Finmere Quarry Landfill Site

Permit Variation Application
EPR/FB3301CV

Leachate Management Plan

OPES MRF 2013 Ltd

Project number: 60537533

July 2020

Quality information

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	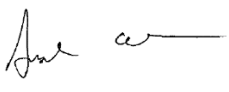		
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Revision History

Revision	Revision date	Details	Authorized	Name	Position
0	13/09/2018	Initial Draft	19/09/2018	Mike Nutting	Technical Director
1	27/09/2018	Initial Issued	28/09/2018	Mike Nutting	Technical Director
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4	22/07/2020	Update to support 2020 Variation Application	29/07/2020	Mike Nutting	Technical Director

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1. Introduction

1.1 Overview

AECOM has been commissioned by OPES MRF 2013 Limited ('the Operator') to prepare an application to vary the current environmental permit (EPR/FB3301FV) for the landfill site located at Finmere Quarry, Finmere, Buckinghamshire.

The landfill site is located approximately 450m to the southwest of the village of Finmere in Buckinghamshire. The landfill site currently comprises:

- the operational landfill areas;
- areas in which landfilling has been completed and where restoration work is underway;
- leachate storage tanks;
- landfill gas engines and flares within the landfill gas compound; and
- a waste reception area which includes a weighbridge, site offices and wheel wash.

This document details the Leachate Management Plan (LMP) and supports the Environmental Permit application. The report should be read in conjunction with other supporting application information.

1.2 Background

The landfill operations are regulated under Environmental Permit EPR/FB3301CV and are subject to regulation by the Environment Agency (EA). Following recent site visits and reviews of information by the EA, it has been noted that:

- Several approved management plans have been updated by the current operator;
- New monitoring locations have been proposed for groundwater monitoring to replace previously lost boreholes. A new naming nomenclature was also proposed;
- Amendments to surface water management have been introduced as the site has been developed;
- Changes have been introduced to the gas management system including an additional flare; and
- Leachate storage tanks have been replaced and relocated.

Additionally, the Operator is applying to construct additional landfill cells (both non-hazardous and inert).

As result of the above changes, the Operator needs to make an application to vary the current environmental permit and as such this document updates and supersedes completely the previously submitted LMP document (ref: 60537533-ACM-ZZ-RP-EN-LMP-R03 Dated February 2019).

1.3 Design Principles

The landfill will be developed on the principle of containment and as such minimisation of leachate generation and control of leachate heads are integral elements of management measures that have been incorporated into the leachate management system.

The potential future volumes of leachate to be generated at Finmere landfill are estimated using standard water balance methods and the results are presented in Appendix B.

Trigger levels, on a per-cell basis, have been agreed, as per table 1.1 below:

Table 1-1: Compliance Limits for Leachate Levels

Cell	Well Ref	Compliance Limit (mAOD)
1	LW1 & LW1A	114.0
2	LW2 & LMP2A	116.8
3	LW3 & LW3A	114.7
4	M4/22 & M4/24	118
5	LMP5A & LMP5B	116.8
6	LMP6A (GW68) / LMP6B (M1/63)	119.2
7N	LMP7N	116.38
7A	LMP7A	117.49
7B (S)	LMP7A	117.06
8	LW8	117.1
9	LW9A & LW9B	117.6
10A	LMP10A	118.42
10B	LMP10B	118.42
11A	LMP11A1 & LMP11A2	122.02
11B	LMP11B	Yet to be confirmed 'as built' and agreed with the EA

1.4 Basis of Engineered Leachate Management System

The installed engineered leachate management system for the site comprises:

- basal leachate gravel drainage system;
- leachate collection pipework;
- landfill lining system;
- leachate abstraction system, e.g. wells, pipework, pumps, etc.; and
- off-site disposal without prior treatment.

The construction of the relevant aspects of leachate management system will be / have been carried out to meet specified construction quality assurance conditions, under the supervision of a suitably qualified independent CQA Engineer.

1.5 System Inspection and Monitoring

The responsibility for system maintenance will lie with the Site Manager.

In general, maintenance management for the leachate management system includes:

- inspection of the drainage blanket and collection pipework during the placement of the initial layers of waste; this will ensure that any damage is identified and remedial action taken;
- inspection of collection sump to ensure that damage is identified and remedial action taken;
- at intervals recommended by the manufacturer, undertake cleaning, inspection, maintenance and repair of abstraction pumps;
- inspection of leachate collection pipework for evidence of damage and leaks; and
- inspection, maintenance and repair of the leachate infrastructure in line with intervals recommended by the manufacturer in relation to cleaning, inspection, maintenance and repair.

Maintenance of the relevant items of leachate management plant will be undertaken in line with the specified maintenance procedures and details of work undertaken will be recorded designated forms.

1.6 Scope of Leachate Management Plan

This leachate management plan has been prepared to only address the management of potential leachate emissions from the landfill operations in order to minimise the risk of pollution. Separate

management plans have been prepared and previously submitted for other potential pollutants and including dust, landfill gas, groundwater and surface water.

The LMP will specifically consider

- Section 2 – the leachate management system
- Section 3 – control strategy; and
- Section 4 – monitoring and sampling.

2. Engineered Leachate Management System

2.1 Leachate Generation

Leachate will be generated as a result of the degradation of waste, rainfall infiltration and the ingress of groundwater into the landfill when groundwater levels are above the leachate levels. The quality of leachate is determined primarily by the composition and solubility of the waste constituents. Leachate occurs when soluble components are dissolved (or leached) out of a solid material by percolating water. Leachate may also carry insoluble liquids (such as oils) and small particles in the form of suspended solids.

The leachate management system has been / will continue to be installed at the Site in order to:

- control leachate generation within the landfill;
- prevent the contamination of ground and surface waters by leachate migration;
- achieve and maintain the level of leachate within the landfill below the specified maximum levels in compliance with the EPR Permit; and
- achieve a stable biomass as early as possible.

2.2 Infrastructure and Engineering

2.2.1 Leachate Drainage System

The excavated landfill void has been / will in the future be profiled to provide a steady cross fall with a gradient of 1v:50h towards each cell's leachate collection point; see individual cell construction specifications, designs and CQA plans / validation reports.

The leachate drainage system comprises / will comprise a granular drainage blanket with a spine drain falling along the centre line of the cell to the extraction sump and leachate tower; see individual cell construction specifications, designs and CQA plans / validation reports, as provided to, and accepted by the EA, on a cell-by-cell basis.

The leachate drainage blanket comprises / will comprise a 100mm thick layer of 10/20mm gravel followed by a 200mm thick layer of 20/40mm and be installed over the base of the cell and to a 2m vertical height up the perimeter side slopes.

2.2.2 Leachate Collection Pipework

Perforated leachate carrier pipes have been / will be placed within the granular leachate drainage blanket to allow the free drainage of leachate to the extraction point, laid on the 100mm of 'pipe bedding' (the initial 10/20mm layer). The perforated pipework is / will be 160mm internal diameter PE80, not less than SDR 11, and manufactured to DIN 8074.

All pipework is / will be covered by a minimum of 200mm of imported granular material.

2.2.3 Existing Leachate Infrastructure

The following leachate abstraction wells and/or monitoring wells have been, or are intended to be, installed at the site, see Drawing 60537533_LMP_001 in Appendix A.

Table 2-1: Leachate Wells

Well Reference	Cell Base (mAOD)	Depth of slotted casing from base (m)	Abstraction (E) or Monitoring (M)
LW1	113.02	Unknown	E & M
LW1A	113.02	10.30	E & M
LW2	112.42	Unknown	E & M

Well Reference	Cell Base (mAOD)	Depth of slotted casing from base (m)	Abstraction (E) or Monitoring (M)
LMP2A	112.42	1.0	E & M
LW3	112.62	15.50	E
LW3A	112.62	12.90	E & M
LW3B	112.62	10.60	E & M
LW4	112.07	19.30	E
LW4A	112.07	12.00	E
Cell 4 (M4/22)	112.07	17.00	M
Cell 4 (M4/24)	112.07	14.00	M
LS5	N/A	N/A	(E)
LW5	113.22	Unknown	E
LMP5A	113.22	1.0	E & M
LMP5B	113.22	12.0	E & M
LW6	113.26	14.6	E
LMP6A (GW/68)	113.26	11.50	M
LMP6B (M1/63)	113.26	14.50	M
LMP7N	113.77	3.0	E & M
LMP7A (N)	111.86	3.0	E & M
LMP7B	113	3.0	E & M
LW8	115.62	8.70	E & M
LW9A	115.48	10.70	E & M
LW9B	115.38	14.50	E & M
Cell 10A	116.04	2	E & M
Cell 10B	115.65	2	E & M
Cell 11A	116.80	2	E & M
Cell 11B	TBC	TBC	TBC

2.2.4 Additional Leachate Infrastructure

In addition to the wells, the site's abstraction system comprises pumps, pipework, 2 * 55,000 litre capacity holding tanks (sited in a location provided with a concrete base and with 110% bund capacity), and necessary electricity and compressed air supplies.

2.2.5 Construction Quality Assurance

The CQA Plans and Reports for the leachate abstraction wells and leachate monitoring wells have been submitted separately to this review of the LMP. The plans include;

- CQA for the Installation of Leachate Abstraction/Monitoring Wells in Cells ** – November 2012;
- CQA for the Installation of Gas Wells/ Leachate Monitoring Wells in Cells ** – February 2013;
- CQA for the Installation of Leachate Abstraction/Monitoring Wells in Cells ** – February 2013;
- CQA for the Installation of Leachate Abstraction/Monitoring Wells in Cell 7N – April 2016;
- CQA for the Installation of Leachate Abstraction/Monitoring Wells in Cell 7B – November 2017;

Any future construction of leachate wells (towers) or any retro-drilling of leachate wells will be done so in accordance with a CQA plan to be submitted to the EA for approval prior to the commencement of such drilling. Following installation of the new wells a CQA report will be supplied to the EA for review.

2.3 Landfill Lining System

The lining system installed at Finmere complies with the minimum engineering standards as specified by the Landfill Regulations 2002; not less than 1m of engineered clay with a maximum hydraulic conductivity of $1x10^{-9}$ m/s across the base and sides, and an artificial sealing layer (geomembrane) across the base and sides.

The non-hazardous element of the Finmere landfill site has been designed on the principle of engineered containment, in order to contain and manage leachate and landfill gases produced by the degradation of the waste. Each cell is provided with a composite liner, comprising a combination of a 2mm thick HDPE FML underlain by a minimum of 2.0m of clay above the underlying limestone aquifer. The base of each cell contains a leachate collection system, comprising a 300mm thick gravel drainage blanket incorporating a system of leachate collection pipes, placed over the engineered base of each landfill cell. The basal leachate collection system facilitates drainage of leachate to the low point in each cell to allow its collection and abstraction.

2.4 Leachate Extraction

Leachate extraction will be facilitated via collection of leachate in the sump located at the lowest point in the cell, and subsequent extraction through the leachate tower using submersible automatic pumps to ensure continual abstraction.

Sumps have been / will be constructed and maintained to allow the depth of leachate to be monitored and the level of the base in the cell will be determined relative to Ordnance Datum to facilitate such monitoring.

The Leachate Management System (LMS) comprises leachate abstraction wells and leachate monitoring wells (detailed in Table 1 above and within the submitted CQA reports), a network of pipes (supplying compressed air to each well and returning extracted leachate) and a series of holding tanks, which have a current capacity of approximately 100,000 litres. Each tank sits within a 110% containment bund.

The leachate is abstracted from the waste by pneumatic pumps, an example of which is the GeoPUMP GP2B (or similar) which is a bottom filling pneumatic pump which can lift leachate to a height of 60m at a maximum rate of 7.6l/min, which is equivalent to approximately $10.9m^3$ in 24 hours.

The rate at which it will be possible to abstract leachate from the wells will be a function of the rate at which the wells will recharge from the surrounding waste during operation of the pumps rather than just the capacity of the pumps; over specifying pumps will have no effect on optimising the rate of leachate pumping.

2.5 Leachate Treatment

No treatment of leachate abstracted at Finmere is undertaken on-site.

Leachate abstracted from completed / operational cells is pumped to a central holding facility, as above, from whence is it removed by 3-rd party tanker off-site for disposal at an appropriately authorised facility, see Drawing 60537533_LMP_001 in Appendix A.

3. Control Strategy

3.1 Operational Phasing

The non-hazardous element of the Finmere landfill site has been developed on a cellular basis, with each cell being provided with the infrastructure necessary to enable the abstraction of leachate during the operational, post-operational and post capping / restoration phases.

Cell separation bunds have been / will be formed to contain the landfill operation and this will prevent the movement of leachate during filling of each cell into non-engineered / non-operational areas. All water on the waste side of any cell bunds will be treated as leachate.

3.2 Intermediate Cover

The surface of the landfill operational area will be covered progressively with selected materials to ensure that, as a minimum, by the end of the working day waste materials on the surface, face and flanks are suitably covered.

In selecting the intermediate cover materials, the use of clay and low permeability silts will, where possible be avoided in order to reduce the likelihood of the development of perched leachate within the waste mass.

3.3 Minimisation of Leachate Generation

Engineered containment arrangements for the landfill are aimed at:

- containing leachate generated within the site through an appropriately designed and engineered leachate collection and removal system;
- preventing ingress of groundwater;
- preventing ingress of surface water by using appropriate designs for restoration contours and CQA engineering specifications to ensure efficient drainage of surface water run-off from the site;
- use of appropriate engineering materials and maintenance
- the capping of landfill phases in accordance with the CQA specification at the earliest opportunity.

3.4 Leachate Abstraction and Compliance

The landfill has been designed such that any leachate generated can be controlled by abstraction and maximum cell-by-cell permitted leachate heads are as presented in Section 1.3.

It is intended that compliance with limits as detailed in Section 1.3 of this LMP will be achieved within 18 months - by the 1st January

2022. This timescale has been based on the assumptions below, and practical limitations of the leachate system as detailed in this document.

The compliance date will be reviewed on a 6 monthly basis, and where a change is required this will be agreed with the EA. This will include any potential improvement in the date that compliance can be achieved.

3.4.1 Calculations

Various assumptions have been used in calculating the leachate volumes, abstraction rates etc.:

- Porosity – most recently calculated at 5.1%;
- Effective rainfall – 115.8mm per year, based on an average of local data for 2013 and site data for 2015/16;
- No further engineering works are completed i.e. no capping;

Volume calculations based on the leachate excess volume levels at end Mar 2020 it has been determined that:

a. Leachate volume currently over compliance limits is approximately 6,017.6m^3;
b. Effective rainfall infiltration volumes over the 22 month period from Mar 2020 is 18,109 m^3; and
c. Total leachate to be removed in the period 24,127 m^3.

To achieve this, an average of 1,059 m^3 per month or 3,176 m^3 per quarter would need to be removed from site. However given the constraints as detailed below this should be taken as a guide figure only.

3.4.2 Constraining Factors

In achieving compliance it must be noted that this is subject to the performance of the pneumatic pumps, the airlines and compressors functioning correctly and any other circumstances such as power outages and frozen pumps that may restrict abstraction at the calculated rate.

Achieving compliance may also be constrained by:

- The availability of disposal outlets to accept leachate, the current situation requires confirmation on a weekly basis as to the available capacity. Heavy rainfall generally restricts capacity at the disposal outlets for example.
- The recharge of leachate into the abstraction wells is also likely to impact abstraction rates. It is foreseen that as the leachate levels across the site are drawn down the recharge time of the leachate will decrease and therefore the anticipated abstraction rate will decrease, lengthening the time taken to achieve compliance.
- Engineering works while reducing ingress into the site limit the availability to extract from large areas of the site. As these works must go ahead site management will be responsible for minimising the areas and timescales involved by planning around the works wherever possible.
- Engineering works will affect porosity figures and therefore leachate levels, this will be discussed in the progress report submitted to the Agency.

3.4.2.1 Engineering Works

Due the necessity of engineering works and the impact on abstraction rates, the LMP will be reviewed at least 1 month prior to any such works. A temporary supplement to the existing plan will be issued and appended to the existing Plan detailing the following:

- Description of engineering works;
- Scheduled start and finish dates;
- Impact on the leachate infrastructure; general areas involved, sequence of works/impacts and how this will be mitigated;
- How any part-cell, e.g. 7A, 10A / 10B, etc., (or other lowest point of containment) will be protected so as to prevent leachate escaping containment; and
- Revised abstraction targets for the duration of the works.

The EA will be advised of the actual start and finish dates of such works, at which point the supplement will come into effect and subsequently be disregarded. The EA shall also be advised if there are any unforeseen circumstances or changes to the information detailed in the supplement.

3.5 Leachate Storage

Leachate abstracted from completed / operational cells is pumped to a central holding facility, as above, from whence is it removed by 3-rd party tanker off-site for disposal at an appropriately authorised facility, see Drawing 60537533_LMP_001 in Appendix A.

3.6 Leachate Treatment

No treatment of leachate abstracted at Finmere is undertaken on-site.

Leachate abstracted from completed / operational cells is pumped to a central holding facility, as above, from whence is it removed by 3-rd party tanker off-site for disposal at an appropriately authorised facility, see Drawing 60537533_LMP_001 in Appendix A.

3.7 Leachate Discharge and Disposal

As referenced above, all leachate from the non-hazardous element of the Finmere landfill site is removed off-site for disposal at an appropriately authorised facility.

Monthly removal rates reflect the rate at which leachate is abstracted from the cells, but typically varies between less than 100m^3 (tonnes) and in excess of 1,000m^3 (tonnes), as per Appendix C.

A target removal rate in order to achieve compliance across the site is set at a minimum 3,176 m^3 per quarter, based on calculations set out in Appendix B, which enable compliance to be achieved in 22 months effective from 1st April 2020.

Leachate removal rates will be submitted along with the quarterly monitoring submission.

3.8 Leachate Management Review

Management of leachate will be maintained under review by site management to ensure that the leachate collection, treatment and disposal has sufficient capacity to handle the maximum predicted rate of leachate generation for the installation.

In the event that the review process identifies potential shortfalls in the provision of the leachate management arrangements for the site, appropriate remedial action will be taken. Action may include:

- installation of additional extraction wells
- increasing the capacity of the pumping facilities
- installation of leachate storage capacity.

The performance of the leachate management system will be reviewed on a 6 monthly basis and a report submitted to the EA that will include:

- Monthly leachate removal (m3),
- Review of current leachate levels,
- Information of any changes leachate infrastructure,
- A short summary of any changes to the original plan to achieve compliance by the deadline,
- An updated Leachate Management Action list, and
- Proposed target areas for leachate removal.

The performance of the leachate management system will be monitored and reviewed internally on a quarterly basis. The aim of the review is to establish that the abstraction at the rate calculated is resulting in the anticipated effect on the leachate levels. Where this is not the case a more detailed review of the leachate management system will be carried out to establish a reason why the leachate levels are not following the anticipated trend. The more detailed review will include:

- Details of why the targets have not been met
- What can be done to remain on target for the deadline

3.9 Maintenance

All equipment used and all parts of the leachate management and monitoring infrastructure will be inspected routinely. Following the completion of landfilling in any cell, the condition of the leachate abstraction and monitoring wells, together with leachate carrier pipe work and storage tanks, will be inspected at least weekly. Maintenance will be carried out as necessary. If maintenance works affect the level of the headworks, the headworks will be resurveyed upon the surveyor's next visit to site; monitoring will continue to allow subsequent calculation of historic levels once surveyed.

Wells that are damaged or blocked will be investigated to determine whether it is practicable to rehabilitate them, to facilitate continued leachate abstraction and/or monitoring. If it is determined that it is not practicable to rehabilitate any well, this will be discussed with the EA, and an agreed approach to establishing alternative provision(s) established and implemented.

4. Monitoring and Sampling

4.1 Monitoring Objectives

Leachate monitoring objectives can be summarised as:

a) a) Determine the level of leachate within the landfill cell in order to:

- Assess the effectiveness of the leachate management and extraction system;
- Assess compliance with specified design and regulatory maximum levels; and
- Provide data to assist with confirmation of design assumptions for future use.

b) Determine the quality of leachate and variation in space and time within the body of the landfill cell, in order to:

- Confirm the specific chemical characteristics;
- Provide information on contaminants for validation of the water monitoring plans;
- Provide information on the rate/extent of stabilisation in the waste body;
- Confirm design assumptions in relation to stabilisation/surrender are accurate; and
- Identify the quality of any leachate discharges.

c) Determine the level, flow and quality of leachate and the variation in time in relation to the leachate treatment processes, in order to:

- Evaluate leachate levels in relation to the overflow maximum;
- Determine the volume of leachate discharge; and
- Assess chemical characteristics of leachate discharge against the discharge consent.

4.2 Requirements

In line with the Groundwater Regulation (1998) requirements for requisite surveillance of leachate, monitoring will be undertaken at the site in order to:

- evaluate leachate levels and quality;
- confirm the appropriate leachate management measures;
- ensure that specified assessment criteria and compliance limits are not exceeded; and
- confirm when relevant completion criteria for the site are satisfied.

Leachate monitoring requirements are specified in EPR/FB3301CV see Schedule 3 / Tables S3.1 and S3.9.

Leachate level monitoring will facilitate early identification of trends in the leachate level and identify the need to implement and adjust leachate control measures. The effectiveness of the LMS in controlling leachate levels will be determined based on the results of this monitoring.

Leachate quality monitoring will be carried as required in EPR/FB3301CVsee Schedule 3 / Tables S3.1 and S3.9.

The results of the leachate level and quality monitoring will be reported to the EA as required in EPR/FB3301CV, Schedule 4.

4.3 Sampling Location Plan

The location of sampling points are as presented in Drawing 60537533_LMP_001 in Appendix A.

It has previously been determined that it is not possible to retro-drill monitoring wells in Cells 1, 3, 8 and 9 as discussed in Section 4.2 of the LMPv2, dated December 2012. It is not possible to drill wells to a depth which is 1m below the compliance limit and 1m above the level of the base of the cell at a location a reasonable distance from the abstraction wells. Therefore the leachate level will be monitored at the leachate abstraction wells. Where the pumped abstraction wells are used for leachate level monitoring, pumping will be suspended for a minimum of 24hrs prior to level monitoring.

In Cell 4 and Cell 6 gas abstraction wells are suitable for leachate monitoring purposes.

4.4 Leachate Level

Leachate elevations above the cell base will be monitored within all cells across the landfill.

Compliance levels have been set on a cell-by-cell basis, as presented in Section 1.3.

Leachate quality data is presented in Appendix D.

4.5 Leachate Quality

Leachate quality is monitored at the leachate monitoring points, as presented in Drawing 60537533_LMP_001 in accordance with the requirements presented in Section 4.2.

Leachate quality data is presented in Appendix E.

4.6 Monitoring Schedule

Leachate monitoring requirements are specified in EPR/FB3301CV see Schedule 3 / Tables S3.1 and S3.9.

4.7 Monitoring Protocol

4.7.1 Monitoring Personnel

Monitoring Personnel responsible for:

- implementation of the defined monitoring schedules for leachate and groundwater;
- inspection and maintenance of the environmental control measures for leachate and groundwater; and
- maintenance of appropriate records relating to environmental monitoring and environmental control inspection and maintenance.

Personnel will be trained in the relevant sampling and analytical techniques required to complete the defined monitoring. Training records will be maintained for all personnel.

In the event, that external parties are used to meet the defined the environmental schedules then an evaluation of competence in relation to sampling and analytical experience will be completed prior to monitoring taking place.

4.7.2 Pre-Monitoring Check

Prior to completion of the environmental monitoring for leachate and groundwater, the monitoring personnel will complete the following pre-monitoring checks:

- confirmation of the number of samples required and analytical requirements in line with any amendments to the defined monitoring schedule;
- confirmation of the size, type and number of sample bottles required including any fixative or preservative requirements, to ensure that sufficient samples are collected;
- inspection of equipment to ensure it is available, clean and in good working order. Only specified sampling and analytical equipment will be used for environmental monitoring at the site and. All such equipment will be maintained and calibrated; and
- confirmation that pumping from the extraction wells has ceased for at least 24 hours prior to dipping.

4.7.3 Monitoring Procedure

Monitoring is implemented in line with the requirements to be met in relation to leachate monitoring which are:

- use of an electronic dip tape or similar monitoring method will be used to determine the depth to the top of the leachate and the depth to the base of the extraction/monitoring point from the top of the cover;
- sampling will be achieved using a Teflon bailer, stainless steel sample cup or other suitable container. The equipment will be flushed between individual samples;
- sample bottles not containing preservative or fixative will be flushed out with the sample;
- sample bottles will be filled to the brim to exclude air, the top will be firmly secured and the bottle will be clearly labelled with the location code and date;

- sample bottles will be transferred immediately to cool boxes and taken to the laboratory at the earliest opportunity.

4.7.4 Onsite Records

Records will be maintained detailing:

- name of the individual undertaking the sampling;
- date of sampling and sampling location;
- sampling equipment and method;
- on-site weather conditions;
- observations relating to environmental conditions (e.g. leachate outbreaks, vegetation die-back, etc); and
- damage to leachate management infrastructure.

4.8 Assessment and Compliance Limits

Assessment and compliance levels form the basis for assessing monitoring data at landfill sites.

Compliance levels are the specific compliance levels, or regulatory standards to be met. They are defined as criteria at which potential, or risk of future, significant adverse environmental effects and/or breaches of legislation have occurred.

Assessment levels are the specific assessment criteria relating to specified leachate parameters and are used to determine whether a landfill is performing as designed. Assessment levels are treated primarily as an early warning system to enable appropriate investigative or corrective measures to be implemented, particularly where there is potential for a trigger level to be breached.

Compliance levels are as presented in Section 1.3, replicated below:

Table 4-1: Compliance Limits for Leachate Levels

Cell	Well Ref	Compliance Limit (mAOD)
1	LW1 & LW1A	114.0
2	LW2 & LMP2A	116.8
3	LW3 & LW3A	114.7
4	M4/22 & M4/24	118
5	LMP5A & LMP5B	116.8
6	LMP6A (GW68) / LMP6B (M1/63)	119.2
7N	LMP7N	116.38
7A	LMP7A	117.49
7B (S)	LMP7A	117.06
8	LW8	117.1
9	LW9A & LW9B	117.6
10A	LMP10A	118.42
10B	LMP10B	118.42
11A	LMP11A1 & LMP11A2	122.02
11B	LMP11B	Yet to be confirmed ‘as built’ and agreed with the EA

There are currently no limits set pertaining to leachate quality

4.9 Contingency Action Plan

All data obtained as a result of the defined monitoring schedule will be reviewed against the specified and the above compliance criteria. In the event that a breach of is noted at the site, actions will be taken to reduce leachate levels to the compliance level.

4.10 Data Management and Reporting

All data produced in relation to leachate management will be entered into the compliance database by the individual completing the monitoring.

The data retained within the database is subject to:

- internal validation checks to identify simple errors (e.g. missing data), logical errors (e.g. data outside valid ranges) and technical inconsistencies.
- external validation checks such as review against field notes, assessment against laboratory quality assurance checks, equipment calibration checks and historical trends.

All results are subject to an annual review by the Site Manager and Company Director. The output of this review will be to:

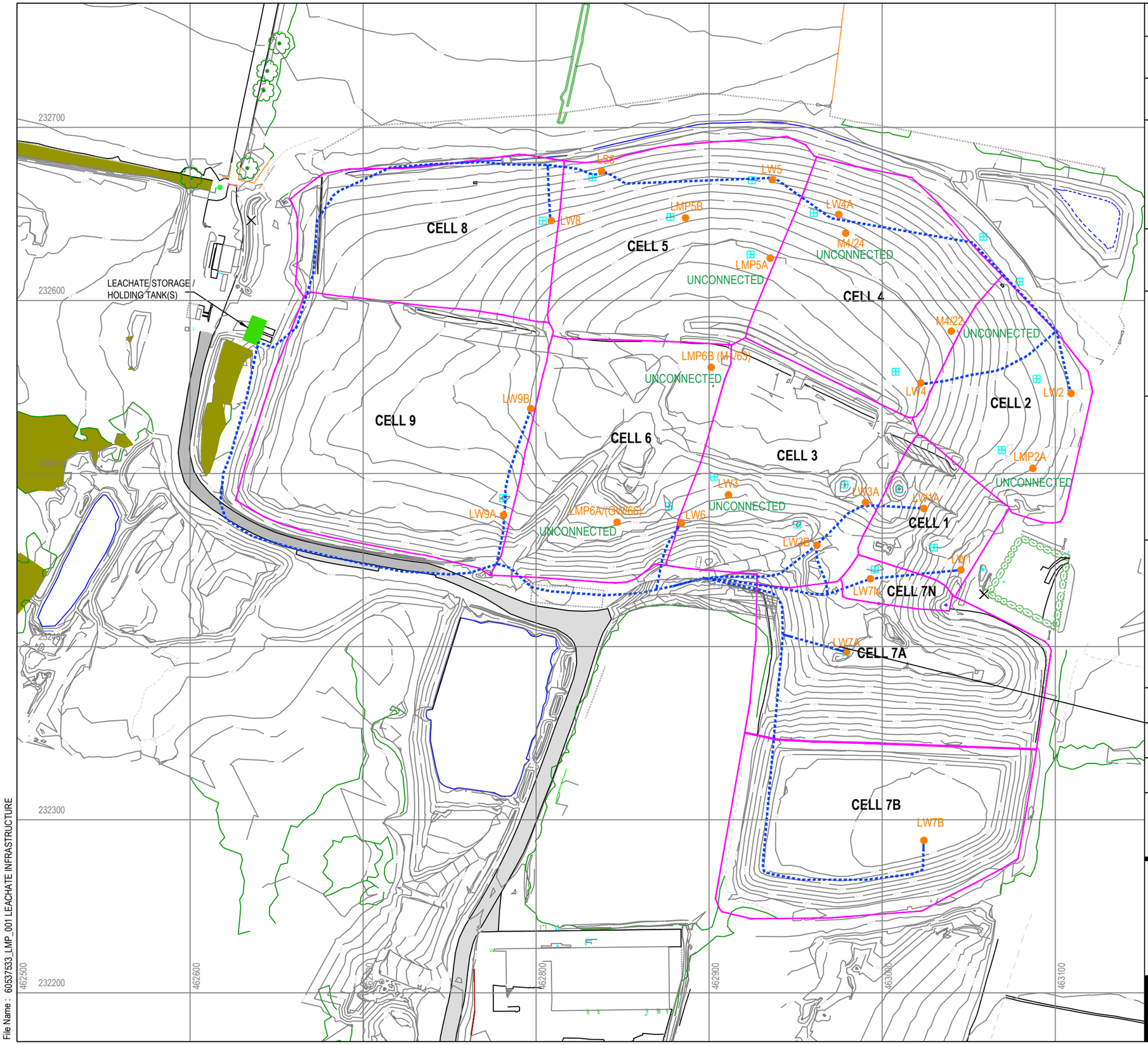
- confirm the ongoing adequacy of the monitoring and sampling protocols;
- to prepare the interpretive report required by the Agency.

4.11 Quality Assurance

Monitoring personnel will undertake all leachate monitoring and sampling in line with procedures.

All analytical work will be undertaken by a NAMAS/UKAS accredited laboratory and sampling procedures shall be in accordance with written procedures obtained from the testing laboratory for the appropriate determinands. The report will supply Quality Assurance confirmation of audits and internal checks. A series of blanks or spiked samples will be periodically sent to the laboratory to check reliability in the method of reporting.

Appendix A Drawings



SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION BOX

IT IS ASSUMED THAT ALL WORKS ON THIS DRAWING WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE, TO AN APPROPRIATE METHOD STATEMENT.

THIS DRAWING IS TO BE USED ONLY FOR THE PURPOSE OF ISSUE THAT IT WAS ISSUED FOR AND IS SUBJECT TO AMENDMENT.

KEY

LW = LEACHATE WELL

LMP = LEACHATE MONITORING POINT

LS = LEACHATE SIDE RISER

ABOVE GROUND, LEACHATE TRANSMISSION, PIPEWORK

Purpose of issue

FOR INFORMATION

Client

OPES MRF 2013 Ltd

Project Title

FINMERE LMP

Drawing Title

LEACHATE INFRASTRUCTURE

Designed	Drawn	Checked	Approved	Date
	NL	MN		

AECOM Internal Project No.	Suitability
60537533	
Scale @ A3	Zone
NTS	

AECOM
Royal Court, Basil Close
Chesterfield
Derbyshire. S41 7SL
Telephone. (01246) 209221
Fax. (01246) 209229
www.aecom.com

Drawing Number	Rev
60537533/LMP/001	

Plot Date : 1/10/2019 4:23 PM
File Name : 60537533_LMP_001 LEACHATE INFRASTRUCTURE

Appendix B Leachate Volume Calculations

Month of Measurement:	Mar-20

Effective Rainfall (m/year)	0.1158
Total Area (m2)	85077
Total Effective Rainfall (m3/month)	821

Total Volume Exported (tonnes/m3)	56

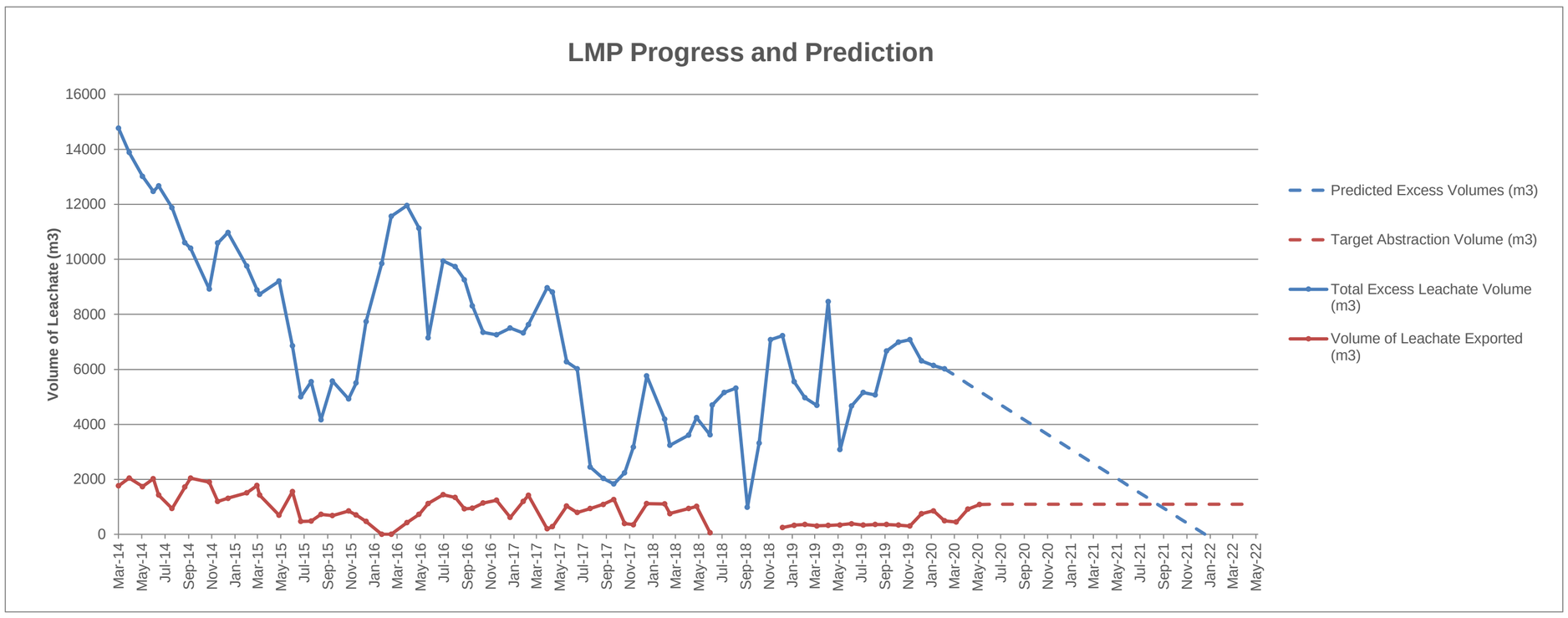
Target Date for Zero Excess Volume	01/01/2022		671	Days
			22.1	Months

Total Volume of Leachate to be Removed in the Period (m3)	24127
Target Volume to be Removed per Month (m3)	1094
Target Volume to be Removed per Quarter (m3)	3281

Cells	Compliance Limit mAOD	Wells	Leachate Level mAOD	Average Across Cells	Height over compliance (m)	Cell area (m2)	Volume of saturated waste (m3)	Calculated Porosity	Leachate Volume (m3)
Cell 1	114.0	LW1	115.08	115.1	1.1	2418	2611.4	0.051	133.2
		LW1A	*						
Cell 2	116.8	LW2	117.74	118.0	1.2	4229	4905.6		250.2
		LMP2A	118.18						
Cell 3	114.7	LW3	118.40	117.8	3.1	9034	28005.4		1428.3
		LW3A	117.55						
		LW3B	117.45						
Cell 4	118.0	LW4	116.04	117.1	0.0	7836	0.0		0.0
		LW4A	118.18						
		M4/22	*						
		M4/24	*						
Cell 5	116.8	LW5	122.72	118.8	2.0	10584	20921.0		1067.0
		LMP5A	115.84						
		LMP5B	117.77						
Cell 6	119.2	LW6	114.06	114.1	0.0	10086	0.0		0.0
		LMP6A	*						
		LMP6B	*						
Cell 7	114.5	LMP7A	115.99	116.0	1.5	11500	17135.0		873.9
Cell 7N	115.3	LMP7N	118.66	118.7	3.4	1500	5085.0		259.3
Cell 8	117.1	LW8	117.79	117.8	0.7	9463	6529.5		333.0
Cell 9	117.6	LW9A	119.11	119.4	1.8	18427	32800.1		1672.8
		LW9B	119.65						

Total	6017.6

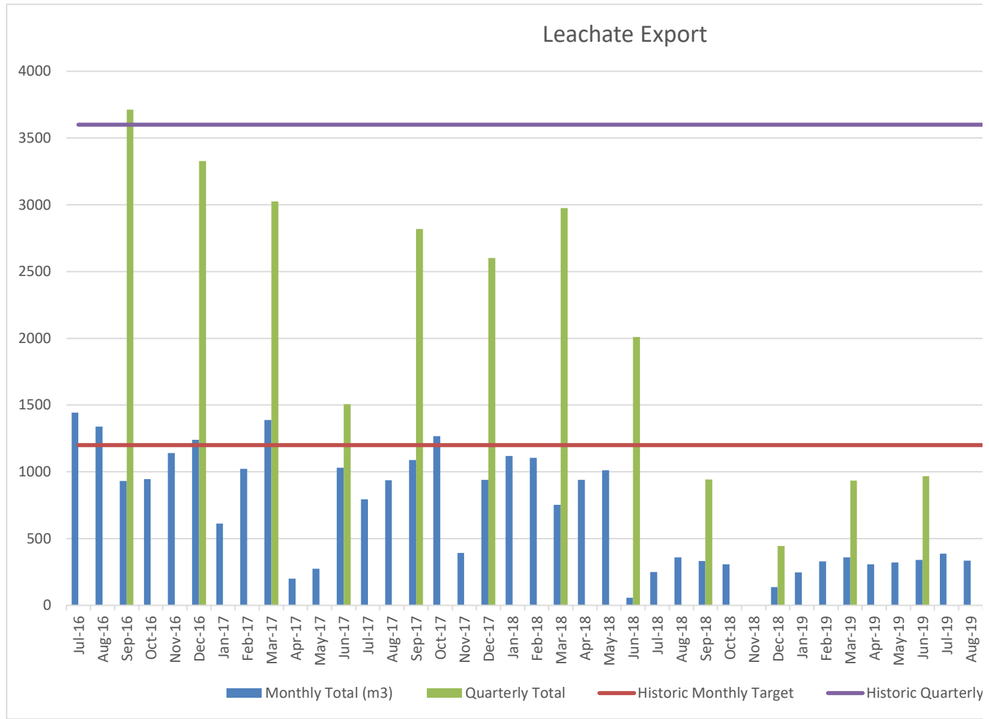
Summary	Total Excess Leachate Volume (m3)	Predicted Excess Leacahte
Sep-19	14465.5	
Mar-14	14768.1	
Apr-14	13891.8	
May-14	13015.6	
Jun-14	12473.3	
Jul-14	12667.9	
Aug-14	11878.5	
Sep-14	10606.9	
Oct-14	10407.7	
Nov-14	8920.2	
Dec-14	10591.2	
Jan-15	10977.4	
Feb-15	9762.7	
Mar-15	8889.2	
Apr-15	8727.2	
May-15	9206.2	
Jun-15	6856.0	
Jul-15	5006.2	
Aug-15	5547.3	
Sep-15	4165.8	
Oct-15	5570.6	
Nov-15	4919.1	
Dec-15	5506.7	
Jan-16	7740.7	
Feb-16	9848.9	
Mar-16	11563.7	
Apr-16	11961.1	
May-16	11130.5	
Jun-16	7143.3	
Jul-16	9942.2	
Aug-16	9739.3	
Sep-16	9258.9	
Oct-16	8309.5	
Nov-16	7342.7	
Dec-16	7260.6	
Jan-17	7503.6	
Feb-17	7326.2	
Mar-17	7627.1	
Apr-17	8966.9	
May-17	8807.4	
Jun-17	6278.6	
Jul-17	6018.5	
Aug-17	2441.2	
Sep-17	2033.2	
Oct-17	1829.6	
Nov-17	2237.8	
Dec-17	3174.8	
Jan-18	5761.5	
Feb-18	4188.7	
Mar-18	3242.2	
Apr-18	3608.5	
May-18	4238.9	
Jun-18	3616.1	
Jul-18	4699.8	
Aug-18	5160.3	
Sep-18	5316.4	
Oct-18	987.8	
Nov-18	3322.4	
Dec-18	7079.4	
Jan-19	7221.6	
Feb-19	5546.6	
Mar-19	4965.2	
Apr-19	4692.4	
May-19	8465.0	
Jun-19	3085.3	
Jul-19	4669.9	
Aug-19	5160.5	
Sep-19	5066.1	
Oct-19	6666.2	
Nov-19	6986.7	
Dec-19	7079.4	
Jan-20	6305.5	
Feb-20	6139.6	
Mar-20	6017.6	6017.6
Apr-20		5744.8
May-20		5472.0
Jun-20		5199.2
Jul-20		4926.4
Aug-20		4653.6
Sep-20		4380.7
Oct-20		4107.9
Nov-20		3835.1
Dec-20		3562.3
Jan-21		3289.5
Feb-21		3016.7
Mar-21		2743.9
Apr-21		2471.1
May-21		2198.3
Jun-21		1925.5
Jul-21		1652.6
Aug-21		1379.8
Sep-21		1107.0
Oct-21		834.2
Nov-21		561.4
Dec-21		288.6
Jan-22		15.8
Feb-22		-257.0
Mar-22		-529.8
Apr-22		-802.6
May-22		-1075.5



	M	C
Current Trend of Extraction	-3.184727231	143438.96
Predicted Date for Zero Excess Volume	23/04/2023	

Appendix C Monthly Leachate Removal Rates

Month	Monthly Total (m3)	Historic Monthly Target	Quarterly Total	Historic Quarterly Target	Shortfall (m3)	Shortfall (%)
Jul-16	1442.64	1200		3600		
Aug-16	1339.7	1200		3600		
Sep-16	930.48	1200	3712.82	3600	-112.82	
Oct-16	944.62	1200		3600		
Nov-16	1141.78	1200		3600		
Dec-16	1240.38	1200	3326.78	3600	273.22	7.6
Jan-17	613.8	1200		3600		
Feb-17	1023.36	1200		3600		
Mar-17	1388.48	1200	3025.64	3600	574.36	16.0
Apr-17	200	1200		3600		
May-17	275.26	1200		3600		
Jun-17	1030.78	1200	1506.04	3600	2093.96	58.2
Jul-17	794.086	1200		3600		
Aug-17	936.8	1200		3600		
Sep-17	1088.64	1200	2819.526	3600	780.474	21.7
Oct-17	1267.89	1200		3600		
Nov-17	391.13	1200		3600		
Dec-17	941	1200	2600.02	3600	999.98	27.8
Jan-18	1118.97	1200		3600		
Feb-18	1104.06	1200		3600		
Mar-18	752.4	1200	2975.43	3600	624.57	17.3
Apr-18	941	1200		3600		
May-18	1012	1200		3600		
Jun-18	56	1200	2009	3600	1591	44.2
Jul-18	248.78	1200		3600		
Aug-18	360.18	1200		3600		
Sep-18	332.34	1200	941.3	3600	2658.7	73.9
Oct-18	307.8	1200		3600		
Nov-18	0	1200		3600		
Dec-18	137.3	1200	445.1	3600	3154.9	87.6
Jan-19	246.44	1200		3600		
Feb-19	328.54	1200		3600		
Mar-19	358.8	1200	933.78	3600	2666.22	74.1



Appendix D Leachate Level Monitoring

		12/01/2017	17/01/2017	10/02/2017	06/03/2017	24/04/2017	28/04/2017	08/05/2017	14/06/2017	26/06/2017	12/07/2017	19/07/2017	15/08/2017	30/08/2017	04/09/2017	11/09/2017	18/09/2017	25/09/2017
LW1	mAOD	117.58		117.95	117.73	117.87	117.84	116.83	116.72	116.24	117.59	117.17	115.88	115.71	116.40	115.34	116.47	115.32
LW1A	mAOD		118.96		119.00	119.14	119.15	119.13	119.22	118.58	119.06	119.14	119.18	118.41	118.38	118.45	118.40	118.40
Compliance Level	mAOD	114.00	114.00	114.00	114.00	114.00	114.00	114.00	114.00	114.00	114.00	114.00	114.00	114.00	114.00	114.00	114.00	114.00
LW2	mAOD		116.94		117.41	117.63	117.63	117.65	117.53	117.42	116.35	117.40	117.00	116.73	116.73	116.61	116.08	115.58
LW2B	mAOD		117.19		117.65	117.84	117.87	117.91	117.81	117.76	117.58	117.74	117.44	117.13	117.13	116.95	116.71	116.24
Compliance Level	mAOD	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80
LW3	mAOD		118.44		118.04	118.71	118.78	118.80	119.14	119.14	117.18	115.71	115.68	115.76	116.02	115.70	115.76	115.65
LW3A	mAOD		118.71		119.17	118.95	118.91	118.98	118.98	118.95	118.86	118.93	118.94	117.21	117.08	117.04	117.01	117.02
LW3B	mAOD		117.82		118.51	118.49	118.58	118.59	116.78	118.4	115.66	116.67	115.99	115.86	115.7	115.65	115.7	115.64
Compliance Level	mAOD	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70
LW4	mAOD		117.82		118.51	118.49	118.58	118.59	116.78	118.40	115.66	116.67	115.99	115.86	115.70	115.65	115.70	115.64
LW4A	mAOD		118.60		118.51	118.58		118.60	118.48	118.51	118.23	117.26	118.06	117.99	117.95	117.86	117.83	117.81
M4/22	mAOD		119.16		119.13	119.08		119.14	119.03	118.96	118.98	118.94	118.92	118.90	118.86	118.85	118.82	118.77
M4/24	mAOD																	
Compliance Level	mAOD	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00
LW5	mAOD		118.33	117.63	118.07	118.51	118.56	118.42	118.15	117.87	117.67	117.63	118.41	117.21	117.27	117.06	116.91	117.06
LMP5A	mAOD		118.93		118.47	119.08	119.07	119.12	118.47	118.47	117.21	117.24	117.26	117.26	117.26	117.18	117.10	117.37
LMP5B	mAOD																	
LS5	mAOD																	
Compliance Level	mAOD	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80
LW6	mAOD		118.27		118.69	118.79	118.76	118.81	118.72	118.70	117.74	115.96	115.82	115.96	115.87	115.79	115.60	115.81
LMP6A	mAOD		118.12		118.43	118.56		118.64	118.51	118.52	118.50	118.58	118.63	118.54	118.48	118.46	118.44	118.45
LMP6B	mAOD		118.74		118.72	118.72		118.78	118.77	118.76	118.70	118.78	118.75	118.57	118.59	118.57	118.59	118.58
Compliance Level	mAOD	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20
LMP7N	mAOD		115.42		116.05	116.23	116.06	116.21	116.06	116.17	116.09	116.18	117.67	116.47	116.50	116.32	116.46	116.55
Compliance Level	mAOD	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38
LW7A	mAOD	115.68		116.42	115.44	115.28		115.33	115.13	115.17	114.88	115.62	115.22	114.93	114.87	114.74	114.72	114.72
Compliance Level	mAOD	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49
LW8	mAOD		118.96		118.95	119.02	119.05	118.99	118.77	118.82	117.84	116.94	117.77	117.93	117.92	117.87	117.90	118.41
Compliance Level	mAOD	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10
LW9A	mAOD		120.24		120.56	120.85	120.87	120.79	117.65	120.20	119.27	117.66	119.45	117.52	117.43	117.52	117.52	118.94
LW9B	mAOD		120.73		120.08	121.34	123.69	122.02	121.40	120.88	121.67	118.42	119.54	118.36	118.30	118.12	118.30	119.48
Compliance Level	mAOD	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60
LW10A	mAOD																	
LW10B	mAOD																	
Compliance Level	mAOD	118.42	118.42	118.42	118.42	118.42	118.42	118.42	118.42	118.42	118.42	118.42	118.42	118.42	118.42	118.42	118.42	118.42

09/10/2017	16/10/2017	13/11/2017	06/12/2017	10/01/2018	26/02/2018	12/03/2018	30/04/2018	21/05/2018	25/06/2018	16.7.18	30.7.18	6.8.18	13.8.18	20.8.18	3.9.18	10.9.18	17.9.18	8.10.18	05/11/2018	19/12/2018
115.29	115.64	115.47	115.46	116.65	116.67	116.60	116.31	117.39		117.95	117.75	117.59	117.83	117.46	117.08	117.99	117.90	114.40	113.48	113.92
118.35	118.42	118.40	118.42	118.42	118.86	118.40	118.45	118.37	119.42	119.84	118.84	118.94	118.67	118.70	118.62	118.58	118.52	115.23	115.25	115.25
114.00	114.00	114.00	114.00	114.00	114.00	114.00	114.00	114.00	114.00	114.00	114.00	114.00	114.00	114.00	114.00	114.00	114.00	114.00	114.00	114.00
115.32	115.09	114.71	114.84	114.11	114.27	114.37	115.04	115.09	117.43	116.93	117.05	116.87	116.87	116.90	116.71	116.63	116.51	116.25	115.87	116.26
115.83	115.53	115.48	115.93	115.15	115.14	115.13				115.13	115.13	115.13	115.13	115.13	115.13	115.13	115.13			
116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80
115.48	115.70	115.65	115.76	116.26	119.10	116.00	117.61	118.39	116.10	116.83	116.83	116.83	116.83	116.83	116.83	116.42	117.19	113.34	118.40	118.40
116.98	116.96	116.94	116.76	117.13	118.52	117.09	117.46	117.11	115.65	115.99	115.87	115.94	115.87	116.00	116.03	116.00	115.93	115.34	115.45	114.90
115.61	115.61	115.56	115.71	115.69	114.83	115.66	115.69	117	115.68	115.68	115.68	115.68	115.68	115.68	115.68	115.68	115.68	113.1	113.10	115.90
114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70
115.61	115.61	115.56	115.71	115.69	117.08	117.04	117.30	117.03	116.99	116.38	116.42	116.45	116.47	116.41	116.40	116.41	116.41	114.16	115.40	115.57
117.79	117.83	117.68	117.54	117.66	117.58	117.71	117.71	117.64	117.63	117.87	117.91	117.01	117.03	117.06	117.10	117.50	117.11	112.96	112.87	113.07
118.74	118.71	118.70	118.67	118.64	118.62	118.62	118.26	117.97	117.87											
118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00
116.96	117.00	116.91	117.01	117.18	117.18	117.29	117.43	117.37	117.43	117.05	117.21	117.33	117.42	117.54	117.54	117.58	117.61	115.79	116.12	116.84
117.20	117.20	117.22	117.22	117.19	117.21	117.20	117.23	117.25	117.19									114.30	114.60	115.02
										117.45	117.43	117.62	117.63	117.86	117.86	117.90	117.88	117.83		
116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80
115.83	116.46	115.78	115.81	116.36	117.34	115.66	116.77	116.40	116.50	115.38	115.38	115.73	115.73	115.73	115.73	115.73	115.92	113.84	116.50	116.45
118.46	118.44	118.40	118.37	118.38	118.36	118.33	118.31	118.29	118.50									113.95	113.90	113.86
118.58	118.59	118.56	118.55	118.57	118.59	118.56	118.58	118.57	118.56											
119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20
116.33	116.53	116.31	116.35	116.35	115.99	115.89	116.18	116.25	116.78	116.44	116.44	116.44	116.88	116.88	116.88	116.66	116.44	115.71	116.51	116.43
116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38
114.51	113.91	115.02	116.67	116.74	112.32	112.5	112.22	113.02	113.17	117.32	117.32	117.32	117.32	117.32	117.32	117.32	117.32	117.05	117.00	117.40
117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49
117.86	117.90	118.33	117.75	117.77	117.79	117.85	117.86	118.71	118.59	118.27	118.97	119.01	118.31	118.99	118.97	118.98	118.99	116.84	116.86	
117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10
120.24	117.34	117.24	117.50	120.30	119.45	118.45	118.24	118.28	118.16	118.10	118.14	118.06	118.24	118.12	118.16	118.22	118.15	119.73	119.85	119.93
117.85	118.27	118.22	118.42	120.66	119.67	119.82	120.00	119.92	119.84	119.18	119.39	119.30	119.30	119.38	119.34	119.40	119.63	116.12	118.76	118.52
117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60
118.42	118.42	118.42	118.42	118.42	118.42	118.42	118.42	118.42	118.42	118.42	118.42	118.42	118.42	118.42	118.42	118.42	118.42	118.42	118.42	118.42

23.01.19	18/02/19	19/03/19	15.04.19	22.04.19	07.05.19	15.05.19	20/05/19	29.05.2019	04.06.19	11.06.19	17.06.19	25.06.19	01.07.19	08.07.19	15.07.19	22.07.19	29.07.19	05.08.19	20/08/19	02/09/19
	114.28	114.26	115.20	115.50	115.53	115.34	115.24	115.09	114.84	114.88	115.03	115.14	114.88	114.83	114.81	115.16	115.71	116.00	116.28	116.51
			118.81	119.07	119.03	118.79	118.90	118.90	118.76	118.74	118.79	118.79	118.82	118.82	118.60	118.53	118.64	118.69	118.74	118.85
114.00	114.00	114.00	114.00	114.00	114.00	114.00	114.00	114.00	114.00	114.00	114.00	114.00	114.00	114.00	114.00	114.00	114.00	114.00	114.00	114.00
116.92	116.94	116.50	116.43	116.60	116.54	116.40	116.52	116.46	116.34	116.40	116.33	116.34	115.79	114.91	114.62	114.28	114.05	113.90	113.64	113.51
115.03									116.39	116.45	116.53	116.56	116.19	115.38	114.96	114.86	114.93	114.88	114.93	114.91
116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80
			118.74	118.79	118.82	118.76					117.59	117.30	117.50	118.66	118.55	118.60	114.71	114.80	114.90	113.10
			119.85	120.00	119.82	119.64					117.45	117.44	116.70	117.38	117.38	117.37	117.74	117.81	117.40	118.27
117.83	116.35	117.98	119.69	119.89	119.53	119.48					117.09	117.88	117.92	118.82	117.70	117.61	117.62	117.71	117.60	118.36
114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70
117.28	117.42	116.06	117.42	117.57	117.40	116.00	116.10	117.02	116.02	116.02	115.94	115.98	116.02	116.03	116.01	116.00	116.04	116.01	116.02	116.00
117.10	117.18	117.13	117.12	117.48	117.15	117.13	117.16	117.13	117.09	117.13	117.07	117.03	117.03	117.08	116.91	117.04	117.05	117.03	116.97	118.27
117.68	117.60	117.52	116.17	116.11	115.96	115.82	115.72	116.34	115.33	115.31	115.36	115.32	115.37	115.39	115.47	115.48	115.62	115.75	115.75	116.03
118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00
123.58	123.50	123.42	122.07	122.01	121.86	121.72	121.62	121.43	121.23	121.21	121.26	121.22	121.27	121.29	121.37	121.38	121.52	121.65	121.65	121.93
117.04	117.07	115.91	116.21	117.31	117.16	116.24	116.26	116.87	116.26	116.19	116.23	116.17	116.75	116.33	116.24	116.19	116.31	116.39	116.19	116.24
116.83	116.75	116.67	117.03	117.00	116.83	116.68	116.77	116.37	116.20	116.17	116.19	116.27	116.25	116.27	116.29	114.63	116.51	116.56	116.57	116.72
116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80
						116.28	118.47	118.98				116.12	116.10	116.00	116.11	116.08	116.09	116.05	116.06	116.08
											113.76	113.71	113.66	113.26	113.26	113.26	113.27	113.31	113.36	113.06
119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20
116.13	116.24	116.71	116.83	116.91	116.88	116.62	116.58	117.13	117.21	117.24	117.31	117.28	117.45	117.51	117.49	117.25	117.06	117.05	116.84	116.71
116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38
114.32	115.58	115.58	115.58	115.58	115.58	115.58	115.42	115.42	115.42	115.42	115.42	115.42	110.62	115.42	115.42	115.42	115.42	115.42	115.42	115.42
117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49
118.58	117.57	117.55	117.48	118.55	118.46	118.39	118.41	118.37	117.57	118.34	117.55	117.54	118.29	118.39	118.37	118.36	118.38	118.40	118.30	118.34
117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10
121.47	120.41	120.17	121.37	121.47	121.35	121.38	115.91	115.91	115.91	115.91	120.71	120.61	120.87	120.81	120.80	120.77	120.89	121.01	120.69	120.93
121.67	120.20	118.20	119.61	121.08							117.85	117.93	117.84	117.88	117.88	117.83	117.85	117.88	117.85	117.87
117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60
							116.09	116.09	116.14	116.19	116.19	116.20	116.21	116.22	116.23	116.23	116.24	116.25	116.27	116.28
											115.82	115.82	115.82	115.82	115.82	115.82	115.82	115.82	115.82	115.82
118.42	118.42	118.42	118.42	118.42	118.42	118.42	118.42	118.42	118.42	118.42	118.42	118.42	118.42	118.42	118.42	118.42	118.42	118.42	118.42	118.42

09.09.19	16.09.2019	23/09/19	#########	7.10.2019	14.10.2019	21.10.2019	28.10.2019	4.11.2019	11.11.2019	18.11.2019	25.11.2019	2.12.2019	9.12.2019	16.12.2019	23.12.2019	30.12.2019	10/01/2020	17.01.20	23/01/2020	31.01.20
116.73	116.58	112.88		115.611		115.731	115.881	116.081		115.781	116.081	116.181	115.681	115.881			114.78	114.78	115.08	114.98
119.00	119.04		115.69																	
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113.48	113.44	113.50	112.54	113.688		113.938	113.838	114.038		113.738	114.638	114.638	114.638	114.738			115.94	116.94	116.50	116.94
114.94	114.89	114.93	114.88	115.826		115.826	115.426	115.226		115.126	115.126	115.126	115.126	115.226			115.83	116.18	116.48	116.68
116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80
116.85	116.80		113.70	117.452		117.802	117.602	117.802		117.902	118.002	117.902	118.102	118.002			118.00	118.10	118.30	117.91
118.32	117.37		116.30	117.364	116.304	117.344	117.364	116.904	116.304	117.504	116.704	116.804	116.904	117.104	116.304	116.304	117.20	116.45	116.30	117.10
117.78	118.13	118.05	114.85	118.145	114.845	118.545	118.645	118.845	114.845	118.945	118.745	118.545	118.845	118.945	114.845	114.845	117.35	117.05	117.45	117.65
114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70	114.70
117.04	116.03	117.14	113.89	116.122		116.142	115.382	116.642		117.742	116.142	115.142	115.942	115.742			117.24	116.04	115.94	116.04
117.01	116.99	118.76	115.83	118.494		118.734	118.534	118.734		118.934	118.734	118.634	119.434	119.334			117.68	117.73	117.73	118.13
115.98	115.96		112.07			116.37	116.42	116.72		116.57	116.62	116.02	116.72	116.82						
118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00	118.00
121.88	121.86		117.97		117.973	122.273	122.323	122.623	117.973	122.473	122.523	121.923	122.623	122.723	117.973	117.973	122.72	122.72	122.62	122.82
117.04	116.26	117.59	114.89	116.293		116.193	116.193	117.493		117.543	116.193	116.993	116.293	116.093			117.59	116.09	116.29	116.19
116.83	116.79	116.87	115.27	117.173		117.073	117.203	117.323		117.373	117.423	117.173	117.573	117.773			117.67	117.67	117.57	117.87
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117.94	116.10	115.45	114.80	115.452		117.622	115.652	117.952		116.252	118.052	116.352	116.252	116.452			116.36	114.16	113.66	113.86
114.06	114.08	113.26	113.26																	
119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20
117.41	117.27	117.61	113.41	117.748		118.108	117.908	117.958		117.708	117.808	118.108	118.308	118.408			118.11	118.31	118.11	118.11
116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38
115.42	115.42	114.77	110.68			115.391	115.441	115.291		115.191	115.491	115.291	114.891	114.691			115.69	115.58	115.58	115.58
117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49	117.49
118.38	118.31	118.42	116.84	117.54		117.62	117.64	118.84		118.99	117.54	118.84	117.74	118.24			119.04	117.54	117.74	117.64
117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10
121.13	121.06	115.91		121.109		121.209	119.909	120.209		120.109	119.909	120.409	120.109	119.909			118.91	119.01	118.81	119.31
120.63	120.48	120.78	117.45	120.419		119.979	119.979	120.279		120.779	120.979	120.879	120.779	120.779			119.90	119.85	119.91	119.85
117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60	117.60
116.39	116.42	116.54	116.64	116.672		116.722	116.752	116.792	116.842	116.872	116.892	116.892	116.932	116.962			116.69	116.69	116.74	116.79
115.82	115.82	115.82	115.82	115.82	115.82	115.82	115.82	115.82	115.82	115.82	115.82	115.82	115.82	115.82			116.17	116.27	116.27	116.42
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07/02/2020	14/02/2020	21/02/2020	28/02/2020	06/03/2020	13.03.2020	21.03.2020	27.03.2020
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		117.31		117.98		118.18	
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		116.14		115.98		116.04	
		117.93		118.13		118.18	
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		122.82		122.77		122.72	
		116.25		115.64		115.84	
		117.65		117.87		117.77	
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		114.12		116.62		114.06	
119.20	119.20	119.20	119.20	119.20	119.20	119.20	119.20

		118.51		118.51		118.66	
116.38	116.38	116.38	116.38	116.38	116.38	116.38	116.38

		115.58		115.89		115.99	
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		119.04		117.70		117.79	
117.10	117.10	117.10	117.10	117.10	117.10	117.10	117.10

		119.31		119.16		119.11	
						119.65	
117.60	117.60				117.60	117.60	117.60

116.79	116.84	116.80	116.85	116.85	116.90	116.95	117.00
116.47	116.42	116.47	116.57	116.57	116.52	116.47	116.37
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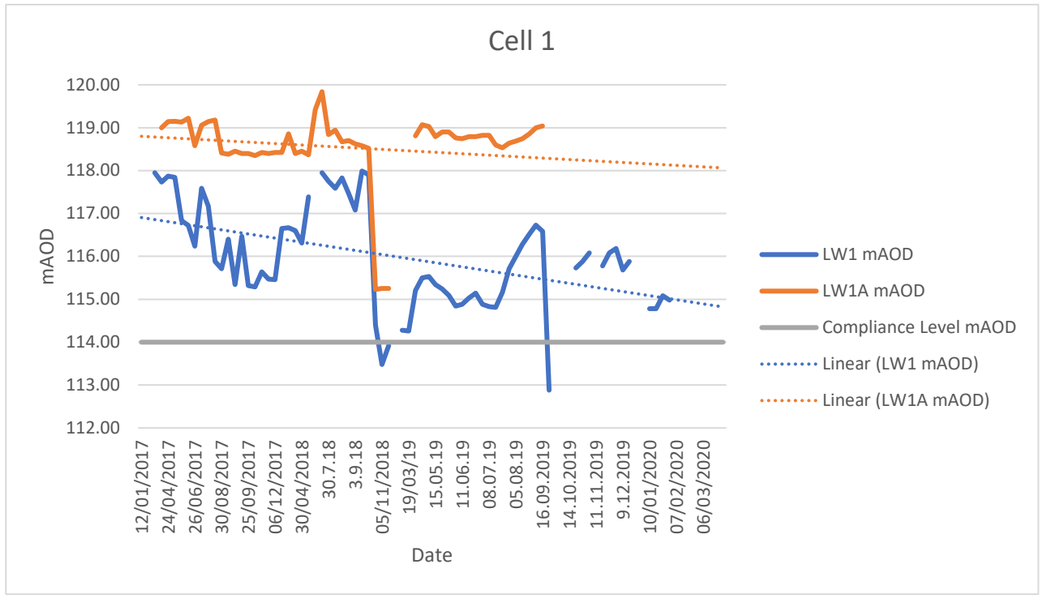
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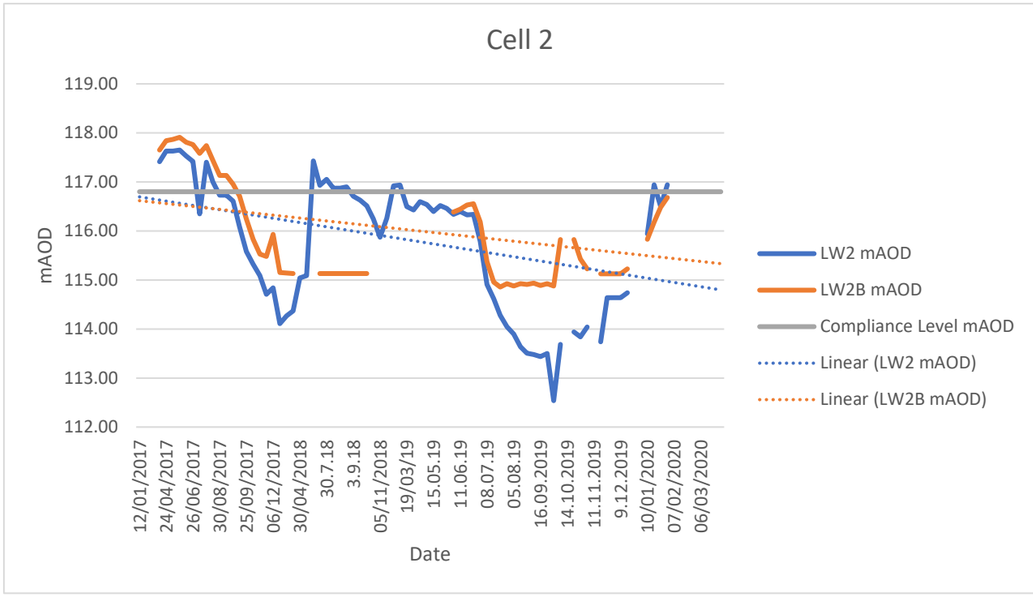
26/06/2017
30/08/2017
25/09/2017
06/12/2017
30/04/2018
30.7.18
3.9.18
05/11/2018
19/03/19
15.05.19
11.06.19
08.07.19
05.08.19
16.09.2019
14.10.2019
11.11.2019
9.12.2019
10/01/2020
07/02/2020
06/03/2020
Date
LW1 mAOD
LW1A mAOD
Compliance Level mAOD
Linear (LW1 mAOD)
Linear (LW1A mAOD)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mAOD
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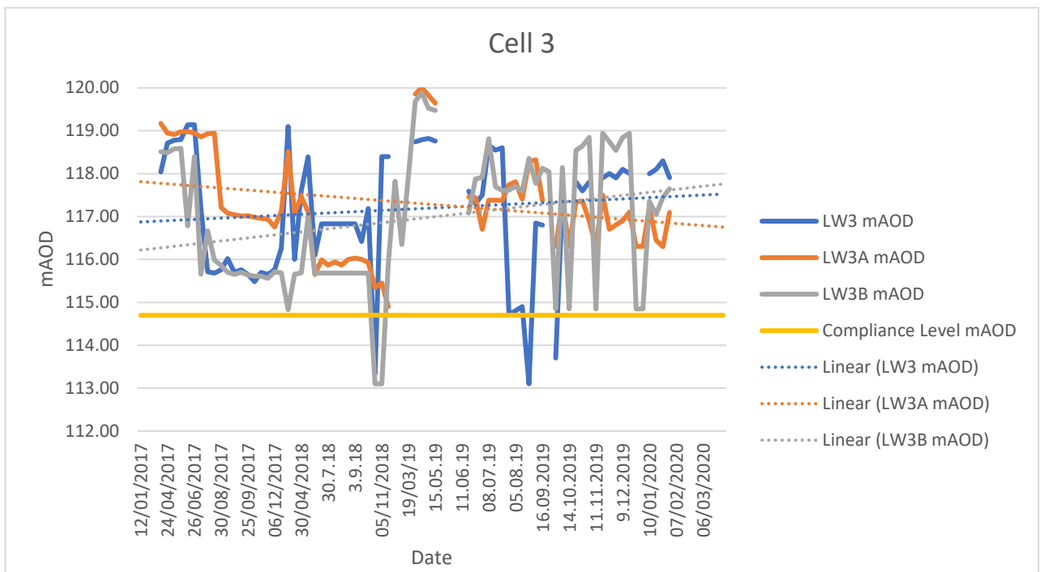
26/06/2017
30/08/2017
25/09/2017
06/12/2017
30/04/2018
30.7.18
3.9.18
05/11/2018
19/03/19
15.05.19
11.06.19
08.07.19
05.08.19
16.09.2019
14.10.2019
11.11.2019
9.12.2019
10/01/2020
07/02/2020
06/03/2020
Date
LW2 mAOD
LW2B mAOD
Compliance Level mAOD
Linear (LW2 mAOD)
Linear (LW2B mAOD)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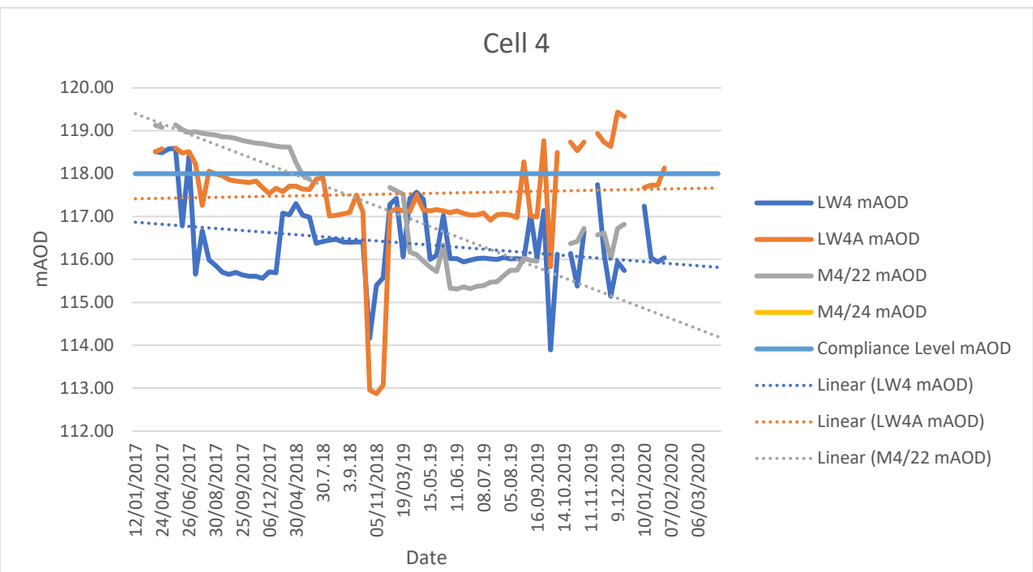
30/08/2017
25/09/2017
06/12/2017
30/04/2018
30.7.18
3.9.18
05/11/2018
19/03/19
15.05.19
11.06.19
08.07.19
05.08.19
16.09.2019
14.10.2019
11.11.2019
9.12.2019
10/01/2020
07/02/2020
06/03/2020
Date
LW3 mAOD
LW3A mAOD
LW3B mAOD
Compliance Level mAOD
Linear (LW3 mAOD)
Linear (LW3A mAOD)
Linear (LW3B mAOD)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05/11/2018
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11.11.2019
9.12.2019
10/01/2020
07/02/2020
06/03/2020
Date
LW4 mAOD
LW4A mAOD
M4/22 mAOD
M4/24 mAOD
Compliance Level mAOD
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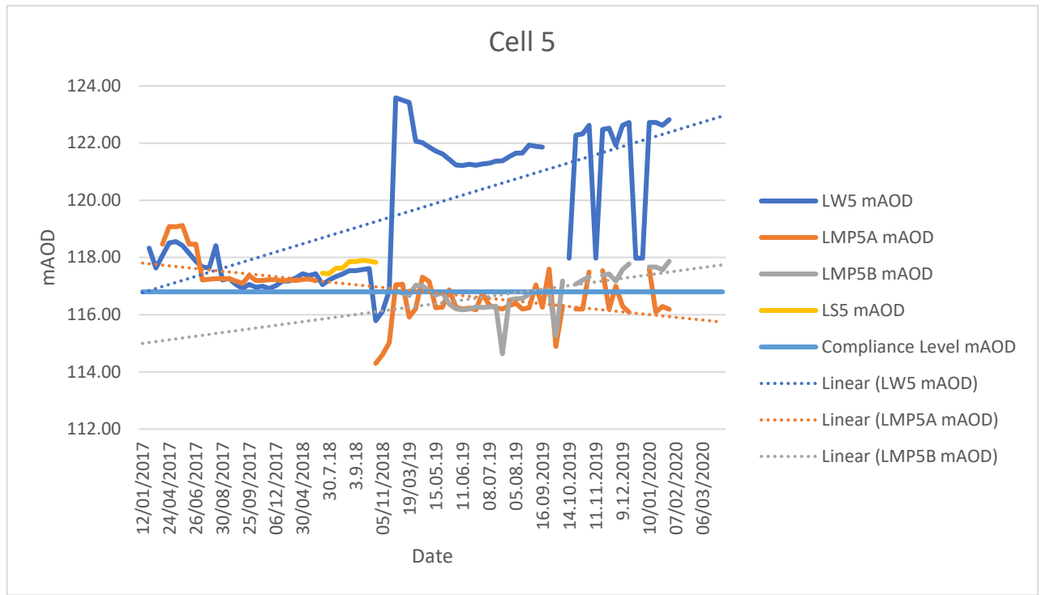
Linear (LW4A mAOD)
Linear (M4/22 mAOD)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30/08/2017
25/09/2017
06/12/2017
30/04/2018
30.7.18
3.9.18
05/11/2018
19/03/19
15.05.19
11.06.19
08.07.19
05.08.19
16.09.2019
14.10.2019
11.11.2019
9.12.2019
10/01/2020
07/02/2020
06/03/2020
Date
LW5 mAOD
LMP5A mAOD
LMP5B mAOD
LS5 mAOD
Compliance Level mAOD
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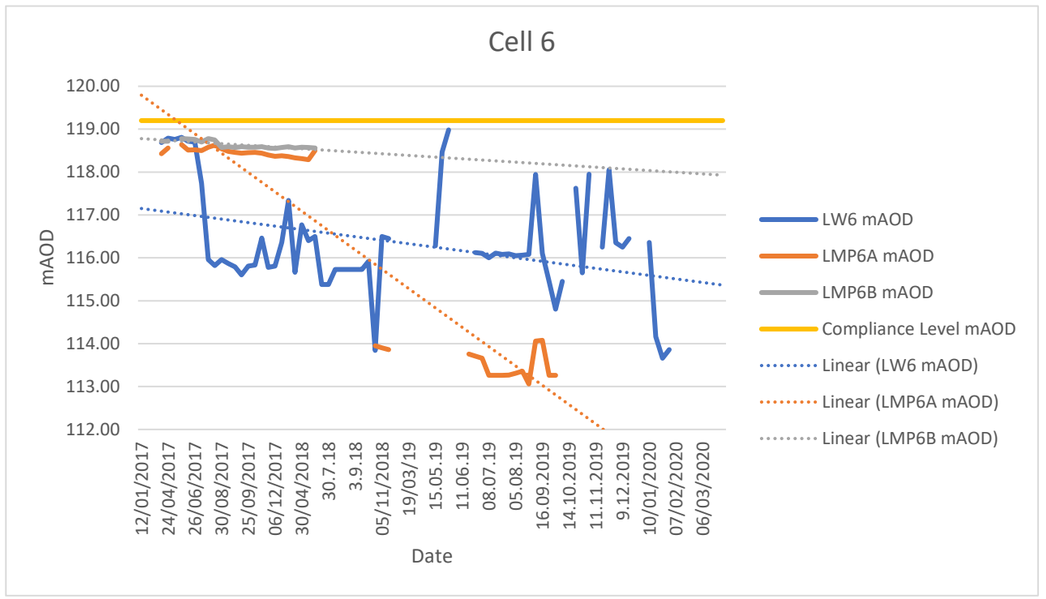
Linear (LMP5A mAOD)
Linear (LMP5B mAOD)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26/06/2017
30/08/2017
25/09/2017
06/12/2017
30/04/2018
30.7.18
3.9.18
05/11/2018
19/03/19
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11.06.19
08.07.19
05.08.19
16.09.2019
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11.11.2019
9.12.2019
10/01/2020
07/02/2020
06/03/2020
Date
LW6 mAOD
LMP6A mAOD
LMP6B mAOD
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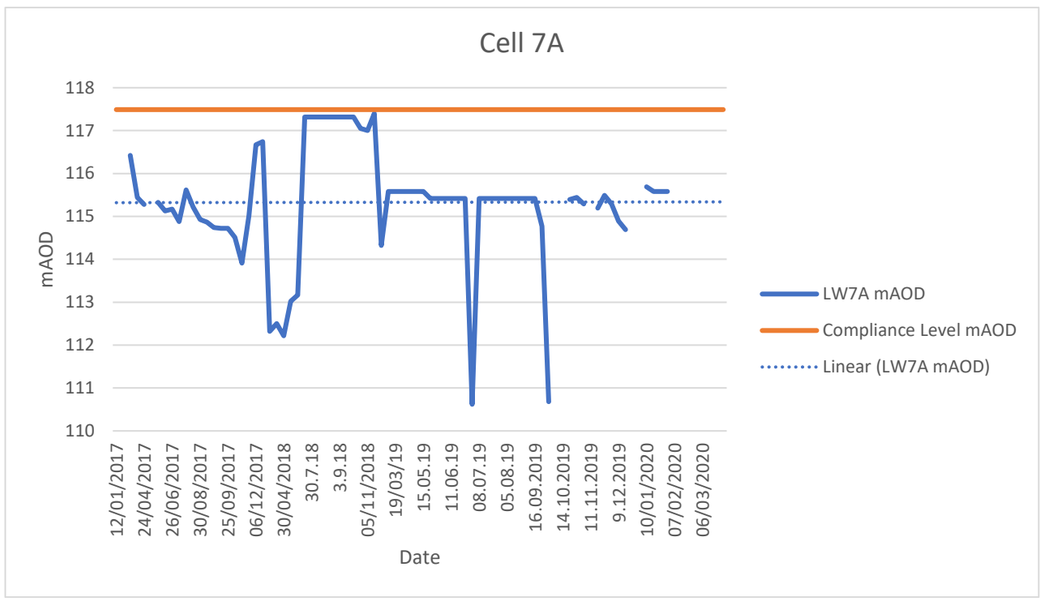
Linear (LMP6A mAOD)
Linear (LMP6B mAOD)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114
113
112
111
110
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12/01/2017
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30.7.18
3.9.18
05/11/2018
19/03/19
15.05.19
11.06.19
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11.11.2019
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06/03/2020
Date
LW7A mAOD
Compliance Level mAOD
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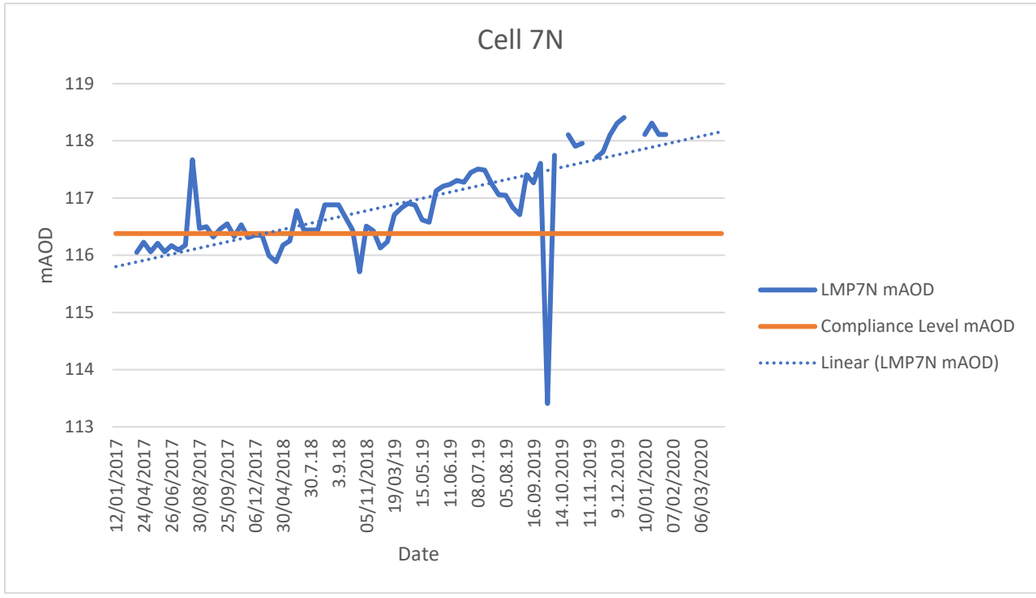
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113
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30/08/2017
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30/04/2018
30.7.18
3.9.18
05/11/2018
19/03/19
15.05.19
11.06.19
08.07.19
05.08.19
16.09.2019
14.10.2019
11.11.2019
9.12.2019
10/01/2020
07/02/2020
06/03/2020
Date
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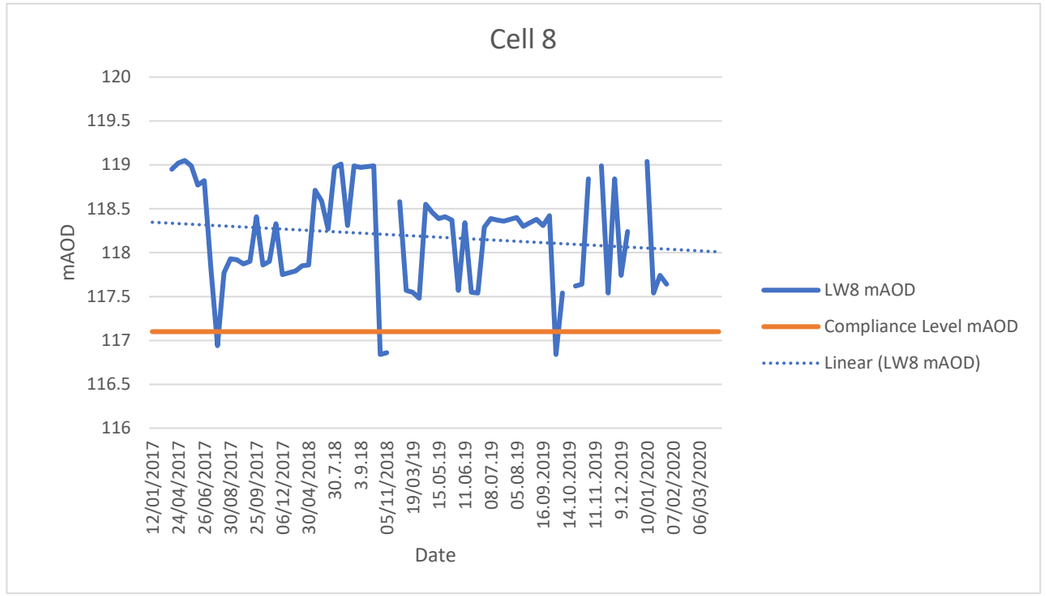
Compliance Level mAOD
Linear (LMP7N mAOD)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117.5
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116.5
116
mAOD
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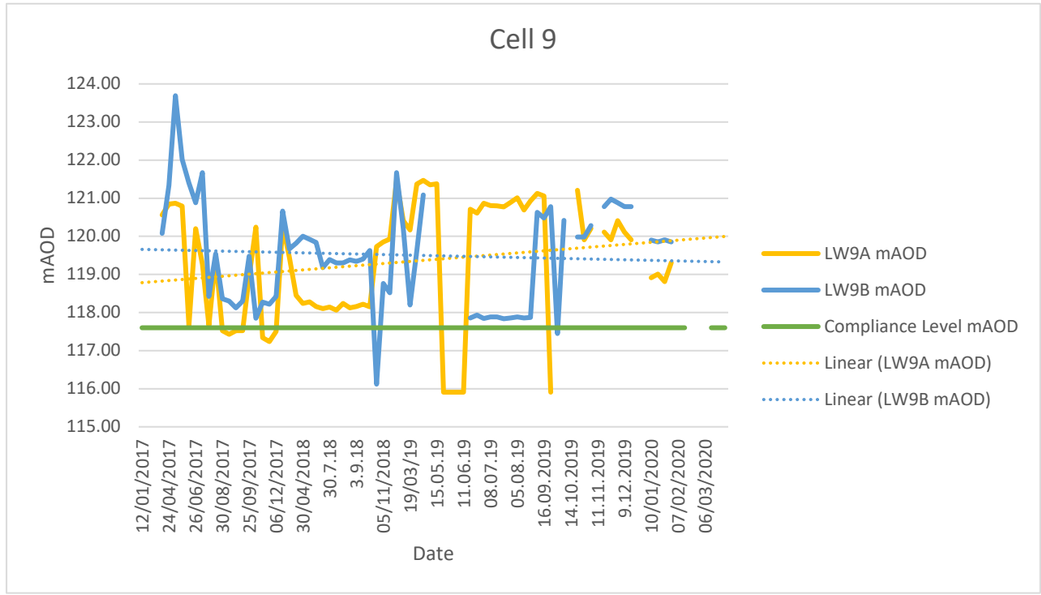
26/06/2017
30/08/2017
25/09/2017
06/12/2017
30/04/2018
30.7.18
3.9.18
05/11/2018
19/03/19
15.05.19
11.06.19
08.07.19
05.08.19
16.09.2019
14.10.2019
11.11.2019
9.12.2019
10/01/2020
07/02/2020
06/03/2020
Date
LW8 mAOD
Compliance Level mAOD
Linear (LW8 mAOD)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25/09/2017
06/12/2017
30/04/2018
30.7.18
3.9.18
05/11/2018
19/03/19
15.05.19
11.06.19
08.07.19
05.08.19
16.09.2019
14.10.2019
11.11.2019
9.12.2019
10/01/2020
07/02/2020
06/03/2020
Date
LW9A mAOD
LW9B mAOD
Compliance Level mAOD
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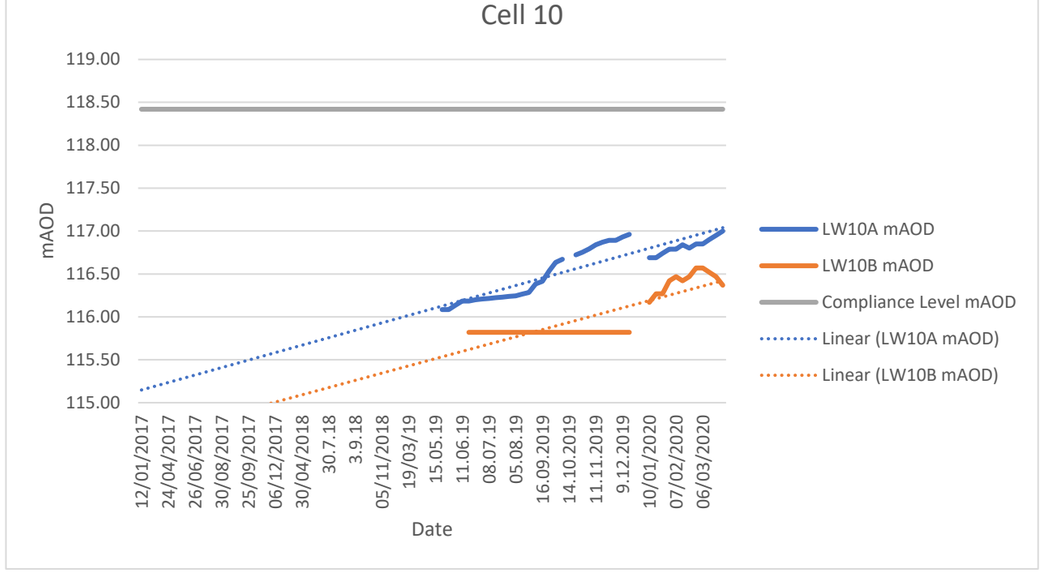
Linear (LW9B mAOD)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12/01/2017
24/04/2017
26/06/2017
30/08/2017
25/09/2017
06/12/2017
30/04/2018
30.7.18
3.9.18
05/11/2018
19/03/19
15.05.19
11.06.19
08.07.19
05.08.19
16.09.2019
14.10.2019
11.11.2019
9.12.2019
10/01/2020
07/02/2020
06/03/2020
Date
LW10A mAOD
LW10B mAOD
Compliance Level mAOD
Linear (LW10A mAOD)
Linear (LW10B mAOD)

Appendix E Leachate Quality Analysis

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	pH	Electrical Conductivity	Total Alkalinity	Ammoniacal Nitrogen in mg/l	Chloride in mg/l	COD	BOD	Cadmium in ug/l	Chromium	Copper	Lead	Nickel	Iron	Arsenic	Magnesium	Potassium	Total Sulphates	Calcium	Sodium	Zinc	Manganese
Units		us/cm	mg CaCO3/l	mg/l	mg/l	mg O2/l	mg O2/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	mg/l	mg/l	mg/l	mg/l	mg/l	ug/l	ug/l
Cell 1	8.5	9600	3700	440	760	1200	18	0.20	57	340	1.4	80	2400	97	55	330	810	83	730	160	150
Cell 2	8.5	9800	4100	430	1100	1300	320	0.12	60	210	1.3	85	2300	70	58	350	410	78	730	180	140
Cell 3	8.6	13000	6300	860	1400	3900	10	<0.08	300	17	4.0	120	1500	210	45	430	<1	61	860	66	210
Cell 4	8.2	10000	4300	630	1200	1300	330	<0.08	65	240	1.1	93	2100	46	60	370	<1	68	750	240	89
Cell 5	8.4	11000	5000	740	1400	1900	480	<0.08	160	57	6.1	69	2900	120	57	390	<1	78	820	78	130
Cell 6	8.4	12000	5500	690	1500	2000	510	<0.08	140	210	46	290	2200	120	56	430	<1	57	90	1100	120
Cell 7	8.3	11000	4800	600	1300	1500	380	<0.08	110	51	3.2	86	3700	93	54	360	140	88	79	85	150
Cell 8	8.2	9900	4300	500	1100	1100	280	<0.08	56	43	2.4	43	3100	44	90	430	<1	130	710	69	200
Cell 9	8.6	13000	5900	1100	1600	1800	560	<0.08	130	72	4.3	110	850	88	65	500	<1	71	1000	130	150
Tanks	8.5	11000	5000	730	1400	1500	380	<0.08	120	36	4.8	66	4100	90	72	460	<1	94	860	75	75

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	pH	Electrical Conductivity	Total Alkalinity	Ammoniacal Nitrogen in mg/l	Chloride in mg/l	COD	BOD	Cadmium in ug/l	Chromium	Copper	Lead	Nickel	Iron	Arsenic	Magnesium	Potassium	Total Sulphates	Calcium	Sodium	Zinc	Manganese
Units		us/cm	mg CaCO3/l	mg/l	mg/l	mg O2/l	mg O2/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	mg/l	mg/l	mg/l	mg/l	mg/l	ug/l	ug/l
Cell 1	8.5	11000	4900	860	1500	1700	21	<0.08	35	18	<1	61	2100	40	58	260	94	76	920	12	65
Cell 2	8.5	11000	4500	780	1400	1500	32	<0.08	25	22	<1	54	2500	25	74	270	16	110	960	31	130
Cell 3	8.6	15000	7200	1400	2000	4200	14	<0.08	400	22	1.9	140	970	120	63	330	<1	61	1300	42	190
Cell 4	8.2	11000	4500	780	1500	1500	14	<0.08	95	41	<1	86	3100	4	79	260	<1	120	950	70	250
Cell 5	8.4	11000	5000	780	1500	1800	21	<0.08	130	130	2.8	93	4500	52	67	260	<1	71	920	110	150
Cell 6	8.4	13000	5600	1000	1800	2200	19	<0.08	140	52	6.6	150	3600	110	67	330	<1	45	1200	92	73
Cell 7	8.3	8000	3500	590	1100	330	20	<0.08	13	37	<1	46	2000	24	54	190	77	94	710	24	83
Cell 8	8.2	9500	4000	620	1300	1200	18	0.12	42	110	<1	88	2400	26	89	280	<1	120	840	180	190
Cell 9	8.6	14000	6300	1000	2000	2300	18	<0.08	230	95	2.3	150	1300	78	77	370	<1	80	1400	98	190
Tanks	8.5	11000	4900	860	1600	1800	21	<0.08	62	9.1	1	53	3800	39	83	320	<1	110	1100	18	140

29/10/2015

	pH	EC	Alkalinity	Ammoniacal Nitrogen	Chloride	COD	BOD	Cadmium	Chromium	Copper	Lead	Nickel	Iron	Arsenic	Magnesium	Potassium	Sulphates	Calcium	Zinc	Manganese	Comments
		us/cm	mg CaCO3/l	mg/l	mg/l	mg O2/l	mg O2/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	mg/l	mg/l	mg/l	mg/l	ug/l	ug/l	
Cell 1						1800	38														Limited sample achieved pump and bailer
Cell 2	7.7	12000	3700	620	1700	56	15	<0.08	120	<1	1.2	130	1900	33	86	460	26	77	29	210	
Cell 3	7.9	16000	6200	1100	1700	2900	160	<0.08	380	160	12	160	1400	86	74	500	<1	68	190	140	
Cell 4	7.6	13000	4900	860	1500	73	53	<0.08	190	26	2.1	100	4300	47	100	490	<1	110	56	200	
Cell 5	7.8	12000	4300	700	1300	80	33	<0.08	180	26	2.8	70	3800	48	88	420	<1	89	130	130	
Cell 6	7.8	13000	4500	860	1400	82	55	0.09	200	240	14	110	5500	98	80	500	<1	64	200	72	
Cell 7N	7.9	13000	4800	860	1400	83	48	<0.08	260	50	2	110	6600	60	80	480	<1	140	34	660	
Cell 8	7.6	9700	4100	0.75	980	51	<4	<0.08	140	9.4	4.5	73	2400	29	100	440	<1	130	44	210	
Cell 9	7.8	16000	5500	1000	1900	91	80	<0.08	240	89	2.8	140	4400	48	74	540	150	66	2000	150	

15/12/2016

	pH	Electrical Conductivity	Total Alkalinity	Ammoniacal Nitrogen in mg/l	Chloride in mg/l	COD	BOD	Cadmium in ug/l	Chromium	Copper	Lead	Nickel	Iron	Arsenic	Magnesium	Potassium	Total Sulphates	Calcium	Sodium	Zinc	Manganese
Units		us/cm	mg CaCO3/l	mg/l	mg/l	mg O2/l	mg O2/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	mg/l	mg/l	mg/l	mg/l	mg/l	ug/l	ug/l
Cell 1	*																				
Cell 2	7.6	11000	3600	670	1500	1300	110	<0.08	57	30	<1	85	1200	74	61	370	100	53	990	25	88
Cell 3	7.8	16000	8500	1200	1700	3000	200	<0.08	28	9	<1	14	100	11	70	510	<1	69	1100	6	18
Cell 4	7.7	15000	7400	1000	1700	2200	140	<0.08	130	77	3.4	110	3700	54	79	470	<1	91	1100	100	150
Cell 5	7..7	11000	2800	700	1400	1400	110	0.10	87	100	<1	61	2000	73	72	370	140	80	760	110	97
Cell 6	7.6	14000	3800	930	1500	2100	120	<0.08	140	1000	8.7	99	4700	230	69	480	<1	55	1000	240	55
Cell 7	*																				
Cell 8	7.7	9600	2600	620	1100	2800	94	0.11	65	200	<1	75	1700	42	100	460	<1	130	700	200	160
Cell 9	8	16000	2600	1100	1800	2800	160	<0.08	200	110	2.3	150	1200	74	68	550	94	79	1100	120	200
Tanks	7.9	11000	4300	750	1300	1700	130	<0.08	87	22	<1	59	3200	100	62	410	<1	67	860	40	100

***** Sample could not be collected

15/12/2016

	pH	Electrical Conductivity	Total Alkalinity	Ammoniacal Nitrogen in mg/l	Chloride in mg/l	COD	BOD	Cadmium in ug/l	Chromium	Copper	Lead	Nickel	Iron	Arsenic	Magnesium	Potassium	Total Sulphates	Calcium	Sodium	Zinc	Manganese
Units		us/cm	mg CaCO3/l	mg/l	mg/l	mg O2/l	mg O2/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	mg/l	mg/l	mg/l	mg/l	mg/l	ug/l	ug/l
Cell 1	*																				
Cell 2	*																				
Cell 3	8.1	650	7000	1200	1700	3400	850	0.96	200	410	8.2	190	2000	190	57	480	<1	57	1300	190	210
Cell 4	8.0	14000	5400	930	1400	1200	100	<0.08	110	52	3.6	60	3100	54	130	600	<1	120	1100	61	130
Cell 5	8.1	11000	5100	690	1400	1200	63	<0.08	95	63	<1	45	2100	67	78	420	<1	72	1000	86	65
Cell 6	*																				
Cell 7A	7.7	11000	5500	860	1400	1200	93	<0.08	21	18	1.2	49	4900	100	120	460	<1	130	1100	38	260
Cell 7N	*																				
Cell 8	7.7	9200	4200	530	1100	930	46	<0.08	56	73	<1	50	2000	66	90	420	200	100	770	140	210
Cell 9	8.1	14000	6600	1200	1700	1200	94	<0.08	212	82	2.4	110	1200	120	77	550	<1	78	1200	58	220
Tanks	8.3	11000	5500	930	1500	1200	150	<0.08	69	44	2	90	5800	160	73	470	<1	85	1000	79	270

***** Sample could not be collected

	pH	Electrical Conductivity	Total Alkalinity	Ammoniacal Nitrogen in mg/l	Chloride in mg/l	COD	BOD	Cadmium in ug/l	Chromium	Copper
Units		us/cm	mg CaCO3/l	mg/l	mg/l	mg O2/l	mg O2/l	ug/l	ug/l	ug/l
Cell 1	8.2	11000	3900	470	1900	1200	<6.0	0.11	79	35
Cell 2										
Cell 3	8.3	14000	5900	860	1400	3300	6	<0.080	140	15
Cell 4	8.4	15000	6200	860	1900	1500	<4.0	<0.080	56	88
Cell 5	8.2	11000	4800	740	1500	1200	<4.0	<0.089	89	81
Cell 6	8.2	13000	5700	860	<1.0	1700	<4.0	<0.080	85	67
Cell 7A										
Cell 7N	8	12000	5500	760	1500	1900	<4.0	<0.080	190	50
Cell 8	7.9	10000	4400	580	1200	900	<4.0	0.10	68	95
Cell 9	8.3	15000	6100	9300	1700	1800	<4.0	<0.080	120	47
Tank	8.4	13000	5400	750	1500	2000	<4.0	0.80	200	12

Lead	Nickel	Iron	Arsenic	Magnesium	Potassium	Total Sulphates	Calcium	Sodium	Zinc	Manganese
ug/l	ug/l	ug/l	ug/l	mg/l	mg/l	mg/l	mg/l	mg/l	ug/l	ug/l
<1.0	120	1900	70	68	440	180	110	1300	70	140
2.1	56	1100	48	48	450	450	64	980	110	110
1.7	66	2200	33	78	520	<1.0	92	1300	74	78
<1.0	85	2700	95	73	440	<1.0	75	950	100	79
1.7	55	2800	120	73	520	<1.0	62	1100	1000	46
2	94	9300	140	110	470	<1.0	170	1000	110	390
<1.0	57	2300	53	99	530	<1.0	120	920	150	140
1.1	82	720	75	71	530	100	88	1200	48	71
<1.0	190	640	24	60	410	83	80	1000	29	60

Project: Finmere

Client: AT Contracting & Plant Hire Ltd			**Chemtest Job No.:**		17-25889	17-25889	17-25889	17-25889	17-25889	17-25889	17-25889	17-25889	17-25889	17-25889
Quotation No.:			**Chemtest Sample ID.:**		519225	519226	519227	519228	519229	519230	519231	519232	519233	519234
			Client Sample ID.:		Tank	Cell 1	Cell 2	Cell 3	Cell 4	Cell 5	Cell 6	Cell 7 N	Cell 8	Cell 9
			Sample Type:		WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
			Date Sampled:		26-Sep-2017	26-Sep-2017	26-Sep-2017	26-Sep-2017	26-Sep-2017	26-Sep-2017	26-Sep-2017	26-Sep-2017	26-Sep-2017	26-Sep-2017
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
Fluoride	U	1220	mg/l	0.050	2.0	2.7	6.9	1.9	2.9	1.6	4.2	2.7	1.1	1.9
Ammonia (Free)	U	1220	mg/l	0.010	20	47	15	51	40	23	27	50	8.1	52
Ammoniacal Nitrogen	U	1220	mg/l	0.010	930	930	770	1200	1200	860	1100	930	700	1200
Nitrate	U	1220	mg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Phosphorus (Total)	N	1220	mg/l	0.020	1.2	4.0	0.16	6.7	6.3	0.33	2.1	3.7	0.14	9.0
Sulphate	U	1220	mg/l	1.0	14	150	< 1.0	< 1.0	< 1.0	6.5	39	160	< 1.0	54
Calcium	U	1415	mg/l	5.0	68	84	74	56	75	73	58	87	130	87
Potassium	U	1415	mg/l	0.50	360	350	330	400	460	380	440	340	410	450
Magnesium	U	1415	mg/l	0.50	42	47	58	45	66	65	62	55	86	56
Sodium	U	1415	mg/l	0.50	850	810	970	980	1200	850	930	800	730	1000
Arsenic (Dissolved)	U	1450	µg/l	1.0	81	52	47	56	43	82	180	68	24	41
Boron (Dissolved)	U	1450	µg/l	20	4400	4400	4800	5400	3900	5100	7000	6200	5000	6600
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080	0.10	< 0.080	< 0.080	< 0.080	0.12	< 0.080	0.14	< 0.080	< 0.080
Mercury (Dissolved)	U	1450	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Manganese (Dissolved)	U	1450	µg/l	1.0	58	81	73	73	89	58	58	120	120	150
Zinc (Dissolved)	U	1450	µg/l	1.0	27	110	170	91	130	130	110	170	50	53
Silver (Total)	N	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	2.2	1.0	1.2	1.5	< 1.0	< 1.0
Arsenic (Total)	N	1450	µg/l	1.0	110	76	46	77	60	110	200	79	27	42
Boron (Total)	N	1450	µg/l	20	5500	6600	4800	7400	5600	6800	8200	7500	6100	6700
Barium (Total)	N	1450	µg/l	5.0	280	340	380	360	380	250	390	350	270	400
Beryllium (Total)	N	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cobalt (Total)	N	1450	µg/l	1.0	22	36	28	23	26	25	24	37	11	34
Chromium (Total)	N	1450	µg/l	1.0	80	110	56	190	98	90	120	120	47	110
Copper (Total)	N	1450	µg/l	1.0	35	370	620	58	120	170	84	320	62	79
Molybdenum (Total)	N	1450	µg/l	1.0	1.6	2.0	1.7	1.9	1.7	1.8	1.8	2.0	< 1.0	1.8
Nickel (Total)	N	1450	µg/l	1.0	68	110	140	85	110	80	110	110	39	100
Lead (Total)	N	1450	µg/l	1.0	< 1.0	5.2	< 1.0	3.4	1.3	< 1.0	4.7	5.0	< 1.0	1.5
Antimony (Total)	N	1450	µg/l	1.0	1.8	2.9	1.8	3.3	1.3	1.5	2.1	3.1	1.0	1.7
Selenium (Total)	N	1450	µg/l	1.0	42	74	53	47	39	49	53	86	25	38
Tin (Total)	N	1450	µg/l	1.0	3.1	7.4	2.4	5.3	9.2	2.7	4.1	6.7	1.8	7.4
Tellurium	N	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Titanium (Total)	N	1450	µg/l	1.0	83	120	56	230	140	78	120	120	76	140
Thallium	N	1450	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Uranium	N	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (Total)	N	1450	µg/l	1.0	32	28	18	60	30	41	53	30	14	42
Zinc (Total)	N	1450	µg/l	1.0	34	150	170	120	160	160	120	180	55	54
Mercury Low Level	U	1460	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Triphenyl Tin	N	1730	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Dichlorodifluoromethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloromethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	U	1760	µg/l	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroethane	U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Trichlorofluoromethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans 1,2-Dichloroethene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
cis 1,2-Dichloroethene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromochloromethane	U	1760	µg/l	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trichloromethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloromethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	U	1760	µg/l	1.0	1.7	< 1.0	1.7	1.4	1.0	3.4	1.5	< 1.0	< 1.0	2.8
1,2-Dichloroethane	U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Trichloroethene	N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	U	1760	µg/l	10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Bromodichloromethane	U	1760	µg/l	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
cis-1,3-Dichloropropene	N	1760	µg/l	10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Toluene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	6.3	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	3.0
Trans-1,3-Dichloropropene	N	1760	µg/l	10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
1,1,2-Trichloroethane	U	1760	µg/l	10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Tetrachloroethene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Dibromochloromethane	U	1760	µg/l	10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
1,2-Dibromoethane	U	1760	µg/l	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chlorobenzene	N	1760	µg/l	1.0	1.3	< 1.0	1.2	< 1.0	2.0	3.1	< 1.0	< 1.0	< 1.0	2.5
1,1,1,2-Tetrachloroethane	U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Ethylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	1760	µg/l	1.0	2.2	< 1.0	< 1.0	6.4	< 1.0	< 1.0	10	2.4	< 1.0	2.6
o-Xylene	U	1760	µg/l	1.0	2.4	1.6	< 1.0	6.7	4.0	2.2	4.5	2.0	1.2	5.4
Styrene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichloropropane	N	1760	µg/l	50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
N-Propylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	1.5	< 1.0	< 1.0	1.4	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tert-Butylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	4.0	< 1.0	< 1.0	6.8	< 1.0	< 1.0	< 1.0
Sec-Butylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Isopropyltoluene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.5	3.6
1,4-Dichlorobenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	2.8
N-Butylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-Chloropropane	U	1760	µg/l	50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
1,2,4-Trichlorobenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Methyl Tert-Butyl Ether	N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Carbon Tetrachloride	N	1760	µg/l	10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Chloroform	N	1760	µg/l	10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
N-Nitrosodimethylamine	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Phenol	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2-Chlorophenol	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bis-(2-Chloroethyl)Ether	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,3-Dichlorobenzene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,4-Dichlorobenzene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-Dichlorobenzene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2-Methylphenol (o-Cresol)	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bis(2-Chloroisopropyl)Ether	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Hexachloroethane	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
N-Nitrosodi-n-propylamine	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
4-Methylphenol	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Nitrobenzene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Isophorone	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2-Nitrophenol	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2,4-Dimethylphenol	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bis(2-Chloroethoxy)Methane	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2,4-Dichlorophenol	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2,4-Trichlorobenzene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Naphthalene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
4-Chloroaniline	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Hexachlorobutadiene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Hexachlorobutadiene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
4-Chloro-3-Methylphenol	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2-Methylnaphthalene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Hexachlorocyclopentadiene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2,4,6-Trichlorophenol	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2,4,5-Trichlorophenol	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2-Chloronaphthalene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2-Nitroaniline	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Acenaphthylene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Dimethylphthalate	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2,6-Dinitrotoluene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50

Acenaphthene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
3-Nitroaniline	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Dibenzofuran	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
4-Chlorophenylphenylether	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2,4-Dinitrotoluene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Fluorene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Diethyl Phthalate	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
4-Nitroaniline	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2-Methyl-4,6-Dinitrophenol	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Azobenzene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
4-Bromophenylphenyl Ether	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Hexachlorobenzene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Hexachlorobenzene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Pentachlorophenol	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Phenanthrene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Anthracene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Carbazole	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Di-N-Butyl Phthalate	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Fluoranthene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Pyrene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Butylbenzyl Phthalate	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Benzo[a]anthracene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Chrysene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bis(2-Ethylhexyl)Phthalate	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Di-N-Octyl Phthalate	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Benzo[b]fluoranthene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Benzo[k]fluoranthene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Benzo[a]pyrene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Indeno(1,2,3-c,d)Pyrene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Dibenz(a,h)Anthracene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Benzo[g,h,i]perylene	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
4-Nitrophenol	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Permethrin	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
PCB 28	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 52	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 90+101	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 118	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 153	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 138	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 180	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total PCBs (7 congeners)	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Demeton-O	N	1820	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Phorate	N	1820	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Demeton-S	N	1820	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Disulfoton	N	1820	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Fenthion	N	1820	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Trichloronate	N	1820	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Prothiofos	N	1820	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Fensulphothion	N	1820	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Sulprofos	N	1820	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Azinphos-Methyl	N	1820	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Coumaphos	N	1820	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Dimethoate	N	1820	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Parathion	N	1820	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Atraton	N	1830	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Prometon	N	1830	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Simazine	N	1830	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Atrazine	N	1830	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Propazine	N	1830	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Terbuthylazine	N	1830	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Secbumeton	N	1830	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Simetryn	N	1830	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Ametryn	N	1830	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Prometryn	N	1830	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Terbutryn	N	1830	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Alpha-HCH	N	1840	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Gamma-HCH (Lindane)	N	1840	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Beta-HCH	N	1840	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Delta-HCH	N	1840	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Heptachlor	N	1840	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Aldrin	N	1840	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Heptachlor Epoxide	N	1840	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Gamma-Chlordane	N	1840	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Alpha-Chlordane	N	1840	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Endosulfan I	N	1840	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
4,4-DDE	N	1840	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Dieldrin	N	1840	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Endrin	N	1840	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
4,4-DDD	N	1840	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Endosulfan II	N	1840	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Endrin Aldehyde	N	1840	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
4,4-DDT	N	1840	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Endosulfan Sulphate	N	1840	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Methoxychlor	N	1840	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Endrin Ketone	N	1840	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
2,4-D	N	1930	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Dichlorprop	N	1930	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
MCPA	N	1930	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
MCPB	N	1930	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Mecoprop	N	1930	µg/l	0.40	1.0	< 0.40	0.95	< 0.40	< 0.40	< 0.40	< 0.40	0.46	< 0.40	< 0.40
2,4,5-T	N	1930	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50

Project: Leachate Quarterly Finmere

Client: AT Contracting & Plant Hire Ltd				**Chemtest Job No.:**	17-32963	17-32963	17-32963	17-32963	17-32963	17-32963	17-32963	17-32963	17-32963	17-32963
Quotation No.:				**Chemtest Sample ID.:**	552459	552460	552461	552462	552463	552464	552465	552466	552467	552468
				Client Sample ID.:	Tank	Cell 1	Cell 2	Cell 3	Cell 4	Cell 5	Cell 6	Cell 7N	Cell 8	Cell 9
				Sample Type:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
				Date Sampled:	06-Dec-2017	06-Dec-2017	06-Dec-2017	06-Dec-2017	06-Dec-2017	06-Dec-2017	06-Dec-2017	06-Dec-2017	06-Dec-2017	06-Dec-2017
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
pH	U	1010		N/A	7.7	8.3	7.7	7.9	7.5	7.7	7.5	7.6	7.6	7.6
Electrical Conductivity	U	1020	µS/cm	1.0	12000	11000	12000	14000	14000	13000	13000	13000	9800	15000
Biochemical Oxygen Demand	N	1090	mg O2/l	4.0	[B] 31	[B] 34	[B] 13	[B] 63	[B] 40	[B] 21	[B] 19	[B] 23	[B] 23	[B] 18
Chemical Oxygen Demand	U	1100	mg O2/l	10	1300	1500	1200	2600	1800	1200	1500	1600	840	2400
Alkalinity (Total)	U	1220	mg CaCO3/l	10	3800	3400	2600	2100	3200	3700	4700	2600	4200	7000
Chloride	U	1220	mg/l	1.0	1500	1300	1800	1500	2000	1300	1700	1400	1400	2000
Ammoniacal Nitrogen	U	1220	mg/l	0.010	660	750	700	1100	1200	570	770	950	650	1000
Sulphate	U	1220	mg/l	1.0	6.1	240	360	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Calcium	U	1415	mg/l	5.0	68	75	74	67	77	72	47	130	110	110
Potassium	U	1415	mg/l	0.50	35	31	34	37	42	33	40	40	37	62
Magnesium	U	1415	mg/l	0.50	5.4	4.7	5.5	4.5	5.9	6.0	5.5	8.0	7.9	6.4
Sodium	U	1415	mg/l	0.50	78	72	98	93	110	75	86	89	65	100
Arsenic (Dissolved)	U	1450	µg/l	1.0	140	120	150	85	100	150	270	220	78	76
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	0.12	< 0.080	0.096	0.090	< 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	120	150	90	230	220	120	140	270	88	210
Copper (Dissolved)	U	1450	µg/l	1.0	35	150	490	260	200	140	180	120	130	36
Iron (Dissolved)	N	1450	µg/l	20	3800	4600	6700	1500	5000	6100	6000	19000	8300	6500
Manganese (Dissolved)	U	1450	µg/l	1.0	230	110	78	120	170	89	47	340	170	150
Nickel (Dissolved)	U	1450	µg/l	1.0	73	99	100	100	160	87	130	120	52	120
Lead (Dissolved)	U	1450	µg/l	1.0	3.6	4.1	16	6.2	5.1	3.9	5.8	6.7	1.5	1.6
Zinc (Dissolved)	U	1450	µg/l	1.0	180	150	230	150	190	170	150	180	160	58

Project: Quarterly Finmere

Client: AT Contracting & Plant Hire Ltd				**Chemtest Job No.:**	18-02252	18-02252	18-02252	18-02252	18-02252	18-02252	18-02252	18-02252	18-02252	18-02252
Quotation No.:				**Chemtest Sample ID.:**	569385	569386	569387	569388	569389	569390	569391	569392	569393	569394
				Client Sample ID.:	Tank	Cell 1	Cell 2	Cell 3	Cell 4	Cell 5	Cell 6	Cell 7 N	Cell 8	Cell 9
				Sample Type:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
				Date Sampled:	23-Jan-2018	23-Jan-2018	23-Jan-2018	23-Jan-2018	23-Jan-2018	23-Jan-2018	23-Jan-2018	23-Jan-2018	23-Jan-2018	23-Jan-2018
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
pH	U	1010		N/A	8.1	8.1	8.3	8.3	8.4	8.1	8.2	8.1	8.3	8.1
Electrical Conductivity	U	1020	µS/cm	1.0	11000	11000	11000	13000	14000	11000	12000	12000	9000	9000
Biochemical Oxygen Demand	N	1090	mg O2/l	4.0	[B] 6.0	[B] < 4.0	[B] 5.0	[B] < 4.0	[B] 4.0	[B] < 4.0	[B] 4.0	[B] < 4.0	[B] < 4.0	[B] 4.0
Chemical Oxygen Demand	U	1100	mg O2/l	10	1200	1100	960	2800	1400	1100	1400	1900	840	860
Alkalinity (Total)	U	1220	mg CaCO3/l	10	4300	3300	3600	5500	5600	4000	4600	5800	4100	4300
Chloride	U	1220	mg/l	1.0	1500	1400	1800	1500	1800	1400	1600	1300	1200	1100
Ammoniacal Nitrogen	U	1220	mg/l	0.010	790	670	700	1000	950	690	790	1200	720	740
Sulphate	U	1220	mg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Calcium	U	1415	mg/l	5.0	110	110	70	86	90	60	57	51	52	64
Potassium	U	1415	mg/l	0.50	600	710	590	630	630	420	470	15	4.6	4.8
Magnesium	U	1415	mg/l	0.50	100	130	92	81	98	75	70	14	6.5	19
Sodium	U	1415	mg/l	0.50	800	730	1000	800	1200	900	1000	71	22	34
Arsenic (Dissolved)	U	1450	µg/l	1.0	140	81	91	100	79	81	210	140	37	34
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080	< 0.080	0.10	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	94	74	64	180	120	88	130	180	70	62
Copper (Dissolved)	U	1450	µg/l	1.0	16	48	350	67	200	59	190	49	71	71
Iron (Dissolved)	N	1450	µg/l	20	4100	2600	1100	790	3300	2500	3700	6600	1800	1700
Manganese (Dissolved)	U	1450	µg/l	1.0	140	67	53	110	110	67	62	300	120	120
Nickel (Dissolved)	U	1450	µg/l	1.0	70	67	95	92	110	68	120	88	48	46
Lead (Dissolved)	U	1450	µg/l	1.0	1.6	< 1.0	1.5	8.4	2.4	< 1.0	6.7	1.5	< 1.0	< 1.0
Zinc (Dissolved)	U	1450	µg/l	1.0	340	82	290	230	130	74	250	83	73	73

S3.9.2 Leachate Monitoring	
Date of Measurement	05/03/2019

Non-Operational Cells or Phases (MEPP)						
Parameter	Units	Cell 1	Cell 2	Cell 4	Cell 5	Cell 8
pH		8	7.7	7.8	7.6	7.7
Electrical Conductivity	µS/cm	11000	12000	12000	12000	12000
BOD	mg O2/l	[B] 29	[B] 18	[B] 21	[B] 26	[B] 5.0
COD	mg O2/l	1300	1200	1300	1400	1400
Alkalinity (Total)	mg/l	6900	6600	6500	6200	6300
Chloride	mg/l	1300	1400	1400	1400	1400
Ammoniacal Nitrogen	mg/l	1000	1000	1000	1000	1000
Sulphate	mg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Calcium	mg/l	60	48	48	64	59
Potassium	mg/l	440	430	430	440	420
Magnesium	mg/l	70	65	65	74	67
Sodium	mg/l	970	980	980	990	920
Arsenic (Dissolved)	µg/l	46	54	53	46	48
Cadmium (Dissolved)	µg/l	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080
Chromium (Dissolved)	µg/l	96	110	130	90	97
Copper (Dissolved)	µg/l	10	14	46	8.6	9.2
Iron (Dissolved)	µg/l	3700	4100	3900	3700	3900
Manganese (Dissolved)	µg/l	60	67	62	59	61
Nickel (Dissolved)	µg/l	77	85	80	75	77
Lead (Dissolved)	µg/l	< 1.0	< 1.0	2.3	< 1.0	< 1.0
Zinc (Dissolved)	µg/l	68	67	130	57	60

S3.9 Leachate Monitoring	
Date of Measurement	05/03/2019

Operational Cells or Phases (MEPP)						
Parameter	Units	Cell 3	Cell 6	Cell 7	Cell 9	Tank
pH		7.7	7.8	7.7	7.7	7.8
Electrical Conductivity	µS/cm	12000	12000	12000	12000	12000
BOD	mg O2/l	[B] < 4.0	[B] 4.0	[B] 15	[B] 27	[B] 4.0
COD	mg O2/l	1300	1400	1400	1400	1400
Alkalinity (Total)	mg/l	6600	6900	7200	6600	190
Chloride	mg/l	1400	1300	1400	1400	17
Ammoniacal Nitrogen	mg/l	1000	1000	1000	1000	4.9
Sulphate	mg/l	< 1.0	< 1.0	< 1.0	< 1.0	51
Calcium	mg/l	57	58	8.7	8.9	64
Potassium	mg/l	440	420	410	410	470
Magnesium	mg/l	69	67	13	14	78
Sodium	mg/l	980	940	910	920	1100
Arsenic (Dissolved)	µg/l	50	45	61	50	54
Cadmium (Dissolved)	µg/l	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080
Chromium (Dissolved)	µg/l	110	96	180	97	98
Copper (Dissolved)	µg/l	9.5	9.4	21	15	9.8
Iron (Dissolved)	µg/l	4100	3800	360	4000	4000
Manganese (Dissolved)	µg/l	62	62	66	64	64
Nickel (Dissolved)	µg/l	110	78	76	82	81
Lead (Dissolved)	µg/l	< 1.0	< 1.0	18	< 1.0	< 1.0
Zinc (Dissolved)	µg/l	38	76	140	73	33

Leachate Monitoring Results

Sample ID	Date Sampled	Parameter	EA Limit	Value	Unit
Tank	Jun-19	pH		7.8	[ ]
Tank	Jun-19	Electrical Conductivity		11000	µS/cm
Tank	Jun-19	Biochemical Oxygen Demand		< 4.0	mg O2/l
Tank	Jun-19	Chemical Oxygen Demand		1300	mg O2/l
Tank	Jun-19	Alkalinity (Total)		6200	mg/l
Tank	Jun-19	Chloride		1400	mg/l
Tank	Jun-19	Ammoniacal Nitrogen		530	mg/l
Tank	Jun-19	Sulphate		< 1.0	mg/l
Tank	Jun-19	Calcium		35	mg/l
Tank	Jun-19	Potassium		360	mg/l
Tank	Jun-19	Magnesium		6.7	mg/l
Tank	Jun-19	Sodium		780	mg/l
Tank	Jun-19	Arsenic (Dissolved)		99	µg/l
Tank	Jun-19	Cadmium (Dissolved)		< 0.080	µg/l
Tank	Jun-19	Chromium (Dissolved)		98	µg/l
Tank	Jun-19	Copper (Dissolved)		18	µg/l
Tank	Jun-19	Iron (Dissolved)		8900	µg/l
Tank	Jun-19	Manganese (Dissolved)		97	µg/l
Tank	Jun-19	Nickel (Dissolved)		61	µg/l
Tank	Jun-19	Lead (Dissolved)		1.9	µg/l
Tank	Jun-19	Zinc (Dissolved)		110	µg/l
Cell 1	Jun-19	pH		7.9	[ ]
Cell 1	Jun-19	Electrical Conductivity		9700	µS/cm
Cell 1	Jun-19	Biochemical Oxygen Demand		35	mg O2/l
Cell 1	Jun-19	Chemical Oxygen Demand		1000	mg O2/l
Cell 1	Jun-19	Alkalinity (Total)		6200	mg/l
Cell 1	Jun-19	Chloride		1400	mg/l
Cell 1	Jun-19	Ammoniacal Nitrogen		520	mg/l
Cell 1	Jun-19	Sulphate		< 1.0	mg/l
Cell 1	Jun-19	Calcium		69	mg/l
Cell 1	Jun-19	Potassium		310	mg/l
Cell 1	Jun-19	Magnesium		17	mg/l
Cell 1	Jun-19	Sodium		680	mg/l
Cell 1	Jun-19	Arsenic (Dissolved)		85	µg/l
Cell 1	Jun-19	Cadmium (Dissolved)		< 0.080	µg/l
Cell 1	Jun-19	Chromium (Dissolved)		84	µg/l
Cell 1	Jun-19	Copper (Dissolved)		24	µg/l
Cell 1	Jun-19	Iron (Dissolved)		7700	µg/l
Cell 1	Jun-19	Manganese (Dissolved)		120	µg/l
Cell 1	Jun-19	Nickel (Dissolved)		52	µg/l
Cell 1	Jun-19	Lead (Dissolved)		1.7	µg/l
Cell 1	Jun-19	Zinc (Dissolved)		210	µg/l
Cell 2	Jun-19	pH		7.8	[ ]
Cell 2	Jun-19	Electrical Conductivity		9700	µS/cm
Cell 2	Jun-19	Biochemical Oxygen Demand		56	mg O2/l
Cell 2	Jun-19	Chemical Oxygen Demand		910	mg O2/l
Cell 2	Jun-19	Alkalinity (Total)		5900	mg/l
Cell 2	Jun-19	Chloride		1400	mg/l

Cell 2	Jun-19	Ammoniacal Nitrogen		470	mg/l
Cell 2	Jun-19	Sulphate		< 1.0	mg/l
Cell 2	Jun-19	Calcium		72	mg/l
Cell 2	Jun-19	Potassium		310	mg/l
Cell 2	Jun-19	Magnesium		32	mg/l
Cell 2	Jun-19	Sodium		660	mg/l
Cell 2	Jun-19	Arsenic (Dissolved)		83	µg/l
Cell 2	Jun-19	Cadmium (Dissolved)		< 0.080	µg/l
Cell 2	Jun-19	Chromium (Dissolved)		85	µg/l
Cell 2	Jun-19	Copper (Dissolved)		26	µg/l
Cell 2	Jun-19	Iron (Dissolved)		7900	µg/l
Cell 2	Jun-19	Manganese (Dissolved)		150	µg/l
Cell 2	Jun-19	Nickel (Dissolved)		54	µg/l
Cell 2	Jun-19	Lead (Dissolved)		1.7	µg/l
Cell 2	Jun-19	Zinc (Dissolved)		120	µg/l
Cell 3	Jun-19	pH		7.8	[ ]
Cell 3	Jun-19	Electrical Conductivity		9500	µS/cm
Cell 3	Jun-19	Biochemical Oxygen Demand		48	mg O2/l
Cell 3	Jun-19	Chemical Oxygen Demand		990	mg O2/l
Cell 3	Jun-19	Alkalinity (Total)		6000	mg/l
Cell 3	Jun-19	Chloride		1400	mg/l
Cell 3	Jun-19	Ammoniacal Nitrogen		640	mg/l
Cell 3	Jun-19	Sulphate		< 1.0	mg/l
Cell 3	Jun-19	Calcium		74	mg/l
Cell 3	Jun-19	Potassium		330	mg/l
Cell 3	Jun-19	Magnesium		5.9	mg/l
Cell 3	Jun-19	Sodium		670	mg/l
Cell 3	Jun-19	Arsenic (Dissolved)		84	µg/l
Cell 3	Jun-19	Cadmium (Dissolved)		< 0.080	µg/l
Cell 3	Jun-19	Chromium (Dissolved)		88	µg/l
Cell 3	Jun-19	Copper (Dissolved)		23	µg/l
Cell 3	Jun-19	Iron (Dissolved)		7700	µg/l
Cell 3	Jun-19	Manganese (Dissolved)		120	µg/l
Cell 3	Jun-19	Nickel (Dissolved)		54	µg/l
Cell 3	Jun-19	Lead (Dissolved)		1.6	µg/l
Cell 3	Jun-19	Zinc (Dissolved)		110	µg/l
Cell 4	Jun-19	pH		7.7	[ ]
Cell 4	Jun-19	Electrical Conductivity		10000	µS/cm
Cell 4	Jun-19	Biochemical Oxygen Demand		48	mg O2/l
Cell 4	Jun-19	Chemical Oxygen Demand		1100	mg O2/l
Cell 4	Jun-19	Alkalinity (Total)		6000	mg/l
Cell 4	Jun-19	Chloride		1400	mg/l
Cell 4	Jun-19	Ammoniacal Nitrogen		520	mg/l
Cell 4	Jun-19	Sulphate		< 1.0	mg/l
Cell 4	Jun-19	Calcium		80	mg/l
Cell 4	Jun-19	Potassium		340	mg/l
Cell 4	Jun-19	Magnesium		13	mg/l
Cell 4	Jun-19	Sodium		720	mg/l
Cell 4	Jun-19	Arsenic (Dissolved)		87	µg/l
Cell 4	Jun-19	Cadmium (Dissolved)		< 0.080	µg/l

Cell 4	Jun-19	Chromium (Dissolved)		98	µg/l
Cell 4	Jun-19	Copper (Dissolved)		24	µg/l
Cell 4	Jun-19	Iron (Dissolved)		8100	µg/l
Cell 4	Jun-19	Manganese (Dissolved)		110	µg/l
Cell 4	Jun-19	Nickel (Dissolved)		55	µg/l
Cell 4	Jun-19	Lead (Dissolved)		1.5	µg/l
Cell 4	Jun-19	Zinc (Dissolved)		220	µg/l
Cell 5	Jun-19	pH		7.7	[ ]
Cell 5	Jun-19	Electrical Conductivity		9600	µS/cm
Cell 5	Jun-19	Biochemical Oxygen Demand		57	mg O2/l
Cell 5	Jun-19	Chemical Oxygen Demand		920	mg O2/l
Cell 5	Jun-19	Alkalinity (Total)		6600	mg/l
Cell 5	Jun-19	Chloride		1400	mg/l
Cell 5	Jun-19	Ammoniacal Nitrogen		510	mg/l
Cell 5	Jun-19	Sulphate		< 1.0	mg/l
Cell 5	Jun-19	Calcium		73	mg/l
Cell 5	Jun-19	Potassium		320	mg/l
Cell 5	Jun-19	Magnesium		26	mg/l
Cell 5	Jun-19	Sodium		660	mg/l
Cell 5	Jun-19	Arsenic (Dissolved)		84	µg/l
Cell 5	Jun-19	Cadmium (Dissolved)		< 0.080	µg/l
Cell 5	Jun-19	Chromium (Dissolved)		93	µg/l
Cell 5	Jun-19	Copper (Dissolved)		27	µg/l
Cell 5	Jun-19	Iron (Dissolved)		7700	µg/l
Cell 5	Jun-19	Manganese (Dissolved)		110	µg/l
Cell 5	Jun-19	Nickel (Dissolved)		53	µg/l
Cell 5	Jun-19	Lead (Dissolved)		1.9	µg/l
Cell 5	Jun-19	Zinc (Dissolved)		180	µg/l
Cell 6	Jun-19	pH		7.7	[ ]
Cell 6	Jun-19	Electrical Conductivity		9700	µS/cm
Cell 6	Jun-19	Biochemical Oxygen Demand		50	mg O2/l
Cell 6	Jun-19	Chemical Oxygen Demand		1100	mg O2/l
Cell 6	Jun-19	Alkalinity (Total)		6600	mg/l
Cell 6	Jun-19	Chloride		1400	mg/l
Cell 6	Jun-19	Ammoniacal Nitrogen		620	mg/l
Cell 6	Jun-19	Sulphate		< 1.0	mg/l
Cell 6	Jun-19	Calcium		77	mg/l
Cell 6	Jun-19	Potassium		330	mg/l
Cell 6	Jun-19	Magnesium		40	mg/l
Cell 6	Jun-19	Sodium		710	mg/l
Cell 6	Jun-19	Arsenic (Dissolved)		86	µg/l
Cell 6	Jun-19	Cadmium (Dissolved)		< 0.080	µg/l
Cell 6	Jun-19	Chromium (Dissolved)		110	µg/l
Cell 6	Jun-19	Copper (Dissolved)		23	µg/l
Cell 6	Jun-19	Iron (Dissolved)		8000	µg/l
Cell 6	Jun-19	Manganese (Dissolved)		130	µg/l
Cell 6	Jun-19	Nickel (Dissolved)		54	µg/l
Cell 6	Jun-19	Lead (Dissolved)		1.5	µg/l
Cell 6	Jun-19	Zinc (Dissolved)		85	µg/l
Cell 7	Jun-19	pH		7.8	[ ]

Cell 7	Jun-19	Electrical Conductivity		9800	µS/cm
Cell 7	Jun-19	Biochemical Oxygen Demand		50	mg O2/l
Cell 7	Jun-19	Chemical Oxygen Demand		910	mg O2/l
Cell 7	Jun-19	Alkalinity (Total)		6500	mg/l
Cell 7	Jun-19	Chloride		1400	mg/l
Cell 7	Jun-19	Ammoniacal Nitrogen		610	mg/l
Cell 7	Jun-19	Sulphate		< 1.0	mg/l
Cell 7	Jun-19	Calcium		75	mg/l
Cell 7	Jun-19	Potassium		310	mg/l
Cell 7	Jun-19	Magnesium		47	mg/l
Cell 7	Jun-19	Sodium		690	mg/l
Cell 7	Jun-19	Arsenic (Dissolved)		86	µg/l
Cell 7	Jun-19	Cadmium (Dissolved)		< 0.080	µg/l
Cell 7	Jun-19	Chromium (Dissolved)		86	µg/l
Cell 7	Jun-19	Copper (Dissolved)		22	µg/l
Cell 7	Jun-19	Iron (Dissolved)		7700	µg/l
Cell 7	Jun-19	Manganese (Dissolved)		120	µg/l
Cell 7	Jun-19	Nickel (Dissolved)		52	µg/l
Cell 7	Jun-19	Lead (Dissolved)		1.4	µg/l
Cell 7	Jun-19	Zinc (Dissolved)		110	µg/l
Cell 8	Jun-19	pH		7.8	[ ]
Cell 8	Jun-19	Electrical Conductivity		9400	µS/cm
Cell 8	Jun-19	Biochemical Oxygen Demand		48	mg O2/l
Cell 8	Jun-19	Chemical Oxygen Demand		950	mg O2/l
Cell 8	Jun-19	Alkalinity (Total)		6400	mg/l
Cell 8	Jun-19	Chloride		1400	mg/l
Cell 8	Jun-19	Ammoniacal Nitrogen		510	mg/l
Cell 8	Jun-19	Sulphate		< 1.0	mg/l
Cell 8	Jun-19	Calcium		73	mg/l
Cell 8	Jun-19	Potassium		310	mg/l
Cell 8	Jun-19	Magnesium		50	mg/l
Cell 8	Jun-19	Sodium		630	mg/l
Cell 8	Jun-19	Arsenic (Dissolved)		83	µg/l
Cell 8	Jun-19	Cadmium (Dissolved)		< 0.080	µg/l
Cell 8	Jun-19	Chromium (Dissolved)		1100	µg/l
Cell 8	Jun-19	Copper (Dissolved)		37	µg/l
Cell 8	Jun-19	Iron (Dissolved)		7500	µg/l
Cell 8	Jun-19	Manganese (Dissolved)		130	µg/l
Cell 8	Jun-19	Nickel (Dissolved)		53	µg/l
Cell 8	Jun-19	Lead (Dissolved)		3.0	µg/l
Cell 8	Jun-19	Zinc (Dissolved)		190	µg/l
Cell 9	Jun-19	pH		7.7	[ ]
Cell 9	Jun-19	Electrical Conductivity		9400	µS/cm
Cell 9	Jun-19	Biochemical Oxygen Demand		54	mg O2/l
Cell 9	Jun-19	Chemical Oxygen Demand		1100	mg O2/l
Cell 9	Jun-19	Alkalinity (Total)		6200	mg/l
Cell 9	Jun-19	Chloride		1400	mg/l
Cell 9	Jun-19	Ammoniacal Nitrogen		450	mg/l
Cell 9	Jun-19	Sulphate		< 1.0	mg/l
Cell 9	Jun-19	Calcium		73	mg/l

Cell 9	Jun-19	Potassium		300	mg/l
Cell 9	Jun-19	Magnesium		49	mg/l
Cell 9	Jun-19	Sodium		650	mg/l
Cell 9	Jun-19	Arsenic (Dissolved)		83	µg/l
Cell 9	Jun-19	Cadmium (Dissolved)		< 0.080	µg/l
Cell 9	Jun-19	Chromium (Dissolved)		110	µg/l
Cell 9	Jun-19	Copper (Dissolved)		23	µg/l
Cell 9	Jun-19	Iron (Dissolved)		7600	µg/l
Cell 9	Jun-19	Manganese (Dissolved)		130	µg/l
Cell 9	Jun-19	Nickel (Dissolved)		51	µg/l
Cell 9	Jun-19	Lead (Dissolved)		1.6	µg/l
Cell 9	Jun-19	Zinc (Dissolved)		77	µg/l

Comment	

Appendix B3 - Leachate Quality

S3.9.2 Leachate Monitoring	
Date of Measurement	27/09/2019

Non-Operational Cells or Phases (MEPP)								
		Cell 1	Cell 2	Cell 4		Cell 5		Cell 8
Parameter	Units	LW1	LW2	LW4	LW4A	LW5	LW5A	LW8
pH		8.3	8.3	8.2	8.2	8.2	8.2	8.2
Electrical	µS/cm	8800	10000	9200	9900	11000	11000	9800
BOD	mg O2/l	[B] 21	[B] 50	[B] 47	[B] 310	[B] 56	[B] 58	[B] 310
COD	mg O2/l	980	1200	1000	1100	1100	1200	1000
Alkalinity (Total)	mg/l	4700	4700	4100	1200	5000	5000	780
Chloride	mg/l	1300	1300	1300	1300	1600	1500	1300
Ammoniacal Nitrogen	mg/l	630	860	730	930	1600	1600	1600
Sulphate	mg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Calcium	mg/l	21	37	56	< 5.0	63	64	59
Potassium	mg/l	390	450	370	< 0.50	470	510	440
Magnesium	mg/l	23	54	76	< 0.50	85	91	80
Sodium	mg/l	940	1100	860	< 0.50	1200	1200	1000
Arsenic (Dissolved)	µg/l	77	82	76	82	190	89	75
Cadmium (Dissolved)	µg/l	0.31	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080
Chromium	µg/l	140	130	110	110	260	130	110
Copper (Dissolved)	µg/l	96	85	140	160	260	190	140
Iron (Dissolved)	µg/l	8900	4900	4400	4900	10000	5200	4100
Manganese	µg/l	220	88	76	82	150	86	62
Nickel (Dissolved)	µg/l	110	96	88	97	200	110	91
Lead (Dissolved)	µg/l	16	12	4.4	2.4	11	3.7	2.8
Zinc (Dissolved)	µg/l	120	86	55	64	120	45	38

Operational Cells or Phases (MEPP)									
		Cell 3			Cell 6	Cell 7	Cell 9		Tank
Parameter	Units	LW3	LW3A	LW3B	LW6	LW7A	LW9A	LW9B	
pH		8.2	8.4	8.4	8.2	8.2	8.3	8.3	8.2
Electrical	µS/cm	11000	11000	9300	11000	11000	10000	10000	11000
BOD	mg O2/l	[B] 54	[B] 56	[B] 48	[B] 64	[B] 62	[B] 58	[B] 320	[B] 58
COD	mg O2/l	1200	1200	1000	1100	1200	1000	1000	1200
Alkalinity (Total)	mg/l	6000	6000	4300	1600	1600	1300	1400	1700
Chloride	mg/l	1500	1500	1200	1400	1400	1400	1400	1400
Ammoniacal Nitrogen	mg/l	1600	1600	1600	1600	1600	1600	890	930
Sulphate	mg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Calcium	mg/l	51	60	50	55	58	62	62	64
Potassium	mg/l	520	550	440	460	480	450	430	500
Magnesium	mg/l	80	91	74	78	84	80	84	85
Sodium	mg/l	1200	1300	1000	1100	1100	1100	1100	1300
Arsenic (Dissolved)	µg/l	90	88	73	91	86	89	88	88
Cadmium (Dissolved)	µg/l	< 0.080	0.14	0.090	< 0.080	< 0.080	1.7	1.1	< 0.080
Chromium	µg/l	140	140	110	140	130	130	180	120
Copper (Dissolved)	µg/l	130	210	140	160	170	180	180	160
Iron (Dissolved)	µg/l	5600	6300	4700	6000	4700	6100	6300	5500
Manganese	µg/l	82	140	88	130	72	130	180	96
Nickel (Dissolved)	µg/l	120	140	88	110	110	110	120	110
Lead (Dissolved)	µg/l	10	11	6.8	4.4	3.4	5.8	31	5.8
Zinc (Dissolved)	µg/l	79	89	65	48	43	66	150	61

Appendix B3 - Leachate Quality

S3.9.2 Leachate Monitoring	
Date of Measurement	05/12/2019

Non-Operational Cells or Phases (MEPP)								
		Cell 1	Cell 2	Cell 4		Cell 5		Cell 8
Parameter	Units	LW1	LW2	LW4	LW4A	LW5	LW5A	LW8
pH		8.2	8.2	8.2		8.2	8.2	8.2
Electrical	µS/cm	8800	9600	10000		9200	9300	10000
BOD	mg O2/l	[B] 29	[B] 18	[B] 22		[B] 24	[B] 21	[B] 23
COD	mg O2/l	940	1200	1100		950	940	1100
Alkalinity (Total)	mg/l	3700	4000	4200		3800	3900	4200
Chloride	mg/l	1100	1200	1300		1100	1200	1300
Ammoniacal Nitrogen	mg/l	720	860	860		740	740	930
Sulphate	mg/l	< 1.0	< 1.0	< 1.0		< 1.0	< 1.0	1.1
Calcium	mg/l	40	44	49		44	45	28
Potassium	mg/l	300	370	420		340	340	380
Magnesium	mg/l	34	42	47		43	44	34
Sodium	mg/l	720	890	1100		820	850	920
Arsenic (Dissolved)	µg/l	8	8	8		7	7	9
Cadmium (Dissolved)	µg/l	< 0.080	< 0.080	< 0.080		< 0.080	< 0.080	< 0.080
Chromium	µg/l	10	6	7		8	6	6
Copper (Dissolved)	µg/l	6	6	4		3	3	2
Iron (Dissolved)	µg/l	400	400	510		500	660	440
Manganese	µg/l	< 1.0	< 1.0	29		25	12	9
Nickel (Dissolved)	µg/l	< 1.0	< 1.0	5		4	4	5
Lead (Dissolved)	µg/l	< 1.0	< 1.0	4.3		< 1.0	< 1.0	< 1.0
Zinc (Dissolved)	µg/l	7	8	6		4	4	3

Operational Cells or Phases (MEPP)										
		Cell 3			Cell 6	Cell 7		Cell 9		Tank
Parameter	Units	LW3	LW3A	LW3B	LW6	LW7A	LW7N	LW9A	LW9B	
pH		8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.0
Electrical	µS/cm	9000	10000	9100	11000	9300	10000	11000	9200	10000
BOD	mg O2/l	[B] 21	[B] 24	[B] 24	[B] 27	[B] 24	[B] 25	[B] 28	[B] 19	[B] 28
COD	mg O2/l	970	1100	950	1200	940	1300	1200	950	930
Alkalinity (Total)	mg/l	3900	4200	3900	4300	3900	4200	4500	3900	4200
Chloride	mg/l	1200	1300	1100	1300	1200	1300	1400	1200	1300
Ammoniacal Nitrogen	mg/l	750	930	740	860	720	860	1700	750	860
Sulphate	mg/l	< 1.0	1	< 1.0	1.8	< 1.0	< 1.0	1.1	< 1.0	< 1.0
Calcium	mg/l	47	52	43	52	43	53	56	51	45
Potassium	mg/l	350	370	320	410	440	350	410	360	340
Magnesium	mg/l	46	49	42	49	41	49	54	50	44
Sodium	mg/l	850	940	790	1000	1100	850	1000	860	820
Arsenic (Dissolved)	µg/l	8	9	7	9	7	8	9	7	8
Cadmium (Dissolved)	µg/l	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080
Chromium	µg/l	5	6	5	7	6	6	7	5	6
Copper (Dissolved)	µg/l	5	5	5	3	2	2	2	2	2
Iron (Dissolved)	µg/l	400	480	420	520	380	420	450	400	370
Manganese	µg/l	< 1.0	< 1.0	< 1.0	23	10	9	9	8	8
Nickel (Dissolved)	µg/l	< 1.0	< 1.0	< 1.0	5	4	5	6	4	5
Lead (Dissolved)	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (Dissolved)	µg/l	7	8	7	4	3	3	4	3	3

Appendix B3 - Leachate Quality

S3.9.2 Leachate Monitoring	
Date of Measurement	04/03/2020

Non-Operational Cells or Phases (MEPP)								
		Cell 1	Cell 2	Cell 4		Cell 5		Cell 8
Parameter	Units	LW1	LW2	LW4	LW4A	LW5	LW5A	LW8
pH		8.2	8.1	8.1		8.2		8.2
Electrical	µS/cm	5100	6000	5200		5400		4800
BOD	mg O2/l							
COD	mg O2/l							
Alkalinity (Total)	mg/l							
Chloride	mg/l	520	620	540		560		480
Ammoniacal	mg/l	480	530	430		500		420
Sulphate	mg/l	90.9	82.6	70.2		78.1		80.2
Calcium	mg/l							
Potassium	mg/l							
Magnesium	mg/l							
Sodium	mg/l							
Arsenic (Dissolved)	µg/l	15.3	18.4	22.1		28.5		27.0
Cadmium	µg/l	0.03	< 0.02	0.02		< 0.02		0.02
Chromium	µg/l	14	18	15		19		16
Copper (Dissolved)	µg/l	6.2	4.9	5.4		4.9		7.2
Iron (Dissolved)	µg/l	1.1	1.3	1.1		1.3		0.9
Manganese	µg/l	35	39	40		40		37
Nickel (Dissolved)	µg/l	21	25	20		20		19
Lead (Dissolved)	µg/l	0.8	0.6	1.2		1.3		1.3
Zinc (Dissolved)	µg/l	17	14	18		15		19

Operational Cells or Phases (MEPP)										
		Cell 3			Cell 6	Cell 7		Cell 9		Tank
Parameter	Units	LW3	LW3A	LW3B	LW6	LW7A	LW7N	LW9A	LW9B	
pH		8.2			8.2	8.2		8.2		8.4
Electrical	µS/cm	5800			6000	4700		5700		4600
BOD	mg O2/l									
COD	mg O2/l									
Alkalinity (Total)	mg/l									
Chloride	mg/l	600			630	460		600		460
Ammoniacal	mg/l	500			570	430		560		410
Sulphate	mg/l	101			79.0	78.2		120		70.4
Calcium	mg/l									
Potassium	mg/l									
Magnesium	mg/l									
Sodium	mg/l									
Arsenic (Dissolved)	µg/l	14.9			22.4	24.8		22.7		23.5
Cadmium	µg/l	< 0.02			< 0.02	< 0.02		< 0.02		0.02
Chromium	µg/l	15			15	12		14		17
Copper (Dissolved)	µg/l	5.7			3.7	5.5		3.8		6.7
Iron (Dissolved)	µg/l	1.3			1.3	1.2		1.3		0.78
Manganese	µg/l	39			31	37		31		1.1
Nickel (Dissolved)	µg/l	26			20	18		19		18
Lead (Dissolved)	µg/l	0.6			1.3	1.4		1.4		1.1
Zinc (Dissolved)	µg/l	17			8.2	16		9.4		15