0.299 #
Nitrite as NO2	<0.05 mg/l	TM184		<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #
Sulphate	<2 mg/l	TM184		4.4 #	9 #	4.8 #	35 #	6.2 #	324 #
Chloride	<2 mg/l	TM184		11.9 #	10 #	8.8 #	15.7 #	10.8 #	44.1 #
Nitrate as NO3	<0.3 mg/l	TM184		2.48	9.31	4.74	1.27	5.42	13.4
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184		0.564 #	2.01 #	1.08 #	0.29 #	1.23 #	3.03 #
Phenol	<0.5 µg/l	TM205		<2	<2	<2	<2	<1.5	<2.5
2-methylphenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
3-methylphenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
4-methylphenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2-chlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-dimethylphenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
4-chloro-3-methylphenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-dichlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-dichlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

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Results Legend

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**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
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1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/2	BH3/3	BH3/4	BH3/5	BH3/6	BH3/8
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
			SDG Ref	201008-85	201008-85	201008-85	201008-85	201008-85	201008-85
			Lab Sample No.(s)	22989864	22989860	22991036	22991037	22989862	22991039
			AGS Reference						
2-nitrophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-trichlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-trichlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
4-nitrophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,3,5,6-tetrachlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,3,4,6-tetrachlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-dinitrophenol	<2.5 µg/l	TM205		<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
DNOC	<3 µg/l	TM205		<3	<3	<3	<3	<3	<3
Pentachlorophenol	<2 µg/l	TM205		<2	<2	<2	<2	<2	<2
Dinoseb	<4 µg/l	TM205		<4	<4	<4	<4	<4	<4
Dinitro-o-cresol	<0.1 µg/l	TM411		0.886	0.464	0.113	0.154	0.424	0.464
Clopyralid	<0.04 µg/l	TM411		<0.08	<0.04	<0.04	<0.04	<0.04	<0.04
MCPA	<0.05 µg/l	TM411		<0.1	<0.05	<0.05	<0.05	<0.05	<0.05
Mecoprop	<0.04 µg/l	TM411		<0.08	0.041	<0.04	<0.04	<0.04	<0.04
Dicamba	<0.04 µg/l	TM411		<0.08	<0.04	<0.04	<0.04	<0.04	<0.04
MCPB	<0.05 µg/l	TM411		<0.1	<0.05	<0.05	<0.05	<0.05	<0.05
2,4-DB	<0.1 µg/l	TM411		<0.2	<0.1	<0.1	<0.1	<0.1	<0.1
2,3,6-Trichlorobenzoic acid	<0.05 µg/l	TM411		<0.1	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorprop	<0.1 µg/l	TM411		<0.2	<0.1	<0.1	<0.1	<0.1	<0.1
Triclopyr	<0.05 µg/l	TM411		<0.1	<0.05	<0.05	<0.05	<0.05	<0.05
Fenoprop (Silvex)	<0.1 µg/l	TM411		<0.2	<0.1	<0.1	<0.1	<0.1	<0.1
2,4-Dichlorophenoxyacetic acid	<0.05 µg/l	TM411		<0.1	<0.05	<0.05	<0.05	<0.05	<0.05
2,4,5-Trichlorophenoxyacetic acid	<0.05 µg/l	TM411		<0.1	<0.05	<0.05	<0.05	<0.05	<0.05
Bromoxynil	<0.04 µg/l	TM411		<0.08	<0.04	<0.04	<0.04	<0.04	<0.04
Benazolin	<0.04 µg/l	TM411		<0.08	<0.04	<0.04	<0.04	<0.04	<0.04
Ioxynil	<0.05 µg/l	TM411		<0.1	<0.05	<0.05	<0.05	<0.05	<0.05
Pentachlorophenol	<0.04 µg/l	TM411		<0.08	<0.04	<0.04	<0.04	<0.04	<0.04
Fluoroxypyr	<0.1 µg/l	TM411		<0.2	<0.1	<0.1	<0.1	<0.1	<0.1

CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/9	BH208	BH5/02	NACW203	NACW205	NACW212
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
			SDG Ref	201008-85	201008-85	201008-85	201008-85	201008-85	201008-85
			Lab Sample No.(s)	22989863	22990239	22990242	22990240	22990241	22991043
			AGS Reference						
Alkalinity, Total as CaCO3	<2 mg/l	TM043		83.5 #	125 #	224 #	226 #	232 #	124 #
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 #	<0.2 #	<0.2 #	<0.2 #	<0.2 #	<0.2 #
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120		0.194 #		0.459 #		0.504 #	0.29 #
Cadmium (diss.filt)	<0.08 µg/l	TM152		<0.08 #	<0.8 #	<0.08 #	<0.08 #	<0.08 #	<0.08 #
Chromium (diss.filt)	<1 µg/l	TM152		<1 #	<10 #	<1 #	<1 #	<1 #	<1 #
Copper (diss.filt)	<0.3 µg/l	TM152		2.53 #	<3 #	2.59 #	<0.3 #	1.23 #	6.73 #
Lead (diss.filt)	<0.2 µg/l	TM152		1.16 #	<2 #	0.538 #	<0.2 #	0.419 #	0.575 #
Manganese (diss.filt)	<3 µg/l	TM152		37.4 #	<30 #	16.8 #	5.42 #	55 #	39.5 #
Nickel (diss.filt)	<0.4 µg/l	TM152		0.97 #	<4 #	0.65 #	<0.4 #	0.728 #	1.05 #
Zinc (diss.filt)	<1 µg/l	TM152		6.22 #	<10 #	4.3 #	3.34 #	5 #	14.4 #
Sodium (Dis.Filt)	<0.076 mg/l	TM152		9.77 #	10.1 #	11.1 #	12.2 #	13.4 #	10.3 #
Magnesium (Dis.Filt)	<0.036 mg/l	TM152		1.91 #	7.68 #	9.46 #	9.66 #	10.7 #	4.87 #
Potassium (Dis.Filt)	<0.2 mg/l	TM152		0.43 #	<2 #	1.43 #	1.28 #	1.51 #	4.9 #
Calcium (Dis.Filt)	<0.2 mg/l	TM152		33.9 #	40.6 #	87.3 #	93.4 #	110 #	49.8 #
Iron (Dis.Filt)	<0.019 mg/l	TM152		0.109 #	<0.19 #	0.075 #	<0.019 #	0.0932 #	0.0952 #
Nitrite as NO2	<0.05 mg/l	TM184		<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #
Sulphate	<2 mg/l	TM184		<2 #	7.7 #	12.5 #	15.5 #	12.5 #	19.3 #
Chloride	<2 mg/l	TM184		16.4 #	15.1 #	22.1 #	30.5 #	33.1 #	12.1 #
Nitrate as NO3	<0.3 mg/l	TM184		<0.3	6.64	11.4	10.3	9.61	5.31
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184		<0.1 #	1.5 #	2.57 #	2.33 #	2.18 #	1.2 #
Phenol	<0.5 µg/l	TM205		<2	<2.5	<1.5	<2	<2	<2
2-methylphenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
3-methylphenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
4-methylphenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2-chlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-dimethylphenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
4-chloro-3-methylphenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,6-dichlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
4-Chlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-dichlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2-nitrophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-trichlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/9	BH208	BH5/02	NACW203	NACW205	NACW212
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
			SDG Ref	201008-85	201008-85	201008-85	201008-85	201008-85	201008-85
			Lab Sample No.(s)	22989863	22990239	22990242	22990240	22990241	22991043
			AGS Reference						
2,4,5-trichlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
4-nitrophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,3,5,6-tetrachlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,3,4,6-tetrachlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-dinitrophenol	<2.5 µg/l	TM205		<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
DNOC	<3 µg/l	TM205		<3	<3	<3	<3	<3	<3
Pentachlorophenol	<2 µg/l	TM205		<2	<2	<2	<2	<2	<2
Dinoseb	<4 µg/l	TM205		<4	<4	<4	<4	<4	<4
Dinitro-o-cresol	<0.1 µg/l	TM411		0.573	0.554	<0.1	<0.1	<0.1	<0.2
Clopyralid	<0.04 µg/l	TM411		<0.08	<0.08	<0.04	<0.04	<0.04	<0.08
MCPA	<0.05 µg/l	TM411		<0.1	<0.1	<0.05	<0.05	<0.05	<0.1
Mecoprop	<0.04 µg/l	TM411		<0.08	<0.08	<0.04	<0.04	<0.04	<0.08
Dicamba	<0.04 µg/l	TM411		<0.08	<0.08	<0.04	<0.04	<0.04	<0.08
MCPB	<0.05 µg/l	TM411		<0.1	<0.1	<0.05	<0.05	<0.05	<0.1
2,4-DB	<0.1 µg/l	TM411		<0.2	<0.2	<0.1	<0.1	<0.1	<0.2
2,3,6-Trichlorobenzoic acid	<0.05 µg/l	TM411		<0.1	<0.1	<0.05	<0.05	<0.05	<0.1
Dichlorprop	<0.1 µg/l	TM411		<0.2	<0.2	<0.1	<0.1	<0.1	<0.2
Triclopyr	<0.05 µg/l	TM411		<0.1	<0.1	<0.05	<0.05	<0.05	<0.1
Fenoprop (Silvex)	<0.1 µg/l	TM411		<0.2	<0.2	<0.1	<0.1	<0.1	<0.2
2,4-Dichlorophenoxyacetic acid	<0.05 µg/l	TM411		<0.1	<0.1	<0.05	<0.05	<0.05	<0.1
2,4,5-Trichlorophenoxyacetic acid	<0.05 µg/l	TM411		<0.1	<0.1	<0.05	<0.05	<0.05	<0.1
Bromoxynil	<0.04 µg/l	TM411		<0.08	<0.08	<0.04	<0.04	<0.04	<0.08
Benazolin	<0.04 µg/l	TM411		<0.08	<0.08	<0.04	<0.04	<0.04	<0.08
Ioxynil	<0.05 µg/l	TM411		<0.1	<0.1	<0.05	<0.05	<0.05	<0.1
Pentachlorophenol	<0.04 µg/l	TM411		<0.08	<0.08	<0.04	<0.04	<0.04	<0.08
Fluoroxypyr	<0.1 µg/l	TM411		<0.2	<0.2	<0.1	<0.1	<0.1	<0.2

CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	NACW219	NACW228	NACW229			
			Depth (m)	.	.	.			
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)			
			Date Sampled	07/10/2020	07/10/2020	07/10/2020			
			Sampled Time	.	.	.			
			Date Received	08/10/2020	08/10/2020	08/10/2020			
			SDG Ref	201008-85	201008-85	201008-85			
			Lab Sample No.(s)	22991042	22991040	22991041			
			AGS Reference						
Alkalinity, Total as CaCO3	<2 mg/l	TM043		191 #	30.4 #	231 #			
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 #	<0.2 #	0.499 #			
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120		0.416 #	0.122 #	0.593 #			
Cadmium (diss.filt)	<0.08 µg/l	TM152		<0.08 #	<0.08 #	<0.08 #			
Chromium (diss.filt)	<1 µg/l	TM152		<1 #	<1 #	<1 #			
Copper (diss.filt)	<0.3 µg/l	TM152		1.09 #	2.49 #	3.32 #			
Lead (diss.filt)	<0.2 µg/l	TM152		<0.2 #	0.214 #	0.642 #			
Manganese (diss.filt)	<3 µg/l	TM152		2500 #	24.5 #	70 #			
Nickel (diss.filt)	<0.4 µg/l	TM152		2.06 #	2.44 #	1.56 #			
Zinc (diss.filt)	<1 µg/l	TM152		3.53 #	3.45 #	4.61 #			
Sodium (Dis.Filt)	<0.076 mg/l	TM152		11.4 #	8.77 #	12.3 #			
Magnesium (Dis.Filt)	<0.036 mg/l	TM152		7.04 #	2.96 #	7.73 #			
Potassium (Dis.Filt)	<0.2 mg/l	TM152		2.07 #	2.52 #	14.9 #			
Calcium (Dis.Filt)	<0.2 mg/l	TM152		77.5 #	11.2 #	112 #			
Iron (Dis.Filt)	<0.019 mg/l	TM152		0.93 #	0.146 #	0.123 #			
Nitrite as NO2	<0.05 mg/l	TM184		<0.05 #	<0.05 #	<0.05 #			
Sulphate	<2 mg/l	TM184		24.8 #	11.2 #	93.8 #			
Chloride	<2 mg/l	TM184		21 #	16.9 #	19.7 #			
Nitrate as NO3	<0.3 mg/l	TM184		<0.3	4.5	1.46			
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184		<0.1 #	1.02 #	0.341 #			
Phenol	<0.5 µg/l	TM205		<2	<2	<2.5			
2-methylphenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5			
3-methylphenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5			
4-methylphenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5			
2-chlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5			
2,4-dimethylphenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5			
4-chloro-3-methylphenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5			
2,6-dichlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5			
4-Chlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5			
2,4-dichlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5			
2-nitrophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5			
2,4,6-trichlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5			

CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	NACW219	NACW228	NACW229			
			Depth (m)	.	.	.			
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)			
			Date Sampled	07/10/2020	07/10/2020	07/10/2020			
			Sampled Time	.	.	.			
			Date Received	08/10/2020	08/10/2020	08/10/2020			
			SDG Ref	201008-85	201008-85	201008-85			
			Lab Sample No.(s)	22991042	22991040	22991041			
			AGS Reference						
2,4,5-trichlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5			
4-nitrophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5			
2,3,5,6-tetrachlorophenol	<0.5 µg/l	TM205		<1	<0.5	<0.5			
2,3,4,6-tetrachlorophenol	<0.5 µg/l	TM205		<1	<0.5	<0.5			
2,4-dinitrophenol	<2.5 µg/l	TM205		<2.5	<2.5	<2.5			
DNOC	<3 µg/l	TM205		<3	<3	<3			
Pentachlorophenol	<2 µg/l	TM205		<6	<2	<2			
Dinoseb	<4 µg/l	TM205		<4	<4	<4			
Dinitro-o-cresol	<0.1 µg/l	TM411		<0.2	0.15	0.356			
Clopyralid	<0.04 µg/l	TM411		<0.08	<0.04	<0.04			
MCPA	<0.05 µg/l	TM411		<0.1	<0.05	<0.05			
Mecoprop	<0.04 µg/l	TM411		<0.08	<0.04	<0.04			
Dicamba	<0.04 µg/l	TM411		<0.08	<0.04	<0.04			
MCPB	<0.05 µg/l	TM411		<0.1	<0.05	<0.05			
2,4-DB	<0.1 µg/l	TM411		<0.2	<0.1	<0.1			
2,3,6-Trichlorobenzoic acid	<0.05 µg/l	TM411		<0.1	<0.05	<0.05			
Dichlorprop	<0.1 µg/l	TM411		<0.2	<0.1	<0.1			
Triclopyr	<0.05 µg/l	TM411		<0.1	<0.05	<0.05			
Fenoprop (Silvex)	<0.1 µg/l	TM411		<0.2	<0.1	<0.1			
2,4-Dichlorophenoxyacetic acid	<0.05 µg/l	TM411		<0.1	<0.05	<0.05			
2,4,5-Trichlorophenoxyacetic acid	<0.05 µg/l	TM411		<0.1	<0.05	<0.05			
Bromoxynil	<0.04 µg/l	TM411		<0.08	<0.04	<0.04			
Benazolin	<0.04 µg/l	TM411		<0.08	<0.04	<0.04			
Ioxynil	<0.05 µg/l	TM411		<0.1	<0.05	<0.05			
Pentachlorophenol	<0.04 µg/l	TM411		<0.08	<0.04	<0.04			
Fluoroxypyr	<0.1 µg/l	TM411		<0.2	<0.1	<0.1			

CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

PAH Spec MS - Aqueous (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/2	BH3/3	BH3/4	BH3/5	BH3/6	BH3/8
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
			SDG Ref	201008-85	201008-85	201008-85	201008-85	201008-85	201008-85
			Lab Sample No.(s)	22989864	22989860	22991036	22991037	22989862	22991039
			AGS Reference						
Naphthalene (aq)	<0.01 µg/l	TM178		<0.01 #	<0.01 #	<0.01 #	<0.01 #	<0.01 #	<0.01 #
Acenaphthene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	0.015 #	<0.005 #	<0.005 #
Acenaphthylene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Fluoranthene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Anthracene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Phenanthrene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Fluorene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Chrysene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Pyrene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Benzo(a)anthracene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Benzo(b)fluoranthene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Benzo(k)fluoranthene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Benzo(a)pyrene (aq)	<0.002 µg/l	TM178		<0.002 #	<0.002 #	<0.002 #	<0.002 #	<0.002 #	<0.002 #
Dibenzo(a,h)anthracene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Benzo(g,h,i)perylene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Indeno(1,2,3-cd)pyrene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
PAH, Total Detected USEPA 16 (aq)	<0.082 µg/l	TM178		<0.082 #	<0.082 #	<0.082 #	<0.082 #	<0.082 #	<0.082 #

CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

PAH Spec MS - Aqueous (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/9	BH208	BH5/02	NACW203	NACW205	NACW212
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
			SDG Ref	201008-85	201008-85	201008-85	201008-85	201008-85	201008-85
			Lab Sample No.(s)	22989863	22990239	22990242	22990240	22990241	22991043
			AGS Reference						
Naphthalene (aq)	<0.01 µg/l	TM178		<0.01 #	<0.01 #	<0.01 #	<0.01 #	<0.01 #	<0.01 #
Acenaphthene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Acenaphthylene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Fluoranthene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Anthracene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Phenanthrene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Fluorene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Chrysene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Pyrene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Benzo(a)anthracene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Benzo(b)fluoranthene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Benzo(k)fluoranthene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Benzo(a)pyrene (aq)	<0.002 µg/l	TM178		<0.002 #	<0.002 #	<0.002 #	<0.002 #	<0.002 #	<0.002 #
Dibenzo(a,h)anthracene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Benzo(g,h,i)perylene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Indeno(1,2,3-cd)pyrene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
PAH, Total Detected USEPA 16 (aq)	<0.082 µg/l	TM178		<0.082 #	<0.082 #	<0.082 #	<0.082 #	<0.082 #	<0.082 #

CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

PAH Spec MS - Aqueous (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Customer Sample Ref.	NACW219	NACW228	NACW229			
Depth (m)	.	.	.			
Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)			
Date Sampled	07/10/2020	07/10/2020	07/10/2020			
Sampled Time	.	.	.			
Date Received	08/10/2020	08/10/2020	08/10/2020			
SDG Ref	201008-85	201008-85	201008-85			
Lab Sample No.(s)	22991042	22991040	22991041			
AGS Reference						

Component	LOD/Units	Method						
Naphthalene (aq)	<0.01 µg/l	TM178	<0.01 #	<0.01 #	<0.01 #			
Acenaphthene (aq)	<0.005 µg/l	TM178	<0.005 #	<0.005 #	<0.005 #			
Acenaphthylene (aq)	<0.005 µg/l	TM178	<0.005 #	<0.005 #	<0.005 #			
Fluoranthene (aq)	<0.005 µg/l	TM178	<0.005 #	<0.005 #	<0.005 #			
Anthracene (aq)	<0.005 µg/l	TM178	<0.005 #	<0.005 #	<0.005 #			
Phenanthrene (aq)	<0.005 µg/l	TM178	<0.005 #	<0.005 #	<0.005 #			
Fluorene (aq)	<0.005 µg/l	TM178	<0.005 #	<0.005 #	<0.005 #			
Chrysene (aq)	<0.005 µg/l	TM178	<0.005 #	<0.005 #	<0.005 #			
Pyrene (aq)	<0.005 µg/l	TM178	<0.005 #	<0.005 #	<0.005 #			
Benzo(a)anthracene (aq)	<0.005 µg/l	TM178	<0.005 #	<0.005 #	<0.005 #			
Benzo(b)fluoranthene (aq)	<0.005 µg/l	TM178	<0.005 #	<0.005 #	<0.005 #			
Benzo(k)fluoranthene (aq)	<0.005 µg/l	TM178	<0.005 #	<0.005 #	<0.005 #			
Benzo(a)pyrene (aq)	<0.002 µg/l	TM178	<0.002 #	<0.002 #	<0.002 #			
Dibenzo(a,h)anthracene (aq)	<0.005 µg/l	TM178	<0.005 #	<0.005 #	<0.005 #			
Benzo(g,h,i)perylene (aq)	<0.005 µg/l	TM178	<0.005 #	<0.005 #	<0.005 #			
Indeno(1,2,3-cd)pyrene (aq)	<0.005 µg/l	TM178	<0.005 #	<0.005 #	<0.005 #			
PAH, Total Detected USEPA 16 (aq)	<0.082 µg/l	TM178	<0.082 #	<0.082 #	<0.082 #			

CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

SVOC MS (W) - Aqueous

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/2	BH3/3	BH3/4	BH3/5	BH3/6	BH3/8
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
			SDG Ref	201008-85	201008-85	201008-85	201008-85	201008-85	201008-85
			Lab Sample No.(s)	22989864	22989860	22991036	22991037	22989862	22991039
			AGS Reference						
4-Methylphenol (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Diethyl phthalate (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #

CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

SVOC MS (W) - Aqueous

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/9	BH208	BH5/02	NACW203	NACW205	NACW212
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
			SDG Ref	201008-85	201008-85	201008-85	201008-85	201008-85	201008-85
			Lab Sample No.(s)	22989863	22990239	22990242	22990240	22990241	22991043
			AGS Reference						
4-Methylphenol (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<2 #	<1 #	<1 #
Diethyl phthalate (aq)	<1 µg/l	TM176		<1 #	<1 #	<1 #	<2 #	<1 #	<1 #

CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

SVOC MS (W) - Aqueous

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.					
			NACW219	NACW228	NACW229			
			.	.	.			
			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)			
			07/10/2020	07/10/2020	07/10/2020			
			.	.	.			
			08/10/2020	08/10/2020	08/10/2020			
			201008-85	201008-85	201008-85			
			22991042	22991040	22991041			
4-Methylphenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<2 #			
Diethyl phthalate (aq)	<1 µg/l	TM176	<1 #	<1 #	<2 #			

CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

TPH CWG (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/2	BH3/3	BH3/4	BH3/5	BH3/6	BH3/8
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
			SDG Ref	201008-85	201008-85	201008-85	201008-85	201008-85	201008-85
			Lab Sample No.(s)	22989864	22989860	22991036	22991037	22989862	22991039
			AGS Reference						
GRO Surrogate % recovery**	%	TM245		108	118	117	114	110	120
GRO >C5-C12	<50 µg/l	TM245		<50 #	<50 #	<50 #	<50 #	<50 #	<50 #
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245		<3 #	<3 #	<3 #	<3 #	<3 #	<3 #
Benzene	<7 µg/l	TM245		<7 #	<7 #	<7 #	<7 #	<7 #	<7 #
Toluene	<4 µg/l	TM245		<4 #	<4 #	<4 #	<4 #	<4 #	<4 #
Ethylbenzene	<5 µg/l	TM245		<5 #	<5 #	<5 #	<5 #	<5 #	<5 #
m,p-Xylene	<8 µg/l	TM245		<8 #	<8 #	<8 #	<8 #	<8 #	<8 #
o-Xylene	<3 µg/l	TM245		<3 #	<3 #	<3 #	<3 #	<3 #	<3 #
Sum of detected Xylenes	<11 µg/l	TM245		<11	<11	<11	<11	<11	<11
Sum of detected BTEX	<28 µg/l	TM245		<28	<28	<28	<28	<28	<28
Aliphatics >C5-C6	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aliphatics >C6-C8	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aliphatics >C8-C10	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aliphatics >C10-C12	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Aromatics >EC5-EC7	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aromatics >EC10-EC12	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Aliphatics >C16-C35 Aqueous	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10

CERTIFICATE OF ANALYSIS

SDG: 201008-85 **Client Reference:** **Report Number:** 572091
Location: Nantycaws Landfill **Order Number:** POR000363 **Superseded Report:**

TPH CWG (W)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/9	BH208	BH5/02	NACW203	NACW205	NACW212
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
			SDG Ref	201008-85	201008-85	201008-85	201008-85	201008-85	201008-85
			Lab Sample No.(s)	22989863	22990239	22990242	22990240	22990241	22991043
			AGS Reference						
GRO Surrogate % recovery**	%	TM245		115	104	108	106	118	116
GRO >C5-C12	<50 µg/l	TM245		<50 #	<50 #	<50 #	<50 #	<50 #	<50 #
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245		<3 #	<3 #	<3 #	<3 #	<3 #	<3 #
Benzene	<7 µg/l	TM245		<7 #	<7 #	<7 #	<7 #	<7 #	<7 #
Toluene	<4 µg/l	TM245		<4 #	<4 #	<4 #	<4 #	<4 #	<4 #
Ethylbenzene	<5 µg/l	TM245		<5 #	<5 #	<5 #	<5 #	<5 #	<5 #
m,p-Xylene	<8 µg/l	TM245		<8 #	<8 #	<8 #	<8 #	<8 #	<8 #
o-Xylene	<3 µg/l	TM245		<3 #	<3 #	<3 #	<3 #	<3 #	<3 #
Sum of detected Xylenes	<11 µg/l	TM245		<11	<11	<11	<11	<11	<11
Sum of detected BTEX	<28 µg/l	TM245		<28	<28	<28	<28	<28	<28
Aliphatics >C5-C6	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aliphatics >C6-C8	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aliphatics >C8-C10	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aliphatics >C10-C12	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Aromatics >EC5-EC7	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aromatics >EC10-EC12	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Aliphatics >C16-C35 Aqueous	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10

CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

TPH CWG (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	NACW219	NACW228	NACW229			
			Depth (m)	.	.	.			
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)			
			Date Sampled	07/10/2020	07/10/2020	07/10/2020			
			Sampled Time	.	.	.			
			Date Received	08/10/2020	08/10/2020	08/10/2020			
			SDG Ref	201008-85	201008-85	201008-85			
			Lab Sample No.(s)	22991042	22991040	22991041			
			AGS Reference						
GRO Surrogate % recovery**	%	TM245		115	115	120			
GRO >C5-C12	<50 µg/l	TM245		<50 #	<50 #	<50 #			
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245		<3 #	<3 #	<3 #			
Benzene	<7 µg/l	TM245		<7 #	<7 #	<7 #			
Toluene	<4 µg/l	TM245		<4 #	<4 #	<4 #			
Ethylbenzene	<5 µg/l	TM245		<5 #	<5 #	<5 #			
m,p-Xylene	<8 µg/l	TM245		<8 #	<8 #	<8 #			
o-Xylene	<3 µg/l	TM245		<3 #	<3 #	<3 #			
Sum of detected Xylenes	<11 µg/l	TM245		<11	<11	<11			
Sum of detected BTEX	<28 µg/l	TM245		<28	<28	<28			
Aliphatics >C5-C6	<10 µg/l	TM245		<10	<10	<10			
Aliphatics >C6-C8	<10 µg/l	TM245		<10	<10	<10			
Aliphatics >C8-C10	<10 µg/l	TM245		<10	<10	<10			
Aliphatics >C10-C12	<10 µg/l	TM245		<10	<10	<10			
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174		<10	<10	<10			
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174		<10	<10	<10			
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174		<10	<10	<10			
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174		<10	<10	<10			
Aromatics >EC5-EC7	<10 µg/l	TM245		<10	<10	<10			
Aromatics >EC7-EC8	<10 µg/l	TM245		<10	<10	<10			
Aromatics >EC8-EC10	<10 µg/l	TM245		<10	<10	<10			
Aromatics >EC10-EC12	<10 µg/l	TM245		<10	<10	<10			
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174		<10	<10	<10			
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174		<10	<10	<10			
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174		<10	<10	<10			
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174		<10	<10	<10			
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174		<10	<10	<10			
Aliphatics >C16-C35 Aqueous	<10 µg/l	TM174		<10	<10	<10			

CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/2	BH3/3	BH3/4	BH3/5	BH3/6	BH3/8
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
			SDG Ref	201008-85	201008-85	201008-85	201008-85	201008-85	201008-85
			Lab Sample No.(s)	22989864	22989860	22991036	22991037	22989862	22991039
			AGS Reference						
Dichloromethane	<3 µg/l	TM208		<3 #	<3 #	<3 #	<3 #	<3 #	<3 #
Benzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Toluene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Ethylbenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
m,p-Xylene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
o-Xylene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Sum of detected Xylenes	<2 µg/l	TM208		<2	<2	<2	<2	<2	<2

CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH3/9	BH208	BH5/02	NACW203	NACW205	NACW212
			Depth (m)	.	.	.	.	.	.
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
			SDG Ref	201008-85	201008-85	201008-85	201008-85	201008-85	201008-85
			Lab Sample No.(s)	22989863	22990239	22990242	22990240	22990241	22991043
			AGS Reference						
Dichloromethane	<3 µg/l	TM208		<3 #	<3 #	<3 #	<3 #	<3 #	<3 #
Benzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Toluene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Ethylbenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
m,p-Xylene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
o-Xylene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Sum of detected Xylenes	<2 µg/l	TM208		<2	<2	<2	<2	<2	<2

CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	NACW219	NACW228	NACW229			
			Depth (m)	.	.	.			
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)			
			Date Sampled	07/10/2020	07/10/2020	07/10/2020			
			Sampled Time	.	.	.			
			Date Received	08/10/2020	08/10/2020	08/10/2020			
			SDG Ref	201008-85	201008-85	201008-85			
			Lab Sample No.(s)	22991042	22991040	22991041			
			AGS Reference						
Dichloromethane	<3 µg/l	TM208		<3 #	<3 #	<3 #			
Benzene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
Toluene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
Ethylbenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
m,p-Xylene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
o-Xylene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
Sum of detected Xylenes	<2 µg/l	TM208		<2	<2	<2			

Table of Results - Appendix

Method No	Reference	Description
TM043	Method 2320B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part109 1984	Determination of alkalinity in aqueous samples
TM045	MEWAM BOD5 2nd Ed.HMSO 1988 / Method 5210B, AWWA/APHA, 20th Ed., 1999; SCA Blue Book 130	Determination of BOD5 (ATU) Filtered by Oxygen Meter on liquids
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM107	ISO 6060-1989	Determination of Chemical Oxygen Demand using COD Dr Lange Kit
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM174	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID
TM176	EPA 8270D Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of SVOCs in Water by GCMS
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM205		Determination of Phenols in Waste Waters using Solid Phase Extraction, Acetylation, Gas Chromatography and Mass Selective Detection
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters
TM245	By GC-FID	Determination of GRO by Headspace in waters
TM411	Acid_Herbs_GCMS	Acid Herbs in Water by GCMS

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Test Completion Dates

Lab Sample No(s)	22990239	22989864	22989860	22991036	22991037	22989862	22991039	22989863	22990242	22990240
Customer Sample Ref.	BH208	BH3/2	BH3/3	BH3/4	BH3/5	BH3/6	BH3/8	BH3/9	BH5/02	NACW203
AGS Ref.										
Depth										
Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Acid Herbicides by GCMS	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
Alkalinity as CaCO3	16-Oct-2020	17-Oct-2020	17-Oct-2020	19-Oct-2020	19-Oct-2020	17-Oct-2020	19-Oct-2020	17-Oct-2020	19-Oct-2020	19-Oct-2020
Ammoniacal Nitrogen	15-Oct-2020	15-Oct-2020	15-Oct-2020	19-Oct-2020	19-Oct-2020	15-Oct-2020	19-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020
Anions by Kone (w)	16-Oct-2020	19-Oct-2020	16-Oct-2020	19-Oct-2020	19-Oct-2020	16-Oct-2020	19-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020
BOD True Total			15-Oct-2020							
COD Unfiltered			18-Oct-2020							
Conductivity (at 20 deg.C)			15-Oct-2020	18-Oct-2020	18-Oct-2020	15-Oct-2020	16-Oct-2020	16-Oct-2020	15-Oct-2020	
Dissolved Metals by ICP-MS	20-Oct-2020	19-Oct-2020	19-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020
EPH CWG (Aliphatic) Aqueous GC (W)	18-Oct-2020	18-Oct-2020	20-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020
EPH CWG (Aromatic) Aqueous GC (W)	18-Oct-2020	18-Oct-2020	20-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020
GRO by GC-FID (W)	15-Oct-2020	15-Oct-2020	15-Oct-2020	14-Oct-2020	14-Oct-2020	15-Oct-2020	14-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020
Nitrite by Kone (w)	16-Oct-2020	19-Oct-2020	16-Oct-2020	19-Oct-2020	19-Oct-2020	16-Oct-2020	19-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020
PAH Spec MS - Aqueous (W)	19-Oct-2020	19-Oct-2020	21-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	16-Oct-2020	19-Oct-2020
Phenols by ms (w)	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020
SVOC MS (W) - Aqueous	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020
TPH CWG (W)	18-Oct-2020	18-Oct-2020	20-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020
VOC MS (W)	14-Oct-2020	14-Oct-2020	14-Oct-2020	15-Oct-2020	15-Oct-2020	14-Oct-2020	14-Oct-2020	14-Oct-2020	14-Oct-2020	14-Oct-2020

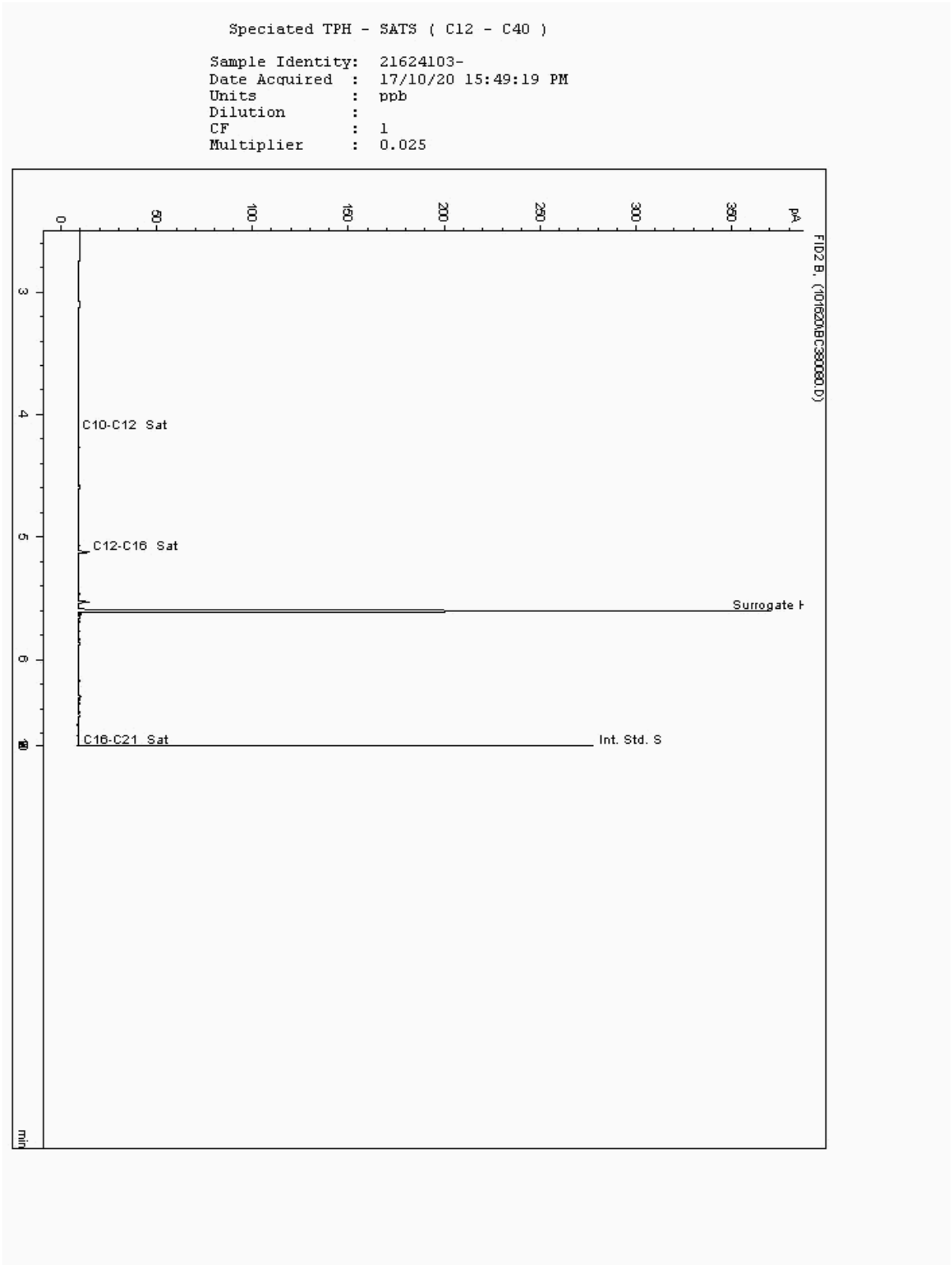
Lab Sample No(s)	22990241	22991043	22991042	22991040	22991041
Customer Sample Ref.	NACW205	NACW212	NACW219	NACW228	NACW229
AGS Ref.					
Depth					
Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Acid Herbicides by GCMS	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
Alkalinity as CaCO3	19-Oct-2020	17-Oct-2020	17-Oct-2020	19-Oct-2020	17-Oct-2020
Ammoniacal Nitrogen	15-Oct-2020	15-Oct-2020	15-Oct-2020	19-Oct-2020	15-Oct-2020
Anions by Kone (w)	16-Oct-2020	16-Oct-2020	16-Oct-2020	19-Oct-2020	16-Oct-2020
Conductivity (at 20 deg.C)	15-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020
Dissolved Metals by ICP-MS	19-Oct-2020	20-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020
EPH CWG (Aliphatic) Aqueous GC (W)	18-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020
EPH CWG (Aromatic) Aqueous GC (W)	18-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020
GRO by GC-FID (W)	14-Oct-2020	14-Oct-2020	14-Oct-2020	14-Oct-2020	14-Oct-2020
Nitrite by Kone (w)	16-Oct-2020	16-Oct-2020	16-Oct-2020	19-Oct-2020	16-Oct-2020
PAH Spec MS - Aqueous (W)	16-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020
Phenols by ms (w)	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020
SVOC MS (W) - Aqueous	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020
TPH CWG (W)	18-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020
VOC MS (W)	14-Oct-2020	14-Oct-2020	14-Oct-2020	14-Oct-2020	14-Oct-2020

CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23034590 **Sample ID :** NACW205 **Depth :**



CERTIFICATE OF ANALYSIS

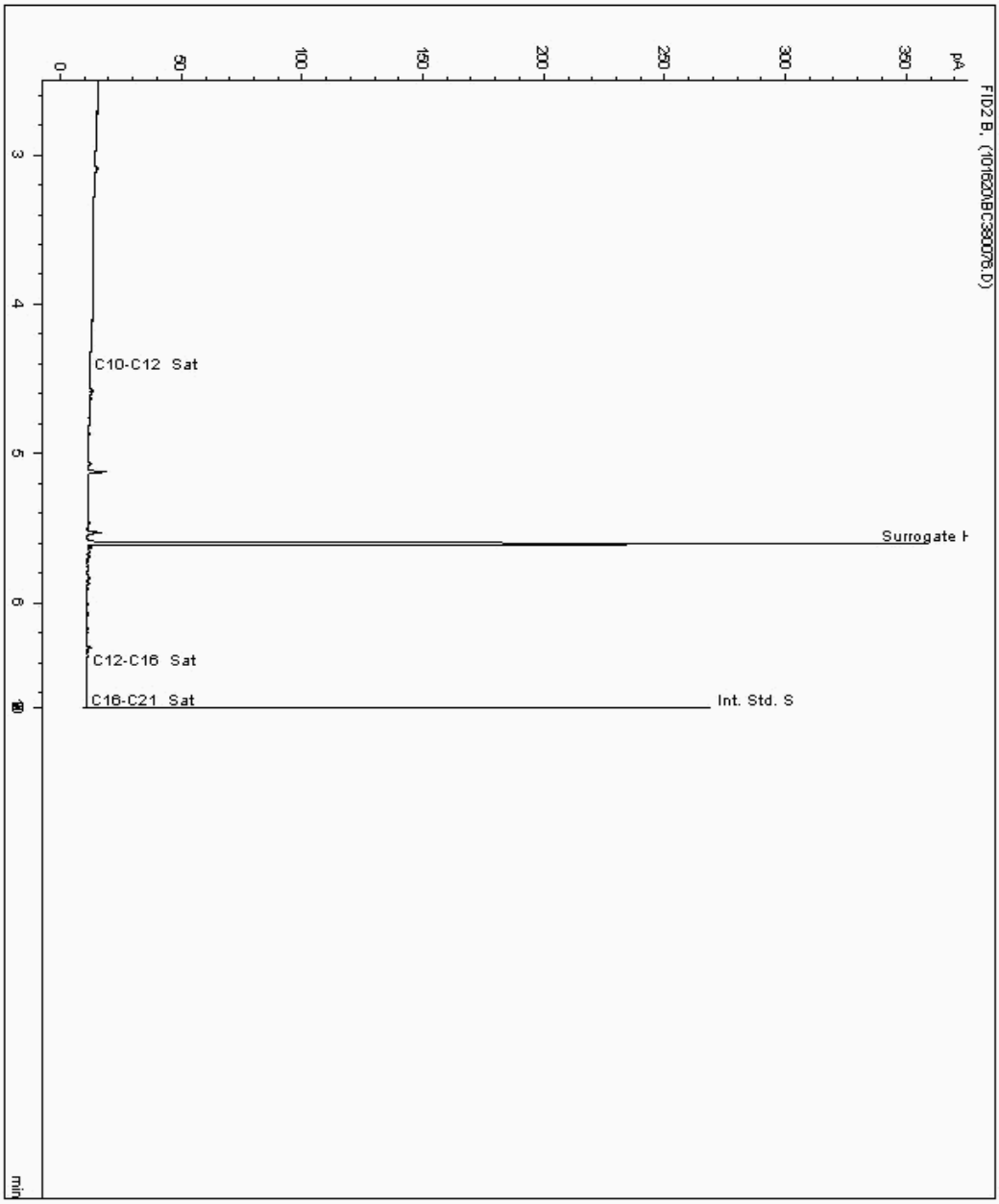
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23034594 **Depth :**
Sample ID : BH5/02

Speciated TPH - SATS (C12 - C40)

Sample Identity: 21624116-
Date Acquired : 17/10/20 14:15:33 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

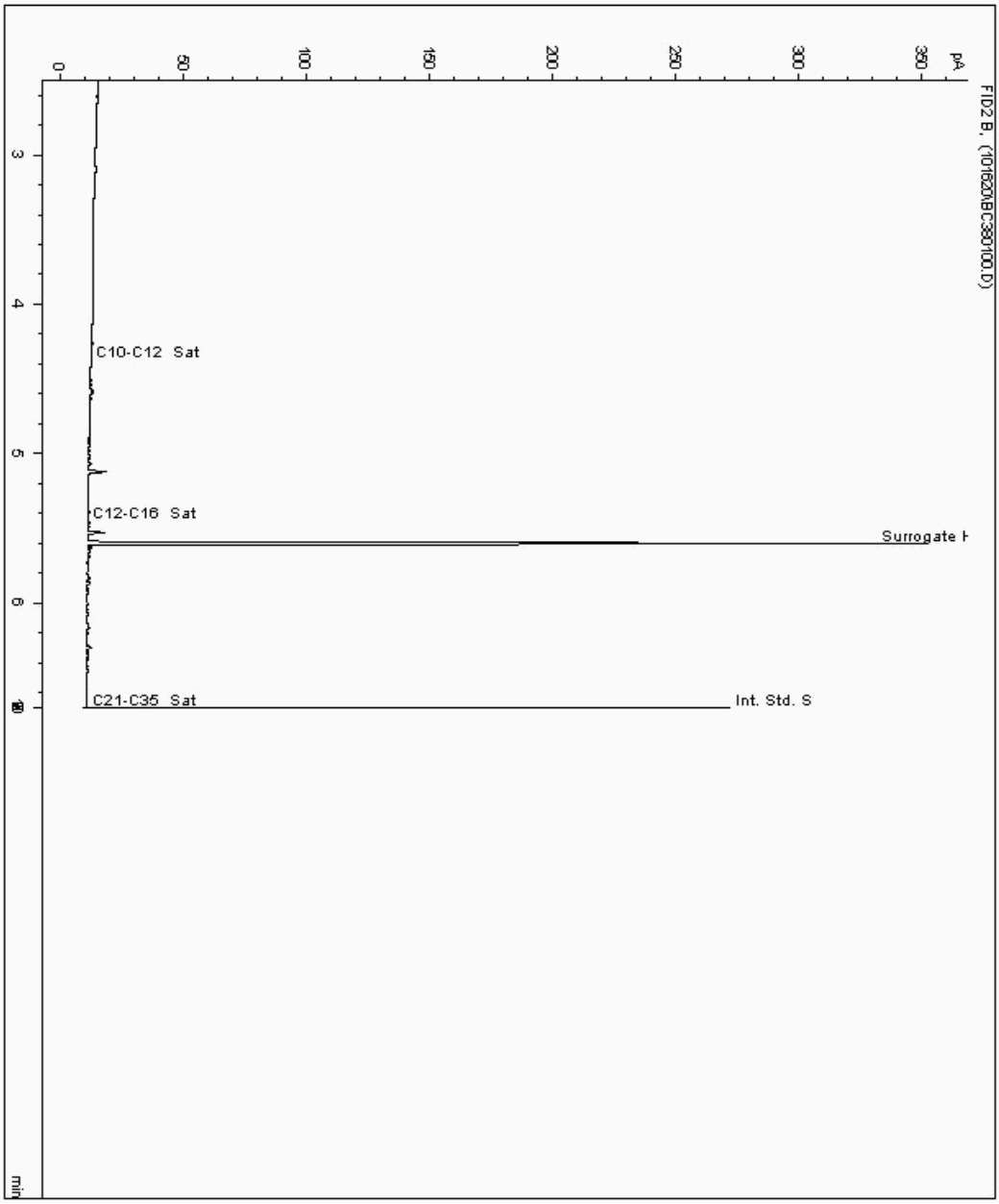
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23037282 **Sample ID :** NACW229 **Depth :**

Speciated TPH - SATS (C12 - C40)

Sample Identity: 21624189-
Date Acquired : 17/10/20 23:31:10 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

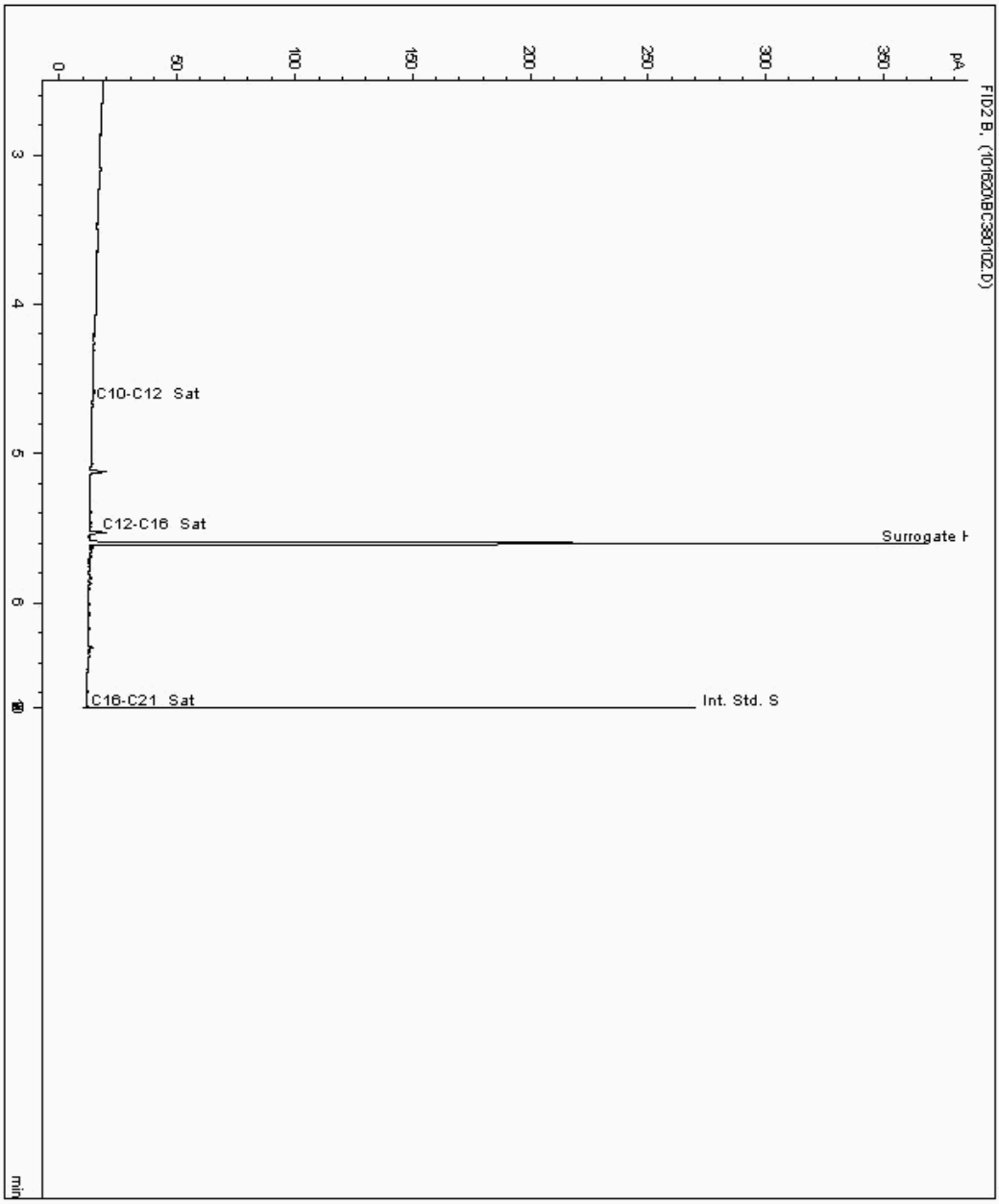
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23037287 **Sample ID :** NACW212 **Depth :**

Speciated TPH - SATS (C12 - C40)

Sample Identity: 21624220-
Date Acquired : 18/10/20 00:17:44 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

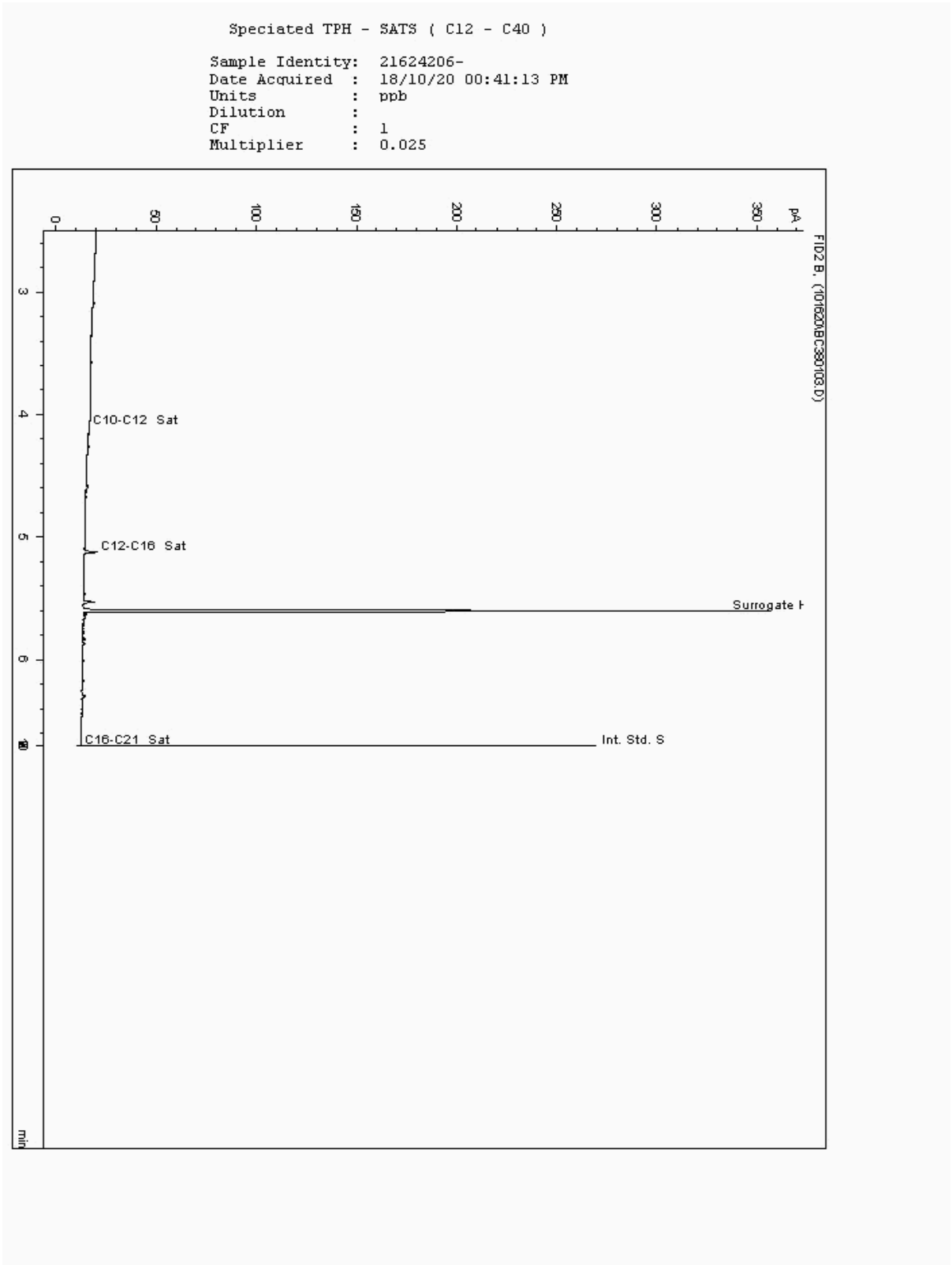


CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23037293 **Sample ID :** NACW219 **Depth :**



CERTIFICATE OF ANALYSIS

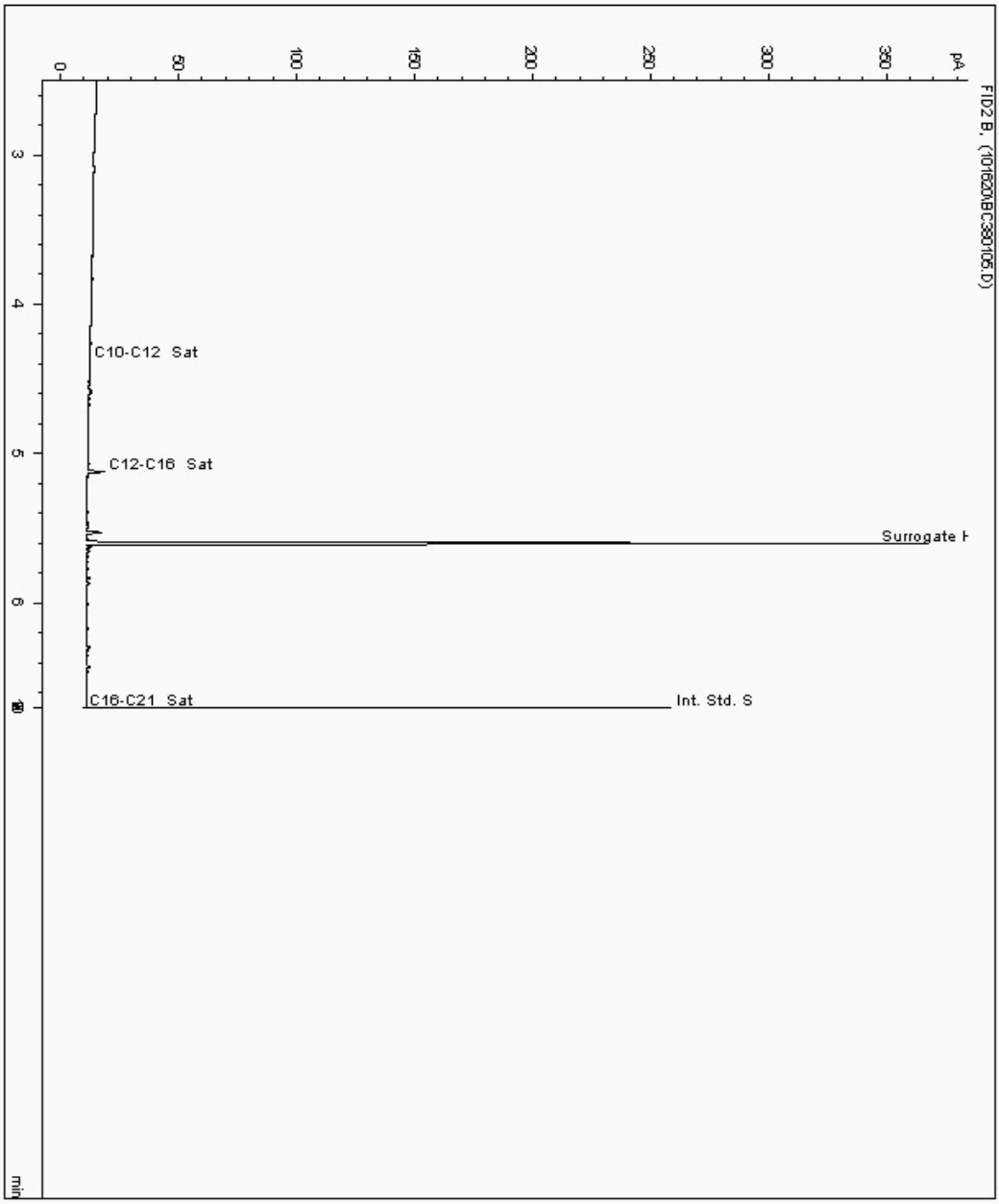
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23037446 **Depth :**
Sample ID : BH208

Speciated TPH - SATS (C12 - C40)

Sample Identity: 21624066-
Date Acquired : 18/10/20 01:27:44 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

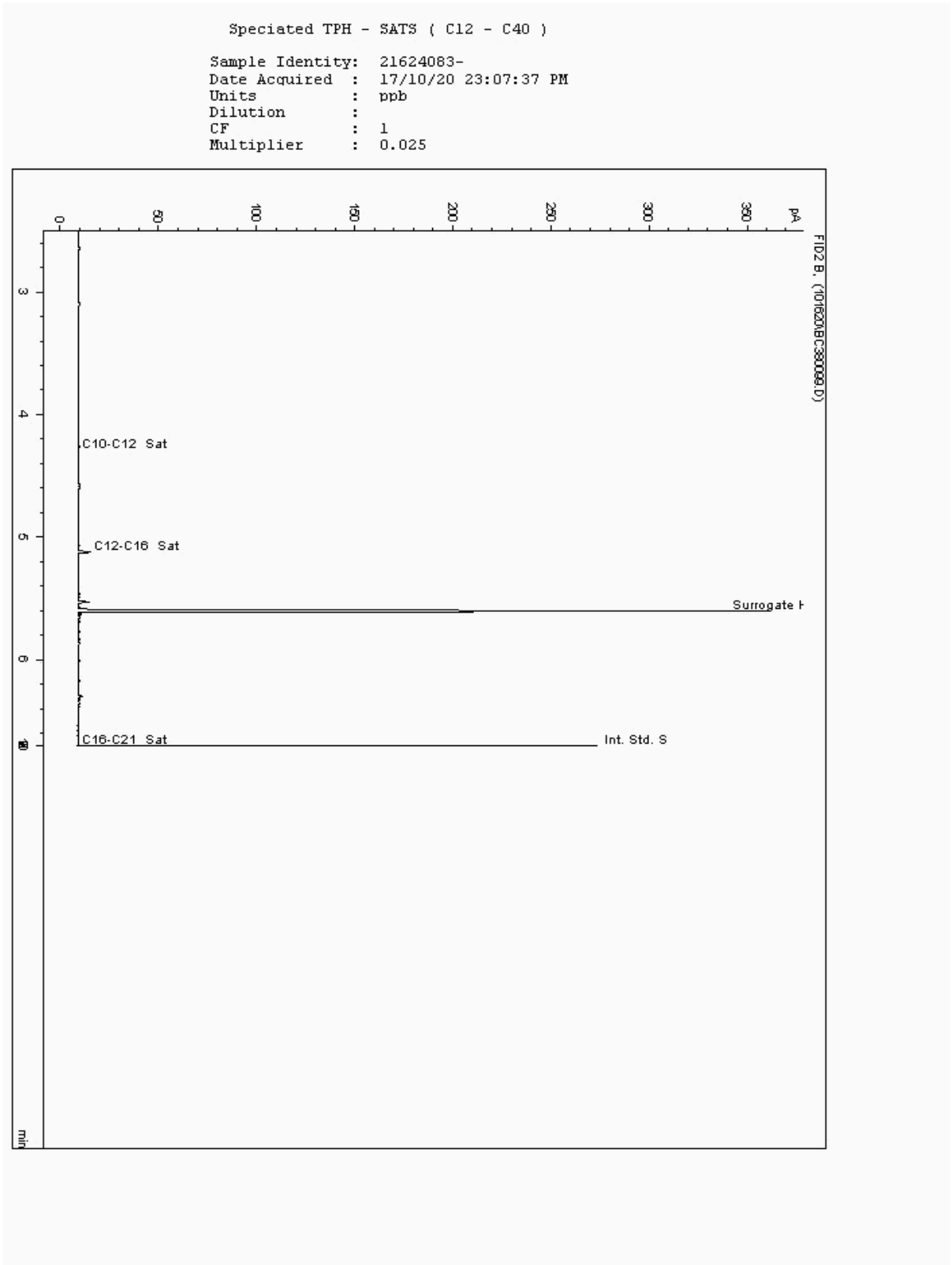


CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23037451 **Sample ID :** NACW203 **Depth :**

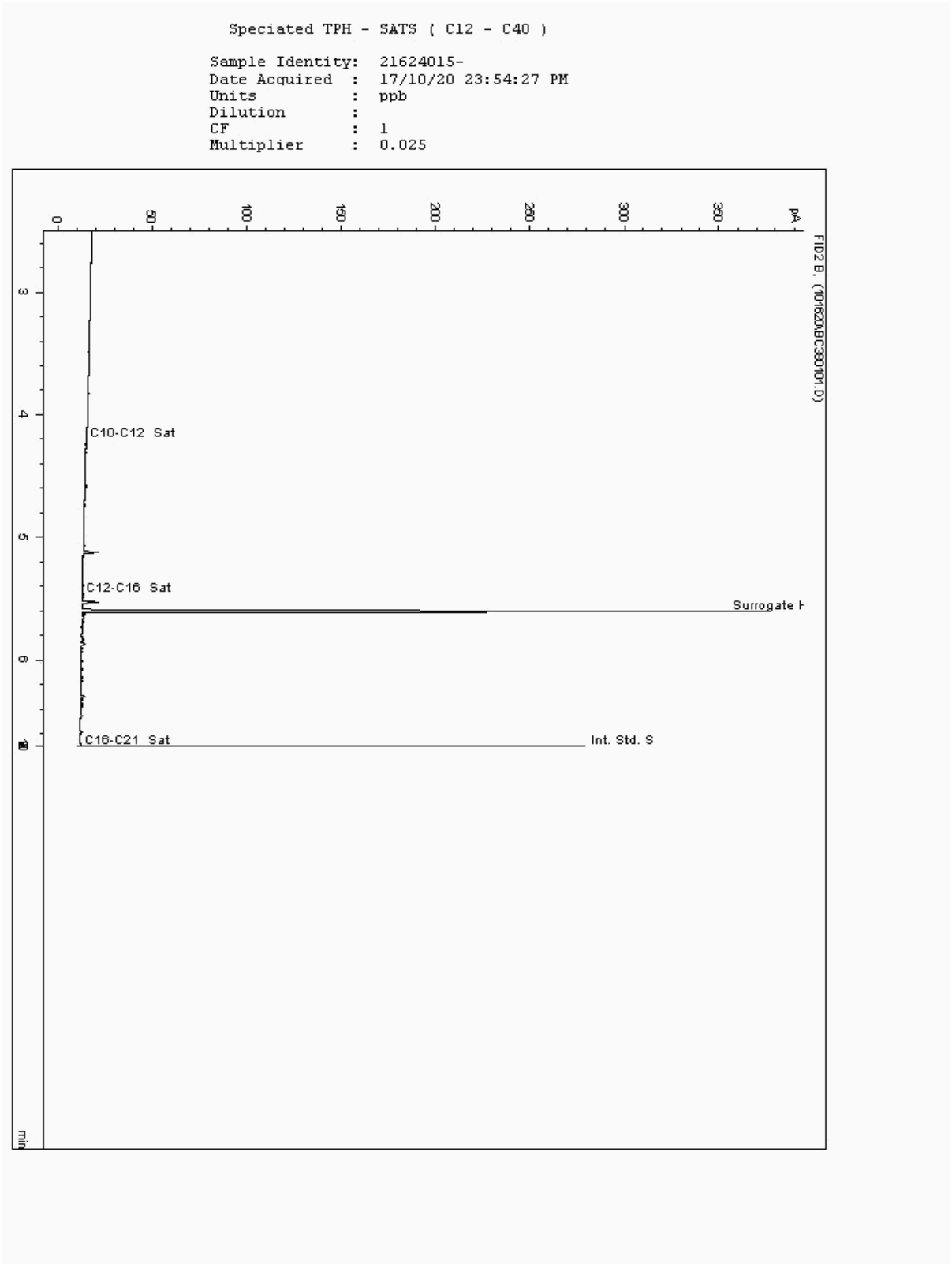


CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23037614 **Depth :**
Sample ID : BH3/6

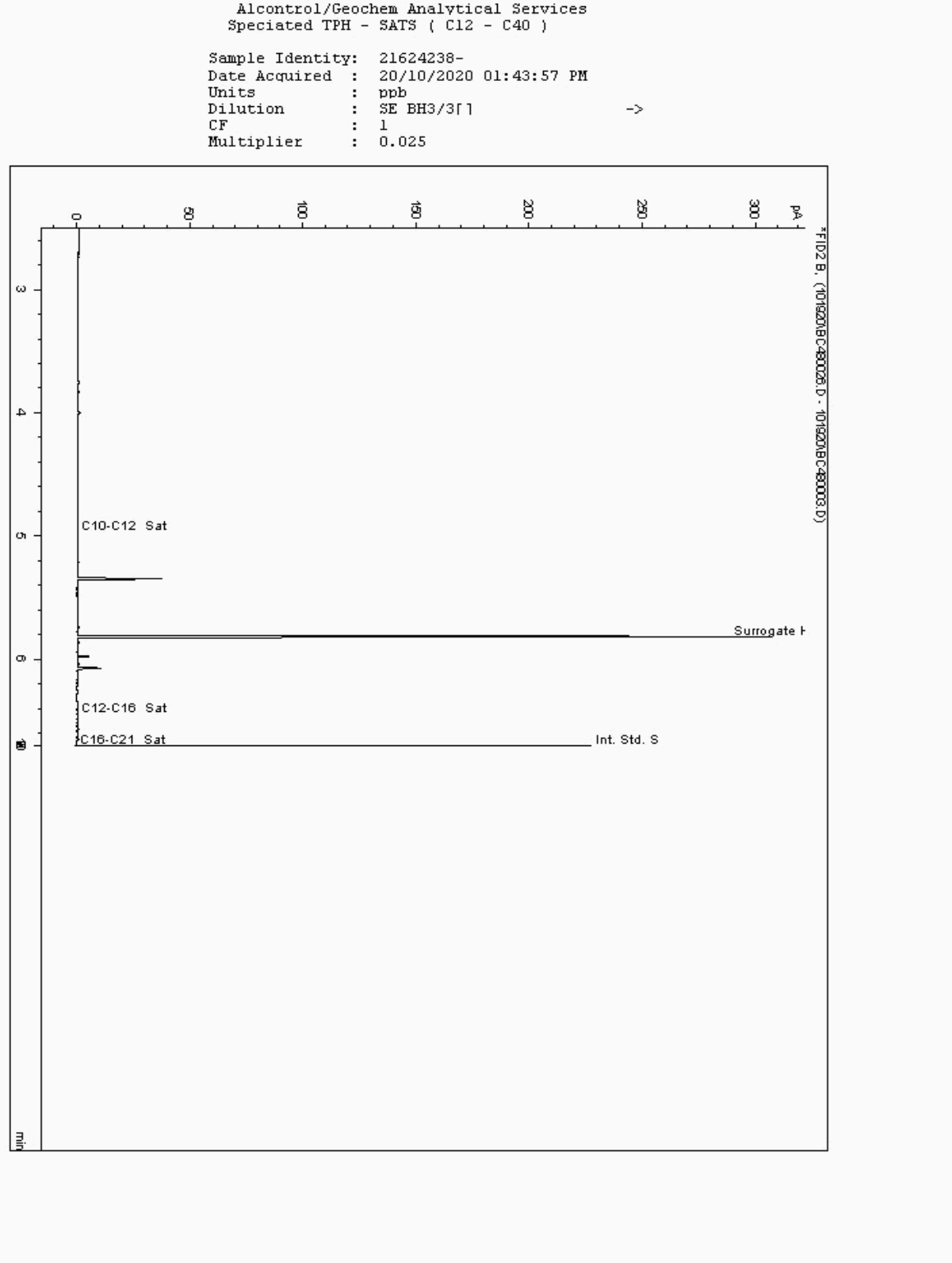


CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23037623 **Depth :**
Sample ID : BH3/3



CERTIFICATE OF ANALYSIS

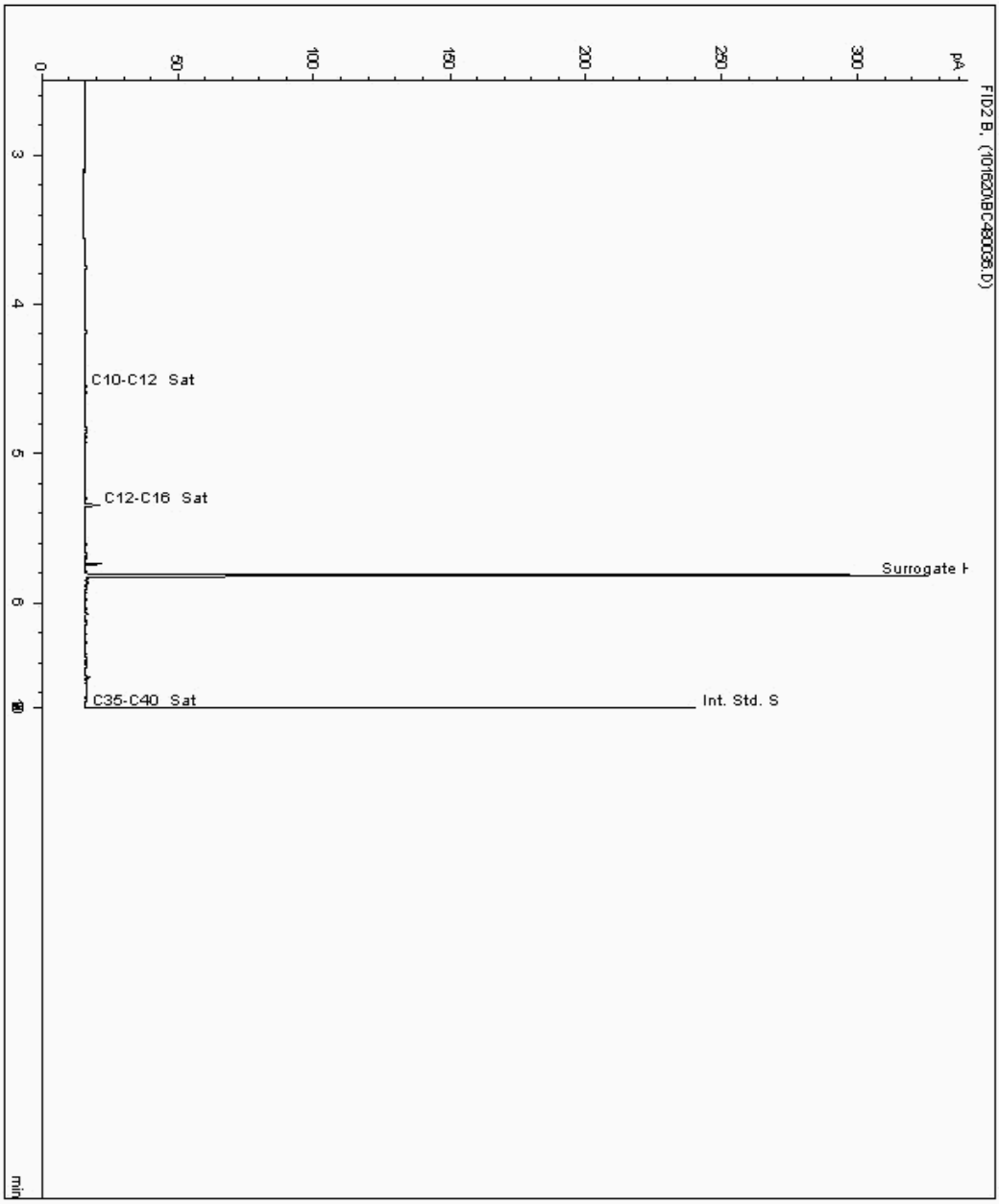
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23038668 **Depth :**
Sample ID : BH3/9

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 21624034-
Date Acquired : 17/10/2020 10:56:02 PM
Units : ppb
Dilution : SE BH3/9[] ->
CF : 1
Multiplier : 0.025

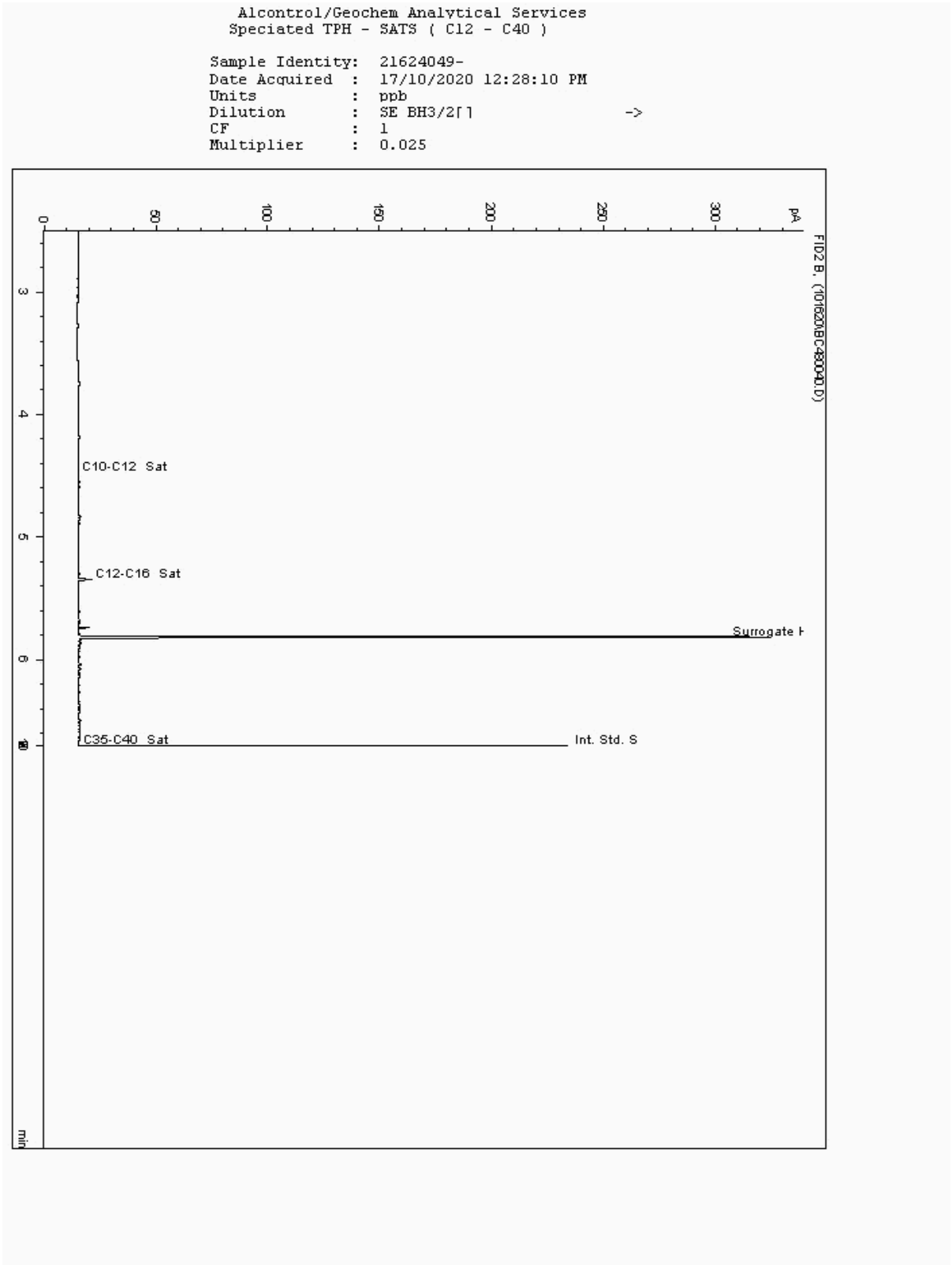


CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23038678 **Depth :**
Sample ID : BH3/2



CERTIFICATE OF ANALYSIS

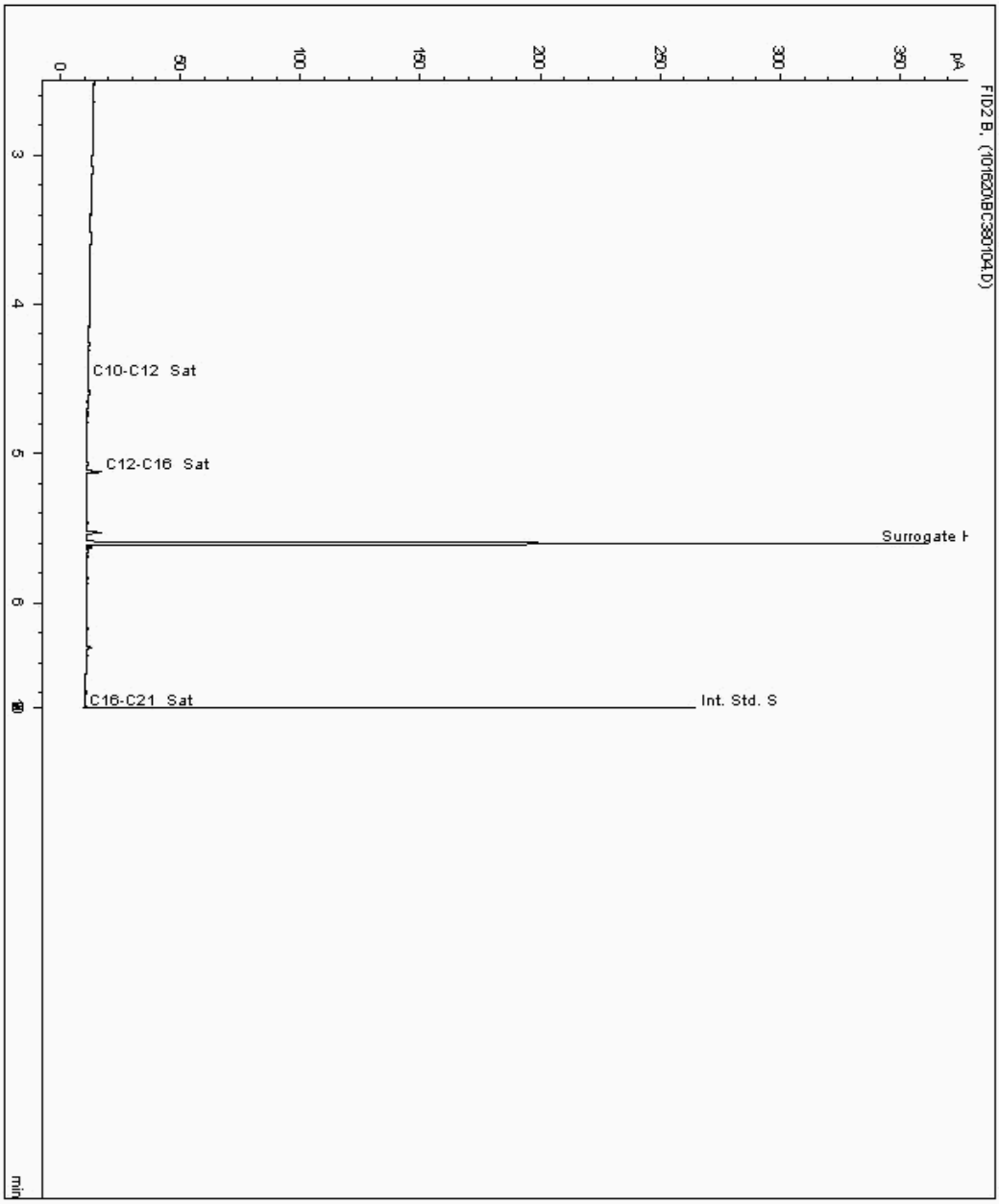
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23042905 **Sample ID :** NACW228 **Depth :**

Speciated TPH - SATS (C12 - C40)

Sample Identity: 21624259-
Date Acquired : 18/10/20 01:04:29 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

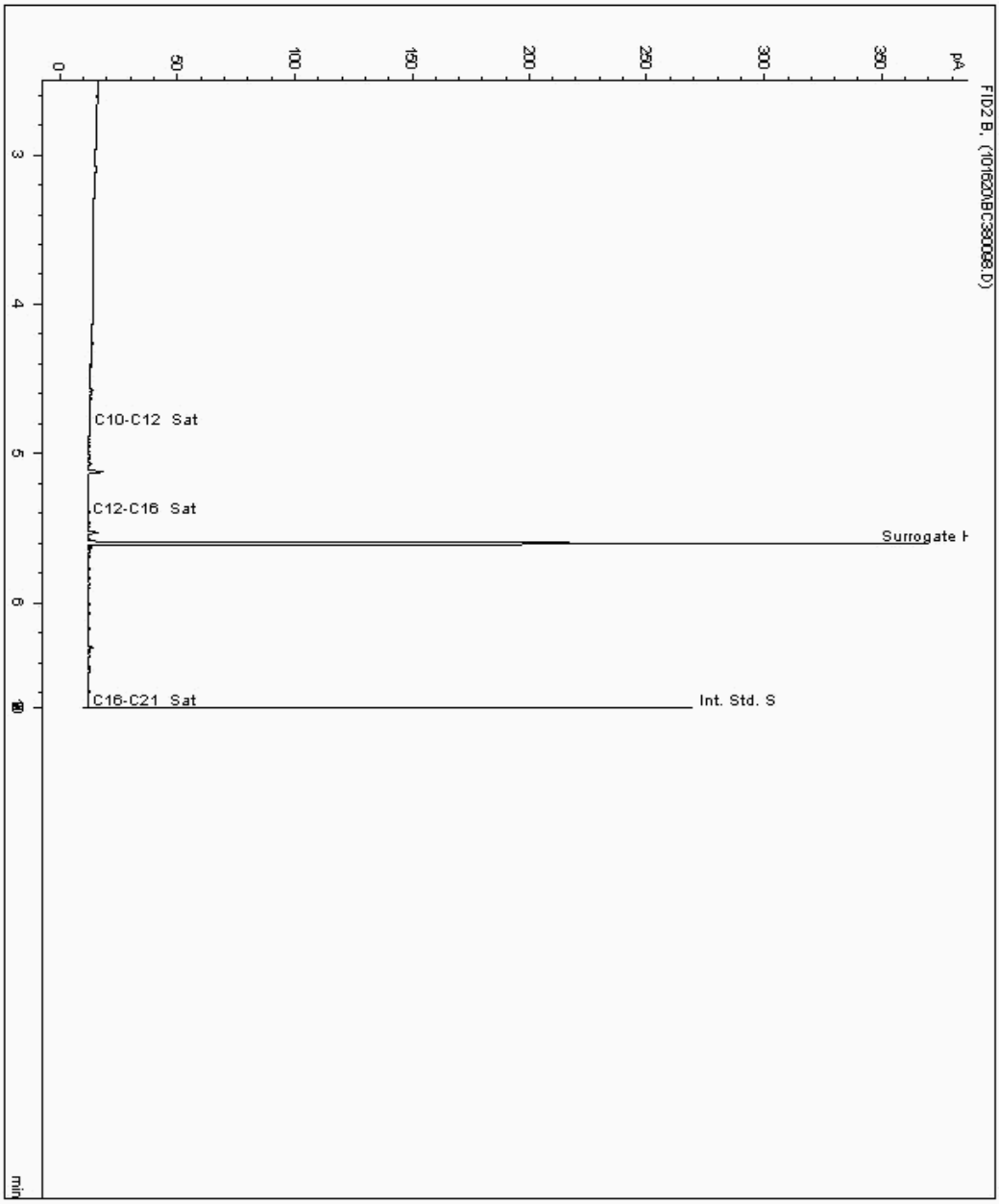
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23042911 **Depth :**
Sample ID : BH3/8

Speciated TPH - SATS (C12 - C40)

Sample Identity: 21624163-
Date Acquired : 17/10/20 22:44:50 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

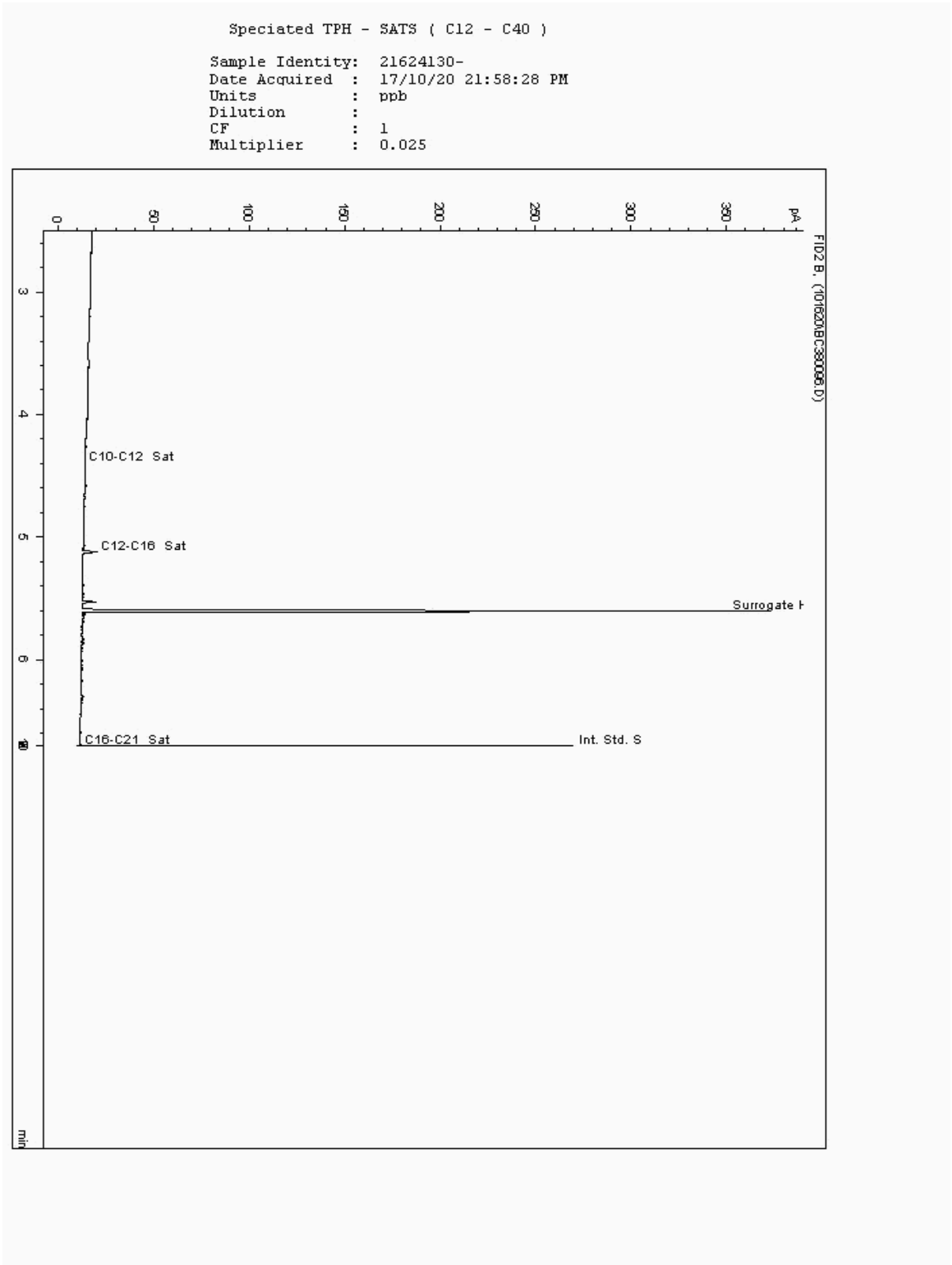


CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23044356 **Depth :**
Sample ID : BH3/4

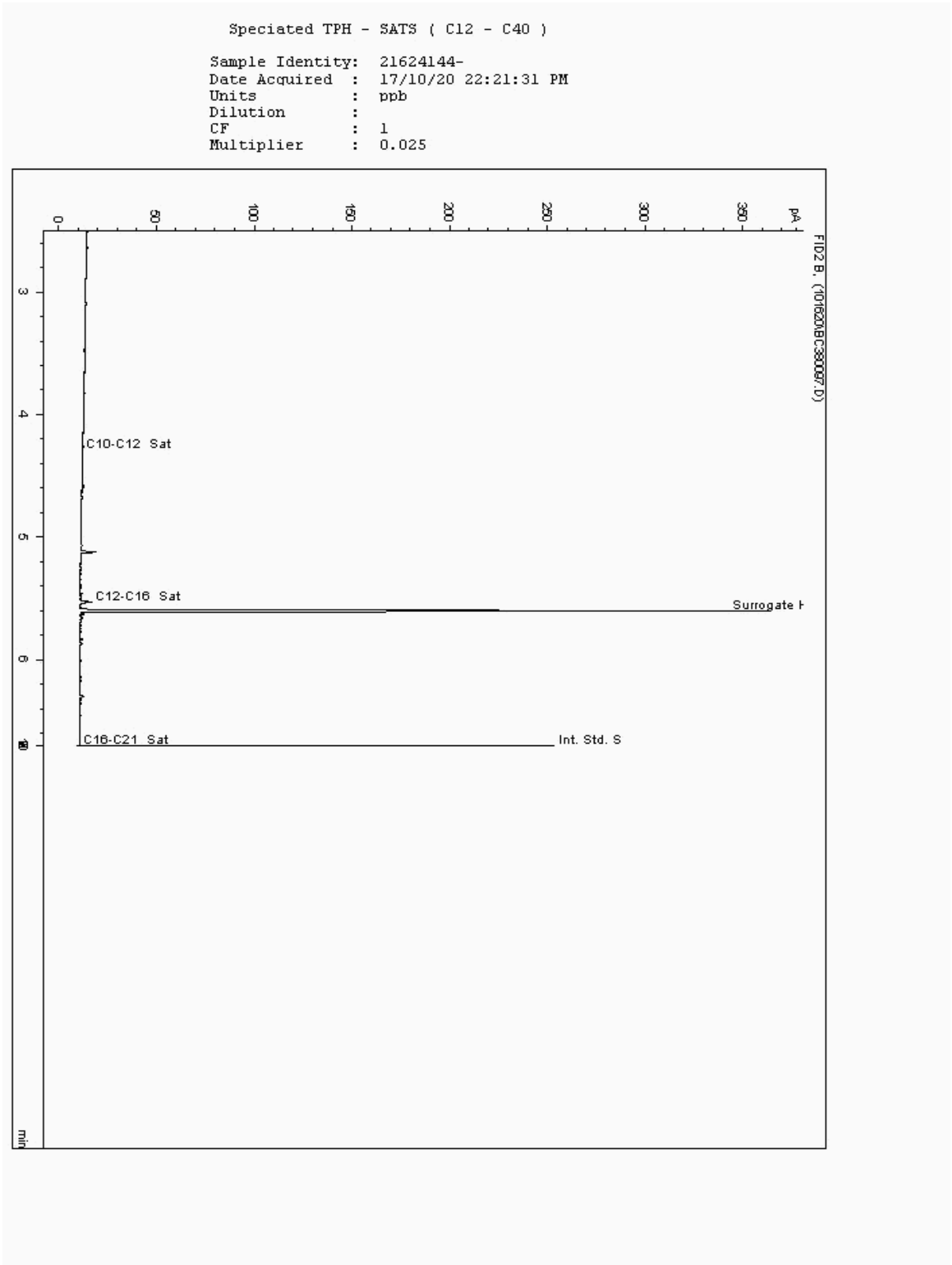


CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23044360 **Depth :**
Sample ID : BH3/5



CERTIFICATE OF ANALYSIS

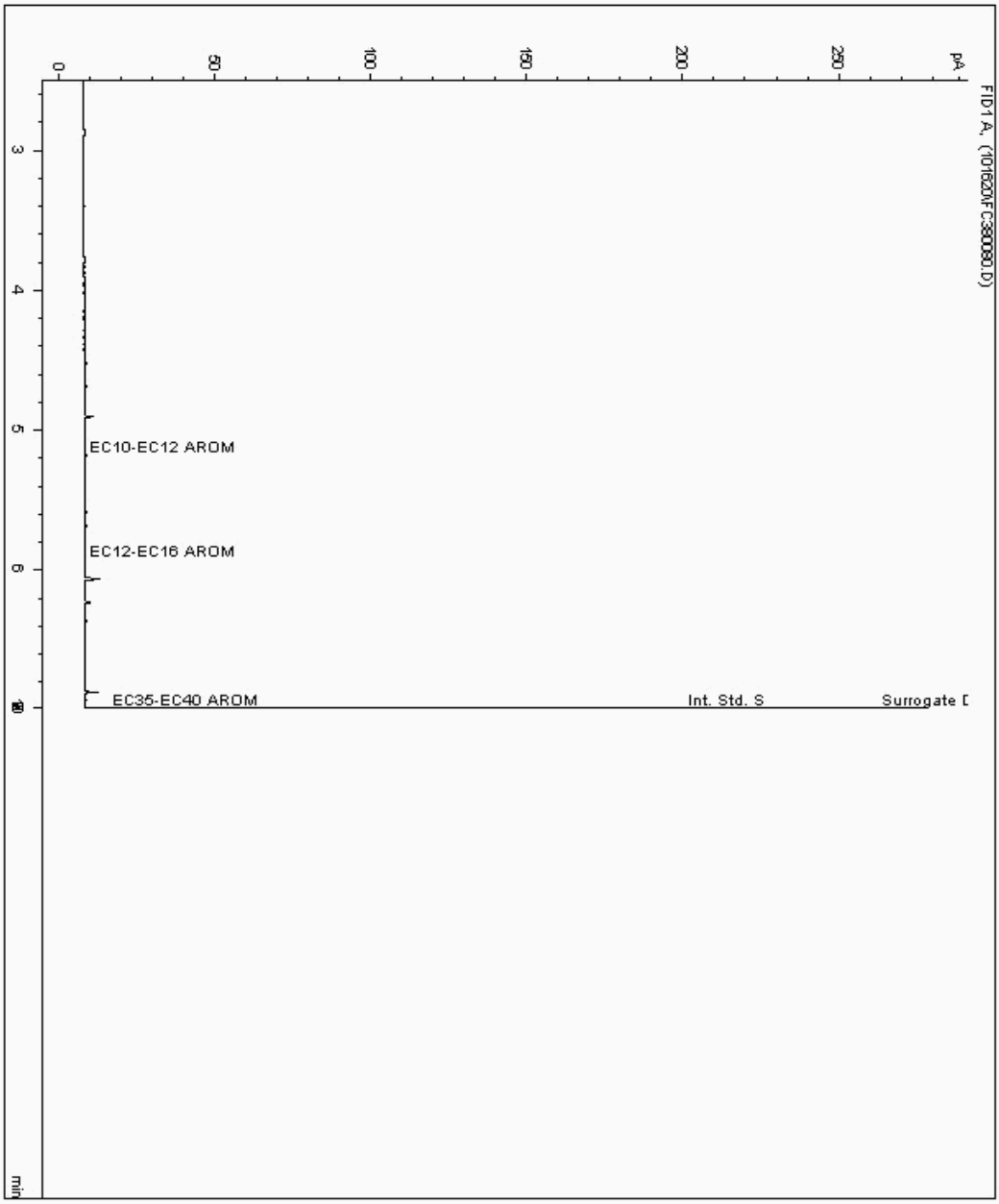
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23034590 **Sample ID :** NACW205 **Depth :**

Speciated TPH - AROM (C12 - C40)

Sample Identity: 21624104-
Date Acquired : 17/10/20 15:49:19 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

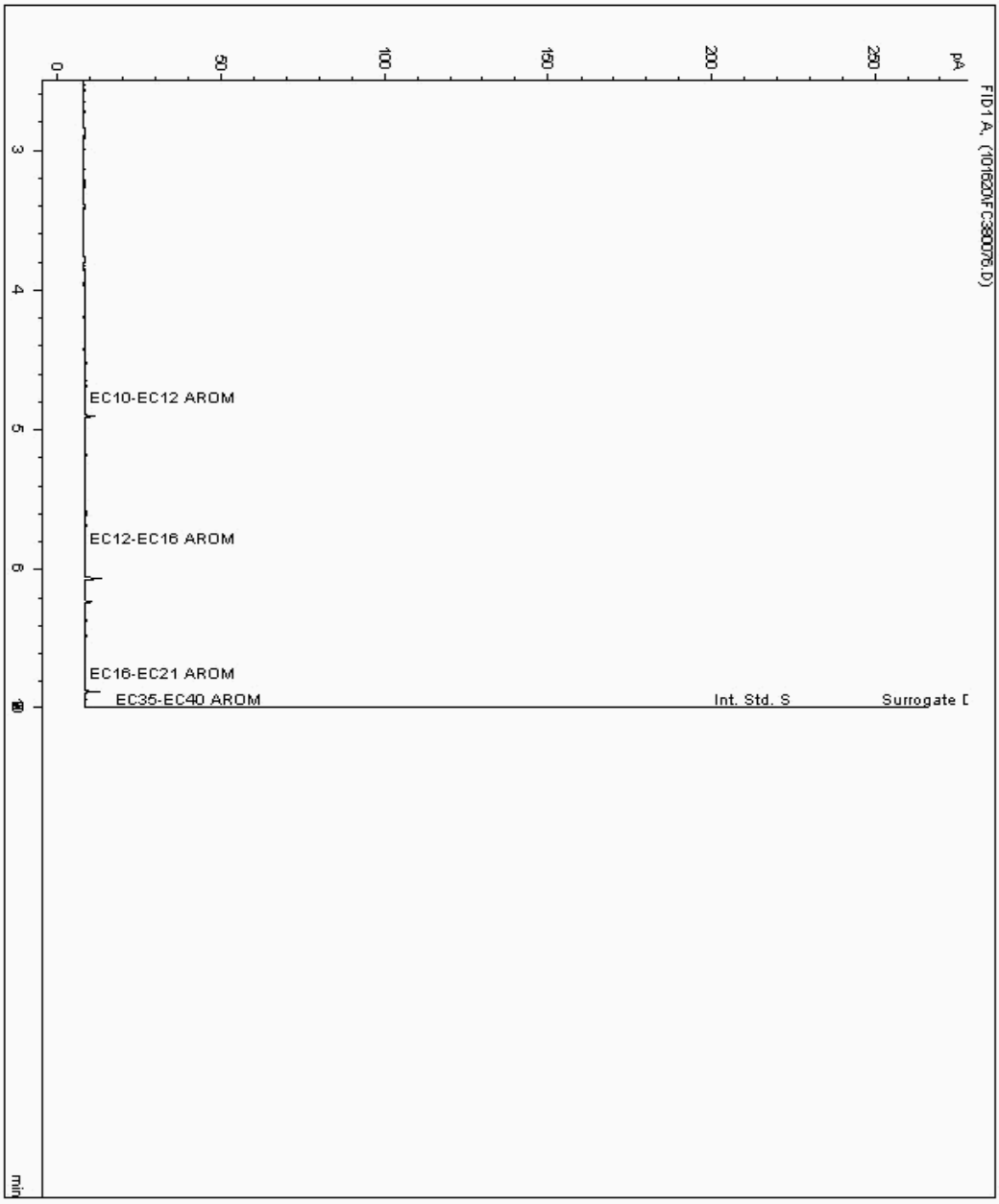
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23034594 **Sample ID :** BH5/02 **Depth :**

Speciated TPH - AROM (C12 - C40)

Sample Identity: 21624117-
Date Acquired : 17/10/20 14:15:33 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

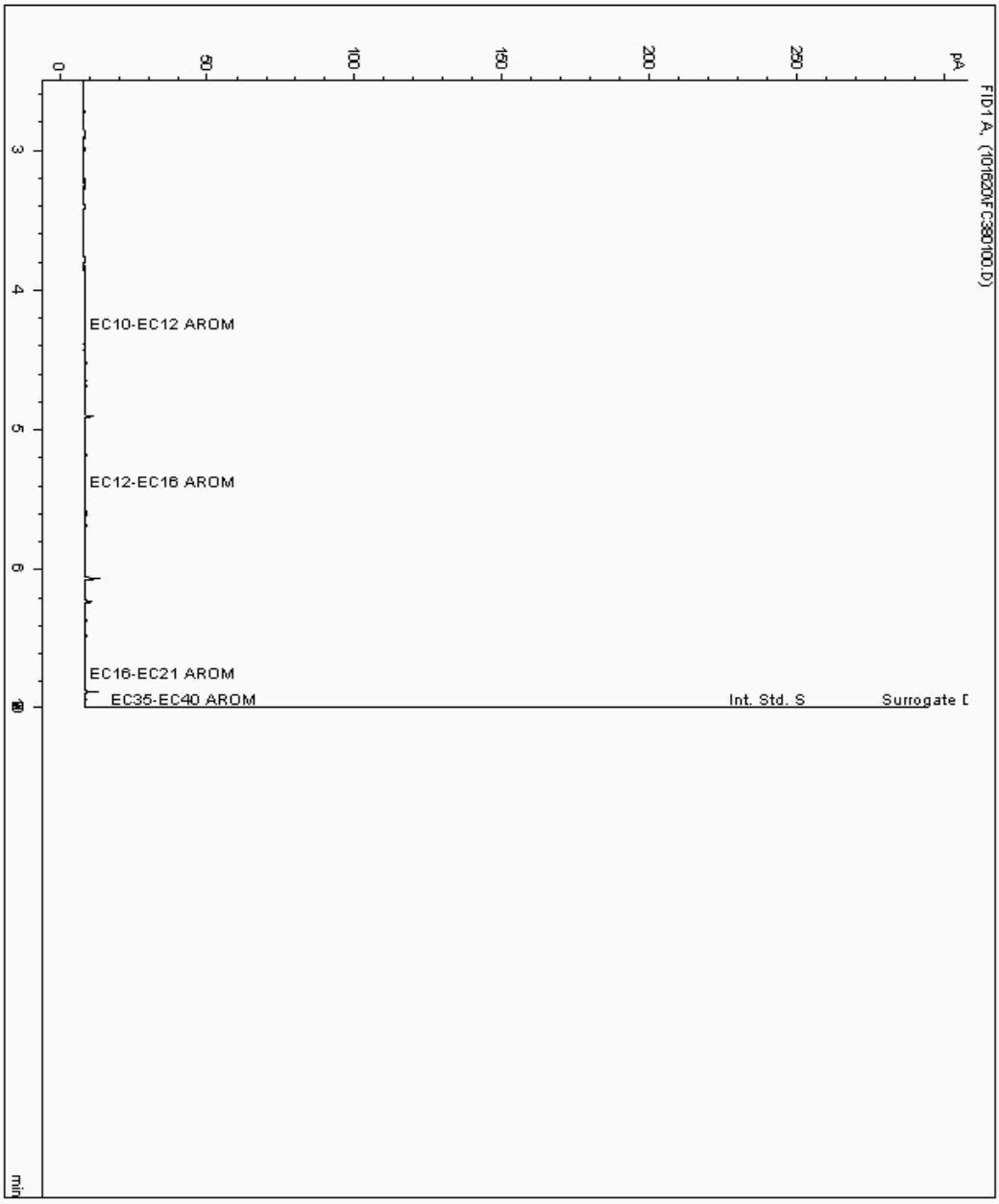
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23037282 **Sample ID :** NACW229 **Depth :**

Speciated TPH - AROM (C12 - C40)

Sample Identity: 21624190-
Date Acquired : 17/10/20 23:31:10 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

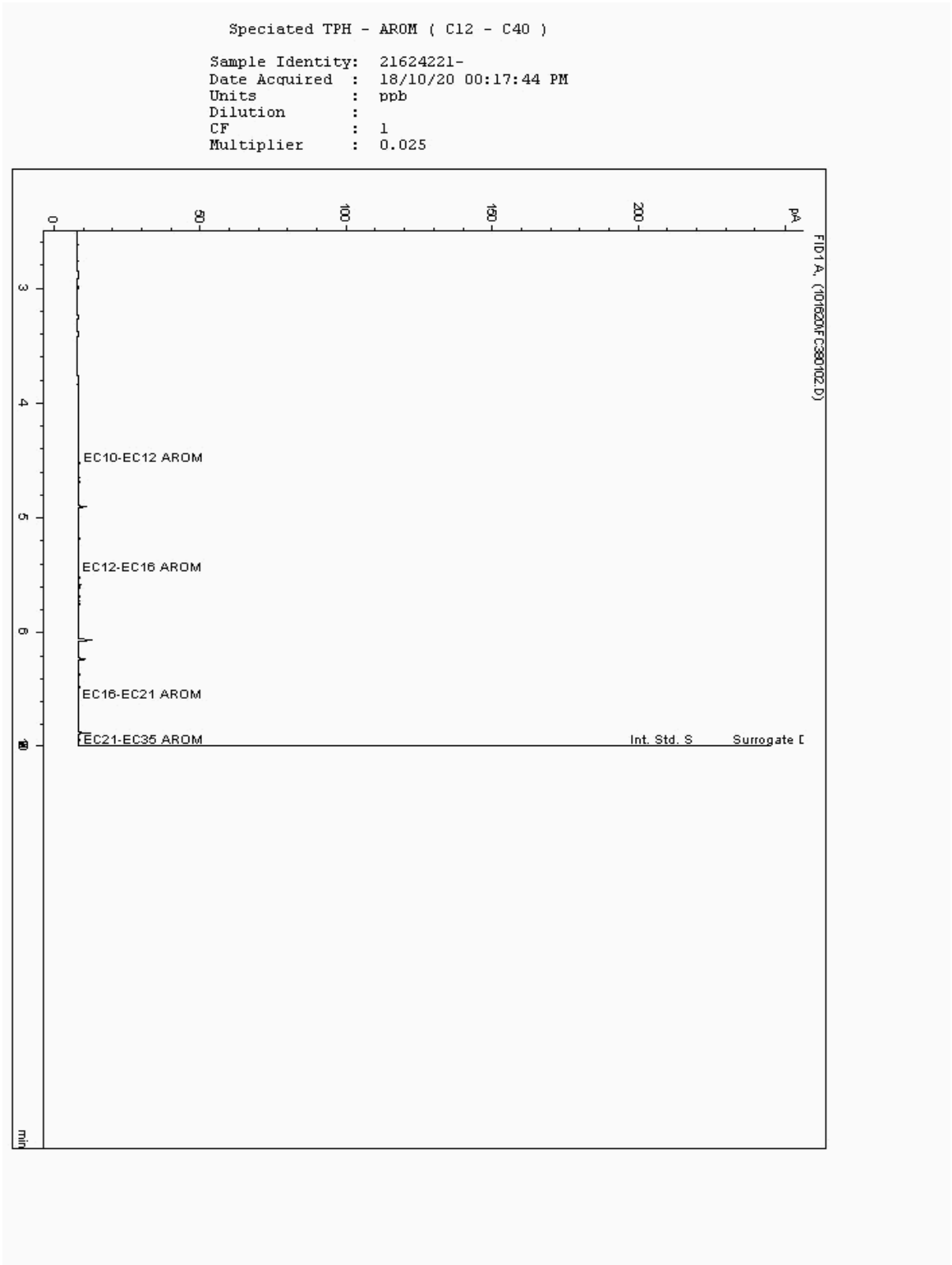


CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23037287 **Sample ID :** NACW212 **Depth :**

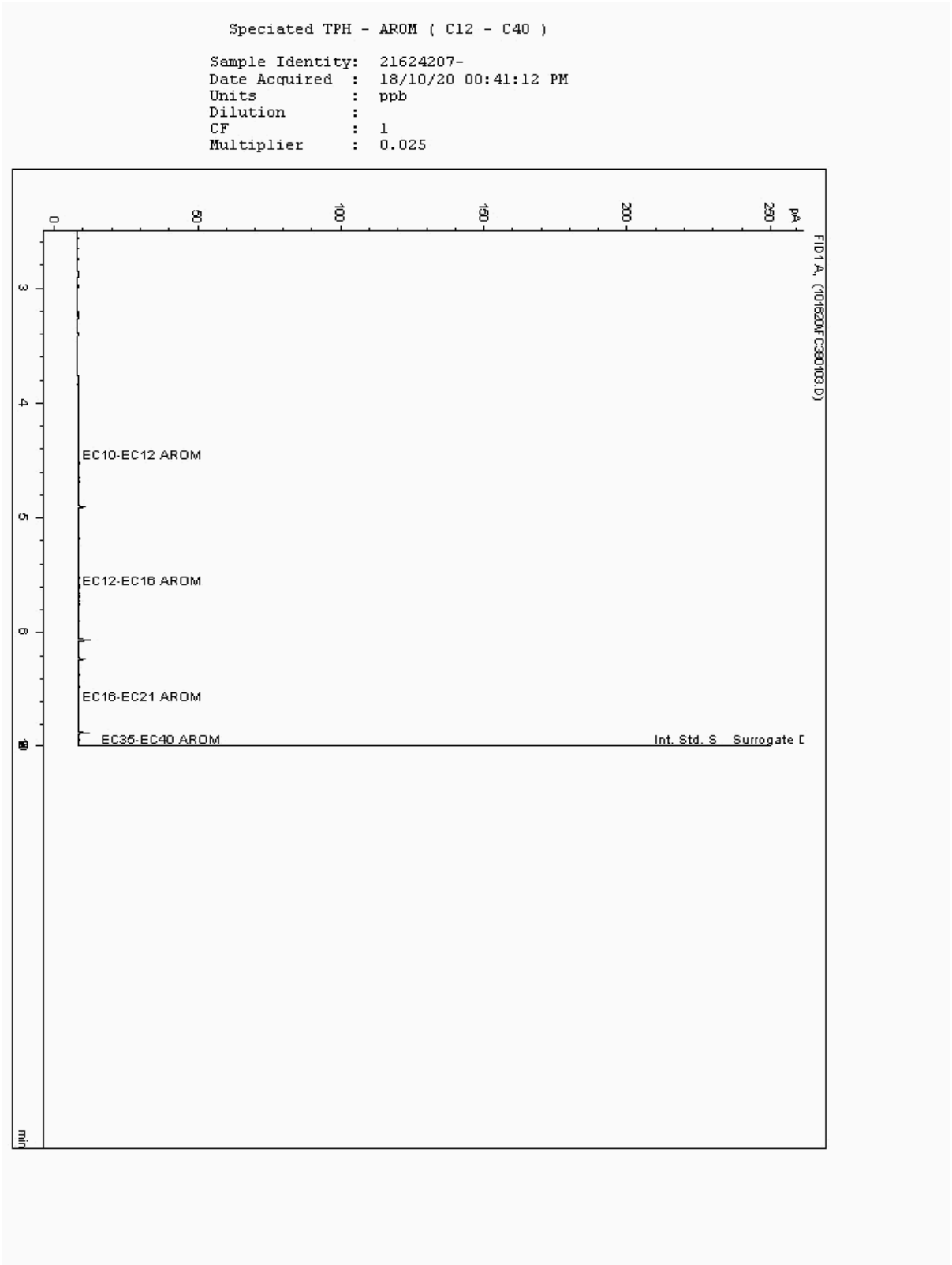


CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23037293 **Sample ID :** NACW219 **Depth :**



CERTIFICATE OF ANALYSIS

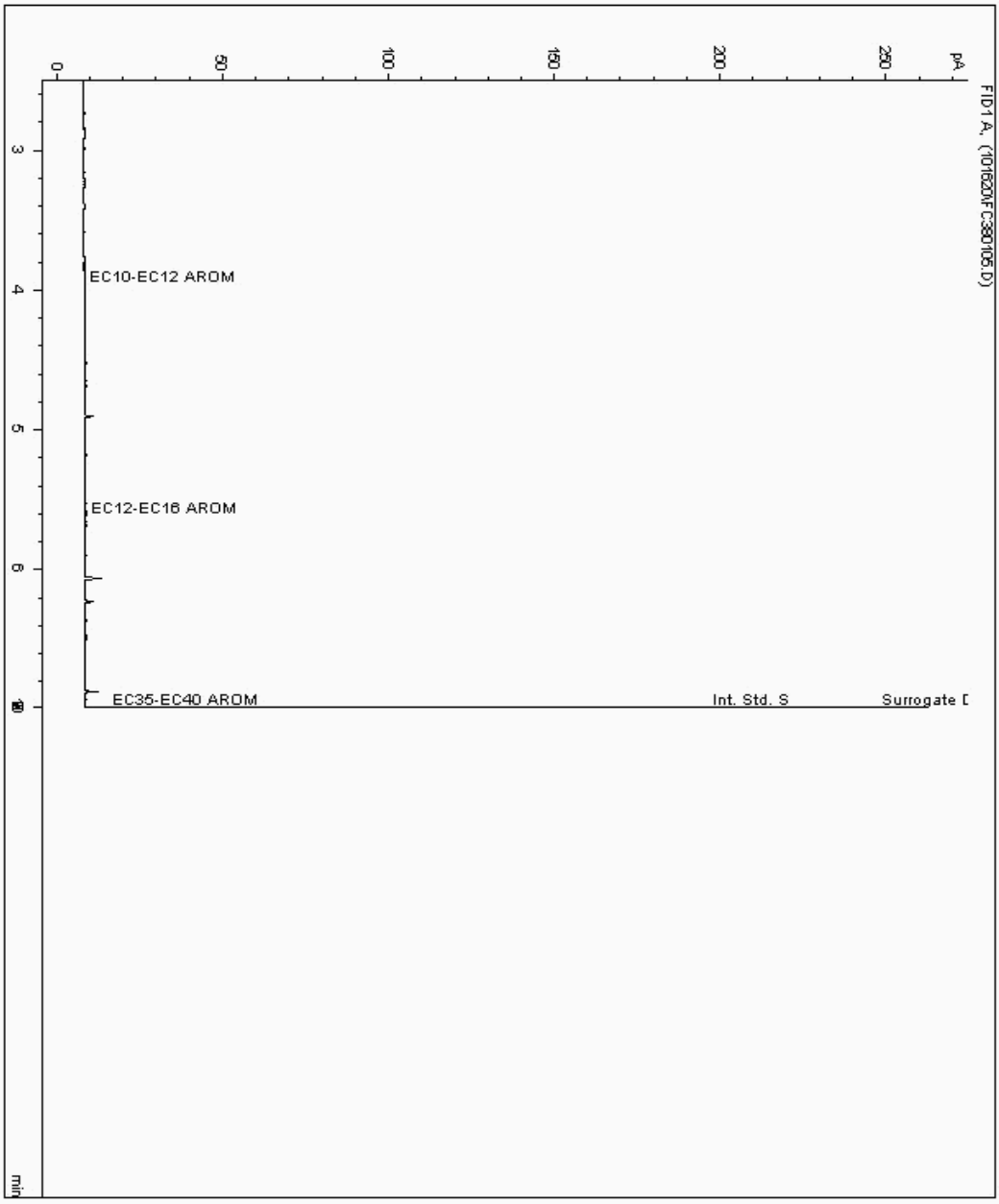
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23037446 **Sample ID :** BH208 **Depth :**

Speciated TPH - AROM (C12 - C40)

Sample Identity: 21624067-
Date Acquired : 18/10/20 01:27:43 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

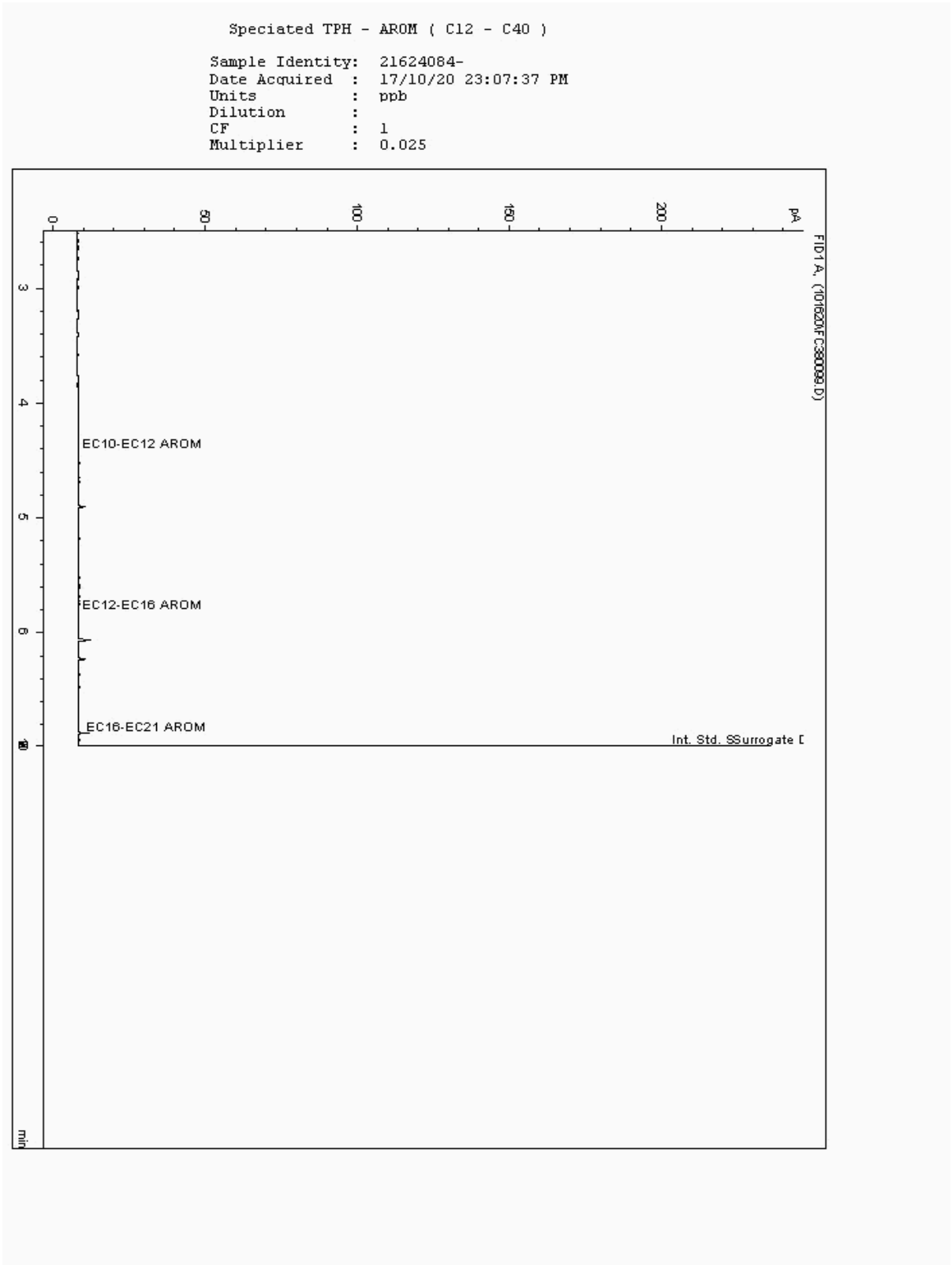


CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23037451 **Sample ID :** NACW203 **Depth :**



CERTIFICATE OF ANALYSIS

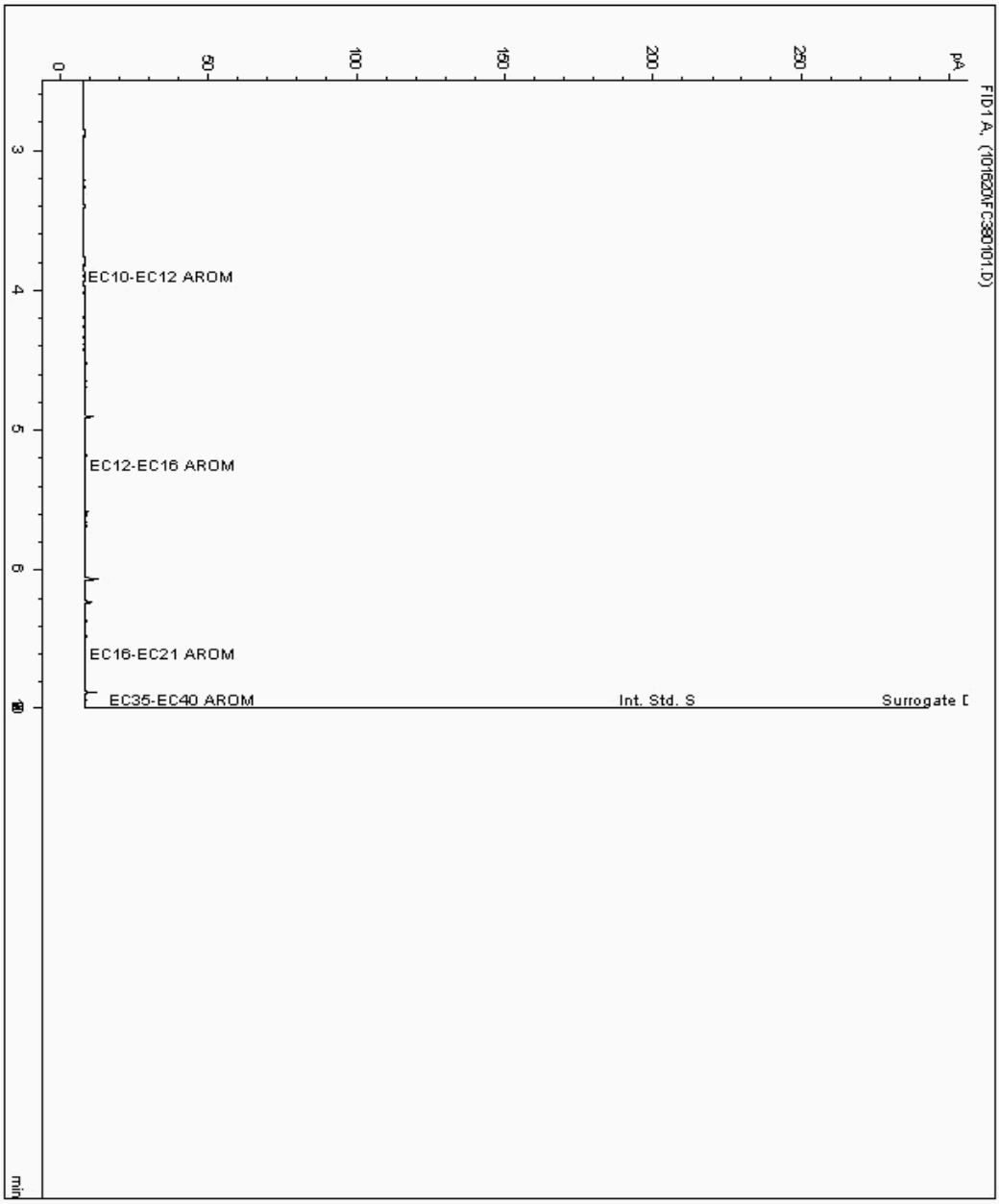
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23037614 **Sample ID :** BH3/6 **Depth :**

Speciated TPH - AROM (C12 - C40)

Sample Identity: 21624016-
Date Acquired : 17/10/20 23:54:28 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

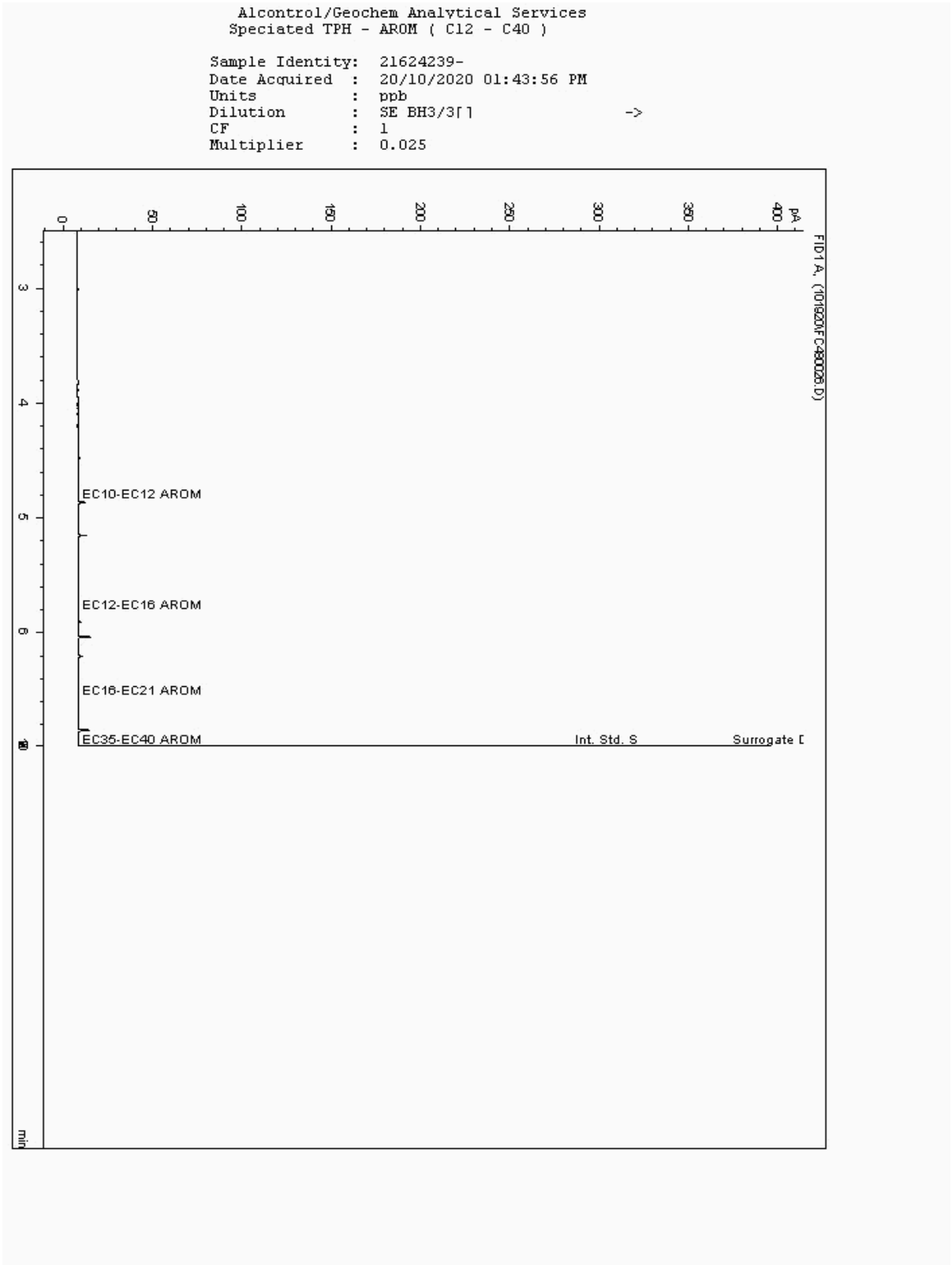


CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23037623 **Depth :**
Sample ID : BH3/3

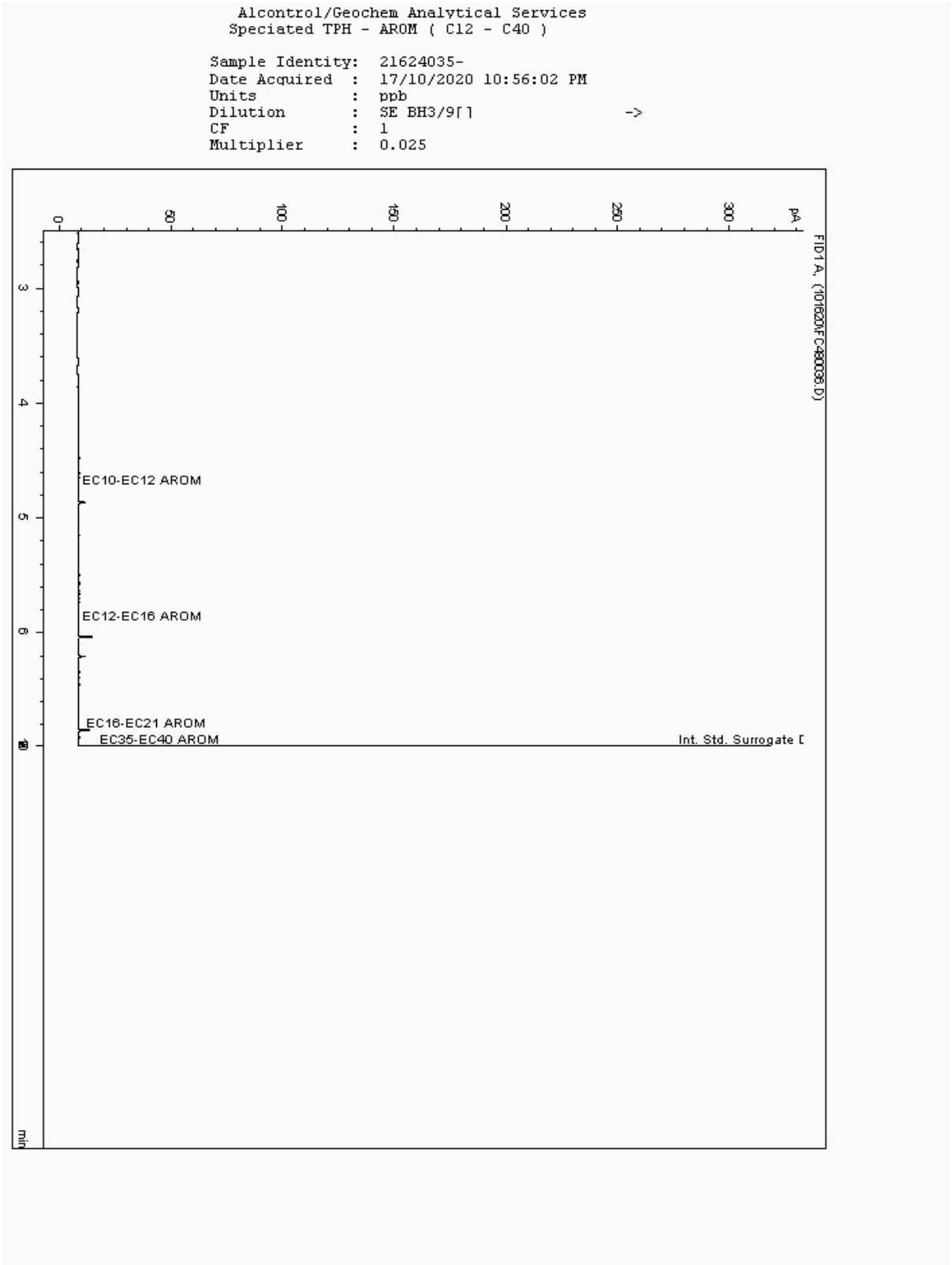


CERTIFICATE OF ANALYSIS

SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23038668 **Depth :**
Sample ID : BH3/9



CERTIFICATE OF ANALYSIS

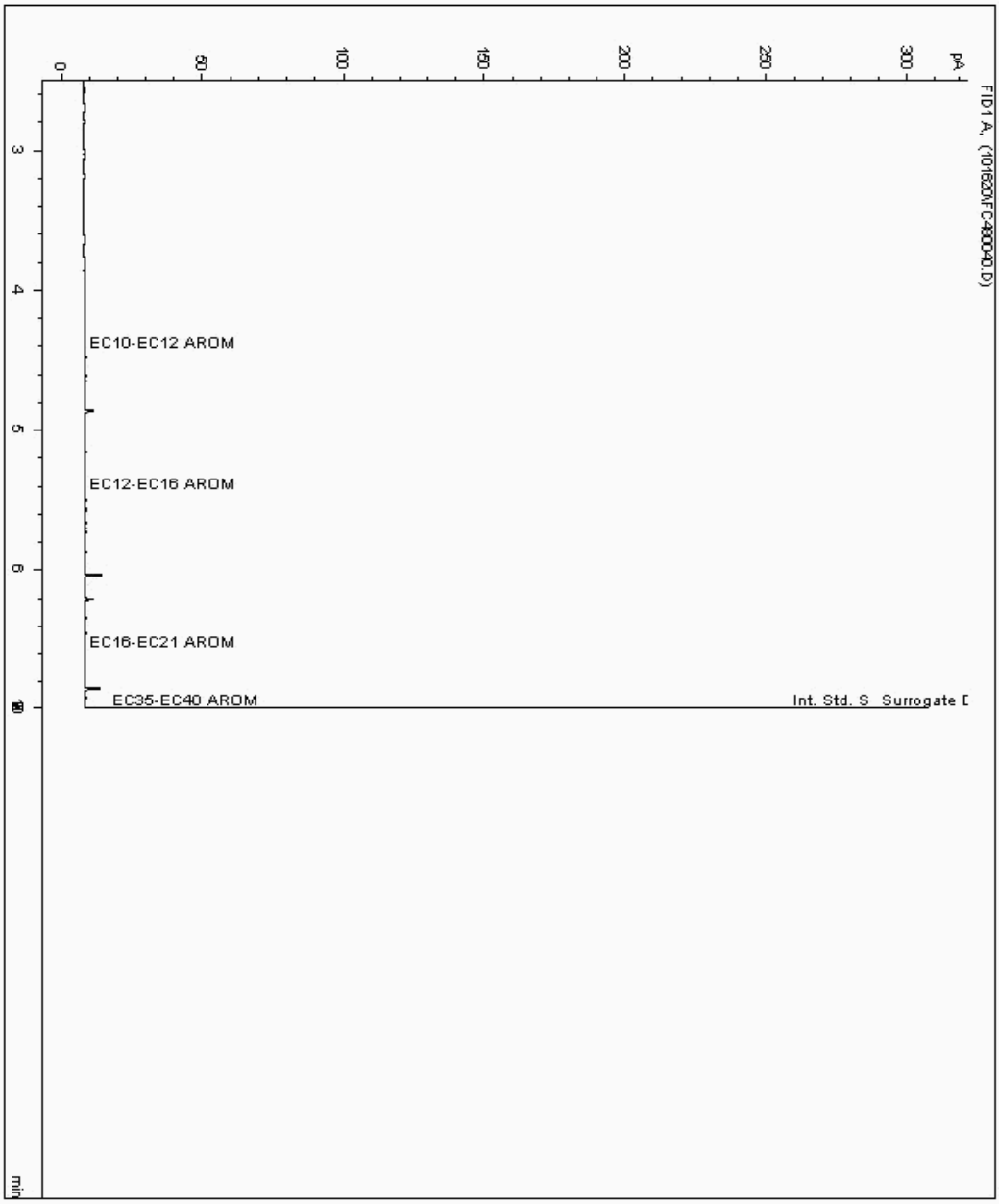
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23038678 **Depth :**
Sample ID : BH3/2

Alcontrol/Geochem Analytical Services
Speciated TPH - AROM (C12 - C40)

Sample Identity: 21624050-
Date Acquired : 17/10/2020 12:28:10 PM
Units : ppb
Dilution : SE BH3/2[]
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

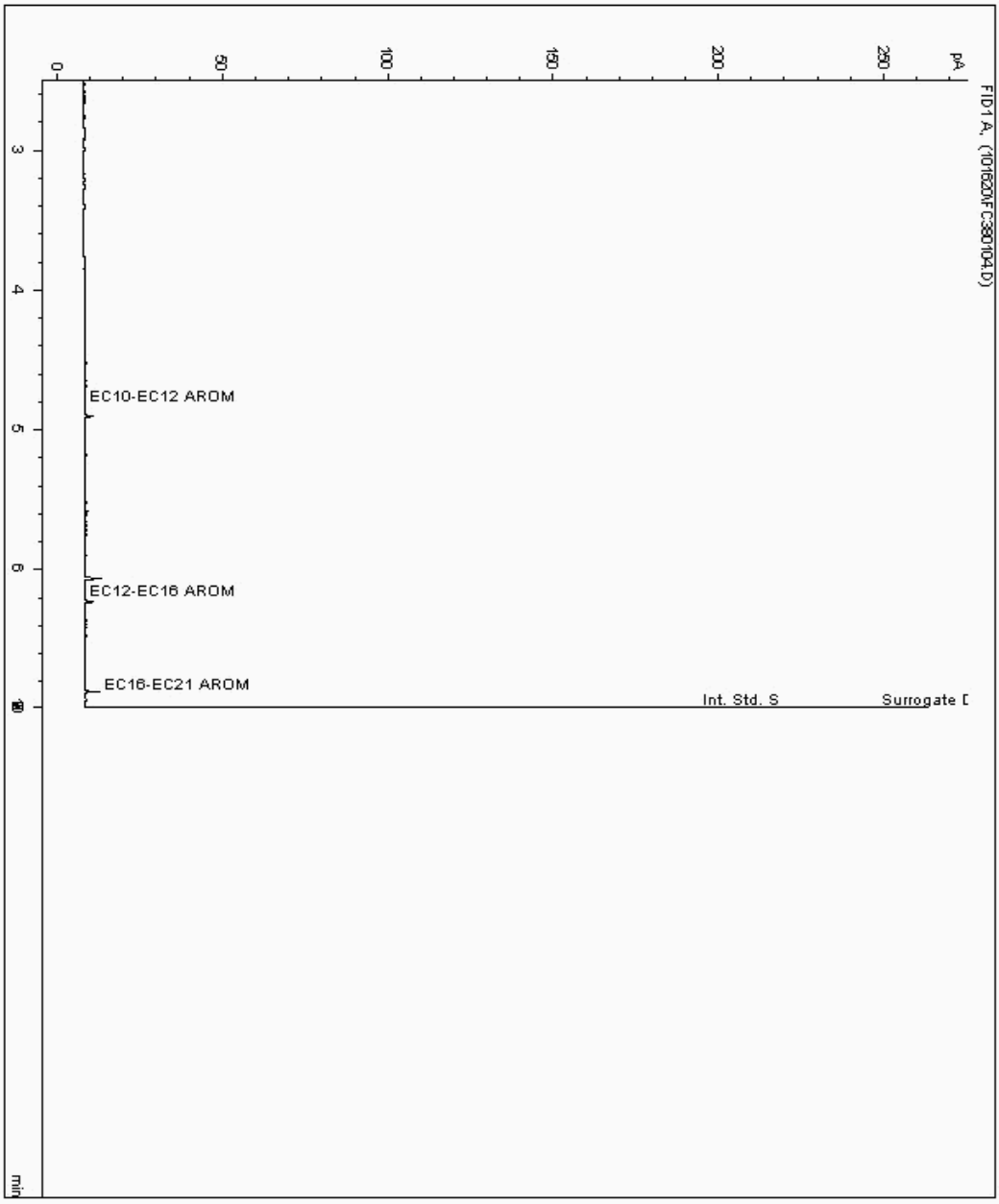
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23042905 **Sample ID :** NACW228 **Depth :**

Speciated TPH - AROM (C12 - C40)

Sample Identity: 21624260-
Date Acquired : 18/10/20 01:04:28 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

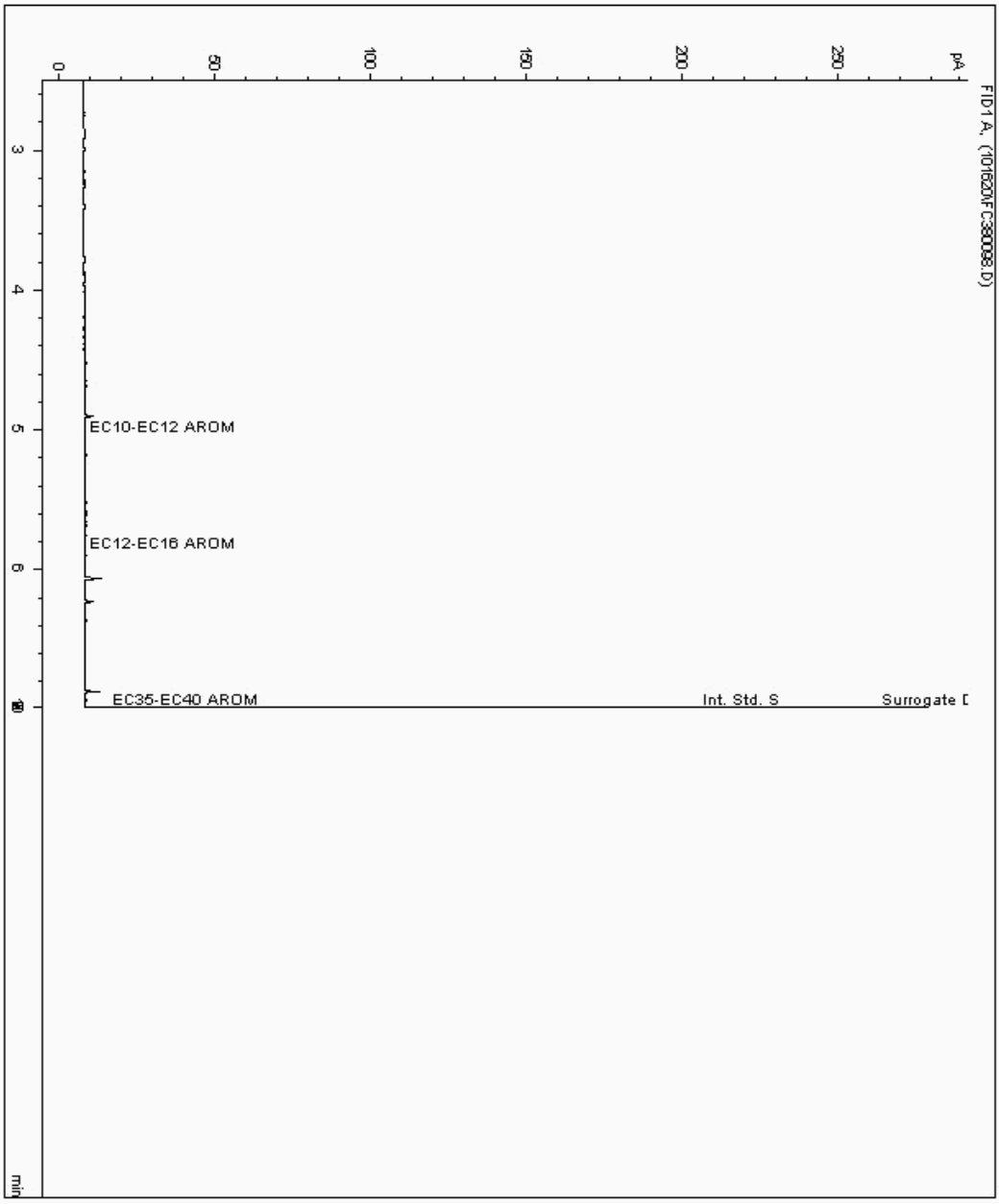
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23042911 **Sample ID :** BH3/8 **Depth :**

Speciated TPH - AROM (C12 - C40)

Sample Identity: 21624164-
Date Acquired : 17/10/20 22:44:50 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

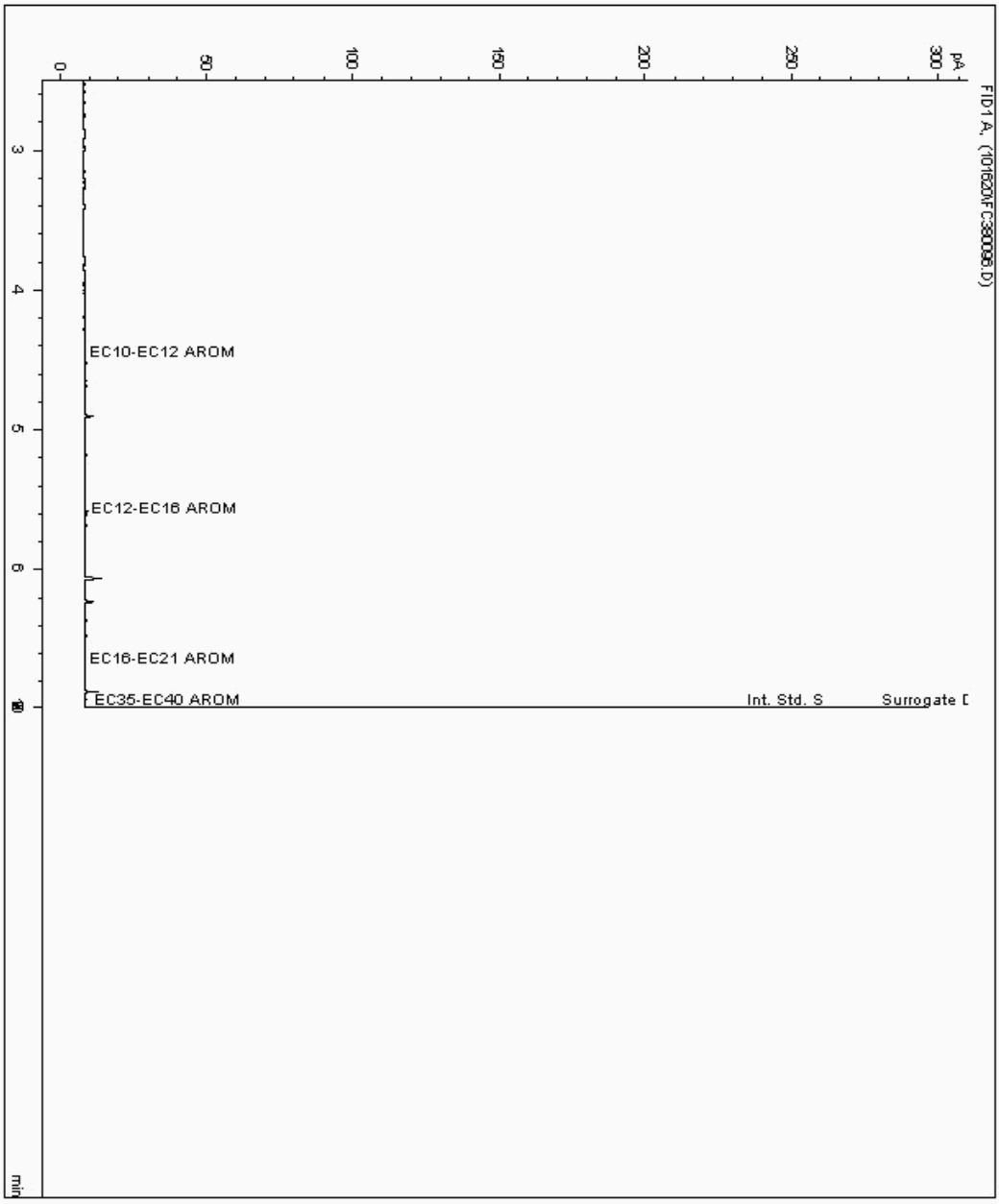
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23044356 **Sample ID :** BH3/4 **Depth :**

Speciated TPH - AROM (C12 - C40)

Sample Identity: 21624131-
Date Acquired : 17/10/20 21:58:28 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

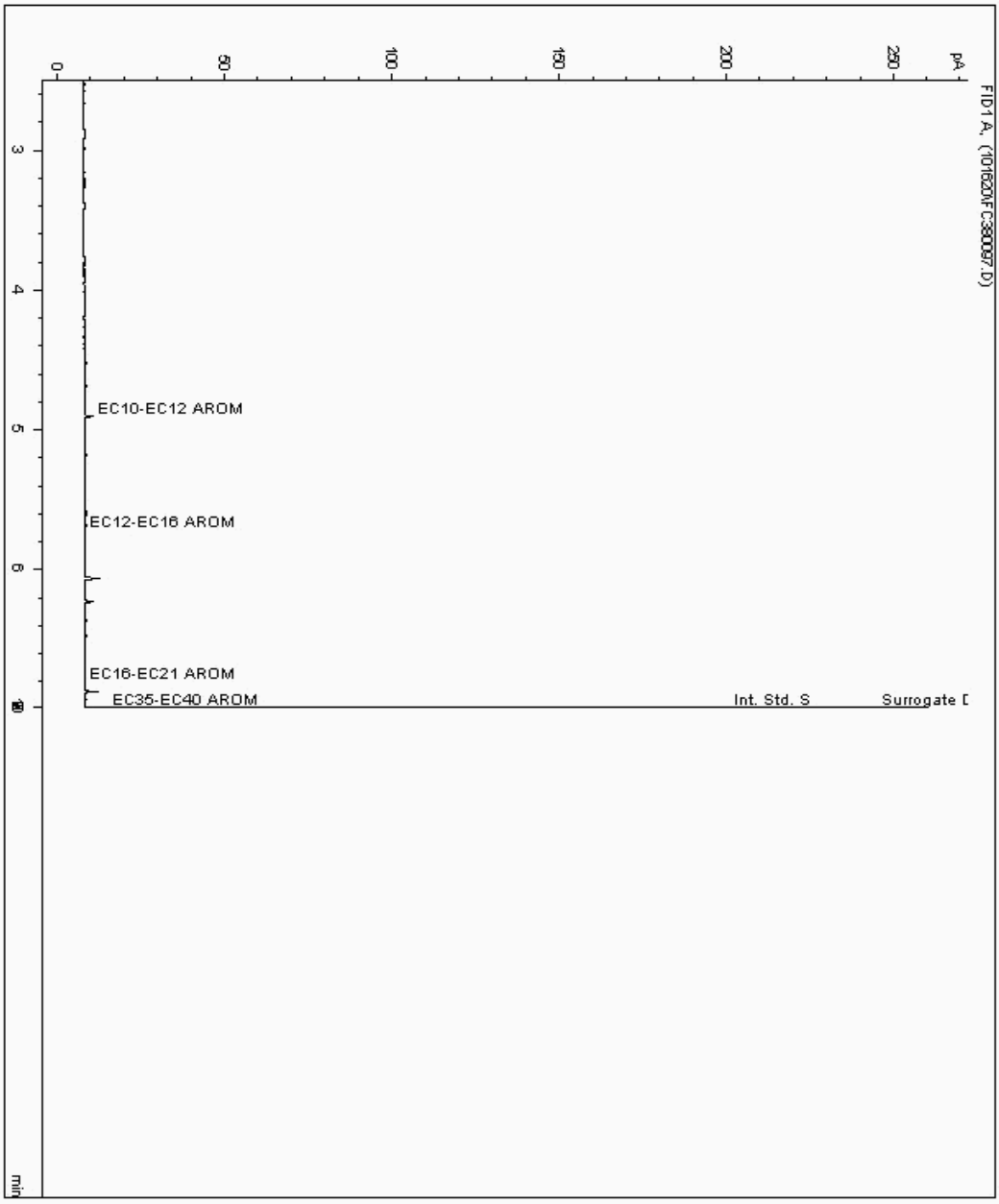
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23044360 **Sample ID :** BH3/5 **Depth :**

Speciated TPH - AROM (C12 - C40)

Sample Identity: 21624145-
Date Acquired : 17/10/20 22:21:31 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

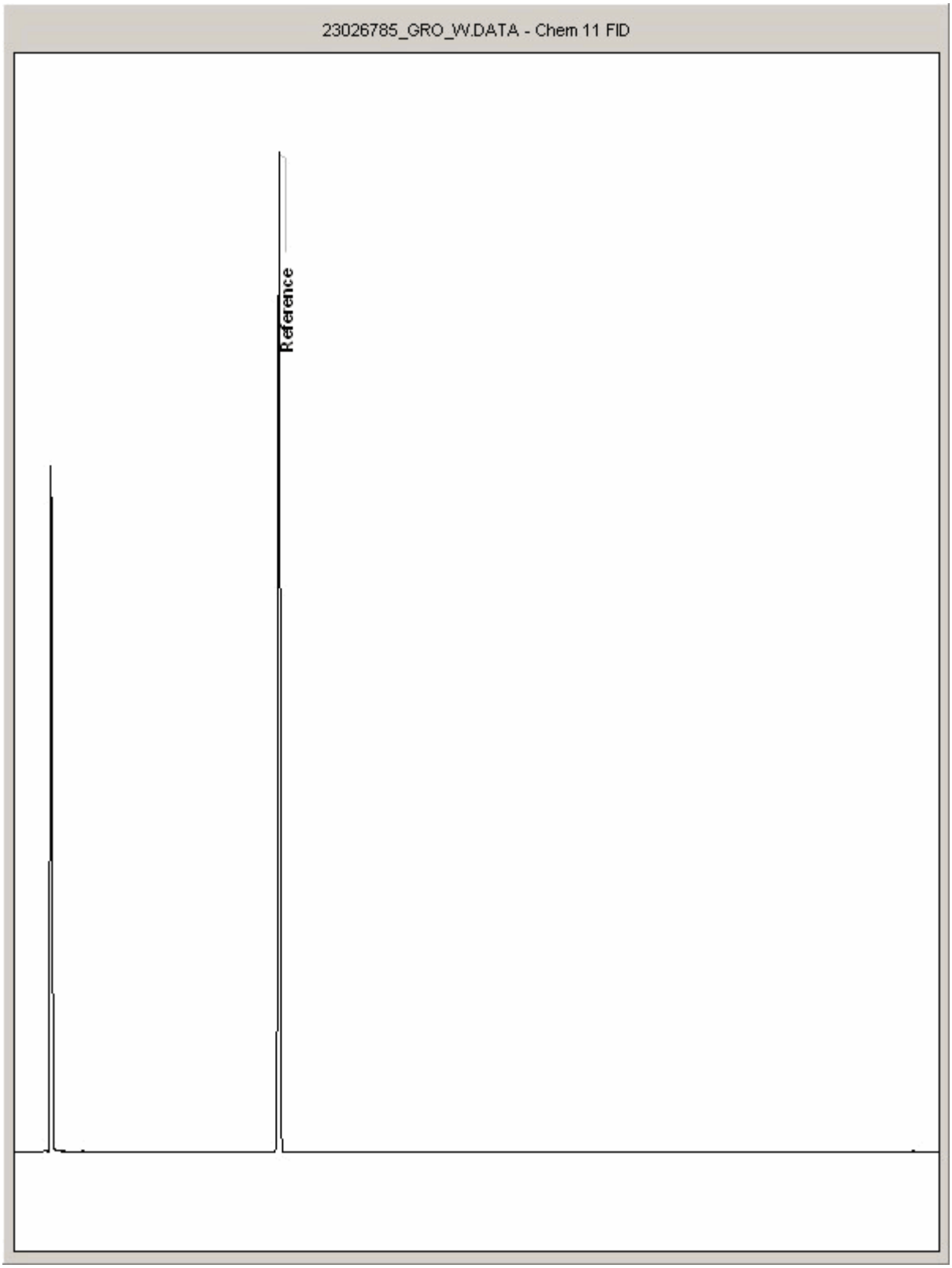
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23026785
Sample ID : BH3/4

Depth :



CERTIFICATE OF ANALYSIS

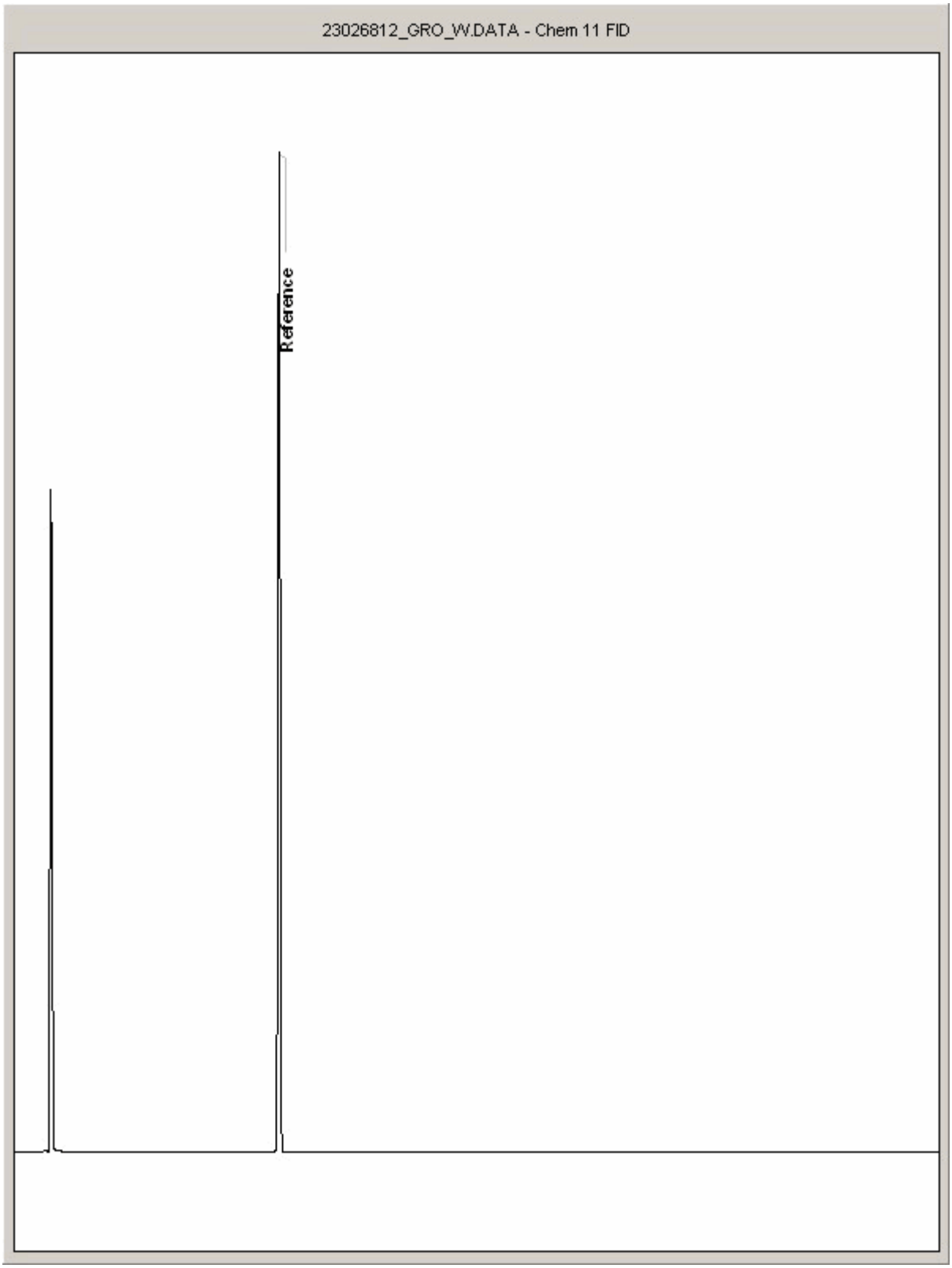
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23026812
Sample ID : BH3/5

Depth :



CERTIFICATE OF ANALYSIS

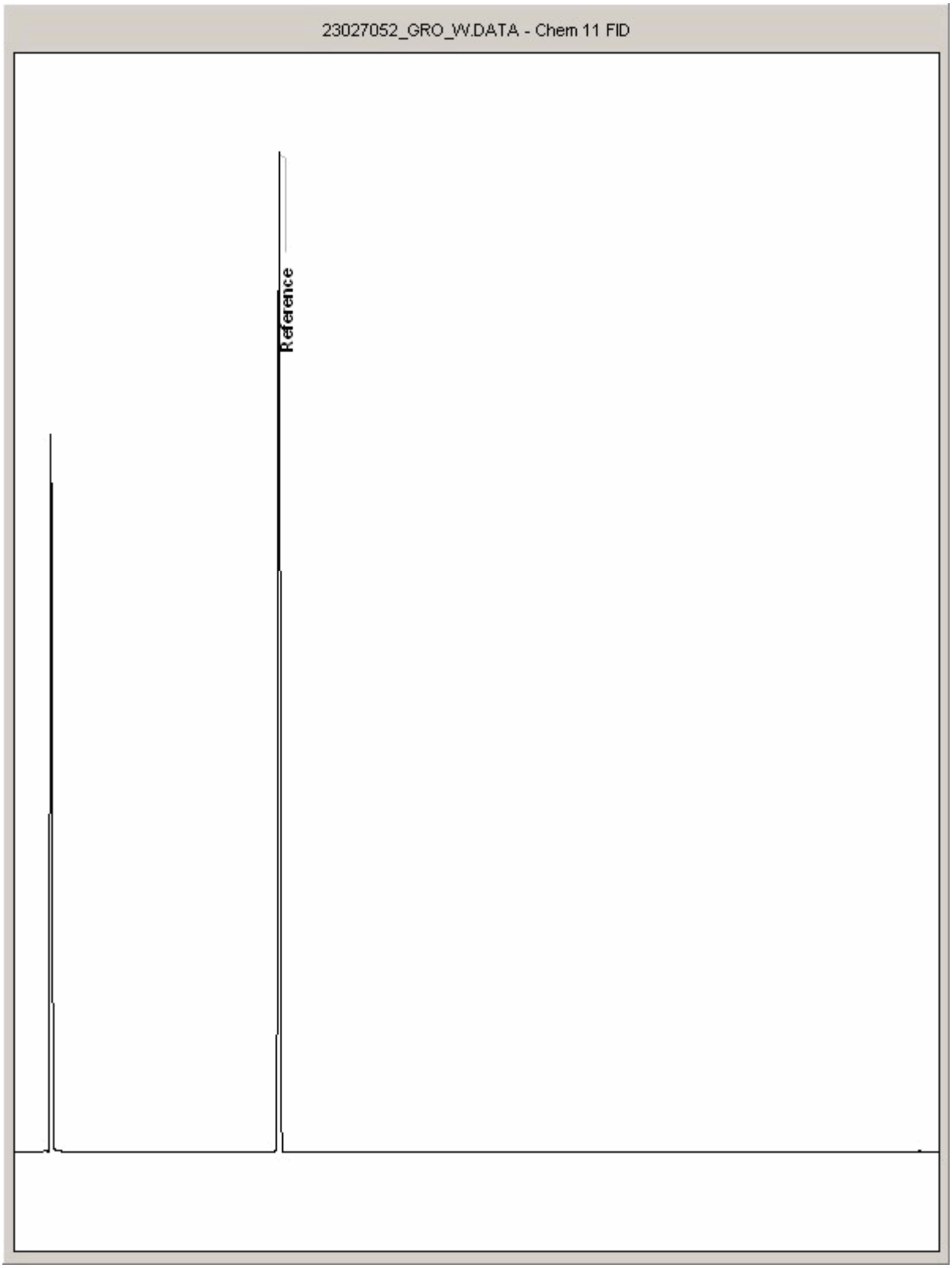
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23027052
Sample ID : NACW219

Depth :



CERTIFICATE OF ANALYSIS

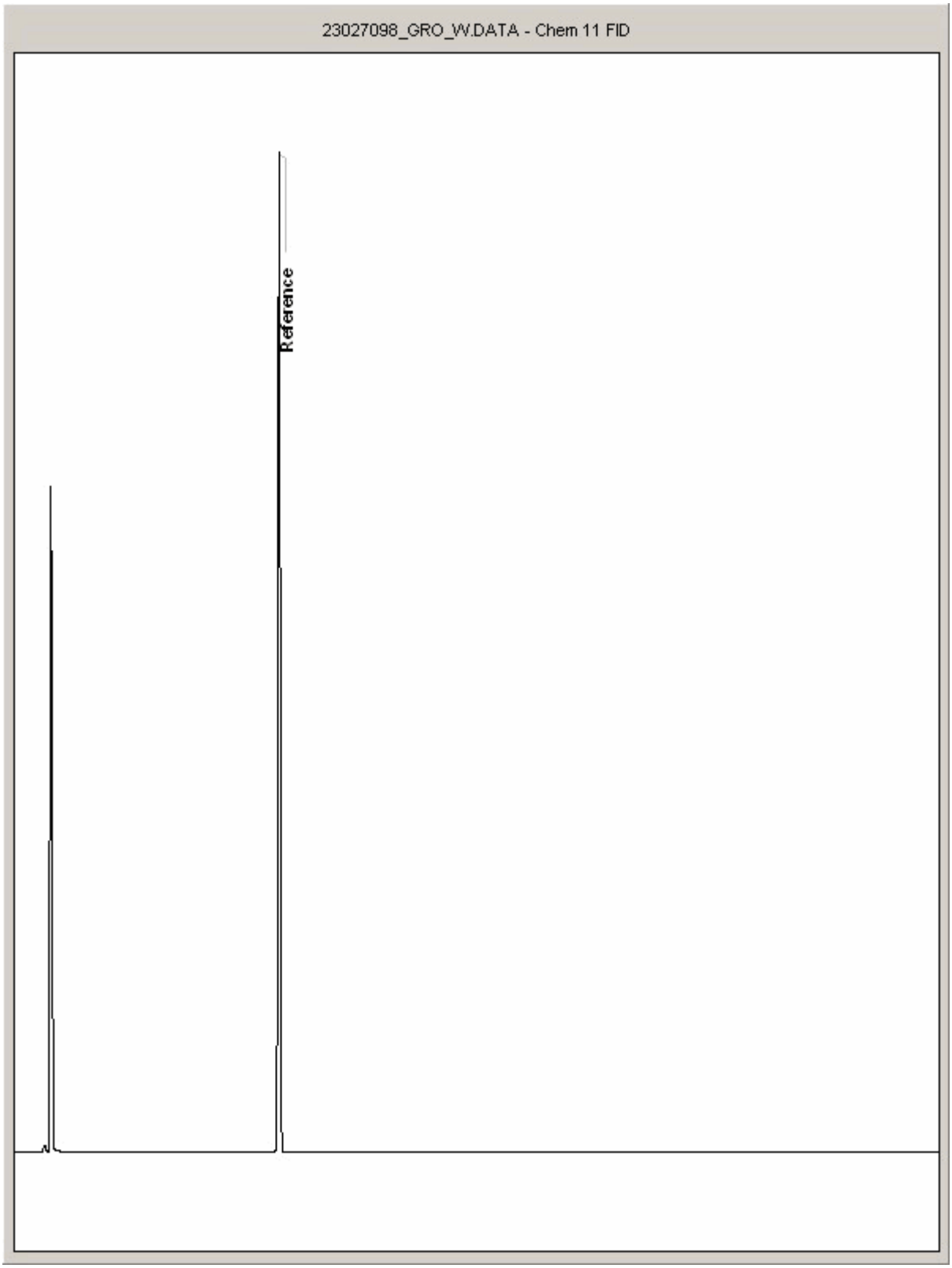
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23027098
Sample ID : NACW229

Depth :



CERTIFICATE OF ANALYSIS

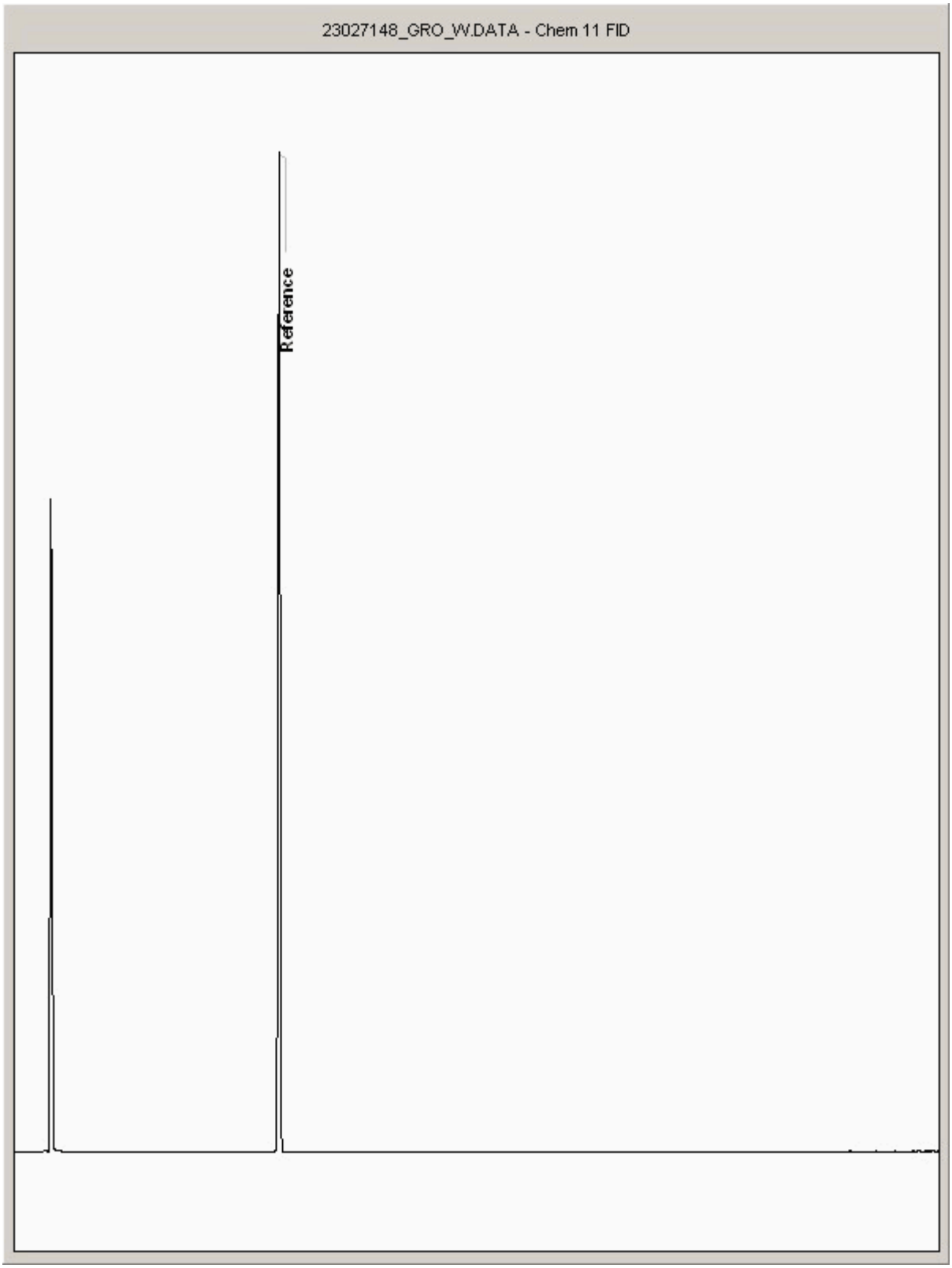
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23027148
Sample ID : BH3/8

Depth :



CERTIFICATE OF ANALYSIS

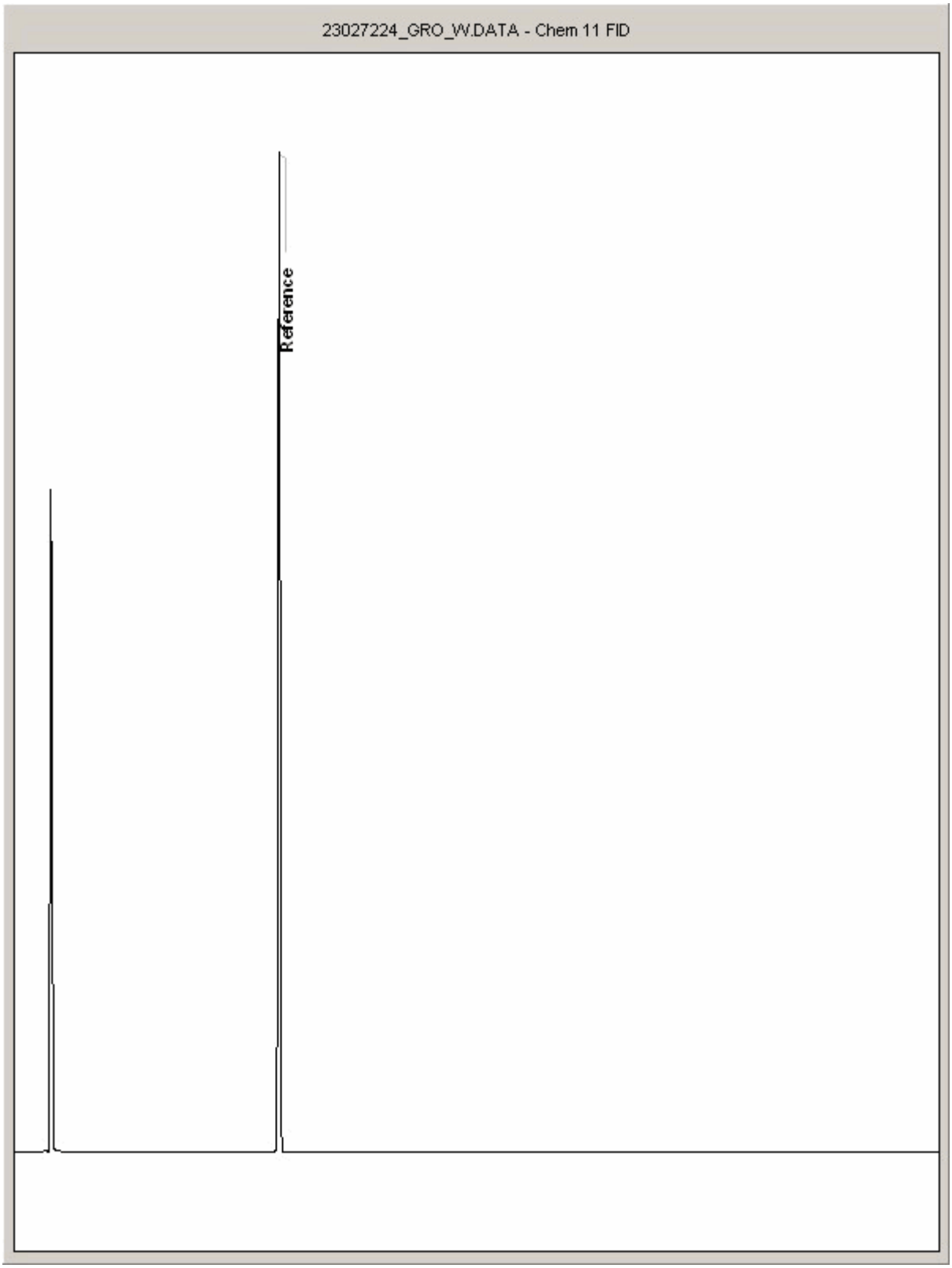
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23027224
Sample ID : NACW212

Depth :



CERTIFICATE OF ANALYSIS

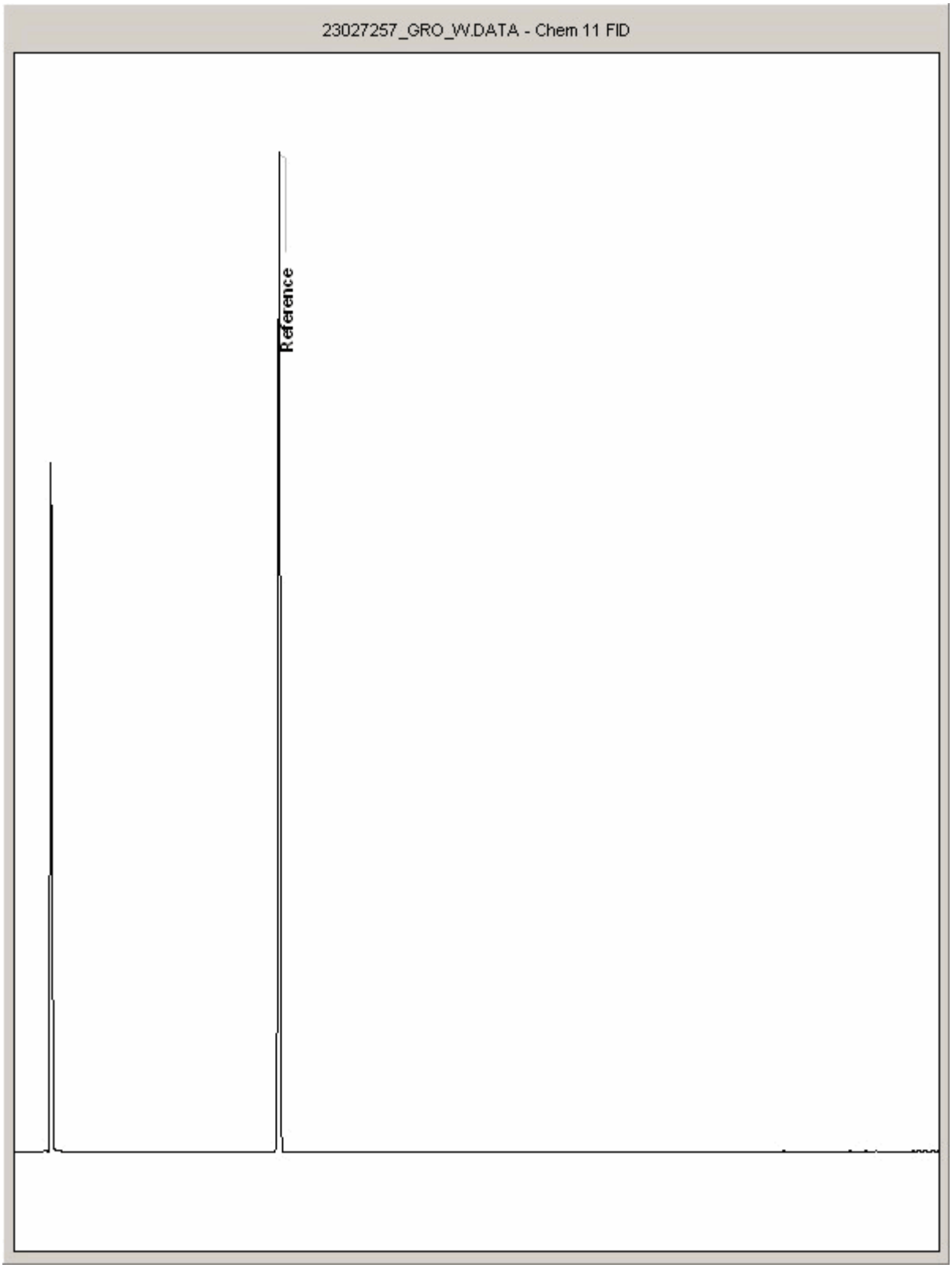
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23027257
Sample ID : NACW205

Depth :



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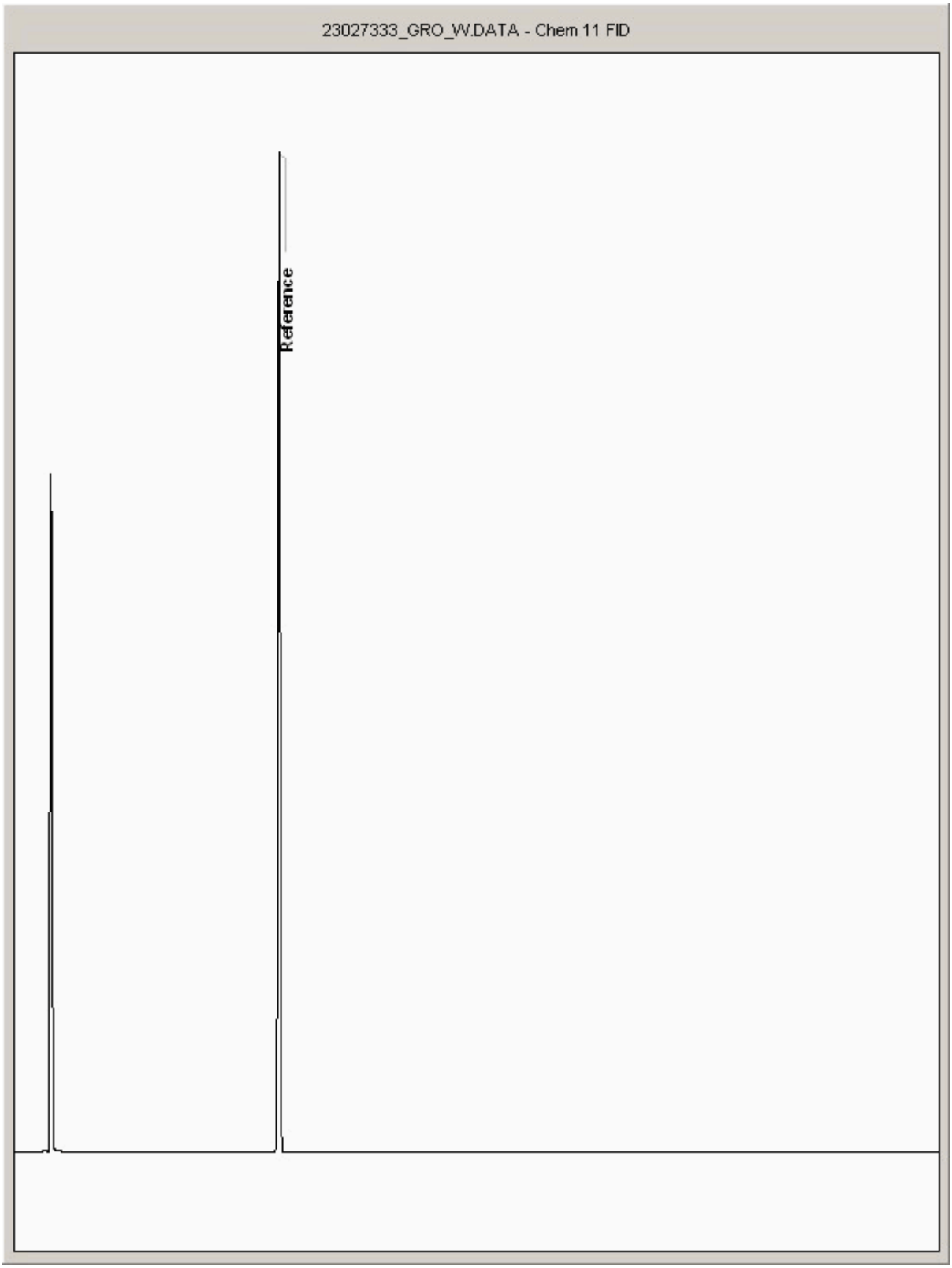
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23027333
Sample ID : NACW228

Depth :



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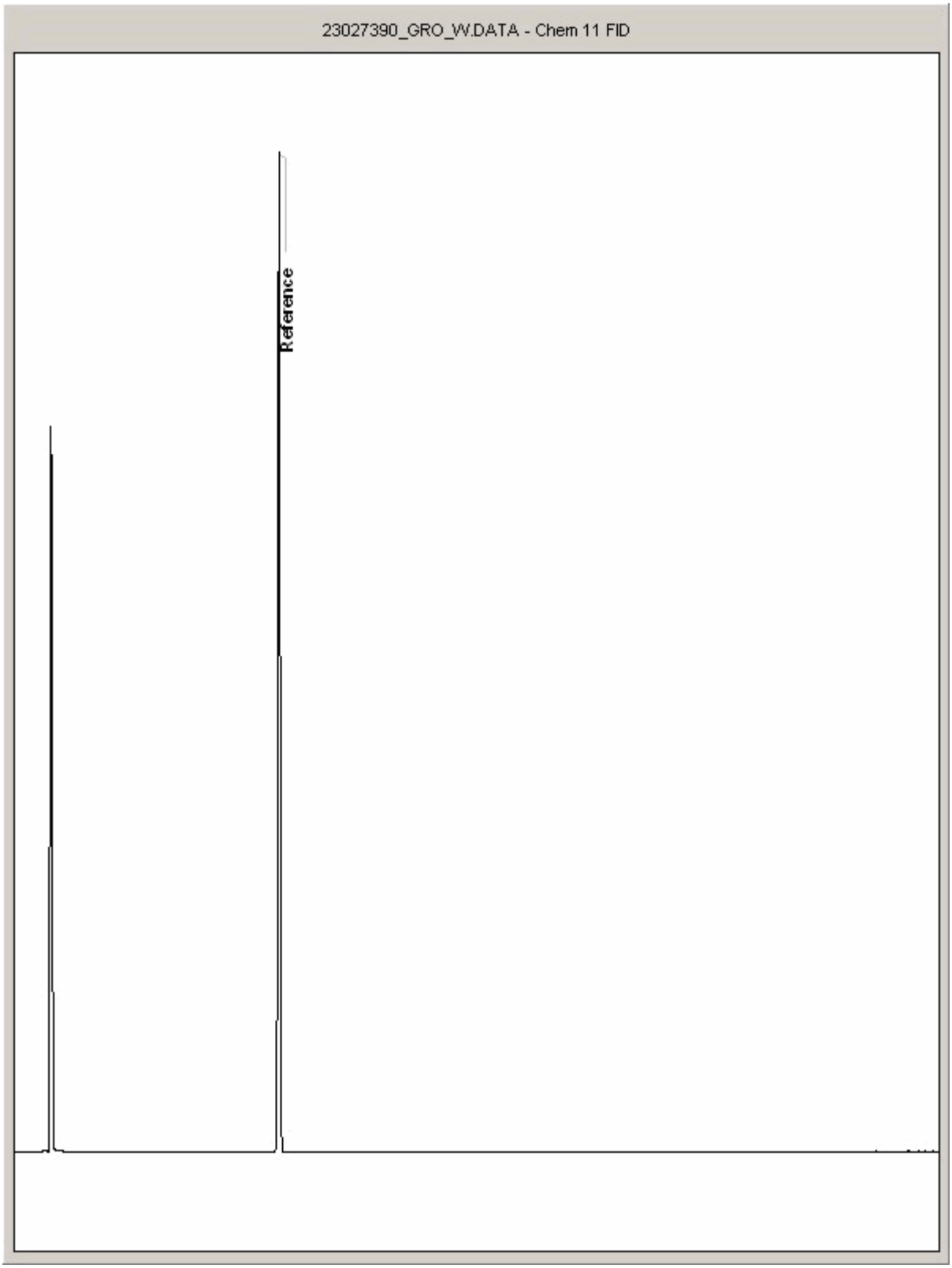
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23027390
Sample ID : NACW203

Depth :



CERTIFICATE OF ANALYSIS

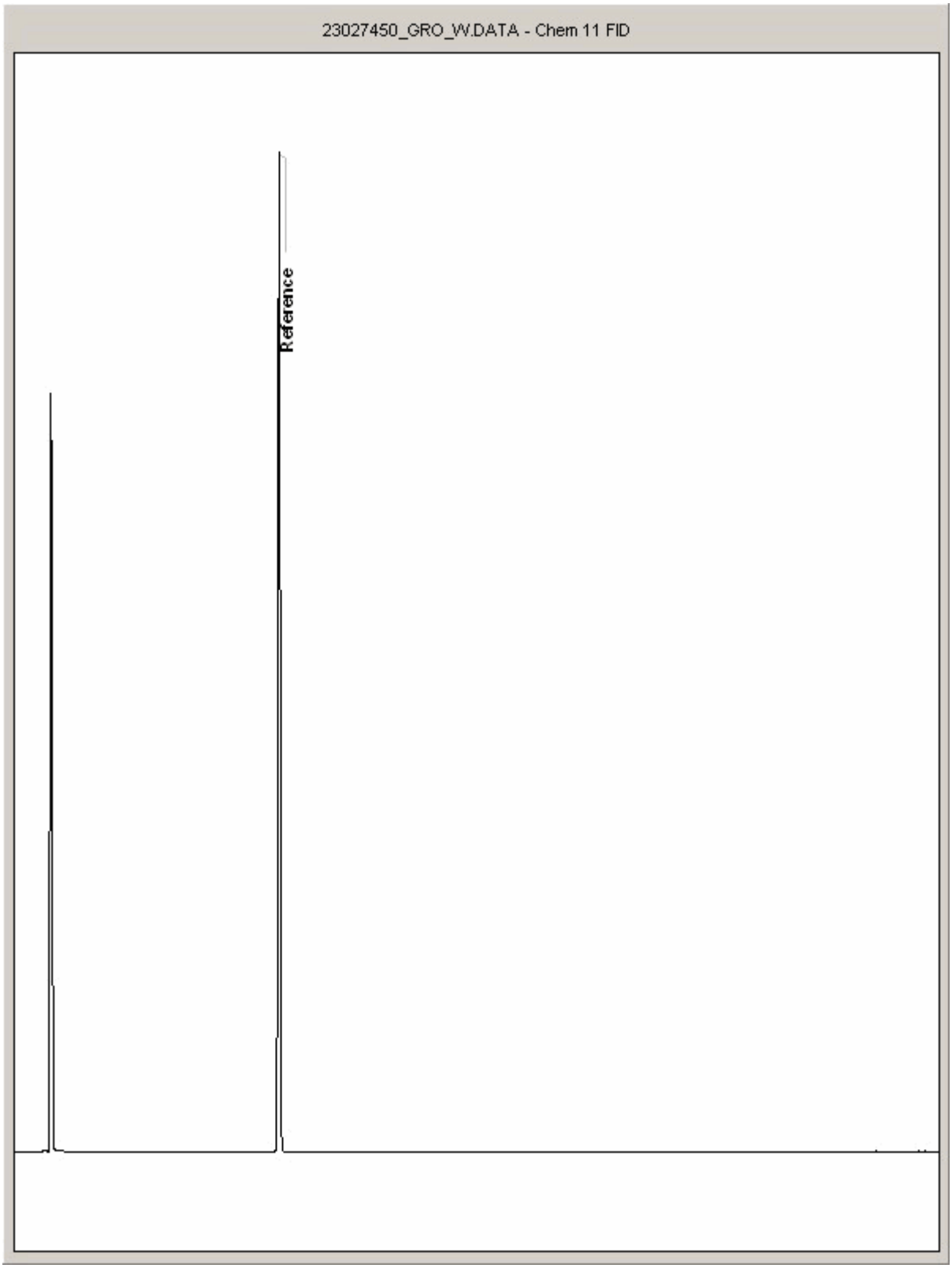
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23027450
Sample ID : BH3/6

Depth :



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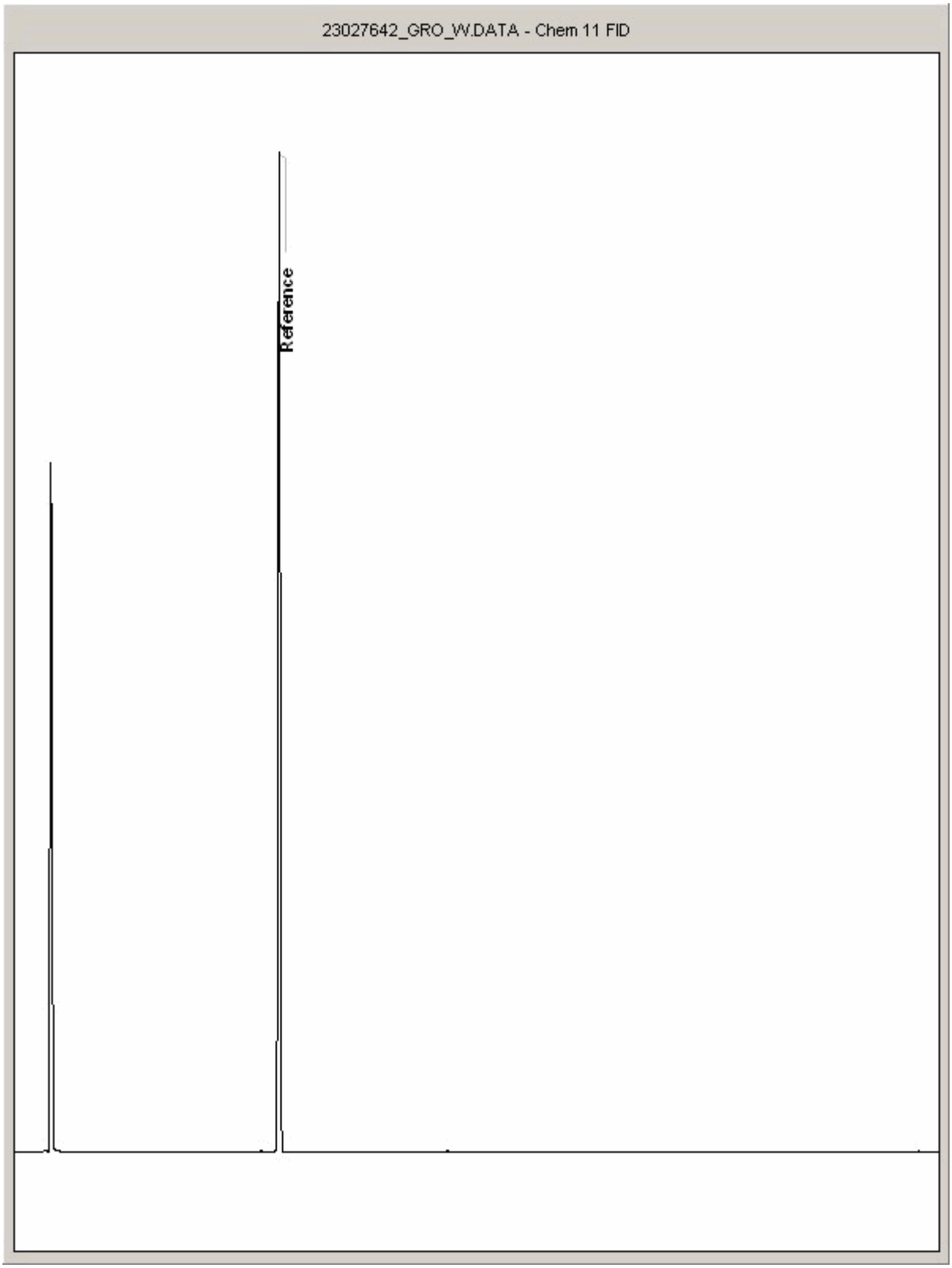
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23027642
Sample ID : BH3/9

Depth :



CERTIFICATE OF ANALYSIS

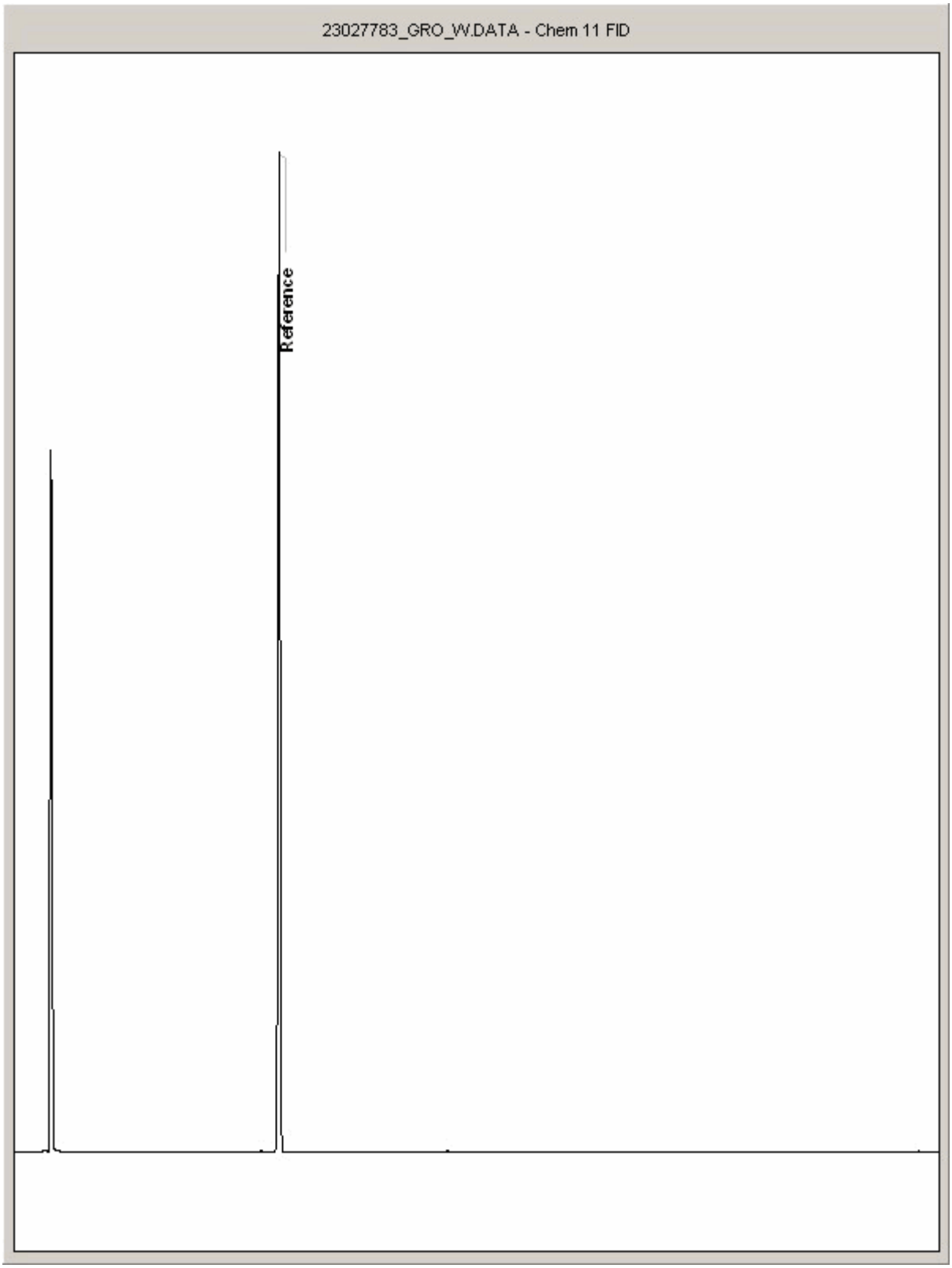
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23027783
Sample ID : BH5/02

Depth :



CERTIFICATE OF ANALYSIS

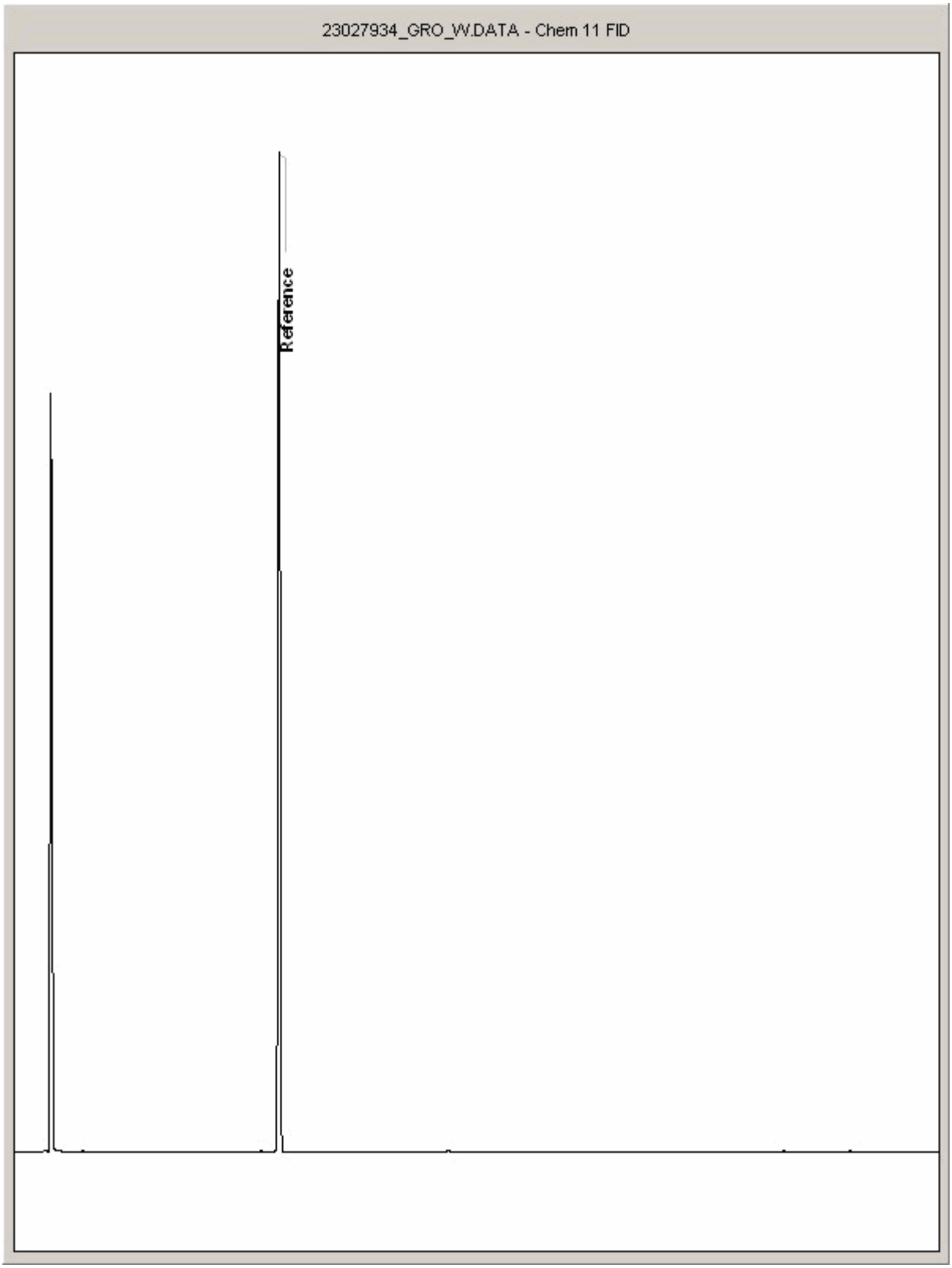
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23027934
Sample ID : BH208

Depth :



CERTIFICATE OF ANALYSIS

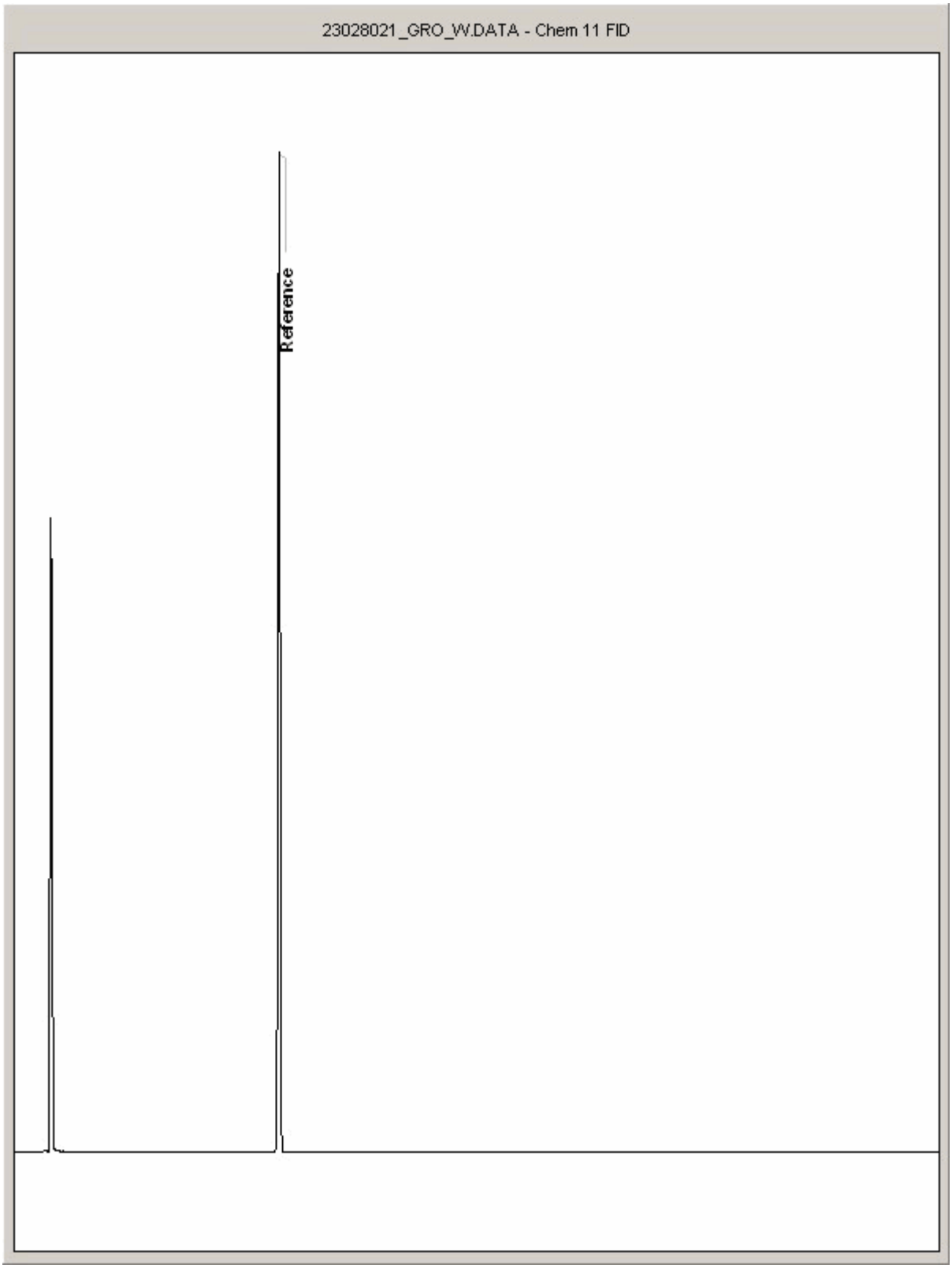
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23028021
Sample ID : BH3/3

Depth :



CERTIFICATE OF ANALYSIS

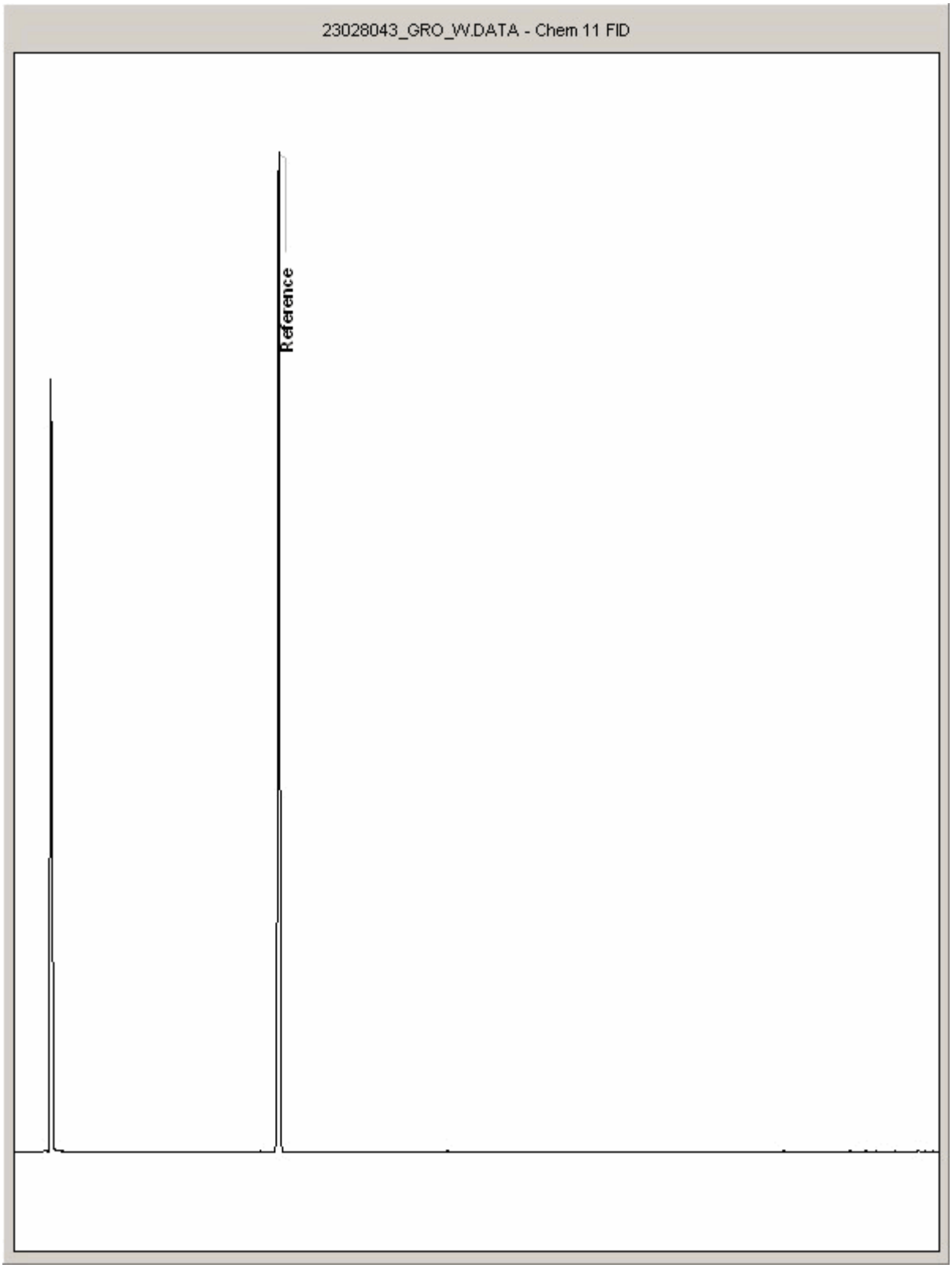
SDG:	201008-85	**Client Reference:**		**Report Number:**	572091
Location:	Nantycaws Landfill	**Order Number:**	POR000363	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23028043
Sample ID : BH3/2

Depth :



Appendix General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

19. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2017).*

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Appendix D

LIMITATIONS

CONFIDENTIAL

REPORT LIMITATIONS - GROUND RISK AND REMEDIATION

GENERAL

1. WSP UK Limited has prepared this report solely for the use of the Client and those parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed and outlined in the body of the report.

2. Unless explicitly agreed otherwise, in writing, this report has been prepared under WSP UK Limited standard Terms and Conditions as included within our proposal to the Client.

3. Project specific appointment documents may be agreed at our discretion and a charge may be levied for both the time to review and finalise appointments documents and also for associated changes to the appointment terms. WSP UK Limited reserves the right to amend the fee should any changes to the appointment terms create an increase risk to WSP UK Limited.

4. The report needs to be considered in the light of the WSP UK Limited proposal and associated limitations of scope. The report needs to be read in full and isolated sections cannot be used without full reference to other elements of the report and any previous works referenced within the report.

PHASE 1 GEO ENVIRONMENTAL AND PRELIMINARY RISK ASSESSMENTS

Coverage: *This section covers reports with the following titles or combination of titles: phase 1; desk top study; geo environmental assessment; development appraisal; preliminary environmental risk assessment; constraints report; due diligence report; geotechnical development review; environmental statement; environmental chapter; project scope summary report (PSSR), program environmental impact report (PEIR), geotechnical development risk register; and, baseline environmental assessment.*

5. The works undertaken to prepare this report comprised a study of available and easily documented information from a variety of sources (including the Client), together with (where appropriate) a brief walk over inspection of the Site and correspondence with relevant authorities and other interested parties. Due to the short timescales associated with these projects responses may not have been received from all parties. WSP UK Limited cannot be held responsible for any disclosures that are provided post production of our report and will not automatically update our report.

6. The opinions given in this report have been dictated by the finite data on which they are based and are relevant only for the purpose for which the report was commissioned. The information reviewed should not be considered exhaustive and has been accepted in good faith as providing true and representative data pertaining to site conditions. Should additional information become available which may affect the opinions expressed in this report, WSP UK Limited reserves the right to review such information and, if warranted, to modify the opinions accordingly.

7. It should be noted that any risks identified in this report are perceived risks based on the information reviewed. Actual risks can only be assessed following intrusive investigations of the site.

8. WSP UK Limited does not warrant work / data undertaken / provided by others.

REPORT LIMITATIONS - GROUND RISK AND REMEDIATION

INTRUSIVE INVESTIGATION REPORTS

Coverage: *The following report titles (or combination) may cover this category of work: geo environmental site investigation; geotechnical assessment; GIR (Ground Investigation reports); preliminary environmental and geotechnical risk assessment; and, geotechnical risk register.*

9. The investigation has been undertaken to provide information concerning either:

- **i.** The type and degree of contamination present at the site in order to allow a generic quantitative risk assessment to be undertaken; or
- **ii.** Information on the soil properties present at the site to allow for geotechnical development constraints to be considered.

10. The scope of the investigation was selected on the basis of the specific development and land use scenario proposed by the Client and may be inappropriate to another form of development or scheme. If the development layout was not known at the time of the investigation the report findings may need revisiting once the development layout is confirmed.

11. For contamination purposes, the objectives of the investigation are limited to establishing the risks associated with potential contamination sources with the potential to cause harm to human health, building materials, the environment (including adjacent land), or controlled waters.

12. For geotechnical investigations the purpose is to broadly consider potential development constraints associated with the physical property of the soils underlying the site within the context of the proposed future or continued use of the site, as stated within the report.

13. The amount of exploratory work, soil property testing and chemical testing undertaken has necessarily been restricted by various factors which may include accessibility, the presence of services; existing buildings; current site usage or short timescales. The exploratory holes completed assess only a small percentage of the area in relation to the overall size of the Site, and as such can only provide a general indication of conditions.

14. The number of sampling points and the methods of sampling and testing do not preclude the possible existence of contamination where concentrations may be significantly higher than those actually encountered or ground conditions that vary from those identified. In addition, there may be exceptional ground conditions elsewhere on the site which have not been disclosed by this investigation and which have therefore not been taken into account in this report.

15. The inspection, testing and monitoring records relate specifically to the investigation points and the timeframe that the works were undertaken. They will also be limited by the techniques employed. As part of this assessment, WSP UK Limited has used reasonable skill and care to extrapolate conditions between these points based upon assumptions to develop our interpretation and conclusions. The assumption made in forming our conclusions is that the ground and groundwater conditions (both chemically and physically) are the same as have been encountered during the works undertaken at the specific points of investigation. Conditions can change between investigation points and these interpretations should be considered indicative.

16. The risk assessment and opinions provided are based on currently available guidance relating to acceptable contamination concentrations; no liability can be accepted for the retrospective effects of any future changes or amendments to these values. Specific assumptions associated

with the WSP UK Limited risk assessment process have been outlined within the body or associated appendix of the report.

17. Additional investigations may be required in order to satisfy relevant planning conditions or to resolve any engineering and environmental issues.

18. Where soil contamination concentrations recorded as part of this investigation are used for commentary on potential waste classification of soils for disposal purposes, these should be classed as indicative only. Due consideration should be given to the variability of contaminant concentrations taken from targeted samples versus bulk excavated soils and the potential variability of contaminant concentrations between sampling locations. Where major waste disposal operations are considered, targeted waste classification investigations should be designed.

19. The results of the asbestos testing are factually reported and interpretation given as to how this relates to the previous use of the site, the types of ground encountered and site conceptualisation. This does not however constitute a formal asbestos assessment. These results should be treated cautiously and should not be relied upon to provide detailed and representative information on the delineation, type and extent of bulk ACMs and / or trace loose asbestos fibres within the soil matrix at the site.

20. If costs have been included in relation to additional site works, and / or site remediation works these must be considered as indicative only and must be confirmed by a qualified quantity surveyor.

EUROCODE 7: GEOTECHNICAL DESIGN

21. On 1st April 2010, BS EN 1997-1:2004 (Eurocode 7: Geotechnical Design – Part 1) became the mandatory baseline standard for geotechnical ground investigations.

22. In terms of geotechnical design for foundations, slopes, retaining walls and earthworks, EC7 sets guidance on design procedures including specific guidance on the numbers and spacings of boreholes for geotechnical design, there are limits to methods of ground investigation and the quality of data obtained and there are also prescriptive methods of assessing soil strengths and methods of design. Unless otherwise explicitly stated, the work has not been undertaken in accordance with EC7. A standard geotechnical interpretative report will not meet the requirements of the Geotechnical Design Report (GDR) under Eurocode 7. The GDR can only be prepared following confirmation of all structural loads and serviceability requirements. The report is likely to represent a Ground Investigation Report (GIR) under the Eurocode 7 guidance.

DETAILED QUANTITATIVE RISK ASSESSMENTS AND REMEDIAL STRATEGY REPORTS

23. These reports build upon previous report versions and associated notes. The scope of the investigation, further testing and monitoring and associated risk assessments were selected on the basis of the specific development and land use scenario proposed by the Client and may not be appropriate to another form of development or scheme layout. The risk assessment and opinions provided are based on currently available approaches in the generation of Site Specific Assessment Criteria relating to contamination concentrations and are not considered to represent a risk in a specific land use scenario to a specific receptor. No liability can be accepted for the retrospective effects of any future changes or amendments to these values, associated models or associated guidance.

REPORT LIMITATIONS - GROUND RISK AND REMEDIATION

24. The outputs of the Detailed Quantitative Risk Assessments are based upon WSP UK Limited manipulation of standard risk assessment models. These are our interpretation of the risk assessment criteria.

25. Prior to adoption on site they will need discussing and agreeing with the Regulatory Authorities prior to adoption on site. The regulatory discussion and engagement process may result in an alternative interpretation being determined and agreed. The process and timescales associated with the Regulatory Authority engagement are not within the control of WSP UK Limited. All costs and programmes presented as a result of this process should be validated by a quantity surveyor and should be presumed to be indicative.

GEOTECHNICAL DESIGN REPORT (GDR)

26. The GDR can only be prepared following confirmation of all structural loads and serviceability requirements. All the relevant information needs to be provided to allow for a GDR to be produced.

MONITORING (INCLUDING REMEDIATION MONITORING REPORTS)

27. These reports are factual in nature and comprise monitoring, normally groundwater and ground gas and data provided by contractors as part of an earthworks or remedial works.

28. The data is presented and will be compared with assessment criteria.



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