Cover Page

Signed Declaration

Waste License Registration Number: W0201-03

Licensee: **Bord na Mona Resource Recovery Ltd**

Reporting year: 2016

I Declare that;

“All the data and information presented in this report has been checked and certified as being accurate. The quality of the information is assured to meet licence requirements”

Signature

EHS Compliance Officer

2016 ANNUAL ENVIRONMENTAL REPORT

Bord na Móna Resource Recovery
Drehid Waste Management Facility

License Registration Number:	W0201-03
Licensee:	Bord na Móna Plc Drehid Waste Management Facility
Location of Activity:	Killinagh Upper, Carbury, Co. Kildare
Attention:	Office of Environmental Enforcement, EPA Headquarters, PO Box 3000, Johnstown Castle Estate, Co. Wexford
Prepared by:	Bord Na Móna Plc Drehid Waste Management Facility

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1. INTRODUCTION

The following document is the 2016 Annual Environmental Report (AER) for the Bord na Móna Waste Management Facility at Drehid, County Kildare. It covers the period from 1st January 2016 to 31st December 2016. The Integrated Waste Management Facility comprises of a non-hazardous, fully engineered landfill, a composting plant and a landfill gas utilisation plant.

The Environmental Protection Agency (Agency) granted the Waste Licence (W0201-01) in August 2005 and construction works began in August 2006. Phase 1 was completed in 2007 and the facility began accepting waste in February 2008. In April 2009, the Agency issued a revised Waste Licence (W0201-02), which increased the annual waste acceptance limit to 360,000 tonnes for a seven year period or until the end of 2015, whichever is sooner. In March 2010, the Agency issued a revised Waste Licence (W0201-03), which was primarily aimed at ensuring that landfill operations are undertaken in compliance with all relevant requirements of the Landfill Directive (1999/31/EC) including the need to divert biodegradable municipal waste from landfill. In December of 2013, the Agency issued a notice of amendment of the license, to bring it into conformity with the European Union (Industrial Emissions) Regulations 2013. The content of this AER is based on Schedule F of the licence.

In February 2016, Bord na Móna requested the Agency to technically amend the Licence to facilitate the continued acceptance of 360,000 tonnes per annum for disposal in the landfill up until the end of 2017. In March 2016, this request was approved by the Agency.

The Drehid Waste Management Facility has a Management System onsite which is fully integrated to include ISO: 9001, ISO:14001, OHSAS: 18001. The management system is audited on a yearly basis by NSAI.

2. SITE DESCRIPTION

2.1 Site Location and Layout

The facility is located approximately 9km south of Enfield in County Kildare and is within the confines of the Bord na Móna owned Timahoe bog. The site encompasses a total area of approximately 179 hectares (ha), which includes the site access road, clay borrow area, landfill footprint, sand and gravel borrow area and associated infrastructure.

The landfill, when complete, will encompass approximately 39 ha. It will be developed in fifteen distinct phases, each having duration of up to 3 years depending on the rate of waste acceptance. Waste deposition will only take place in the active phase and each phase will occupy between 2.2ha and 2.6 ha in area. The initial construction phase was completed in January 2008 and waste acceptance began in February of that year.

Subsequent construction projects have involved the construction of additional engineered cells, landfill gas management infrastructure including an utilisation plant for the generation of electricity, and the development of a composting facility.

2.2 Waste Types & Volumes

Only non-hazardous, solid, residual waste that has been subject to adequate pre-treatment is permitted to be accepted for disposal at the landfill facility. Hazardous and liquid wastes are not accepted. All wastes deliveries are subject to Waste Acceptance Procedures that have been approved by the Agency, as specified in Condition 8.1.10 of the Licence.

A maximum of 385,000 tonnes of non-hazardous municipal, commercial and industrial waste can be accepted annually at the landfill and compost facility until the 1st December 2017, after which the annual intake reduces to a maximum of 145,000 tonnes per annum. An unlimited amount of inert engineering material can be accepted for recovery in on-site engineering.

2.3 Waste Activities

The facility is a full containment landfill, which is designed to accept pre-treated waste for final disposal. The waste activities carried out during the reporting period were: -

- Disposal (landfilling) of wastes,
- Recovery of wastes for removal off-site for recycling,
- Recovery of certain wastes on-site for use in engineering works and as daily cover, and
- Capture and utilisation of the landfill gas for the generation of electricity for supply to the national grid.

The Compost Plant comprises a waste reception area, 12 composting tunnels, a screening area and product storage bay.

2.4 Waste Received, Recovered & Consigned

The types and quantities of wastes received, disposed, recovered and consigned from the facility in 2016 are shown in Tables 2.1 and 2.2. The consigned wastes are those generated by daily operations and which were not suitable for recovery or disposal on-site.

The information in Table 2.1 below has been complied and is presented in accordance with the instructions of the EPA set out in compliance instructions (CI001383) issued on 1st November 2016 and 21st December 2016.

Table 2.1 Waste Received 2016

Waste Type to Landfill Facility	**Description**	**Tonnes**
Municipal	Mixed Commercial and Domestic	242536.68
	Street Cleansing and Local Authority Clean ups	41568.61
	Ash	52.2
	Biostabilised Waste	18378.37
Industrial	Non Hazardous Industrial Solid Waste	904.78
	Medical waste	17.64
Sludges & Filter cake	Non Hazardous Municipal & Industrial	3836.36
C&D	Mixed Construction & Demolition Waste	4.98
	Non Hazardous Soils and Stone (inc. Japanese Knotweed)	83.5
	Non Hazardous Soils and Stone	145.86
Total Disposed to Landfill Facility		**307,528.98**
Municipal	Biostabilised Waste	42298.10
Industrial	Ash	2477.49
	Sawdust, shavings, cuttings & wood	482.88
Sludges & Filter cake	Waste from desanding	386.72
C&D	Soil & Stones	51738.76
	Shredded Timber	5688.84
Total Non-Inert Recovered at Landfill Facility		**103,072.79**

C&D	C&D Rubble	53571.79
	Soil & Stones	218,622.28
	C&D Fines	120,547.78
Municipal	Glass	7760.52
Total Inert Recovered at Landfill Facility		**400,502.37**

Soils & fines material includes Greenfield soils received for the final capping works at the facility. In addition to the quantities recovered onsite during 2016, an estimated 67,782 tonnes of inert soil, 1,648 tonnes of wood chip, 2,140 tonnes of construction rubble and 426 tonnes of crushed glass deemed suitable for engineering purposes remained in storage at the end of 2016 for later use.

Waste Type to Composting Facility	**Description**	**Tonnes**
Organic Fines	Screenings from trommelling of municipal Waste	24,961.74
	Total Accepted to Composting Facility	**24,961.74**

Table 2.2 Waste Consigned 2016

Waste Description	**Tonnes**
Engine, Gear and Lubricant Oils	92.98
Landfill Leachate & Foul Water	51573.42
Metals	70.06
Total Consigned:	**51,736.46**

2.5 Landfill Capacity

The most recent topographical survey of the landfill cell footprint is included in Appendix 1. The projected closure date of the facility is 2028.

- The total capacity of the entire landfill facility is estimated to be **5,040,000m^3**.
- The current constructed unused void space at the end of 2016 is approximately **234,565 tonnes of disposal**
- **3,601,843m^3** of void space has been used up to the end of 2016.

2.6 Method of Deposition of Wastes

2.6.1 Waste Acceptance

Waste accepted for disposal is residual waste from household, commercial and industrial sources. All of the waste collectors that deliver the waste have systems in place whereby the recyclable fraction is either collected separately, or else separation is carried out at their recovery/transfer facilities. Wastes are delivered in Heavy Goods Vehicles (HGVs) provided with the appropriate covers to prevent loss of load. Each vehicle first proceeds to the incoming weighbridge where it is weighed. The weighbridge operator and/or the Facility Manager may, at their own discretion, request the load to be tipped in the Waste Inspection Area to ensure it is suitable for acceptance.

The vehicles then proceed to the active fill area, where it is deposited under the direction of a banksman. The vehicles weigh out at the outgoing weighbridge and receive an individual weighbridge docket before exiting the site.

2.6.2 Working Face

Waste is deposited close to and above the advancing tipping face. Site operatives inspect the deposited waste for items that are not acceptable under the Licence, such as tyres, gas bottles, batteries, WEEE etc. These are removed and stored in appropriate areas for later removal from the site.

The deposited waste is then spread in shallow layers on the inclined surface and compacted. Steel-wheeled compactors operate on the gradient of the more shallow face, pushing and compacting thin layers of waste. Each day's waste input forms a 'block', which is compacted and covered. The following day a new 'block' of waste is deposited adjacent to this block. This allows areas that have been filled and are to be left for a period, to be progressively restored over the site life, minimising the areas of active waste deposition.

3. ENVIRONMENTAL MONITORING

Bord na Móna implements a comprehensive environmental monitoring programme to assess the significance of emissions from site activities. The programme, which is specified in Schedule C of the Licence, includes groundwater, surface water, leachate, landfill gas, noise, dust and particulate monitoring and a biological assessment of the Cushaling River. The monitoring locations are shown in Appendix 2.

The monitoring results, including the full laboratory reports, were submitted to the Agency at quarterly intervals in the reporting period. This section presents a summary of the monitoring data included in Appendix 3.

3.1 Groundwater Monitoring

3.1.1 Baseline Groundwater Conditions

The site is underlain by the Carboniferous Kildare Shelf, which comprises the Waulsortian, Boston Hill and Allenwood limestone Formations. The majority of the site is underlain by Waulsortian limestone, which comprises pale grey, fine grained limestone. The subsoil comprises basin peat deposits, which are underlain by thick (10 to 35m) undifferentiated till.

The groundwater monitoring carried out before the start of the construction works established naturally occurring elevated ammonia, iron, manganese and electrical conductivity levels. The hydrochemistry in the upgradient and downgradient wells is similar and characteristic of the limestone rocks in confined conditions.

3.1.2 Groundwater Quality

Groundwater quality was monitored at monthly intervals at existing groundwater monitoring wells during 2016. Additional groundwater monitoring wells (GW-11S, GW-11D, GW-12S, GW-12D, GW-13S and GW-13D) were installed during March 2014 as requested by the EPA to provide additional down gradient monitoring locations. The sampling was carried out in accordance with internationally accepted techniques and control procedures and the analyses were completed by a laboratory using standard and internationally accepted procedures. Samples obtained were analysed for the monthly and annual parameters specified in Schedule C.3 of the Licence.

The results were generally consistent with those obtained during previous years, with naturally elevated levels of ammonia detected at all monitoring wells. The monitoring programme confirmed that the site activities are not impacting on groundwater quality.

3.2 Surface Water Monitoring

Rainfall from the landfill cap and hard stand areas of the landfill discharges firstly into regulated settlement lagoons to remove the suspended solids and then into the Integrated Constructed Wetland (ICW) to remove the naturally elevated ammonia. The first ICW was constructed in 2014 with a second constructed in 2015 adjacent to the first to build on the successes achieved. The discharge from this ICW is monitored on a weekly basis (SW6). Since the second ICW has been fully operational in the second half of 2015 there have been no further ELV exceedances at SW6.

The site is located in the catchment of the River Barrow and a divide between the Barrow and the River Boyne catchments is more than 500m to the north. There is an extensive man made drainage network across the Bord na Móna landholding and the site is divided into a number of discrete areas, referred to as ‘peat fields’ formed by the surface water drains.

The drains connect to a central culvert, which flows towards the south, where it passes through large settlement ponds, before discharging to the Cushaling River. Rainfall on roof and paved areas of the landfill discharge to the underground culvert and are directed to the settlement ponds prior to discharge to the Cushaling. The Cushaling supports salmonid and cyprinid fish, the latter being dominant in the slower flowing upper reaches.

The Cushaling is a tributary of River Figile, which is a sub-catchment of the River Barrow. Biological monitoring in the Figile downstream of the site before site development works began established that the surface water quality had been impacted by the peat extraction activities. The Barrow is a candidate Special Area of Conservation (cSAC), and a nationally important river for fisheries.

3.2.1 Visual Assessment

Bord na Móna carries out weekly inspections of the surface water drainage system. The inspections completed in the reporting period did not identify the presence of any impact on the drainage system associated with site activities.

3.2.2 Chemical Assessment

The surface water monitoring was conducted weekly at the three locations specified in the Licence. The sampling was carried out in accordance with internationally accepted techniques and control procedures, the analyses were completed by a laboratory using standard and internationally accepted procedures.

BOD, Ammonia and Total Suspended Solids (TSS) levels were compared to their relevant emission limit values (ELV's). SW6 is located at the outlet of the Integrated Constructed Wetland (ICW) and there were no ELV exceedances at this discharge location during 2016. The ICW was constructed in 2013/2014 to actively manage naturally occurring elevated ammonia in groundwater. Under instruction from the EPA, a second ICW was constructed in 2015 adjacent to the first and since it became fully operational in the second half of 2015 no further ELV exceedances have been recorded at SW6.

The ELV for ammonia was exceeded on a total 5 no. occasions at SW-5 during 2016 which is located downstream of the settlement lagoons before surface waters discharge into the Cushaling River. There were no ELV exceedances recorded at SW-4 during 2016 which is located at Dillons Bridge on the Cushaling River.

The ammonia elevations at SW-5 were shown to be localised and it was felt that the elevations were due to natural influence from the surrounding peat i.e. the release of naturally occurring elevated ammonia in the peat and not from onsite waste activities.

3.3 Leachate

Leachate samples are analysed quarterly for BOD and COD at one monitoring location (TK2). The samples are also analysed annually for the range of parameters specified in the Licence. The results are typical of those of a leachate from a relatively young municipal solid waste landfill and are detailed in Appendix 2.

3.4 Landfill Gas (LFG)

The gas monitoring programme includes monthly measurements of methane, carbon dioxide, oxygen and atmospheric pressure in wells located both outside and inside the waste body. The wells are at 50m intervals around the landfill footprint and approximately two per hectare within the cells. The locations of the 48 external wells (LG-01 – LG-48), which were agreed in advance with the Agency, are shown on the monitoring location map included in Appendix 2.

3.4.1 Outside the Waste Body

The concentration limit for methane (1% v/v) and the concentration limit for carbon dioxide (1.5% v/v) were not exceeded outside the waste body during 2016.

3.4.2 Inside the Waste Body

Methane levels varied from 14.3 to 62.5 %v/v, carbon dioxide levels varied from 10.4 to 70.3 %v/v, while oxygen levels varied from 0 to 15.7 %v/v. These levels are typical of those in an operational non-hazardous waste landfill.

3.5 Noise Survey

Noise monitoring is carried out annually at five monitoring locations (N2, N3, N4, N5 and noise sensitive location N1) in accordance with International Standards Organisation 1996: Acoustics-description and Measurement of Environmental Noise (Parts 1, 2 and 3).

Noise monitoring undertaken in 2016 included both daytime and night time monitoring. The noise sensitive location (NSL) recorded daytime LAeq levels of 35-43 dB(A) and night-time LAeq levels of 33-34 dB(A), all of which are within their respective licence limits.

Tonal noise was not detected at any of the boundary locations or at the NSL during any of the daytime or night-time monitoring events.

The daytime site boundary LAeq levels ranged from 35-38 dB(A) at N5 to 64 dB(A) at N4. The elevated noise level at N4 was attributed to event noise such as waste trucks/cars entering and exiting the waste management facility in close proximity to the noise meter.

The monitoring results confirmed that the noise emissions from the Drehid facility are in compliance with conditions of licence W0201-03. See monitoring location map in Appendix 2.

3.6 Dust Monitoring

Dust deposition is monitored monthly at five monitoring locations (D1, D2, D5, D6 and D8) as shown on the monitoring location map in Appendix 2. All of the monitoring results (with the exception of one result at D5 and one results at D8) were less than the deposition limit set in the licence (350 mg/m^2/day).

One elevated reading was recorded at D5 (882mg/m2/day) in April 2016. It was noted on the field sheets that a soot like substance was present in the dust gauge along with water. A bog fire was recorded in the vicinity of D5 on 24th April 2016. This would have resulted in the soot that was recorded in the dust gauge at this location.

The elevated reading recorded at D8 in July (877mg/m3/day) was attributed to high levels of dissolved moss in the dust gauge which was felt had been deposited into the gauge by birds.

3.7 Meteorological Monitoring

Average rainfall and temperature for the monitoring period were obtained from the Meteorological Station at Casement Aerodrome, which is located approximately 40 km from the facility, is presented in Table 3.1.

Table 3.1 Meteorological Data: Casement Aerodrome – 2016

Rainfall	
Total Annual (2016)	731.7mm
Maximum monthly (June)	111.3mm
Minimum monthly (July)	36.6mm
Temperature	
Mean (2016)	9.7°C
Mean Maximum (July)	15.7°C
Mean Minimum (February)	4.5°C

Total rainfall in millimetres for Casement

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2016	83.2	68.3	38.7	59.7	62.6	111.3	36.6	63.8	74.9	45.4	38.0	49.2	731.7
2015	63.4	30.5	56.4	56.2	96.4	17.4	62.5	67.5	26.2	39.4	114.3	206.3	836.5
2014	110.7	122.0	56.7	39.3	98.4	31.8	42.3	142.0	12.9	87.8	138.9	64.1	946.9
mean	85.8	73.6	50.6	51.7	85.8	53.5	47.1	91.1	38.0	57.5	97.1	106.5	838.4

Mean temperature in degrees Celsius for Casement

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2016	5.9	4.5	5.9	6.6	11.4	14.2	15.7	15.6	14.3	10.5	5.4	6.7	9.7
2015	4.6	3.8	5.8	8.1	9.8	13.3	14.3	14.2	12.0	10.3	8.5	8.5	9.4
2014	5.5	5.6	6.8	9.5	11.6	13.9	16.3	13.9	13.7	11.1	7.5	5.3	10.1
mean	5.3	4.6	6.2	8.1	10.9	13.8	15.4	14.6	13.3	10.6	7.1	6.8	9.7

3.8 Biological Monitoring

The annual biological assessment of the Cushaling River was carried out by ANUA Environmental in accordance with Schedule C.3 of the License on 4th September 2016.

Sampling was undertaken at one monitoring location downstream of the facility. As the river rises on-site there is no upstream sampling location. The assessment used the EPA Q-rating system for the

evaluation of rivers and streams. Benthic macro-invertebrates were sampled qualitatively using kick-sampling and the results indicated that the Q value to be Q3-4, which is slightly polluted.

The results reflect the findings of the previous assessment undertaken in September 2015 and that of the 2008 assessment, which was carried out prior to waste acceptance. The assessment indicates that the facility is not impacting upon the biological quality of the Cushaling River.

4. SITE DEVELOPMENT WORKS

4.1 Tank, Pipeline and Bund Testing

A visual assessment was carried out by a certified engineer of the underground tank at the wheel wash in September 2016 and it was found to be intact with no defects or water ingress. In March 2017 a visual assessment was also carried out by a certified engineer of the double skinned 9,500 litre oil tank at the gas engines, the waste oil tank in the same compound and the waste oil tank at the maintenance shed and all were found to be intact with no defects. The Engineers Reports for all of the assessments are on file at the Drehid Waste Management Facility and will be made available to the Agency for inspection at any time.

Integrity testing is required on the surface water and foul lines in 2017 and are scheduled to take place within this period.

4.2 Summary of Resource & Energy Consumption

Bord Na Móna completed an Energy Efficiency Audit of the facility in compliance with Conditions 7.1 and 7.2 of the Licence in January 2009. The audit was carried out in accordance with the Agency's "Guidance Note on Energy Efficiency Auditing" (2003). The Audit report recommended the development of a documented energy policy statement, as this is considered fundamental to the successful implementation of any management system as it provides the framework for the introduction and maintenance of energy efficiency and conservation measures in the day to day operation of the facility.

During 2013, Bord Na Móna commissioned the installation of a 5MW landfill gas utilisation plant at the facility. This plant was commissioned in November 2013 and converts landfill gas into electricity for export to the national grid. Not only does the plant produce electricity, but it also serves to reduce the facility's carbon footprint whilst ensuring the safe capture and destruction of landfill gas. Typically, the flaring of landfill gas contributes to greenhouse gas emissions; however, the landfill gas prevents this occurrence.

At the beginning of 2016 there were 3 no. electricity connections into the Drehid Waste Management Facility:

1. the Road Entrance connection which serves the entrance lighting and electric gate
2. the connection which served the electrical requirements of the landfill and composting plant
3. the connection into the Landfill Gas Utilisation Plant to primarily facilitate the export of electricity

The electricity generation capacity of the Landfill Gas Utilisation Plant is greater than the maximum export capacity of the grid connection. On 12th September 2016 the site commenced the usage of excess electricity, generated by the Landfill Gas Utilisation Plant, in the landfill, composting plant and service buildings. These facilities are now primarily powered by electricity generated on the site. The connection which previously served the electrical requirements of the landfill and composting plant was made redundant (Item 2 above).

A mains electricity supply remains in place into the Landfill Gas Utilisation Plant (Item 3 above) to facilitate the export of electricity and to provide for the importation of electricity when the Landfill Gas Utilisation Plant is offline for maintenance and therefore not generating electricity.

Table 4.2 presents the electricity usage both before and after the site converted primarily to the usage of electricity generated by the landfill Gas Utilisation Plant. Since the commencement of the usage of onsite generated electricity on 12th September 2016, there has been a reduction of 613,227kWhr of imported electricity into the site in the period to the end of 2016.

Table 4.1 Resources Used On-Site

Resources	Quantities
Diesel (green)	446,270 Litres
Kerosene	2,889 Litres*

*Note – Kerosene usage decreased in 2016 due to the cessation of hygenisation in the composting plant.

Table 4.2 Electricity Consumption On-Site

Resources	Quantities
Road Entrance	6,309kWhr
Electricity (Landfill and Composting activity) (1st Jan – 11th Sept 2016)	1,643,741kWhr
Electricity (Landfill and Composting activity) (12th Sept – 31st Dec 2016)	643,754kWhr
Electricity (Gas Plant) (1st Jan – 11th Sept 2016)	4,527kWhr
Electricity (Gas Plant) (12th Sept – 31st Dec 2016)	30,527kWhr

4.3 Site Developments

4.3.1 Landfill Construction

The construction of Phase 10 to the east of the existing footprint of the landfill was completed by the end of April 2016. Construction of Phase 11 began in May 2016 and was completed by the middle of October 2016. Construction of Phase 12 began in August 2016 and was completed by early February 2017.

During the calendar year of 2016, the final capping programme continued on site. During this period, the placement of the geo-membrane landfill cap and the final layer of soil was substantially completed in Phase 3 and Phase 4. The seeding of the completed areas of the final cap on Phase 2, 3 and 4 was undertaken in order to establish grass growth before the winter of 2016. Final cap surface water drainage works were installed on Phase 1, 2 and 3.

The installation of the permanent landfill gas pipework (excluding well heads) was completed on Phase 1, 2 and 3 along with the installation of the permanent landfill gas manifolds for each of these Phases.

The placement of temporary plastic membrane commenced on Phase 7 & 8 during the latter half of 2016. This temporary plastic membrane will reduce the infiltration of rainwater and thereby contribute towards reduced leachate generation.

4.3.2 Landfill Gas Cleaning Plant

In 2015, a landfill gas cleaning plant was installed at Drehid. The plant is designed to remove hydrogen sulphide, other organo-sulphur compounds and siloxanes from the landfill gas stream thereby increasing gas engine availability by extending the engine service and overhaul intervals.

The landfill gas cleaning plant comprises three stages. The first stage involves the biological scrubbing of the gas stream to remove hydrogen sulphide. The second stage involves the chilling/de-watering of the landfill gas in order to condition the gas for the third stage of the process. In addition, the removal of moisture from the gas reduces the potential for corrosion in the gas engines. The third stage of the process involves moving the gas through vessels which are filled with activated carbon in order to remove siloxanes. The presence of siloxanes in the landfill gas results in silica deposits in the engines' internal moving parts and components. The silica deposits are abrasive leading to engine down time, and increased operating costs.

Following the completion of its installation in the last quarter of 2015, a commissioning phase commenced which continued beyond the end of 2015. The commissioning phase concluded by the middle of 2016.

4.3.3 Reverse Osmosis Plant

Following an initial setup and commissioning phase, Bord na Móna commenced the use of a Reverse Osmosis plant, on a trial basis, for the treatment of landfill leachate on the 29th of June 2015. The RO plant facilitated the diversion of leachate volumes to a number of licenced treatment facilities.

In July 2016, Bord na Móna submitted a Specified Engineering Works (SEW) Report in relation to the permanent use of Reverse Osmosis (RO) for the treatment of leachate at the Drehid Waste Management Facility. The SEW detailed the proposed permanent use of an already installed RO Leachate Treatment Plant.

In November 2016, the Agency requested further information relating to the submitted SEW Report. This further information was submitted in February 2017. This is currently being assessed by the Agency.

4.3.4 Energy Usage

The electricity generation capacity of the Landfill Gas Utilisation Plant is greater than the maximum export capacity of the grid connection. On 12th September 2016, the site commenced the usage of excess electricity, generated by the Landfill Gas Utilisation Plant, in the landfill, compost facility and service buildings. These facilities are now primarily powered by electricity generated on the site.

A mains electricity supply remains in place into the Landfill Gas Utilisation Plant to facilitate the export of electricity and to provide for the importation of electricity when the Landfill Gas Utilisation Plant is offline for maintenance and therefore not generating electricity.

Since the commencement of the usage of onsite generated electricity on 12th September 2016, there has been a reduction of 613,227kWhr of imported electricity into the site in the period to the end of 2016.

4.4 Stability Assessment

Phase 12 of construction works were completed in early February 2017, which as per other phases were subject to a stringent Construction Quality Assurance (CQA) programme. This programme ensures the side slopes of the retaining bunds are stable. The method of waste placement, where the active waste face is confined to a height of 2.5 metres after compaction and a slope no greater than 1 in 3 ensures that the risk of slope failure is negligible.

A Stability Assessment Report was commissioned by Tobin Consulting Engineers and completed on 12th March 2016. This report is available at the Drehid Waste Management Facility for inspection by the Agency.

5. EMISSIONS

5.1 Landfill Gas

The volume of landfill gas generated at the facility during the reporting period was estimated using predictive gas generation model GasSim Version 1.54. The model input data were site specific values, i.e. size of the site, operational period, quantity and type of waste.

The model estimates that approximately 3120 m^3/ hour of landfill gas is produced, which equates to a 2016 total for methane production of 8,485,592 kgs. The total landfill gas flared from the site was calculated to be 1,540,155 kgs.

In addition, 6,572,012 kgs of methane was utilised to generate green electricity onsite.

Gas Sim	8,485,592 kg/year
Flared	1,540,155 kg/year
Utilised	6,572,012 kg/year
Fugitive Loss	373,425 kg/year

5.2 Surface Water

Rainfall from the landfill cap and hard stand areas of the landfill discharges firstly into regulated settlement lagoons before entering the Integrated Constructed Wetland (ICW), the outlet of which (SW-6) is frequently monitored. The discharge then flows to the extensive manmade drainage network across the Bord na Móna landholding formed by the surface water drains between areas referred to as “Peat fields”. The drain connects to a central culvert, which flows towards the south, where it passes through settlement ponds, before discharging to the Cushaling River.

5.3 Leachate

The tonnage of leachate and foul water taken offsite in 2016 was 51,573.42 tonnes. The leachate was directed off site for treatment at Kildare County Council’s Waste Water Treatment Plant in Leixlip, County Kildare, Ringsend Waste Water Treatment Works in County Dublin and licensed/permitted facilities operated by Rilta Environmental Limited and Enva.

6. NUISANCE CONTROL

Bord na Móna is committed to operating in the best possible manner, using the best available techniques to minimise impacts to the environment and local residential neighbours. The potential sources of nuisance at the facility are odour, vermin, birds, flies, mud, dust and litter.

6.1 Odour

In addition to the gas extraction and flaring system, good operational practices on-site are the main controls to avoid odour nuisances. The handling, depositing and covering of waste at the facility is carried out in accordance with the Agency's Landfill Manual "Landfill Operational Practices". In addition, Bord na Móna have developed a site specific "Odour Management Plan".

The waste delivery trucks are unloaded at the working face and the waste is compacted within 3 to 4 minutes. The level areas of the working face are covered on a continuous basis during the day. The slope of the working face is covered completely at the end of each working day.

6.2 Pest Control

The methods used for vermin control are as detailed in the EMS, which is ISO 14001 accredited. These control measures have proven to be successful.

Bord na Móna employs bird control specialists. The aim is to create an association of danger, so that birds choose not to fly around the area where bird control is active. To date, these measures have proven to be successful.

6.3 Dust & Litter

Bord na Móna has prepared a Dust and Litter Control Plan, a copy of which is included in Appendix 4.

Dust and mud control measures were implemented at the start of the construction phase of the site and continued into the operational phase. These measures include the use of a wheelwash, road sweeper and a water bowser to dampen access roads and stockpiles during periods of dry weather. To date these measures have proven to be successful.

Litter is controlled by fencing which was installed around the landfill footprint as specified in the Licence. Portable litter fencing is also used at the working face, which can be moved to various points around the working face depending on the wind direction. As part of operational controls all litter is regularly collected and litter has not been an issue at the facility.

7. ENVIRONMENTAL INCIDENTS AND COMPLAINTS

7.1 Incidents

There were 8 no. incidents on-site during the reporting period of 2016.

3 no. incidents related to exceedance of the ammonia limit of 0.5mg/l NH_4 set in the Licence at SW-5. The ammonia elevations at SW-5 were shown to be localised and it was felt that the elevations were due to natural influence from the surrounding peat i.e. the release of naturally occurring elevated ammonia in the peat and not from onsite waste activities.

2 no. incidents relate to the failure of an above ground compression fitting and an electrofusion coupler connection on leachate pipework at the landfill. Following the identification of the releases, the relevant Emergency Response Procedures (ERP's) were immediately initiated and in both cases all contaminated water was retained on site with no release to the receiving water.

1 no. incident related to the AFS flare for fresh gas being offline for a 4 hour period due to a malfunction of the UV sensor. The UV sensor was replaced and the flare was brought back online.

1 no. incident related to an oil spill from a ruptured sump on a vehicle entering the facility. The Emergency Response Procedure was initiated and the oil cleaned from the access road using oil absorbent granules. The spillage was not close to any drain or watercourse and was contained immediately.

The remaining incident related to a diesel spill which occurred in a construction area where the new settlement lagoons for the site's surface water were being constructed. The diesel was released from a pump located within the construction area and made its way into the construction water. A clean-up plan was immediately initiated on the site followed by an intensive sampling regime until all areas were shown to be adequately remediated.

Naturally occurring ammonia in groundwaters is perhaps the most challenging aspect of managing surface waters at Drehid. The ammonia levels recorded are not a result of waste activities, but are caused by the influence of elevated ammonia concentrations within the shallow groundwater due to the reducing properties of the peat environment.

Nonetheless, in 2016 Bord na Móna were actively seeking to reduce ammonia levels in surface waters as in evidence from the monitoring results provided. In 2012, Drehid reported 40 no. ELV exceedances for ammonia at SW6, in 2013 this number was reduced to 36, in 2014 to 10 no. ELV exceedances, in 2015 to 2 no. ELV exceedances and finally in 2016 there were no ELV exceedances at SW6. In order to build on the successes in 2014 a second wetland pond adjacent to the first was constructed in 2015 and the two wetlands were integrated by phasing the flow from the first primary pond to the second pond and out to the SW6 discharge point. This was fully operational by the second half of 2015 and there have been no further ELV exceedances at SW6 since that date.

7.2 Register of Complaints

Bord na Móna maintains a register of complaints in compliance with Condition 11.4. Details of all complaints received during the reporting period and the action taken by Bord na Móna are available at the facility. A total of 24 no. complaints were received in the reporting period relating to odour (18 no.), operational hours (2 no.), waste acceptance (1 no.) and traffic (3 no.). All of the complaints were addressed by facility staff.

8. ENVIRONMENTAL MANAGEMENT SYSTEM

8.1 Management Structure

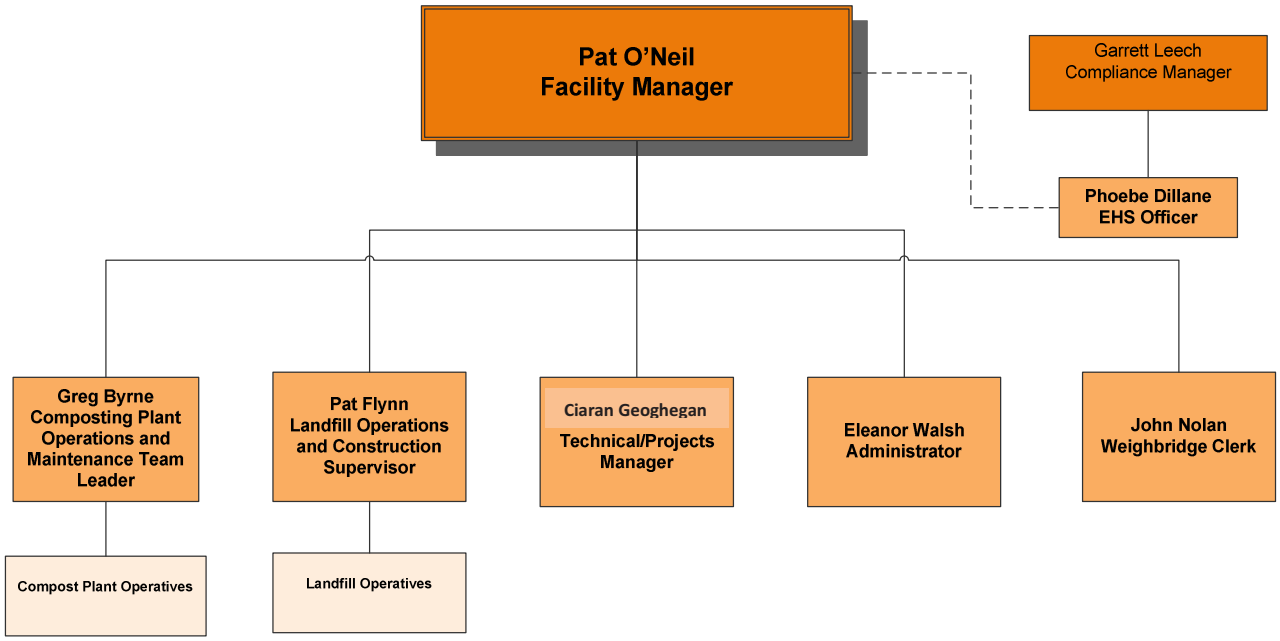
The Management Structure as required by Condition 2.2.2.1 of the licence was submitted to the Agency on 26th May 2006, as part of the EMS. An amended version is included below.

8.1.1 Site Management Structure

The day to day management of the facility and supervision of waste activities are the responsibility of the entire management team, including the Facility Manager, Landfill Operations and Construction Supervisor, Composting Plant Operations and Maintenance Team Leader, EHS Officer and the General Operatives. The site organisational chart for 2016 is shown below.

BORD NA MÓNA
Naturally Driven

DREHID FACILITY MANAGEMENT STRUCTURE



8.1.2 Staff Training

Staff training is carried out in accordance with the Environmental Management System (EMS) training procedures for the facility which is included in Appendix 5.

8.2 EMP

In compliance with Condition 2.2.1, an Environmental Management System (EMS) has been documented and implemented at the Facility. As part of the EMS, an Environmental Management Programme (EMP) was developed.

8.2.1 Schedule of Objectives 2016

Table 8.1 describes the implementation of the objectives and targets in the reporting period.

8.2.2 Schedule of Objectives 2017

Bord Na Móna has set a schedule of targets and objectives for 2017. These are presented in Table 8.2.

8.3 Communications Programme

The Communications Programme required by Condition 2.2.2.7 Licence, was established three months before the start of waste activities and has been submitted to the Agency.

Table 8.1 Progress Report on Schedule of Objectives and Targets for 2016

Ref No	Objective	Target	Timescale	Responsible Person	Status
1	Final Capping	Continue installation of final capping across Phase 5 and 6	End of 2016	CG/PF	Postponed due to high settlement rates which did not facilitate final capping
2	Leachate Management	Continuation of Reverse Osmosis Leachate treatment plant trial	March 2015	CG/PF	Trial Ongoing in 2016
3	Waste Minimisation	Re-use where possible materials used on site.	Ongoing	Team	Ongoing
4	Environmental Training and Awareness	Continue internal training programme and assessment of training needs for all operational staff during 2016	Ongoing	Environmental Team	Ongoing
5	Environmental Compliance	Review license conditions outlined within W0201-03 to ensure continued compliance with the license conditions.	Ongoing	Environmental team	Ongoing
6	Reduction in energy consumption and use of fossil fuels within the Compost Facility	Assess recommendations and introduce where possible. Establish monitoring matrices for the consumption of diesel, kerosene etc.	Dec-2015	GB	All facility electricity needs are now generated on site
7	Odour Management Plan	Maintain Odour Management Plan, including installation of intermediate liner and gas infrastructure as required. Finish commissioning of full scale Landfill Gas Cleaning plant to cleanse landfill gas utilised by the on-site Landfill Gas Engines.	Ongoing	CG/PF	Odour Plan on going. Intermediate liner placed on part of Phase 7 and Phase 8. LGC Plant fully commissioned in 2016
8	Environmental Auditing	Maintaining waste inspections during 2016 of waste coming on to site to ensure compliance with W0201-03 for waste acceptance.	Ongoing	Team	Ongoing

Table 8.2 Schedule of Objectives and Targets for 2017

Ref No	Objective	Target	Timescale	Responsible Person	Status
1	Final Capping	Commence installation of final cap liner and soil placement across Phase 5 & 6. Continued placement of intermediate liner (Phase 7, 8, 9 and 10). Complete final cap leachate recirculation system	End of 2017	Operations Team	Phase 5 & 6 regulated. Placement of intermediate liner commenced on Phase 7and 8
2	Leachate Management	Continuation of use of Reverse Osmosis Leachate treatment plant if approved by Agency. Installation of leachate recirculation infrastructure as per approved SEW	2017	Operations Team	RFI submitted to Agency in Feb 2017 for continued use of RO. Approval obtained for leachate recirculation SEW Report
3	Waste Minimisation	Re-use where possible materials used on site.	Ongoing	Team	Ongoing
4	Environmental Training and Awareness	Continue internal training programme and assessment of training needs for all operational staff during 2017	Ongoing	Environmental Team	Ongoing
5	Environmental Compliance	Review license conditions outlined within W0201-03 to ensure continued compliance with the license conditions.	Ongoing	Environmental team	Ongoing
6	Reduction in energy consumption and use of fossil fuels within the Compost Facility	Assess recommendations and introduce where possible. Establish monitoring matrices for the consumption of diesel, kerosene etc.	Dec-2017	Operations Team	Ongoing
7	Odour Management Plan	Maintain Odour Management Plan, including installation of intermediate liner and gas infrastructure as required. Use of full scale Landfill Gas Cleaning plant to cleanse landfill gas utilised by the on-site Landfill Gas Engines if approval obtained from the Agency for the continued use of permeate from the RO Plant.	Ongoing	Operations Team	Odour Plan on going. LGC Plant fully commissioned
8	Environmental Auditing	Maintaining inspections during 2017 of waste coming on to site to ensure compliance with W0201-03 for waste acceptance.	Ongoing	Team	Ongoing

9. OTHER REPORTS

9.1 Financial Provision

An Environmental Liability Risk Assessment (ELRA) was submitted as part of the 2007 AER. A revised ELRA and a Closure, Restoration and Aftercare Management Plan (CRAMP) was submitted to the Agency in December 2015. The ELRA outlines:

- Estimated costs that may arise from accidents and unplanned events;
- Estimated costs associated with the closure, restoration and aftercare measures, including unexpected closure.

Condition 12.2.2 of W0201-03 requires the preparation of a fully costed Environmental Liabilities Risk Assessment (ELRA), together with a proposal for Financial Provision arising from the carrying out of the activities to which the licence relates. The assessment shall include those liabilities and costs identified in Condition 10 for the execution of the Closure Restoration and Aftercare Management Plan (CRAMP).

Condition 10 of W0201-03 requires the provision of a closure, restoration and aftercare management plan (CRAMP) by the licensee *"to make provision for the proper closure of the activity ensuring protection of the environment"*. A Bond for CRAMP provision and the Insurance for the ELRA was submitted to the Agency in December 2016.

9.2 Contributions to Community fund

A contribution of €390,562 is to be made to the community fund for 2016 in compliance with planning condition 17 of PL09.212059.

9.3 Statement on Costs of Landfill

The costs in the setting up, operation of, and provision of financial security and closure and after-care for a period of at least 30 years, are covered by the price charged for the disposal of waste at the facility.

The Drehid Waste Management Facility is required to submit a Section 53A Statement annually in line with a legal requirement under Section 53A of the Waste Management Act 1996 (as amended) and Condition 12.4 of Drehid Waste License (Reg. No. W0201-03). This is completed by Bord na Mona plc at the end of its financial year which is the end of March 2017. Therefore, it is not possible to submit the Section 53A Statement as part of the 2016 AER. Following the finalisation of its financial year end accounts, Bord na Móna will submit a S53A statement to the Agency via Eden. It is envisaged that the S53A statement will be submitted via Eden in July 2017.

9.4 European Pollutant Release and Transfer Register

Under the European Pollutant Release and Transfer Register Regulation (EC) No. 166/2006 Bord na Móna are required to submit information annually to the Agency. A copy of the information submitted to the Agency via the web-based data reporting system is included in Appendix 6.

9.5 Waste Recovery Report

National and regional policy on waste management is based on the Department of the Environment and Local Government's policy statement of September 1998, "Changing Our Ways", in which the Government affirmed its commitment to the EU hierarchy of waste management. In order of preference this is: -

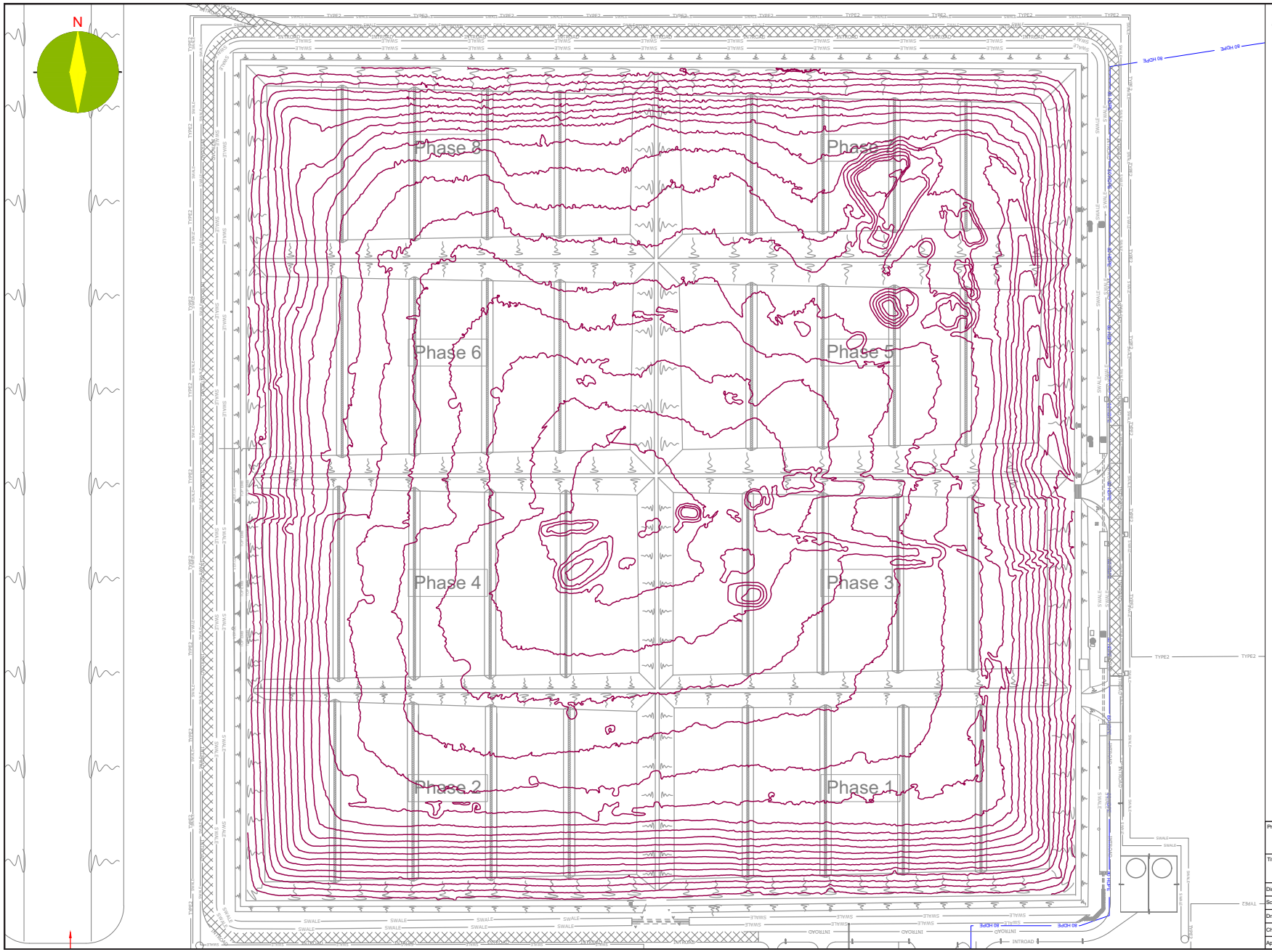
- Prevention,
- Minimisation,

- Reuse,
- Recycling,
- Energy Recovery,
- Disposal.

The policy statement was based on, and is supported by, EU legislation (Landfill Directive 99/339/EC) that requires the diversion of organic wastes, including green waste, from landfill to alternative waste treatment facilities.

APPENDIX 1

Topographic Survey



LEGEND

1M Contours January 2017 Waste Survey

NOTES

1. FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING
2. ALL DRAWINGS TO BE CHECKED BY THE CONTRACTOR ON SITE
3. ENGINEER TO BE INFORMED BY THE CONTRACTOR OF ANY DISCREPANCIES BEFORE ANY WORK COMMENCES
4. ALL LEVELS SHOWN RELATE TO ORDNANCE SURVEY DATUM AT MALIN HEAD

1000m 0 1000m 2000m 3000m

Revision:	Details:	By:	Date:	Chk'd:
A	Annual Drawing	M.H.	11.03.13	
B	Annual Drawing	M.H.	07.05.14	
C	Annual Drawing	M.H.	31.03.16	
D	Annual Drawing	M.H.	28.03.17	

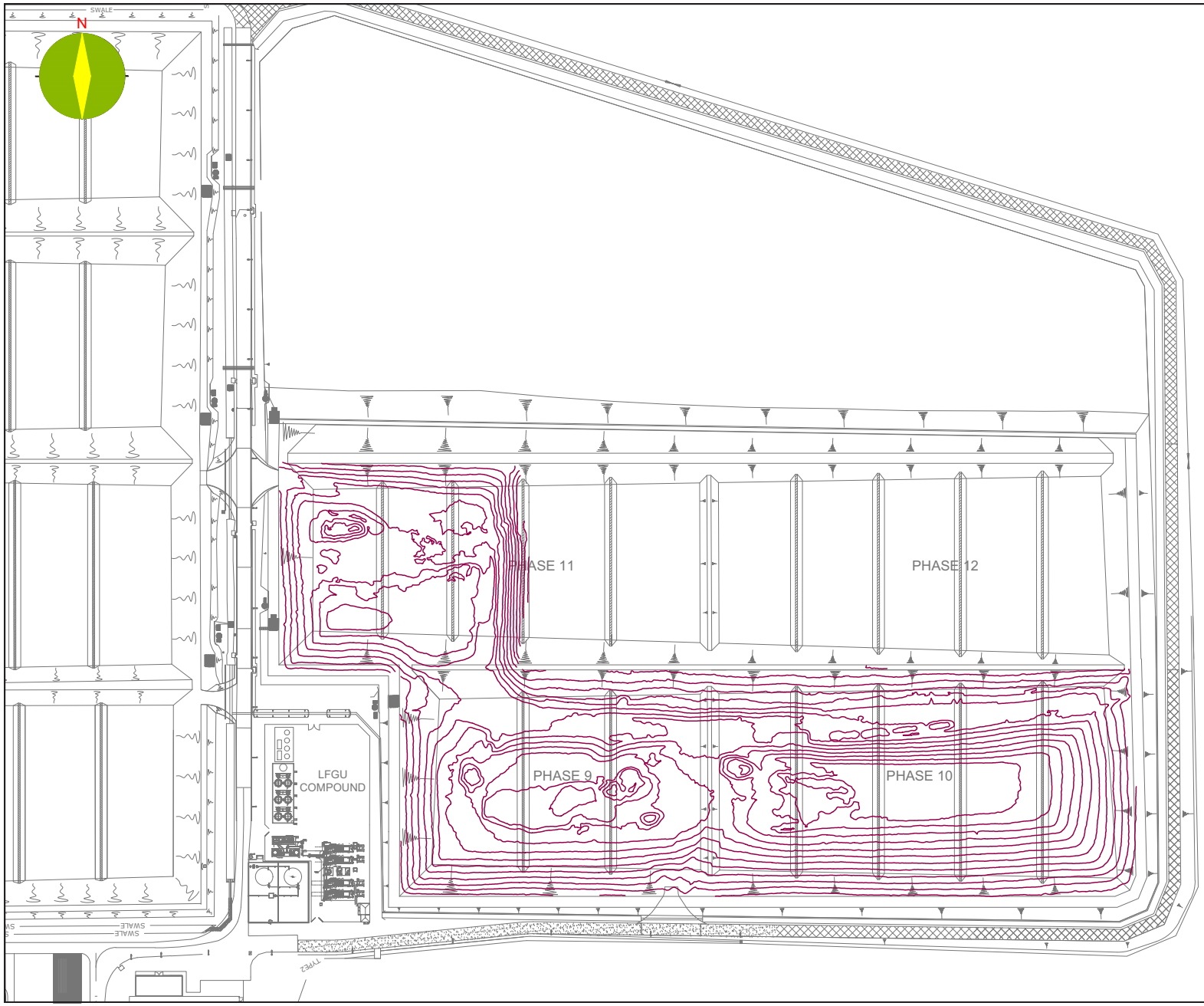
Project: Drehid Waste Management Facility

Title: Waste Deposition Phases 1-8 January 2017

Dimensions in.	M		
Scale.	1/2000		
Drawn By.	M.H	28/03/17	
Checked By.			
Approved By.			

BORD NA MÓNA
BORD NA MONA ENERGY LIMITED
LEABEG, TULLAMORE CO. OFFALY
Tel. 057 9345900. Fax. 057 9345160

Drawing No.	Revision.	Sheet
RR-DR-12-DR-01-C	D	of



LEGEND

1M Contours January 2017 Waste Survey

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4. ALL LEVELS SHOWN RELATE TO ORDNANCE SURVEY DATUM AT MALIN HEAD

1000m 0 1000m 2000m 3000m

Revision:	Details:	By:	Date:	Chk'd:
A	Annual Drawing	M.H.	28.03.17	

Project: Drehid Waste Management Facility

Title: Waste Deposition Phases 9-15 January 2017

Dimensions in.	M		
Scale.	1/2000		
Drawn By.	M.H	28/03/17	
Checked By.			
Approved By.			

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Drawing No.	Revision.	Sheet
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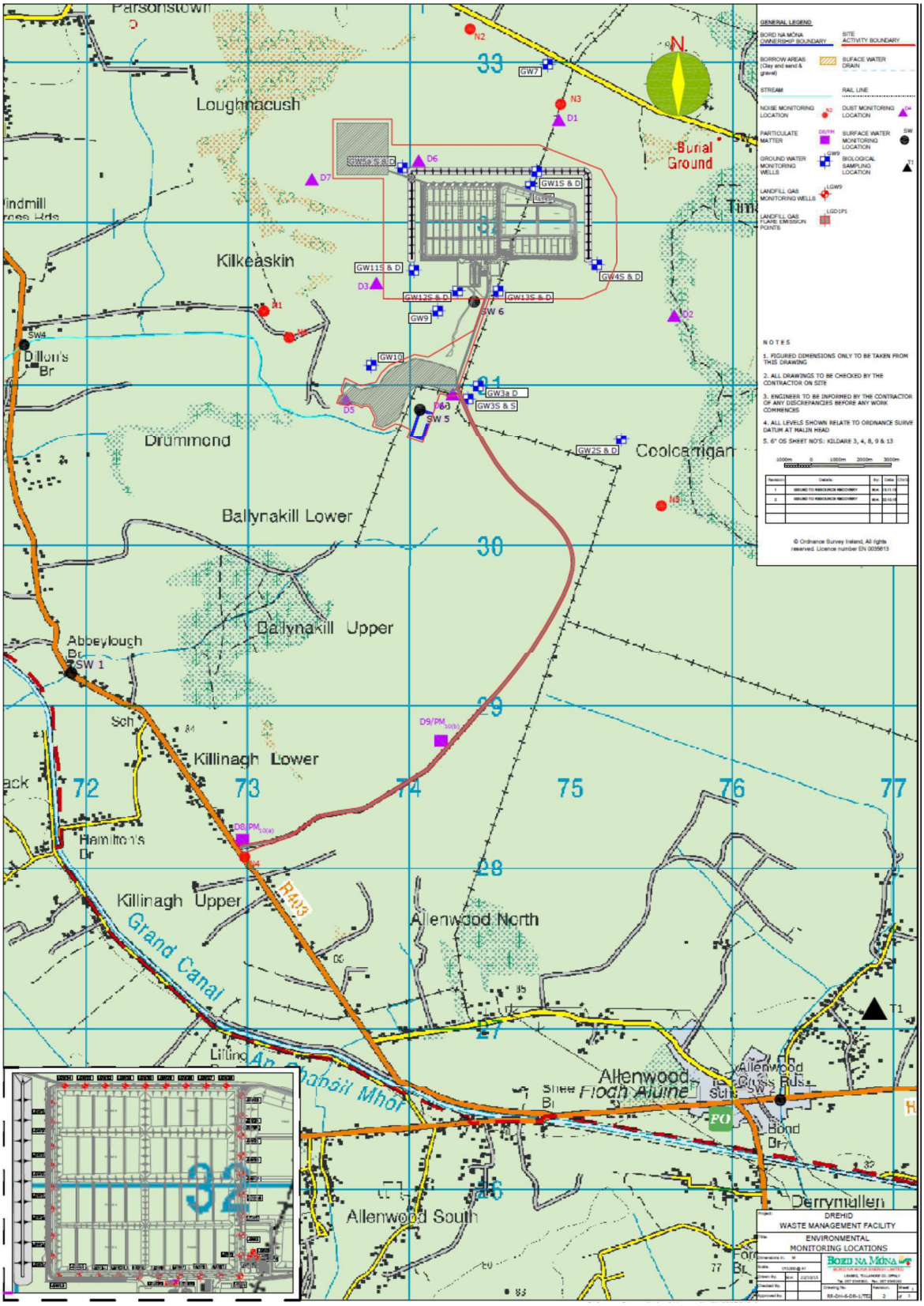
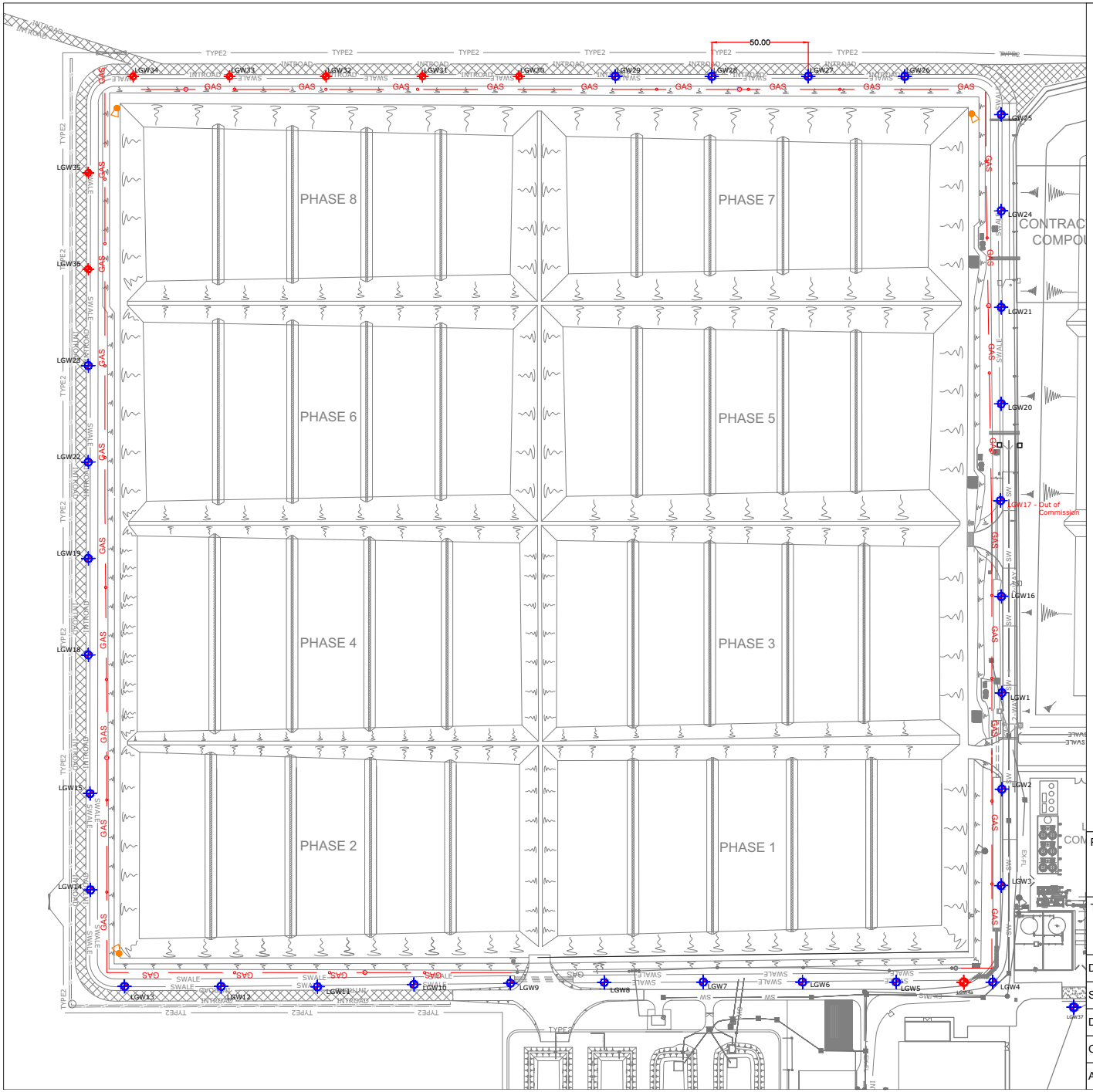
APPENDIX 2

Monitoring Location Maps / Monitoring Results 2016

Surface Water & Groundwater Monitoring Locations



Landfill Gas Monitoring Wells Maps



N

PROPOSED GAS MONITORING WELLS (@ 50m centres)

EXISTING GAS MONITORING WELLS (@ 50m centres)

Project:	Drehid Waste Management Facility
Title:	Landfill Gas Monitoring Locations

Dimensions in.	mm	
Scale.	1:2000	
Drawn By.	E.C.	20/11/2014
Checked By.		
Approved By.		

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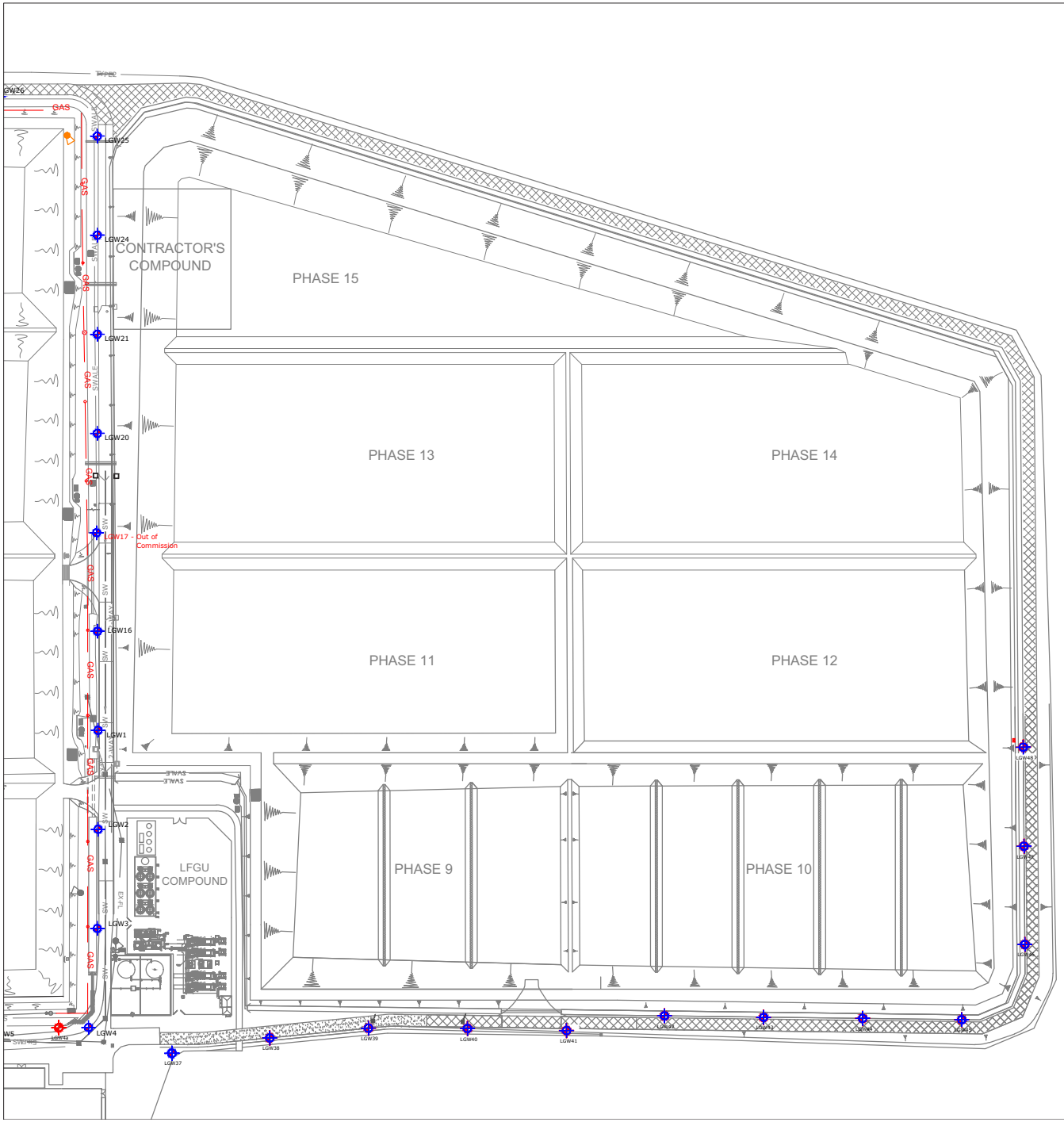
Drawing No.	Revision.	Sheet
RE-DR-001-2012	2	1 of 1



PROPOSED GAS MONITORING WELLS (@ 50m centres)

EXISTING GAS MONITORING WELLS (@ 50m centres)

Project:	Drehid Waste Management Facility	
Title:	Landfill Gas Monitoring Locations PH 11-15	
Dimensions in.	mm	
Scale.	1:2000	
Drawn By.	M.H	07/04/2016
Checked By.		
Approved By.		

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Drawing No.	Revision.	Sheet
RE-DR-002-2012	2	1 of 1

Surface Water Monitoring Results

Location reference	Location relative to site activities	PRTR Parameter	Licenced Parameter	Monitoring date	ELV or trigger level in licence or any revision thereof	Licence Compliance criteria	Measured value	Unit of measurement	Compliant with licence	Comments
SW6	onsite		BOD	quarterly	25	All values < ELV	3.0	mg/L	yes	
SW6	onsite		COD	quarterly		N/A	23	mg/L	yes	
SW6	onsite		Ammonia (as N)	weekly	0.5	All values < ELV	0.11	mg/L	yes	
SW6	onsite		Suspended Solids	weekly	35	All values < ELV	9.5	mg/L	yes	
SW6	onsite		pH	weekly		N/A	7.6	pH units	yes	
SW6	onsite		Conductivity	weekly		N/A	567.3	µS/cm@25oC	yes	
SW6	onsite	Chlorides (as Cl)		weekly		N/A	19.6	mg/L		
SW6	onsite		Ortho-phosphate (as PO4)	Annual		N/A	<0.01	mg/L		
SW6	onsite	Total phosphorus		Annual		N/A	<0.05	mg/L		
SW6	onsite		Nitrate (as N)	Annual		N/A	0.67	µg/L		
SW6	onsite		Sulphate	Annual		N/A	52	mg/L		
SW6	onsite		Sodium	Annual		N/A	12.6	mg/L		
SW6	onsite		Magnesium	Annual		N/A	6.17	mg/L		
SW6	onsite		Potassium	Annual		N/A	5.24	mg/L		
SW6	onsite		Calcium	Annual		N/A	89.4	mg/L		
SW6	onsite		Boron	Annual		N/A	<135	µg/L		
SW6	onsite	Chromium and compounds (as Cr)		Annual		N/A	<3	µg/L		
SW6	onsite		Manganese (as Mn)	Annual		N/A	10	µg/L		
SW6	onsite	Nickel and compounds (as Ni)		Annual		N/A	3.76	µg/L		
SW6	onsite	Copper and compounds (as Cu)		Annual		N/A	<4	µg/L		
SW6	onsite	Zinc and compounds (as Zn)		Annual		N/A	<3	µg/L		
SW6	onsite	Cadmium and compounds (as Cd)		Annual		N/A	<0.5	µg/L		

SW6	onsite	Lead and compounds (as Pb)		Annual		N/A	<0.5	µg/L		
SW6	onsite		Iron	Annual		N/A	0.0427	mg/L		
SW6	onsite	Mercury and compounds (as Hg)		Annual		N/A	<0.02	µg/L		
SW6	onsite		Pesticides	Annual		N/A	<0.01	µg/L		
SW6	onsite		Semi-volatiles	Annual		N/A	<1	µg/L		
SW6	onsite		Volatile organic compounds (as TOC)	Annual		N/A	<1	µg/L		
SW5	downstream		Ammonia (as N)	weekly		N/A	0.25	mg/L	no	An Ammonia level greater than 0.5 mg/l was recorded at SW6 during Weeks 3,6,7,9 and 11
SW5	downstream		BOD	quarterly	25	All values < ELV	3.2	mg/L	yes	
SW5	downstream		COD	quarterly		N/A	80.2	mg/L	yes	
SW5	downstream		Suspended Solids	weekly	35	All values < ELV	9.0	mg/L	yes	
SW5	downstream	Chlorides (as Cl)		weekly		N/A	12.2	mg/L	yes	
SW5	downstream		Conductivity	weekly		N/A	417.9	µS/cm@25oC	yes	
SW5	downstream		pH	weekly		N/A	7.5	pH units	yes	
SW5	downstream		Ortho-phosphate (as PO4)	Annual		N/A	0.01	mg/L		
SW5	downstream	Total phosphorus		Annual		N/A	0.08	mg/L		
SW5	downstream		Nitrate (as N)	Annual		N/A	<0.2	µg/L		
SW5	downstream		Sulphate	Annual		N/A	15	mg/L		
SW5	downstream		Sodium	Annual		N/A	16.6	mg/L		
SW5	downstream		Magnesium	Annual		N/A	5.49	mg/L		
SW5	downstream		Potassium	Annual		N/A	2	mg/L		
SW5	downstream		Calcium	Annual		N/A	83.2	mg/L		
SW5	downstream		Boron	Annual		N/A	<135	µg/L		
SW5	downstream	Chromium and compounds (as Cr)		Annual		N/A	<3	µg/L		
SW5	downstream		Manganese (as Mn)	Annual		N/A	203	µg/L		
SW5	downstream	Nickel and compounds (as Ni)		Annual		N/A	9.56	µg/L		
SW5	downstream	Copper and compounds (as Cu)		Annual		N/A	4.24	µg/L		

SW5	downstream	Zinc and compounds (as Zn)		Annual		N/A	5.7	µg/L		
SW5	downstream	Cadmium and compounds (as Cd)		Annual		N/A	<0.5	µg/L		
SW5	downstream	Lead and compounds (as Pb)		Annual		N/A	<0.5	µg/L		
SW5	downstream		Iron	Annual		N/A	1.18	mg/L		
SW5	downstream	Mercury and compounds (as Hg)		Annual		N/A	<0.02	µg/L		
SW5	downstream		Pesticides	Annual		N/A	<0.01	µg/L		
SW5	downstream		Semi-volatiles	Annual		N/A	<1	µg/L		
SW5	downstream		Volatile organic compounds (as TOC)	Annual		N/A	<1	µg/L		
SW4	downstream		Ammonia (as N)	weekly		N/A	0.12	mg/L	yes	
SW4	downstream		BOD	quarterly		N/A	3	mg/L	yes	
SW4	downstream		COD	quarterly		N/A	60.4	mg/L	yes	
SW4	downstream		Suspended Solids	weekly		N/A	8.79	mg/L	yes	
SW4	downstream	Chlorides (as Cl)		weekly		N/A	13.12	mg/L	yes	
SW4	downstream		Conductivity	weekly		N/A	558.13	µS/cm@25oC	yes	
SW4	downstream		pH	weekly		N/A	7.68	pH units	yes	
SW4	downstream		Ortho-phosphate (as PO4)	Annual		N/A	<0.01	mg/L		
SW4	downstream	Total phosphorus		Annual		N/A	0.07	mg/L		
SW4	downstream		Nitrate (as N)	Annual		N/A	0.68	µg/L		
SW4	downstream		Sulphate	Annual		N/A	11	mg/L		
SW4	downstream		Sodium	Annual		N/A	7.89	mg/L		
SW4	downstream		Magnesium	Annual		N/A	9.48	mg/L		
SW4	downstream		Potassium	Annual		N/A	4.38	mg/L		
SW4	downstream		Calcium	Annual		N/A	122	mg/L		
SW4	downstream		Boron	Annual		N/A	<135	µg/L		
SW4	downstream	Chromium and compounds (as Cr)		Annual		N/A	<3	µg/L		
SW4	downstream		Manganese (as Mn)	Annual		N/A	70.8	µg/L		

SW4	downstream	Nickel and compounds (as Ni)		Annual		N/A	5.79	µg/L		
SW4	downstream	Copper and compounds (as Cu)		Annual		N/A	<4	µg/L		
SW4	downstream	Zinc and compounds (as Zn)		Annual		N/A	5.43	µg/L		
SW4	downstream	Cadmium and compounds (as Cd)		Annual		N/A	<0.5	µg/L		
SW4	downstream	Lead and compounds (as Pb)		Annual		N/A	<0.5	µg/L		
SW4	downstream		Iron	Annual		N/A	0.301	mg/L		
SW4	downstream	Mercury and compounds (as Hg)		Annual		N/A	<0.02	µg/L		
SW4	downstream		Pesticides	Annual		N/A	<0.01	µg/L		
SW4	downstream		Semi-volatiles	Annual		N/A	<1	µg/L		
SW4	downstream		Volatile organic compounds (as TOC)	Annual		N/A	<1	µg/L		

Dust Monitoring Results

Emission reference no:	Parameter/ Substance	Frequency of Monitoring	ELV in licence or any revision therof	Licence Compliance criteria	Measured value	Unit of measurement	Compliant with licence limit	Method of analysis	Comments -reason for change in % mass load from previous year if applicable
D1	Total Particulates	Monthly	350	Daily average < ELV	91	mg/m2/day	yes	OTH Based on VDI 2119 Blatt 2	
D2	Total Particulates	Monthly	350	Daily average < ELV	70	mg/m2/day	yes	OTH Based on VDI 2119 Blatt 2	
D5	Total Particulates	Monthly	350	Daily average < ELV	140	mg/m2/day	no	OTH Based on VDI 2119 Blatt 2	Exceedance of licence limit of 350mg/m2/day with a result of 882mg/m2/day, Quarter 2 2016
D6	Total Particulates	Monthly	350	Daily average < ELV	90	mg/m2/day	yes	OTH Based on VDI 2119 Blatt 2	
D8	Total Particulates	Monthly	350	Daily average < ELV	209	mg/m2/day	no	OTH Based on VDI 2119 Blatt 2	Exceedance of licence limit of 350mg/m2/day with a result of 877mg/m2/day, Quarter 3 2016

Note 1: Volumetric flow shall be included as a reportable parameter

Up-gradient Groundwater Monitoring Results

Date of sampling	Sample location reference	Parameter/ Substance	Methodology	Monitoring frequency	Maximum Concentration++	Average Concentration+	unit	GTV's*	IGV	Upward trend in pollutant concentration over last 5 years of monitoring data
Monthly	GW1s	pH	APHA 2012 4500 H&B	Monthly	7.1	7.2	pH Units	-	≥6.5 and ≤9.5	no
Monthly	GW1s	Conductivity	APHA 2012 2510B	Monthly	1006.7	1176.5	µS/cm	800 – 1875	1000	yes
Monthly	GW1s	Ammonia as NH3	APHA 2012 4500-NH3 and bluebook Ammonia in waters 1981	Monthly	3.0	5.8	mg/l	0.065-0.175	0.15	no
Monthly	GW1s	Ammonium	via inhouse calculation	Monthly	3.9	7.5	mg/l		0.2	no
Monthly	GW1s	Chloride	APHA 2012 4500-CL–E	Monthly	11.3	13.0	mg/l	187.5	30	yes
03/09/2015	GW1s	Sulphate	APHA 2012 4110B	Annually	1.3		mg/l	187.5	200	no
03/09/2015	GW1s	Nitrate as NO3	APHA 2012 4500-NO_2B. Colorimetric Method	Annually	<0.2		mg/l	37.5	25	no
03/09/2015	GW1s	Orthophosphate	APHA 2012 4500-P.E	Annually	0.02		mg/l	-	0.03	no
03/09/2015	GW1s	Total Phosphours	APHA 2012 4500-PB & Hach Method 8190	Annually	<0.05		mg/l	-	-	no
03/09/2015	GW1s	Calcium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	**185**		mg/l	-	200	no
03/09/2015	GW1s	Magnesium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	25.2		mg/l	-	50	yes
03/09/2015	GW1s	Potassium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	1.49		mg/l	-	5	yes
03/09/2015	GW1s	Sodium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	15		mg/l	150	150	yes
03/09/2015	GW1s	Iron - dissolved	ICP-MS Based on EPA Method 200.8	Annually	3.55		mg/l	-	0.2	no
03/09/2015	GW1s	Boron - dissolved	ICP-MS	Annually	15.8		ug/l	0.75	1	no
03/09/2015	GW1s	Arsenic - dissolved	ICP-MS Based on EPA Method 200.8	Annually	335		ug/l	7.5	0.01	no
03/09/2015	GW1s	Barium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	285		ug/l	-	0.1	no
03/09/2015	GW1s	Cadmium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.08		ug/l	37.5	0.005	no
03/09/2015	GW1s	Cobalt - dissolved	ICP-MS Based on EPA Method 200.8	Annually	576		ug/l	-	-	no
03/09/2015	GW1s	Chromium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	1.6		ug/l	37.5	0.03	no

03/09/2015	GW1s	Copper - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.85		ug/l	1.5	0.03	no
03/09/2015	GW1s	Mercury - dissolved	ICP-MS	Annually	<0.01		ug/l	7.5	0.001	no
03/09/2015	GW1s	Manganese - dissolved	ICP-MS Based on EPA Method 200.8	Annually	648		ug/l	-	0.05	yes
03/09/2015	GW1s	Berylium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.1		ug/l	-	-	no
03/09/2015	GW1s	Nickel - dissolved	ICP-MS Based on EPA Method 200.8	Annually	4.9		ug/l	15	0.02	no
03/09/2015	GW1s	Lead - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.1		ug/l	18.75	0.01	no
03/09/2015	GW1s	Antimony - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.16		ug/l	-	-	no
03/09/2015	GW1s	Selenium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.81		ug/l	-	-	no
03/09/2015	GW1s	Silver - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.1		ug/l	-	-	no
03/09/2015	GW1s	Aluminium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	2.2		ug/l	-	200	no
03/09/2015	GW1s	Tin - dissolved	ICP-MS Based on EPA Method 200.8	Annually	1.09		ug/l	-	-	no
03/09/2015	GW1s	Zinc - dissolved	ICP-MS Based on EPA Method 200.8	Annually	3.23		ug/l	-	0.1	no
03/09/2015	GW1s	VOC's USEPA 524.2 list	GC-FID, GC-MS Based on USEPA 524.2 method	Annually	<1		ug/l	-	-	no
03/09/2015	GW1s	Faecal Coliforms	MTM025	Annually	0		cfu / 100 ml	0	0	no
03/09/2015	GW1s	Total Coliforms	MTM025	Annually	0		cfu / 100 ml	0	0	yes
Monthly	GW1d	pH	APHA 2012 4500 H&B	Monthly	7.3	7.3	pH Units	-	≥6.5 and ≤9.5	no
Monthly	GW1d	Conductivity	APHA 2012 2510B	Monthly	733.3	756.0	µS/cm	800 – 1875	1000	yes
Monthly	GW1d	Ammonia as NH3	APHA 2012 4500-NH3 and bluebook Ammonia in waters 1981	Monthly	5.3	6.5	mg/l	0.065-0.175	0.15	no
Monthly	GW1d	Ammonium	via inhouse calculation	Monthly	6.8	8.4	mg/l		0.2	no
Monthly	GW1d	Chloride	APHA 2012 4500-CL–E	Monthly	10.7	11.0	mg/l	187.5	30	no
03/09/2015	GW1d	Sulphate	APHA 2012 4110B	Annually	<0.5		mg/l	187.5	200	no

03/09/2015	GW1d	Nitrate as NO3	APHA 2012 4500-NO_2B. Colorimetric Method	Annually	<0.2		mg/l	37.5	25	no
03/09/2015	GW1d	Orthophosphate	APHA 2012 4500-P.E	Annually	<0.1		mg/l	-	0.03	no
03/09/2015	GW1d	Total Phosphours	APHA 2012 4500-PB & Hach Method 8190	Annually	<0.05		mg/l	-	-	no
03/09/2015	GW1d	Calcium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	131		mg/l	-	200	no
03/09/2015	GW1d	Magnesium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	5.43		mg/l	-	50	no
03/09/2015	GW1d	Potassium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	1.21		mg/l	-	5	no
03/09/2015	GW1d	Sodium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	12.1		mg/l	150	150	no
03/09/2015	GW1d	Iron - dissolved	ICP-MS Based on EPA Method 200.8	Annually	0.0473		mg/l	-	0.2	no
03/09/2015	GW1d	Boron - dissolved	ICP-MS	Annually	7.02		ug/l	0.75	1	no
03/09/2015	GW1d	Arsenic - dissolved	ICP-MS Based on EPA Method 200.8	Annually	2.27		ug/l	7.5	0.01	no
03/09/2015	GW1d	Barium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	324		ug/l	-	0.1	no
03/09/2015	GW1d	Cadmium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.08		ug/l	37.5	0.005	no
03/09/2015	GW1d	Cobalt - dissolved	ICP-MS Based on EPA Method 200.8	Annually	6.92		ug/l	-	-	no
03/09/2015	GW1d	Chromium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<1.2		ug/l	37.5	0.03	yes
03/09/2015	GW1d	Copper - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.85		ug/l	1.5	0.03	no
03/09/2015	GW1d	Mercury - dissolved	ICP-MS	Annually	<0.01		ug/l	7.5	0.001	no
03/09/2015	GW1d	Manganese - dissolved	ICP-MS Based on EPA Method 200.8	Annually	120		ug/l	-	0.05	yes
03/09/2015	GW1d	Berylium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.1		ug/l	-	-	no
03/09/2015	GW1d	Nickel - dissolved	ICP-MS Based on EPA Method 200.8	Annually	3.18		ug/l	15	0.02	no
03/09/2015	GW1d	Lead - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.1		ug/l	18.75	0.01	no
03/09/2015	GW1d	Antimony - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.16		ug/l	-	-	no
03/09/2015	GW1d	Selenium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.81		ug/l	-	-	no

03/09/2015	GW1d	Silver - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<1		ug/l	-	-	no
03/09/2015	GW1d	Aluminium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<2		ug/l	-	200	no
03/09/2015	GW1d	Tin - dissolved	ICP-MS Based on EPA Method 200.8	Annually	1.24		ug/l	-	-	no
03/09/2015	GW1d	Zinc - dissolved	ICP-MS Based on EPA Method 200.8	Annually	6.16		ug/l	-	0.1	no
03/09/2015	GW1d	VOC's USEPA 524.2 list	GC-FID, GC-MS Based on USEPA 524.2 method	Annually	<1		ug/l	-	-	no
03/09/2015	GW1d	Faecal Coliforms	MTM025	Annually	19		cfu / 100 ml	0	0	no
03/09/2015	GW1d	Total Coliforms	MTM025	Annually	19		cfu / 100 ml	0	0	yes
03/09/2015	GW2s	pH	APHA 2012 4500 H&B	Annually	7.3		pH Units			no
03/09/2015	GW2s	Conductivity	APHA 2012 2510B	Annually	812.5		µS/cm			yes
03/09/2015	GW2s	Ammonia as NH3	APHA 2012 4500-NH3 and bluebook Ammonia in waters 1981	Annually	1.4		mg/l			yes
03/09/2015	GW2s	Ammonium	via inhouse calculation	Annually	1.8		mg/l			yes
03/09/2015	GW2s	Chloride	APHA 2012 4500-CL–E	Annually	15		mg/l			no
03/09/2015	GW2s	Sulphate	APHA 2012 4110B	Annually	19		mg/l	187.5	200	no
03/09/2015	GW2s	Nitrate as NO3	APHA 2012 4500-NO_2B. Colorimetric Method	Annually	<0.2		mg/l	37.5	25	no
03/09/2015	GW2s	Orthophosphate	APHA 2012 4500-P.E	Annually	<0.01		mg/l	-	0.03	no
03/09/2015	GW2s	Total Phosphours	APHA 2012 4500-PB & Hach Method 8190	Annually	<0.05		mg/l	-	-	no
03/09/2015	GW2s	Calcium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	131		mg/l	-	200	no
03/09/2015	GW2s	Magnesium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	34		mg/l	-	50	no
03/09/2015	GW2s	Potassium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<1		mg/l	-	5	no
03/09/2015	GW2s	Sodium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	6.74		mg/l	150	150	no
03/09/2015	GW2s	Iron - dissolved	ICP-MS Based on EPA Method 200.8	Annually	0.115		mg/l	-	0.2	no

03/09/2015	GW2s	Boron - dissolved	ICP-MS	Annually	60.5		ug/l	0.75	1	no
03/09/2015	GW2s	Arsenic - dissolved	ICP-MS Based on EPA Method 200.8	Annually	1.4		ug/l	7.5	0.01	no
03/09/2015	GW2s	Barium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	247		ug/l	-	0.1	no
03/09/2015	GW2s	Cadmium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	0.113		ug/l	37.5	0.005	no
03/09/2015	GW2s	Cobalt - dissolved	ICP-MS Based on EPA Method 200.8	Annually	1.25		ug/l	-	-	no
03/09/2015	GW2s	Chromium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<1.2		ug/l	37.5	0.03	yes
03/09/2015	GW2s	Copper - dissolved	ICP-MS Based on EPA Method 200.8	Annually	2.5		ug/l	1.5	0.03	no
03/09/2015	GW2s	Mercury - dissolved	ICP-MS	Annually	<0.01		ug/l	7.5	0.001	no
03/09/2015	GW2s	Manganese - dissolved	ICP-MS Based on EPA Method 200.8	Annually	203		ug/l	-	0.05	yes
03/09/2015	GW2s	Berylium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.1		ug/l	-	-	no
03/09/2015	GW2s	Nickel - dissolved	ICP-MS Based on EPA Method 200.8	Annually	11.3		ug/l	15	0.02	no
03/09/2015	GW2s	Lead - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.1		ug/l	18.75	0.01	no
03/09/2015	GW2s	Antimony - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.16		ug/l	-	-	no
03/09/2015	GW2s	Selenium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.81		ug/l	-	-	no
03/09/2015	GW2s	Silver - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<1		ug/l	-	-	no
03/09/2015	GW2s	Aluminium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	2.48		ug/l	-	200	no
03/09/2015	GW2s	Tin - dissolved	ICP-MS Based on EPA Method 200.8	Annually	0.597		ug/l	-	-	no
03/09/2015	GW2s	Zinc - dissolved	ICP-MS Based on EPA Method 200.8	Annually	12.7		ug/l	-	0.1	no
03/09/2015	GW2s	VOC's USEPA 524.2 list	GC-FID, GC-MS Based on USEPA 524.2 method	Annually	<1		ug/l	-	-	no
03/09/2015	GW2s	Faecal Coliforms	MTM025	Annually	5		cfu / 100 ml	0	0	no
03/09/2015	GW2s	Total Coliforms	MTM025	Annually	>100		cfu / 100 ml	0	0	yes

03/09/2015	GW2d	pH	APHA 2012 4500 H&B	Annually	7.4		pH Units			no
03/09/2015	GW2d	Conductivity	APHA 2012 2510B	Annually	719		µS/cm			yes
03/09/2015	GW2d	Ammonia as NH3	APHA 2012 4500-NH3 and bluebook Ammonia in waters 1981	Annually	1.4		mg/l			yes
03/09/2015	GW2d	Ammonium	via inhouse calculation	Annually	1.8		mg/l			yes
03/09/2015	GW2d	Chloride	APHA 2012 4500-CL–E	Annually	13		mg/l			no
03/09/2015	GW2d	Sulphate	APHA 2012 4110B	Annually	5.6		mg/l	187.5	200	no
03/09/2015	GW2d	Nitrate as NO3	APHA 2012 4500-NO_2B. Colorimetric Method	Annually	<0.2		mg/l	37.5	25	no
03/09/2015	GW2d	Orthophosphate	APHA 2012 4500-P.E	Annually	<0.01		mg/l	-	0.03	no
03/09/2015	GW2d	Total Phosphours	APHA 2012 4500-PB & Hach Method 8190	Annually	<0.05		mg/l	-	-	no
03/09/2015	GW2d	Calcium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	**126**		mg/l	-	200	no
03/09/2015	GW2d	Magnesium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	11.4		mg/l	-	50	no
03/09/2015	GW2d	Potassium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	1.45		mg/l	-	5	no
03/09/2015	GW2d	Sodium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	21.6		mg/l	150	150	no
03/09/2015	GW2d	Iron - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.019		mg/l	-	0.2	no
03/09/2015	GW2d	Boron - dissolved	ICP-MS	Annually	9.27		ug/l	0.75	1	no
03/09/2015	GW2d	Arsenic - dissolved	ICP-MS Based on EPA Method 200.8	Annually	1.79		ug/l	7.5	0.01	no
03/09/2015	GW2d	Barium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	362		ug/l	-	0.1	no
03/09/2015	GW2d	Cadmium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.08		ug/l	37.5	0.005	no
03/09/2015	GW2d	Cobalt - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.15		ug/l	-	-	no
03/09/2015	GW2d	Chromium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<1.2		ug/l	37.5	0.03	yes
03/09/2015	GW2d	Copper - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.85		ug/l	1.5	0.03	no
03/09/2015	GW2d	Mercury - dissolved	ICP-MS	Annually	<0.01		ug/l	7.5	0.001	no
03/09/2015	GW2d	Manganese - dissolved	ICP-MS Based on EPA Method 200.8	Annually	131		ug/l	-	0.05	yes

03/09/2015	GW2d	Berylium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.1		ug/l	-	-	no
03/09/2015	GW2d	Nickel - dissolved	ICP-MS Based on EPA Method 200.8	Annually	10.6		ug/l	15	0.02	no
03/09/2015	GW2d	Lead - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.1		ug/l	18.75	0.01	no
03/09/2015	GW2d	Antimony - dissolved	ICP-MS Based on EPA Method 200.8	Annually	0.318		ug/l	-	-	no
03/09/2015	GW2d	Selenium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.81		ug/l	-	-	no
03/09/2015	GW2d	Silver - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<1		ug/l	-	-	no
03/09/2015	GW2d	Aluminium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<2		ug/l	-	200	no
03/09/2015	GW2d	Tin - dissolved	ICP-MS Based on EPA Method 200.8	Annually	0.413		ug/l	-	-	no
03/09/2015	GW2d	Zinc - dissolved	ICP-MS Based on EPA Method 200.8	Annually	10.3		ug/l	-	0.1	no
03/09/2015	GW2d	VOC's USEPA 524.2 list	GC-FID, GC-MS Based on USEPA 524.2 method	Annually	<1		ug/l	-	-	no
03/09/2015	GW2d	Faecal Coliforms	MTM025	Annually	0		cfu / 100 ml	0	0	no
03/09/2015	GW2d	Total Coliforms	MTM025	Annually	12		cfu / 100 ml	0	0	yes
Monthly	GW3s	pH	APHA 2012 4500 H&B	Monthly	6.9	7.0	pH Units	-	≥6.5 and ≤9.5	no
Monthly	GW3s	Conductivity	APHA 2012 2510B	Monthly	800.9	872.0	µS/cm	800 – 1875	1000	yes
Monthly	GW3s	Ammonia as NH3	APHA 2012 4500-NH3 and bluebook Ammonia in waters 1981	Monthly	3.6	4.9	mg/l	0.065-0.175	0.15	yes
Monthly	GW3s	Ammonium	via inhouse calculation	Monthly	4.6	6.3	mg/l		0.2	yes
Monthly	GW3s	Chloride	APHA 2012 4500-CL–E	Monthly	14.0	15.0	mg/l	187.5	30	no
03/09/2015	GW3s	Sulphate	APHA 2012 4110B	Annually	0.64		mg/l	187.5	200	no
03/09/2015	GW3s	Nitrate as NO3	APHA 2012 4500-NO_2B. Colorimetric Method	Annually	<0.2		mg/l	37.5	25	no
03/09/2015	GW3s	Orthophosphate	APHA 2012 4500-P.E	Annually	0.04		mg/l	-	0.03	no
03/09/2015	GW3s	Total Phosphours	APHA 2012 4500-PB & Hach Method 8190	Annually	0.07		mg/l	-	-	no

03/09/2015	GW3s	Calcium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	**151**		mg/l	-	200	no
03/09/2015	GW3s	Magnesium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	0.0108		mg/l	-	50	no
03/09/2015	GW3s	Potassium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	0.0015		mg/l	-	5	yes
03/09/2015	GW3s	Sodium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	0.0122		mg/l	150	150	no
03/09/2015	GW3s	Iron - dissolved	ICP-MS Based on EPA Method 200.8	Annually	0.509		mg/l	-	0.2	no
03/09/2015	GW3s	Boron - dissolved	ICP-MS	Annually	16.1		ug/l	0.75	1	no
03/09/2015	GW3s	Arsenic - dissolved	ICP-MS Based on EPA Method 200.8	Annually	2.27		ug/l	7.5	0.01	yes
03/09/2015	GW3s	Barium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	322		ug/l	-	0.1	no
03/09/2015	GW3s	Cadmium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.08		ug/l	37.5	0.005	no
03/09/2015	GW3s	Cobalt - dissolved	ICP-MS Based on EPA Method 200.8	Annually	0.261		ug/l	-	-	no
03/09/2015	GW3s	Chromium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<1.2		ug/l	37.5	0.03	no
03/09/2015	GW3s	Copper - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.85		ug/l	1.5	0.03	no
03/09/2015	GW3s	Mercury - dissolved	ICP-MS	Annually	<0.01		ug/l	7.5	0.001	no
03/09/2015	GW3s	Manganese - dissolved	ICP-MS Based on EPA Method 200.8	Annually	191		ug/l	-	0.05	no
03/09/2015	GW3s	Berylium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.1		ug/l	-	-	no
03/09/2015	GW3s	Nickel - dissolved	ICP-MS Based on EPA Method 200.8	Annually	3.08		ug/l	15	0.02	no
03/09/2015	GW3s	Lead - dissolved	ICP-MS Based on EPA Method 200.8	Annually	0.115		ug/l	18.75	0.01	no
03/09/2015	GW3s	Antimony - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.16		ug/l	-	-	no
03/09/2015	GW3s	Selenium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.81		ug/l	-	-	no
03/09/2015	GW3s	Silver - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<1		ug/l	-	-	no
03/09/2015	GW3s	Aluminium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<2		ug/l	-	200	no
03/09/2015	GW3s	Tin - dissolved	ICP-MS Based on EPA Method 200.8	Annually	0.642		ug/l	-	-	no

03/09/2015	GW3s	Zinc - dissolved	ICP-MS Based on EPA Method 200.8	Annually	2.17		ug/l	-	0.1	no
03/09/2015	GW3s	VOC's USEPA 524.2 list	GC-FID, GC-MS Based on USEPA 524.2 method	Annually	<1		ug/l	-	-	no
03/09/2015	GW3s	Faecal Coliforms	MTM025	Annually	0		cfu / 100 ml	0	0	no
03/09/2015	GW3s	Total Coliforms	MTM025	Annually	10		cfu / 100 ml	0	0	no
Monthly	GW6	pH	APHA 2012 4500 H&B	Monthly	7.6	7.8	pH Units	-	≥6.5 and ≤9.5	no
Monthly	GW6	Conductivity	APHA 2012 2510B	Monthly	479.2	528.0	µS/cm	800 – 1875	1000	no
Monthly	GW6	Ammonia as NH3	APHA 2012 4500-NH3 and bluebook Ammonia in waters 1981	Monthly	5.4	5.8	mg/l	0.065-0.175	0.15	no
Monthly	GW6	Ammonium	via inhouse calculation	Monthly	6.9	7.5	mg/l		0.2	no
Monthly	GW6	Chloride	APHA 2012 4500-CL–E	Monthly	11.3	12.0	mg/l	187.5	30	no
03/09/2015	GW6	Sulphate	APHA 2012 4110B	Annually	<0.5		mg/l	187.5	200	no
03/09/2015	GW6	Nitrate as NO3	APHA 2012 4500-NO_2B. Colorimetric Method	Annually	<0.2		mg/l	37.5	25	no
03/09/2015	GW6	Orthophosphate	APHA 2012 4500-P.E	Annually	<0.01		mg/l	-	0.03	no
03/09/2015	GW6	Total Phosphours	APHA 2012 4500-PB & Hach Method 8190	Annually	<0.05		mg/l	-	-	no
03/09/2015	GW6	Calcium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	**67.3**		mg/l	-	200	no
03/09/2015	GW6	Magnesium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	9.8		mg/l	-	50	yes
03/09/2015	GW6	Potassium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	1.67		mg/l	-	5	yes
03/09/2015	GW6	Sodium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	11.9		mg/l	150	150	yes
03/09/2015	GW6	Iron - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.019		mg/l	-	0.2	no
03/09/2015	GW6	Boron - dissolved	ICP-MS	Annually	9.14		ug/l	0.75	1	no
03/09/2015	GW6	Arsenic - dissolved	ICP-MS Based on EPA Method 200.8	Annually	46.9		ug/l	7.5	0.01	no
03/09/2015	GW6	Barium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	107		ug/l	-	0.1	no

03/09/2015	GW6	Cadmium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.08		ug/l	37.5	0.005	no
03/09/2015	GW6	Cobalt - dissolved	ICP-MS Based on EPA Method 200.8	Annually	7.52		ug/l	-	-	yes
03/09/2015	GW6	Chromium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<1.2		ug/l	37.5	0.03	no
03/09/2015	GW6	Copper - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.85		ug/l	1.5	0.03	no
03/09/2015	GW6	Mercury - dissolved	ICP-MS	Annually	0.262		ug/l	7.5	0.001	no
03/09/2015	GW6	Manganese - dissolved	ICP-MS Based on EPA Method 200.8	Annually	33		ug/l	-	0.05	no
03/09/2015	GW6	Berylium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.1		ug/l	-	-	no
03/09/2015	GW6	Nickel - dissolved	ICP-MS Based on EPA Method 200.8	Annually	19.6		ug/l	15	0.02	yes
03/09/2015	GW6	Lead - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.1		ug/l	18.75	0.01	no
03/09/2015	GW6	Antimony - dissolved	ICP-MS Based on EPA Method 200.8	Annually	1.29		ug/l	-	-	no
03/09/2015	GW6	Selenium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.81		ug/l	-	-	no
03/09/2015	GW6	Silver - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<1		ug/l	-	-	no
03/09/2015	GW6	Aluminium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<2		ug/l	-	200	yes
03/09/2015	GW6	Tin - dissolved	ICP-MS Based on EPA Method 200.8	Annually	0.995		ug/l	-	-	no
03/09/2015	GW6	Zinc - dissolved	ICP-MS Based on EPA Method 200.8	Annually	11.1		ug/l	-	0.1	no
03/09/2015	GW6	VOC's USEPA 524.2 list	GC-FID, GC-MS Based on USEPA 524.2 method	Annually	<1		ug/l	-	-	no
03/09/2015	GW6	Faecal Coliforms	MTM025	Annually	0		cfu / 100 ml	0	0	no
03/09/2015	GW6	Total Coliforms	MTM025	Annually	0		cfu / 100 ml	0	0	yes
										SELECT
Bi-monthly	GW-3D^{New}	pH	APHA 2012 4500 H&B	Bi-monthly	7.1	7.2	pH Units	-	≥6.5 and ≤9.5	no
Bi-monthly	GW-3D^{New}	Conductivity	APHA 2012 2510B	Bi-monthly	571.0	682.0	µS/cm	800 – 1875	1000	no

Bi-monthly	GW-3D^{New}	Ammonia as NH3	APHA 2012 4500-NH3 and bluebook Ammonia in waters 1981	Bi-monthly	2.9	3.8	mg/l	0.065-0.175	0.15	no
Bi-monthly	GW-3D^{New}	Ammonium	via inhouse calculation	Bi-monthly	3.8	4.9	mg/l		0.2	no
Bi-monthly	GW-3D^{New}	Chloride	APHA 2012 4500-CL–E	Bi-monthly	13.8	15.0	mg/l	187.5	30	no
03/09/2015	GW-3D^{New}	Sulphate	APHA 2012 4110B	Annually	4.2		mg/l	187.5	200	no
03/09/2015	GW-3D^{New}	Nitrate as NO3	APHA 2012 4500-NO_2B. Colorimetric Method	Annually	<0.2		mg/l	37.5	25	no
03/09/2015	GW-3D^{New}	Orthophosphate	APHA 2012 4500-P.E	Annually	0.2		mg/l	-	0.03	no
03/09/2015	GW-3D^{New}	Total Phosphours	APHA 2012 4500-PB & Hach Method 8190	Annually	0.21		mg/l	-	-	no
03/09/2015	GW-3D^{New}	Calcium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	**99.2**		mg/l	-	200	no
03/09/2015	GW-3D^{New}	Magnesium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	6.95		mg/l	-	50	yes
03/09/2015	GW-3D^{New}	Potassium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	1.23		mg/l	-	5	yes
03/09/2015	GW-3D^{New}	Sodium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	11.2		mg/l	150	150	yes
03/09/2015	GW-3D^{New}	Iron - dissolved	ICP-MS Based on EPA Method 200.8	Annually	4.02		mg/l	-	0.2	no
03/09/2015	GW-3D^{New}	Boron - dissolved	ICP-MS	Annually	10.8		ug/l	0.75	1	no
03/09/2015	GW-3D^{New}	Arsenic - dissolved	ICP-MS Based on EPA Method 200.8	Annually	42.1		ug/l	7.5	0.01	no
03/09/2015	GW-3D^{New}	Barium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	123		ug/l	-	0.1	no
03/09/2015	GW-3D^{New}	Cadmium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.08		ug/l	37.5	0.005	no
03/09/2015	GW-3D^{New}	Cobalt - dissolved	ICP-MS Based on EPA Method 200.8	Annually	2.77		ug/l	-	-	yes
03/09/2015	GW-3D^{New}	Chromium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	5.13		ug/l	37.5	0.03	no
03/09/2015	GW-3D^{New}	Copper - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.85		ug/l	1.5	0.03	no
03/09/2015	GW-3D^{New}	Mercury - dissolved	ICP-MS	Annually	0.0288		ug/l	7.5	0.001	no
03/09/2015	GW-3D^{New}	Manganese - dissolved	ICP-MS Based on EPA Method 200.8	Annually	586		ug/l	-	0.05	no
03/09/2015	GW-3D^{New}	Berylium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	0.303		ug/l	-	-	no

03/09/2015	GW-3D[New]	Nickel - dissolved	ICP-MS Based on EPA Method 200.8	Annually	35.5		ug/l	15	0.02	yes
03/09/2015	GW-3D[New]	Lead - dissolved	ICP-MS Based on EPA Method 200.8	Annually	0.401		ug/l	18.75	0.01	no
03/09/2015	GW-3D[New]	Antimony - dissolved	ICP-MS Based on EPA Method 200.8	Annually	0.542		ug/l	-	-	no
03/09/2015	GW-3D[New]	Selenium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.81		ug/l	-	-	no
03/09/2015	GW-3D[New]	Silver - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<1		ug/l	-	-	no
03/09/2015	GW-3D[New]	Aluminium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	3.2		ug/l	-	200	yes
03/09/2015	GW-3D[New]	Tin - dissolved	ICP-MS Based on EPA Method 200.8	Annually	0.633		ug/l	-	-	no
03/09/2015	GW-3D[New]	Zinc - dissolved	ICP-MS Based on EPA Method 200.8	Annually	5.12		ug/l	-	0.1	no
03/09/2015	GW-3D[New]	VOC's USEPA 524.2 list	GC-FID, GC-MS Based on USEPA 524.2 method	Annually	<1		ug/l	-	-	no
03/09/2015	GW-3D[New]	Faecal Coliforms	MTM025	Annually	0		cfu / 100 ml	0	0	yes
03/09/2015	GW-3D[New]	Total Coliforms	MTM025	Annually	0		cfu / 100 ml	0	0	yes
Bi-monthly	GW-5AS	pH	APHA 2012 4500 H&B	Bi-monthly	7.2	7.3	pH Units	-	≥6.5 and ≤9.5	no
Bi-monthly	GW-5AS	Conductivity	APHA 2012 2510B	Bi-monthly	902.9	1068	µS/cm	800 – 1875	1000	no
Bi-monthly	GW-5AS	Ammonia as NH3	APHA 2012 4500-NH3 and bluebook Ammonia in waters 1981	Bi-monthly	6.8	7	mg/l	0.065-0.175	0.15	no
Bi-monthly	GW-5AS	Ammonium	via inhouse calculation	Bi-monthly	8.8	9	mg/l		0.2	no
Bi-monthly	GW-5AS	Chloride	APHA 2012 4500-CL–E	Bi-monthly	11.7	13	mg/l	187.5	30	no
03/09/2015	GW-5AS	Sulphate	APHA 2012 4110B	Annually	4.4		mg/l	187.5	200	no
03/09/2015	GW-5AS	Nitrate as NO3	APHA 2012 4500-NO_2B. Colorimetric Method	Annually	<0.2		mg/l	37.5	25	no
03/09/2015	GW-5AS	Orthophosphate	APHA 2012 4500-P.E	Annually	<0.01		mg/l	-	0.03	no
03/09/2015	GW-5AS	Total Phosphours	APHA 2012 4500-PB & Hach Method 8190	Annually	0.06		mg/l	-	-	no
03/09/2015	GW-5AS	Calcium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	**176**		mg/l	-	200	no

03/09/2015	GW-5AS	Magnesium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	3.27		mg/l	-	50	yes
03/09/2015	GW-5AS	Potassium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	1.96		mg/l	-	5	yes
03/09/2015	GW-5AS	Sodium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	25.9		mg/l	150	150	yes
03/09/2015	GW-5AS	Iron - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.0019		mg/l	-	0.2	no
03/09/2015	GW-5AS	Boron - dissolved	ICP-MS	Annually	14.5		ug/l	0.75	1	no
03/09/2015	GW-5AS	Arsenic - dissolved	ICP-MS Based on EPA Method 200.8	Annually	7.92		ug/l	7.5	0.01	no
03/09/2015	GW-5AS	Barium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	459		ug/l	-	0.1	no
03/09/2015	GW-5AS	Cadmium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.08		ug/l	37.5	0.005	no
03/09/2015	GW-5AS	Cobalt - dissolved	ICP-MS Based on EPA Method 200.8	Annually	5.13		ug/l	-	-	yes
03/09/2015	GW-5AS	Chromium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<1.2		ug/l	37.5	0.03	no
03/09/2015	GW-5AS	Copper - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.85		ug/l	1.5	0.03	no
03/09/2015	GW-5AS	Mercury - dissolved	ICP-MS	Annually	<0.01		ug/l	7.5	0.001	no
03/09/2015	GW-5AS	Manganese - dissolved	ICP-MS Based on EPA Method 200.8	Annually	554		ug/l	-	0.05	no
03/09/2015	GW-5AS	Berylium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.1		ug/l	-	-	no
03/09/2015	GW-5AS	Nickel - dissolved	ICP-MS Based on EPA Method 200.8	Annually	58.8		ug/l	15	0.02	yes
03/09/2015	GW-5AS	Lead - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.1		ug/l	18.75	0.01	no
03/09/2015	GW-5AS	Antimony - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.16		ug/l	-	-	no
03/09/2015	GW-5AS	Selenium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.81		ug/l	-	-	no
03/09/2015	GW-5AS	Silver - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<1		ug/l	-	-	no
03/09/2015	GW-5AS	Aluminium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<2		ug/l	-	200	yes
03/09/2015	GW-5AS	Tin - dissolved	ICP-MS Based on EPA Method 200.8	Annually	0.457		ug/l	-	-	no
03/09/2015	GW-5AS	Zinc - dissolved	ICP-MS Based on EPA Method 200.8	Annually	4.39		ug/l	-	0.1	no

03/09/2015	GW-5AS	VOC's USEPA 524.2 list	GC-FID, GC-MS Based on USEPA 524.2 method	Annually	<1		ug/l	-	-	no
03/09/2015	GW-5AS	Faecal Coliforms	MTM025	Annually	0		cfu / 100 ml	0	0	no
03/09/2015	GW-5AS	Total Coliforms	MTM025	Annually	0		cfu / 100 ml	0	0	yes
										SELECT
Bi-monthly	GW-5AD	pH	APHA 2012 4500 H&B	Bi-monthly	7.3	7.5	pH Units	-	≥6.5 and ≤9.5	no
Bi-monthly	GW-5AD	Conductivity	APHA 2012 2510B	Bi-monthly	661.0	764.0	µS/cm	800 – 1875	1000	no
Bi-monthly	GW-5AD	Ammonia as NH3	APHA 2012 4500-NH3 and bluebook Ammonia in waters 1981	Bi-monthly	7.6	7.9	mg/l	0.065-0.175	0.15	no
Bi-monthly	GW-5AD	Ammonium	via inhouse calculation	Bi-monthly	9.8	10.2	mg/l		0.2	no
Bi-monthly	GW-5AD	Chloride	APHA 2012 4500-CL–E	Bi-monthly	10.3	11.0	mg/l	187.5	30	no
03/09/2015	GW-5AD	Sulphate	APHA 2012 4110B	Annually	<0.5		mg/l	187.5	200	no
03/09/2015	GW-5AD	Nitrate as NO3	APHA 2012 4500-NO_2B. Colorimetric Method	Annually	<0.2		mg/l	37.5	25	no
03/09/2015	GW-5AD	Orthophosphate	APHA 2012 4500-P.E	Annually	<0.01		mg/l	-	0.03	no
03/09/2015	GW-5AD	Total Phosphours	APHA 2012 4500-PB & Hach Method 8190	Annually	<0.05		mg/l	-	-	no
03/09/2015	GW-5AD	Calcium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	**125**		mg/l	-	200	no
03/09/2015	GW-5AD	Magnesium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	3.36		mg/l	-	50	yes
03/09/2015	GW-5AD	Potassium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<1		mg/l	-	5	yes
03/09/2015	GW-5AD	Sodium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	8.8		mg/l	150	150	yes
03/09/2015	GW-5AD	Iron - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.0019		mg/l	-	0.2	no
03/09/2015	GW-5AD	Boron - dissolved	ICP-MS	Annually	6.01		ug/l	0.75	1	no
03/09/2015	GW-5AD	Arsenic - dissolved	ICP-MS Based on EPA Method 200.8	Annually	7.54		ug/l	7.5	0.01	no
03/09/2015	GW-5AD	Barium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	775		ug/l	-	0.1	no
03/09/2015	GW-5AD	Cadmium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.08		ug/l	37.5	0.005	no

03/09/2015	GW-5AD	Cobalt - dissolved	ICP-MS Based on EPA Method 200.8	Annually	5.61		ug/l	-	-	yes
03/09/2015	GW-5AD	Chromium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<1.2		ug/l	37.5	0.03	no
03/09/2015	GW-5AD	Copper - dissolved	ICP-MS Based on EPA Method 200.8	Annually	1.44		ug/l	1.5	0.03	no
03/09/2015	GW-5AD	Mercury - dissolved	ICP-MS	Annually	<0.01		ug/l	7.5	0.001	no
03/09/2015	GW-5AD	Manganese - dissolved	ICP-MS Based on EPA Method 200.8	Annually	311		ug/l	-	0.05	no
03/09/2015	GW-5AD	Berylium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.1		ug/l	-	-	no
03/09/2015	GW-5AD	Nickel - dissolved	ICP-MS Based on EPA Method 200.8	Annually	45.5		ug/l	15	0.02	yes
03/09/2015	GW-5AD	Lead - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.1		ug/l	18.75	0.01	no
03/09/2015	GW-5AD	Antimony - dissolved	ICP-MS Based on EPA Method 200.8	Annually	0.18		ug/l	-	-	no
03/09/2015	GW-5AD	Selenium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.81		ug/l	-	-	no
03/09/2015	GW-5AD	Silver - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<1		ug/l	-	-	no
03/09/2015	GW-5AD	Aluminium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<2		ug/l	-	200	yes
03/09/2015	GW-5AD	Tin - dissolved	ICP-MS Based on EPA Method 200.8	Annually	1.07		ug/l	-	-	no
03/09/2015	GW-5AD	Zinc - dissolved	ICP-MS Based on EPA Method 200.8	Annually	3.25		ug/l	-	0.1	no
03/09/2015	GW-5AD	VOC's USEPA 524.2 list	GC-FID, GC-MS Based on USEPA 524.2 method	Annually	<1		ug/l	-	-	no
03/09/2015	GW-5AD	Faecal Coliforms	MTM025	Annually	0		cfu / 100 ml	0	0	no
03/09/2015	GW-5AD	Total Coliforms	MTM025	Annually	0		cfu / 100 ml	0	0	yes
Bi-monthly	GW-13S	pH	APHA 2012 4500 H&B	Bi-monthly	7.5	7.6	pH Units	-	≥6.5 and ≤9.5	no
Bi-monthly	GW-13S	Conductivity	APHA 2012 2510B	Bi-monthly	436.0	490.0	µS/cm	800 – 1875	1000	no
Bi-monthly	GW-13S	Ammonia as NH3	APHA 2012 4500-NH3 and bluebook Ammonia in waters 1981	Bi-monthly	0.8	0.9	mg/l	0.065-0.175	0.15	no
Bi-monthly	GW-13S	Ammonium	via inhouse calculation	Bi-monthly	1.1	1.2	mg/l		0.2	no

Bi-monthly	GW-13S	Chloride	APHA 2012 4500-CL–E	Bi-monthly	10.8	12.0	mg/l	187.5	30	no
03/09/2015	GW-13S	Sulphate	APHA 2012 4110B	Annually	9.1		mg/l	187.5	200	no
03/09/2015	GW-13S	Nitrate as NO3	APHA 2012 4500-NO_2B. Colorimetric Method	Annually	<0.2		mg/l	37.5	25	no
03/09/2015	GW-13S	Orthophosphate	APHA 2012 4500-P.E	Annually	0.13		mg/l	-	0.03	no
03/09/2015	GW-13S	Total Phosphours	APHA 2012 4500-PB & Hach Method 8190	Annually	0.14		mg/l	-	-	no
03/09/2015	GW-13S	Calcium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	**76.4**		mg/l	-	200	no
03/09/2015	GW-13S	Magnesium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	4.73		mg/l	-	50	yes
03/09/2015	GW-13S	Potassium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<1		mg/l	-	5	yes
03/09/2015	GW-13S	Sodium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	7.39		mg/l	150	150	yes
03/09/2015	GW-13S	Iron - dissolved	ICP-MS Based on EPA Method 200.8	Annually	2.46		mg/l	-	0.2	no
03/09/2015	GW-13S	Boron - dissolved	ICP-MS	Annually	6.82		ug/l	0.75	1	no
03/09/2015	GW-13S	Arsenic - dissolved	ICP-MS Based on EPA Method 200.8	Annually	6.22		ug/l	7.5	0.01	no
03/09/2015	GW-13S	Barium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	67.5		ug/l	-	0.1	no
03/09/2015	GW-13S	Cadmium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	0.08		ug/l	37.5	0.005	no
03/09/2015	GW-13S	Cobalt - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.15		ug/l	-	-	yes
03/09/2015	GW-13S	Chromium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	8		ug/l	37.5	0.03	no
03/09/2015	GW-13S	Copper - dissolved	ICP-MS Based on EPA Method 200.8	Annually	1.76		ug/l	1.5	0.03	no
03/09/2015	GW-13S	Mercury - dissolved	ICP-MS	Annually	<0.01		ug/l	7.5	0.001	no
03/09/2015	GW-13S	Manganese - dissolved	ICP-MS Based on EPA Method 200.8	Annually	310		ug/l	-	0.05	no
03/09/2015	GW-13S	Berylium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.1		ug/l	-	-	no
03/09/2015	GW-13S	Nickel - dissolved	ICP-MS Based on EPA Method 200.8	Annually	0.571		ug/l	15	0.02	yes
03/09/2015	GW-13S	Lead - dissolved	ICP-MS Based on EPA Method 200.8	Annually	0.499		ug/l	18.75	0.01	no
03/09/2015	GW-13S	Antimony - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.16		ug/l	-	-	no

03/09/2015	GW-13S	Selenium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.81		ug/l	-	-	no
03/09/2015	GW-13S	Silver - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<1		ug/l	-	-	no
03/09/2015	GW-13S	Aluminium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	17.6		ug/l	-	200	yes
03/09/2015	GW-13S	Tin - dissolved	ICP-MS Based on EPA Method 200.8	Annually	3.12		ug/l	-	-	no
03/09/2015	GW-13S	Zinc - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<1.3		ug/l	-	0.1	no
03/09/2015	GW-13S	VOC's USEPA 524.2 list	GC-FID, GC-MS Based on USEPA 524.2 method	Annually	<1		ug/l	-	-	no
03/09/2015	GW-13S	Faecal Coliforms	MTM025	Annually	0		cfu / 100 ml	0	0	no
03/09/2015	GW-13S	Total Coliforms	MTM025	Annually	0		cfu / 100 ml	0	0	yes
Bi-monthly	GW-13D	pH	APHA 2012 4500 H&B	Bi-monthly	7.9	8.0	pH Units	-	≥6.5 and ≤9.5	no
Bi-monthly	GW-13D	Conductivity	APHA 2012 2510B	Bi-monthly	258.0	289.0	µS/cm	800 – 1875	1000	no
Bi-monthly	GW-13D	Ammonia as NH3	APHA 2012 4500-NH3 and bluebook Ammonia in waters 1981	Bi-monthly	11.0	11.0	mg/l	0.065-0.175	0.15	no
Bi-monthly	GW-13D	Ammonium	via inhouse calculation	Bi-monthly	0.5	0.5	mg/l		0.2	no
Bi-monthly	GW-13D	Chloride	APHA 2012 4500-CL–E	Bi-monthly	0.6	0.7	mg/l	187.5	30	no
03/09/2015	GW-13D	Sulphate	APHA 2012 4110B	Annually	0.74		mg/l	187.5	200	no
03/09/2015	GW-13D	Nitrate as NO3	APHA 2012 4500-NO_2B. Colorimetric Method	Annually	<0.2		mg/l	37.5	25	no
03/09/2015	GW-13D	Orthophosphate	APHA 2012 4500-P.E	Annually	0.02		mg/l	-	0.03	no
03/09/2015	GW-13D	Total Phosphours	APHA 2012 4500-PB & Hach Method 8190	Annually	<0.05		mg/l	-	-	no
03/09/2015	GW-13D	Calcium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	**34.3**		mg/l	-	200	no
03/09/2015	GW-13D	Magnesium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	8.05		mg/l	-	50	yes
03/09/2015	GW-13D	Potassium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<1		mg/l	-	5	yes
03/09/2015	GW-13D	Sodium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	8.84		mg/l	150	150	yes

03/09/2015	GW-13D	Iron - dissolved	ICP-MS Based on EPA Method 200.8	Annually	0.463		mg/l	-	0.2	no
03/09/2015	GW-13D	Boron - dissolved	ICP-MS	Annually	6.03		ug/l	0.75	1	no
03/09/2015	GW-13D	Arsenic - dissolved	ICP-MS Based on EPA Method 200.8	Annually	5.15		ug/l	7.5	0.01	no
03/09/2015	GW-13D	Barium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	42		ug/l	-	0.1	no
03/09/2015	GW-13D	Cadmium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.08		ug/l	37.5	0.005	no
03/09/2015	GW-13D	Cobalt - dissolved	ICP-MS Based on EPA Method 200.8	Annually	0.367		ug/l	-	-	yes
03/09/2015	GW-13D	Chromium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	6.03		ug/l	37.5	0.03	no
03/09/2015	GW-13D	Copper - dissolved	ICP-MS Based on EPA Method 200.8	Annually	1.02		ug/l	1.5	0.03	no
03/09/2015	GW-13D	Mercury - dissolved	ICP-MS	Annually	0.832		ug/l	7.5	0.001	no
03/09/2015	GW-13D	Manganese - dissolved	ICP-MS Based on EPA Method 200.8	Annually	295		ug/l	-	0.05	no
03/09/2015	GW-13D	Berylium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.1		ug/l	-	-	no
03/09/2015	GW-13D	Nickel - dissolved	ICP-MS Based on EPA Method 200.8	Annually	3.7		ug/l	15	0.02	yes
03/09/2015	GW-13D	Lead - dissolved	ICP-MS Based on EPA Method 200.8	Annually	0.685		ug/l	18.75	0.01	no
03/09/2015	GW-13D	Antimony - dissolved	ICP-MS Based on EPA Method 200.8	Annually	0.217		ug/l	-	-	no
03/09/2015	GW-13D	Selenium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.81		ug/l	-	-	no
03/09/2015	GW-13D	Silver - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<1		ug/l	-	-	no
03/09/2015	GW-13D	Aluminium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	2.64		ug/l	-	200	yes
03/09/2015	GW-13D	Tin - dissolved	ICP-MS Based on EPA Method 200.8	Annually	0.96		ug/l	-	-	no
03/09/2015	GW-13D	Zinc - dissolved	ICP-MS Based on EPA Method 200.8	Annually	9.16		ug/l	-	0.1	no
03/09/2015	GW-13D	VOC's USEPA 524.2 list	GC-FID, GC-MS Based on USEPA 524.2 method	Annually	<1		ug/l	-	-	no
03/09/2015	GW-13D	Faecal Coliforms	MTM025	Annually	0		cfu / 100 ml	0	0	no
03/09/2015	GW-13D	Total Coliforms	MTM025	Annually	0		cfu / 100 ml	0	0	yes

Down-gradient Groundwater Monitoring Results

Date of sampling	Sample location reference	Parameter/ Substance	Methodology	Monitoring frequency	Maximum Concentration	Average Concentration	unit	GTV's*	IGV	Upward trend in yearly average pollutant concentration over last 5 years of monitoring data
Monthly	GW9	pH	APHA 2012 4500 H&B	Monthly	7.4	7.5	pH Units	-	≥6.5 and ≤9.5	no
Monthly	GW9	Conductivity	APHA 2012 2510B	Monthly	481.4	528.0	µS/cm	800 – 1875	1000	yes
Monthly	GW9	Ammonia as NH3	APHA 2012 4500-NH3 and bluebook Ammonia in waters 1981	Monthly	2.1	2.5	mg/l	0.065-0.175	0.15	yes
Monthly	GW9	Ammonium	via inhouse calculation	Monthly	2.8	3.2	mg/l		0.2	yes
Monthly	GW9	Chloride	APHA 2012 4500-CL–E	Monthly	9.4	12.0	mg/l	187.5	30	yes
03/09/2015	GW9	Sulphate	APHA 2012 4110B	Annually	1.6		mg/l	187.5	200	yes
03/09/2015	GW9	Nitrate as NO3	APHA 2012 4500-NO_2B. Colorimetric Method	Annually	<0.2		mg/l	37.5	25	no
03/09/2015	GW9	Orthophosphate	APHA 2012 4500-P.E	Annually	0.12		mg/l	-	0.03	yes
03/09/2015	GW9	Total Phosphours	APHA 2012 4500-PB & Hach Method 8190	Annually	0.17		mg/l	-	-	no
03/09/2015	GW9	Calcium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	**84.2**		mg/l	-	200	no
03/09/2015	GW9	Magnesium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	5.24		mg/l	-	50	no
03/09/2015	GW9	Potassium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<1		mg/l	-	5	yes
03/09/2015	GW9	Sodium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	6.54		mg/l	150	150	no
03/09/2015	GW9	Iron - dissolved	ICP-MS Based on EPA Method 200.8	Annually	1.58		mg/l	-	0.2	no
03/09/2015	GW9	Boron - dissolved	ICP-MS	Annually	<5		ug/l	0.75	1	yes
03/09/2015	GW9	Arsenic - dissolved	ICP-MS Based on EPA Method 200.8	Annually	6.16		ug/l	7.5	0.01	no
03/09/2015	GW9	Barium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	102		ug/l	-	0.1	no
03/09/2015	GW9	Cadmium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.08		ug/l	37.5	0.005	no

03/09/2015	GW9	Cobalt - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.15		ug/l	-	-	no
03/09/2015	GW9	Chromium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	1.44		ug/l	37.5	0.03	no
03/09/2015	GW9	Copper - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.85		ug/l	1.5	0.03	no
03/09/2015	GW9	Mercury - dissolved	ICP-MS	Annually	<0.01		ug/l	7.5	0.001	no
03/09/2015	GW9	Manganese - dissolved	ICP-MS Based on EPA Method 200.8	Annually	4.93		ug/l	-	0.05	no
03/09/2015	GW9	Berylium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.1		ug/l	-	-	no
03/09/2015	GW9	Nickel - dissolved	ICP-MS Based on EPA Method 200.8	Annually	3.33		ug/l	15	0.02	no
03/09/2015	GW9	Lead - dissolved	ICP-MS Based on EPA Method 200.8	Annually	0.138		ug/l	18.75	0.01	no
03/09/2015	GW9	Antimony - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.16		ug/l	-	-	no
03/09/2015	GW9	Selenium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.81		ug/l	-	-	no
03/09/2015	GW9	Silver - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<1		ug/l	-	-	no
03/09/2015	GW9	Aluminium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	8		ug/l	-	200	no
03/09/2015	GW9	Tin - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.36		ug/l	-	-	no
03/09/2015	GW9	Zinc - dissolved	ICP-MS Based on EPA Method 200.8	Annually	5.96		ug/l	-	0.1	no
03/09/2015	GW9	VOC's USEPA 524.2 list	GC-FID, GC-MS Based on USEPA 524.2 method	Annually	<1		ug/l	-	-	no
03/09/2015	GW9	Faecal Coliforms	MTM025	Annually	0		cfu / 100 ml	0	0	no
03/09/2015	GW9	Total Coliforms	MTM025	Annually	2		cfu / 100 ml	0	0	yes
Bi-Monthly	GW10	pH	APHA 2012 4500 H&B	Bi-Monthly	7.2	7.3	pH Units	-	≥6.5 and ≤9.5	no
Bi-Monthly	GW10	Conductivity	APHA 2012 2510B	Bi-Monthly	635.3	683.0	µS/cm	800 – 1875	1000	yes
Bi-Monthly	GW10	Ammonia as NH3	APHA 2012 4500-NH3 and bluebook Ammonia in waters 1981	Bi-Monthly	3.2	4.1	mg/l	0.065-0.175	0.15	no

Bi-Monthly	GW10	Ammonium	via inhouse calculation	Bi-Monthly	4.1	5.3	mg/l		0.2	no
Bi-Monthly	GW10	Chloride	APHA 2012 4500-CL–E	Bi-Monthly	9.8	10.0	mg/l	187.5	30	no
03/09/2015	GW10	Sulphate	APHA 2012 4110B	Annually	2.5		mg/l	187.5	200	yes
03/09/2015	GW10	Nitrate as NO3	APHA 2012 4500-NO_2B. Colorimetric Method	Annually	<0.2		mg/l	37.5	25	no
03/09/2015	GW10	Orthophosphate	APHA 2012 4500-P.E	Annually	0.04		mg/l	-	0.03	no
03/09/2015	GW10	Total Phosphours	APHA 2012 4500-PB & Hach Method 8190	Annually	0.07		mg/l	-	-	no
03/09/2015	GW10	Calcium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	119		mg/l	-	200	no
03/09/2015	GW10	Magnesium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	9.45		mg/l	-	50	yes
03/09/2015	GW10	Potassium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<1		mg/l	-	5	yes
03/09/2015	GW10	Sodium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	7.3		mg/l	150	150	yes
03/09/2015	GW10	Iron - dissolved	ICP-MS Based on EPA Method 200.8	Annually	0.149		mg/l	-	0.2	yes
03/09/2015	GW10	Boron - dissolved	ICP-MS	Annually	<5		ug/l	0.75	1	no
03/09/2015	GW10	Arsenic - dissolved	ICP-MS Based on EPA Method 200.8	Annually	1.27		ug/l	7.5	0.01	no
03/09/2015	GW10	Barium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	102		ug/l	-	0.1	no
03/09/2015	GW10	Cadmium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.08		ug/l	37.5	0.005	no
03/09/2015	GW10	Cobalt - dissolved	ICP-MS Based on EPA Method 200.8	Annually	0.227		ug/l	-	-	no
03/09/2015	GW10	Chromium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	1.78		ug/l	37.5	0.03	no
03/09/2015	GW10	Copper - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.85		ug/l	1.5	0.03	no
03/09/2015	GW10	Mercury - dissolved	ICP-MS	Annually	<0.01		ug/l	7.5	0.001	no
03/09/2015	GW10	Manganese - dissolved	ICP-MS Based on EPA Method 200.8	Annually	174		ug/l	-	0.05	no
03/09/2015	GW10	Berylium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.1		ug/l	-	-	no
03/09/2015	GW10	Nickel - dissolved	ICP-MS Based on EPA Method 200.8	Annually	2.42		ug/l	15	0.02	no
03/09/2015	GW10	Lead - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.1		ug/l	18.75	0.01	no

03/09/2015	GW10	Antimony - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.16		ug/l	-	-	no
03/09/2015	GW10	Selenium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.81		ug/l	-	-	no
03/09/2015	GW10	Silver - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<1		ug/l	-	-	no
03/09/2015	GW10	Aluminium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	4.28		ug/l	-	200	no
03/09/2015	GW10	Tin - dissolved	ICP-MS Based on EPA Method 200.8	Annually	0.369		ug/l	-	-	no
03/09/2015	GW10	Zinc - dissolved	ICP-MS Based on EPA Method 200.8	Annually	8.97		ug/l	-	0.1	no
03/09/2015	GW10	VOC's USEPA 524.2 list	GC-FID, GC-MS Based on USEPA 524.2 method	Annually	<1		ug/l	-	-	no
03/09/2015	GW10	Faecal Coliforms	MTM025	Annually	0		cfu / 100 ml	0	0	no
03/09/2015	GW10	Total Coliforms	MTM025	Annually	4		cfu / 100 ml	0	0	no
Bi-Monthly	GW-11S	pH	APHA 2012 4500 H&B	Bi-Monthly	7.3	7.4	pH Units	-	≥6.5 and ≤9.5	no
Bi-Monthly	GW-11S	Conductivity	APHA 2012 2510B	Bi-Monthly	785.5	888.0	µS/cm	800 – 1875	1000	no
Bi-Monthly	GW-11S	Ammonia as NH3	APHA 2012 4500-NH3 and bluebook Ammonia in waters 1981	Bi-Monthly	6.8	8.4	mg/l	0.065-0.175	0.15	no
Bi-Monthly	GW-11S	Ammonium	via inhouse calculation	Bi-Monthly	8.7	10.8	mg/l		0.2	no
Bi-Monthly	GW-11S	Chloride	APHA 2012 4500-CL–E	Bi-Monthly	12.9	15.0	mg/l	187.5	30	no
03/09/2015	GW-11S	Sulphate	APHA 2012 4110B	Annually	6.7		mg/l	187.5	200	no
03/09/2015	GW-11S	Nitrate as NO3	APHA 2012 4500-NO_2B. Colorimetric Method	Annually	<0.2		mg/l	37.5	25	no
03/09/2015	GW-11S	Orthophosphate	APHA 2012 4500-P.E	Annually	<0.01		mg/l	-	0.03	no
03/09/2015	GW-11S	Total Phosphours	APHA 2012 4500-PB & Hach Method 8190	Annually	<0.05		mg/l	-	-	no
03/09/2015	GW-11S	Calcium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	148		mg/l	-	200	no
03/09/2015	GW-11S	Magnesium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	6.43		mg/l	-	50	yes
03/09/2015	GW-11S	Potassium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	2.3		mg/l	-	5	yes

03/09/2015	GW-11S	Sodium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	12.4		mg/l	150	150	yes
03/09/2015	GW-11S	Iron - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.0019		mg/l	-	0.2	no
03/09/2015	GW-11S	Boron - dissolved	ICP-MS	Annually	9.01		ug/l	0.75	1	no
03/09/2015	GW-11S	Arsenic - dissolved	ICP-MS Based on EPA Method 200.8	Annually	4.81		ug/l	7.5	0.01	no
03/09/2015	GW-11S	Barium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	467		ug/l	-	0.1	no
03/09/2015	GW-11S	Cadmium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.08		ug/l	37.5	0.005	no
03/09/2015	GW-11S	Cobalt - dissolved	ICP-MS Based on EPA Method 200.8	Annually	3.94		ug/l	-	-	yes
03/09/2015	GW-11S	Chromium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<1.2		ug/l	37.5	0.03	no
03/09/2015	GW-11S	Copper - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.85		ug/l	1.5	0.03	no
03/09/2015	GW-11S	Mercury - dissolved	ICP-MS	Annually	<0.01		ug/l	7.5	0.001	no
03/09/2015	GW-11S	Manganese - dissolved	ICP-MS Based on EPA Method 200.8	Annually	676		ug/l	-	0.05	no
03/09/2015	GW-11S	Berylium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.1		ug/l	-	-	no
03/09/2015	GW-11S	Nickel - dissolved	ICP-MS Based on EPA Method 200.8	Annually	35.7		ug/l	15	0.02	yes
03/09/2015	GW-11S	Lead - dissolved	ICP-MS Based on EPA Method 200.8	Annually	0.115		ug/l	18.75	0.01	no
03/09/2015	GW-11S	Antimony - dissolved	ICP-MS Based on EPA Method 200.8	Annually	0.165		ug/l	-	-	no
03/09/2015	GW-11S	Selenium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.81		ug/l	-	-	no
03/09/2015	GW-11S	Silver - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<1		ug/l	-	-	no
03/09/2015	GW-11S	Aluminium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<2		ug/l	-	200	yes
03/09/2015	GW-11S	Tin - dissolved	ICP-MS Based on EPA Method 200.8	Annually	0.573		ug/l	-	-	no
03/09/2015	GW-11S	Zinc - dissolved	ICP-MS Based on EPA Method 200.8	Annually	3.58		ug/l	-	0.1	no
03/09/2015	GW-11S	VOC's USEPA 524.2 list	GC-FID, GC-MS Based on USEPA 524.2 method	Annually	<1		ug/l	-	-	no
03/09/2015	GW-11S	Faecal Coliforms	MTM025	Annually	0		cfu / 100 ml	0	0	no

03/09/2015	GW-11S	Total Coliforms	MTM025	Annually	0		cfu / 100 ml	0	0	yes
Bi-Monthly	GW-11D	pH	APHA 2012 4500 H&B	Bi-Monthly	7.3	7.4	pH Units	-	≥6.5 and ≤9.5	no
Bi-Monthly	GW-11D	Conductivity	APHA 2012 2510B	Bi-Monthly	748.3	812.0	µS/cm	800 – 1875	1000	no
Bi-Monthly	GW-11D	Ammonia as NH3	APHA 2012 4500-NH3 and bluebook Ammonia in waters 1981	Bi-Monthly	6.3	8.0	mg/l	0.065-0.175	0.15	no
Bi-Monthly	GW-11D	Ammonium	via inhouse calculation	Bi-Monthly	8.0	10.3	mg/l		0.2	no
Bi-Monthly	GW-11D	Chloride	APHA 2012 4500-CL–E	Bi-Monthly	11.6	12.0	mg/l	187.5	30	no
03/09/2015	GW-11D	Sulphate	APHA 2012 4110B	Annually	0.67		mg/l	187.5	200	no
03/09/2015	GW-11D	Nitrate as NO3	APHA 2012 4500-NO_2B. Colorimetric Method	Annually	<0.2		mg/l	37.5	25	no
03/09/2015	GW-11D	Orthophosphate	APHA 2012 4500-P.E	Annually	<0.01		mg/l	-	0.03	no
03/09/2015	GW-11D	Total Phosphours	APHA 2012 4500-PB & Hach Method 8190	Annually	<0.05		mg/l	-	-	no
03/09/2015	GW-11D	Calcium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	123		mg/l	-	200	no
03/09/2015	GW-11D	Magnesium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	9.07		mg/l	-	50	yes
03/09/2015	GW-11D	Potassium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	2		mg/l	-	5	yes
03/09/2015	GW-11D	Sodium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	13.6		mg/l	150	150	yes
03/09/2015	GW-11D	Iron - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.0019		mg/l	-	0.2	no
03/09/2015	GW-11D	Boron - dissolved	ICP-MS	Annually	11.5		ug/l	0.75	1	no
03/09/2015	GW-11D	Arsenic - dissolved	ICP-MS Based on EPA Method 200.8	Annually	11		ug/l	7.5	0.01	no
03/09/2015	GW-11D	Barium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	478		ug/l	-	0.1	no
03/09/2015	GW-11D	Cadmium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.08		ug/l	37.5	0.005	no
03/09/2015	GW-11D	Cobalt - dissolved	ICP-MS Based on EPA Method 200.8	Annually	5.61		ug/l	-	-	yes
03/09/2015	GW-11D	Chromium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<1.2		ug/l	37.5	0.03	no

03/09/2015	GW-11D	Copper - dissolved	ICP-MS Based on EPA Method 200.8	Annually	1.24		ug/l	1.5	0.03	no
03/09/2015	GW-11D	Mercury - dissolved	ICP-MS	Annually	<0.01		ug/l	7.5	0.001	no
03/09/2015	GW-11D	Manganese - dissolved	ICP-MS Based on EPA Method 200.8	Annually	439		ug/l	-	0.05	no
03/09/2015	GW-11D	Berylium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.1		ug/l	-	-	no
03/09/2015	GW-11D	Nickel - dissolved	ICP-MS Based on EPA Method 200.8	Annually	68.2		ug/l	15	0.02	yes
03/09/2015	GW-11D	Lead - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.1		ug/l	18.75	0.01	no
03/09/2015	GW-11D	Antimony - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.16		ug/l	-	-	no
03/09/2015	GW-11D	Selenium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.81		ug/l	-	-	no
03/09/2015	GW-11D	Silver - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.01		ug/l	-	-	no
03/09/2015	GW-11D	Aluminium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<2		ug/l	-	200	yes
03/09/2015	GW-11D	Tin - dissolved	ICP-MS Based on EPA Method 200.8	Annually	1.81		ug/l	-	-	no
03/09/2015	GW-11D	Zinc - dissolved	ICP-MS Based on EPA Method 200.8	Annually	14.2		ug/l	-	0.1	no
03/09/2015	GW-11D	VOC's USEPA 524.2 list	GC-FID, GC-MS Based on USEPA 524.2 method	Annually	<1		ug/l	-	-	no
03/09/2015	GW-11D	Faecal Coliforms	MTM025	Annually	0		cfu / 100 ml	0	0	no
03/09/2015	GW-11D	Total Coliforms	MTM025	Annually	0		cfu / 100 ml	0	0	yes
Bi-Monthly	GW-12S	pH	APHA 2012 4500 H&B	Bi-Monthly	7.8	8.1	pH Units	-	≥6.5 and ≤9.5	no
Bi-Monthly	GW-12S	Conductivity	APHA 2012 2510B	Bi-Monthly	420.8	460.0	µS/cm	800 – 1875	1000	no
Bi-Monthly	GW-12S	Ammonia as NH3	APHA 2012 4500-NH3 and bluebook Ammonia in waters 1981	Bi-Monthly	6.5	7.0	mg/l	0.065-0.175	0.15	no
Bi-Monthly	GW-12S	Ammonium	via inhouse calculation	Bi-Monthly	8.4	9.0	mg/l		0.2	no
Bi-Monthly	GW-12S	Chloride	APHA 2012 4500-CL–E	Bi-Monthly	10.8	12.0	mg/l	187.5	30	no
03/09/2015	GW-12S	Sulphate	APHA 2012 4110B	Annually	<0.5		mg/l	187.5	200	no

03/09/2015	GW-12S	Nitrate as NO3	APHA 2012 4500-NO_2B. Colorimetric Method	Annually	<0.2		mg/l	37.5	25	no
03/09/2015	GW-12S	Orthophosphate	APHA 2012 4500-P.E	Annually	<0.01		mg/l	-	0.03	no
03/09/2015	GW-12S	Total Phosphours	APHA 2012 4500-PB & Hach Method 8190	Annually	<0.05		mg/l	-	-	no
03/09/2015	GW-12S	Calcium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	55		mg/l	-	200	no
03/09/2015	GW-12S	Magnesium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	5.08		mg/l	-	50	yes
03/09/2015	GW-12S	Potassium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	1.15		mg/l	-	5	yes
03/09/2015	GW-12S	Sodium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	15.2		mg/l	150	150	yes
03/09/2015	GW-12S	Iron - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.0019		mg/l	-	0.2	no
03/09/2015	GW-12S	Boron - dissolved	ICP-MS	Annually	13		ug/l	0.75	1	no
03/09/2015	GW-12S	Arsenic - dissolved	ICP-MS Based on EPA Method 200.8	Annually	69.1		ug/l	7.5	0.01	no
03/09/2015	GW-12S	Barium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	201		ug/l	-	0.1	no
03/09/2015	GW-12S	Cadmium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.08		ug/l	37.5	0.005	no
03/09/2015	GW-12S	Cobalt - dissolved	ICP-MS Based on EPA Method 200.8	Annually	0.497		ug/l	-	-	yes
03/09/2015	GW-12S	Chromium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<1.2		ug/l	37.5	0.03	no
03/09/2015	GW-12S	Copper - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.85		ug/l	1.5	0.03	no
03/09/2015	GW-12S	Mercury - dissolved	ICP-MS	Annually	<0.001		ug/l	7.5	0.001	no
03/09/2015	GW-12S	Manganese - dissolved	ICP-MS Based on EPA Method 200.8	Annually	59.6		ug/l	-	0.05	no
03/09/2015	GW-12S	Berylium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.1		ug/l	-	-	no
03/09/2015	GW-12S	Nickel - dissolved	ICP-MS Based on EPA Method 200.8	Annually	6.64		ug/l	15	0.02	yes
03/09/2015	GW-12S	Lead - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.1		ug/l	18.75	0.01	no
03/09/2015	GW-12S	Antimony - dissolved	ICP-MS Based on EPA Method 200.8	Annually	0.727		ug/l	-	-	no
03/09/2015	GW-12S	Selenium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.81		ug/l	-	-	no

03/09/2015	GW-12S	Silver - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<1		ug/l	-	-	no
03/09/2015	GW-12S	Aluminium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<2		ug/l	-	200	yes
03/09/2015	GW-12S	Tin - dissolved	ICP-MS Based on EPA Method 200.8	Annually	0.752		ug/l	-	-	no
03/09/2015	GW-12S	Zinc - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<1.3		ug/l	-	0.1	no
03/09/2015	GW-12S	VOC's USEPA 524.2 list	GC-FID, GC-MS Based on USEPA 524.2 method	Annually	<1		ug/l	-	-	no
03/09/2015	GW-12S	Faecal Coliforms	MTM025	Annually	0		cfu / 100 ml	0	0	no
03/09/2015	GW-12S	Total Coliforms	MTM025	Annually	0		cfu / 100 ml	0	0	yes
Bi-Monthly	GW-12D	pH	APHA 2012 4500 H&B	Bi-Monthly	7.9	8.0	pH Units	-	≥6.5 and ≤9.5	no
Bi-Monthly	GW-12D	Conductivity	APHA 2012 2510B	Bi-Monthly	287.1	315.0	µS/cm	800 – 1875	1000	no
Bi-Monthly	GW-12D	Ammonia as NH3	APHA 2012 4500-NH3 and bluebook Ammonia in waters 1981	Bi-Monthly	10.5	13.0	mg/l	0.065-0.175	0.15	no
Bi-Monthly	GW-12D	Ammonium	via inhouse calculation	Bi-Monthly	4.0	9.0	mg/l		0.2	no
Bi-Monthly	GW-12D	Chloride	APHA 2012 4500-CL–E	Bi-Monthly	5.1	11.6	mg/l	187.5	30	no
03/09/2015	GW-12D	Sulphate	APHA 2012 4110B	Annually	<0.5		mg/l	187.5	200	no
03/09/2015	GW-12D	Nitrate as NO3	APHA 2012 4500-NO_2B. Colorimetric Method	Annually	<0.2		mg/l	37.5	25	no
03/09/2015	GW-12D	Orthophosphate	APHA 2012 4500-P.E	Annually	0.01		mg/l	-	0.03	no
03/09/2015	GW-12D	Total Phosphours	APHA 2012 4500-PB & Hach Method 8190	Annually	0.07		mg/l	-	-	no
03/09/2015	GW-12D	Calcium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	29		mg/l	-	200	no
03/09/2015	GW-12D	Magnesium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	7.27		mg/l	-	50	yes
03/09/2015	GW-12D	Potassium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<1		mg/l	-	5	yes
03/09/2015	GW-12D	Sodium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	15.7		mg/l	150	150	yes
03/09/2015	GW-12D	Iron - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.0019		mg/l	-	0.2	no

03/09/2015	GW-12D	Boron - dissolved	ICP-MS	Annually	9.4		ug/l	0.75	1	no
03/09/2015	GW-12D	Arsenic - dissolved	ICP-MS Based on EPA Method 200.8	Annually	10.8		ug/l	7.5	0.01	no
03/09/2015	GW-12D	Barium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	51.2		ug/l	-	0.1	no
03/09/2015	GW-12D	Cadmium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.08		ug/l	37.5	0.005	no
03/09/2015	GW-12D	Cobalt - dissolved	ICP-MS Based on EPA Method 200.8	Annually	0.675		ug/l	-	-	yes
03/09/2015	GW-12D	Chromium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<1.2		ug/l	37.5	0.03	no
03/09/2015	GW-12D	Copper - dissolved	ICP-MS Based on EPA Method 200.8	Annually	1.47		ug/l	1.5	0.03	no
03/09/2015	GW-12D	Mercury - dissolved	ICP-MS	Annually	1.06		ug/l	7.5	0.001	no
03/09/2015	GW-12D	Manganese - dissolved	ICP-MS Based on EPA Method 200.8	Annually	82.4		ug/l	-	0.05	no
03/09/2015	GW-12D	Berylium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.1		ug/l	-	-	no
03/09/2015	GW-12D	Nickel - dissolved	ICP-MS Based on EPA Method 200.8	Annually	4.67		ug/l	15	0.02	yes
03/09/2015	GW-12D	Lead - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.1		ug/l	18.75	0.01	no
03/09/2015	GW-12D	Antimony - dissolved	ICP-MS Based on EPA Method 200.8	Annually	0.532		ug/l	-	-	no
03/09/2015	GW-12D	Selenium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<0.81		ug/l	-	-	no
03/09/2015	GW-12D	Silver - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<1		ug/l	-	-	no
03/09/2015	GW-12D	Aluminium - dissolved	ICP-MS Based on EPA Method 200.8	Annually	<2		ug/l	-	200	yes
03/09/2015	GW-12D	Tin - dissolved	ICP-MS Based on EPA Method 200.8	Annually	1.41		ug/l	-	-	no
03/09/2015	GW-12D	Zinc - dissolved	ICP-MS Based on EPA Method 200.8	Annually	1.75		ug/l	-	0.1	no
03/09/2015	GW-12D	VOC's USEPA 524.2 list	GC-FID, GC-MS Based on USEPA 524.2 method	Annually	<1		ug/l	-	-	no
03/09/2015	GW-12D	Faecal Coliforms	MTM025	Annually	0		cfu / 100 ml	0	0	no
03/09/2015	GW-12D	Total Coliforms	MTM025	Annually	0		cfu / 100 ml	0	0	yes

Noise Monitoring Results

Date of monitoring	Time period	Noise location (on site)	Noise sensitive location -NSL (if applicable)	LA_{eq}	LA_{90}	LA_{10}	LA_{max}	Tonal or Impulsive noise* (Y/N)	Comments (ex. main noise sources on site, & extraneous noise ex. road traffic)	Is site compliant with noise limits (day/evening/night)?
19-20/10/16	30 Mins	N1 (NSL)	yes	35-43	35-46	28-38	58-68	No	**Site:** Very faint reverse alarms. Engines of heavy plant machinery occasionally faintly audible. **Background:** Distant traffic on road. Birdsong. Dogs barking in dwelling 100 meters away. Chainsawing in distance audible during run 2	Yes
19-20/10/16	30 Mins	N2	No	51-56	49-59	30-33	74-77	No	**Site:** Machinery faintly audible from site. **Background**: Birdsong. Passing road traffic on external road – averaging 10 vehicles - **Dominant Source** Chainsawing in distance audible during run 2	no
19-20/10/16	30 Mins	N3	No	41-49	45-52	25-31	62-70	No	**Site:** Reverse alarms in distance. Heavy plant machinery operating on landfill. Low level hum from fans in composite facility. **Background:** Traffic on regional road – **Dominant Source.** Bird and cattle calls, Aircraft passing over head during Run 1. Beeping of car horns.	Yes
19-20/10/16	30 Mins	N4	No	64	65-66	40-47	85	No	**Site:** Cars and trucks entering/exiting the landfill. Lorry's with engines idling at entrance (30m) **Dominant Source- Lmax**. **Background:** Passing road traffic on R403 **Dominant Source- Lmax**. Bird songs, Dogs barking	No
19-20/10/16	30 Mins	N5	No	35-38	35-41	29-33	63-67	No	**Site:** Trucks entering on site road. Machinery audible. Hume of fans from Compositing facility and reversing beacons also audible. **Background:** Faint road traffic occasional audible. Birdsong. Chainsawing in distance audible during run 2	Yes
20/10/16	30 Mins	N1 (NSL)	yes	33-34	36-37	27-330	60-61	No	**Site:** Very faint hum of operations from facility. **Background:** Distant traffic on road. Animal calls (barking dogs, Bird Songs)	Yes
20/10/16	30 Mins	N2	No	27-45	24-31	19-20	60-63	No	**Site: Very faint hum of operations from facility. Background: Road traffic - dominant noise source in round 2 Cow calling and dogs barking** 2	No
20/10/16	30 Mins	N3	No	24-45	22-36	18-20	52-84	No	**Site:** Very faint hum of operations from facility. **Background:** Occasional passing traffic on the L5025 road (100m). **Dominant source** of noise during round 2	No
20/10/16	30 Mins	N4	No	38-49	32-50	23-27	71-77	No	**Site:** Access gate to site closing **Background;** passing road traffic on the R403 **dominate noise source**.	No
20/10/16	30 Mins	N5	No	34-38	31-32	24	71-89	No	**Site:** Low noise audible from site. **Background:** Road traffic was barely audible in the distance. Dominate source bird and other animal calls.	Yes

Leachate Monitoring Results

Quarter 1

Results of the Annual Chemical Analysis of Leachate Sample TK-2 taken on the 29th of January 2016		
Sample ID	Units	TK-2
Received Date & Time		29/01/2016 14:03
Sample Type		Leachate
BOD	mg/l O_2	2188
COD	mg/l O_2	11480

Quarter 2

Results of the quarterly Chemical Analysis of Leachate Sample TK-2 taken on 27/06/16		
Sample ID	Units	TK-2
Received Date & Time		27/06/2016 16:28
Sample Type		Leachate
BOD	mg/l O_2	550
COD	mg/l O_2	8,985

Quarter 3

Results of the Annual Chemical Analysis of Leachate Sample TK-2 taken on the 18th of August 2016		
Sample ID	Units	TK-2
Received Date & Time		18/08/16
Sample Type		Leachate
pH	pH Units	7.9
Conductivity	µS/cm	37800 ***
BOD	mg/l O_2	1806
COD	mg/l O_2	11260
Chloride	mg/l	3876
Fluoride	mg/l	0.58
PO_4-P	mg/l	16
Total Phosphorous	mg/l	7.9
NH_4-N	mg/l	11.1
Sulphate	mg/l	48
Cyanide	mg/l	0.8
TON	mg/l	<0.2

Results of the Annual Chemical Analysis of Leachate Sample TK-2 taken on the 18th of August 2016			
VOC's	Dichlorodifluoromethane**	µg/l	<2
	Chloromethane**	µg/l	<3
	Vinyl chloride**	µg/l	0.2
	Bromomethane**	µg/l	<1
	Chloroethane**	µg/l	<3
	Trichlorofluoromethane**	µg/l	<3
	1,1-Dichloroethene**	µg/l	<3
	Dichloromethane**	µg/l	<3
	trans-1,2-Dichloroethene**	µg/l	<3

	1,1-Dichloroethane**	µg/l	<3
	2,2-Dichloropropane**	µg/l	<1
	cis-1,2-Dichloroethene**	µg/l	<3
	Bromochloromethane**	µg/l	<2
	Chloroform**	µg/l	<2
	1,1,1-Trichloroethane**	µg/l	<2
	Carbon Tetrachloride**	µg/l	<2
	1,1-Dichloropropene**	µg/l	<3
	Benzene**	µg/l	5.2
	1,2-Dichloroethane**	µg/l	<2
	Trichloroethene**	µg/l	<3
	1,2-Dichloropropane**	µg/l	<2
	Dibromomethane**	µg/l	<3
	Bromodichloromethane**	µg/l	<2
	Toluene**	µg/l	35
	1,1,2-Trichloroethane**	µg/l	<2
	1,2-Dibromoethane**	µg/l	<2
	1,1,1,2-Tetrachloroethane**	µg/l	<2
	m,p-Xylene**	µg/l	32
	Styrene**	µg/l	<2
	Isopropylbenzene**	µg/l	<3
	n-propylbenzene**	µg/l	<3
	2-Chlorotoluene**	µg/l	<3
	4-Chlorotoluene**	µg/l	<3
	1,2,4-Trimethylbenzene**	µg/l	14
	4-Isopropyltoluene**	µg/l	74
	1,4-Dichlorobenzene**	µg/l	5
	1,2-Dichlorobenzene**	µg/l	<3
	Naphthalene**	µg/l	18
	1,3-Dichloropropane**	µg/l	<2
	cis-1,3-Dichloropropene**	µg/l	<2
	trans-1,3-Dichloropropene**	µg/l	<2
	Dibromochloromethane**	µg/l	<2
	Chlorobenzene**	µg/l	<2
	Ethyl Benzene**	µg/l	16.3
	o-Xylene**	µg/l	16.3
	Bromoform**	µg/l	<2
	1,2,3-Trichloropropane**	µg/l	<3
	Bromobenzene**	µg/l	<2
	Tert-Butylbenzene**	µg/l	<3
	Sec-Butylbenzene**	µg/l	<3
	1,3,5-Trimethylbenzene**	µg/l	3
	1,2- Dibromo-3-chloropropane**	µg/l	<2
	Hexachlorobutadiene**	µg/l	<3

Quarter 4

Results of the Chemical Analysis of Leachate Sample TK-2 taken on the 13th of October 2016		
Sample ID	Units	TK-2
Received Date & Time		13/10/16
Sample Type		Leachate
BOD	mg/l O_2	1075
COD	mg/l O_2	5355
*Sodium (total)	mg/l	2,470
**Magnesium(total)	mg/l	114
**Potassium (total)	mg/l	1,390
**Calcium (total)	µg/l	45.6
**Boron (total)	µg/l	8,200
**Chromium (total)	µg/l	837
**Manganese (total)	µg/l	266
**Nickel (total)	µg/l	378
**Copper (total)	µg/l	17.5
**Zinc (total)	µg/l	247
**Cadmium (total)	µg/l	<0.5
**Lead (total)	mg/l	13.9
**Iron (total)	µg/l	3.3
**Mercury (total)	mg/l	<0.02

Results of the Annual Chemical Analysis of Leachate Sample TK-2 taken on the 20th of October 2016			
Combined Pesticide suite	Dichlorvos**	*µg/l*	<0.01
	Mevinphos**	*µg/l*	<0.01
	alpha-HCH/Lindane**	*µg/l*	<0.01
	Diazinon**	*µg/l*	<0.01
	gamma-HCH/Lindane**	*µg/l*	<0.01
	Heptachlor**	*µg/l*	<0.01
	Aldrin**	*µg/l*	<0.01
	beta-HCH/Lindane**	*µg/l*	<0.01
	Methyl Parathion**	*µg/l*	<0.01
	Malathion**	*µg/l*	<0.01
	Fenitrothion**	*µg/l*	<0.01
	Heptachlor Epoxide**	*µg/l*	<0.01
	Parathion**	*µg/l*	<0.01
	o,p-DDE**	*µg/l*	<0.01
	Endosulfan I**	*µg/l*	<0.01
	p,p-DDE**	*µg/l*	<0.01
	Dieldrin**	*µg/l*	<0.01
	o,p-TDE**	*µg/l*	<0.01
	Endrin**	*µg/l*	<0.01
	o,p-DDT**	*µg/l*	<0.01
	p,p-TDE**	*µg/l*	<0.01
	Ethion**	*µg/l*	<0.01
	Endosulfan II**	*µg/l*	<0.01
	p,p-DDT**	*µg/l*	<0.01
	o,p-Methoxychlor**	*µg/l*	<0.01
	p,p-Methoxychlor**	*µg/l*	<0.01
	Endosulfan Sulphate**	*µg/l*	<0.01
	Azinphos Methyl**	*µg/l*	<0.01
SVOC's			
	1,2,4-Trichlorobenzene**	*µg/l*	<10

	1,2-Dichlorobenzene**	µg/l	<10
	1,3-Dichlorobenzene**	µg/l	<10
	1,4-Dichlorobenzene**	µg/l	<10
	2,4,5-Trichlorophenol**	µg/l	<10
	2,4,6-Trichlorophenol**	µg/l	<10
	2,4-Dichlorophenol**	µg/l	<10
	2,4-Dimethylphenol**	µg/l	<10
	2,4-Dinitrotoluene**	µg/l	<10
	2,6-Dinitrotoluene**	µg/l	<10
	2-Chloronaphthalene**	µg/l	<10
	2-Chlorophenol**	µg/l	<10
	2-Methylnaphthalene**	µg/l	<10
	2-Methylphenol**	µg/l	<10
	2-Nitroaniline**	µg/l	<10
	2-Nitrophenol**	µg/l	<10
	3-Nitroaniline**	µg/l	<10
	4-Bromophenylphenylether**	µg/l	<10
	4-Chloro-3-methylphenol**	µg/l	<10
	4-Chloroaniline**	µg/l	<10
	4-Chlorophenylphenylether**	µg/l	<10
	4-Methylphenol**	µg/l	<10
	4-Nitrophenol**	µg/l	<10
	4-Nitroaniline**	µg/l	<10
	Azobenzene**	µg/l	<10
	Acenaphthylene**	µg/l	<10
	Acenaphthene**	µg/l	<10
	Anthracene**	µg/l	<10
	Bis(2-Chloroethyl)ether**	µg/l	<10
	Bis(2-chloroethoxy)methane**	µg/l	<10

Results of the Annual Chemical Analysis of Leachate Sample TK-2 taken on the 20th of October 2016.			
SVOC's	Bis(2-ethylhexyl)phthalate**	µg/l	55.3
	Benzo(a)anthracene**	µg/l	<10
	Butylbenzylphthalate**	µg/l	<10
	Benzo(a)pyrene**	µg/l	<10
	Benzo(ghi)perylene**	µg/l	<10
	Carbazole**	µg/l	<10
	Bis(2-ethylhexyl)phthalate**	µg/l	<10
	Benzo(a)anthracene**	µg/l	<10
	Butylbenzylphthalate**	µg/l	<10
	Benzo(a)pyrene**	µg/l	<10
	Benzo(ghi)perylene**	µg/l	<10
	Carbazole**	µg/l	<10
	Chrysene**	µg/l	<10
	Dibenzofuran**	µg/l	<10
	n-Di-butylphthalate**	µg/l	<10
	Diethyl phthalate**	µg/l	<10
	Dibenzo(a,h)anthracene**	µg/l	<10
	Dimethyl phthalate**	µg/l	<10
	n-Di octyl phthalate**	µg/l	<10
	Fluoranthene**	µg/l	<10
	Flourene**	µg/l	<10
	Hexachlorobenzene**	µg/l	<10
	hexachlorobutadiene**	µg/l	<10
	Pentachlorophenol**	µg/l	<10
	Phenol**	µg/l	95
	N-nitrosodi-n-propylamine**	µg/l	<10
	Hexachloroethane**	µg/l	<10
	Nitrobenzene**	µg/l	<10

	Naphthalene**	µg/l	<10
	Isophorone**	µg/l	<10
	Hexachlorocyclopentadiene**	µg/l	<10
	Phenanthrene**	µg/l	<10
	Indenol(1,2,3-cd)pyrene**	µg/l	<10
	Pyrene**	µg/l	<10

Landfill Gas Monitoring Results

January 2016

Drehid Facility (W0201-03)		
Operator: Phoebe Dillane	**Date:** 29th January 2016	**Time:** 11:00 & 14:00
Instrument ID: Geotech GA 2000	**Date Next Calibration:** February 2016	
Weather: Dry & Bright	**Barometric pressure:** 1003 & 1004	
	Ambient Temp: 11°C	

29th January 2016					
Sample Station Number	**CH_4 (% v/v)**	**CO_2 (% v/v)**	**O_2 (% v/v)**	**Pressure (mbar)**	**Comments**
LG – 01	0.0	0.0	21.5	1003	
LG – 02	0.0	0.1	20.8	1003	
LG – 03	–	–	–	–	Out of commission
LG – 04	–	–	–	–	Well Inaccessible
LG – 05	–	–	–	–	Out of commission
LG – 06	0.0	1.1	19.9	1003	
LG – 07	0.0	0.6	20.3	1003	
LG – 08	0.0	0.3	20.7	1003	
LG – 09	0.1	1.4	17.2	1003	
LG – 10	0.3	1.0	17.5	1003	
LG – 11	0.1	0.3	20.7	1003	
LG – 12	0.0	1.3	21.0	1003	
LG – 13	0.1	0.6	19.5	1003	
LG – 14	0.0	0.9	21.2	1003	
LG – 15	0.0	1.1	21.1	1003	
LG – 16	0.1	0.7	20.7	1003	
LG - 17	–	–	–	–	Out of commission
LG – 18	0.0	0.2	21.8	1003	
LG - 19	–	–	–	–	Damaged

LG – 20	0.0	0.1	21.4	1003	
LG – 21	0.0	0.2	21.0	1003	
LG – 22	_	_	_	_	Damaged
LG – 23	0.1	0.0	20.9	1003	
LG – 24	0.0	0.1	21.1	1003	
LG - 25	0.0	0.4	21.5	1003	
LG - 26	0.2	1.4	12.2	1003	
LG - 27	0.0	0.1	21.6	1003	
LG - 28	0.0	0.1	21.5	1003	
LG - 29	0.0	0.3	21.1	1003	
LG - 30	0.0	1.4	15.7	1003	
LG - 31	0.0	0.8	20.7	1003	
LG - 32	0.0	0.0	21.2	1003	
LG - 33	0.1	0.2	21.7	1003	
LG – 34	0.0	0.2	21.7	1003	
LG - 35	0.0	0.1	21.8	1003	
LG - 36	0.0	0.4	21.6	1003	

29th January 2016					
Sample Station Number	**CH_4 (% v/v)**	**CO_2 (% v/v)**	**O_2 (% v/v)**	**Pressure (mbar)**	**Comments**
PHASE 1					
P1W006	58.2	36.6	1.1	1004	
P1W008	61.3	36.3	0.4	1004	
P1W011	59.2	38.3	0.3	1004	
P1W012	55.6	36.2	1.2	1004	
P1W020	58.9	39.0	1.0	1004	
PHASE 2					

P2W001	57.3	38.3	0.1	1004	
P2W007	44.9	31.3	3.7	1004	
P2W010	59.3	38.2	0.9	1004	
P2W015	36.6	34.3	8.4	1004	
PHASE 3					
P3W005	58.2	39.9	0.3	1004	
P3W006	41.8	28.4	5.3	1004	
P3W013	45.2	32.7	2.7	1004	
P3W015	56.5	38.7	0.4	1004	
P3W021	47.3	40.9	0.9	1004	
PHASE 4					
P4W002	58.6	39.2	0.6	1004	
P4W004	43.2	32.4	2.0	1004	
P4W005	49.3	32.7	1.8	1004	
P4W006	60.1	40.2	0.5	1004	
P4W014	45.6	34.2	2.2	1004	
PHASE 5					
P5W003	57.7	38.4	1.2	1004	
P5W009	45.4	30.6	4.5	1004	
P5W010	58.2	40.1	0.4	1004	
P5W011	60.8	40.9	0.2	1004	
P5W012	57.2	42.6	0.4	1004	
PHASE 6					
P6W003	41.3	36.2	0.3	1004	
P6W004	58.8	40.9	0.5	1004	

P6W005	55.6	39.7	1.1	1004	
P6W009	25.7	23.2	7.2	1004	
P6W012	39.7	33.0	1.7	1004	
PHASE 7					
P7W008	38.9	34.8	1.1	1004	
P7W009	42.2	36.4	1.2	1004	
P7W010	30.6	30.7	0.5	1004	
P7W011	42.9	37.5	0.1	1004	
P7W012	52.3	38.2	0.9	1004	

February 2016

Drehid Facility (W0201-03)		
Operator: Phoebe Dillane	**Date:** 29th February 2016	**Time:** 11:00
Instrument ID: Geotech GA 2000	**Date Next Calibration:** February 2016	
Weather: Wet & Overcast	**Barometric pressure:** 1010 mbar	
	Ambient Temp: 5°C	

29th February 2016					
Sample Station Number	**CH_4 (% v/v)**	**CO_2 (% v/v)**	**O_2 (% v/v)**	**Pressure (mbar)**	**Comments**
LG – 01	0.0	1.0	20.8	1010	
LG – 02	0.0	0.2	20.4	1010	
LG – 03	_	_	_	_	Out of commission
LG – 04	_	_	_	_	Well Inaccessible
LG – 05	_	_	_	_	Out of commission
LG – 06	0.0	0.4	20.3	1010	
LG – 07	0.0	0.7	15.8	1010	
LG – 08	0.0	0.2	20.6	1010	
LG – 09	0.0	1.1	19.4	1010	
LG – 10	0.2	1.1	17.8	1010	
LG – 11	0.0	0.2	21.0	1010	
LG – 12	0.0	0.3	21.4	1010	
LG – 13	0.1	1.5	14.0	1010	
LG – 14	0.1	0.9	21.1	1010	
LG – 15	0.0	0.7	21.5	1010	
LG – 16	0.0	0.1	21.6	1010	
LG - 17	_	_	_	_	Out of commission
LG – 18	0.0	0.1	21.4	1010	

LG - 19	0.0	0.1	21.8	1010	
LG – 20	0.1	0.0	19.0	1010	
LG – 21	0.1	1.0	21.3	1010	
LG – 22	0.0	0.4	21.5	1010	
LG – 23	0.0	0.2	21.4	1010	
LG – 24				1010	Well Inaccessible
LG - 25	0.0	0.4	21.1	1010	
LG - 26	0.0	0.9	20.2	1010	
LG - 27	0.0	0.1	21.7	1010	
LG - 28	0.0	0.1	21.4	1010	
LG - 29	0.0	1.0	21.1	1010	
LG - 30	0.0	1.1	19.9	1010	
LG - 31	0.0	0.1	21.7	1010	
LG - 32	0.0	0.3	21.6	1010	
LG - 33	0.1	0.4	21.7	1010	
LG – 34	0.1	0.1	21.7	1010	
LG - 35	0.0	0.3	21.7	1010	
LG - 36	0.1	0.2	21.7	1010	

29th February 2016					
Sample Station Number	**CH_4 (% v/v)**	**CO_2 (% v/v)**	**O_2 (% v/v)**	**Pressure (mbar)**	**Comments**
PHASE 1					
P1W006	57.9	36.2	1.2	1010	
P1W008	39.2	31.4	0.8	1010	
P1W011	47.3	35.7	0.1	1010	
P1W012	59.2	40.1	0.5	1010	
P1W020	34.4	23.9	9.3	1010	

PHASE 2					
P2W001	59.7	39.1	0.2	1010	
P2W007	60.3	40.8	0.7	1010	
P2W010	55.2	41.6	0.5	1010	
P2W012	61.0	38.1	0.4	1010	
P2W015	34.6	24.8	8.7	1010	
PHASE 3					
P3W005	58.2	42.8	0.4	1010	
P3W006	47.3	35.2	3.4	1010	
P3W013	58.1	39.9	0.6	1010	
P3W015	59.9	40.8	0.0	1010	
P3W021	56.3	42.6	0.2	1010	
PHASE 4					
P4W002	57.2	39.3	0.1	1010	
P4W004	46.5	35.9	0.7	1010	
P4W005	53.9	37.7	0.4	1010	
P4W006	52.3	41.2	0.7	1010	
P4W014	43.5	38.2	0.2	1010	
PHASE 5					
P5W003	61.8	42.9	0.2	1010	
P5W009	62.1	41.6	0.0	1010	
P5W010	36.2	39.6	0.6	1010	
P5W011	61.3	42.5	0.1	1010	
P5W012	60.2	43.2	0.0	1010	

PHASE 6					
P6W003	59.4	40.4	0.0	1010	
P6W004	58.2	41.6	0.6	1010	
P6W005	57.1	42.6	0.2	1010	
P6W009	44.7	34.2	3.9	1010	
P6W012	45.6	38.7	0.6	1010	
PHASE 7					
P7W008	52.2	46.0	1.1	1010	
P7W009	14.3	13.4	15.6	1010	
P7W010	40.2	35.6	1.2	1010	
P7W011	35.2	35.9	0.2	1010	
P7W012	48.2	39.3	0.9	1010	

March 2016

Drehid Facility (W0201-03)		
Operator: Phoebe Dillane	**Date:** 29th & 30th March 2016	**Time:** 15:15 & 11:00
Instrument ID: Geotech GA 2000	**Date Next Calibration:** March 2017	
Weather: Wet & Overcast	**Barometric pressure:** 991 & 1011 mbar	
	Ambient Temp: 9°C	

29th March 2016					
Sample Station Number	**CH_4 (% v/v)**	**CO_2 (% v/v)**	**O_2 (% v/v)**	**Pressure (mbar)**	**Comments**
LG – 01	0.0	1.0	19.8	991	
LG – 02	0.0	0.1	21.1	991	
LG – 03	_	_	_	_	Out of commission
LG – 04	_	_	_	_	Well Inaccessible
LG – 05	_	_	_	_	Out of commission
LG – 06	0.0	0.4	20.0	991	
LG – 07	0.0	0.1	20.6	991	
LG – 08	0.0	0.3	21.0	991	
LG – 09	0.0	0.9	17.9	991	
LG – 10	0.0	0.9	19.2	991	
LG – 11	0.0	0.1	21.1	991	
LG – 12	0.0	1.0	20.5	991	
LG – 13	0.2	0.9	10.5	991	
LG – 14	0.0	0.3	21.5	991	
LG – 15	0.0	1.3	21.1	991	
LG – 16	0.0	0.9	20.9	991	
LG - 17	_	_	_	991	Out of commission

LG – 18	0.1	0.2	20.9	991	
LG - 19	0.0	0.0	21.5	991	
LG – 20	0.0	0.0	21.5	991	
LG – 21	0.1	0.8	20.8	991	
LG – 22	0.0	0.8	20.8	991	
LG – 23	0.0	0.0	20.8	991	
LG – 24	0.1	1.4	20.3	991	
LG - 25	0.0	0.8	20.7	991	
LG - 26	0.0	1.4	19.6	991	
LG - 27	0.0	0.2	21.2	991	
LG - 28	0.0	0.1	21.2	991	
LG - 29	0.2	0.1	20.7	991	
LG - 30	0.4	1.1	20.1	991	
LG - 31	0.0	0.3	21.1	991	
LG - 32	0.0	1.0	20.4	991	
LG - 33	0.0	0.0	21.3	991	
LG – 34	0.0	0.0	21.5	991	
LG - 35	0.0	0.2	21.3	991	
LG - 36	0.0	1.4	20.9	991	

30th March 2016					
Sample Station Number	**CH_4 (% v/v)**	**CO_2 (% v/v)**	**O_2 (% v/v)**	**Pressure (mbar)**	**Comments**
PHASE 1					
P1W006	51.2	34.1	1.1	1011	
P1W008	25.6	26.7	1.4	1011	
P1W011	44.5	35.7	2.1	1011	
P1W012	38.2	26.1	7.0	1011	

P1W020	13.2	10.4	15.7	1011	
PHASE 2					
P2W001	48.8	39.1	3.6	1011	
P2W007	54.6	35.1	1.8	1011	
P2W010	53.7	45.0	1.2	1011	
P2W012	55.8	35.2	1.3	1011	
P2W015	48.5	31.0	4.4	1011	
PHASE 3					
P3W005	18	16.9	12.2	1011	
P3W006	35.1	25.0	5.3	1011	
P3W013	42.0	32.3	2.4	1011	
P3W015	44.3	33.0	1.2	1011	
P3W021	60.4	41.1	0.0	1011	
PHASE 4					
P4W002	62.4	40.1	0.1	1011	
P4W004	49.1	35.1	0.5	1011	
P4W005	47.0	33.3	2.0	1011	
P4W006	59.4	40.1	0.0	1011	
P4W014	55.9	38.5	0.6	1011	
PHASE 5					
P5W003	52.7	24.0	2.8	1011	
P5W009	44.3	30.1	5.2	1011	
P5W010	45.3	34.4	2.4	1011	
P5W011	61.3	40.1	0.2	1011	
P5W012	24.2	24.5	4.7	1011	

PHASE 6					
P6W003	59.6	40.1	0.5	1011	
P6W004	55.7	38.2	1.0	1011	
P6W005	55.2	38.6	1.3	1011	
P6W009	32.1	25.1	5.9	1011	
P6W012	37.3	32.7	1.7	1011	
PHASE 7					
P7W008	56.5	37.1	1.7	1011	
P7W010	27.7	25.7	9.1	1011	
P7W011	35.5	33.2	0.5	1011	
P7W012	41.0	30.6	3.9	1011	

April 2016

Drehid Facility (W0201-03)		
Operator: Phoebe Dillane	**Date:** 22nd & 25th April 2016	**Time:** 15:00
Instrument ID: Geotech GA 2000	**Date Next Calibration:** March 2017	
Weather: Dry & Bright	**Barometric pressure:** 1018 & 1007 mbar	
	Ambient Temp: 17°C & 19°C	

22nd April 2016					
Sample Station Number	**CH_4 (% v/v)**	**CO_2 (% v/v)**	**O_2 (% v/v)**	**Pressure (mbar)**	**Comments**
LG – 01	0.1	0.8	19.7	1018	
LG – 02	0.1	0.0	20.7	1018	
LG – 03	–	–	–	–	Out of commission
LG – 04	–	–	–	–	Well Inaccessible
LG – 04A	0.1	0.2	20.6	1018	Replacement Well
LG – 05	–	–	–	–	Out of commission
LG – 06	0.6	0.5	17.9	1018	
LG – 07	0.1	0.0	21.0	1018	
LG – 08	0.1	0.9	19.9	1018	
LG – 09	0.0	0.8	18.4	1018	
LG – 10	0.1	1.1	17.3	1018	
LG – 11	0.1	0.5	20.1	1018	
LG – 12	0.0	0.6	19.7	1018	
LG – 13	0.2	1.0	17.9	1018	
LG – 14	0.1	0.4	20.4	1018	
LG – 15	0.1	0.9	20.1	1018	
LG – 16	0.1	0.2	20.5	1018	

LG - 17	_	_	_	_	Out of commission
LG – 18	0.0	0.1	20.7	1018	
LG - 19	0.0	0.1	20.8	1018	
LG – 20	0.1	0.0	19.3	1018	
LG – 21	0.1	0.3	20.7	1018	
LG – 22	0.1	0.5	20.1	1018	
LG – 23	0.1	0.1	20.9	1018	
LG – 24	0.4	1.0	20.0	1018	
LG - 25	0.1	0.7	20.4	1018	
LG - 26	0.1	0.9	20.6	1018	
LG - 27	0.1	0.7	20.6	1018	
LG - 28	0.1	0.1	21.1	1018	
LG - 29	0.1	0.2	20.3	1018	
LG - 30	0.4	0.5	20.8	1018	
LG - 31	0.1	0.1	20.9	1018	
LG - 32	0.1	0.9	19.7	1018	
LG - 33	0.1	0.0	20.8	1018	
LG – 34	0.1	0.1	20.8	1018	
LG - 35	0.1	0.1	20.7	1018	
LG - 36	0.1	1.2	20.2	1018	
LG - 37	0.1	0.4	19.7	1018	
LG - 38	0.1	0.2	19.8	1018	
LG - 39	0.1	0.1	20.3	1018	
LG - 40	0.1	0.5	20.2	1018	
LG - 41	0.1	0.4	20.4	1018	
LG - 42	0.1	0.1	20.9	1018	

25th April 2016					
Sample Station Number	**CH_4 (% v/v)**	**CO_2 (% v/v)**	**O_2 (% v/v)**	**Pressure (mbar)**	**Comments**
PHASE 1					
P1W006	51.8	35.4	1.0	1007	
P1W008	39.5	30.2	0.9	1007	
P1W011	39.2	29.7	2.6	1007	
P1W012	58.6	38.9	0.4	1007	
P1W020	54.6	40.9	0.5	1007	
PHASE 2					
P2W001	49.3	35.8	1.4	1007	
P2W007	50.1	36.4	0.2	1007	
P2W010	51.9	36.3	0.5	1007	
P2W012	35.7	21.2	3.8	1007	
P2W015	32.1	22.2	4.2	1007	
PHASE 3					
P3W005	52.9	41.4	0.8	1007	
P3W006	59.9	38.1	0.1	1007	
P3W013	56.1	38.2	1.0	1007	
P3W015	46.2	34.1	1.9	1007	
P3W021	58.2	41.5	0.1	1007	
PHASE 4					
P4W002	41.6	33.4	0.8	1007	
P4W004	55.3	37.6	0.1	1007	
P4W005	40.9	29.6	1.0	1007	
P4W006	48.7	34.6	1.9	1007	

P4W014	44.3	32.9	0.1	1007	
PHASE 5					
P5W003	51.5	37.1	2.2	1007	
P5W009	54.8	38.0	1.1	1007	
P5W010	47.3	36.4	0.9	1007	
P5W011	55.1	39.3	1.3	1007	
P5W012	57.0	42.6	0.1	1007	
PHASE 6					
P6W003	52.9	38.6	0.5	1007	
P6W004	52.0	36.9	1.3	1007	
P6W005	58.8	42.4	0.0	1007	
P6W012	40.4	33.3	1.1	1007	
PHASE 7					
P7W008	40.3	33.1	3.5	1007	
P7W009	47.0	27.2	4.2	1007	
P7W010	20.9	22.4	4.4	1007	
P7W011	48.1	35.4	3.4	1007	
P7W012	40.7	28.6	3.1	1007	
PHASE 8					
P8W001	60.7	38.8	0	1007	
P8W002	62.5	37.5	0.2	1007	
P8W003	62.5	37.4	0.3	7007	
P8W005	51.5	34.9	1.2	1007	
P8W006	40.9	33.2	0.3	1007	

May 2016

Drehid Facility (W0201-03)		
Operator: Phoebe Dillane	**Date:** 18th & 19th May 2016	**Time:** 10.30
Instrument ID: Geotech GA 2000	**Date Next Calibration:** March 2017	
Weather: Dry & Bright	**Barometric pressure:** 997 &996 mbar	
	Ambient Temp: 15°C	

18th May 2016					
Sample Station Number	**CH_4 (% v/v)**	**CO_2 (% v/v)**	**O_2 (% v/v)**	**Pressure (mbar)**	**Comments**
LG – 01	0.1	0.8	20.1	997	
LG – 02	0.1	0.1	21	997	
LG – 03	_	_	_	_	Out of commission
LG – 04A	0.1	0.1	21	997	Replacement Well
LG – 05	_	_	_	_	Out of commission
LG – 06	0.1	0.1	20.1	997	
LG – 07	0.2	1.2	16.8	997	
LG – 08	0.2	0.1	19.5	997	
LG – 09	0.1	0.7	15.3	997	
LG – 10	0.1	0.1	20.3	997	
LG – 11	0.1	0.7	18.1	997	
LG – 12	0.1	1.0	19.4	997	
LG – 13	0.2	1.2	15.8	997	
LG – 14	0.2	0.1	20.6	997	
LG – 15	0.1	0.4	19.9	997	
LG – 16	0.1	0.5	20.7	997	
LG - 17	-	-	-	-	Out of commission
LG – 18	0.1	0.2	20.3	997	

LG - 19	0.1	0.0	20.4	997	
LG – 20	0.1	0.0	18.3	997	
LG – 21	0.1	0.4	20.4	997	
LG – 22	0.1	0.0	20.4	997	
LG – 23	0.1	0.1	19.8	997	
LG – 24	0.1	0.0	20.8	997	
LG - 25	0.1	1.3	19.4	997	
LG - 26	0.1	0.1	20.6	997	
LG - 27	0.1	0.1	20.8	997	
LG - 28	0.1	0.3	20.6	997	
LG - 29	0.2	0.2	20.4	997	
LG - 30	0.2	0.6	20.7	997	
LG - 31	0.1	0.3	20.6	997	
LG - 32	0.1	1.2	19.2	997	
LG - 33	0.1	0.0	18.1	997	
LG – 34	0.1	0.3	18.5	997	
LG - 35	0.1	0.1	18.9	997	
LG - 36	0.2	0.1	19	997	
LG - 37	0.1	1.2	18.7	997	
LG - 38	0.1	0.1	20.7	997	
LG - 39	0.1	0.0	21	997	
LG - 40	0.3	0.6	19.0	997	
LG - 41	0.2	0.0	20.6	997	
LG - 42	0.1	0.2	20.7	997	

19th May 2016					
Sample Station Number	**CH_4 (% v/v)**	**CO_2 (% v/v)**	**O_2 (% v/v)**	**Pressure (mbar)**	**Comments**
PHASE 1					
P1W006	59.9	40.5	0.1	996	
P1W008	59.3	38.2	0.3	996	
P1W011	60.4	38.3	0.2	996	
P1W012	52.8	35.3	1.8	996	
P1W020	56.1	39.4	0.8	996	
PHASE 2					
P2W001	58.1	37.5	0.8	996	
P2W007	59.9	39.3	0.1	996	
P2W010	60.1	39.4	0.0	996	
P2W012	59.1	40.1	0.0	996	
P2W015	61.6	38.7	0.0	996	
PHASE 3					
P3W005	54.1	36.4	1.6	996	
P3W006	55.9	38.8	1.3	996	
P3W013	55.3	38.1	0.7	996	
P3W015	58.7	39.6	0.1	996	
P3W021	57.7	41.4	0.1	996	
PHASE 4					
P4W002	60.9	40.8	0.1	996	
P4W004	61.1	40.8	0.0	996	
P4W005	52.7	36	1.8	996	
P4W006	59.5	38.8	0.0	996	

P4W014	60.9	38	0.2	996	
PHASE 5					
P5W003	59.2	40.7	0.1	996	
P5W009	57.2	39.2	0.6	996	
P5W010	43.7	33.3	2.7	996	
P5W011	58.1	40	0.5	996	
P5W012	46.8	37.3	0.2	996	
PHASE 6					
P6W003	42.1	35	3.1	996	
P6W004	47.5	36.1	0.8	996	
P6W005	53.7	41	0.0	996	
P6W009	22.5	20	8.1	996	
P6W012	29.9	26.2	6.3	996	
PHASE 7					
P7W008	48.2	40	2.3	996	
P7W009	36.3	16.4	4.1	996	
P7W010	25.4	22.6	0.7	996	
P7W011	22.1	23.6	4.6	996	
P7W012	26.5	22.1	7.8	996	
PHASE 8					
P8W001	56.9	43.6	0.2	996	
P8W002	57.9	43.6	0	996	
P8W003	51.1	41.5	.5	996	
P8W005	29.6	30.7	1.3	996	
P8W006	43.0	37.4	0.1	996	

PHASE 9					
P9W001	55.8	44.3	0.4	996	
P9W002	57.7	48.0	0.2	996	
P9W004	54.4	48.1	0.2	996	
P9W005	40.1	69.7	0	996	
P9W006	29.0	70.3	0.7	996	

June 2016

Drehid Facility (W0201-03)		
Operator: Phoebe Dillane	**Date:** 21st and 22nd June 2016	**Time:** 09:00
Instrument ID: Geotech GA 2000	**Date Next Calibration:** March 2017	
Weather: Dry & Bright	**Barometric pressure:** 1007 & 1006 mbar	
	Ambient Temp: 15°C	

21st June 2016					
Sample Station Number	**CH_4 (% v/v)**	**CO_2 (% v/v)**	**O_2 (% v/v)**	**Pressure (mbar)**	**Comments**
LG – 01	0.1	0.0	20.6	1007	
LG – 02	0.1	0.4	20.0	1007	
LG – 03	–	–	–	–	Out of commission
LG – 04	–	–	–	–	Well Inaccessible
LG – 04A	0.1	0.1	20.3	1007	Replacement Well
LG – 05	–	–	–	–	Out of commission
LG – 06	0.1	0.9	17.9	1007	
LG – 07	0.1	0.9	20.6	1007	
LG – 08	0.1	0.0	17.9	1007	

LG – 09	0.1	0.9	16.3	1007	
LG – 10	0.1	0.5	20.4	1007	
LG – 11	0.1	0.2	20.3	1007	
LG – 12	0.1	0.4	19.8	1007	
LG – 13	0.1	1.0	20.6	1007	
LG – 14	0.1	0.1	20.7	1007	
LG – 15	0.1	0.2	20.7	1007	
LG – 16	0.1	0.2	20.3	1007	
LG - 17	–	–	–	–	Out of commission
LG – 18	0.1	0.1	20.7	1007	
LG - 19	0.1	0.0	20.8	1007	
LG – 20	0.1	0.0	19.3	1007	
LG – 21	0.2	0.3	20.1	1007	
LG – 22	0.1	0.0	20.7	1007	
LG – 23	0.1	0.1	20.8	1007	
LG – 24	0.1	0.2	20.3	1007	
LG - 25	0.2	1.3	20.1	1007	
LG - 26	0.1	0.2	20.1	1007	
LG - 27	0.1	0.1	20.4	1007	
LG - 28	0.2	0.3	19.7	1007	
LG - 29	0.3	0.1	20.2	1007	
LG - 30	0.2	0.1	19.7	1007	
LG - 31	0.1	0.2	20.4	1007	
LG - 32	0.1	1.0	19.3	1007	
LG - 33	0.2	0.0	20.7	1007	
LG – 34	0.2	0.5	20.4	1007	
LG - 35	0.1	0.0	20.7	1007	
LG - 36	0.1	0.2	20.7	1007	
LG - 37	0.1	0.3	20.3	1007	

LG - 38	0.1	0.4	19.5	1007	
LG - 39	0.1	0.9	19.6	1007	
LG - 40	0.4	1.1	17.1	1007	
LG - 41	0.2	0.0	20.3	1007	
LG - 42	0.1	0.4	20.1	1007	

22nd June 2016					
Sample Station Number	**CH_4 (% v/v)**	**CO_2 (% v/v)**	**O_2 (% v/v)**	**Pressure (mbar)**	**Comments**
PHASE 1					
P1W006	57.5	37.6	0.7	1006	
P1W008	52.0	34.9	1.4	1006	
P1W009	56.9	37.1	1.2	1006	
P1W014	58.8	37.4	0.5	1006	
P1W019	24.1	32.4	0.4	1006	
PHASE 2					
P2W005	67.5	33.2	0.0	1006	
P2W009	56.4	38.4	0.0	1006	
P2W014	48.7	39.9	1.1	1006	
P2W015	60.1	40.1	0.0	1006	
P2W017	52.6	35.4	0.9	1006	
PHASE 3					
P3W003	55.6	39.1	1.1	1006	
P3W004	55	37.1	1.3	1006	
P3W010	58.4	41.5	0.0	1006	
P3W012	54.5	38.0	1.6	1006	

P3W014	51.4	36.5	2.4	1006	
PHASE 4					
P4W001	53.6	35.7	0.5	1006	
P4W009	50.6	36.3	1.7	1006	
P4W004	51.9	36.1	0.3	1006	
P4W007	43.4	31.7	2.8	1006	
P4W013	39.2	32.9	0.4	1006	
PHASE 5					
P5W003	58.7	40.7	0.3	1006	
P5W009	58.8	41.5	0.2	1006	
P5W010	53.6	27.5	3.1	1006	
P5W011	47.5	38.6	0.2	1006	
P5W012	27.3	30.7	0.8	1006	
PHASE 6					
P6W003	52.2	37.6	0.3	1006	
P6W004	55.0	38.4	0.9	1006	
P6W005	60.1	39.7	0.3	1006	
P6W011	49.2	38.0	0.9	1006	
P6W012	41.4	34.3	0.8	1006	
PHASE 7					
P7W002	43.2	37.9	0.0	1006	
P7W003	35.5	32.5	1.9	1006	
P7W008	54.2	38.8	1.2	1006	
P7W011	30.3	31.7	0.8	1006	
P7W012	29.7	23.3	4.5	1006	

PHASE 8					
P8W001	40.1	35.1	2.8	1006	
P8W002	44.6	34.9	2.9	1006	
P8W003	53.9	44.2	0.2	1006	
P8W004	53.4	43.2	0.5	1006	
P8W005	59.4	42.1	0.4	1006	

July 2016

Drehid Facility (W0201-03)		
Operator: Phoebe Dillane	**Date:** 21st and 22nd July 2016	**Time:** 09:30
Instrument ID: Geotech GA 2000	**Date Next Calibration:** March 2017	
Weather: Dry & Bright	**Barometric pressure:** 1004 & 1010mbar	
	Ambient Temp: 17°C	

21st June 2016					
Sample Station Number	**CH_4 (% v/v)**	**CO_2 (% v/v)**	**O_2 (% v/v)**	**Pressure (mbar)**	**Comments**
LG – 01	0.1	0.9	19.4	1004	
LG – 02	0.1	0.0	20.8	1004	
LG – 03	–	–	–	–	Out of commission
LG – 04A	0.1	0.1	20.7	1004	Replacement Well
LG – 05	–	–	–	–	Out of commission
LG – 06	0.2	0.2	20.1	1004	
LG – 07	0.1	1.1	18.1	1004	
LG – 08	0.1	0.1	20.7	1004	
LG – 09	0.1	0.9	17.1	1004	

LG – 10	0.1	0.4	17.4	1004	
LG – 11	0.1	0.2	20.4	1004	
LG – 12	0.1	0.2	20.1	1004	
LG – 13	0.1	1.1	20.0	1004	
LG – 14	0.2	0.3	20.4	1004	
LG – 15	0.1	0.5	20.4	1004	
LG – 16	0.1	0.4	18.8	1004	
LG - 17	–	–	–	–	Out of commission
LG – 18	0.1	0.1	20.6	1004	
LG – 19	0.1	0.0	20.9	1004	
LG – 20	0.2	0.0	19.6	1004	
LG – 21	0.2	1.2	18.9	1004	
LG – 22	0.1	0.0	20.9	1004	
LG – 23	0.1	0.0	20.8	1004	
LG – 24	0.1	0.0	20.8	1004	
LG - 25	0.1	0.9	19.7	1004	
LG - 26	–	–	–	–	Flooded
LG - 27	0.1	0.0	20.9	1004	
LG - 28	0.1	0.1	20.8	1004	
LG - 29	0.1	0.0	20.9	1004	
LG - 30	–	–	–	–	Not Accessible
LG - 31	–	–	–	–	Not Accessible
LG - 32	0.2	1.0	20.5	1004	
LG - 33	0.2	0.0	20.8	1004	
LG – 34	0.2	0.6	20.5	1004	
LG - 35	0.1	0.1	20.6	1004	
LG - 36	0.1	0.4	20.7	1004	
LG - 37	0.1	0.8	19.5	1004	
LG - 38	0.1	0.0	19.7	1004	

LG - 39	0.1	1.0	18.4	1004	
LG - 40	0.1	1.1	18.8	1004	
LG - 41	0.1	0.0	20.4	1004	
LG - 42	0.1	0.3	20.4	1004	
LG - 43	0.1	0.3	19.8	1004	
LG - 44	0.1	0.8	13.4	1004	

22nd July 2016					
Sample Station Number	**CH_4 (% v/v)**	**CO_2 (% v/v)**	**O_2 (% v/v)**	**Pressure (mbar)**	**Comments**
PHASE 1					
P1W006	59.5	38.2	0.6	1010	
P1W008	51.3	34.6	2.6	1010	
P1W009	58.4	37.2	1.0	1010	
P1W014	58.7	37.7	0.6	1010	
P1W019	56.4	33.2	1.7	1010	
PHASE 2					
P2W005	55.7	34.6	1.3	1010	
P2W009	54.6	36.4	1.5	1010	
P2W014	59.2	37.1	0.7	1010	
P2W015	58.6	38.4	1.1	1010	
P2W017	56.2	35.1	1.4	1010	
PHASE 3					
P3W003	50.9	33.5	2.9	1010	
P3W004	49.6	34.1	3.2	1010	
P3W010	54.5	39.4	1.2	1010	

P3W013	51.6	33.2	1.1	1010	
P3W014	48.9	34.7	3.7	1010	
PHASE 4					
P4W008	39.8	31.7	3.1	1010	
P4W009	45.1	36.8	0.3	1010	
P4W004	55.4	36.6	0.6	1010	
P4W007	47.2	32.8	3.0	1010	
P4W013	43.3	35	0.9	1010	
PHASE 5					
P5W003	56.9	39.9	0.9	1010	
P5W009	41.3	31.2	3.0	1010	
P5W010	51.3	33.9	2.7	1010	
P5W011	56.9	40.2	0.8	1010	
P5W012	50.1	35.9	1.9	1010	
PHASE 6					
P6W003	54.1	40.9	0.4	1010	
P6W004	45.3	45.6	0.3	1010	
P6W005	47.6	40.0	1.6	1010	
P6W011	48.3	38.9	2.3	1010	
P6W014	58.2	45.1	0.4	1010	
PHASE 7					
P7W002	56.9	42.4	0.7	1010	
P7W003	47.9	38.7	1.2	1010	
P7W008	53.2	40	1.5	1010	
P7W011	40.3	37.2	1.1	1010	

P7W012	41.9	32.8	3.1	1010	
PHASE 8					
P8W001	49.1	39.6	2.3	1010	
P8W002	54.2	43.4	1.1	1010	
P8W003	50.3	40.8	1.5	1010	
P8W004	51.5	41.9	1.0	1010	
P8W005	55.4	39.4	1.5	1010	
PHASE 9					
P9W001	52.1	42.1	1.1	1010	
P9W003	41.9	39.1	0.7	1010	
P9W004	51.1	45.3	0.3	1010	
P9W005	39.0	35.4	3.1	1010	
P9W006	49.0	47.3	0.1	1010	

August 2016

Drehid Facility (W0201-03)		
Operator: Phoebe Dillane	**Date:** 23rd and 24th August 2016	**Time:** 09:30 & 10:15
Instrument ID: Geotech GA 2000	**Date Next Calibration:** March 2017	
Weather: Dry & Bright	**Barometric pressure:** 1011 & 1015mbar	
	Ambient Temp: 17°C	

23rd August 2016					
Sample Station Number	**CH_4 (% v/v)**	**CO_2 (% v/v)**	**O_2 (% v/v)**	**Pressure (mbar)**	**Comments**
LG – 01	0.2	0.6	19.5	1011	
LG – 02	0.2	0.0	20.4	1011	

LG – 03	–	–	–	–	Out of commission
LG – 04A	0.1	0.0	20.4	1011	Replacement Well
LG – 05	–	–	–	–	Out of commission
LG – 06	0.2	0.1	20.2	1011	
LG – 07	0.2	0.7	19.2	1011	
LG – 08	0.2	0.0	20.5	1011	
LG – 09	0.2	0.9	17.9	1011	
LG – 10	0.2	0.2	19.0	1011	
LG – 11	0.2	0.0	20.4	1011	
LG – 12	0.2	0.2	20.4	1011	
LG – 13	0.2	0.1	20.1	1011	
LG – 14	0.2	0.2	20.2	1011	
LG – 15	0.2	0.3	20.5	1011	
LG – 16	0.1	0.9	20.3	1011	
LG - 17	–	–	–	–	Out of commission
LG – 18	0.2	0.5	19.8	1011	
LG – 19	0.1	0.0	20.5	1011	
LG – 20	0.2	0.1	19.6	1011	
LG – 21	0.2	0.5	19.9	1011	
LG – 22	0.2	0.0	20.5	1011	
LG – 23	0.1	0.1	20.4	1011	
LG – 24	0.2	0.0	20.3	1011	
LG - 25	0.1	0.3	19.8	1011	
LG - 26	0.1	0.4	19.9	1011	
LG – 27	0.2	0.0	20.2	1011	
LG - 28	0.2	0.1	19.8	1011	
LG - 29	0.3	1.1	19.1	1011	
LG - 30	0.9	0.4	19.2	1011	
LG - 31	0.2	0.8	19.1	1011	

LG - 32	0.2	0.9	19.8	1011	
LG - 33	0.2	0.1	20.3	1011	
LG – 34	0.2	0.5	20.1	1011	
LG - 35	0.1	0.1	20.3	1011	
LG - 36	0.1	0.2	20.3	1011	
LG - 37	0.2	1.2	18.9	1011	
LG - 38	0.2	0.2	19.6	1011	
LG - 39	0.2	0.4	19.8	1011	
LG - 40	0.2	0.8	19.7	1011	
LG - 41	0.1	0.2	20.3	1011	
LG - 42	0.2	0.2	19.9	1011	
LG - 43	0.2	0.2	20.1	1011	
LG - 44	0.2	0.9	19.7	1011	

24th August 2016					
Sample Station Number	**CH_4 (% v/v)**	**CO_2 (% v/v)**	**O_2 (% v/v)**	**Pressure (mbar)**	**Comments**
PHASE 1					
P1W006	60.7	39.1	0.2	1015	
P1W008	50.1	36.4	0.1	1015	
P1W009	49.8	35.9	0.6	1015	
P1W014	57.5	38.7	0.8	1015	
P1W019	58.4	39.5	0.4	1015	
PHASE 2					
P2W005	50.1	36.2	0.3	1015	
P2W009	50.7	35.3	1.1	1015	
P2W014	58.9	42.1	0.0	1015	

P2W015	59.0	37.7	0.7	1015	
P2W017	30.9	25.2	3.1	1015	
PHASE 3					
P3W003	56.3	38.3	1.0	1015	
P3W004	55.7	37.9	1.2	1015	
P3W010	58.8	40.5	0.1	1015	
P3W013	49.8	36.1	0.7	1015	
P3W014	44.4	37.1	1.2	1015	
PHASE 4					
P4W008	28.0	29.2	1.1	1015	
P4W009	35.3	32.4	0.2	1015	
P4W004	48.8	34.5	0.3	1015	
P4W007	47.6	34.6	1.7	1015	
P4W013	48.9	33.9	0.9	1015	
PHASE 5					
P5W003	58.3	40.2	0.5	1015	
P5W009	50.3	36.6	0.9	1015	
P5W010	48.3	34.0	1.7	1015	
P5W011	50.7	38.4	0.7	1015	
P5W012	42.9	32.7	1.9	1015	
PHASE 6					
P6W003	51.1	40.2	0.0	1015	
P6W004	51.9	39.9	0.2	1015	
P6W005	42.6	31.3	0.9	1015	
P6W011	50.6	30.9	0.7	1015	

P6W014	49.9	32.1	0.9	1015	
PHASE 7					
P7W002	47.1	39.1	0.0	1015	
P7W003	52.4	40.4	0.2	1015	
P7W008	58.9	42.2	0.2	1015	
P7W011	50.1	36.6	0.7	1015	
P7W012	59.2	30.1	0.1	1015	
PHASE 8					
P8W001	38.0	33.7	2.7	1015	
P8W002	70.4	39.4	1.3	1015	
P8W003	56.9	42.9	0.0	1015	
P8W004	49.9	40.7	0.9	1015	
P8W005	54.4	39.2	1.5	1015	
PHASE 9					
P9W001	48.9	39.1	2.1	1015	
P9W003	39.7	29.9	3.9	1015	
P9W004	42.3	36.3	2.1	1015	
P9W005	50.3	44.7	0.0	1015	
P9W006	33.8	38.8	2.2	1015	

September 2016

Drehid Facility (W0201-03)		
Operator: Phoebe Dillane	**Date:** 23rd & 26th September 2016	**Time:** 13:30 & 10:30
Instrument ID: Geotech GA 2000	**Date Next Calibration:** March 2017	

Weather: Dry & Bright	**Barometric pressure:** 1008 & 1005 mbar
	Ambient Temp: 17°C & 15°C

23rd September 2016					
Sample Station Number	**CH_4 (% v/v)**	**CO_2 (% v/v)**	**O_2 (% v/v)**	**Pressure (mbar)**	**Comments**
LG – 01	0.1	1.3	18.6	1008	
LG – 02	0.1	0.0	20.9	1008	
LG – 03	–	–	–	–	Out of commission
LG – 04A	0.1	0.0	20.8	1008	Replacement Well
LG – 05	–	–	–	–	Out of commission
LG – 06	0.1	0.1	20.0	1008	
LG – 07	0.1	0.1	19.8	1008	
LG – 08	0.1	0.0	20.3	1008	
LG – 09	0.1	0.6	17.8	1008	
LG – 10	0.4	1.4	16.5	1008	
LG – 11	0.1	0.4	20.1	1008	
LG – 12	0.1	0.7	19.8	1008	
LG – 13	0.3	1.3	19.7	1008	
LG – 14	0.2	0.1	20.2	1008	
LG – 15	0.1	0.1	20.3	1008	
LG – 16	0.1	0.6	18.2	1008	
LG - 17	–	–	–	–	Out of commission
LG – 18	0.1	0.1	20.3	1008	
LG – 19	0.1	0.1	20.3	1008	
LG – 20	0.1	0.0	20.6	1008	
LG – 21	0.2	0.5	20.3	1008	
LG – 22	0.1	0.0	20.5	1008	
LG – 23	0.1	0.1	20.5	1008	

LG – 24	0.1	0.0	20.9	1008	
LG - 25	0.2	1.2	19.6	1008	
LG - 26	0.1	0.2	20.6	1008	
LG – 27	0.0	0.2	20.8	1008	
LG - 28	0.2	0.1	20.8	1008	
LG - 29	0.2	0.8	19.7	1008	
LG - 30	0.2	0.9	19.8	1008	
LG - 31	0.1	0.8	20.2	1008	
LG - 32	0.3	1.2	19.4	1008	
LG - 33	0.2	0.6	20.1	1008	
LG – 34	0.2	0.6	20.3	1008	
LG - 35	0.1	0.0	20.6	1008	
LG - 36	0.1	0.0	20.6	1008	
LG - 37	0.1	1.4	19.4	1008	
LG - 38	0.2	1.3	19.5	1008	
LG - 39	0.1	1.4	19.3	1008	
LG - 40	0.1	1.5	18.2	1008	
LG - 41	0.1	0.1	20.8	1008	
LG - 42	0.1	0.0	20.9	1008	
LG - 43	0.1	0.6	17.4	1008	
LG - 44	0.1	0.3	20.8	1008	
LG – 45	0.1	1.4	19.1	1008	
LG - 46	0.1	1.2	20.1	1008	

26th September 2016					
Sample Station Number	**CH_4 (% v/v)**	**CO_2 (% v/v)**	**O_2 (% v/v)**	**Pressure (mbar)**	**Comments**
PHASE 1					
P1W008	45.3	33.8	1.2	1005	
P1W009	32.3	30.7	6.2	1005	
P1W014	52.4	34.5	2.3	1005	
P1W019	56.3	39.0	0.2	1005	
PHASE 2					
P2W003	39.3	28.6	4.5	1005	
P2W004	58.5	39.3	0.8	1005	
P2W012	42.3	30.9	1.7	1005	
P2W015	60.7	39.5	0.2	1005	
PHASE 3					
P3W005	54.3	35.3	2.7	1005	
P3W009	43.2	34.0	2.2	1005	
P3W014	48.2	35.4	0.7	1005	
P3W015	52.8	38.4	0.1	1005	
PHASE 4					
P4W008	33.6	30.7	1.5	1005	
P4W009	39.5	32.0	2.1	1005	
P4W004	41.3	28.1	6.1	1005	
P4W007	39.3	29.2	2.5	1005	
PHASE 5					
P5W003	34.2	32.6	5.2	1005	

P5W009	36.5	28.2	4.7	1005	
P5W010	42.3	32.7	1.7	1005	
P5W011	56.3	39.2	0.7	1005	
P5W012	49.5	40.1	1.2	1005	
PHASE 6					
P6W004	24.3	27.1	0.4	1005	
P6W005	36.2	21.2	4.7	1005	
P6W011	56.3	39.6	0.6	1005	
P6W014	41.6	36.0	0.0	1005	
PHASE 7					
P7W002	53.2	40.8	1.2	1005	
P7W008	46.2	38.1	1.4	1005	
P7W011	44.3	38.5	1.7	1005	
P7W012	52.6	39.1	1.1	1005	
PHASE 8					
P8W001	38.9	31.3	3.7	1005	
P8W002	40.9	33.8	4.3	1005	
P8W003	50.5	39.8	1.2	1005	
P8W004	42.6	37.5	2.2	1005	
P8W005	52.6	39.1	1.1	1005	
PHASE 9					
P9W003	58.3	42.3	0.2	1005	
P9W004	54.7	50.3	1.7	1005	
P9W005	57.8	53.2	0.4	1005	
P9W006	29.2	26.4	4.9	1005	

October 2016

Drehid Facility (W0201-03)		
Operator: Phoebe Dillane	**Date:** 27th & 28th Oct 2016	**Time:** 10:00 & 14:00
Instrument ID: Geotech GA 2000	**Date Next Calibration:** March 2017	
Weather: Dry & Bright	**Barometric pressure:** 2021 &1007	
	Ambient Temp: 12 °C	

28th October 2016					
Sample Station Number	**CH_4 (% v/v)**	**CO_2 (% v/v)**	**O_2 (% v/v)**	**Pressure (mbar)**	**Comments**
LG – 01	0.1	1.1	19.4	1007	
LG – 02	0.1	0.0	20.6	1007	
LG – 03	-	-	-	-	Out of commission
LG – 04A	0.1	0.3	20.9	1007	Replacement Well
LG – 05	-	-	-	-	Out of commission
LG – 06	0.1	0.1	21.1	1007	
LG – 07	0.1	0.1	21.1	1007	
LG – 08	0.1	0.1	19.9	1007	
LG – 09	0.1	1.4	17.0	1007	
LG – 10	0.3	1.2	18.4	1007	
LG – 11	0.2	0.9	19.9	1007	
LG – 12	0.2	1.3	20.0	1007	
LG – 13	0.4	1.5	19.4	1007	
LG – 14	0.1	0.9	20.3	1007	
LG – 15	0.1	1.3	19.7	1007	
LG – 16	0.1	1.5	16.1	1007	
LG - 17	-	-	-	-	Out of commission

LG – 18	0.1	0.2	20.8	1007	
LG – 19	0.1	0.2	20.8	1007	
LG – 20	0.1	0.3	19.3	1007	
LG – 21	0.1	0.2	20.8	1007	
LG – 22	0.1	0.4	20.5	1007	
LG – 23	0.0	0.1	20.7	1007	
LG – 24	0.1	0.2	20.8	1007	
LG - 25	0.1	0.2	20.7	1007	
LG - 26	0.1	0.4	20.7	1007	
LG – 27	0.1	0.0	20.1	1007	
LG - 28	0.1	0.9	19.8	1007	
LG - 29	0.4	0.3	19.7	1007	
LG - 30	0.3	0.8	15.2	1007	
LG - 31	0.0	0.7	20.3	1007	
LG - 32	0.1	0.4	20.7	1007	
LG - 33	0.2	0.2	20.7	1007	
LG – 34	0.1	1.1	20.5	1007	
LG - 35	0.1	0.4	20.7	1007	
LG - 36	0.1	0.2	20.6	1007	
LG - 37	0.1	1.2	19.4	1007	
LG - 38	0.1	0.6	19.6	1007	
LG - 39	0.1	1.3	19.2	1007	
LG - 40	0.1	1.1	19.1	1007	
LG - 41	0.2	1.1	19.0	1007	
LG - 42	0.1	0.4	20.1	1007	
LG - 43	0.2	1.3	19.0	1007	
LG - 44	0.1	1.5	19.0	1007	
LG – 45	0.1	1.3	19.6	1007	
LG - 46	0.2	1.2	19.5	1007	

LG – 47	0.1	1.1	19.9	1007	
LG - 48	0.1	0.3	20.8	1007	

27th October 2016					
Sample Station Number	**CH_4 (% v/v)**	**CO_2 (% v/v)**	**O_2 (% v/v)**	**Pressure (mbar)**	**Comments**
PHASE 1					
P1W008	45.3	28.3	1.3	1021	
P1W009	57.3	36.7	1.8	1021	
P1W014	39.2	29.3	4.8	1021	
P1W019	49.9	35.2	2.4	1021	
P1W020	42.3	34.3	3.2	1021	
PHASE 2					
P2W003	57.5	38.8	0.7	1021	
P2W004	44.2	36.2	1.7	1021	
P2W012	43.0	20.0	4.3	1021	
P2W015	56.4	37.7	0.7	1021	
P2W017	44.0	30.5	4.3	1021	
PHASE 3					
P3W004	49.3	36.2	0.6	1021	
P3W005	35.9	27.3	5.2	1021	
P3W014	34.3	22.3	4.7	1021	
P3W015	47.9	32.2	3.1	1021	
P3W021	54.5	40.1	1.5	1021	

PHASE 4					
P4W005	34.3	28.2	3.6	1021	
P4W008	31.1	30.6	1.3	1021	
P4W009	28.6	23.3	6.2	1021	
P4W004	52.3	36.1	1.1	1021	
P4W007	42.8	26.3	3.4	1021	
PHASE 5					
P5W003	59.2	40.3	0.4	1021	
P5W009	60.2	40.7	0.3	1021	
P5W010	41.3	32.8	1.2	1021	
P5W011	43.7	33.2	1.6	1021	
P5W012	48.6	38.0	0.6	1021	
PHASE 6					
P6W004	44.3	37.2	0.6	1021	
P6W005	27.2	24.7	6.7	1021	
P6W011	41.2	35.4	1.3	1021	
P6W014	50.3	40.6	1.2	1021	
P6W017	35.5	33.6	2.1	1021	
PHASE 7					
P7W002	37.2	31.2	2.1	1021	
P7W008	32.8	29.2	4.1	1021	
P7W011	45.9	38.9	0.7	1021	
P7W012	29.7	24.0	6.2	1021	
P7W013	34.8	29.9	3.8	1021	
PHASE 8					
P8W001	43.9	31.1	1.7	2021	

P8W002	47.7	31.1	0.9	1021	
P8W003	37.3	30.5	3.2	1021	
P8W004	42.3	32.7	1.6	1021	
P8W005	20.2	16.7	7.2	1021	
PHASE 9					
P9W002	47.7	38.1	0.6	1021	
P9W003	39.6	37	1.7	1021	
P9W004	27.2	32.5	2.7	1021	
P9W005	25.2	33.1	2.3	1021	
P9W006	29.2	34.5	1.8	1021	
PHASE 10					
P10W002	40.3	35.2	2.3	1021	
P10W003	27.3	32.8	3.7	1021	
P10W004	23.2	31.3	1.7	1021	
P10W005	17.3	28.7	3.2	1021	

November 2016

Drehid Facility (W0201-03)		
Operator: Phoebe Dillane	**Date:** 3rd & 30th Nov 2016	**Time:** 14:00 & 15:15
Instrument ID: Geotech GA 2000	**Date Next Calibration:** March 2017	
Weather: Dry & Bright	**Barometric pressure:** 1019 & 1023	
	Ambient Temp: 6 °C	

30th November 2016					
Sample Station Number	**CH_4 (% v/v)**	**CO_2 (% v/v)**	**O_2 (% v/v)**	**Pressure (mbar)**	**Comments**
LG – 01	0.1	0.7	20.8	1023	
LG – 02	0.1	0.6	21.2	1023	
LG – 03	-	-	-	-	Out of commission
LG – 04A	0.1	0.2	21.3	1023	Replacement Well
LG – 05	-	-	-	-	Out of commission
LG – 06	0.1	0.5	20.9	1023	
LG – 07	0.1	1.2	19.9	1023	
LG – 08	0.1	0.7	19.7	1023	
LG – 09	0.1	1.4	18.3	1023	
LG – 10	0.1	0.6	18.7	1023	
LG – 11	0.1	0.1	20.4	1023	
LG – 12	0.1	1.4	19.1	1023	
LG – 13	0.1	1.3	19.7	1023	
LG – 14	0.1	0.7	20.4	1023	
LG – 15	0.1	1.3	19.8	1023	
LG – 16	0.1	0.5	19.0	1023	
LG - 17	-	-	-	-	Out of commission

LG – 18	0.1	0.2	20.1	1023	
LG – 19	0.1	0.0	20.8	1023	
LG – 20	0.1	0.2	20.2	1023	
LG – 21	0.2	1.5	20.1	1023	
LG – 22	0.1	0.4	20.5	1023	
LG – 23	0.1	0.3	20.6	1023	
LG – 24	0.1	0.1	20.8	1023	
LG - 25	0.1	0.2	20.6	1023	
LG - 26	0.1	0.5	20.5	1023	
LG – 27	0.1	1.3	18.4	1023	
LG - 28	0.1	0.8	20.4	1023	
LG - 29	0.3	0.8	19.4	1023	
LG - 30	0.5	1.3	15.5	1023	
LG - 31	0.1	0.8	20.3	1023	
LG - 32	0.1	0.6	20.6	1023	
LG - 33	0.1	0.7	20.3	1023	
LG – 34	0.1	1.0	20.5	1023	
LG - 35	0.1	0.2	20.8	1023	
LG - 36	0.1	0.1	20.8	1023	
LG - 37	0.1	1.4	18.0	1023	
LG - 38	0.1	0.3	19.3	1023	
LG - 39	0.1	0.5	20.0	1023	
LG - 40	0.1	0.8	17.5	1023	
LG - 41	0.1	0.1	20.4	1023	
LG - 42	0.1	0.1	20.1	1023	
LG - 43	0.1	0.0	20.2	1023	
LG - 44	0.1	1.2	18.0	1023	
LG – 45	0.1	1.2	19.5	1023	
LG - 46	0.1	0.6	20.5	1023	

LG – 47	0.1	0.2	20.1	1023	
LG - 48	0.1	0.0	21.0	1023	

3rd November 2016					
Sample Station Number	**CH_4 (% v/v)**	**CO_2 (% v/v)**	**O_2 (% v/v)**	**Pressure (mbar)**	**Comments**
PHASE 1					
P1W003	44.0	32.8	0.1	1019	
P1W004	56.1	35.6	0.7	1019	
P1W005	58.6	38.6	0	1019	
P1W006	45.8	33.7	0.7	1019	
P1W011	52.8	35.2	0.2	1019	
PHASE 2					
P2W005	53.3	35.6	0.7	1019	
P2W007	49.6	36.1	1.2	1019	
P2W008	55.6	40.4	0.2	1019	
P2W009	48.0	34.5	2.3	1019	
P2W012	50.5	36.1	1.5	1019	
PHASE 3					
P3W003	53.6	36.3	1.1	1019	
P3W005	55.8	36.2	0.7	1019	
P3W007	54.2	35.7	0.7	1019	
P3W010	52.9	35.9	0.6	1019	
PHASE 4					

P4W005	47.4	33.9	0.6	1019	
P4W006	46.0	33.7	0.7	1019	
P4W012	50.2	35.7	0.1	1019	
PHASE 5					
P5W003	54.4	38.9	0.2	1019	
P5W004	55.5	36.8	0.8	1019	
P5W007	47.1	35.9	0.4	1019	
P5W008	49.1	39.0	0.1	1019	
P5W012	58.1	40.6	0.8	1019	
PHASE 6					
P6W004	32.9	24.1	7.2	1019	
P6W005	43.6	36.6	0.3	1019	
P6W010	55.6	38.0	0.1	1019	
P6W012	29.5	26.8	4.6	1019	
P6W017	47.8	39.2	0.6	1019	
PHASE 7					
P7W001	46.4	37.6	0.7	1019	
P7W002	41.1	34.7	0.1	1019	
P7W006	49.9	37.7	0.2	1019	
P7W008	54.6	39.1	0.1	1019	
P7W011	30.4	23.6	6.3	1019	
PHASE 8					
P8W001	40.1	33.4	2.8	1019	
P8W003	48.6	37.9	0.1	1019	
P8W005	53.5	41.6	0.2	1019	

P8W007	44.1	36.6	0.7	1019	
P8W008	37.2	31.2	3.3	1019	
PHASE 9					
P9W002	28.0	25.4	8.4	1019	
P9W003	37.3	38.8	0.5	1019	
P9W004	35.6	32.8	2.4	1019	
P9W014	26.8	32.5	2.4	1019	
P9W015	46.8	37.8	0.9	1019	
PHASE 10					
P10W006	54.6	44.9	0.2	1019	
P10W007	44.2	45.4	0.1	1019	
P10W008	31.2	54.8	1.6	1019	
P10W013	26.2	33.8	1.8	1019	
P10W014	26.8	32.5	2.4	1019	

December 2016

Drehid Facility (W0201-03)		
Operator: Phoebe Dillane	**Date:** 22nd Dec 2016	**Time:** 10:00
Instrument ID: Geotech GA 2000	**Date Next Calibration:** March 2017	
Weather: Dry & Bright	**Barometric pressure:** 1014	
	Ambient Temp: 8 °C	

22nd December 2016					
Sample Station Number	**CH_4 (% v/v)**	**CO_2 (% v/v)**	**O_2 (% v/v)**	**Pressure (mbar)**	**Comments**
LG – 01	0.1	1.0	20.5	1014	
LG – 02	0.1	0.0	21.7	1014	
LG – 03	-	-	-	-	Out of commission
LG – 04A	0.1	0.2	21.7	1014	Replacement Well
LG – 05	-	-	-	-	Out of commission
LG – 06	0.1	0.2	21.6	1014	
LG – 07	0.1	0.7	19.0	1014	
LG – 08	0.1	0.4	18.9	1014	
LG – 09	0.1	0.5	19.3	1014	
LG – 10	0.2	0.7	18.7	1014	
LG – 11	0.1	1.1	19.8	1014	
LG – 12	0.3	1.4	18.9	1014	
LG – 13	0.2	0.8	19.9	1014	
LG – 14	0.1	0.4	20.6	1014	
LG – 15	0.1	0.8	20.6	1014	
LG – 16	0.2	0.2	20.9	1014	
LG - 17	-	-	-	-	Out of commission
LG – 18	0.1	0.1	20.8	1014	
LG – 19	0.1	0.0	20.9	1014	

LG – 20	0.1	0.2	20.9	1014	
LG – 21	0.1	0.9	21.0	1014	
LG – 22	0.1	0.1	20.9	1014	
LG – 23	0.1	0.1	20.9	1014	
LG – 24	0.1	0.0	21.3	1014	
LG - 25	0.1	0.1	21.2	1014	
LG - 26	0.2	0.7	20.9	1014	
LG – 27	0.1	0.8	20.6	1014	
LG - 28	0.1	0.6	21.2	1014	
LG - 29	0.1	0.7	21.0	1014	
LG - 30	0.1	0.9	18.4	1014	
LG - 31	0.1	0.7	20.9	1014	
LG - 32	0.1	0.6	21.0	1014	
LG - 33	0.2	0.6	20.7	1014	
LG – 34	0.2	0.3	20.9	1014	
LG - 35	0.1	0.2	20.9	1014	
LG - 36	0.1	0.0	20.9	1014	
LG - 37	0.1	1.4	18.6	1014	
LG - 38	0.1	0.3	21.5	1014	
LG - 39	0.1	1.4	14.0	1014	
LG - 40	0.1	0.9	20.6	1014	
LG - 41	0.1	0.8	21.1	1014	
LG - 42	0.1	0.1	21.5	1014	
LG - 43	0.3	1.1	18.9	1014	
LG - 44	0.2	1.3	18.2	1014	
LG – 45	0.2	1.2	18.6	1014	
LG - 46	0.5	0.6	19.2	1014	
LG – 47	0.3	0.7	19.6	1014	
LG - 48	0.2	0.4	19.8	1014	

22nd December 2016					
Sample Station Number	**CH_4 (% v/v)**	**CO_2 (% v/v)**	**O_2 (% v/v)**	**Pressure (mbar)**	**Comments**
PHASE 1					
P1W006	55.9	35.0	0.2	1014	
P1W007	23.2	17.8	2.1	1014	
P1W009	40.8	32.4	1.7	1014	
P1W0011	60.2	38.6	0.0	1014	
P1W012	59.7	38.8	0.2	1014	
PHASE 2					
P2W003	51.7	38.1	0.2	1014	
P2W005	32.1	23.6	3.1	1014	
P2W006	31.9	24.0	6.1	1014	
P2W010	53.4	39.1	0.0	1014	
P2W013	48.9	36.3	0.0	1014	
PHASE 3					
P3W005	49.1	35.5	0.8	1014	
P3W013	45.0	33.3	0.6	1014	
P3W022	53.0	39.2	0.2	1014	
P3W024	42.6	36.6	0.0	1014	
PHASE 4					
P4W004	57.5	39.3	0.0	1014	
P4W005	53.2	36.2	0.0	1014	
P4W006	54.5	37.7	0.0	1014	

P4W008	30.2	24.1	3.2	1014	
P4W009	46.3	28.1	2.0	1014	
PHASE 5					
P5W003	59.1	40.6	0.0	1014	
P5W004	31.6	33.2	0.2	1014	
P5W007	42.0	37.4	0.0	1014	
P5W008	30.5	30.3	2.8	1014	
P5W012	45.4	37.4	0.9	1014	
PHASE 6					
P6W004	39.8	35.2	0.0	1014	
P6W005	37.9	37.2	1.0	1014	
P6W010	38.2	38.1	0.5	1014	
P6W012	39.9	35.9	1.8	1014	
P6W018	49.1	38.3	0.0	1014	
PHASE 7					
P7W001	47.1	38.0	0.2	1014	
P7W002	28.8	26.6	3.2	1014	
P7W006	44.1	38.6	1.0	1014	
P7W008	45.7	38.2	0.0	1014	
P7W011	56.3	39.8	0.0	1014	
PHASE 8					
P8W001	36.8	32.2	1.8	1014	
P8W003	41.1	34.6	0.8	1014	
P8W005	39.1	34.8	1.3	1014	
P8W007	42.1	37.1	0.8	1014	

P8W008	41.2	36.7	0.2	1014	
PHASE 9					
P9W002	54.9	47.4	0.0	1014	
P9W003	55.8	45.4	0.0	1014	
P9W004	55.9	43.1	0.0	1014	
P9W014	48.8	42.0	0.0	1014	
P9W015	47.8	39.5	0.5	1014	
PHASE 10					
P10W007	39.9	36.8	1.2	1014	
P10W008	35.3	37.5	2.0	1014	
P10W013	32.0	37.3	2.1	1014	

APPENDIX 3

Dust & Litter Plan

Title **Litter and Dust Control**

Purpose: The facility licence requires that litter and dust is controlled, and, wherever possible, contained within the site boundary. However, under certain conditions it will be impossible to contain all litter. In such circumstances, litter that has left the site and contaminated other people's property must be collected as a priority.

Scope: Every day the Landfill Supervisor ensures that an employee checks the environs of the site and to collect any loose litter by placing it into plastic bags or similar. These are disposed of at the tip face, before the end of the working day. All litter should be collected in accordance with Licence by 10 am the following morning.

References: WIF 5.1 Daily Site Inspection

Procedure

Litter Control

Permanent litter nets are erected around the lined area with an entrance for access, they consist of 6m poles with UV treated netting.

Semi-permanent litter nets or cages should be erected close to the active face working cell, across the front of the cell while still allowing access for vehicles to the working face.

Semi-Permanent Litter Netting is the most common type of litter prevention on site. Typically these nets are 3-4 metres in height and are suspended on mobile litter poles. It is important that on a 4 meter pole you use a 5m net ensuring that in a high wind event, the additional force on the net from the litter in the net does not cause windblown litter to escape underneath. Alternatively, poles mounted in a tripod fashion may also be used.

All nets should be cleared on a routine basis to prevent too much litter accumulating in the nets and causing them to split or overturn.

Litter Cages are also available on site. Cages must only be used on the direction of the foreman or supervisor. The cages should be positioned next to each other in lines around the tipping area to minimise windblown litter. The cages should only be moved by on-site plant.

During high wind events the Facility Manager and Landfill Supervisor will agree if necessary to close the site.

Customers are contacted and given notice of closure from the Customer contact list.

Once the working face is closed all staff will assist in litter picking and insure excessive pressure is not put on the netting system.

Dust Minimisation

The Landfill Supervisor must insure that dust generation is minimised on the site. Dust generation is controlled onsite through the use of speed restrictions, wetting of haul roads, wetting of stockpiles prior to movement and grassing up exposed soil.

Adhering to site conditions, speed restrictions, and using only the designated access roads, will assist in limiting dust problems.

In dry weather, it may be necessary to damp down areas using water from bowsers, sprays or similar - this action is decided locally by the Landfill Supervisor or Facility Manager.

A wheelwash has been installed on site to prevent tracking of material onto the public road. All vehicles leaving the tip face must use this wheelwash.

Occasionally, due both to heavy traffic and works elsewhere on site, material may start to track past the wheelwash and along the site road. To remediate this, the site roads and hard standing surfaces are swept using a road sweeper as conditions dictate. The road should be swept until the Landfill Supervisor or his representative is satisfied that the required standard has been reached and maintained.

APPENDIX 4

Training Procedures

Title Training

Purpose: To define how Bord na Móna ensures awareness of environmental issues and how environmental training is identified and conducted.

Scope: This procedure applies to employees at the Drehid Waste Management Facility

References: EPF 19.1 Environmental Training Record
EPF 19.2 Environmental Training Summary
EPF 19.3 Training Needs Matrix
EPF 19.4 Employee Induction Training Certificate

Procedure:

1. The Landfill Facility Manager is responsible for ensuring that his reports are fully trained for their specific tasks, and are aware of the implications of waste licence.

2. All employees shall be made familiar with their environmental responsibilities through a comprehensive environmental training programme

   - All employees will have an individual training file created which will detail all training received.
   - Training shall be updated as the environmental responsibilities of employees develop.

3. Environmental Training Records will be maintained on file for individual employees for 7 years.

4. External training programmes conducted on Drehid Waste Management Facility premises will be documented on Environmental Training Summary EPF 19.2, and the trainee's individual Environmental Training Records EPF 19.1 should be updated with same.

5. The Landfill Facility Manager shall request that all relevant personnel undertake training in any new environmental procedure adopted by Drehid Waste Management Facility. (or any new amendments to existing environmental procedures). This Internal training should be recorded in the Environmental Training Records EPF 19.1.

6. As part of the Annual Review, the Management will review all training requirements. This environmental training review will identify the specific environmental training requirements for each operation within the company.

7. The Environmental Management Team will identify Environmental Training needs under the following headings:
    - Introduction of new materials
    - Introduction of new or altered work processes
    - Appointment of new personnel to plant
    - Transfer of personnel to new duties in plant
    - As part of Annual Review of Objectives and Targets and programmes
    - New environmental regulatory requirements
    - Updating of skills
    - Corrective and Preventive Action
    - Environmental Complaints

8. The planned environmental Training shall be documented on the Environmental Training need matrix EPF 19.3. This planned training shall be undertaken as scheduled.

9. The Landfill Facility Manager shall ensure that all training tasks are completed by each employee identified as requiring environmental training.

10. Once an environmental training task has been completed by an employee, the Environmental Training record EPF 19.1 shall be updated.

11. All new employees will be required to undergo an environmental induction programme before commencing work at the facility. EPF 19.4 the Employee Induction Training Certificate shall be completed detailing the elements covered by the training. The induction will include the following:
    - Information with regards to the Company Structure and Environmental Responsibility
    - Environmental Policy Statement
    - Supplied with a description of the Waste Licence
    - Awareness of the Emergency Response Procedures
    - Supplied with a description of activities on site
    - Reporting of environmental incidents to Environmental Team

When induction is completed an Environmental Training Record EPF 19.1 is created for each individual. All subsequent environmental training will also be retained on this record.

12. Employees, who have potential to have an effect on the environment, should undergo a more comprehensive training programme subsequent to Environmental Induction as follows:

    - Training on all Environmental Procedures specific to their roles in the EMS
    - Fire Hazard Training
    - Spill Kit Training

When environmental training is complete Environmental Training Record EPF 19.1 will be updated.

APPENDIX 5

Programme for Public Information

Title Programme for Public Information

Purpose: To define how Bord na Móna manages the communication of environmental information concerning the facility with external parties.

Scope: This procedure applies to Bord na Móna Drehid Waste Management Facility.

References: Data Protection Act 1988 with 2003 amendment

Procedure

1. All external, out-going communication of environmental issues, unless specifically outlined below, must be approved by the Landfill Facility Manager. If the Facility Manager is unavailable, then the designated Environmental Officer may approve the communication.

2. Certain environmental information, as detailed below, will be available to external parties. Only 1 copy of each document is available for view at any time.

3. It is recommended that visitors should phone or write in advance, as this will facilitate the company to arrange for the necessary staff and documents to be available. However, a prior appointment by any member of the public is not necessary.

4. Viewing time is restricted to normal office hours (9.30 to 12.50, 14.00 to 16.30).
   No more than 1 hour of staff time is available for assistance or queries per day.

5. Visitors may ask for the Landfill Facility Manager. They are requested to sign in at reception, giving their name, address, and reason for their visit.

6. Access is restricted to the Meeting Room, and the information will be brought to this designated room for viewing. The original documents are not to be removed, altered or damaged in any way.

7. A copy of the following files will be kept in Document Control and are available to the public as outlined above:

- Waste licence
- Annual Environmental Reports
- Monthly monitoring reports
- Ground water monitoring results
- Surface water monitoring results
- Air monitoring results
- Environmental noise monitoring results

8. Every effort will be made to keep the files up-to-date. The information provided will comply with legal requirements and the requirements of the Waste licence, but confidential and commercially sensitive information will be restricted and Bord na Móna must comply with the Data Protection Act 1988 with 2003 amendment.

APPENDIX 6

E-PRTR (European Pollutant Release and Transfer Register

Environmental Protection Agency

Guidance to completing the PRTR workbook

PRTR Returns Workbook

Version 1.1.19

REFERENCE YEAR	2016

1. FACILITY IDENTIFICATION

Parent Company Name	Bord na Mona Public Limited Company
Facility Name	Drehid Waste Management Facility
PRTR Identification Number	W0201
Licence Number	W0201-03

Classes of Activity

No.	class_name
-	Refer to PRTR class activities below

Address 1	In the townlands of Parsonstown, Loughnacush, Kilkeaskin, Drumond
Address 2	Timahoe West, Coolcarrigan
Address 3	Killinagh Lower and Killinagh Upper, Carbury
Address 4	
	Kildare
Country	Ireland
Coordinates of Location	-9.77721 54.1523
River Basin District	IEEA
NACE Code	3821
Main Economic Activity	Treatment and disposal of non-hazardous waste
AER Returns Contact Name	Phoebe Dillane
AER Returns Contact Email Address	phoebe.dillane@bnm.ie
AER Returns Contact Position	EHS Compliance Officer
AER Returns Contact Telephone Number	045 439464
AER Returns Contact Mobile Phone Number	087 2794952
AER Returns Contact Fax Number	045 439489
Production Volume	0.0
Production Volume Units	
Number of Installations	0
Number of Operating Hours in Year	0
Number of Employees	15
User Feedback/Comments	
Web Address	

2. PRTR CLASS ACTIVITIES

Activity Number	Activity Name
5(d)	Landfills
5(c)	Installations for the disposal of non-hazardous waste

3. SOLVENTS REGULATIONS (S.I. No. 543 of 2002)

Is it applicable?	No
Have you been granted an exemption ?	No
If applicable which activity class applies (as per Schedule 2 of the regulations) ?	Not Applicable
Is the reduction scheme compliance route being used ?	Not Applicable

4. WASTE IMPORTED/ACCEPTED ONTO SITE

Guidance on waste imported/accepted onto site

Do you import/accept waste onto your site for on-site treatment (either recovery or disposal activities) ?	No

This question is only applicable if you are an IPPC or Quarry site

SECTION A : SECTOR SPECIFIC PRTR POLLUTANTS

RELEASES TO AIR					Please enter all quantities in this section in KGs			
POLLUTANT		METHOD				QUANTITY		
			Method Used					
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	373425.0	0.0	373425.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION B : REMAINING PRTR POLLUTANTS

RELEASES TO AIR					Please enter all quantities in this section in KGs			
POLLUTANT		METHOD				QUANTITY		
			Method Used					
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION C : REMAINING POLLUTANT EMISSIONS (As required in your Licence)

RELEASES TO AIR					Please enter all quantities in this section in KGs			
POLLUTANT		METHOD				QUANTITY		
			Method Used					
Pollutant No.	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

Additional Data Requested from Landfill operators

For the purposes of the National Inventory on Greenhouse Gases, landfill operators are requested to provide summary data on landfill gas (Methane) flared or utilised on their facilities to accompany the figures for total methane generated. Operators should only report their Net methane (CH4) emission to the environment under T(total) KG/yr for Section A: Sector specific PRTR pollutants above. Please complete the table below:

Landfill: Drehid Waste Management Facility

Please enter summary data on the quantities of methane flared and / or utilised	T (Total) kg/Year	M/C/E	Method Used: Method Code	Method Used: Designation or Description	Facility Total Capacity m3 per hour	
Total estimated methane generation (as per site model)	0.0				N/A	
Methane flared	0.0				0.0	(Total Flaring Capacity)
Methane utilised in engine/s	0.0				0.0	(Total Utilising Capacity)
Net methane emission (as reported in Section A above)	0.0				N/A	

4.2 RELEASES TO WATERS

Link to previous years emissions data

SECTION A : SECTOR SPECIFIC PRTR POLLUTANTS

Data on ambient monitoring of storm/surface water or groundwater, conducted as part of your licence requirements, should NOT be submitted under AER / PRTR Reporting as this only concerns Releases from your

RELEASES TO WATERS					Please enter all quantities in this section in KGs			
POLLUTANT					QUANTITY			
			Method Used					
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION B : REMAINING PRTR POLLUTANTS

RELEASES TO WATERS					Please enter all quantities in this section in KGs			
POLLUTANT					QUANTITY			
			Method Used					
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION C : REMAINING POLLUTANT EMISSIONS (as required in your Licence)

RELEASES TO WATERS					Please enter all quantities in this section in KGs			
POLLUTANT					QUANTITY			
			Method Used					
Pollutant No.	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

4.3 RELEASES TO WASTEWATER OR SEWER

Link to previous years emissions data

SECTION A : PRTR POLLUTANTS

OFFSITE TRANSFER OF POLLUTANTS DESTINED FOR WASTE-WATER TREATMENT OR SEWER					Please enter all quantities in this section in KGs			
POLLUTANT		METHOD			QUANTITY			
			Method Used					
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION B : REMAINING POLLUTANT EMISSIONS (as required in your Licence)

OFFSITE TRANSFER OF POLLUTANTS DESTINED FOR WASTE-WATER TREATMENT OR SEWER					Please enter all quantities in this section in KGs			
POLLUTANT		METHOD			QUANTITY			
			Method Used					
Pollutant No.	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

4.4 RELEASES TO LAND

Link to previous years emissions data

SECTION A : PRTR POLLUTANTS

RELEASES TO LAND					Please enter all quantities in this section in KGs		
POLLUTANT		METHOD			QUANTITY		
			Method Used				
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year
					0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION B : REMAINING POLLUTANT EMISSIONS (as required in your Licence)

RELEASES TO LAND					Please enter all quantities in this section in KGs		
POLLUTANT		METHOD			QUANTITY		
			Method Used				
Pollutant No.	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year
					0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

5. ONSITE TREATMENT & OFFSITE TRANSFERS OF WASTE

Please enter all quantities on this sheet in Tonnes

0

Transfer Destination	European Waste Code	Hazardous	Quantity (Tonnes per Year)	Description of Waste	Waste Treatment Operation	Method Used		Location of Treatment	Haz Waste : Name and Licence/Permit No of Next Destination Facility Non Haz Waste: Name and Licence/Permit No of Recover/Disposer	Haz Waste : Address of Next Destination Facility Non Haz Waste: Address of Recover/Disposer	Name and License / Permit No. and Address of Final Recoverer / Disposer (HAZARDOUS WASTE ONLY)	Actual Address of Final Destination i.e. Final Recovery / Disposal Site (HAZARDOUS WASTE ONLY)
						M/C/E	Method Used					
Within the Country	13 02 08	Yes	0.0	other engine, gear and lubricating oils	R9	M	Weighed	Offsite in Ireland	Enva,W0184-01	Clonminam Industrial Estate,,Portlaoise,Co. Laois,Ireland	Enva,W0184-01,Clonminam Industrial Estate,,Portlaoise,Co. Laoise,Ireland	Clonminam Industrial Estate,,Portlaoise,Co. Laoise,Ireland
Within the Country	13 07 01	Yes	0.0	fuel oil and diesel	R9	M	Weighed	Offsite in Ireland	Enva,W0184-01	Clonminam Industrial Estate,,Portlaoise,Co. Laois,Ireland	Enva,W0184-01	Clonminam Industrial Estate,,Portlaoise,Co. Laois,Ireland
To Other Countries	15 02 02	Yes	0.0	absorbents, filter materials (including oil filters not otherwise specified), wiping cloths, protective clothing contaminated by dangerous substances	D10	M	Weighed	Abroad	Enva,W0184-01	Clonminam Industrial Estate,,Portlaoise,Co. Laois,Ireland	Kreis Weseler Abfallgesellschaft,E17012100,Kamp Lintfort,,,,,,Germany	Kamp Lintfort,,,,,,Germany
Within the Country	16 01 07	Yes	0.0	oil filters	R4	M	Weighed	Offsite in Ireland	Enva,W0184-01	Clonminam Industrial Estate,,Portlaoise,Co. Laois,Ireland	Enva,W0184-01,Clonminam Industrial Estate,,Portlaoise,Co. Laoise,Ireland	Clonminam Industrial Estate,,Portlaoise,Co. Laoise,Ireland
Within the Country	16 10 02	No	0.0	aqueous liquid wastes other than those mentioned in 16 10 01	D8	M	Weighed	Offsite in Ireland	Enva,W0196-1	JFK Road,Naas Road,Dublin 12,,Ireland		
Within the Country	19 07 03	No	22981.625	landfill leachate other than those mentioned in 19 07 02	D8	M	Weighed	Offsite in Ireland	Leixlip WWTP Kildare County Council,D0004-01	Aras Chil Dara,Devoy Park,Naas,Kildare ,Ireland		
Within the Country	19 07 03	No	13684.94	landfill leachate other than those mentioned in 19 07 02	D8	M	Weighed	Offsite in Ireland	Enva,W0196-1	JFK Road,Naas Road,Dublin 12,,Ireland		
Within the Country	19 07 03	No	1470.12	landfill leachate other than those mentioned in 19 07 02	D8	M	Weighed	Offsite in Ireland	Rilta Environmental,W0185-01	Site No 14A1,Greenogue Business Park,Rathcoole,Dublin,Ireland		
Within the Country	19 12 02	No	70.06	ferrous metal	R4	M	Weighed	Offsite in Ireland	Wilton Waste Recycling Ltd,WFP-CN-10-0005-01	Kiffagh,Crosserlough,Ballyjamesduff,Cavan,Ireland		
Within the Country	19 12 03	No	0.0	non-ferrous metal	R4	M	Weighed	Offsite in Ireland	Wilton Waste Recycling Ltd,WFP-CN-10-0005-01	Kiffagh,Crosserlough,Ballyjamesduff,Cavan,Ireland		
Within the Country	20 01 01	No	0.0	paper and cardboard	R13	M	Weighed	Offsite in Ireland	AES Tullamore,W0104-02	Cappincur Industrial Estate,Cappincur,Tullamore, County Offaly,Ireland		
Within the Country	20 01 40	No	0.0	metals	R13	M	Weighed	Offsite in Ireland	AES Tullamore,W0104-02	Cappincur Industrial Estate,Cappincur,Tullamore, County Offaly,Ireland		
Within the Country	13 02 08	Yes	92.98	other engine, gear and lubricating oils	R9	M	Weighed	Offsite in Ireland	Rilta Environmental,W0185-01	Site No 14A1,Greenogue Business Park,Rathcoole,Dublin,Ireland	Rilta Environmental,W0185-01,Site No. 14A1,Greenogue Business Park,Rathcoole,Dublin,Ireland	Site No. 14A1,Greenogue Business Park,Rathcoole,Dublin,Ireland
Within the Country	19 07 03	No	13436.73	landfill leachate other than those mentioned in 19 07 02	D8	M	Weighed	Offsite in Ireland	Ringsend WwTW,D0034-01	Pigeon House Road,Ringsend ,Dublin,Dublin,Ireland		

* Select a row by double-clicking the Description of Waste then click the delete button

Link to previous years waste data
Link to previous years waste summary data & percentage change
Link to Waste Guidance