MORRISON HERSHFIELD

# Resort Municipality of Whistler Landfill Annual Monitoring Report – 2015

**Whistler, BC**

Presented to:

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# 1. INTRODUCTION

This annual report incorporates landfill monitoring data collected in 2015. The Resort Municipality of Whistler (RMOW) former landfill site is located approximately 8 km west of Whistler Village and is accessed off Highway 99 on Cheakamus Lake Road. The location of the site is illustrated in Figure 1.

The Whistler landfill opened in 1977 and initially accepted residential, industrial, commercial and institutional waste. This continued until the landfill's operating permit was amended in 1988 to also accept construction and demolition waste. The landfill site was closed in October, 2005, to accommodate plans to use the area east of the site as the location of the Athletes' Village for the 2010 Winter Olympic Games. Between 1977 and 2005 approximately 350,000 tonnes of waste was disposed of at the Whistler Landfill (CH2M Hill, 2008a).

Construction of residential and commercial buildings in the area commenced in 2007 following the installation of a cover system and landfill gas (LFG) collection system in 2006.

Morrison Hershfield was retained by RMOW to complete the annual environmental monitoring and fulfill reporting requirements as set out in Section 3.31 of the 2005 Whistler Landfill Operational Certificate (MR-04693) and the Whistler Landfill Closure Plan (CH2M Hill, 2006a).

This current report documents the 2015 monitoring program and presents a summary of its findings.

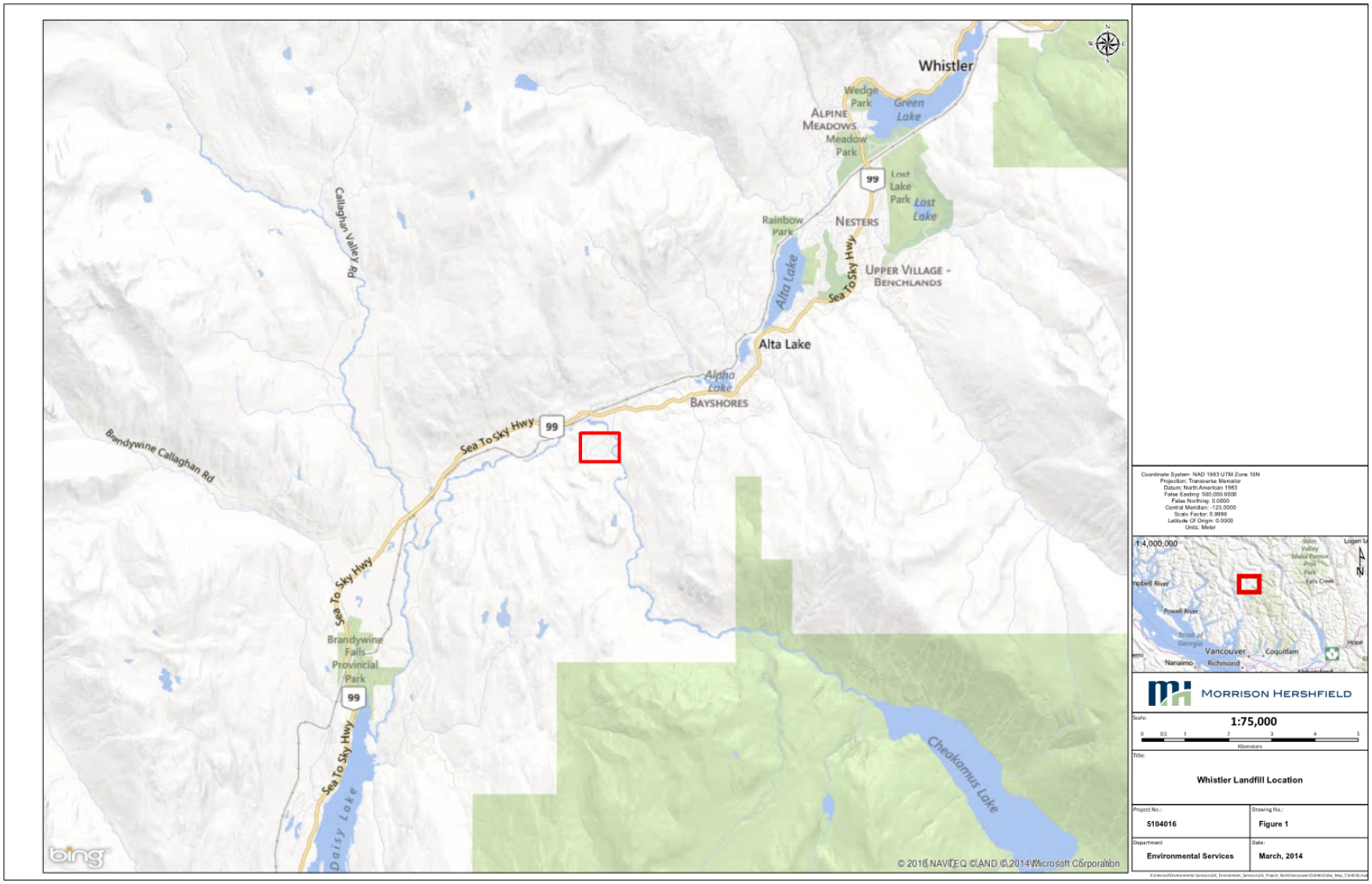



**Figure 1: Former Whistler Landfill Location**

## 1.1 Program Objectives

The overall objective of the Whistler landfill monitoring program is to help ensure and confirm that the closed landfill is not causing impacts to the surrounding environment. Three distinct facets of the former landfill site were assessed: on-site surface water, groundwater and migration of landfill gas (LFG).

The objectives of the Surface Water and Groundwater Monitoring Program are as follows:

- Determine if the landfill is negatively affecting local groundwater and surface water quality; and
- Apply corrective measures as necessary to minimize landfill effects on groundwater and surface water.

The objectives of the LFG monitoring program are as follows:

- Monitor levels of LFG generation;
- Assess the overall collection performance of the Landfill Gas Collection System (LFGCS)
- Identify the composition of LFG within the soil at monitoring probe locations; and
- Adjust LFGCS as necessary based on monitoring data results to prevent off-site gas migration.

As outlined in the Closure Plan (CH2M Hill, 2006a), the monitoring program was to be re-evaluated following the completion of monitoring over a 2-year period. This evaluation occurred in 2011. Subsequent monitoring reports, including this one, incorporate the MOE recommendations that were made in 2012.

## 1.2 Report Purpose

The purpose of this report is to address the reporting requirements of the facility's Landfill Operational Certificate (MR-04692) and the following requirements included in the Whistler Landfill Closure Plan:

- Annual reporting of monitoring data collected (2015); and
- Summary of maintenance activities that were competed on site in 2015, as well as any planned objectives in 2015.

# 2. SITE DESCRIPTION

## 2.1 Landfill

The former landfill contains three distinct cells that were developed at different times over its lifespan.

- The northeast cell commenced in 1977 and contains residential waste in addition to industrial, commercial and institutional (ICI) waste. This material is not contained in a lined cell and relies on natural attenuation, coupled with a perimeter collection system, to manage leachate.
- Operations within the southwest cell began in 1988. Only construction and demolition (C & D) waste was accepted within this cell, which also relies on natural attenuation and a perimeter collection system to manage leachate.
- A central cell was developed in 1988 between the northeast and southwest cells for further residential and ICI waste. This area was developed with a high-density polyethylene (HDPE) liner and a leachate collection system.

In addition to the three cells, a biosolids storage area was installed at the south end of the landfill, covering a portion of the old southwest cell. Based on CH2M Hill (2006a) preliminary survey information from 2005, there was an estimated 6,000 $m^3$ of biosolids stockpiled there.

## 2.2 Hydrological Conditions

The former landfill site is located within the Cheakamus River watershed. The Cheakamus River itself is located approximately 300 metres north of the waste mass and flows along the eastern boundary of the Athletes' Village (CH2M Hill, 2006a). The surface water features are concentrated mainly to the perimeter of the site, which is due to a combination of the natural and constructed topography of the area.

## 2.3 Geological Conditions

The following description of geological conditions associated with the site is described by CH2M Hill (2008a).

> *In general, the site topography slopes from south to north. As described in the Whistler Landfill Closure Plan, within areas on the site and within adjacent lands, aggregate extraction activities have removed much of the natural overburden materials for use as industrial aggregates and replaced them with imported fill materials. As a result, the present ground surface associated with the landfill has likely been altered by industrial activities. As part of historical aggregate extraction activities conducted at the site, much of the natural overburden materials had been removed from the area and replaced with imported fill, resulting in a disturbance of the natural topography of the site. Exposed bedrock surface, characterized by glaciated surfaces and steep inclines, are present throughout the site. Areas between the exposed bedrock are infilled by coarse and medium grain sediments.*

*Based on the results of the borehole investigation conducted by CH2M Hill in January 2006, the top layer of the site stratigraphy is composed of sand, gravel, cobbles, and boulders (fill material), followed by a gravel-sand layer. The subsurface includes a poorly graded fine sand layer with some silt, followed by still sandy silt located above the bedrock (green basalt) (CH2M Hill, 2006a).*

*Overburden at the site was generally found to be consistent across the advanced boreholes and is characterized by progressively finer particle size of the sediments with increasing depth. Overburden thickness is highly variable, ranging from 0 to greater than 21 m. The overburden is consistent with fluvial or near-shore lacustrine deposition environments.*

## 2.4 Hydrogeological Conditions

The following description of hydrogeological conditions associated with the site is described by CH2M Hill (2006a) as follows:

*A single unconfined aquifer is within the overburden on the site. The saturated zone in most locations extends from the bedrock surface at depth to within less than one metre of the ground surface. Bedrock in the area was found to be relatively dry and presented no visual indication of water bearing fractures. Groundwater flow is generally in a south to north direction, consistent with the surface topography.*

Interpreted groundwater flow at the site is illustrated in Figure 2 (from CH2M Hill, 2006a).

## 2.5 Climate

The long-term average climatic conditions (1971 – 2000) recorded at the Whistler meteorological station (approximately 8 km from the site) indicate the daily average annual temperature in the area is 6.3$^{o}$C, and the mean annual precipitation is 1229.1 mm. The precipitation can be further divided into an average of 850.1 mm of rainfall, and 411.2 cm of snowfall.

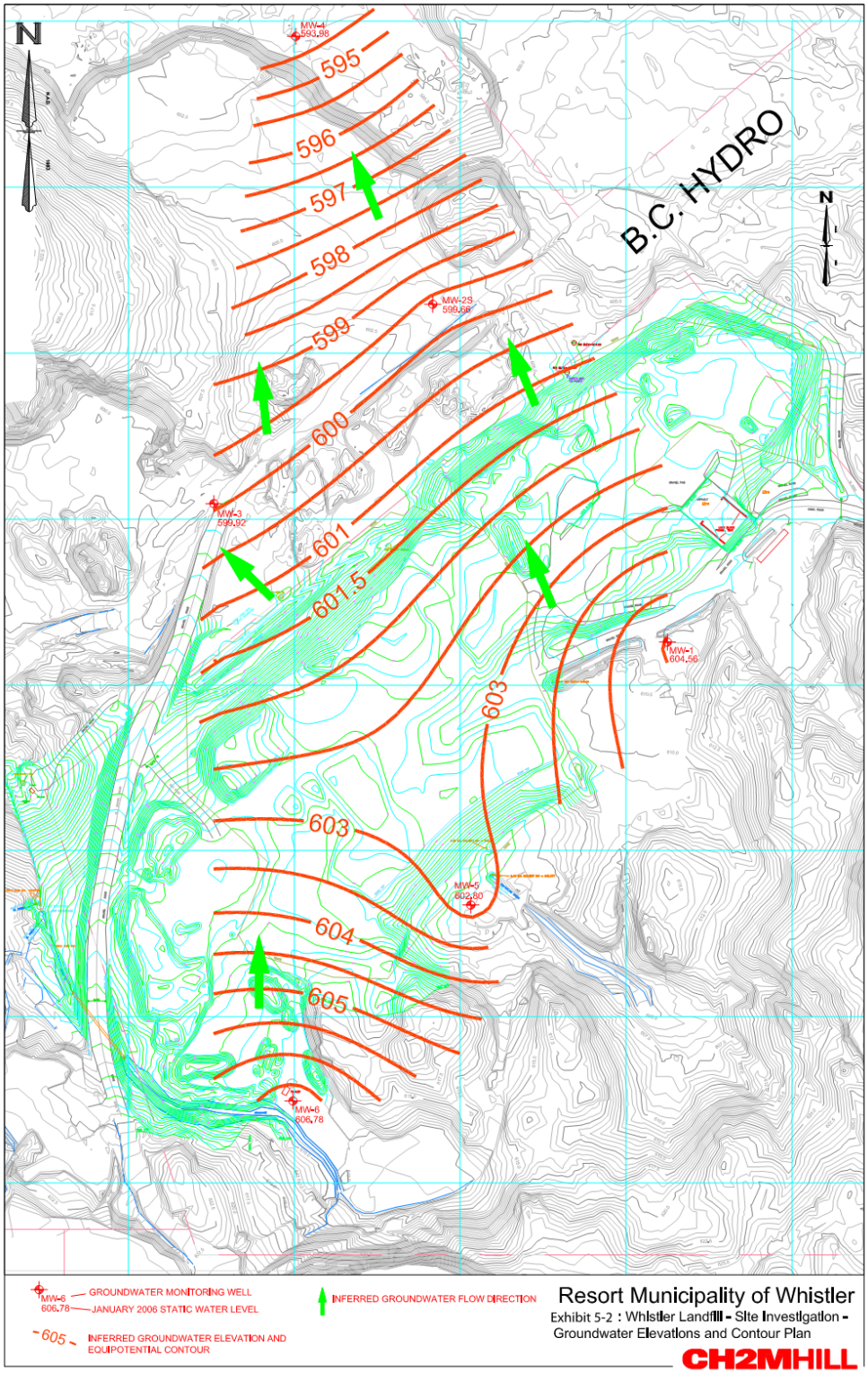



**Figure 2: Groundwater Elevations and Flow Pattern at the Former Whistler Landfill Site (from CH2M Hill. 2006a)**

# 3. MONITORING REQUIREMENTS

The following documents form the basis of the post-closure monitoring program and associated requirements, including parameters to be monitored. They are frequently referenced throughout this report.

- *Whistler Landfill Closure Plan, Final Report (CH2M HILL, 2006a)*
- *Whistler Landfill Gas Pre-Design Memorandum (CH2M HILL, 2006b)*
- *Landfill Operational Certificate MR-04692 (B.C. Ministry of Environment, 2005)*
- *Mitigation and Safety Measures for Reduction of Landfill Gas Migration Risks (CH2M HILL, 2008a)*
- *Landfill Gas Collection System Operation and Maintenance Manual (CH2M HILL, 2008b)*
- *Monitoring and Reporting Requirements (CH2M HILL, 2008c)*
- *Resort Municipality of Whistler Landfill Annual Monitoring Report – 2011 & Revised Monitoring Program Recommendations (Morrison Hershfield, June 2012).*

The original monitoring and reporting requirements have been included in past annual reports and were subsequently reviewed and amended by the Ministry of the Environment (MOE) in November 2012 after the completion of the 2011 monitoring program.

# 4. METHODOLOGY

## 4.1 Overview of Sampling Locations and Schedule

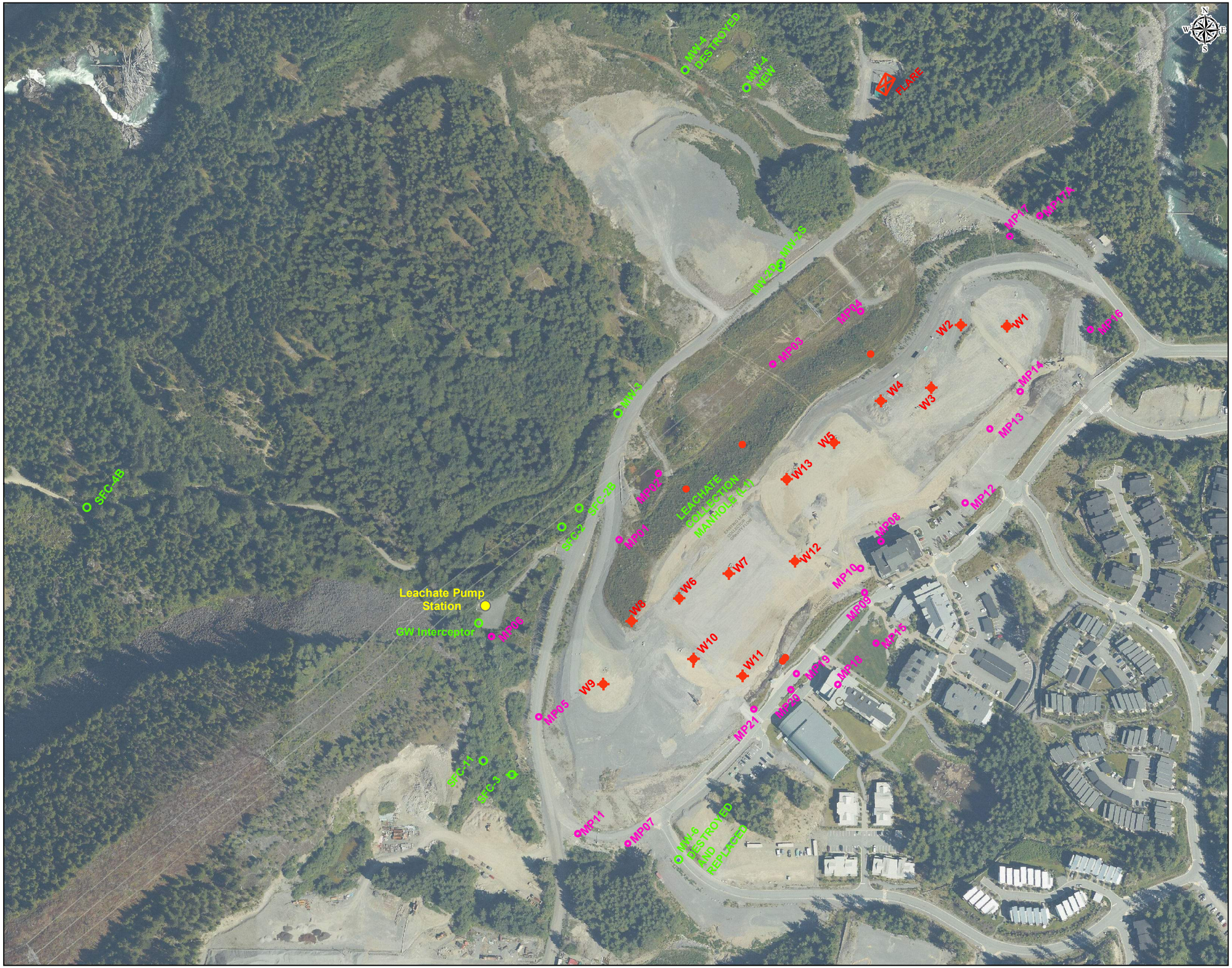
The various leachate, groundwater, surface water and landfill gas (LFG) monitoring locations are shown in Figure 3. Groundwater monitoring locations are identified as MW (monitoring well) followed by a number or number / letter combination (e.g. MW-3, MW-2S), a letter is added when both a shallow (S) and a deep (D) well were installed within a single borehole. Surface water sample locations are identified as SFC (surface), followed by a number or number / letter combination (e.g. SFC-2, SFC-2B), where the letter is used to indicate a second surface water sample on the same watercourse. L1 is the single leachate collection point.

The LFG collection system consists of the following components:

- Thirteen vertical LFG extraction wells connected to horizontal LFG collection trenches covering the landfill cell footprint;
- A 200mm diameter header approximately 800m in length that carries the LFG from the vertical well and horizontal trench network to a flare station;
- A LFG abstraction plant on the north side of the property that burns the collected LFG in a candle-stick flare;
- Twenty-one monitoring probes (MP) located around the perimeter of the landfill cell; and
- Approximately 91 test ports within selected buildings and residences in close proximity to the landfill.

The landfill gas monitoring probes around the circumference of the landfill mass are identified as MP followed by a number (e.g. MP 14). Also identified in Figure 3 are several components of the LFG collection system, including: thirteen LFG extraction wells (labeled as “W” followed by a number [e.g. W11]), the flare station, and header valves. A new monitoring probe was installed in November 2012 to the west of MP17 (identified as MP17A). As of December 2012, sampling commenced at MP17A and was omitted at MP17.

As per the requirements outlined in CH2M Hill (2008c) and confirmed by the MOE in 2012, groundwater and surface water monitoring have been conducted quarterly. Quarterly monitoring is tracked and reported based on a calendar year.




## Legend

| | |
|---|---|
| MP# | LFG Monitoring Probe |
| W# | LFG Collection System |
| SFC-# | Surface Sampling Locations |
| MW-# | Groundwater Sampling Locations |

Coordinate System: NAD 1983 UTM Zone 10N
Projection: Transverse Mercator
Datum: North American 1983
False Easting: 500,000.0000
False Northing: 0.0000
Central Meridian: -123.0000
Scale Factor: 0.9996
Latitude Of Origin: 0.0000
Units: Meter


MORRISON HERSHFIELD

Scale: **1:3,000**

0 12.5 25 50 75 100 125 150
Meters

Title:

**Post-closure Monitoring Sites at Whistler Landfill**

| Project No.: | Drawing No.: |
|---|---|
| **5104016** | **Figure 3** |
| Department: **Environmental Services** | Date: **June, 2015** |

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**Table 1: 2015 Quarterly Monitoring Dates**

| Monitoring Dates 2015 | |
|---|---|
| Quarter 1 (Q1 2015) | April 7, 2015 |
| Quarter 2 (Q2 2015) | July 9, 2015 |
| Quarter 3 (Q3 2015) | October 2, 2015 |
| Quarter 4 (Q4 2015) | December 21, 2015 |

The 2015 leachate, groundwater and surface water monitoring program was completed by Morrison Hershfield. The LFG monitoring program that has been in effect since 2009 has been conducted by Norseman Engineering Ltd. on a minimum monthly basis. During the winter months monitoring occurs on a weekly basis when there is snow cover on the landfill or frozen ground (i.e. conditions that could facilitate subsurface LFG migration).

### 4.1.1 Leachate Monitoring

A leachate collection point (Leachate Manhole) located on the down gradient side of the landfill mass (Figure 3) was sampled to provide an indicator of the elevated concentration of target parameters within the landfill cell. Leachate samples were obtained using a plastic pail rinsed three times with the leachate water.

A leachate sample was collected during first and third quarter sampling events. In addition to the samples for laboratory analysis, standard leachate quality parameters were collected and measured during the sampling events. The parameters measured include: pH, temperature (ºC), dissolved oxygen (mg/L), and conductivity (µS/cm). Field parameters were measured using an YSI model 556 multi-probe meter.

Sampling is also conducted at the Groundwater (GW) Interceptor, adjacent to the Leachate Pump Station to the west and north of the landfill mass (Figure 3). The GW Interceptor is located adjacent to the existing leachate pump station in the southwest area of the closed landfill. The interceptor consists of 24 metres of perforated HDPE pipe (60 cm diameter). A new leachate collection wet well and pump station were constructed in 2009 in close proximity to the GW Interceptor. Intercepted groundwater is piped to the new leachate pump station wet well where it is pumped, along with landfill leachate, to the RMOW Wastewater Treatment Plant (WWTP) for treatment.

The interceptor is located downgradient from the unlined Construction and Demolition (C&D) waste cell and was (presumably) installed to minimize the potential for off-site impacts associated with groundwater influenced by the C&D waste cell.

Samples were obtained using a plastic pail rinsed three times with the water in the manhole. Three samples were collected during all quarterly samples in 2015.

### 4.1.2 Groundwater Monitoring

CH2M Hill originally installed six monitoring wells (MW-1 to MW-6), one of which (MW-2) was constructed with a shallow and a deep screen, for a total of seven initial monitoring points. Monitoring wells were constructed with 50 mm (2") diameter new PVC pipe. Screen intervals were constructed with 50 mm (2") diameter #10 slot PVC screen. The depth and screen length of each well was selected in the field based on observations made during drilling. Bentonite seals were installed (as required) to prevent infiltration of surface water into the well (CH2M Hill, 2006a).

The groundwater monitoring locations are situated both up- and down-gradient of the landfill to monitor the potential migration of any leachate, and to be able to separate groundwater impacts of residential and commercial development from impacts of the landfill. MW-6 is up gradient of the landfill mass and is used to represent the local background conditions for the area, while all of the other wells are down gradient.

The installation of these wells by CH2M Hill was conducted prior to the extensive grading that occurred during construction of the Athlete's Village. During grading and construction operations four of the existing wells were destroyed: MW-1, MW-4, MW-5 and MW-6. The four destroyed wells are indicated in Figure 3 with the monitoring well name followed by "destroyed" (i.e. MW-1 DESTROYED).

Three of the four destroyed monitoring wells (MW-4, MW-5, and MW-6) were replaced prior to 2010 sampling to prevent data gaps in the monitoring program. However, due to insufficient groundwater levels since 2010, the replacement for MW-5 has since been omitted from the sampling program. Table 2 provides a summary of groundwater wells monitored in 2015.

**Table 2: 2015 Groundwater Monitoring Events and Locations**

| Site | Site Description | Q1 | Q2 | Q3 | Q4 |
|---|---|---|---|---|---|
| MW-2S and 2D | Immediately down gradient of the landfill footprint | ✔ | ✔ | ✔ | ✔ |
| MW-3 | Down gradient of the landfill mass | ✔ | ✔ | ✔ | ✔ |
| MW-4 | Down gradient of the landfill mass | ✔ | ✔ | ✔ | ✔ |
| MW-6 | Up gradient of the landfill mass (background) | ✔ | ✔ | ✔ | ✔ |

Groundwater samples were collected using dedicated HDPE tubing and foot valves. The procedure for the collection of all groundwater samples follows that described in CH2M Hill (2008c). Laboratory analyses for all of the samples were performed by CARO Analytical Services in Richmond, BC. Appendix A provides a summary of the analytical results associated with groundwater quality monitoring. Appendix C provides a summary of the parameters that were analyzed for, the detection method and detection limit.

All groundwater samples collected for dissolved metals analysis were filtered and preserved in the field. In addition to the samples for laboratory analysis, field parameters were also collected using a YSI model 556 multi-probe meter. The static water level depth in each well prior to sample collection was also measured.

### 4.1.3 Surface Water Monitoring

Table 3 provides a summary of the surface water sites sampled in 2015. Sample station SFC-11 is located cross-gradient from the landfill and the tributary extends southwest away from the landfill; therefore the watershed for this tributary does not include the landfill area (Figure 3). Sample station SFC-2B is located in a watercourse which originates in the wetland feature immediately adjacent to the leachate collection point. It is also located immediately down gradient of the lined ICI and Residential Waste Cell and the historic biosolids and wood chip storage area. SFC-2 is located approximately 10 m downstream of SFC-2B. The source of the water in SFC-2 is from a culvert extending from the Athlete's Village that collects surface water runoff. SFC-3 is located in a perimeter watercourse. SFC-3 and SFC-11 are up gradient of the landfill and provide indicators of natural background surface water conditions.

**Table 3: 2015 Surface Water Monitoring Events and Locations**

| Site | Site Description | Q1 | Q2 | Q3 | Q4 |
|---|---|---|---|---|---|
| SFC-2 | Down stream of landfill | ✔ | ✔ | ✔ | ✔ |
| SFC-2B | Down stream of landfill, contributes flow to SFC-2 | ✔ | Not enough water to sample. | ✔ | ✔ |
| SFC-3 | Located in a perimeter watercourse (background) | ✔ | ✔ | ✔ | ✔ |
| SFC-11 | Cross gradient from the landfill (background) | ✔ | ✔ | ✔ | ✔ |
| SFC-4B | Furthest down gradient and the closest monitoring point to the Cheakamus River | ✔ | ✔ | ✔ | ✔ |

Surface water samples were collected using the techniques outlined in CH2M Hill (2008c). Field parameters were also collected using a YSI model 556 multi-probe meter was used to measure the field parameters.

Similar to the groundwater samples, all surface water samples were sent to CARO in Richmond, B.C. for analysis. Appendix A provides a summary of the analytical results associated with groundwater quality monitoring. Appendix C provides a summary of the parameters that were analyzed for, the detection method and detection limit. As required, the surface water samples collected for total metal analyses were not filtered however they were preserved with nitric acid.

### 4.1.4 Landfill Gas Monitoring

Landfill gas monitoring was completed by Norseman Engineering Ltd. on a weekly (winter months) to monthly basis throughout the year.

Standard monitoring procedures were followed for LFG monitoring.

The following data has been collected:

- Methane content at the subsurface probes;
- Methane and oxygen contents, flow rate, and inlet suction at the flare station; and

- Valve position (percent open), methane content and suction at each of the extraction wells (monitored for assessing the operational efficiency of the LFG collection system).

Pressure at the wells is measured using 0 – 5" water column (w.c.) or 0 – 0.5" w.c. magnahelic pressure gauges. Methane content, as percent of the Lower Explosive Limit (LEL), is detected using a Gastech device, model NP204[1]. Other parameters measured at the flare station are obtained from the programmable logic controller associated with the LFG collection system. The data gathered are important for assessing the overall function of the LFG collection system, particularly the concentration of methane present in the landfill for flaring, and to determine if the gas is escaping into the atmosphere or migrating off-site.

As per Morrison Hershfield (2012), the frequency of LFG monitoring should increase from monthly or weekly to daily in the event of LFG collection system malfunction or maintenance requirements, or if detection of methane in excess of the trigger level (10% LEL) is observed. Morrison Hershfield (2012) also notes that, following detection of methane in excess of the trigger levels, monitoring should be increased to daily at all of the monitoring probes and any buildings within 100 m of the MP which exceeded the trigger level will be monitored until there are two consecutive days of undetectable methane content in the monitoring probes. If gas concentrations at the property boundaries remain above recommended trigger limits for more than 2 days, additional measures are outlined in the revised LFG monitoring program. During the winter months, two measurement events shall be completed when there is snow pack at the building ports.

## 4.2 Quality Assurance and Quality Control

In addition to using an accredited laboratory, Quality Assurance/Quality Control (QA/QC) measures were applied to the monitoring program to determine the accuracy and precision of the field results and the laboratory testing procedures.

For each surface and groundwater sampling event a sample replicate and a travel blank were submitted for analysis. Replicate samples were also collected from one monitoring location each Quarter using the word "rep" as denoted in the sample ID. Travel blanks are used to confirm that the samples have not been contaminated during transportation from the site to the laboratory. The samples are transported in laboratory supplied coolers, remain closed, and are only reopened in the laboratory for analyses.

[1] A concentration of 5% methane in the air is "the lower explosive limit" (LEL), and concentrations equal to or greater than the LEL are considered hazardous (BC MOE, 1996)

# 5. RESULTS AND INTERPRETATION

Water quality monitoring at Whistler Landfill has included a broad suite of parameters, including the following groups of parameters:

- Dissolved & total metals
- Hardness
- Alkalinity
- Total Dissolved Solids
- Ammonia
- Dissolved Organic Carbon (DOC)
- Volatile Organic Compounds (VOCs)
- Chemical Oxygen Demand (COD)
- Extractable and Volatile Hydrocarbons (EPH & VH)
- BTEX
- Polycyclic Aromatic Hydrocarbons (PAHs)

There are a limited number of key parameters that have been reviewed as both landfill related *indicator* parameters and parameters of potential *concern*:

***Indicators parameters*** are compounds that are indicative and reliable indicators of groundwater impact from waste disposal, but in of themselves may not be a compound of concern. For the purposes of this water quality review, the landfill-related indicator parameters assessed include:

- chloride,
- conductivity,
- hardness,
- sulfate, and
- iron and manganese

***Parameters of potential concern*** at landfill sites consist primarily of ammonia (which can be toxic to aquatic life if it reaches an aquatic receptor at high enough concentrations). Other parameters of concern, may include: presence of:

- hydrocarbons and/or volatile organic compounds and
- possibly elevated concentration of heavy metals.

## 5.1 Groundwater

Monitoring locations up gradient as well as down gradient of the closed landfill provide a method to identify parameters that occur at naturally elevated levels in the local environment. MW-6 is up gradient of the landfill and is used to represent the local background conditions for the area, whereas MW-4 is down gradient of the landfill and the closest groundwater monitoring point to the Cheakamus River.

The regulatory framework that applies to this project for groundwater water quality include the provincial standard for landfill closure: Schedule 6, Column II (Generic Numerical Water Standards for Aquatic Life) of the B.C. Contaminated Sites Regulation. This is a requirement that is stated in the "Closure Plan". The standards assume a minimum 10 to 1 dilution factor is available prior to the groundwater reaching any water body that supports aquatic life.

In addition to the comparison to the regulatory standards, the tables showing the ground-water results also include the comparison to the B.C. Working and Approved Water Quality Guidelines (per MoE reporting recommendations). These guidelines are more restrictive since they generally apply to receiving water conditions and not to groundwater within the landfill site (the guidelines do not incorporate any dilution factors). The guidelines provide concentrations to prevent detrimental effects in water bodies that support aquatic life. Unlike the B.C. Contaminated Sites regulation there is no dilution factor incorporated; therefore the values represented in the BC Ambient Water Quality guidelines are more stringent for many parameters. Therefore, while not directly applicable to monitoring locations at the landfill site, these guidelines provide a point of reference for assessing contaminant levels over time.

A summary of the groundwater quality results in comparison to the applicable standards and guidelines are provided in Table 7 and Table 8. Detailed laboratory results can be found in Appendix A.

### 5.1.1 Landfill-Related Indicator Parameters in Groundwater

A summary of the average indicator parameter concentrations for 2015 is provided in Table 4. The concentrations of indicator parameters are all within the regulatory standards. The concentrations of indicator parameters are generally elevated at MW-2D and MW-2S when compared to background concentrations. It is suspected that the wells immediately down gradient of the landfill footprint (MW-2D and MW-2S) are impacted by leachate.

The average chloride concentration detected in MW-6 is elevated compared to other down gradient wells. Since this well is up gradient of the landfill footprint, it is suspected that these concentrations are related to road salt application on the road immediately adjacent to the monitoring well, and not indicative of landfill leachate impacts.

**Table 4: Average values of water quality indicator parameters for groundwater in 2015**

| Parameter | BC – SCR AW* | BC WQG** | MW-6 (Background) | MW-2S | MW-2D | MW-3 | MW-4 |
|---|---|---|---|---|---|---|---|
| **Chloride (mg/L)** | 1500 | 150 | 105.1 | 14.6 | 26.4 | 11.9 | 16.6 |
| **Conductivity (µS/cm)** | - | - | 517.8 | 379 | 841.7 | 126.4 | 331.7 |
| **Hardness (mg/L)** | - | - | 131.3 | 153.5 | 487 | 47.4 | 122.8 |
| **Sulfate (mg/L)** | 1000 | 50 (warning)<br>100 (maximum) | 138.8 | 83.7 | 332.5 | 30.3 | 47.8 |
| **Iron (mg/L)** | - | 0.35 | 0.9 | 43.5 | 66.0 | 0.6 | 30.4 |
| **Manganese (mg/L)** | - | "0.7 (H = 25)[1]<br>0.8 (H = 50)<br>1.0 (H = 100)<br>1.3 (H = 150)<br>1.9 (H = 300)<br>(for total metals)" | 0.5 | 2.3 | 3.9 | 1.7 | 2.5 |

***** Schedule 6, Column II (Generic Numerical Water Standards for Aquatic Life) of the B.C. Contaminated Sites Regulation
** BC Water Quality Guidelines (Working and Approved)

[1] H represents water hardness measured in units of mg/L as $CaCO_3$. Manganese availability, and hence its toxicity, in the aquatic environment can be influenced by water hardness. Average hardness levels measured in groundwater samples ranged between 42 and 516 mg/L.

### 5.1.2 Landfill Related Parameters of Potential Concern in Groundwater

**Ammonia-** Ammonia is the primary contaminant of potential concern with municipal solid waste sites. It is related to the decomposition of organic matter in the landfill. Ammonia is a potential concern because of its relative mobility in groundwater systems that allow it to be potentially discharged to surface water and its toxicity to aquatic organisms (if concentrations are sufficiently elevated).

Ammonia concentrations above the applicable standard (18.4 mg/L for pH conditions of <7.0) were not detected in any of the wells.

As would be expected, ammonia was detected in monitoring wells located within the landfill footprint (MW-2S/2D) at concentrations above background levels (range in concentration between 3.4 and 14.8 mg/L). Concentrations at MW-4 are slightly above 1mg/L, which is marginally elevated above the background levels. Concentrations at MW-3 and MW-6 are well below 1 mg/L, which is consistent with background levels.

**Hydrocarbons and Volatile Organic Compounds** - Hydrocarbons and volatile organic compounds (VOCs) are routinely tested for at landfills. All groundwater samples collected and analyzed for hydrocarbons and VOC compounds in 2015 were below the applicable standards.

**Heavy Metals** - Heavy metals are also sometimes considered compounds of concern at landfill sites.

There were two heavy metal detections above the applicable regulatory standard. At MW-4, two monitoring observations indicated total cadmium concentrations of 0.00051 mg/l and 0.00077mg/L in Q3 and Q4 respectively, which marginally exceeded the applicable Schedule 6, Column II standard (0.0005 /mg/L). All other cadmium measurements in 2015 at this location were below the standard. Previous monitoring results indicate that levels of naturally occurring cadmium in groundwater (as measured at MW-6) may be contributing to elevated levels of cadmium at the site (2014 Annual Report; Morrison Hershfield 2015).

### 5.1.3 Groundwater Quality Conclusions

Indicators of leachate influenced groundwater quality appears at this time to be limited to locations within the landfill footprint (MW-2S / MW-2D), and downgradient of the landfill (MW-4). Concentrations in groundwater of landfill-leachate contaminants of concern (COCs) are below the applicable regulatory standards, with the exception of two exceedance of total cadmium from down gradient well MW-4. Elevated cadmium concentrations are consistent with previous sampling results.

There have been no detections of hydrocarbons or volatile organic compounds at or near the regulatory standard. With only a few exceptions, hydrocarbons and VOCs were below the laboratory detection limit.

## 5.2 Surface Water

Similarly to groundwater, there are surface water monitoring locations both up gradient and down gradient of the landfill. SFC-3 and SFC-11 are up gradient of the landfill and provide indicators of natural background surface water conditions. SFC-4B is the furthest down gradient and the closest monitoring point to the Cheakamus River.

The regulatory framework that applies to this project for surface water quality is the same as for ground water and includes the provincial standard for landfill closure: Schedule 6, Column II (Generic Numerical Water Standards for Aquatic Life) of the B.C. Contaminated Sites Regulation.

Surface water results are also compared to the B.C. Working and Approved Water Quality Guidelines (per MoE reporting recommendations) in the same manner as groundwater results are. These guidelines are more restrictive since they generally apply to receiving water conditions and not to locations within the landfill site (the guidelines do not incorporate any dilution factors). The guidelines provide concentrations to prevent detrimental effects in water bodies that support aquatic life. Unlike the B.C. Contaminated Sites regulation there is no dilution factor incorporated; therefore the values represented in the BC Ambient Water Quality guidelines are more stringent for many parameters. Therefore, while not directly applicable to monitoring locations at the landfill site, these guidelines provide a point of reference for assessing contaminant levels over time.

A summary of the surface water monitoring results in comparison to the applicable standards and guidelines are provided in Table 9. Complete laboratory results can be found in Appendix A.

### 5.2.1 Landfill-Related Indicator Parameters in Surface Water

One of the indicator parameters, sulfate, in the surface water samples collected in 2015 exceeded the Schedule 6, Column II standard at SFC-2B. A summary of the average water quality indicator parameters for surface water is provided in Table 5. Hardness, conductivity, sulfate, iron and manganese were consistently elevated at SFC-2 and SFC-2B relative to background concentrations. These results indicate probable influences of landfill leachate at these locations.

### 5.2.2 Landfill Related Parameters of Potential Concern in Surface Water

**Ammonia** – Analyses for ammonia have been conducted at each monitoring location during all sampling events in 2015. The Schedule 6, Column II standard for ammonia was exceeded once in Q3 at SFC-2B in 2015.

**Heavy Metals** – Cadmium, cobalt and copper concentrations were above the respective Schedule 6, Column II standards at SFC-2B.

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**Table 5: Average values of water quality indicator parameters for surface water in 2015**

| Parameter | BC – SCR AW* | BC WQG** | SFC-11 (Background) | SFC-3 (Background) | SFC-2 | SFC-2B | SFC-4B |
|---|---|---|---|---|---|---|---|
| **Chloride (mg/L)** | 1500 | 150 | 7.3 | 22.9 | 13.1 | 8.3 | 21.0 |
| **Conductivity (µS/cm)** | - | - | 108.3 | 196.5 | 320.0 | 993.3 | 285.8 |
| **Hardness (mg/L)** | - | - | 36.8 | 48.3 | 121.4 | 284.7 | 68.7 |
| **Sulfate (mg/L)** | 1000 | 50 (warning)<br>100 (maximum) | 13.0 | 29.0 | 69.7 | 603.3 | 56.2 |
| **Iron (mg/L)** | - | 0.35 | 0.09 | 1.4 | 3.6 | 59.5 | 0.9 |
| **Manganese (mg/L)** | - | 0.7 (H = 25)[1]<br>0.8 (H = 50)<br>1.0 (H = 100)<br>1.3 (H = 150)<br>1.9 (H = 300)<br>(for total metals)" | 0.01 | 0.07 | 1.07 | 4.25 | 0.34 |

*** Schedule 6, Column II (Generic Numerical Water Standards for Aquatic Life) of the B.C. Contaminated Sites Regulation**
**** BC Water Quality Guidelines (Working and Approved)**

**[1] H represents water hardness measured in units of mg/L as CaCO3. Manganese availability, and hence its toxicity, in the aquatic environment can be influenced by water hardness. Average hardness levels measured in surface water samples ranged between 36 and 296 mg/L**

### 5.2.3 Surface Water Quality Conclusions

All surface water quality standards were met at all monitoring locations with the exception of ammonia, sulfate, cadmium, cobalt and copper at location SFC-2B (similar observations have been recorded in the 2013 & 2014 Annual Monitoring Reports). This location appears to be influenced by landfill leachate.

Monitoring of the nearest receiving waterbody (Cheakamus River) is not incorporated within this monitoring program (as defined by the provincially-approved Landfill Closure Plan). Sampling results from the furthest down gradient surface water monitoring location, and the one nearest the Cheakamus River, at SFC-4B, provide the best indication of potential impacts to receiving water quality resulting from the site. All regulatory standards were met during each of the sampling events at this location in 2015.

## 5.3 Leachate & Groundwater Interceptor

Leachate is captured and treated by the Whistler Wastewater Treatment Plant. For monitoring purposes, the leachate quality is tested as part of this monitoring program. The monitoring results will help to determine when in the future leachate treatment will no longer be required.

A technical memo summarizing the water quality conditions from 2012 to Q1 – 2014 at the Groundwater (GW) Interceptor adjacent to the Leachate Pump Station was developed in December 2014. The memo provides recommendations based on the water quality conditions; namely to continue quarterly monitoring at this location and incorporate the results into the annual monitoring reports.

A summary of the leachate monitoring results in comparison to the applicable standards and guidelines are provided in Table 10 and Table 11. Complete laboratory results can be found in Appendix A.

### 5.3.1 Landfill-Related Indicator Parameters in Leachate

Indicator water quality parameters, as average concentrations, are summarized in Table 6. The concentration of the indicator parameters were generally higher at the GW Interceptor than at the Leachate Manhole.

**Table 6: Average values of water quality indicator parameters for leachate in 2015**

| Parameter | BC – SCR AW* | BC WQG** | Leachate Manhole | GW Interceptor |
|---|---|---|---|---|
| **Chloride (mg/L)** | 1500 | 150 | 36.0 | 55.2 |
| **Conductivity (µS/cm)** | - | - | 1024.5 | 956.6 |
| **Hardness (mg/L)** | - | - | 289.5 | 352.0 |
| **Sulfate (mg/L)** | 1000 | 50 (warning)<br>100 (maximum) | 129.9 | 256.2 |
| **Iron (mg/L)** | - | 0.35 | 0.024 | 17.4 |
| **Manganese (mg/L)** | - | 0.7 (H = 25)<br>0.8 (H = 50)<br>1.0 (H = 100)<br>1.3 (H = 150)<br>1.9 (H = 300) | 0.446 | 3.59 |

***** Schedule 6, Column II (Generic Numerical Water Standards for Aquatic Life) of the B.C. Contaminated Sites Regulation
** BC Water Quality Guidelines (Working and Approved

[1] H represents water hardness measured in units of mg/L as $CaCO_3$. Manganese availability, and hence its toxicity, in the aquatic environment can be influenced by water hardness. Average hardness levels measured in leachate samples ranged between 190 and 414 mg/L

### 5.3.2 Landfill Related Parameter of Potential Concern in Leachate

**Ammonia** – Observed ammonia levels were relatively low (for leachate) with one exceedance of the Schedule 6, Column II standard. Elevated concentrations of nitrate at the leachate manhole indicates that ammonia had been transformed to nitrate within the leachate collection system. Conversely, there are higher levels of ammonia in the Groundwater (GW) Interceptor, and lower levels of nitrate (for leachate).

**Hydrocarbons and Volatile Organic Compounds** – Hydrocarbons and volatile organic compounds were not detected routinely, with the exception of pyrene in the GW Interceptor. At the Leachate Manhole there was one detection of Heavy Extractable Petroleum Hydrocarbon (HEPH) near the detection limit, for which a standard doesn't exist.

At the Groundwater Interceptor location there were detections in all sampling events for fluoranthene, fluorene and pyrene; however all values were below the Schedule 6, Column II respective standards. . While the detections did not exceed the Schedule 6, Column II standards, the BC Working and Approved Ambient Water Guidelines levels were exceeded for pyrene and fluoranthene.

**Heavy Metals** –Metal concentrations in the Leachate Manhole and GW Interceptor were all well below the applicable standards. At the Leachate Manhole magnesium was above guidelines. At the GW Interceptor aluminum, iron, magnesium, and silver were elevated above the guidelines at least once in 2015 sampling.

### 5.3.3 Leachate Quality Conclusions

Measured water quality from the Leachate Manhole and GW Interceptor exceeded the Schedule 6, Column II standards during the 2015 monitoring program for ammonia.

Leachate continues to be collected and treated at the RMOW Wastewater Treatment Plant prior to discharge.

## 5.4 Landfill Gas

Methane measurements are obtained from perimeter monitoring probes located around the landfill.

Triggers levels for LFG monitoring results which indicate when additional action is required are based on the B.C. Environmental Monitoring Guidelines. They are provided in the Operation and Maintenance Manual for the project (CH2M Hill, 2008b) and the permitted requirements are as follows:

- Methane gas concentrations in excess of, or predicted to exceed 10% LEL in subsurface soils at the eastern and southern property boundaries of the Whistler Landfill (MP 8 through MP 21, excluding MP 11)

- Methane gas concentrations in excess of, or predicted to exceed, 25% LEL in soils at the western and northern property boundaries (MP1 through MP7, and MP 11).

A summary of the landfill gas monitoring results is provided in Table 12.

### 5.4.1 Summary of Landfill Gas Results

Methane was measured at the building ports twice when there was snow pack in 2015; however there was no methane detected during these sampling events.

Methane detection did occurred at MP 12 during the month of September and at MP 14 during the month of August and December. These monitoring probes are located north of the Hostel and west of Legacy Way. The methane concentrations exceeded the trigger levels at MP 14, but after flare adjustments the exceedance was no longer recorded the following day.

Regular testing and adjustment of the landfill gas extraction wells was performed to increase landfill gas extraction rates and prevent off site migration of landfill gas. Subsequent monitoring did not detect methane in any of the locations.

### 5.4.2 Landfill Gas Conclusions and Recommendations

Based on 2015 data, the operation and maintenance of the landfill gas system ensured that landfill gas is effectively abstracted from the landfill area and lateral migration is prevented. Continued operation and monitoring as prescribed in the methodology (Morrison Hershfield 2012) is recommended.

## 5.5 Maintenance Activities

Routine maintenance of monitoring probes were completed on as needed basis during monthly (and weekly) monitoring activities by Norseman Engineering. A blockage that prevented vacuum to the south end of the landfill was removed using a camera to determine the position and nature of the obstruction (liquid condensate); and then a vacuum truck to remove the 292 liters of condensate causing the blockage. This work was completed on June 4$^{th}$ and 11$^{th}$ 2015, respectively.

Also the Capsulhelic 0-60” vacuum gauge was replaced with a 0-20” model in order to give more accurate readings of the vacuum to the field.

# 6. RECOMMENDATIONS

Continued monitoring in 2016 is required as per the Closure Plan. Data from the 2015 monitoring results are generally consistent with the results from previous years' monitoring. There were no new or extraordinary issues noted in the groundwater, surface water, leachate, or landfill gas monitoring results. No remedial actions are recommended based on the 2015 monitoring results.

Future sampling and analytical protocols should follow the revised monitoring program recommendations outlined in Morrison Hershfield (2012).

# 7. REFERENCES

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MORRISON HERSHFIELD

# TABLE 7: 2015 GROUNDWATER QUALITY - GENERAL CHEMISTRY AND DISSOLVED METALS

| SAMPLE LOCATION | MW2S | | | | | MW2D | | | | MW3 | | | | MW4 | | | | | MW6 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID | MW2S | MW2SRep | MW2S | MW2S | MW2S | MW2D | MW2D | MW2D | MW2D | MW3 | MW3 | MW3 | MW3 | MW4 | MW4 | MW4 | MW4 | MW4-REP | MW6 | MW6 | MW6 | MW6 |
| SAMPLE DATE | 7-Apr-15 | 7-Apr-15 | 9-Jul-15 | 2-Oct-15 | 21-Dec-15 | 7-Apr-15 | 9-Jul-15 | 2-Oct-15 | 21-Dec-15 | 7-Apr-15 | 9-Jul-15 | 2-Oct-15 | 21-Dec-15 | 7-Apr-15 | 9-Jul-15 | 2-Oct-15 | 21-Dec-15 | 21-Dec-15 | 7-Apr-15 | 9-Jul-15 | 2-Oct-15 | 21-Dec-15 |

| MATRIX | UNITS | MRL | BCCSR-SR-Water FAL (mg/L) | BC Ambient Water Quality Guidelines (mg/L) | Q1 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q4 | Q1 | Q2 | Q3 | Q4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Field Parameters** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Field Conductivity | uS/cm | - | - | - | 342.4 | - | 358 | - | 436.6 | 863 | 834 | - | 828 | 132.6 | 107.5 | - | 139 | 347.1 | 312 | - | 335.9 | - | 487.8 | 527 | 577.8 | 478.4 |
| Temp | C | - | - | - | 8 | - | 10 | 8.5 | 5.7 | 8.2 | 8.7 | 8.3 | 7.3 | 8.1 | 9.7 | 10.3 | 8.5 | 7.9 | 9.5 | 8.3 | 7.8 | - | 6.8 | 12.6 | 9.4 | 7.9 |
| pH | - | - | - | - | 6.8 | - | 6.23 | 6.81 | 6.62 | 6.55 | 6.38 | 6.57 | 6.5 | 5.94 | 6.04 | 6.02 | 5.78 | 5.91 | 6.7 | 6.23 | 6.44 | - | 5.57 | 6.43 | 6.19 | 5.41 |
| Dissolved Oxygen | mg/L | - | - | - | 3.79 | - | 3.04 | 2.28 | 3.18 | 1.71 | 2.1 | 1.75 | 1.18 | 3.02 | 1.73 | 2.43 | 1.9 | 1.57 | 0.93 | 1.39 | 1.03 | - | 4.43 | 3.07 | 5.58 | 6.94 |
| **ANIONS AND GENERAL CHEMISTRY** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Alkalinity as CaCO3 | mg/L | 1 | - | - | 115 | - | 131 | 104 | 181 | 271 | 266 | 256 | 296 | 39 | 35 | 32 | 38 | 162 | 111 | 84 | 134 | - | 8 | 9 | 45 | 9 |
| Bromide | mg/L | 0.1 | - | - | <0.1 | - | <0.10 | <0.10 | 0.1 | 0.1 | <0.10 | <0.10 | <0.10 | <0.1 | <0.10 | <0.10 | 0.11 | <0.1 | <0.10 | <0.10 | <0.10 | - | <0.1 | <0.10 | <0.10 | <0.10 |
| Chloride | mg/L | 0.1 | 1500 | 150 | 10.7 | - | 11.4 | 10.9 | 25.4 | 45.6 | 22.1 | 16 | 21.9 | 15.3 | 9.43 | 8.5 | 14.3 | 17 | 15.9 | 10.9 | 22.4 | - | 165 | 103 | 46.2 | 106 |
| Fluoride | mg/L | 0.01 | 2 | 0.4 | 0.07 | - | 0.42 | 0.08 | 0.11 | 0.07 | 0.49 | 0.11 | 0.1 | <0.05 | 0.21 | 0.07 | <0.05 | <0.05 | 0.36 | 0.12 | 0.14 | - | 0.12 | 0.72 | 0.2 | 0.13 |
| Nitrite as N | mg/L | 0.001 | 0.2 | 0.06 | <0.002 | - | <0.005 | <0.005 | <0.005 | <0.002 | <0.005 | <0.005 | <0.010 | <0.002 | <0.005 | <0.005 | <0.010 | <0.002 | 0.007 | <0.005 | <0.005 | - | <0.002 | <0.005 | <0.005 | 0.007 |
| Ammonia as N | mg/L | 0.005 | pH dependent (1.31 - 18.4) | - | 6.51 | - | 5.05 | 3.37 | 7.5 | 14.8 | 12.2 | 10.1 | 11 | 0.434 | 0.285 | 0.413 | 0.386 | 1.83 | 2.04 | 1.28 | 1.57 | - | 0.174 | 0.045 | 0.146 | <0.005 |
| Nitrate+Nitrite as N | mg/L | 0.005 | 400 | - | 0.05 | - | 0.019 | 0.01 | 0.024 | 0.06 | 0.027 | 0.037 | 0.02 | 0.008 | <0.005 | <0.005 | 0.026 | 0.04 | 0.017 | 0.021 | 0.007 | - | 0.06 | 0.03 | 0.042 | 0.032 |
| Nitrogen Kjeldahl | mg/L | 0.05 | - | - | 6.83 | - | 5.81 | - | - | 15.1 | 12.2 | - | - | 0.57 | 0.43 | - | - | 2.15 | 4.15 | - | - | - | 0.58 | 0.42 | - | - |
| Nitrate as N | mg/L | 0.01 | 400 | 32.8 | 0.05 | - | 0.019 | 0.01 | <0.010 | 0.06 | 0.027 | 0.037 | <0.010 | 0.008 | <0.005 | <0.010 | 0.026 | 0.04 | 0.01 | 0.021 | <0.010 | - | 0.06 | 0.03 | 0.042 | 0.036 |
| Nitrogen | mg/L | 0.05 | - | - | 6.87 | - | 5.83 | - | - | 15.1 | 12.3 | - | - | 0.58 | 0.428 | - | - | 2.19 | 4.17 | - | - | - | 0.65 | 0.448 | - | - |
| Sulfate | mg/L | 1 | 1000 | 128 - 429 (Hardness dependant) | 79.2 | - | 71.6 | 71.9 | 112 | 361 | 315 | 309 | 345 | 34.6 | 22.1 | 32.6 | 32 | 65.9 | 42.7 | 32.5 | 50 | - | 136 | 138 | 126 | 155 |
| Chemical Oxygen Demand | mg/L | 5 | - | - | 9 | - | 17 | 53 | 25 | 24 | 52 | 218 | 110 | <5 | 6 | <20 | <20 | 14 | 16 | 129 | 84 | - | <5 | 7 | 116 | 38 |
| Solids Suspended | mg/L | 2 | - | - | 240 | - | 197 | 344 | 180 | 599 | 954 | 1090 | 800 | 19 | <2 | 47 | 6 | 237 | 383 | 1110 | 1590 | - | 375 | 334 | 691 | 331 |
| pH | pH units | 0.01 | - | 9 | 6.88 | - | 6.64 | 6.42 | 6.39 | 6.86 | 6.81 | 6.38 | 6.38 | 6.16 | 6.57 | 6.12 | 5.84 | 6.51 | 6.76 | 6.32 | 6.22 | - | 5.91 | 5.74 | 6.05 | 5.47 |
| Conductivity (EC) | uS/cm | 2 | - | | 429 | - | 404 | 366 | 619 | 1200 | 1110 | 1070 | 1210 | 197 | 145 | 168 | 203 | 477 | 355 | 265 | 453 | - | 798 | 686 | 542 | 721 |
| Hardness (Diss. as CaCO3) | mg/L | 0.5 | - | - | 162 | - | 132 | 120 | 200 | 520 | 476 | 476 | 476 | 52.2 | 39.9 | 48.4 | 49.2 | 156 | 111 | 92.2 | 132 | - | 157 | 123 | 108 | 137 |
| **DISSOLVED METALS** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | mg/L | 0.005 | - | (at pH ≥ 6.5) 0.1 - max.<br>0.05 - avg. | <0.005 | - | <0.005 | <0.005 | <0.005 | 0.006 | 0.007 | <0.005 | <0.005 | 0.037 | 0.012 | 0.017 | 0.02 | 0.01 | 0.007 | 0.01 | 0.007 | - | 0.227 | 0.182 | 0.039 | 0.151 |
| Antimony | mg/L | 0.0001 | 0.2 | 0.02 | 0.0001 | - | <0.0001 | <0.0001 | 0.0003 | 0.0001 | <0.0001 | <0.0001 | 0.0002 | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.0001 | - | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Arsenic | mg/L | 0.0005 | 0.05 | 0.005 (for total metals) | 0.0081 | - | 0.0079 | 0.0067 | 0.0076 | 0.0156 | 0.0146 | 0.0146 | 0.0145 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | 0.0025 | 0.0043 | 0.0032 | 0.0059 | - | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| Barium | mg/L | 0.005 | 10 | 1 | 0.108 | - | 0.085 | 0.075 | 0.135 | 0.033 | 0.031 | 0.03 | 0.033 | 0.07 | 0.056 | 0.064 | 0.071 | 0.162 | 0.126 | 0.107 | 0.187 | - | 0.055 | 0.043 | 0.049 | 0.051 |
| Beryllium | mg/L | 0.0001 | 0.053 | - | <0.0001 | - | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | - | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Bismuth | mg/L | 0.0001 | - | - | <0.0001 | - | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | - | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Boron | mg/L | 0.004 | 50 | 1.2 | 0.173 | - | 0.149 | 0.13 | 0.158 | 0.385 | 0.352 | 0.341 | 0.307 | 0.028 | 0.011 | 0.014 | 0.012 | 0.065 | 0.06 | 0.054 | 0.068 | - | 0.015 | 0.012 | 0.016 | 0.011 |
| Cadmium | mg/L | 0.00001 | Hardness dependent (0.0001 - 0.0006) | Hardness dependent (0.01 - 0.06) | <0.00001 | - | 0.00002 | <0.00001 | <0.00001 | <0.00001 | 0.00001 | <0.00001 | <0.00001 | 0.00027 | 0.00011 | 0.00027 | 0.00027 | 0.00045 | 0.00008 | 0.00051 | 0.00077 | - | 0.00043 | 0.00028 | 0.0001 | 0.00031 |
| Calcium | mg/L | 0.2 | - | - | 51.5 | - | 40.7 | 36.1 | 64.2 | 175 | 159 | 159 | 159 | 15.7 | 12.3 | 14.8 | 14.9 | 48.3 | 35.8 | 30.7 | 43.9 | - | 50 | 39.9 | 35.8 | 44.5 |
| Chromium | mg/L | 0.0005 | 0.01 | 0.001 | <0.0005 | - | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | 0.0005 | <0.0005 | - | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| Cobalt | mg/L | 0.00005 | 0.04 | 0.004 | 0.0016 | - | 0.00238 | 0.00333 | 0.00281 | 0.0167 | 0.0151 | 0.0143 | 0.015 | 0.011 | 0.00169 | 0.00577 | 0.00748 | 0.0376 | 0.0252 | 0.0183 | 0.0283 | - | 0.00166 | 0.00153 | 0.00488 | 0.00137 |
| Copper | mg/L | 0.0002 | Hardness dependent (0.02 - 0.09) | 0.094(H) + 2 (in µg/L)<br>(for total metals) | <0.0002 | - | 0.0002 | 0.0004 | <0.0002 | <0.0002 | 0.0004 | 0.0002 | 0.0005 | 0.0059 | 0.0016 | 0.0034 | 0.0036 | 0.0029 | 0.0006 | 0.0031 | 0.0038 | - | 0.0043 | 0.0034 | 0.0028 | 0.0031 |
| Iron | mg/L | 0.01 | - | 0.35 | 41.6 | - | 39.1 | 37.6 | 55.6 | 66.2 | 66.4 | 65.8 | 65.5 | 1.05 | 0.204 | 0.464 | 0.64 | 25.9 | 39.3 | 16.7 | 39.6 | - | 0.023 | 0.025 | 3.69 | 0.03 |
| Lead | mg/L | 0.0001 | Hardness dependent (0.04 - 0.16) | 0.003 | <0.0001 | - | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | - | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Lithium | mg/L | 0.0001 | - | 0.014 | <0.0001 | - | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.0002 | 0.0001 | 0.0001 | 0.0001 | 0.0002 | <0.0001 | 0.0003 | 0.0003 | - | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Magnesium | mg/L | 0.01 | - | - | 8.12 | - | 7.26 | 7.35 | 9.61 | 20.4 | 19.2 | 19.1 | 18.9 | 3.15 | 2.23 | 2.75 | 2.92 | 8.58 | 5.15 | 3.79 | 5.55 | - | 7.79 | 5.58 | 4.51 | 6.22 |
| Manganese | mg/L | 0.0002 | - | Hardness dependent (0.8 -3.8) | 2.46 | - | 1.98 | 1.55 | 3.29 | 3.26 | 3.98 | 4.21 | 4.07 | 2.17 | 1.03 | 1.85 | 1.94 | 3.33 | 2.43 | 1.56 | 2.61 | - | 0.635 | 0.498 | 0.524 | 0.509 |
| Mercury | mg/L | 0.00002 | 0.001 | 0.000001 | <0.00002 | - | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | - | <0.00002 | <0.00002 | <0.00002 | <0.00002 |
| Molybdenum | mg/L | 0.0001 | 10 | 1 | 0.0043 | - | 0.006 | 0.0077 | 0.0038 | 0.0199 | 0.0165 | 0.0159 | 0.0151 | 0.0008 | 0.0011 | 0.0011 | 0.0008 | 0.0048 | 0.0165 | 0.0122 | 0.0113 | - | 0.0001 | 0.0002 | 0.0004 | <0.0001 |
| Nickel | mg/L | 0.0002 | Hardness dependent (0.25 - 1.5) | 0.025 | 0.0009 | - | 0.0009 | 0.001 | 0.0011 | 0.0031 | 0.0032 | 0.0032 | 0.0035 | 0.002 | 0.0004 | 0.0022 | 0.0015 | 0.0059 | 0.0028 | 0.0041 | 0.0049 | - | 0.0032 | 0.0026 | 0.0018 | 0.0027 |
| Phosphorus | mg/L | 0.02 | - | - | 0.03 | - | 0.02 | 0.04 | 0.03 | 0.12 | 0.13 | 0.11 | 0.1 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | - | <0.02 | <0.02 | <0.02 | <0.02 |
| Potassium | mg/L | 0.02 | - | 373 | 11.8 | - | 9.37 | 8.91 | 13.1 | 22.6 | 20.7 | 20.9 | 20.5 | 2.92 | 2.84 | 3.31 | 3.18 | 5.99 | 5.5 | 4.96 | 6.34 | - | 4.5 | 3.65 | 3.95 | 3.99 |
| Selenium | mg/L | 0.0005 | 0.01 | 0.002 | <0.0005 | - | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | - | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| Silicon | mg/L | 0.5 | - | - | 10.2 | - | 9.7 | 9.2 | 11 | 15.7 | 16 | 17 | 14.6 | 7.2 | 7.5 | 8.9 | 7.6 | 11.9 | 10 | 10.9 | 10.9 | - | 9.6 | 9.1 | 10.1 | 9.1 |
| Silver | mg/L | 0.00005 | 0.0005 @ H ≤ 100<br>0.015 @ H > 100 | 0.00005 | <0.00005 | - | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | - | <0.00005 | <0.00005 | <0.00005 | 0.00009 |
| Sodium | mg/L | 0.02 | - | - | 14.9 | - | 11.3 | 8.13 | 22.9 | 36.8 | 35 | 32.6 | 31.9 | 13.9 | 8.78 | 11 | 12.8 | 19.5 | 17.4 | 17 | 26.4 | - | 106 | 87.9 | 69.3 | 82.4 |
| Strontium | mg/L | 0.001 | - | - | 0.281 | - | 0.231 | 0.213 | 0.352 | 0.669 | 0.616 | 0.621 | 0.623 | 0.12 | 0.126 | 0.128 | 0.123 | 0.285 | 0.215 | 0.223 | 0.307 | - | 0.717 | 0.516 | 0.297 | 0.565 |
| Sulfur | mg/L | 1 | - | - | 27 | - | 23 | 22 | 40 | 112 | 117 | 122 | 116 | 8 | 5 | 10 | 10 | 18 | 15 | 12 | 18 | - | 44 | 46 | 46 | 52 |
| Tellurium | mg/L | 0.0002 | - | - | <0.0002 | - | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | - | <0.0002 | <0.0002 | <0.0002 | <0.0002 |
| Thallium | mg/L | 0.00002 | 0.003 | 0.0003 | <0.00002 | - | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | 0.00011 | 0.00006 | 0.00009 | 0.00012 | 0.00003 | <0.00002 | 0.00003 | 0.00005 | - | 0.00005 | 0.00005 | 0.00005 | 0.00005 |
| Thorium | mg/L | 0.0001 | - | - | <0.0001 | - | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | - | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Tin | mg/L | 0.0002 | - | - | <0.0002 | - | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | - | <0.0002 | <0.0002 | <0.0002 | <0.0002 |
| Titanium | mg/L | 0.005 | 1 | 2 | <0.005 | - | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | - | <0.005 | <0.005 | <0.005 | <0.005 |
| Uranium | mg/L | 0.00002 | 3 | 0.3 | 0.00005 | - | 0.00004 | 0.00003 | 0.00007 | 0.00028 | 0.0002 | 0.00019 | 0.00021 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | 0.00015 | 0.00015 | 0.00011 | 0.00021 | - | 0.00004 | 0.00004 | 0.00005 | 0.00003 |
| Vanadium | mg/L | 0.001 | - | - | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 |
| Zinc | mg/L | 0.004 | Hardness dependent (0.075 - 2.4) | 33 + 0.75 (H - 90)<br>(for total metals) | 0.004 | - | 0.006 | 0.014 | <0.004 | 0.009 | 0.01 | 0.004 | <0.004 | 0.006 | 0.007 | 0.01 | 0.006 | 0.018 | 0.007 | 0.007 | 0.008 | - | 0.009 | 0.006 | 0.004 | <0.004 |
| Zirconium | mg/L | 0.0001 | - | - | <0.0001 | - | 0.0002 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | - | <0.0001 | <0.0001 | <0.0001 | <0.0001 |

**Yellow** = exceed standard or exceed standard AND guideline
**Blue** = exceed guideline
Orange = RDL is > guideline or standard

MORRISON HERSHFIELD

# TABLE 8: 2015 GROUNDWATER QUALITY - PETROLEUM HYDROCARBONS

| SAMPLE LOCATION | | | | | MW2S | | | | | MW2D | | | | MW3 | | | | MW4 | | | | | MW6 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID | | | | | MW2S | MW2S-REP | MW2S | MW2S | MW2S | MW2D | MW2D | MW2D | MW2D | MW3 | MW3 | MW3 | MW3 | MW4 | MW4 | MW4 | MW4 | MW4-REP | MW6 | MW6 | MW6 | MW6 |
| SAMPLE DATE | | | | | 7-Apr-15 | 7-Apr-15 | 9-Jul-15 | 2-Oct-15 | 21-Dec-15 | 7-Apr-15 | 9-Jul-15 | 2-Oct-15 | 21-Dec-15 | 7-Apr-15 | 9-Jul-15 | 2-Oct-15 | 21-Dec-15 | 7-Apr-15 | 9-Jul-15 | 2-Oct-15 | 21-Dec-15 | 21-Dec-15 | 7-Apr-15 | 9-Jul-15 | 2-Oct-15 | 21-Dec-15 |
| **MATRIX** | **UNITS** | **MRL** | **BCCSR-SR-Water FAL (ug/L)** | **BC Ambient Water Quality Guidelines (ug/L)** | **Q1** | **Q1** | **Q2** | **Q3** | **Q4** | **Q1** | **Q2** | **Q3** | **Q4** | **Q1** | **Q2** | **Q3** | **Q4** | **Q1** | **Q2** | **Q3** | **Q4** | **Q4** | **Q1** | **Q2** | **Q3** | **Q4** |
| **HYDROCARBONS** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VPHw | ug/L | 100 | 1500 | - | <100 | - | - | <100 | - | <100 | - | <100 | - | <100 | - | <100 | - | <100 | - | <100 | - | - | <100 | - | - | - |
| LEPHw | ug/L | 100 | 500 | - | <100 | - | - | <250 | - | <100 | - | <250 | - | <100 | - | <250 | - | <100 | - | <250 | - | - | <100 | - | - | - |
| HEPHw | ug/L | 100 | - | - | 121 | - | - | <250 | - | <100 | - | <250 | - | <100 | - | <250 | - | <100 | - | 532 | - | - | <100 | - | - | - |
| Total PAH | ug/L | 0.05 | - | - | <0.05 | - | - | - | - | <0.05 | - | - | - | <0.05 | - | - | - | 0.06 | - | - | - | - | <0.05 | - | - | - |
| **PAHs** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Acenaphthene | ug/L | 0.02 | 60 | 6 | <0.02 | - | - | <0.05 | - | <0.02 | - | <0.05 | - | <0.02 | - | <0.05 | - | <0.02 | - | <0.05 | - | - | <0.02 | - | - | - |
| Acenaphthylene | ug/L | 0.02 | - | - | <0.02 | - | - | <0.20 | - | <0.02 | - | <0.20 | - | <0.02 | - | <0.20 | - | <0.02 | - | <0.20 | - | - | <0.02 | - | - | - |
| Acridine | ug/L | 0.05 | 0.5 | 0.05 | <0.05 | - | - | <0.10 | - | <0.05 | - | <0.10 | - | <0.05 | - | <0.10 | - | <0.05 | - | <0.10 | - | - | <0.05 | - | - | - |
| Anthracene | ug/L | 0.01 | 1 | 0.1 | <0.01 | - | - | <0.01 | - | <0.01 | - | <0.01 | - | <0.01 | - | <0.01 | - | <0.01 | - | <0.01 | - | - | <0.01 | - | - | - |
| Benzo (a) anthracene | ug/L | 0.01 | 1 | 0.1 | <0.01 | - | - | <0.01 | - | <0.01 | - | <0.01 | - | <0.01 | - | <0.01 | - | <0.01 | - | <0.01 | - | - | <0.01 | - | - | - |
| Benzo (a) pyrene | ug/L | 0.01 | 0.1 | 0.01 | <0.01 | - | - | <0.01 | - | <0.01 | - | <0.01 | - | <0.01 | - | <0.01 | - | <0.01 | - | <0.01 | - | - | <0.01 | - | - | - |
| Benzo (b) fluoranthene | ug/L | 0.02 | - | - | <0.02 | - | - | <0.05 | - | <0.02 | - | <0.05 | - | <0.02 | - | <0.05 | - | <0.02 | - | <0.05 | - | - | <0.02 | - | - | - |
| Benzo (g,h,i) perylene | ug/L | 0.02 | - | - | <0.02 | - | - | <0.05 | - | <0.02 | - | <0.05 | - | <0.02 | - | <0.05 | - | <0.02 | - | <0.05 | - | - | <0.02 | - | - | - |
| Benzo (k) fluoranthene | ug/L | 0.02 | - | - | <0.02 | - | - | <0.05 | - | <0.02 | - | <0.05 | - | <0.02 | - | <0.05 | - | <0.02 | - | <0.05 | - | - | <0.02 | - | - | - |
| Chrysene | ug/L | 0.02 | 1 | - | <0.02 | - | - | <0.05 | - | <0.02 | - | <0.05 | - | <0.02 | - | <0.05 | - | <0.02 | - | <0.05 | - | - | <0.02 | - | - | - |
| Dibenz (a,h) anthracene | ug/L | 0.02 | - | - | <0.02 | - | - | <0.05 | - | <0.02 | - | <0.05 | - | <0.02 | - | <0.05 | - | <0.02 | - | <0.05 | - | - | <0.02 | - | - | - |
| Fluoranthene | ug/L | 0.02 | 2 | 0.2 | <0.02 | - | - | <0.03 | - | <0.02 | - | <0.03 | - | <0.02 | - | <0.03 | - | <0.02 | - | <0.03 | - | - | <0.02 | - | - | - |
| Fluorene | ug/L | 0.02 | 120 | 12 | <0.02 | - | - | <0.05 | - | <0.02 | - | <0.05 | - | <0.02 | - | <0.05 | - | <0.02 | - | <0.05 | - | - | <0.02 | - | - | - |
| Indeno (1,2,3-cd) pyrene | ug/L | 0.02 | - | - | <0.02 | - | - | <0.05 | - | <0.02 | - | <0.05 | - | <0.02 | - | <0.05 | - | <0.02 | - | <0.05 | - | - | <0.02 | - | - | - |
| Naphthalene | ug/L | 0.05 | 10 | 1 | <0.05 | - | - | <0.20 | - | <0.05 | - | <0.20 | - | <0.05 | - | <0.20 | - | 0.06 | - | <0.20 | - | - | <0.05 | - | - | - |
| Phenanthrene | ug/L | 0.05 | 3 | 0.3 | <0.05 | - | - | <0.10 | - | <0.05 | - | <0.10 | - | <0.05 | - | <0.10 | - | <0.05 | - | <0.10 | - | - | <0.05 | - | - | - |
| Pyrene | ug/L | 0.02 | 0.2 | 0.02 | <0.02 | - | - | <0.02 | - | <0.02 | - | <0.02 | - | <0.02 | - | <0.02 | - | <0.02 | - | <0.02 | - | - | <0.02 | - | - | - |
| Quinoline | ug/L | 0.05 | 34 | 3.4 | <0.05 | - | - | <0.10 | - | <0.05 | - | <0.10 | - | <0.05 | - | <0.10 | - | <0.05 | - | <0.10 | - | - | <0.05 | - | - | - |
| Acetone | ug/L | 10 | - | - | <10.0 | - | - | - | - | <10.0 | - | - | - | <10.0 | - | - | - | <10.0 | - | - | - | - | <10.0 | - | - | - |
| Benzene | ug/L | 0.5 | 4000 | 40 | <0.5 | - | - | <0.5 | - | <0.5 | - | <0.5 | - | <0.5 | - | <0.5 | - | <0.5 | - | <0.10 | - | - | <0.5 | - | - | - |
| Bromodichloromethane | ug/L | 1 | - | - | <1.0 | - | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <0.5 | - | - | <1.0 | - | - | - |
| Bromoform | ug/L | 1 | - | - | <1.0 | - | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | - | <1.0 | - | - | - |
| Bromomethane | ug/L | 2 | - | - | <2.0 | - | - | - | - | <2.0 | - | - | - | <2.0 | - | - | - | <2.0 | - | <1.0 | - | - | <2.0 | - | - | - |
| 2-Butanone (MEK) | ug/L | 5 | - | - | <5.0 | - | - | - | - | <5.0 | - | - | - | <5.0 | - | - | - | <5.0 | - | - | - | - | <5.0 | - | - | - |
| Carbon tetrachloride | ug/L | 1 | 130 | 133 | <1.0 | - | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | - | <1.0 | - | - | - |
| Chlorobenzene | ug/L | 1 | 13 | 1.3 | <1.0 | - | - | <1.0 | - | 1.8 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | - | <1.0 | - | - | - |
| Chloroethane | ug/L | 2 | - | - | <2.0 | - | - | <2.0 | - | <2.0 | - | <2.0 | - | <2.0 | - | <2.0 | - | <2.0 | - | <2.0 | - | - | <2.0 | - | - | - |
| Chloroform | ug/L | 1 | 20 | 1.8 | <1.0 | - | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | - | <1.0 | - | - | - |
| Chloromethane | ug/L | 2 | - | - | <2.0 | - | - | - | - | <2.0 | - | - | - | <2.0 | - | - | - | <2.0 | - | - | - | - | <2.0 | - | - | - |
| Dibromochloromethane | ug/L | 1 | - | - | <1.0 | - | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | - | <1.0 | - | - | - |
| Dibromomethane | ug/L | 1 | - | - | <1.0 | - | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | - | <1.0 | - | - | - |
| 1,2-Dichlorobenzene | ug/L | 0.5 | 7 | 0.7 | <0.5 | - | - | - | - | <0.5 | - | - | - | <0.5 | - | - | - | <0.5 | - | - | - | - | <0.5 | - | - | - |
| 1,3-Dichlorobenzene | ug/L | 1 | 1500 | 150 | <1.0 | - | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | - | <1.0 | - | - | - |
| 1,4-Dichlorobenzene | ug/L | 1 | 260 | - | <1.0 | - | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | - | <1.0 | - | - | - |
| 1,1-Dichloroethane | ug/L | 1 | - | - | <1.0 | - | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | - | <1.0 | - | - | - |
| 1,2-Dichloroethane | ug/L | 1 | 1000 | 100 | <1.0 | - | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | - | <1.0 | - | - | - |
| 1,1-Dichloroethene | ug/L | 1 | - | - | <1.0 | - | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | - | <1.0 | - | - | - |
| cis-1,2-Dichloroethene | ug/L | 1 | - | - | <1.0 | - | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | - | <1.0 | - | - | - |
| trans-1,2-Dichloroethene | ug/L | 1 | - | - | <1.0 | - | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | - | <1.0 | - | - | - |
| 1,2-Dichloropropane | ug/L | 1 | - | - | <1.0 | - | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | - | <1.0 | - | - | - |
| cis-1,3-Dichloropropene | ug/L | 1 | - | - | <1.0 | - | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | - | <1.0 | - | - | - |
| trans-1,3-Dichloropropene | ug/L | 1 | - | - | <1.0 | - | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | - | <1.0 | - | - | - |
| Ethylbenzene | ug/L | 1 | 2000 | 200 | <1.0 | - | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | - | <1.0 | - | - | - |
| Methyl tert-butyl ether | ug/L | 1 | 34000 | 3400 | <1.0 | - | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | - | <1.0 | - | - | - |
| Methylene chloride | ug/L | 3 | 980 | 98.1 | <3.0 | - | - | <3.0 | - | <3.0 | - | <3.0 | - | <3.0 | - | <3.0 | - | <3.0 | - | <3.0 | - | - | <3.0 | - | - | - |
| 4-Methyl-2-Pentanone (MIBK) | ug/L | 10 | - | - | <10.0 | - | - | - | - | <10.0 | - | - | - | <10.0 | - | - | - | <10.0 | - | - | - | - | <10.0 | - | - | - |
| Styrene | ug/L | 1 | 720 | 72 | <1.0 | - | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | - | <1.0 | - | - | - |
| 1,1,1,2-Tetrachloroethane | ug/L | 1 | - | - | <1.0 | - | - | - | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | - | - | - | <1.0 | - | - | - |
| 1,1,2,2-Tetrachloroethane | ug/L | 1 | 1100 | 111 | <1.0 | - | - | <1.0 | - | <1.0 | - | - | - | <1.0 | - | - | - | <1.0 | - | <1.0 | - | - | <1.0 | - | - | - |
| Tetrachloroethene | ug/L | 1 | - | - | <1.0 | - | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | - | <1.0 | - | - | - |
| Toluene | ug/L | 1 | 390 | 0.5 | <1.0 | - | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | - | <1.0 | - | - | - |
| 1,1,1-Trichloroethane | ug/L | 1 | - | 11100 | <1.0 | - | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | - | <1.0 | - | - | - |
| 1,1,2-Trichloroethane | ug/L | 1 | - | - | <1.0 | - | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | - | <1.0 | - | - | - |
| Trichloroethene | ug/L | 1 | 200 | 21 | <1.0 | - | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | - | <1.0 | - | - | - |
| Trichlorofluoromethane | ug/L | 1 | - | - | <1.0 | - | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | - | - | <1.0 | - | - | - |
| Vinyl chloride | ug/L | 2 | - | - | <2.0 | - | - | <2.0 | - | <2.0 | - | <2.0 | - | <2.0 | - | <2.0 | - | <2.0 | - | <2.0 | - | - | <2.0 | - | - | - |
| m,p-Xylene | ug/L | 1 | - | 30 | <1.0 | - | - | - | - | <1.0 | - | - | - | <1.0 | - | - | - | <1.0 | - | - | - | - | <1.0 | - | - | - |
| Xylenes (total) | ug/L | 2 | - | 30 | <1.0 | - | - | <2.0 | - | <1.0 | - | <2.0 | - | <1.0 | - | <2.0 | - | <1.0 | - | <2.0 | - | - | <1.0 | - | - | - |
| o-Xylene | ug/L | 1 | - | 30 | <2.0 | - | - | - | - | <2.0 | - | - | - | <2.0 | - | - | - | <2.0 | - | - | - | - | <2.0 | - | - | - |
| 1,2-Dibromoethane | ug/L | 0.3 | - | - | - | - | - | <0.3 | - | - | - | <0.3 | - | - | - | <0.3 | - | - | - | <0.3 | - | - | - | - | - | - |
| 1,2-Dichlorobenzene | ug/L | 0.5 | 7 | - | - | - | - | <0.5 | - | - | - | <0.5 | - | - | - | <0.5 | - | - | - | <0.5 | - | - | - | - | - | - |

**Yellow =** exceed standard or exceed standard AND guideline
**Blue** = exceed guideline
Orange = RDL is > guideline or standard

MORRISON HERSHFIELD

# TABLE 9: 2015 SURFACE WATER QUALITY GENERAL CHEMISTRY AND METALS

| | SAMPLE LOCATION | | | | SFC 2 | | | | | SFC 2B | | | | SFC 3 | | | | SFC 4B | | | | SFC 11 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SAMPLE ID | | | | SFC 2 | SFC 2 - REP | SFC 2 | SFC2 | SFC 2 | SFC 2B | SFC 2B | SFC2B | SFC 2B | SFC 3 | SFC 3 | SFC3 | SFC 3 | SFC 4B | SFC 4B | SFC4B | SFC 4B | SFC 11 | SFC 11 | SFC11 | SFC 11 |
| | SAMPLE DATE | | | | 7-Apr-15 | 7-Apr-15 | 9-Jul-15 | 2-Oct-15 | 21-Dec-15 | 7-Apr-15 | 9-Jul-15 | 2-Oct-15 | 21-Dec-15 | 7-Apr-15 | 9-Jul-15 | 2-Oct-15 | 21-Dec-15 | 7-Apr-15 | 9-Jul-15 | 2-Oct-15 | 21-Dec-15 | 7-Apr-15 | 9-Jul-15 | 2-Oct-15 | 21-Dec-15 |
| MATRIX | UNITS | MRL | BCCSR-SR-Water FAL (mg/L) | BC Ambient Water Quality Guidelines (mg/L) | Q1 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| **Field Parameters** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Field Conductivity | uS/cm | - | - | - | 204 | 204 | 210 | 361 | 231 | 371 | - | 1862 | 231 | 103 | 93 | 264 | 118 | 182 | 274 | 271 | 142 | 55 | 90 | 78 | 58 |
| Temp | C | - | - | - | 7 | 7 | 9.4 | 9.7 | 7.7 | 11.2 | - | 10.5 | 2 | 6.6 | 8.6 | 9.4 | 4.2 | 6.5 | 11.7 | 9.5 | 3.9 | 5.5 | 7.1 | 8.8 | 4.7 |
| pH | - | - | - | - | 6.41 | 6.41 | 6.57 | 6.5 | 6.13 | 4.99 | - | 3.1 | 4.37 | 6.93 | 6.9 | 6.3 | 6.48 | 7.17 | 6.95 | 7.2 | 6.77 | 7.02 | 6.6 | 6.4 | 6.36 |
| Dissolved Oxygen | mg/L | - | - | - | 9.6 | 9.6 | 6.8 | 7.1 | 7.8 | 7 | - | 2.9 | 5.6 | 12.5 | 9.3 | 8.2 | 10.4 | 12.2 | 8.6 | 88.9 | 10.8 | 12.6 | 8.5 | 9.6 | 10.9 |
| **ANIONS AND GENERAL CHEMISTRY** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Alkalinity as CaCO3 | mg/L | 1 | - | - | 61 | 59 | 67 | 71 | 57 | <1 | - | <1 | <1 | 29 | 32 | 28 | 27 | 35 | 49 | 44 | 31 | 22 | 33 | 30 | 25 |
| Bromide | mg/L | 0.1 | - | - | <0.1 | <0.1 | <0.10 | <0.10 | <0.10 | <0.1 | - | <0.10 | <0.10 | <0.1 | <0.10 | <0.10 | <0.10 | <0.1 | <0.10 | <0.10 | <0.10 | <0.1 | <0.10 | <0.10 | <0.10 |
| Chloride | mg/L | 0.1 | 1500 | 150 | 13.8 | 13.6 | 14.2 | 9.68 | 14.3 | 7.62 | - | 9.06 | 8.19 | 25 | 13.8 | 30.3 | 22.5 | 18 | 35.5 | 15.5 | 14.9 | 4.68 | 13.9 | 5.07 | 5.55 |
| Fluoride | mg/L | 0.01 | 2 | 0.4 | 0.05 | <0.05 | 0.42 | 0.12 | 0.1 | 0.33 | - | 1.05 | 0.4 | <0.05 | 0.34 | 0.31 | <0.05 | 0.05 | 0.57 | <0.05 | 0.05 | <0.05 | 0.23 | <0.05 | <0.05 |
| Nitrite as N | mg/L | 0.001 | 0.2 | 0.06 | 0.002 | 0.002 | <0.005 | <0.005 | <0.010 | 0.01 | - | <0.005 | 0.016 | <0.002 | <0.005 | <0.005 | <0.005 | <0.002 | <0.005 | <0.005 | <0.005 | <0.002 | <0.005 | <0.005 | <0.010 |
| Ammonia as N | mg/L | 0.005 | pH dependent (1.31 - 18.4) | - | 0.416 | 0.453 | 0.7 | 0.332 | 0.492 | 0.784 | - | 1.69 | 0.929 | 0.093 | 0.06 | 0.093 | <0.005 | 0.321 | 0.041 | 0.132 | 0.098 | <0.005 | 0.036 | 0.089 | <0.005 |
| Nitrate+Nitrite as N | mg/L | 0.005 | 400 | - | 0.47 | 0.47 | 0.136 | 0.463 | 0.375 | 3.64 | - | 0.718 | 4.18 | 0.15 | 0.161 | 0.105 | 0.191 | 0.27 | 0.554 | 0.297 | 0.376 | 0.18 | 0.169 | 0.107 | 0.295 |
| Nitrogen Kjeldahl | mg/L | 0.05 | - | - | 0.56 | 0.59 | 0.78 | | | 1.41 | - | | | 0.24 | 0.29 | | | 0.93 | 0.21 | | | 0.13 | 0.1 | | |
| Nitrate as N | mg/L | 0.01 | 400 | 32.8 | 0.46 | 0.47 | 0.136 | 0.463 | 0.375 | 3.62 | - | 0.718 | 4.16 | 0.15 | 0.161 | 0.105 | 0.191 | 0.27 | 0.554 | 0.297 | 0.376 | 0.18 | 0.169 | 0.107 | 0.295 |
| Nitrogen | mg/L | 0.05 | - | - | 1.03 | 1.06 | 0.912 | | | 5.05 | - | | | 0.39 | 0.455 | | | 1.2 | 0.765 | | | 0.32 | 0.27 | | |
| Sulfate | mg/L | 1 | 1000 | 50 (warning level)<br>100 (maximum) | 68.9 | 69.1 | 52.8 | 78.9 | 78.7 | 240 | - | 1190 | 380 | 26.9 | 13.1 | 47.6 | 28.5 | 66.6 | 49.7 | 53.9 | 54.4 | 11.1 | 14.3 | 13.7 | 12.7 |
| Chemical Oxygen Demand | mg/L | 5 | - | - | <5 | <5 | 11 | <20 | <20 | 13 | - | 43 | <20 | <5 | 9 | 23 | <20 | <5 | 6 | <20 | <20 | <5 | <5 | <20 | <20 |
| Solids Suspended | mg/L | 2 | - | - | 9 | 8 | 10 | 18 | 27 | 52 | - | 131 | 42 | <2 | 7 | 45 | <2 | 2 | 2 | <4 | 3 | <2 | <2 | <4 | <2 |
| pH | pH units | 0.01 | - | 9 | 6.73 | 6.77 | 6.91 | 6.6 | 6.52 | 4.81 | - | 2.9 | 4.48 | 7.19 | 7.1 | 6.6 | 6.74 | 7.36 | 7.46 | 7.2 | 7.11 | 7.15 | 6.84 | 6.97 | 6.67 |
| Conductivity (EC) | uS/cm | 2 | - | - | 309 | 307 | 287 | 351 | 346 | 501 | - | 1830 | 649 | 201 | 131 | 254 | 200 | 278 | 363 | 260 | 242 | 86 | 137 | 110 | 100 |
| Hardness (Diss. as CaCO3) | mg/L | 0.5 | - | - | 109 | 108 | 109 | 150 | 131 | 188 | - | 443 | 223 | 41.5 | 47.2 | 57.8 | 46.6 | 95.5 | <0.5 | 92.6 | 86 | 27.3 | 47.4 | 38 | 34.6 |
| **TOTAL METALS** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | mg/L | 0.005 | - | Maximum<br>0.1 (pH ≥ 6.5) | 1.04 | 1.16 | 0.096 | 1.32 | 1.79 | 6.38 | - | 55 | 11.1 | 0.055 | 0.046 | 0.909 | 0.056 | 0.314 | <0.005 | 0.113 | 0.484 | 0.123 | 0.03 | 0.172 | 0.152 |
| Antimony | mg/L | 0.0001 | 0.2 | 0.02 | 0.0001 | 0.0001 | <0.0001 | 0.0002 | 0.0004 | <0.0001 | - | <0.0001 | 0.0001 | 0.0001 | <0.0001 | <0.0001 | 0.0002 | <0.0001 | <0.0001 | <0.0001 | 0.0002 | <0.0001 | <0.0001 | <0.0001 | 0.0001 |
| Arsenic | mg/L | 0.0005 | 0.05 | 0.005 (for total metals) | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | 0.0007 | - | 0.0041 | 0.0014 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| Barium | mg/L | 0.005 | 10 | 1 | 0.044 | 0.043 | 0.059 | 0.06 | 0.052 | 0.039 | - | 0.029 | 0.035 | 0.019 | 0.012 | 0.033 | 0.02 | 0.027 | <0.005 | 0.026 | 0.023 | 0.008 | 0.011 | 0.013 | 0.01 |
| Beryllium | mg/L | 0.0001 | 0.053 | - | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.0003 | - | 0.0015 | 0.0003 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Bismuth | mg/L | 0.0001 | - | - | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | - | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Boron | mg/L | 0.004 | 50 | 1.2 | 0.047 | 0.04 | 0.055 | 0.031 | 0.038 | 0.048 | - | 0.038 | 0.041 | 0.017 | 0.012 | 0.012 | 0.01 | 0.045 | <0.004 | 0.025 | 0.027 | 0.011 | 0.012 | 0.008 | 0.008 |
| Cadmium | mg/L | 0.00001 | Hardness dependent<br>(0.0001 - 0.0006) | Hardness dependent (0.01 - 0.06) | 0.00006 | 0.00008 | 0.00008 | 0.00008 | 0.0001 | 0.0004 | - | 0.00216 | 0.00058 | 0.00002 | 0.00001 | 0.00006 | 0.00002 | 0.00005 | <0.00001 | 0.00005 | 0.00004 | 0.00002 | 0.00004 | 0.00002 | 0.00002 |
| Calcium | mg/L | 0.2 | - | - | 37.4 | 37.2 | 37.1 | 51.4 | 44.4 | 59.6 | - | 120 | 68.7 | 13.8 | 15.2 | 18.6 | 15.5 | 31.9 | <0.2 | 30.7 | 28.6 | 8.6 | 15.3 | 11.7 | 10.8 |
| Chromium | mg/L | 0.0005 | 0.01 | 0.001 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | 0.0006 | 0.0015 | - | 0.0088 | 0.0026 | 0.0007 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| Cobalt | mg/L | 0.00005 | 0.04 | 0.11 (for total metals) | 0.00661 | 0.00652 | 0.00698 | 0.00898 | 0.0105 | 0.0402 | - | 0.275 | 0.0618 | 0.0003 | 0.00095 | 0.00223 | 0.00026 | 0.00328 | <0.00005 | 0.00161 | 0.00291 | 0.00008 | <0.00005 | 0.00014 | 0.00006 |
| Copper | mg/L | 0.0002 | Hardness dependent (0.02 - 0.09) | 0.094(H) + 2 (in µg/L)<br>(for total metals) | 0.0221 | 0.0239 | 0.0034 | 0.0217 | 0.0347 | 0.161 | - | 1.07 | 0.237 | 0.0025 | 0.0007 | 0.0221 | 0.0024 | 0.0058 | <0.0002 | 0.0034 | 0.0084 | 0.0013 | 0.0005 | 0.0016 | 0.0016 |
| Iron | mg/L | 0.01 | - | 0.35 | 2.99 | 3.22 | 4.49 | 2.67 | 4.86 | 18.9 | - | 130 | 29.5 | 0.09 | 0.73 | 4.69 | 0.14 | 1.51 | <0.01 | 0.24 | 1.01 | 0.07 | 0.04 | 0.17 | 0.08 |
| Lead | mg/L | 0.0001 | Hardness dependent (0.04 - 0.16) | 0.003 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | - | 0.0003 | <0.0001 | <0.0001 | <0.0001 | 0.0002 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.0001 |
| Lithium | mg/L | 0.0001 | - | 0.014 | 0.0005 | 0.0005 | 0.0002 | 0.0005 | 0.0006 | 0.0033 | - | 0.0166 | 0.0039 | 0.0004 | 0.0006 | 0.0005 | 0.0002 | 0.0005 | 0.0006 | 0.0004 | 0.0004 | 0.0005 | 0.0007 | 0.0005 | 0.0004 |
| Magnesium | mg/L | 0.01 | - | - | 3.7 | 3.68 | 3.86 | 5.27 | 4.94 | 9.44 | - | 34.9 | 12.3 | 1.72 | 2.21 | 2.72 | 1.9 | 3.84 | <0.01 | 3.87 | 3.54 | 1.43 | 2.21 | 2.11 | 1.82 |
| Manganese | mg/L | 0.0002 | - | Hardness dependent (0.8 -3.8) | 0.679 | 0.671 | 2.11 | 0.794 | 1.11 | 2.05 | - | 7.35 | 3.36 | 0.0108 | 0.125 | 0.147 | 0.0133 | 0.524 | <0.0002 | 0.241 | 0.367 | 0.0022 | 0.0049 | 0.0147 | 0.0029 |
| Mercury | mg/L | 0.00002 | 0.001 | 0.000001 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | - | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 |
| Molybdenum | mg/L | 0.0001 | 10 | 1 | 0.0042 | 0.0043 | 0.0026 | 0.0034 | 0.0037 | 0.0003 | - | 0.0003 | 0.0003 | 0.0006 | 0.0003 | 0.0006 | 0.0004 | 0.0013 | <0.0001 | 0.0009 | 0.0009 | 0.0003 | 0.0003 | 0.0003 | 0.0004 |
| Nickel | mg/L | 0.0002 | Hardness dependent (0.25 - 1.5) | 0.025 | 0.0025 | 0.0026 | 0.0014 | 0.0038 | 0.0047 | 0.0185 | - | 0.123 | 0.0291 | 0.0006 | 0.0002 | 0.0014 | 0.0004 | 0.0017 | <0.0002 | 0.0011 | 0.0019 | <0.0002 | 0.0002 | <0.0002 | <0.0002 |
| Phosphorus | mg/L | 0.02 | - | - | 0.036 | <0.020 | <0.02 | 0.02 | <0.02 | 0.103 | - | 0.29 | 0.13 | <0.020 | <0.02 | 0.06 | <0.02 | <0.020 | <0.02 | <0.02 | <0.02 | 0.026 | <0.02 | <0.02 | <0.02 |
| Potassium | mg/L | 0.02 | - | 373 | 3.56 | 3.56 | 3.59 | 5.27 | 4.63 | 4.63 | - | 5.06 | 5.49 | 1.41 | 0.7 | 2.31 | 1.49 | 2.28 | <0.02 | 2.75 | 2.23 | 0.57 | 0.63 | 1.01 | 0.76 |
| Selenium | mg/L | 0.0005 | 0.01 | 0.002 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | 0.0022 | - | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| Silicon | mg/L | 0.5 | - | - | 4.3 | 4.5 | 5.3 | 6 | 5.3 | 7.7 | - | 24.8 | 9.5 | 6.1 | 10.8 | 9.2 | 6.6 | 6.3 | <0.5 | 8.3 | 6.7 | 7 | 10.9 | 10.7 | 8.8 |
| Silver | mg/L | 0.00005 | 0.0005 @ H ≤ 100<br>0.015 @ H > 100 | 0.00005 | 0.00011 | 0.00007 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | - | <0.00005 | <0.00005 | 0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Sodium | mg/L | 0.02 | - | - | 14.2 | 14.1 | 12.8 | 16.4 | 16.1 | 10.9 | - | 15.6 | 11.5 | 21.6 | 7.96 | 27 | 19.8 | 14.2 | <0.02 | 15.4 | 12.3 | 5.49 | 8.04 | 7.55 | 6.38 |
| Strontium | mg/L | 0.001 | - | - | 0.206 | 0.204 | 0.253 | 0.296 | 0.255 | 0.239 | - | 0.444 | 0.264 | 0.111 | 0.188 | 0.18 | 0.12 | 0.237 | <0.001 | 0.287 | 0.22 | 0.092 | 0.194 | 0.149 | 0.125 |
| Sulfur | mg/L | 1 | - | - | 20 | 22 | 19 | 31 | 31 | 69 | - | 360 | 99 | 6 | <1 | 10 | 9 | 22 | <1 | 17 | 19 | 2 | 2 | 2 | 5 |
| Tellurium | mg/L | 0.0002 | - | - | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | - | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 |
| Thallium | mg/L | 0.00002 | 0.003 | 0.0003 | <0.00002 | <0.00002 | 0.00002 | <0.00002 | <0.00002 | <0.00002 | - | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 |
| Thorium | mg/L | 0.0001 | - | - | <0.0001 | 0.0001 | <0.0001 | <0.0001 | 0.0002 | 0.0011 | - | 0.0091 | 0.0018 | <0.0001 | <0.0001 | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Tin | mg/L | 0.0002 | - | - | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | - | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 |
| Titanium | mg/L | 0.005 | 1 | 2 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | - | <0.005 | <0.005 | <0.005 | <0.005 | 0.013 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | 0.005 | <0.005 |
| Uranium | mg/L | 0.00002 | 3 | 0.3 | 0.00009 | 0.0001 | <0.00002 | 0.00012 | 0.00012 | 0.00045 | - | 0.00337 | 0.00066 | <0.00002 | <0.00002 | 0.00007 | <0.00002 | 0.00002 | <0.00002 | 0.00002 | 0.00003 | <0.00002 | <0.00002 | <0.00002 | <0.00002 |
| Vanadium | mg/L | 0.001 | - | | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | - | 0.002 | <0.001 | <0.001 | <0.001 | 0.002 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.001 | <0.001 |
| Zinc | mg/L | 0.004 | Hardness dependent (0.075 - 2.4) | 33 + 0.75 (H - 90)<br>(for total metals) | 0.009 | 0.01 | <0.004 | 0.018 | 0.016 | 0.045 | - | 0.259 | 0.079 | 0.004 | <0.004 | 0.011 | <0.004 | 0.007 | <0.004 | 0.004 | 0.007 | <0.004 | <0.004 | 0.004 | <0.004 |
| Zirconium | mg/L | 0.0001 | - | - | <0.0001 | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | - | 0.0005 | <0.0001 | <0.0001 | <0.0001 | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.0005 | 0.0001 | 0.0001 |

**Yellow =** exceed standard or exceed standard AND guideline
**Blue** = exceed guideline
**Orange =** RDL is > guideline or standard

MORRISON HERSHFIELD

# TABLE 10: 2015 Leachate Manhole / GW Interceptor WATER QUALITY - GENERAL CHEMISTRY AND METALS

| | SAMPLE LOCATION | | | | LEACHATE MANHOLE | | | | GW INTERCEPTOR | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SAMPLE ID | | | | Leachate Manhole | Leachate Manhole | Leachate Manhole | Leachate Manhole | GW Interceptor | GW Interceptor | GW INT | GW INT-DUP | GW.INT |
| | SAMPLE DATE | | | | 7-Apr-15 | 9-Jul-15 | 2-Oct-15 | 21-Dec-15 | 7-Apr-15 | 9-Jul-15 | 2-Oct-15 | 2-Oct-15 | 21-Dec-15 |
| MATRIX | UNITS | MRL | BCCSR-SR-Water FAL (mg/L) | BC Ambient Water Quality Guidelines (mg/L) | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q3 | Q4 |
| **Field Parameters** | | | | | | | | | | | | | |
| Field Conductivity | uS/cm | - | - | - | 283.9 | - | 22.3 | - | 693 | 835 | 843 | 843 | 783 |
| Temp | C | - | - | - | 8.4 | - | 12.5 | - | 8.4 | 11.4 | 9.6 | 9.6 | 8.3 |
| pH | - | - | - | - | 6.15 | - | 6.23 | - | 6.22 | 6.5 | 6.17 | 6.18 | 6.16 |
| Dissolved Oxygen | mg/L | - | - | - | 5.03 | - | 3.8 | - | 2.69 | 0.72 | 3.04 | 3.05 | 2.26 |
| | | | | | | | | | | | | | |
| Alkalinity as CaCO3 | mg/L | 1 | - | - | 458 | - | 164 | - | 130 | 287 | 124 | 126 | 159 |
| Bromide | mg/L | 0.1 | - | - | <0.1 | - | <0.10 | - | <0.1 | <0.10 | <0.10 | <0.10 | <0.10 |
| Chloride | mg/L | 0.1 | 1500 | 150 | 66.8 | - | 5.25 | - | 58.7 | 88.3 | 37 | 36.3 | 55.7 |
| Fluoride | mg/L | 0.01 | 2 | 0.4 | 0.06 | - | 0.16 | - | 0.09 | 0.53 | 0.14 | 0.18 | 0.11 |
| Nitrite as N | mg/L | 0.001 | 0.2 | 0.06 | 0.02 | - | 0.007 | - | <0.002 | 0.027 | <0.005 | <0.005 | <0.005 |
| Ammonia as N | mg/L | 0.005 | pH dependent (1.31 - 18.4) | - | 0.118 | - | 1.42 | - | 1.63 | 22.9 | 1.27 | 1.28 | 2.11 |
| Nitrate+Nitrite as N | mg/L | 0.005 | 400 | - | 6.64 | - | 20.3 | - | 0.04 | 0.299 | 0.016 | 0.014 | 0.013 |
| Nitrogen Kjeldahl | mg/L | 0.05 | - | - | 1.29 | - | | - | 1.71 | 22.9 | | | |
| Nitrate as N | mg/L | 0.01 | 400 | 32.8 | 6.62 | - | 20.3 | - | 0.04 | 0.272 | 0.16 | 0.014 | <0.010 |
| Nitrogen | mg/L | 0.05 | - | - | 7.93 | - | | - | 1.75 | 23.2 | | | |
| Sulfate | mg/L | 1 | 1000 | 50 (warning level)<br>100 (maximum) | 70.7 | - | 189 | - | 332 | 133 | 215 | 208 | 393 |
| Chemical Oxygen Demand | mg/L | 5 | - | - | 31 | - | 30 | - | 14 | 30 | 39 | <20 | <20 |
| Solids Suspended | mg/L | 2 | - | - | 7 | - | 12 | - | 7 | 49 | 35 | 50 | 60 |
| pH | pH units | 0.01 | - | 9 | 7.22 | - | 6.31 | - | 6.61 | 6.98 | 6.17 | 6.1 | 6.18 |
| Conductivity (EC) | uS/cm | 2 | - | | 1270 | - | 779 | - | 987 | 1090 | 773 | 763 | 1170 |
| Hardness (Diss. as CaCO3) | mg/L | 0.5 | - | - | 184 | - | 395 | - | 395 | 278 | 315 | 317 | 455 |
| **DISSOLVED METALS** | | | | | | | | | | | | | |
| Aluminum | mg/L | 0.005 | - | Maximum<br>0.1 (pH ≥ 6.5) | - | - | 0.02 | - | - | 0.01 | <0.005 | <0.005 | 0.089 |
| Antimony | mg/L | 0.0001 | 0.2 | 0.02 | - | - | 0.0002 | - | - | 0.0005 | <0.0001 | <0.0001 | 0.0003 |
| Arsenic | mg/L | 0.0005 | 0.05 | 0.005 (for total metals) | - | - | <0.0005 | - | - | <0.0005 | <0.0005 | <0.0005 | 0.0007 |
| Barium | mg/L | 0.005 | 10 | 1 | - | - | 0.069 | - | - | 0.086 | 0.086 | 0.087 | 0.125 |
| Beryllium | mg/L | 0.0001 | 0.053 | - | - | - | <0.0001 | - | - | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Bismuth | mg/L | 0.0001 | - | - | - | - | <0.0001 | - | - | 0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Boron | mg/L | 0.004 | 50 | 1.2 | - | - | 0.066 | - | - | 0.543 | 0.203 | 0.207 | 0.255 |
| Cadmium | mg/L | 0.00001 | Hardness dependent (0.0001 - 0.0006) | Hardness dependent (0.01 - 0.06) | - | - | 0.00012 | - | - | 0.00006 | 0.00002 | 0.00003 | 0.00001 |
| Calcium | mg/L | 0.2 | - | - | - | - | 137 | - | - | 89.7 | 105 | 106 | 154 |
| Chromium | mg/L | 0.0005 | 0.01 | 0.001 | - | - | <0.0005 | - | - | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| Cobalt | mg/L | 0.00005 | 0.04 | 0.11 (for total metals) | - | - | 0.00086 | - | - | 0.00739 | 0.00747 | 0.0074 | 0.0107 |
| Copper | mg/L | 0.0002 | Hardness dependent (0.02 - 0.09) | 0.094(H) + 2 (in µg/L)<br>(for total metals) | - | - | 0.034 | - | - | 0.0151 | 0.017 | 0.0259 | 0.0009 |
| Iron | mg/L | 0.01 | - | 0.35 | - | - | 0.024 | - | - | 6.75 | 12.8 | 14.2 | 35.9 |
| Lead | mg/L | 0.0001 | Hardness dependent (0.04 - 0.16) | 0.003 | - | - | <0.0001 | - | - | 0.0003 | <0.0001 | 0.0002 | 0.0002 |
| Lithium | mg/L | 0.0001 | - | 0.014 | - | - | 0.0005 | - | - | 0.0005 | 0.0003 | 0.0003 | 0.0004 |
| Magnesium | mg/L | 0.01 | - | - | - | - | 13 | - | - | 13.1 | 12.8 | 12.7 | 16.8 |
| Manganese | mg/L | 0.0002 | - | Hardness dependent (0.8 -3.8) | - | - | 0.446 | - | - | 2.78 | 3.69 | 3.64 | 4.24 |
| Mercury | mg/L | 0.00002 | 0.001 | 0.000001 | - | - | <0.00002 | - | - | <0.00002 | <0.00002 | 0.00009 | <0.00002 |
| Molybdenum | mg/L | 0.0001 | 10 | 1 | - | - | 0.0008 | - | - | 0.001 | 0.0001 | 0.0001 | 0.0004 |

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# TABLE 10: 2015 Leachate Manhole / GW Interceptor WATER QUALITY - GENERAL CHEMISTRY AND METALS

| SAMPLE LOCATION | | | | | LEACHATE MANHOLE | | | | GW INTERCEPTOR | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID | | | | | Leachate Manhole | Leachate Manhole | Leachate Manhole | Leachate Manhole | GW Interceptor | GW Interceptor | GW INT | GW INT-DUP | GW.INT |
| SAMPLE DATE | | | | | 7-Apr-15 | 9-Jul-15 | 2-Oct-15 | 21-Dec-15 | 7-Apr-15 | 9-Jul-15 | 2-Oct-15 | 2-Oct-15 | 21-Dec-15 |
| MATRIX | UNITS | MRL | BCCSR-SR-Water FAL (mg/L) | BC Ambient Water Quality Guidelines (mg/L) | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q3 | Q4 |
| Nickel | mg/L | 0.0002 | Hardness dependent (0.25 - 1.5) | 0.025 | - | - | 0.0029 | - | - | 0.0059 | 0.0039 | 0.0038 | 0.0058 |
| Phosphorus | mg/L | 0.02 | - | - | - | - | 0.15 | - | - | <0.02 | <0.02 | <0.02 | 0.03 |
| Potassium | mg/L | 0.02 | - | 373 | - | - | 6.74 | - | - | 23 | 6.84 | 6.87 | 8.76 |
| Selenium | mg/L | 0.0005 | 0.01 | 0.002 | - | - | <0.0005 | - | - | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| Silicon | mg/L | 0.5 | - | - | - | - | 14 | - | - | 9.2 | 11.2 | 11.1 | 10.8 |
| Silver | mg/L | 0.00005 | 0.0005 @ H ≤ 100<br>0.015 @ H > 100 | 0.00005 | - | - | <0.00005 | - | - | 0.0003 | 0.00029 | 0.0011 | <0.00005 |
| Sodium | mg/L | 0.02 | - | - | - | - | 20.4 | - | - | 79.1 | 38.1 | 37.5 | 45.9 |
| Strontium | mg/L | 0.001 | - | - | - | - | 0.539 | - | - | 0.603 | 0.729 | 0.737 | 1.05 |
| Sulfur | mg/L | 1 | - | - | - | - | 69 | - | - | 43 | 82 | 81 | 133 |
| Tellurium | mg/L | 0.0002 | - | - | - | - | <0.0002 | - | - | <0.0002 | <0.0002 | <0.0002 | <0.0002 |
| Thallium | mg/L | 0.00002 | 0.003 | 0.0003 | - | - | <0.00002 | - | - | <0.00002 | <0.00002 | <0.00002 | <0.00002 |
| Thorium | mg/L | 0.0001 | - | - | - | - | <0.0001 | - | - | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Tin | mg/L | 0.0002 | - | - | - | - | <0.0002 | - | - | <0.0002 | 0.0003 | 0.0017 | <0.0002 |
| Titanium | mg/L | 0.005 | 1 | 2 | - | - | <0.005 | - | - | <0.005 | <0.005 | <0.005 | <0.005 |
| Uranium | mg/L | 0.00002 | 3 | 0.3 | - | - | 0.00007 | - | - | 0.00007 | <0.00002 | <0.00002 | 0.00003 |
| Vanadium | mg/L | 0.001 | - | - | - | - | <0.001 | - | - | <0.001 | <0.001 | <0.001 | <0.001 |
| Zinc | mg/L | 0.004 | Hardness dependent (0.075 - 2.4) | 33 + 0.75 (H - 90)<br>(for total metals) | - | - | 0.03 | - | - | 0.075 | 0.041 | 0.041 | 0.42 |
| Zirconium | mg/L | 0.0001 | - | - | - | - | 0.0001 | - | - | 0.0001 | <0.0001 | <0.0001 | 0.0001 |

**Yellow =** exceed standard or exceed standard AND guideline

**Blue =** exceed guideline

**Orange =** RDL is > guideline or standard

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# TABLE 11: 2015 Leachate Manhole / GW Interceptor WATER QUALITY - PETROLEUM HYDROCARBONS

| | SAMPLE LOCATION | | | LEACHATE MANHOLE | | | | GW INTERCEPTOR | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SAMPLE ID | | | Leachate Manhole | Leachate Manhole | LM | Leachate Manhole | GW Interceptor | GW Interceptor | GW.INT | GW.INT-DUP | GW Interceptor |
| | SAMPLE DATE | | | 7-Apr-15 | 9-Jul-15 | 2-Oct-15 | 21-Dec-15 | 7-Apr-15 | 9-Jul-15 | 2-Oct-15 | 2-Oct-15 | 21-Dec-15 |
| MATRIX | UNITS | MRL | BCCSR-SR-Water FAL (ug/L) | BC Ambient Water Quality Guidelines (ug/L) | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q3 | Q4 |
| **HYDROCARBONS** | | | | | | | | | | | | | |
| VPHw | ug/L | 100 | 1500 | - | <100 | - | <100 | - | <100 | - | <100 | <100 | <100 |
| LEPHw | ug/L | 100 | 500 | - | <100 | - | <250 | - | <100 | - | <250 | 374 | <250 |
| HEPHw | ug/L | 100 | - | - | 109 | - | <250 | - | <100 | - | <250 | 467 | <250 |
| Total PAH | ug/L | 0.05 | - | - | <0.05 | - | - | - | 1.27 | - | - | - | - |
| VHw (6-10) | ug/L | 100 | 15000 | - | <100 | - | <100 | - | <100 | - | <100 | <100 | <100 |
| EPHw (10-19) | ug/L | 100 | 5000 | - | <100 | - | <250 | - | <100 | - | <250 | 376 | <250 |
| EPHw (19-32) | ug/L | 100 | - | - | 109 | - | <250 | - | <100 | - | <250 | 467 | <250 |
| **PAHs** | | | | | | | | | | | | | |
| Acenaphthene | ug/L | 0.02 | 60 | 6 | <0.02 | - | <0.05 | - | 0.71 | - | 0.89 | 1.08 | 0.91 |
| Acenaphthylene | ug/L | 0.02 | - | - | <0.02 | - | <0.20 | - | <0.02 | - | <0.20 | <0.20 | <0.20 |
| Acridine | ug/L | 0.05 | 0.5 | 0.05 | <0.05 | - | <0.10 | - | <0.05 | - | <0.10 | <0.10 | <0.10 |
| Anthracene | ug/L | 0.01 | 1 | 0.1 | <0.01 | - | <0.01 | - | 0.03 | - | 0.04 | 0.05 | 0.04 |
| Benzo (a) anthracene | ug/L | 0.01 | 1 | 0.1 | <0.01 | - | <0.01 | - | <0.01 | - | <0.01 | <0.01 | <0.01 |
| Benzo (a) pyrene | ug/L | 0.01 | 0.1 | 0.01 | <0.01 | - | <0.01 | - | <0.01 | - | <0.01 | <0.01 | <0.01 |
| Benzo (b) fluoranthene | ug/L | 0.02 | - | - | <0.02 | - | <0.05 | - | <0.02 | - | <0.05 | <0.05 | <0.05 |
| Benzo (g,h,i) perylene | ug/L | 0.02 | - | - | <0.02 | - | <0.05 | - | <0.02 | - | <0.05 | <0.05 | <0.05 |
| Benzo (k) fluoranthene | ug/L | 0.02 | - | - | <0.02 | - | <0.05 | - | <0.02 | - | <0.05 | <0.05 | <0.05 |
| Chrysene | ug/L | 0.02 | 1 | - | <0.02 | - | <0.05 | - | <0.02 | - | <0.05 | <0.05 | <0.05 |
| Dibenz (a,h) anthracene | ug/L | 0.02 | - | - | <0.02 | - | <0.05 | - | <0.02 | - | <0.05 | <0.05 | <0.05 |
| Fluoranthene | ug/L | 0.02 | 2 | 0.2 | <0.02 | - | <0.03 | - | 0.16 | - | 0.2 | 0.26 | 0.16 |
| Fluorene | ug/L | 0.02 | 120 | 12 | <0.02 | - | <0.05 | - | 0.28 | - | 0.28 | 0.34 | 0.32 |
| Indeno (1,2,3-cd) pyrene | ug/L | 0.02 | - | - | <0.02 | - | <0.05 | - | <0.02 | - | <0.05 | <0.05 | <0.05 |
| Naphthalene | ug/L | 0.05 | 10 | 1 | <0.05 | - | <0.20 | - | <0.05 | - | <0.20 | <0.20 | <0.20 |
| Phenanthrene | ug/L | 0.05 | 3 | 0.3 | <0.05 | - | <0.10 | - | <0.05 | - | <0.10 | <0.10 | <0.10 |
| Pyrene | ug/L | 0.02 | 0.2 | 0.02 | <0.02 | - | <0.02 | - | 0.09 | - | 0.1 | 0.13 | 0.09 |
| Quinoline | ug/L | 0.05 | 34 | 3.4 | <0.05 | - | <0.10 | - | <0.05 | - | <0.10 | <0.10 | <0.10 |
| Acetone | ug/L | 10 | - | - | <10.0 | - | - | - | <10.0 | - | - | - | <10.0 |
| Benzene | ug/L | 0.5 | 4000 | 40 | <0.5 | - | <0.5 | - | <0.5 | - | <0.5 | <0.5 | <0.5 |
| Bromodichloromethane | ug/L | 1 | - | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | <1.0 | <1.0 |
| Bromoform | ug/L | 1 | - | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | <1.0 | <1.0 |
| Bromomethane | ug/L | 2 | - | - | <2.0 | - | - | - | <2.0 | - | - | - | <2.0 |
| 2-Butanone (MEK) | ug/L | 5 | - | - | <5.0 | - | - | - | <5.0 | - | - | - | <5.0 |
| Carbon tetrachloride | ug/L | 1 | 130 | 133 | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | <1.0 | <1.0 |
| Chlorobenzene | ug/L | 1 | 13 | 1.3 | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | <1.0 | <1.0 |
| Chloroethane | ug/L | 2 | - | - | <2.0 | - | <2.0 | - | <2.0 | - | <2.0 | <2.0 | <2.0 |
| Chloroform | ug/L | 1 | 20 | 1.8 | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | <1.0 | <1.0 |
| Chloromethane | ug/L | 2 | - | - | <2.0 | - | - | - | <2.0 | - | - | - | <2.0 |
| Dibromochloromethane | ug/L | 1 | - | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | <1.0 | <1.0 |
| Dibromomethane | ug/L | 1 | - | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | <1.0 | <1.0 |
| 1,2-Dichlorobenzene | ug/L | 0.5 | 7 | 0.7 | <0.5 | - | - | - | <0.5 | - | - | - | - |
| 1,3-Dichlorobenzene | ug/L | 1 | 1500 | 150 | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | <1.0 | <1.0 |
| 1,4-Dichlorobenzene | ug/L | 1 | 260 | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | <1.0 | <1.0 |
| 1,1-Dichloroethane | ug/L | 1 | - | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | <1.0 | <1.0 |
| 1,2-Dichloroethane | ug/L | 1 | 1000 | 100 | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | <1.0 | <1.0 |
| 1,1-Dichloroethene | ug/L | 1 | - | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | <1.0 | <1.0 |
| cis-1,2-Dichloroethene | ug/L | 1 | - | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | <1.0 | <1.0 |
| trans-1,2-Dichloroethene | ug/L | 1 | - | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | <1.0 | <1.0 |

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# TABLE 11: 2015 Leachate Manhole / GW Interceptor WATER QUALITY - PETROLEUM HYDROCARBONS

| SAMPLE LOCATION | | | | | LEACHATE MANHOLE | | | | GW INTERCEPTOR | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID | | | | | Leachate Manhole | Leachate Manhole | LM | Leachate Manhole | GW Interceptor | GW Interceptor | GW.INT | GW.INT-DUP | GW Interceptor |
| SAMPLE DATE | | | | | 7-Apr-15 | 9-Jul-15 | 2-Oct-15 | 21-Dec-15 | 7-Apr-15 | 9-Jul-15 | 2-Oct-15 | 2-Oct-15 | 21-Dec-15 |
| MATRIX | UNITS | MRL | BCCSR-SR-Water FAL (ug/L) | BC Ambient Water Quality Guidelines (ug/L) | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q3 | Q4 |
| 1,2-Dichloropropane | ug/L | 1 | - | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | <1.0 | <1.0 |
| cis-1,3-Dichloropropene | ug/L | 1 | - | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | <1.0 | <1.0 |
| trans-1,3-Dichloropropene | ug/L | 1 | - | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | <1.0 | <1.0 |
| Ethylbenzene | ug/L | 1 | 2000 | 200 | <1.0 | - | <1.0 | - | <1.0 | | <1.0 | <1.0 | <1.0 |
| Methyl tert-butyl ether | ug/L | 1 | 34000 | 3400 | <1.0 | - | <1.0 | - | <1.0 | | <1.0 | <1.0 | <1.0 |
| Methylene chloride | ug/L | 3 | 980 | 98.1 | <3.0 | - | <3.0 | - | <3.0 | - | <3.0 | <3.0 | <3.0 |
| 4-Methyl-2-Pentanone (MIBK) | ug/L | 10 | - | - | <10.0 | - | | - | <10.0 | | - | - | <10.0 |
| Styrene | ug/L | 1 | 720 | 72 | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | <1.0 | <1.0 |
| 1,1,1,2-Tetrachloroethane | ug/L | 1 | - | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | <1.0 | <1.0 |
| 1,1,2,2-Tetrachloroethane | ug/L | 1 | 1100 | 111 | <1.0 | - | | - | <1.0 | - | - | - | <1.0 |
| Tetrachloroethene | ug/L | 1 | - | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | <1.0 | <1.0 |
| Toluene | ug/L | 1 | 390 | 0.5 | <1.0 | - | <1.0 | - | <1.0 | | <1.0 | <1.0 | <1.0 |
| 1,1,1-Trichloroethane | ug/L | 1 | - | 11100 | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | <1.0 | <1.0 |
| 1,1,2-Trichloroethane | ug/L | 1 | - | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | <1.0 | <1.0 |
| Trichloroethene | ug/L | 1 | 200 | 21 | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | <1.0 | <1.0 |
| Trichlorofluoromethane | ug/L | 1 | - | - | <1.0 | - | <1.0 | - | <1.0 | - | <1.0 | <1.0 | <1.0 |
| Vinyl chloride | ug/L | 2 | - | - | <2.0 | - | <2.0 | - | <2.0 | - | <2.0 | <2.0 | <2.0 |
| m,p-Xylene | ug/L | 1 | - | 30 | <1.0 | - | - | - | <1.0 | - | - | - | <1.0 |
| Xylenes (total) | ug/L | 2 | - | 30 | <2.0 | - | <2.0 | - | <2.0 | | <2.0 | <2.0 | <2.0 |
| o-Xylene | ug/L | 1 | - | 30 | <1.0 | - | - | - | <1.0 | - | - | - | <1.0 |
| 1,2-Dibromoethane | ug/L | 0.3 | - | - | - | - | <0.3 | - | - | - | <0.3 | <0.3 | <0.3 |
| 1,2-Dichlorobenzene | ug/L | 0.5 | 7 | - | - | - | <0.5 | - | - | - | <0.5 | <0.5 | <0.5 |

**Yellow =** exceed standard or exceed standard AND guideline
**Blue =** exceed guideline
**Orange =** RDL is > guideline or standard

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## TABLE 12: 2015 LANDFILL GAS METHANE MEASUREMENTS (% $CH_4$)

| | Monitoring Probe | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE DATE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17A | 18 | 19 | 20 | 21 |
| 8-Jan-15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16-Jan-15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 21-Jan-16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30-Jan-16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4-Feb-15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-Feb-15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 19-Feb-15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 24-Feb-15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 27-Feb-15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4-Mar-15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-Mar-15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | 0 |
| 19-Mar-15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 27-Mar-15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2-Apr-15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8-Apr-15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15-Apr-15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 22-Apr-15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 28-Apr-15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 28-May-15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25-Jun-16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 22-Jul-15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 19-Aug-15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15-20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20-Aug-15 | - | - | - | - | - | - | - | - | - | - | - | 0 | 0 | 0 | - | - | - | - | - | - | - |
| 4-Sep-15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.8 - 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 23-Sep-15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 22-Oct-15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6-Nov-15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-Nov-15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 19-Nov-15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 27-Nov-15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3-Dec-15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Trace | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10-Dec-15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18-Dec-15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 24-Dec-15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 29-Dec-15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

# APPENDIX A: Analytical Laboratory Results for Leachate, Groundwater & Surface Water Results

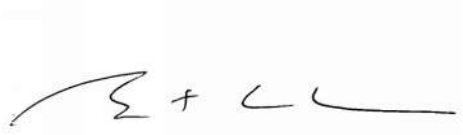
# CERTIFICATE OF ANALYSIS

| | | | |
|---|---|---|---|
| **REPORTED TO** | Morrison Hershfield Limited<br>310 - 4321 Still Creek Drive<br>Burnaby, BC V5C 6S7 | **TEL**<br>**FAX** | (604) 454-0402<br>(604) 454-0403 |
| **ATTENTION** | Josie Gilson | **WORK ORDER** | 5040391 |
| **PO NUMBER** | | **RECEIVED / TEMP** | Apr-08-15 11:22 / 7°C |
| **PROJECT** | Whistler Landfill - Spring/Fall | **REPORTED** | Apr-15-15 |
| **PROJECT INFO** | RMOW - 5104016 | **COC NUMBER** | B17572 |

**General Comments:**

CARO Analytical Services employs methods which are conducted according to procedures accepted by appropriate regulatory agencies, and/or are conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts, except where otherwise agreed to by the client.

The results in this report apply to the samples analyzed in accordance with the Chain of Custody or Sample Requisition document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Samples will be disposed of 30 days after the test report has been issued unless otherwise agreed to in writing.



Authorized By: **Brent Coates, B.Sc.**
Division Manager, Richmond

***Please contact CARO if more information is needed or to provide feedback on our services.***

**Locations:**


#110 4011 Viking Way
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#102 3677 Highway 97N
Kelowna, BC V1X 5C3
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17225 109 Avenue
Edmonton, AB T5S 1H7
Tel: 780-489-9100 Fax: 780-489-9700

www.caro.ca

# ANALYSIS INFORMATION

| | | | |
|---|---|---|---|
| **REPORTED TO** | Morrison Hershfield Limited | **WORK ORDER** | 5040391 |
| **PROJECT** | Whistler Landfill - Spring/Fall | **REPORTED** | Apr-15-15 |

| Analysis Description | Method Reference | Technique | Location |
|---|---|---|---|
| Alkalinity (Speciated) | APHA 2320 B | Titration with H2SO4 to pH 4.5 | Kelowna |
| Anions in Water by IC | APHA 4110 B | Ion Chromatography with Chemical Suppression of Eluent Conductivity | Kelowna |
| Chemical Oxygen Demand (low level) | APHA 5220 D | Closed Reflux, Colorimetry | Kelowna |
| Conductivity in Water | APHA 2510 B | Conductivity Meter | Kelowna |
| Dissolved Metals | APHA 3030 B / APHA 3125 B | 0.45 µm Filtration / Inductively Coupled Plasma Mass Spectrometry (ICP-MS) | Richmond |
| EPH in Water | EPA 3510C* / BCMOE EPHw | Liquid-Liquid Extraction (Base/Neutral) / Gas Chromatography (GC-FID) | Richmond |
| Hardness (as CaCO3) | APHA 2340 B | Calculation | N/A |
| L/HEPH | BCMOE L/HEPH | Calculation | N/A |
| Mercury, dissolved by CVAFS | EPA 245.7* | BrCl2 Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS) | Richmond |
| Mercury, total by CVAFS | EPA 245.7* | BrCl2 Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS) | Richmond |
| Nitrate+Nitrite-N in Water | APHA 4500-NO3- F | Automated Colorimetry (Cadmium Reduction) | Kelowna |
| Nitrite-N in Water, colorimetric | APHA 4500-NO2 B | Colorimetry | Kelowna |
| PAH in Water (Low Level) | EPA 3510C* / EPA 8270D | Liquid-Liquid Extraction (Base/Neutral) / GC-MSD (SIM) | Richmond |
| pH in Water | APHA 4500-H+ B | Electrometry | Kelowna |
| Total Ammonia-N in Water | APHA 4500-NH3 G* | Automated Colorimetry (Phenate) | Kelowna |
| Total Kjeldahl Nitrogen in Water | EPA 351.2* | Sulfuric Acid Digestion, Automated Colorimetry | Kelowna |
| Total Recoverable Metals | APHA 3030E* / APHA 3125 B | HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma Mass Spectrometry (ICP-MS) | Richmond |
| Total Suspended Solids | APHA 2540 D | Gravimetry (Dried at 103-105C) | Kelowna |
| VH in Water | EPA 5030B / BCMOE VHw | Purge&Trap / Gas Chromatography (GC-FID) | Richmond |
| VOC in Water | EPA 5030B / EPA 8260B | Purge&Trap / GC-MSD (SIM) | Richmond |
| VPHw | BCMOE VPH | Calculation | N/A |

***Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method***

**Method Reference Descriptions:**

| | |
|---|---|
| APHA | Standard Methods for the Examination of Water and Wastewater, 22nd Edition, American Public Health Association/American Water Works Association/Water Environment Federation |
| BCMOE | British Columbia Environmental Laboratory Manual, 2013, British Columbia Ministry of Environment |
| EPA | United States Environmental Protection Agency Test Methods |

**Glossary of Terms:**

| | |
|---|---|
| MRL | Method Reporting Limit |
| < | Less than the Reported Detection Limit (RDL) - the RDL may be higher than the MRL due to various factors such as dilutions, limited sample volume, high moisture, or interferences |
| mg/L | Milligrams per litre |
| pH units | pH < 7 = acidic, ph > 7 = basic |
| µg/L | Micrograms per litre |
| µS/cm | Microsiemens per centimetre |

# ANALYSIS INFORMATION

| | | | |
|---|---|---|---|
| **REPORTED TO** | Morrison Hershfield Limited | **WORK ORDER** | 5040391 |
| **PROJECT** | Whistler Landfill - Spring/Fall | **REPORTED** | Apr-15-15 |

**Standards / Guidelines Referenced in this Report:**

BC CSR Schedule 4/5/6/11 Residential/Aquatic Water
Website: http://www.env.gov.bc.ca/epd/remediation/leg_regs/csr.htm

***Note: In some cases, the values displayed on the report represent the lowest guideline and are to be verified by the end user***

# SAMPLE ANALYTICAL DATA

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5040391
**REPORTED** Apr-15-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW2S (5040391-01) [Water] Sampled: Apr-07-15** | | | | | | | |
| ***Anions*** | | | | | | | |
| Bromide | < 0.1 | N/A | 0.1 | mg/L | N/A | Apr-10-15 | |
| Chloride | **10.7** | 1500 | 0.10 | mg/L | N/A | Apr-10-15 | |
| Fluoride | **0.07** | 2 | 0.01 | mg/L | N/A | Apr-10-15 | |
| Nitrite as N | < 0.002 | 0.2 | 0.001 | mg/L | N/A | Apr-09-15 | |
| Sulfate | **79.2** | 1000 | 1.0 | mg/L | N/A | Apr-10-15 | |
| ***General Parameters*** | | | | | | | |
| Alkalinity, Total as CaCO3 | **115** | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Bicarbonate as CaCO3 | **115** | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Ammonia as N, Total | **6.51** | N/A | 0.005 | mg/L | N/A | Apr-10-15 | |
| Nitrate+Nitrite as N | **0.05** | 400 | 0.005 | mg/L | N/A | Apr-10-15 | |
| Nitrogen, Total Kjeldahl | **6.83** | N/A | 0.05 | mg/L | Apr-10-15 | Apr-10-15 | |
| Solids, Total Suspended | **240** | N/A | 2 | mg/L | N/A | Apr-10-15 | |
| pH | **6.88** | N/A | 0.01 | pH units | N/A | Apr-09-15 | HT2 |
| Conductivity (EC) | **429** | N/A | 2 | µS/cm | N/A | Apr-09-15 | |
| Chemical Oxygen Demand | **9** | N/A | 5 | mg/L | N/A | Apr-14-15 | |
| ***Calculated Parameters*** | | | | | | | |
| VPHw | < 100 | 1500 | 100 | µg/L | N/A | N/A | |
| LEPHw | < 100 | 500 | 100 | µg/L | N/A | N/A | |
| HEPHw | **121** | N/A | 100 | µg/L | N/A | N/A | |
| Total PAHs | < 0.05 | N/A | 0.05 | µg/L | N/A | N/A | |
| Hardness, Total (Diss. as CaCO3) | **162** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | **0.05** | 400 | 0.005 | mg/L | N/A | N/A | |
| Nitrogen, Total | **6.87** | N/A | 0.50 | mg/L | N/A | N/A | |
| ***Dissolved Metals*** | | | | | | | |
| Aluminum, dissolved | < 0.005 | N/A | 0.005 | mg/L | N/A | Apr-13-15 | |
| Antimony, dissolved | **0.0001** | 0.2 | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Arsenic, dissolved | **0.0081** | 0.05 | 0.0005 | mg/L | N/A | Apr-13-15 | |
| Barium, dissolved | **0.108** | 5 | 0.005 | mg/L | N/A | Apr-13-15 | |
| Beryllium, dissolved | < 0.0001 | 0.053 | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Bismuth, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Boron, dissolved | **0.173** | 50 | 0.004 | mg/L | N/A | Apr-13-15 | |
| Cadmium, dissolved | < 0.00001 | 0.0001 | 0.00001 | mg/L | N/A | Apr-13-15 | |
| Calcium, dissolved | **51.5** | N/A | 0.2 | mg/L | N/A | Apr-13-15 | |
| Chromium, dissolved | < 0.0005 | 0.01 | 0.0005 | mg/L | N/A | Apr-13-15 | |
| Cobalt, dissolved | **0.00160** | 0.04 | 0.00005 | mg/L | N/A | Apr-13-15 | |
| Copper, dissolved | < 0.0002 | 0.02 | 0.0002 | mg/L | N/A | Apr-13-15 | |
| Iron, dissolved | **41.6** | N/A | 0.010 | mg/L | N/A | Apr-13-15 | |
| Lead, dissolved | < 0.0001 | 0.04 | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Lithium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Magnesium, dissolved | **8.12** | N/A | 0.01 | mg/L | N/A | Apr-13-15 | |
| Manganese, dissolved | **2.46** | N/A | 0.0002 | mg/L | N/A | Apr-13-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5040391
**REPORTED** Apr-15-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW2S (5040391-01) [Water] Sampled: Apr-07-15, Continued** | | | | | | | |
| ***Dissolved Metals, Continued*** | | | | | | | |
| Mercury, dissolved | < 0.00002 | 0.001 | 0.00002 | mg/L | Apr-14-15 | Apr-14-15 | |
| Molybdenum, dissolved | **0.0043** | 10 | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Nickel, dissolved | **0.0009** | 0.25 | 0.0002 | mg/L | N/A | Apr-13-15 | |
| Phosphorus, dissolved | **0.03** | N/A | 0.02 | mg/L | N/A | Apr-13-15 | |
| Potassium, dissolved | **11.8** | N/A | 0.02 | mg/L | N/A | Apr-13-15 | |
| Selenium, dissolved | < 0.0005 | 0.01 | 0.0005 | mg/L | N/A | Apr-13-15 | |
| Silicon, dissolved | **10.2** | N/A | 0.5 | mg/L | N/A | Apr-13-15 | |
| Silver, dissolved | < 0.00005 | 0.0005 | 0.00005 | mg/L | N/A | Apr-13-15 | |
| Sodium, dissolved | **14.9** | N/A | 0.02 | mg/L | N/A | Apr-13-15 | |
| Strontium, dissolved | **0.281** | N/A | 0.001 | mg/L | N/A | Apr-13-15 | |
| Sulfur, dissolved | **27** | N/A | 1 | mg/L | N/A | Apr-13-15 | |
| Tellurium, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Apr-13-15 | |
| Thallium, dissolved | < 0.00002 | 0.003 | 0.00002 | mg/L | N/A | Apr-13-15 | |
| Thorium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Tin, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Apr-13-15 | |
| Titanium, dissolved | < 0.005 | 1 | 0.005 | mg/L | N/A | Apr-13-15 | |
| Uranium, dissolved | **0.00005** | 3 | 0.00002 | mg/L | N/A | Apr-13-15 | |
| Vanadium, dissolved | < 0.001 | N/A | 0.001 | mg/L | N/A | Apr-13-15 | |
| Zinc, dissolved | **0.004** | 0.075 | 0.004 | mg/L | N/A | Apr-13-15 | |
| Zirconium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Apr-13-15 | |
| ***Aggregate Organic Parameters*** | | | | | | | |
| VHw (6-10) | < 100 | 15000 | 100 | µg/L | N/A | Apr-09-15 | |
| EPHw (10-19) | < 100 | 5000 | 100 | µg/L | Apr-10-15 | Apr-12-15 | |
| EPHw (19-32) | **121** | N/A | 100 | µg/L | Apr-10-15 | Apr-12-15 | |
| ***Polycyclic Aromatic Hydrocarbons (PAH)*** | | | | | | | |
| Acenaphthene | < 0.02 | 60 | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Acenaphthylene | < 0.02 | N/A | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Acridine | < 0.05 | 0.5 | 0.05 | µg/L | Apr-10-15 | Apr-12-15 | |
| Anthracene | < 0.01 | 1 | 0.01 | µg/L | Apr-10-15 | Apr-12-15 | |
| Benz (a) anthracene | < 0.01 | N/A | 0.01 | µg/L | Apr-10-15 | Apr-12-15 | |
| Benzo (a) pyrene | < 0.01 | 0.1 | 0.01 | µg/L | Apr-10-15 | Apr-12-15 | |
| Benzo (b) fluoranthene | < 0.02 | N/A | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Benzo (g,h,i) perylene | < 0.02 | N/A | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Benzo (k) fluoranthene | < 0.02 | N/A | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Chrysene | < 0.02 | 1 | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Dibenz (a,h) anthracene | < 0.02 | N/A | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Fluoranthene | < 0.02 | 2 | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Fluorene | < 0.02 | 120 | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Indeno (1,2,3-cd) pyrene | < 0.02 | N/A | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Naphthalene | < 0.05 | 10 | 0.05 | µg/L | Apr-10-15 | Apr-12-15 | |
| Phenanthrene | < 0.05 | 3 | 0.05 | µg/L | Apr-10-15 | Apr-12-15 | |
| Pyrene | < 0.02 | 0.2 | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Quinoline | < 0.05 | 34 | 0.05 | µg/L | Apr-10-15 | Apr-12-15 | |
| *Surrogate: Naphthalene-d8* | *75* | | *40-96* | % | *Apr-10-15* | *Apr-12-15* | |

| | | | |
|---|---|---|---|
| **REPORTED TO** | Morrison Hershfield Limited | **WORK ORDER** | 5040391 |
| **PROJECT** | Whistler Landfill - Spring/Fall | **REPORTED** | Apr-15-15 |

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW2S (5040391-01) [Water] Sampled: Apr-07-15, Continued** | | | | | | | |
| ***Polycyclic Aromatic Hydrocarbons (PAH), Continued*** | | | | | | | |
| *Surrogate: Acenaphthene-d10* | *83* | | *45-92* | % | *Apr-10-15* | *Apr-12-15* | |
| *Surrogate: Phenanthrene-d10* | *78* | | *48-90* | % | *Apr-10-15* | *Apr-12-15* | |
| *Surrogate: Chrysene-d12* | *88* | | *41-96* | % | *Apr-10-15* | *Apr-12-15* | |
| *Surrogate: Perylene-d12* | *93* | | *47-104* | % | *Apr-10-15* | *Apr-12-15* | |
| ***Volatile Organic Compounds (VOC)*** | | | | | | | |
| Acetone | < 10.0 | N/A | 10.0 | µg/L | N/A | Apr-09-15 | |
| Benzene | < 0.5 | 4000 | 0.5 | µg/L | N/A | Apr-09-15 | |
| Bromodichloromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-09-15 | |
| Bromoform | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-09-15 | |
| Bromomethane | < 2.0 | N/A | 2.0 | µg/L | N/A | Apr-09-15 | |
| 2-Butanone (MEK) | < 5.0 | N/A | 5.0 | µg/L | N/A | Apr-09-15 | |
| Carbon tetrachloride | < 1.0 | 130 | 1.0 | µg/L | N/A | Apr-09-15 | |
| Chlorobenzene | < 1.0 | 13 | 1.0 | µg/L | N/A | Apr-09-15 | |
| Chloroethane | < 2.0 | N/A | 2.0 | µg/L | N/A | Apr-09-15 | |
| Chloroform | < 1.0 | 20 | 1.0 | µg/L | N/A | Apr-09-15 | |
| Chloromethane | < 2.0 | N/A | 2.0 | µg/L | N/A | Apr-09-15 | |
| Dibromochloromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-09-15 | |
| Dibromomethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-09-15 | |
| 1,2-Dichlorobenzene | < 0.5 | 7 | 0.5 | µg/L | N/A | Apr-09-15 | |
| 1,3-Dichlorobenzene | < 1.0 | 1500 | 1.0 | µg/L | N/A | Apr-09-15 | |
| 1,4-Dichlorobenzene | < 1.0 | 260 | 1.0 | µg/L | N/A | Apr-09-15 | |
| 1,1-Dichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-09-15 | |
| 1,2-Dichloroethane | < 1.0 | 1000 | 1.0 | µg/L | N/A | Apr-09-15 | |
| 1,1-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-09-15 | |
| cis-1,2-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-09-15 | |
| trans-1,2-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-09-15 | |
| 1,2-Dichloropropane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-09-15 | |
| cis-1,3-Dichloropropene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-09-15 | |
| trans-1,3-Dichloropropene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-09-15 | |
| Ethylbenzene | < 1.0 | 2000 | 1.0 | µg/L | N/A | Apr-09-15 | |
| Methyl tert-butyl ether | < 1.0 | 34000 | 1.0 | µg/L | N/A | Apr-09-15 | |
| Methylene chloride | < 3.0 | 980 | 3.0 | µg/L | N/A | Apr-09-15 | |
| 4-Methyl-2-Pentanone (MIBK) | < 10.0 | N/A | 10.0 | µg/L | N/A | Apr-09-15 | |
| Styrene | < 1.0 | 720 | 1.0 | µg/L | N/A | Apr-09-15 | |
| 1,1,1,2-Tetrachloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-09-15 | |
| 1,1,2,2-Tetrachloroethane | < 1.0 | 1100 | 1.0 | µg/L | N/A | Apr-09-15 | |
| Tetrachloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-09-15 | |
| Toluene | < 1.0 | 390 | 1.0 | µg/L | N/A | Apr-09-15 | |
| 1,1,1-Trichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-09-15 | |
| 1,1,2-Trichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-09-15 | |
| Trichloroethene | < 1.0 | 200 | 1.0 | µg/L | N/A | Apr-09-15 | |
| Trichlorofluoromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-09-15 | |
| Vinyl chloride | < 2.0 | N/A | 2.0 | µg/L | N/A | Apr-09-15 | |
| m,p-Xylene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-09-15 | |
| o-Xylene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-09-15 | |

| | | | |
|---|---|---|---|
| **REPORTED TO** | Morrison Hershfield Limited | **WORK ORDER** | 5040391 |
| **PROJECT** | Whistler Landfill - Spring/Fall | **REPORTED** | Apr-15-15 |

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW2S (5040391-01) [Water] Sampled: Apr-07-15, Continued** | | | | | | | |
| ***Volatile Organic Compounds (VOC), Continued*** | | | | | | | |
| Xylenes (total) | < 2.0 | N/A | 2.0 | µg/L | N/A | Apr-09-15 | |
| *Surrogate: Toluene-d8* | *98* | | *70-130* | % | *N/A* | *Apr-09-15* | |
| *Surrogate: 4-Bromofluorobenzene* | *94* | | *70-130* | % | *N/A* | *Apr-09-15* | |
| *Surrogate: 1,4-Dichlorobenzene-d4* | *87* | | *70-130* | % | *N/A* | *Apr-09-15* | |
| **Sample ID: MW2D (5040391-02) [Water] Sampled: Apr-07-15** | | | | | | | |
| ***Anions*** | | | | | | | |
| Bromide | **0.1** | N/A | 0.1 | mg/L | N/A | Apr-10-15 | |
| Chloride | **45.6** | 1500 | 0.10 | mg/L | N/A | Apr-10-15 | |
| Fluoride | **0.07** | 2 | 0.01 | mg/L | N/A | Apr-10-15 | |
| Nitrite as N | < 0.002 | 0.2 | 0.001 | mg/L | N/A | Apr-09-15 | |
| Sulfate | **361** | 1000 | 1.0 | mg/L | N/A | Apr-10-15 | |
| ***General Parameters*** | | | | | | | |
| Alkalinity, Total as CaCO3 | **271** | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Bicarbonate as CaCO3 | **271** | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Ammonia as N, Total | **14.8** | N/A | 0.005 | mg/L | N/A | Apr-10-15 | |
| Nitrate+Nitrite as N | **0.06** | 400 | 0.005 | mg/L | N/A | Apr-10-15 | |
| Nitrogen, Total Kjeldahl | **15.1** | N/A | 0.05 | mg/L | Apr-10-15 | Apr-10-15 | |
| Solids, Total Suspended | **599** | N/A | 2 | mg/L | N/A | Apr-10-15 | |
| pH | **6.86** | N/A | 0.01 | pH units | N/A | Apr-09-15 | HT2 |
| Conductivity (EC) | **1200** | N/A | 2 | µS/cm | N/A | Apr-09-15 | |
| Chemical Oxygen Demand | **24** | N/A | 5 | mg/L | N/A | Apr-14-15 | |
| ***Calculated Parameters*** | | | | | | | |
| VPHw | < 100 | 1500 | 100 | µg/L | N/A | N/A | |
| LEPHw | < 100 | 500 | 100 | µg/L | N/A | N/A | |
| HEPHw | < 100 | N/A | 100 | µg/L | N/A | N/A | |
| Total PAHs | < 0.05 | N/A | 0.05 | µg/L | N/A | N/A | |
| Hardness, Total (Diss. as CaCO3) | **520** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | **0.06** | 400 | 0.005 | mg/L | N/A | N/A | |
| Nitrogen, Total | **15.1** | N/A | 0.50 | mg/L | N/A | N/A | |
| ***Dissolved Metals*** | | | | | | | |
| Aluminum, dissolved | **0.006** | N/A | 0.005 | mg/L | N/A | Apr-13-15 | |
| Antimony, dissolved | **0.0001** | 0.2 | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Arsenic, dissolved | **0.0156** | 0.05 | 0.0005 | mg/L | N/A | Apr-13-15 | |
| Barium, dissolved | **0.033** | 5 | 0.005 | mg/L | N/A | Apr-13-15 | |
| Beryllium, dissolved | < 0.0001 | 0.053 | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Bismuth, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Boron, dissolved | **0.385** | 50 | 0.004 | mg/L | N/A | Apr-13-15 | |
| Cadmium, dissolved | < 0.00001 | 0.0001 | 0.00001 | mg/L | N/A | Apr-13-15 | |
| Calcium, dissolved | **175** | N/A | 0.2 | mg/L | N/A | Apr-13-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5040391
**REPORTED** Apr-15-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW2D (5040391-02) [Water] Sampled: Apr-07-15, Continued** | | | | | | | |
| ***Dissolved Metals, Continued*** | | | | | | | |
| Chromium, dissolved | < 0.0005 | 0.01 | 0.0005 | mg/L | N/A | Apr-13-15 | |
| Cobalt, dissolved | **0.0167** | 0.04 | 0.00005 | mg/L | N/A | Apr-13-15 | |
| Copper, dissolved | < 0.0002 | 0.02 | 0.0002 | mg/L | N/A | Apr-13-15 | |
| Iron, dissolved | **66.2** | N/A | 0.010 | mg/L | N/A | Apr-13-15 | |
| Lead, dissolved | < 0.0001 | 0.04 | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Lithium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Magnesium, dissolved | **20.4** | N/A | 0.01 | mg/L | N/A | Apr-13-15 | |
| Manganese, dissolved | **3.26** | N/A | 0.0002 | mg/L | N/A | Apr-13-15 | |
| Mercury, dissolved | < 0.00002 | 0.001 | 0.00002 | mg/L | Apr-14-15 | Apr-14-15 | |
| Molybdenum, dissolved | **0.0199** | 10 | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Nickel, dissolved | **0.0031** | 0.25 | 0.0002 | mg/L | N/A | Apr-13-15 | |
| Phosphorus, dissolved | **0.12** | N/A | 0.02 | mg/L | N/A | Apr-13-15 | |
| Potassium, dissolved | **22.6** | N/A | 0.02 | mg/L | N/A | Apr-13-15 | |
| Selenium, dissolved | < 0.0005 | 0.01 | 0.0005 | mg/L | N/A | Apr-13-15 | |
| Silicon, dissolved | **15.7** | N/A | 0.5 | mg/L | N/A | Apr-13-15 | |
| Silver, dissolved | < 0.00005 | 0.0005 | 0.00005 | mg/L | N/A | Apr-13-15 | |
| Sodium, dissolved | **36.8** | N/A | 0.02 | mg/L | N/A | Apr-13-15 | |
| Strontium, dissolved | **0.669** | N/A | 0.001 | mg/L | N/A | Apr-13-15 | |
| Sulfur, dissolved | **112** | N/A | 1 | mg/L | N/A | Apr-13-15 | |
| Tellurium, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Apr-13-15 | |
| Thallium, dissolved | < 0.00002 | 0.003 | 0.00002 | mg/L | N/A | Apr-13-15 | |
| Thorium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Tin, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Apr-13-15 | |
| Titanium, dissolved | < 0.005 | 1 | 0.005 | mg/L | N/A | Apr-13-15 | |
| Uranium, dissolved | **0.00028** | 3 | 0.00002 | mg/L | N/A | Apr-13-15 | |
| Vanadium, dissolved | < 0.001 | N/A | 0.001 | mg/L | N/A | Apr-13-15 | |
| Zinc, dissolved | **0.009** | 0.075 | 0.004 | mg/L | N/A | Apr-13-15 | |
| Zirconium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Apr-13-15 | |
| ***Aggregate Organic Parameters*** | | | | | | | |
| VHw (6-10) | < 100 | 15000 | 100 | µg/L | N/A | Apr-10-15 | |
| EPHw (10-19) | < 100 | 5000 | 100 | µg/L | Apr-10-15 | Apr-12-15 | |
| EPHw (19-32) | < 100 | N/A | 100 | µg/L | Apr-10-15 | Apr-12-15 | |
| ***Polycyclic Aromatic Hydrocarbons (PAH)*** | | | | | | | |
| Acenaphthene | < 0.02 | 60 | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Acenaphthylene | < 0.02 | N/A | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Acridine | < 0.05 | 0.5 | 0.05 | µg/L | Apr-10-15 | Apr-12-15 | |
| Anthracene | < 0.01 | 1 | 0.01 | µg/L | Apr-10-15 | Apr-12-15 | |
| Benz (a) anthracene | < 0.01 | N/A | 0.01 | µg/L | Apr-10-15 | Apr-12-15 | |
| Benzo (a) pyrene | < 0.01 | 0.1 | 0.01 | µg/L | Apr-10-15 | Apr-12-15 | |
| Benzo (b) fluoranthene | < 0.02 | N/A | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Benzo (g,h,i) perylene | < 0.02 | N/A | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Benzo (k) fluoranthene | < 0.02 | N/A | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Chrysene | < 0.02 | 1 | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Dibenz (a,h) anthracene | < 0.02 | N/A | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5040391
**REPORTED** Apr-15-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW2D (5040391-02) [Water] Sampled: Apr-07-15, Continued** | | | | | | | |
| ***Polycyclic Aromatic Hydrocarbons (PAH), Continued*** | | | | | | | |
| Fluoranthene | < 0.02 | 2 | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Fluorene | < 0.02 | 120 | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Indeno (1,2,3-cd) pyrene | < 0.02 | N/A | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Naphthalene | < 0.05 | 10 | 0.05 | µg/L | Apr-10-15 | Apr-12-15 | |
| Phenanthrene | < 0.05 | 3 | 0.05 | µg/L | Apr-10-15 | Apr-12-15 | |
| Pyrene | < 0.02 | 0.2 | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Quinoline | < 0.05 | 34 | 0.05 | µg/L | Apr-10-15 | Apr-12-15 | |
| *Surrogate: Naphthalene-d8* | *77* | | *40-96* | % | *Apr-10-15* | *Apr-12-15* | |
| *Surrogate: Acenaphthene-d10* | *89* | | *45-92* | % | *Apr-10-15* | *Apr-12-15* | |
| *Surrogate: Phenanthrene-d10* | *79* | | *48-90* | % | *Apr-10-15* | *Apr-12-15* | |
| *Surrogate: Chrysene-d12* | *89* | | *41-96* | % | *Apr-10-15* | *Apr-12-15* | |
| *Surrogate: Perylene-d12* | *95* | | *47-104* | % | *Apr-10-15* | *Apr-12-15* | |
| ***Volatile Organic Compounds (VOC)*** | | | | | | | |
| Acetone | < 10.0 | N/A | 10.0 | µg/L | N/A | Apr-10-15 | |
| Benzene | < 0.5 | 4000 | 0.5 | µg/L | N/A | Apr-10-15 | |
| Bromodichloromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| Bromoform | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| Bromomethane | < 2.0 | N/A | 2.0 | µg/L | N/A | Apr-10-15 | |
| 2-Butanone (MEK) | < 5.0 | N/A | 5.0 | µg/L | N/A | Apr-10-15 | |
| Carbon tetrachloride | < 1.0 | 130 | 1.0 | µg/L | N/A | Apr-10-15 | |
| Chlorobenzene | **1.8** | 13 | 1.0 | µg/L | N/A | Apr-10-15 | |
| Chloroethane | < 2.0 | N/A | 2.0 | µg/L | N/A | Apr-10-15 | |
| Chloroform | < 1.0 | 20 | 1.0 | µg/L | N/A | Apr-10-15 | |
| Chloromethane | < 2.0 | N/A | 2.0 | µg/L | N/A | Apr-10-15 | |
| Dibromochloromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| Dibromomethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,2-Dichlorobenzene | < 0.5 | 7 | 0.5 | µg/L | N/A | Apr-10-15 | |
| 1,3-Dichlorobenzene | < 1.0 | 1500 | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,4-Dichlorobenzene | < 1.0 | 260 | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,1-Dichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,2-Dichloroethane | < 1.0 | 1000 | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,1-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| cis-1,2-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| trans-1,2-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,2-Dichloropropane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| cis-1,3-Dichloropropene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| trans-1,3-Dichloropropene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| Ethylbenzene | < 1.0 | 2000 | 1.0 | µg/L | N/A | Apr-10-15 | |
| Methyl tert-butyl ether | < 1.0 | 34000 | 1.0 | µg/L | N/A | Apr-10-15 | |
| Methylene chloride | < 3.0 | 980 | 3.0 | µg/L | N/A | Apr-10-15 | |
| 4-Methyl-2-Pentanone (MIBK) | < 10.0 | N/A | 10.0 | µg/L | N/A | Apr-10-15 | |
| Styrene | < 1.0 | 720 | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,1,1,2-Tetrachloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,1,2,2-Tetrachloroethane | < 1.0 | 1100 | 1.0 | µg/L | N/A | Apr-10-15 | |
| Tetrachloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |

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| **REPORTED TO** | Morrison Hershfield Limited | **WORK ORDER** | 5040391 |
| **PROJECT** | Whistler Landfill - Spring/Fall | **REPORTED** | Apr-15-15 |

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW2D (5040391-02) [Water] Sampled: Apr-07-15, Continued** | | | | | | | |
| ***Volatile Organic Compounds (VOC), Continued*** | | | | | | | |
| Toluene | < 1.0 | 390 | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,1,1-Trichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,1,2-Trichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| Trichloroethene | < 1.0 | 200 | 1.0 | µg/L | N/A | Apr-10-15 | |
| Trichlorofluoromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| Vinyl chloride | < 2.0 | N/A | 2.0 | µg/L | N/A | Apr-10-15 | |
| m,p-Xylene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| o-Xylene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| Xylenes (total) | < 2.0 | N/A | 2.0 | µg/L | N/A | Apr-10-15 | |
| *Surrogate: Toluene-d8* | *98* | | *70-130* | % | *N/A* | *Apr-10-15* | |
| *Surrogate: 4-Bromofluorobenzene* | *100* | | *70-130* | % | *N/A* | *Apr-10-15* | |
| *Surrogate: 1,4-Dichlorobenzene-d4* | *92* | | *70-130* | % | *N/A* | *Apr-10-15* | |
| **Sample ID: MW3 (5040391-03) [Water] Sampled: Apr-07-15** | | | | | | | |
| ***Anions*** | | | | | | | |
| Bromide | < 0.1 | N/A | 0.1 | mg/L | N/A | Apr-10-15 | |
| Chloride | **15.3** | 1500 | 0.10 | mg/L | N/A | Apr-10-15 | |
| Fluoride | < 0.05 | 2 | 0.01 | mg/L | N/A | Apr-10-15 | |
| Nitrite as N | < 0.002 | 0.2 | 0.001 | mg/L | N/A | Apr-09-15 | |
| Sulfate | **34.6** | 1000 | 1.0 | mg/L | N/A | Apr-10-15 | |
| ***General Parameters*** | | | | | | | |
| Alkalinity, Total as CaCO3 | **39** | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Bicarbonate as CaCO3 | **39** | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Ammonia as N, Total | **0.434** | N/A | 0.005 | mg/L | N/A | Apr-10-15 | |
| Nitrate+Nitrite as N | **0.008** | 400 | 0.005 | mg/L | N/A | Apr-10-15 | |
| Nitrogen, Total Kjeldahl | **0.57** | N/A | 0.05 | mg/L | Apr-10-15 | Apr-10-15 | |
| Solids, Total Suspended | **19** | N/A | 2 | mg/L | N/A | Apr-10-15 | |
| pH | **6.16** | N/A | 0.01 | pH units | N/A | Apr-09-15 | HT2 |
| Conductivity (EC) | **197** | N/A | 2 | µS/cm | N/A | Apr-09-15 | |
| Chemical Oxygen Demand | < 5 | N/A | 5 | mg/L | N/A | Apr-14-15 | |
| ***Calculated Parameters*** | | | | | | | |
| VPHw | < 100 | 1500 | 100 | µg/L | N/A | N/A | |
| LEPHw | < 100 | 500 | 100 | µg/L | N/A | N/A | |
| HEPHw | < 100 | N/A | 100 | µg/L | N/A | N/A | |
| Total PAHs | < 0.05 | N/A | 0.05 | µg/L | N/A | N/A | |
| Hardness, Total (Diss. as CaCO3) | **52.2** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | **0.008** | 400 | 0.005 | mg/L | N/A | N/A | |
| Nitrogen, Total | **0.58** | N/A | 0.05 | mg/L | N/A | N/A | |
| ***Dissolved Metals*** | | | | | | | |
| Aluminum, dissolved | **0.037** | N/A | 0.005 | mg/L | N/A | Apr-13-15 | |

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|---|---|---|---|
| **REPORTED TO** | Morrison Hershfield Limited | **WORK ORDER** | 5040391 |
| **PROJECT** | Whistler Landfill - Spring/Fall | **REPORTED** | Apr-15-15 |

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW3 (5040391-03) [Water] Sampled: Apr-07-15, Continued** | | | | | | | |
| ***Dissolved Metals, Continued*** | | | | | | | |
| Antimony, dissolved | **0.0001** | 0.2 | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Arsenic, dissolved | < 0.0005 | 0.05 | 0.0005 | mg/L | N/A | Apr-13-15 | |
| Barium, dissolved | **0.070** | 5 | 0.005 | mg/L | N/A | Apr-13-15 | |
| Beryllium, dissolved | < 0.0001 | 0.053 | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Bismuth, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Boron, dissolved | **0.028** | 50 | 0.004 | mg/L | N/A | Apr-13-15 | |
| Cadmium, dissolved | **0.00027** | 0.0001 | 0.00001 | mg/L | N/A | Apr-13-15 | |
| Calcium, dissolved | **15.7** | N/A | 0.2 | mg/L | N/A | Apr-13-15 | |
| Chromium, dissolved | < 0.0005 | 0.01 | 0.0005 | mg/L | N/A | Apr-13-15 | |
| Cobalt, dissolved | **0.0110** | 0.04 | 0.00005 | mg/L | N/A | Apr-13-15 | |
| Copper, dissolved | **0.0059** | 0.02 | 0.0002 | mg/L | N/A | Apr-13-15 | |
| Iron, dissolved | **1.05** | N/A | 0.010 | mg/L | N/A | Apr-13-15 | |
| Lead, dissolved | < 0.0001 | 0.04 | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Lithium, dissolved | **0.0002** | N/A | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Magnesium, dissolved | **3.15** | N/A | 0.01 | mg/L | N/A | Apr-13-15 | |
| Manganese, dissolved | **2.17** | N/A | 0.0002 | mg/L | N/A | Apr-13-15 | |
| Mercury, dissolved | < 0.00002 | 0.001 | 0.00002 | mg/L | Apr-14-15 | Apr-14-15 | |
| Molybdenum, dissolved | **0.0008** | 10 | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Nickel, dissolved | **0.0020** | 0.25 | 0.0002 | mg/L | N/A | Apr-13-15 | |
| Phosphorus, dissolved | < 0.02 | N/A | 0.02 | mg/L | N/A | Apr-13-15 | |
| Potassium, dissolved | **2.92** | N/A | 0.02 | mg/L | N/A | Apr-13-15 | |
| Selenium, dissolved | < 0.0005 | 0.01 | 0.0005 | mg/L | N/A | Apr-13-15 | |
| Silicon, dissolved | **7.2** | N/A | 0.5 | mg/L | N/A | Apr-13-15 | |
| Silver, dissolved | < 0.00005 | 0.0005 | 0.00005 | mg/L | N/A | Apr-13-15 | |
| Sodium, dissolved | **13.9** | N/A | 0.02 | mg/L | N/A | Apr-13-15 | |
| Strontium, dissolved | **0.120** | N/A | 0.001 | mg/L | N/A | Apr-13-15 | |
| Sulfur, dissolved | **8** | N/A | 1 | mg/L | N/A | Apr-13-15 | |
| Tellurium, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Apr-13-15 | |
| Thallium, dissolved | **0.00011** | 0.003 | 0.00002 | mg/L | N/A | Apr-13-15 | |
| Thorium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Tin, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Apr-13-15 | |
| Titanium, dissolved | < 0.005 | 1 | 0.005 | mg/L | N/A | Apr-13-15 | |
| Uranium, dissolved | < 0.00002 | 3 | 0.00002 | mg/L | N/A | Apr-13-15 | |
| Vanadium, dissolved | < 0.001 | N/A | 0.001 | mg/L | N/A | Apr-13-15 | |
| Zinc, dissolved | **0.006** | 0.075 | 0.004 | mg/L | N/A | Apr-13-15 | |
| Zirconium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Apr-13-15 | |
| ***Aggregate Organic Parameters*** | | | | | | | |
| VHw (6-10) | < 100 | 15000 | 100 | µg/L | N/A | Apr-10-15 | |
| EPHw (10-19) | < 100 | 5000 | 100 | µg/L | Apr-10-15 | Apr-12-15 | |
| EPHw (19-32) | < 100 | N/A | 100 | µg/L | Apr-10-15 | Apr-12-15 | |
| ***Polycyclic Aromatic Hydrocarbons (PAH)*** | | | | | | | |
| Acenaphthene | < 0.02 | 60 | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Acenaphthylene | < 0.02 | N/A | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Acridine | < 0.05 | 0.5 | 0.05 | µg/L | Apr-10-15 | Apr-12-15 | |

| | | | |
|---|---|---|---|
| **REPORTED TO** | Morrison Hershfield Limited | **WORK ORDER** | 5040391 |
| **PROJECT** | Whistler Landfill - Spring/Fall | **REPORTED** | Apr-15-15 |

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW3 (5040391-03) [Water] Sampled: Apr-07-15, Continued** | | | | | | | |
| ***Polycyclic Aromatic Hydrocarbons (PAH), Continued*** | | | | | | | |
| Anthracene | < 0.01 | 1 | 0.01 | µg/L | Apr-10-15 | Apr-12-15 | |
| Benz (a) anthracene | < 0.01 | N/A | 0.01 | µg/L | Apr-10-15 | Apr-12-15 | |
| Benzo (a) pyrene | < 0.01 | 0.1 | 0.01 | µg/L | Apr-10-15 | Apr-12-15 | |
| Benzo (b) fluoranthene | < 0.02 | N/A | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Benzo (g,h,i) perylene | < 0.02 | N/A | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Benzo (k) fluoranthene | < 0.02 | N/A | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Chrysene | < 0.02 | 1 | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Dibenz (a,h) anthracene | < 0.02 | N/A | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Fluoranthene | < 0.02 | 2 | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Fluorene | < 0.02 | 120 | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Indeno (1,2,3-cd) pyrene | < 0.02 | N/A | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Naphthalene | < 0.05 | 10 | 0.05 | µg/L | Apr-10-15 | Apr-12-15 | |
| Phenanthrene | < 0.05 | 3 | 0.05 | µg/L | Apr-10-15 | Apr-12-15 | |
| Pyrene | < 0.02 | 0.2 | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Quinoline | < 0.05 | 34 | 0.05 | µg/L | Apr-10-15 | Apr-12-15 | |
| *Surrogate: Naphthalene-d8* | *75* | | *40-96* | % | *Apr-10-15* | *Apr-12-15* | |
| *Surrogate: Acenaphthene-d10* | *84* | | *45-92* | % | *Apr-10-15* | *Apr-12-15* | |
| *Surrogate: Phenanthrene-d10* | *75* | | *48-90* | % | *Apr-10-15* | *Apr-12-15* | |
| *Surrogate: Chrysene-d12* | *87* | | *41-96* | % | *Apr-10-15* | *Apr-12-15* | |
| *Surrogate: Perylene-d12* | *98* | | *47-104* | % | *Apr-10-15* | *Apr-12-15* | |
| ***Volatile Organic Compounds (VOC)*** | | | | | | | |
| Acetone | < 10.0 | N/A | 10.0 | µg/L | N/A | Apr-10-15 | |
| Benzene | < 0.5 | 4000 | 0.5 | µg/L | N/A | Apr-10-15 | |
| Bromodichloromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| Bromoform | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| Bromomethane | < 2.0 | N/A | 2.0 | µg/L | N/A | Apr-10-15 | |
| 2-Butanone (MEK) | < 5.0 | N/A | 5.0 | µg/L | N/A | Apr-10-15 | |
| Carbon tetrachloride | < 1.0 | 130 | 1.0 | µg/L | N/A | Apr-10-15 | |
| Chlorobenzene | < 1.0 | 13 | 1.0 | µg/L | N/A | Apr-10-15 | |
| Chloroethane | < 2.0 | N/A | 2.0 | µg/L | N/A | Apr-10-15 | |
| Chloroform | < 1.0 | 20 | 1.0 | µg/L | N/A | Apr-10-15 | |
| Chloromethane | < 2.0 | N/A | 2.0 | µg/L | N/A | Apr-10-15 | |
| Dibromochloromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| Dibromomethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,2-Dichlorobenzene | < 0.5 | 7 | 0.5 | µg/L | N/A | Apr-10-15 | |
| 1,3-Dichlorobenzene | < 1.0 | 1500 | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,4-Dichlorobenzene | < 1.0 | 260 | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,1-Dichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,2-Dichloroethane | < 1.0 | 1000 | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,1-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| cis-1,2-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| trans-1,2-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,2-Dichloropropane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| cis-1,3-Dichloropropene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| trans-1,3-Dichloropropene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5040391
**REPORTED** Apr-15-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW3 (5040391-03) [Water] Sampled: Apr-07-15, Continued** | | | | | | | |
| ***Volatile Organic Compounds (VOC), Continued*** | | | | | | | |
| Ethylbenzene | < 1.0 | 2000 | 1.0 | µg/L | N/A | Apr-10-15 | |
| Methyl tert-butyl ether | < 1.0 | 34000 | 1.0 | µg/L | N/A | Apr-10-15 | |
| Methylene chloride | < 3.0 | 980 | 3.0 | µg/L | N/A | Apr-10-15 | |
| 4-Methyl-2-Pentanone (MIBK) | < 10.0 | N/A | 10.0 | µg/L | N/A | Apr-10-15 | |
| Styrene | < 1.0 | 720 | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,1,1,2-Tetrachloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,1,2,2-Tetrachloroethane | < 1.0 | 1100 | 1.0 | µg/L | N/A | Apr-10-15 | |
| Tetrachloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| Toluene | < 1.0 | 390 | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,1,1-Trichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,1,2-Trichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| Trichloroethene | < 1.0 | 200 | 1.0 | µg/L | N/A | Apr-10-15 | |
| Trichlorofluoromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| Vinyl chloride | < 2.0 | N/A | 2.0 | µg/L | N/A | Apr-10-15 | |
| m,p-Xylene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| o-Xylene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| Xylenes (total) | < 2.0 | N/A | 2.0 | µg/L | N/A | Apr-10-15 | |
| *Surrogate: Toluene-d8* | *97* | | *70-130* | % | *N/A* | *Apr-10-15* | |
| *Surrogate: 4-Bromofluorobenzene* | *95* | | *70-130* | % | *N/A* | *Apr-10-15* | |
| *Surrogate: 1,4-Dichlorobenzene-d4* | *87* | | *70-130* | % | *N/A* | *Apr-10-15* | |
| **Sample ID: MW4 (5040391-04) [Water] Sampled: Apr-07-15** | | | | | | | |
| ***Anions*** | | | | | | | |
| Bromide | < 0.1 | N/A | 0.1 | mg/L | N/A | Apr-10-15 | |
| Chloride | **17.0** | 1500 | 0.10 | mg/L | N/A | Apr-10-15 | |
| Fluoride | < 0.05 | 2 | 0.01 | mg/L | N/A | Apr-10-15 | |
| Nitrite as N | < 0.002 | 0.2 | 0.001 | mg/L | N/A | Apr-09-15 | |
| Sulfate | **65.9** | 1000 | 1.0 | mg/L | N/A | Apr-10-15 | |
| ***General Parameters*** | | | | | | | |
| Alkalinity, Total as CaCO3 | **162** | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Bicarbonate as CaCO3 | **162** | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Ammonia as N, Total | **1.83** | N/A | 0.005 | mg/L | N/A | Apr-10-15 | |
| Nitrate+Nitrite as N | **0.04** | 400 | 0.005 | mg/L | N/A | Apr-10-15 | |
| Nitrogen, Total Kjeldahl | **2.15** | N/A | 0.05 | mg/L | Apr-10-15 | Apr-10-15 | |
| Solids, Total Suspended | **237** | N/A | 2 | mg/L | N/A | Apr-10-15 | |
| pH | **6.51** | N/A | 0.01 | pH units | N/A | Apr-09-15 | HT2 |
| Conductivity (EC) | **477** | N/A | 2 | µS/cm | N/A | Apr-09-15 | |
| Chemical Oxygen Demand | **14** | N/A | 5 | mg/L | N/A | Apr-14-15 | |
| ***Calculated Parameters*** | | | | | | | |
| VPHw | < 100 | 1500 | 100 | µg/L | N/A | N/A | |

| | | | |
|---|---|---|---|
| **REPORTED TO** | Morrison Hershfield Limited | **WORK ORDER** | 5040391 |
| **PROJECT** | Whistler Landfill - Spring/Fall | **REPORTED** | Apr-15-15 |

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW4 (5040391-04) [Water] Sampled: Apr-07-15, Continued** | | | | | | | |
| ***Calculated Parameters, Continued*** | | | | | | | |
| LEPHw | < 100 | 500 | 100 | µg/L | N/A | N/A | |
| HEPHw | < 100 | N/A | 100 | µg/L | N/A | N/A | |
| Total PAHs | **0.06** | N/A | 0.05 | µg/L | N/A | N/A | |
| Hardness, Total (Diss. as CaCO3) | **156** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | **0.04** | 400 | 0.005 | mg/L | N/A | N/A | |
| Nitrogen, Total | **2.19** | N/A | 0.10 | mg/L | N/A | N/A | |
| ***Dissolved Metals*** | | | | | | | |
| Aluminum, dissolved | **0.010** | N/A | 0.005 | mg/L | N/A | Apr-13-15 | |
| Antimony, dissolved | < 0.0001 | 0.2 | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Arsenic, dissolved | **0.0025** | 0.05 | 0.0005 | mg/L | N/A | Apr-13-15 | |
| Barium, dissolved | **0.162** | 5 | 0.005 | mg/L | N/A | Apr-13-15 | |
| Beryllium, dissolved | < 0.0001 | 0.053 | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Bismuth, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Boron, dissolved | **0.065** | 50 | 0.004 | mg/L | N/A | Apr-13-15 | |
| Cadmium, dissolved | **0.00045** | 0.0001 | 0.00001 | mg/L | N/A | Apr-13-15 | |
| Calcium, dissolved | **48.3** | N/A | 0.2 | mg/L | N/A | Apr-13-15 | |
| Chromium, dissolved | < 0.0005 | 0.01 | 0.0005 | mg/L | N/A | Apr-13-15 | |
| Cobalt, dissolved | **0.0376** | 0.04 | 0.00005 | mg/L | N/A | Apr-13-15 | |
| Copper, dissolved | **0.0029** | 0.02 | 0.0002 | mg/L | N/A | Apr-13-15 | |
| Iron, dissolved | **25.9** | N/A | 0.010 | mg/L | N/A | Apr-13-15 | |
| Lead, dissolved | < 0.0001 | 0.04 | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Lithium, dissolved | **0.0002** | N/A | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Magnesium, dissolved | **8.58** | N/A | 0.01 | mg/L | N/A | Apr-13-15 | |
| Manganese, dissolved | **3.33** | N/A | 0.0002 | mg/L | N/A | Apr-13-15 | |
| Mercury, dissolved | < 0.00002 | 0.001 | 0.00002 | mg/L | Apr-14-15 | Apr-14-15 | |
| Molybdenum, dissolved | **0.0048** | 10 | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Nickel, dissolved | **0.0059** | 0.25 | 0.0002 | mg/L | N/A | Apr-13-15 | |
| Phosphorus, dissolved | < 0.02 | N/A | 0.02 | mg/L | N/A | Apr-13-15 | |
| Potassium, dissolved | **5.99** | N/A | 0.02 | mg/L | N/A | Apr-13-15 | |
| Selenium, dissolved | < 0.0005 | 0.01 | 0.0005 | mg/L | N/A | Apr-13-15 | |
| Silicon, dissolved | **11.9** | N/A | 0.5 | mg/L | N/A | Apr-13-15 | |
| Silver, dissolved | < 0.00005 | 0.0005 | 0.00005 | mg/L | N/A | Apr-13-15 | |
| Sodium, dissolved | **19.5** | N/A | 0.02 | mg/L | N/A | Apr-13-15 | |
| Strontium, dissolved | **0.285** | N/A | 0.001 | mg/L | N/A | Apr-13-15 | |
| Sulfur, dissolved | **18** | N/A | 1 | mg/L | N/A | Apr-13-15 | |
| Tellurium, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Apr-13-15 | |
| Thallium, dissolved | **0.00003** | 0.003 | 0.00002 | mg/L | N/A | Apr-13-15 | |
| Thorium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Tin, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Apr-13-15 | |
| Titanium, dissolved | < 0.005 | 1 | 0.005 | mg/L | N/A | Apr-13-15 | |
| Uranium, dissolved | **0.00015** | 3 | 0.00002 | mg/L | N/A | Apr-13-15 | |
| Vanadium, dissolved | < 0.001 | N/A | 0.001 | mg/L | N/A | Apr-13-15 | |
| Zinc, dissolved | **0.018** | 0.075 | 0.004 | mg/L | N/A | Apr-13-15 | |
| Zirconium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Apr-13-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5040391
**REPORTED** Apr-15-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW4 (5040391-04) [Water] Sampled: Apr-07-15, Continued** | | | | | | | |
| ***Aggregate Organic Parameters*** | | | | | | | |
| VHw (6-10) | < 100 | 15000 | 100 | µg/L | N/A | Apr-10-15 | |
| EPHw (10-19) | < 100 | 5000 | 100 | µg/L | Apr-10-15 | Apr-12-15 | |
| EPHw (19-32) | < 100 | N/A | 100 | µg/L | Apr-10-15 | Apr-12-15 | |
| ***Polycyclic Aromatic Hydrocarbons (PAH)*** | | | | | | | |
| Acenaphthene | < 0.02 | 60 | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Acenaphthylene | < 0.02 | N/A | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Acridine | < 0.05 | 0.5 | 0.05 | µg/L | Apr-10-15 | Apr-12-15 | |
| Anthracene | < 0.01 | 1 | 0.01 | µg/L | Apr-10-15 | Apr-12-15 | |
| Benz (a) anthracene | < 0.01 | N/A | 0.01 | µg/L | Apr-10-15 | Apr-12-15 | |
| Benzo (a) pyrene | < 0.01 | 0.1 | 0.01 | µg/L | Apr-10-15 | Apr-12-15 | |
| Benzo (b) fluoranthene | < 0.02 | N/A | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Benzo (g,h,i) perylene | < 0.02 | N/A | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Benzo (k) fluoranthene | < 0.02 | N/A | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Chrysene | < 0.02 | 1 | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Dibenz (a,h) anthracene | < 0.02 | N/A | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Fluoranthene | < 0.02 | 2 | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Fluorene | < 0.02 | 120 | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Indeno (1,2,3-cd) pyrene | < 0.02 | N/A | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Naphthalene | **0.06** | 10 | 0.05 | µg/L | Apr-10-15 | Apr-12-15 | |
| Phenanthrene | < 0.05 | 3 | 0.05 | µg/L | Apr-10-15 | Apr-12-15 | |
| Pyrene | < 0.02 | 0.2 | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Quinoline | < 0.05 | 34 | 0.05 | µg/L | Apr-10-15 | Apr-12-15 | |
| *Surrogate: Naphthalene-d8* | *81* | | *40-96* | % | *Apr-10-15* | *Apr-12-15* | |
| *Surrogate: Acenaphthene-d10* | *82* | | *45-92* | % | *Apr-10-15* | *Apr-12-15* | |
| *Surrogate: Phenanthrene-d10* | *81* | | *48-90* | % | *Apr-10-15* | *Apr-12-15* | |
| *Surrogate: Chrysene-d12* | *87* | | *41-96* | % | *Apr-10-15* | *Apr-12-15* | |
| *Surrogate: Perylene-d12* | *99* | | *47-104* | % | *Apr-10-15* | *Apr-12-15* | |
| ***Volatile Organic Compounds (VOC)*** | | | | | | | |
| Acetone | < 10.0 | N/A | 10.0 | µg/L | N/A | Apr-10-15 | |
| Benzene | < 0.5 | 4000 | 0.5 | µg/L | N/A | Apr-10-15 | |
| Bromodichloromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| Bromoform | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| Bromomethane | < 2.0 | N/A | 2.0 | µg/L | N/A | Apr-10-15 | |
| 2-Butanone (MEK) | < 5.0 | N/A | 5.0 | µg/L | N/A | Apr-10-15 | |
| Carbon tetrachloride | < 1.0 | 130 | 1.0 | µg/L | N/A | Apr-10-15 | |
| Chlorobenzene | < 1.0 | 13 | 1.0 | µg/L | N/A | Apr-10-15 | |
| Chloroethane | < 2.0 | N/A | 2.0 | µg/L | N/A | Apr-10-15 | |
| Chloroform | < 1.0 | 20 | 1.0 | µg/L | N/A | Apr-10-15 | |
| Chloromethane | < 2.0 | N/A | 2.0 | µg/L | N/A | Apr-10-15 | |
| Dibromochloromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| Dibromomethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,2-Dichlorobenzene | < 0.5 | 7 | 0.5 | µg/L | N/A | Apr-10-15 | |
| 1,3-Dichlorobenzene | < 1.0 | 1500 | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,4-Dichlorobenzene | < 1.0 | 260 | 1.0 | µg/L | N/A | Apr-10-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5040391
**REPORTED** Apr-15-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW4 (5040391-04) [Water] Sampled: Apr-07-15, Continued** | | | | | | | |
| ***Volatile Organic Compounds (VOC), Continued*** | | | | | | | |
| 1,1-Dichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,2-Dichloroethane | < 1.0 | 1000 | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,1-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| cis-1,2-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| trans-1,2-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,2-Dichloropropane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| cis-1,3-Dichloropropene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| trans-1,3-Dichloropropene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| Ethylbenzene | < 1.0 | 2000 | 1.0 | µg/L | N/A | Apr-10-15 | |
| Methyl tert-butyl ether | < 1.0 | 34000 | 1.0 | µg/L | N/A | Apr-10-15 | |
| Methylene chloride | < 3.0 | 980 | 3.0 | µg/L | N/A | Apr-10-15 | |
| 4-Methyl-2-Pentanone (MIBK) | < 10.0 | N/A | 10.0 | µg/L | N/A | Apr-10-15 | |
| Styrene | < 1.0 | 720 | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,1,1,2-Tetrachloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,1,2,2-Tetrachloroethane | < 1.0 | 1100 | 1.0 | µg/L | N/A | Apr-10-15 | |
| Tetrachloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| Toluene | < 1.0 | 390 | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,1,1-Trichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,1,2-Trichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| Trichloroethene | < 1.0 | 200 | 1.0 | µg/L | N/A | Apr-10-15 | |
| Trichlorofluoromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| Vinyl chloride | < 2.0 | N/A | 2.0 | µg/L | N/A | Apr-10-15 | |
| m,p-Xylene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| o-Xylene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| Xylenes (total) | < 2.0 | N/A | 2.0 | µg/L | N/A | Apr-10-15 | |
| *Surrogate: Toluene-d8* | *98* | | *70-130* | % | *N/A* | *Apr-10-15* | |
| *Surrogate: 4-Bromofluorobenzene* | *95* | | *70-130* | % | *N/A* | *Apr-10-15* | |
| *Surrogate: 1,4-Dichlorobenzene-d4* | *87* | | *70-130* | % | *N/A* | *Apr-10-15* | |
| **Sample ID: MW6 (5040391-05) [Water] Sampled: Apr-07-15** | | | | | | | |
| ***Anions*** | | | | | | | |
| Bromide | < 0.1 | N/A | 0.1 | mg/L | N/A | Apr-10-15 | |
| Chloride | **165** | 1500 | 0.10 | mg/L | N/A | Apr-10-15 | |
| Fluoride | **0.12** | 2 | 0.01 | mg/L | N/A | Apr-10-15 | |
| Nitrite as N | < 0.002 | 0.2 | 0.001 | mg/L | N/A | Apr-09-15 | |
| Sulfate | **136** | 1000 | 1.0 | mg/L | N/A | Apr-10-15 | |
| ***General Parameters*** | | | | | | | |
| Alkalinity, Total as CaCO3 | **8** | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Bicarbonate as CaCO3 | **8** | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Ammonia as N, Total | **0.174** | N/A | 0.005 | mg/L | N/A | Apr-10-15 | |
| Nitrate+Nitrite as N | **0.06** | 400 | 0.005 | mg/L | N/A | Apr-10-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5040391
**REPORTED** Apr-15-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW6 (5040391-05) [Water] Sampled: Apr-07-15, Continued** | | | | | | | |
| ***General Parameters, Continued*** | | | | | | | |
| Nitrogen, Total Kjeldahl | **0.58** | N/A | 0.05 | mg/L | Apr-10-15 | Apr-10-15 | |
| Solids, Total Suspended | **375** | N/A | 2 | mg/L | N/A | Apr-10-15 | |
| pH | **5.91** | N/A | 0.01 | pH units | N/A | Apr-09-15 | HT2 |
| Conductivity (EC) | **798** | N/A | 2 | µS/cm | N/A | Apr-09-15 | |
| Chemical Oxygen Demand | < 5 | N/A | 5 | mg/L | N/A | Apr-14-15 | |
| ***Calculated Parameters*** | | | | | | | |
| VPHw | < 100 | 1500 | 100 | µg/L | N/A | N/A | |
| LEPHw | < 100 | 500 | 100 | µg/L | N/A | N/A | |
| HEPHw | < 100 | N/A | 100 | µg/L | N/A | N/A | |
| Total PAHs | < 0.05 | N/A | 0.05 | µg/L | N/A | N/A | |
| Hardness, Total (Diss. as CaCO3) | **157** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | **0.06** | 400 | 0.005 | mg/L | N/A | N/A | |
| Nitrogen, Total | **0.65** | N/A | 0.10 | mg/L | N/A | N/A | |
| ***Dissolved Metals*** | | | | | | | |
| Aluminum, dissolved | **0.227** | N/A | 0.005 | mg/L | N/A | Apr-13-15 | |
| Antimony, dissolved | < 0.0001 | 0.2 | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Arsenic, dissolved | < 0.0005 | 0.05 | 0.0005 | mg/L | N/A | Apr-13-15 | |
| Barium, dissolved | **0.055** | 5 | 0.005 | mg/L | N/A | Apr-13-15 | |
| Beryllium, dissolved | < 0.0001 | 0.053 | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Bismuth, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Boron, dissolved | **0.015** | 50 | 0.004 | mg/L | N/A | Apr-13-15 | |
| Cadmium, dissolved | **0.00043** | 0.0001 | 0.00001 | mg/L | N/A | Apr-13-15 | |
| Calcium, dissolved | **50.0** | N/A | 0.2 | mg/L | N/A | Apr-13-15 | |
| Chromium, dissolved | < 0.0005 | 0.01 | 0.0005 | mg/L | N/A | Apr-13-15 | |
| Cobalt, dissolved | **0.00166** | 0.04 | 0.00005 | mg/L | N/A | Apr-13-15 | |
| Copper, dissolved | **0.0043** | 0.02 | 0.0002 | mg/L | N/A | Apr-13-15 | |
| Iron, dissolved | **0.023** | N/A | 0.010 | mg/L | N/A | Apr-13-15 | |
| Lead, dissolved | < 0.0001 | 0.04 | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Lithium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Magnesium, dissolved | **7.79** | N/A | 0.01 | mg/L | N/A | Apr-13-15 | |
| Manganese, dissolved | **0.635** | N/A | 0.0002 | mg/L | N/A | Apr-13-15 | |
| Mercury, dissolved | < 0.00002 | 0.001 | 0.00002 | mg/L | Apr-14-15 | Apr-14-15 | |
| Molybdenum, dissolved | **0.0001** | 10 | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Nickel, dissolved | **0.0032** | 0.25 | 0.0002 | mg/L | N/A | Apr-13-15 | |
| Phosphorus, dissolved | < 0.02 | N/A | 0.02 | mg/L | N/A | Apr-13-15 | |
| Potassium, dissolved | **4.50** | N/A | 0.02 | mg/L | N/A | Apr-13-15 | |
| Selenium, dissolved | < 0.0005 | 0.01 | 0.0005 | mg/L | N/A | Apr-13-15 | |
| Silicon, dissolved | **9.6** | N/A | 0.5 | mg/L | N/A | Apr-13-15 | |
| Silver, dissolved | < 0.00005 | 0.0005 | 0.00005 | mg/L | N/A | Apr-13-15 | |
| Sodium, dissolved | **106** | N/A | 0.02 | mg/L | N/A | Apr-13-15 | |
| Strontium, dissolved | **0.717** | N/A | 0.001 | mg/L | N/A | Apr-13-15 | |
| Sulfur, dissolved | **44** | N/A | 1 | mg/L | N/A | Apr-13-15 | |
| Tellurium, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Apr-13-15 | |
| Thallium, dissolved | **0.00005** | 0.003 | 0.00002 | mg/L | N/A | Apr-13-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5040391
**REPORTED** Apr-15-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW6 (5040391-05) [Water] Sampled: Apr-07-15, Continued** | | | | | | | |
| ***Dissolved Metals, Continued*** | | | | | | | |
| Thorium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Tin, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Apr-13-15 | |
| Titanium, dissolved | < 0.005 | 1 | 0.005 | mg/L | N/A | Apr-13-15 | |
| Uranium, dissolved | **0.00004** | 3 | 0.00002 | mg/L | N/A | Apr-13-15 | |
| Vanadium, dissolved | < 0.001 | N/A | 0.001 | mg/L | N/A | Apr-13-15 | |
| Zinc, dissolved | **0.009** | 0.075 | 0.004 | mg/L | N/A | Apr-13-15 | |
| Zirconium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Apr-13-15 | |
| ***Aggregate Organic Parameters*** | | | | | | | |
| VHw (6-10) | < 100 | 15000 | 100 | µg/L | N/A | Apr-10-15 | |
| EPHw (10-19) | < 100 | 5000 | 100 | µg/L | Apr-10-15 | Apr-12-15 | |
| EPHw (19-32) | < 100 | N/A | 100 | µg/L | Apr-10-15 | Apr-12-15 | |
| ***Polycyclic Aromatic Hydrocarbons (PAH)*** | | | | | | | |
| Acenaphthene | < 0.02 | 60 | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Acenaphthylene | < 0.02 | N/A | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Acridine | < 0.05 | 0.5 | 0.05 | µg/L | Apr-10-15 | Apr-12-15 | |
| Anthracene | < 0.01 | 1 | 0.01 | µg/L | Apr-10-15 | Apr-12-15 | |
| Benz (a) anthracene | < 0.01 | N/A | 0.01 | µg/L | Apr-10-15 | Apr-12-15 | |
| Benzo (a) pyrene | < 0.01 | 0.1 | 0.01 | µg/L | Apr-10-15 | Apr-12-15 | |
| Benzo (b) fluoranthene | < 0.02 | N/A | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Benzo (g,h,i) perylene | < 0.02 | N/A | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Benzo (k) fluoranthene | < 0.02 | N/A | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Chrysene | < 0.02 | 1 | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Dibenz (a,h) anthracene | < 0.02 | N/A | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Fluoranthene | < 0.02 | 2 | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Fluorene | < 0.02 | 120 | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Indeno (1,2,3-cd) pyrene | < 0.02 | N/A | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Naphthalene | < 0.05 | 10 | 0.05 | µg/L | Apr-10-15 | Apr-12-15 | |
| Phenanthrene | < 0.05 | 3 | 0.05 | µg/L | Apr-10-15 | Apr-12-15 | |
| Pyrene | < 0.02 | 0.2 | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Quinoline | < 0.05 | 34 | 0.05 | µg/L | Apr-10-15 | Apr-12-15 | |
| *Surrogate: Naphthalene-d8* | *80* | | *40-96* | % | *Apr-10-15* | *Apr-12-15* | |
| *Surrogate: Acenaphthene-d10* | *92* | | *45-92* | % | *Apr-10-15* | *Apr-12-15* | |
| *Surrogate: Phenanthrene-d10* | *88* | | *48-90* | % | *Apr-10-15* | *Apr-12-15* | |
| *Surrogate: Chrysene-d12* | *86* | | *41-96* | % | *Apr-10-15* | *Apr-12-15* | |
| *Surrogate: Perylene-d12* | *93* | | *47-104* | % | *Apr-10-15* | *Apr-12-15* | |
| ***Volatile Organic Compounds (VOC)*** | | | | | | | |
| Acetone | < 10.0 | N/A | 10.0 | µg/L | N/A | Apr-10-15 | |
| Benzene | < 0.5 | 4000 | 0.5 | µg/L | N/A | Apr-10-15 | |
| Bromodichloromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| Bromoform | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| Bromomethane | < 2.0 | N/A | 2.0 | µg/L | N/A | Apr-10-15 | |
| 2-Butanone (MEK) | < 5.0 | N/A | 5.0 | µg/L | N/A | Apr-10-15 | |
| Carbon tetrachloride | < 1.0 | 130 | 1.0 | µg/L | N/A | Apr-10-15 | |
| Chlorobenzene | < 1.0 | 13 | 1.0 | µg/L | N/A | Apr-10-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5040391
**REPORTED** Apr-15-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW6 (5040391-05) [Water] Sampled: Apr-07-15, Continued** | | | | | | | |
| ***Volatile Organic Compounds (VOC), Continued*** | | | | | | | |
| Chloroethane | < 2.0 | N/A | 2.0 | µg/L | N/A | Apr-10-15 | |
| Chloroform | < 1.0 | 20 | 1.0 | µg/L | N/A | Apr-10-15 | |
| Chloromethane | < 2.0 | N/A | 2.0 | µg/L | N/A | Apr-10-15 | |
| Dibromochloromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| Dibromomethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,2-Dichlorobenzene | < 0.5 | 7 | 0.5 | µg/L | N/A | Apr-10-15 | |
| 1,3-Dichlorobenzene | < 1.0 | 1500 | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,4-Dichlorobenzene | < 1.0 | 260 | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,1-Dichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,2-Dichloroethane | < 1.0 | 1000 | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,1-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| cis-1,2-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| trans-1,2-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,2-Dichloropropane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| cis-1,3-Dichloropropene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| trans-1,3-Dichloropropene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| Ethylbenzene | < 1.0 | 2000 | 1.0 | µg/L | N/A | Apr-10-15 | |
| Methyl tert-butyl ether | < 1.0 | 34000 | 1.0 | µg/L | N/A | Apr-10-15 | |
| Methylene chloride | < 3.0 | 980 | 3.0 | µg/L | N/A | Apr-10-15 | |
| 4-Methyl-2-Pentanone (MIBK) | < 10.0 | N/A | 10.0 | µg/L | N/A | Apr-10-15 | |
| Styrene | < 1.0 | 720 | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,1,1,2-Tetrachloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,1,2,2-Tetrachloroethane | < 1.0 | 1100 | 1.0 | µg/L | N/A | Apr-10-15 | |
| Tetrachloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| Toluene | < 1.0 | 390 | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,1,1-Trichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,1,2-Trichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| Trichloroethene | < 1.0 | 200 | 1.0 | µg/L | N/A | Apr-10-15 | |
| Trichlorofluoromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| Vinyl chloride | < 2.0 | N/A | 2.0 | µg/L | N/A | Apr-10-15 | |
| m,p-Xylene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| o-Xylene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| Xylenes (total) | < 2.0 | N/A | 2.0 | µg/L | N/A | Apr-10-15 | |
| *Surrogate: Toluene-d8* | *99* | | *70-130* | % | *N/A* | *Apr-10-15* | |
| *Surrogate: 4-Bromofluorobenzene* | *97* | | *70-130* | % | *N/A* | *Apr-10-15* | |
| *Surrogate: 1,4-Dichlorobenzene-d4* | *88* | | *70-130* | % | *N/A* | *Apr-10-15* | |
| **Sample ID: Leachate MH (5040391-06) [Water] Sampled: Apr-07-15** | | | | | | | F1 |
| ***Anions*** | | | | | | | |
| Bromide | < 0.1 | N/A | 0.1 | mg/L | N/A | Apr-10-15 | |
| Chloride | **66.8** | 1500 | 0.10 | mg/L | N/A | Apr-10-15 | |
| Fluoride | **0.06** | 2 | 0.01 | mg/L | N/A | Apr-10-15 | |
| Nitrite as N | **0.02** | 0.2 | 0.001 | mg/L | N/A | Apr-09-15 | |
| Sulfate | **70.7** | 1000 | 1.0 | mg/L | N/A | Apr-10-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5040391
**REPORTED** Apr-15-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: Leachate MH (5040391-06) [Water] Sampled: Apr-07-15, Continued** | | | | | | | F1 |
| ***General Parameters*** | | | | | | | |
| Alkalinity, Total as CaCO3 | **458** | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Bicarbonate as CaCO3 | **458** | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Ammonia as N, Total | **0.118** | N/A | 0.005 | mg/L | N/A | Apr-10-15 | |
| Nitrate+Nitrite as N | **6.64** | 400 | 0.005 | mg/L | N/A | Apr-10-15 | |
| Nitrogen, Total Kjeldahl | **1.29** | N/A | 0.05 | mg/L | Apr-10-15 | Apr-10-15 | |
| Solids, Total Suspended | **7** | N/A | 2 | mg/L | N/A | Apr-10-15 | |
| pH | **7.22** | N/A | 0.01 | pH units | N/A | Apr-09-15 | HT2 |
| Conductivity (EC) | **1270** | N/A | 2 | µS/cm | N/A | Apr-09-15 | |
| Chemical Oxygen Demand | **31** | N/A | 5 | mg/L | N/A | Apr-14-15 | |
| ***Calculated Parameters*** | | | | | | | |
| VPHw | < 100 | 1500 | 100 | µg/L | N/A | N/A | |
| LEPHw | < 100 | 500 | 100 | µg/L | N/A | N/A | |
| HEPHw | **109** | N/A | 100 | µg/L | N/A | N/A | |
| Total PAHs | < 0.05 | N/A | 0.05 | µg/L | N/A | N/A | |
| Hardness, Total (Diss. as CaCO3) | **184** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | **6.62** | 400 | 0.05 | mg/L | N/A | N/A | |
| Nitrogen, Total | **7.93** | N/A | 0.05 | mg/L | N/A | N/A | |
| ***Dissolved Metals*** | | | | | | | |
| Aluminum, dissolved | **0.025** | N/A | 0.005 | mg/L | N/A | Apr-13-15 | |
| Antimony, dissolved | **0.0002** | 0.2 | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Arsenic, dissolved | < 0.0005 | 0.05 | 0.0005 | mg/L | N/A | Apr-13-15 | |
| Barium, dissolved | **0.034** | 5 | 0.005 | mg/L | N/A | Apr-13-15 | |
| Beryllium, dissolved | < 0.0001 | 0.053 | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Bismuth, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Boron, dissolved | **0.030** | 50 | 0.004 | mg/L | N/A | Apr-13-15 | |
| Cadmium, dissolved | **0.00005** | 0.0001 | 0.00001 | mg/L | N/A | Apr-13-15 | |
| Calcium, dissolved | **63.6** | N/A | 0.2 | mg/L | N/A | Apr-13-15 | |
| Chromium, dissolved | < 0.0005 | 0.01 | 0.0005 | mg/L | N/A | Apr-13-15 | |
| Cobalt, dissolved | **0.00046** | 0.04 | 0.00005 | mg/L | N/A | Apr-13-15 | |
| Copper, dissolved | **0.0360** | 0.02 | 0.0002 | mg/L | N/A | Apr-13-15 | |
| Iron, dissolved | **0.015** | N/A | 0.010 | mg/L | N/A | Apr-13-15 | |
| Lead, dissolved | **0.0002** | 0.04 | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Lithium, dissolved | **0.0003** | N/A | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Magnesium, dissolved | **6.21** | N/A | 0.01 | mg/L | N/A | Apr-13-15 | |
| Manganese, dissolved | **0.0435** | N/A | 0.0002 | mg/L | N/A | Apr-13-15 | |
| Mercury, dissolved | < 0.00002 | 0.001 | 0.00002 | mg/L | Apr-14-15 | Apr-14-15 | |
| Molybdenum, dissolved | **0.0004** | 10 | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Nickel, dissolved | **0.0023** | 0.25 | 0.0002 | mg/L | N/A | Apr-13-15 | |
| Phosphorus, dissolved | **0.33** | N/A | 0.02 | mg/L | N/A | Apr-13-15 | |
| Potassium, dissolved | **4.22** | N/A | 0.02 | mg/L | N/A | Apr-13-15 | |
| Selenium, dissolved | < 0.0005 | 0.01 | 0.0005 | mg/L | N/A | Apr-13-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5040391
**REPORTED** Apr-15-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: Leachate MH (5040391-06) [Water] Sampled: Apr-07-15, Continued** | | | | | | | F1 |
| ***Dissolved Metals, Continued*** | | | | | | | |
| Silicon, dissolved | **9.1** | N/A | 0.5 | mg/L | N/A | Apr-13-15 | |
| Silver, dissolved | < 0.00005 | 0.0005 | 0.00005 | mg/L | N/A | Apr-13-15 | |
| Sodium, dissolved | **11.4** | N/A | 0.02 | mg/L | N/A | Apr-13-15 | |
| Strontium, dissolved | **0.239** | N/A | 0.001 | mg/L | N/A | Apr-13-15 | |
| Sulfur, dissolved | **19** | N/A | 1 | mg/L | N/A | Apr-13-15 | |
| Tellurium, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Apr-13-15 | |
| Thallium, dissolved | < 0.00002 | 0.003 | 0.00002 | mg/L | N/A | Apr-13-15 | |
| Thorium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Tin, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Apr-13-15 | |
| Titanium, dissolved | < 0.005 | 1 | 0.005 | mg/L | N/A | Apr-13-15 | |
| Uranium, dissolved | **0.00002** | 3 | 0.00002 | mg/L | N/A | Apr-13-15 | |
| Vanadium, dissolved | < 0.001 | N/A | 0.001 | mg/L | N/A | Apr-13-15 | |
| Zinc, dissolved | **0.032** | 0.075 | 0.004 | mg/L | N/A | Apr-13-15 | |
| Zirconium, dissolved | **0.0001** | N/A | 0.0001 | mg/L | N/A | Apr-13-15 | |
| ***Aggregate Organic Parameters*** | | | | | | | |
| VHw (6-10) | < 100 | 15000 | 100 | µg/L | N/A | Apr-10-15 | |
| EPHw (10-19) | < 100 | 5000 | 100 | µg/L | Apr-10-15 | Apr-12-15 | |
| EPHw (19-32) | **109** | N/A | 100 | µg/L | Apr-10-15 | Apr-12-15 | |
| ***Polycyclic Aromatic Hydrocarbons (PAH)*** | | | | | | | |
| Acenaphthene | < 0.02 | 60 | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Acenaphthylene | < 0.02 | N/A | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Acridine | < 0.05 | 0.5 | 0.05 | µg/L | Apr-10-15 | Apr-12-15 | |
| Anthracene | < 0.01 | 1 | 0.01 | µg/L | Apr-10-15 | Apr-12-15 | |
| Benz (a) anthracene | < 0.01 | N/A | 0.01 | µg/L | Apr-10-15 | Apr-12-15 | |
| Benzo (a) pyrene | < 0.01 | 0.1 | 0.01 | µg/L | Apr-10-15 | Apr-12-15 | |
| Benzo (b) fluoranthene | < 0.02 | N/A | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Benzo (g,h,i) perylene | < 0.02 | N/A | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Benzo (k) fluoranthene | < 0.02 | N/A | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Chrysene | < 0.02 | 1 | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Dibenz (a,h) anthracene | < 0.02 | N/A | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Fluoranthene | < 0.02 | 2 | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Fluorene | < 0.02 | 120 | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Indeno (1,2,3-cd) pyrene | < 0.02 | N/A | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Naphthalene | < 0.05 | 10 | 0.05 | µg/L | Apr-10-15 | Apr-12-15 | |
| Phenanthrene | < 0.05 | 3 | 0.05 | µg/L | Apr-10-15 | Apr-12-15 | |
| Pyrene | < 0.02 | 0.2 | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Quinoline | < 0.05 | 34 | 0.05 | µg/L | Apr-10-15 | Apr-12-15 | |
| *Surrogate: Naphthalene-d8* | *84* | | *40-96* | % | *Apr-10-15* | *Apr-12-15* | |
| *Surrogate: Acenaphthene-d10* | *90* | | *45-92* | % | *Apr-10-15* | *Apr-12-15* | |
| *Surrogate: Phenanthrene-d10* | *89* | | *48-90* | % | *Apr-10-15* | *Apr-12-15* | |
| *Surrogate: Chrysene-d12* | *92* | | *41-96* | % | *Apr-10-15* | *Apr-12-15* | |
| *Surrogate: Perylene-d12* | *102* | | *47-104* | % | *Apr-10-15* | *Apr-12-15* | |
| ***Volatile Organic Compounds (VOC)*** | | | | | | | |
| Acetone | < 10.0 | N/A | 10.0 | µg/L | N/A | Apr-10-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5040391
**REPORTED** Apr-15-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: Leachate MH (5040391-06) [Water] Sampled: Apr-07-15, Continued** | | | | | | | F1 |
| ***Volatile Organic Compounds (VOC), Continued*** | | | | | | | |
| Benzene | < 0.5 | 4000 | 0.5 | µg/L | N/A | Apr-10-15 | |
| Bromodichloromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| Bromoform | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| Bromomethane | < 2.0 | N/A | 2.0 | µg/L | N/A | Apr-10-15 | |
| 2-Butanone (MEK) | < 5.0 | N/A | 5.0 | µg/L | N/A | Apr-10-15 | |
| Carbon tetrachloride | < 1.0 | 130 | 1.0 | µg/L | N/A | Apr-10-15 | |
| Chlorobenzene | < 1.0 | 13 | 1.0 | µg/L | N/A | Apr-10-15 | |
| Chloroethane | < 2.0 | N/A | 2.0 | µg/L | N/A | Apr-10-15 | |
| Chloroform | < 1.0 | 20 | 1.0 | µg/L | N/A | Apr-10-15 | |
| Chloromethane | < 2.0 | N/A | 2.0 | µg/L | N/A | Apr-10-15 | |
| Dibromochloromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| Dibromomethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,2-Dichlorobenzene | < 0.5 | 7 | 0.5 | µg/L | N/A | Apr-10-15 | |
| 1,3-Dichlorobenzene | < 1.0 | 1500 | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,4-Dichlorobenzene | < 1.0 | 260 | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,1-Dichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,2-Dichloroethane | < 1.0 | 1000 | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,1-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| cis-1,2-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| trans-1,2-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,2-Dichloropropane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| cis-1,3-Dichloropropene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| trans-1,3-Dichloropropene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| Ethylbenzene | < 1.0 | 2000 | 1.0 | µg/L | N/A | Apr-10-15 | |
| Methyl tert-butyl ether | < 1.0 | 34000 | 1.0 | µg/L | N/A | Apr-10-15 | |
| Methylene chloride | < 3.0 | 980 | 3.0 | µg/L | N/A | Apr-10-15 | |
| 4-Methyl-2-Pentanone (MIBK) | < 10.0 | N/A | 10.0 | µg/L | N/A | Apr-10-15 | |
| Styrene | < 1.0 | 720 | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,1,1,2-Tetrachloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,1,2,2-Tetrachloroethane | < 1.0 | 1100 | 1.0 | µg/L | N/A | Apr-10-15 | |
| Tetrachloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| Toluene | < 1.0 | 390 | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,1,1-Trichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,1,2-Trichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| Trichloroethene | < 1.0 | 200 | 1.0 | µg/L | N/A | Apr-10-15 | |
| Trichlorofluoromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| Vinyl chloride | < 2.0 | N/A | 2.0 | µg/L | N/A | Apr-10-15 | |
| m,p-Xylene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| o-Xylene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| Xylenes (total) | < 2.0 | N/A | 2.0 | µg/L | N/A | Apr-10-15 | |
| *Surrogate: Toluene-d8* | *97* | | *70-130* | % | *N/A* | *Apr-10-15* | |
| *Surrogate: 4-Bromofluorobenzene* | *97* | | *70-130* | % | *N/A* | *Apr-10-15* | |
| *Surrogate: 1,4-Dichlorobenzene-d4* | *87* | | *70-130* | % | *N/A* | *Apr-10-15* | |
| **Sample ID: GW Intercept (5040391-07) [Water] Sampled: Apr-07-15** | | | | | | | F1 |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5040391
**REPORTED** Apr-15-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: GW Intercept (5040391-07) [Water] Sampled: Apr-07-15, Continued** | | | | | | | F1 |
| ***Anions*** | | | | | | | |
| Bromide | < 0.1 | N/A | 0.1 | mg/L | N/A | Apr-10-15 | |
| Chloride | **58.7** | 1500 | 0.10 | mg/L | N/A | Apr-10-15 | |
| Fluoride | **0.09** | 2 | 0.01 | mg/L | N/A | Apr-10-15 | |
| Nitrite as N | < 0.002 | 0.2 | 0.001 | mg/L | N/A | Apr-09-15 | |
| Sulfate | **332** | 1000 | 1.0 | mg/L | N/A | Apr-10-15 | |
| ***General Parameters*** | | | | | | | |
| Alkalinity, Total as CaCO3 | **130** | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Bicarbonate as CaCO3 | **130** | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Ammonia as N, Total | **1.63** | N/A | 0.005 | mg/L | N/A | Apr-10-15 | |
| Nitrate+Nitrite as N | **0.04** | 400 | 0.005 | mg/L | N/A | Apr-10-15 | |
| Nitrogen, Total Kjeldahl | **1.71** | N/A | 0.05 | mg/L | Apr-10-15 | Apr-10-15 | |
| Solids, Total Suspended | **7** | N/A | 2 | mg/L | N/A | Apr-10-15 | |
| pH | **6.61** | N/A | 0.01 | pH units | N/A | Apr-09-15 | HT2 |
| Conductivity (EC) | **987** | N/A | 2 | µS/cm | N/A | Apr-09-15 | |
| Chemical Oxygen Demand | **14** | N/A | 5 | mg/L | N/A | Apr-14-15 | |
| ***Calculated Parameters*** | | | | | | | |
| VPHw | < 100 | 1500 | 100 | µg/L | N/A | N/A | |
| LEPHw | < 100 | 500 | 100 | µg/L | N/A | N/A | |
| HEPHw | < 100 | N/A | 100 | µg/L | N/A | N/A | |
| Total PAHs | **1.27** | N/A | 0.05 | µg/L | N/A | N/A | |
| Hardness, Total (Diss. as CaCO3) | **395** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | **0.04** | 400 | 0.005 | mg/L | N/A | N/A | |
| Nitrogen, Total | **1.75** | N/A | 0.05 | mg/L | N/A | N/A | |
| ***Dissolved Metals*** | | | | | | | |
| Aluminum, dissolved | **0.044** | N/A | 0.005 | mg/L | N/A | Apr-13-15 | |
| Antimony, dissolved | < 0.0001 | 0.2 | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Arsenic, dissolved | < 0.0005 | 0.05 | 0.0005 | mg/L | N/A | Apr-13-15 | |
| Barium, dissolved | **0.096** | 5 | 0.005 | mg/L | N/A | Apr-13-15 | |
| Beryllium, dissolved | < 0.0001 | 0.053 | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Bismuth, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Boron, dissolved | **0.232** | 50 | 0.004 | mg/L | N/A | Apr-13-15 | |
| Cadmium, dissolved | < 0.00001 | 0.0001 | 0.00001 | mg/L | N/A | Apr-13-15 | |
| Calcium, dissolved | **133** | N/A | 0.2 | mg/L | N/A | Apr-13-15 | |
| Chromium, dissolved | < 0.0005 | 0.01 | 0.0005 | mg/L | N/A | Apr-13-15 | |
| Cobalt, dissolved | **0.0126** | 0.04 | 0.00005 | mg/L | N/A | Apr-13-15 | |
| Copper, dissolved | **0.0068** | 0.02 | 0.0002 | mg/L | N/A | Apr-13-15 | |
| Iron, dissolved | **32.1** | N/A | 0.010 | mg/L | N/A | Apr-13-15 | |
| Lead, dissolved | **0.0002** | 0.04 | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Lithium, dissolved | **0.0006** | N/A | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Magnesium, dissolved | **15.3** | N/A | 0.01 | mg/L | N/A | Apr-13-15 | |
| Manganese, dissolved | **3.84** | N/A | 0.0002 | mg/L | N/A | Apr-13-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5040391
**REPORTED** Apr-15-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: GW Intercept (5040391-07) [Water] Sampled: Apr-07-15, Continued** | | | | | | | F1 |
| ***Dissolved Metals, Continued*** | | | | | | | |
| Mercury, dissolved | < 0.00002 | 0.001 | 0.00002 | mg/L | Apr-14-15 | Apr-14-15 | |
| Molybdenum, dissolved | **0.0003** | 10 | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Nickel, dissolved | **0.0072** | 0.25 | 0.0002 | mg/L | N/A | Apr-13-15 | |
| Phosphorus, dissolved | < 0.02 | N/A | 0.02 | mg/L | N/A | Apr-13-15 | |
| Potassium, dissolved | **7.36** | N/A | 0.02 | mg/L | N/A | Apr-13-15 | |
| Selenium, dissolved | < 0.0005 | 0.01 | 0.0005 | mg/L | N/A | Apr-13-15 | |
| Silicon, dissolved | **10.3** | N/A | 0.5 | mg/L | N/A | Apr-13-15 | |
| Silver, dissolved | < 0.00005 | 0.0005 | 0.00005 | mg/L | N/A | Apr-13-15 | |
| Sodium, dissolved | **42.8** | N/A | 0.02 | mg/L | N/A | Apr-13-15 | |
| Strontium, dissolved | **0.879** | N/A | 0.001 | mg/L | N/A | Apr-13-15 | |
| Sulfur, dissolved | **104** | N/A | 1 | mg/L | N/A | Apr-13-15 | |
| Tellurium, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Apr-13-15 | |
| Thallium, dissolved | < 0.00002 | 0.003 | 0.00002 | mg/L | N/A | Apr-13-15 | |
| Thorium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Apr-13-15 | |
| Tin, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Apr-13-15 | |
| Titanium, dissolved | < 0.005 | 1 | 0.005 | mg/L | N/A | Apr-13-15 | |
| Uranium, dissolved | < 0.00002 | 3 | 0.00002 | mg/L | N/A | Apr-13-15 | |
| Vanadium, dissolved | < 0.001 | N/A | 0.001 | mg/L | N/A | Apr-13-15 | |
| Zinc, dissolved | **0.028** | 0.075 | 0.004 | mg/L | N/A | Apr-13-15 | |
| Zirconium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Apr-13-15 | |
| ***Aggregate Organic Parameters*** | | | | | | | |
| VHw (6-10) | < 100 | 15000 | 100 | µg/L | N/A | Apr-10-15 | |
| EPHw (10-19) | < 100 | 5000 | 100 | µg/L | Apr-10-15 | Apr-12-15 | |
| EPHw (19-32) | < 100 | N/A | 100 | µg/L | Apr-10-15 | Apr-12-15 | |
| ***Polycyclic Aromatic Hydrocarbons (PAH)*** | | | | | | | |
| Acenaphthene | **0.71** | 60 | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Acenaphthylene | < 0.02 | N/A | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Acridine | < 0.05 | 0.5 | 0.05 | µg/L | Apr-10-15 | Apr-12-15 | |
| Anthracene | **0.03** | 1 | 0.01 | µg/L | Apr-10-15 | Apr-12-15 | |
| Benz (a) anthracene | < 0.01 | N/A | 0.01 | µg/L | Apr-10-15 | Apr-12-15 | |
| Benzo (a) pyrene | < 0.01 | 0.1 | 0.01 | µg/L | Apr-10-15 | Apr-12-15 | |
| Benzo (b) fluoranthene | < 0.02 | N/A | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Benzo (g,h,i) perylene | < 0.02 | N/A | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Benzo (k) fluoranthene | < 0.02 | N/A | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Chrysene | < 0.02 | 1 | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Dibenz (a,h) anthracene | < 0.02 | N/A | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Fluoranthene | **0.16** | 2 | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Fluorene | **0.28** | 120 | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Indeno (1,2,3-cd) pyrene | < 0.02 | N/A | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Naphthalene | < 0.05 | 10 | 0.05 | µg/L | Apr-10-15 | Apr-12-15 | |
| Phenanthrene | < 0.05 | 3 | 0.05 | µg/L | Apr-10-15 | Apr-12-15 | |
| Pyrene | **0.09** | 0.2 | 0.02 | µg/L | Apr-10-15 | Apr-12-15 | |
| Quinoline | < 0.05 | 34 | 0.05 | µg/L | Apr-10-15 | Apr-12-15 | |
| *Surrogate: Naphthalene-d8* | *71* | | *40-96* | % | *Apr-10-15* | *Apr-12-15* | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5040391
**REPORTED** Apr-15-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: GW Intercept (5040391-07) [Water] Sampled: Apr-07-15, Continued** | | | | | | | F1 |
| ***Polycyclic Aromatic Hydrocarbons (PAH), Continued*** | | | | | | | |
| *Surrogate: Acenaphthene-d10* | *78* | | *45-92* | % | *Apr-10-15* | *Apr-12-15* | |
| *Surrogate: Phenanthrene-d10* | *74* | | *48-90* | % | *Apr-10-15* | *Apr-12-15* | |
| *Surrogate: Chrysene-d12* | *88* | | *41-96* | % | *Apr-10-15* | *Apr-12-15* | |
| *Surrogate: Perylene-d12* | *97* | | *47-104* | % | *Apr-10-15* | *Apr-12-15* | |
| ***Volatile Organic Compounds (VOC)*** | | | | | | | |
| Acetone | < 10.0 | N/A | 10.0 | µg/L | N/A | Apr-10-15 | |
| Benzene | < 0.5 | 4000 | 0.5 | µg/L | N/A | Apr-10-15 | |
| Bromodichloromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| Bromoform | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| Bromomethane | < 2.0 | N/A | 2.0 | µg/L | N/A | Apr-10-15 | |
| 2-Butanone (MEK) | < 5.0 | N/A | 5.0 | µg/L | N/A | Apr-10-15 | |
| Carbon tetrachloride | < 1.0 | 130 | 1.0 | µg/L | N/A | Apr-10-15 | |
| Chlorobenzene | < 1.0 | 13 | 1.0 | µg/L | N/A | Apr-10-15 | |
| Chloroethane | < 2.0 | N/A | 2.0 | µg/L | N/A | Apr-10-15 | |
| Chloroform | < 1.0 | 20 | 1.0 | µg/L | N/A | Apr-10-15 | |
| Chloromethane | < 2.0 | N/A | 2.0 | µg/L | N/A | Apr-10-15 | |
| Dibromochloromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| Dibromomethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,2-Dichlorobenzene | < 0.5 | 7 | 0.5 | µg/L | N/A | Apr-10-15 | |
| 1,3-Dichlorobenzene | < 1.0 | 1500 | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,4-Dichlorobenzene | < 1.0 | 260 | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,1-Dichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,2-Dichloroethane | < 1.0 | 1000 | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,1-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| cis-1,2-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| trans-1,2-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,2-Dichloropropane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| cis-1,3-Dichloropropene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| trans-1,3-Dichloropropene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| Ethylbenzene | < 1.0 | 2000 | 1.0 | µg/L | N/A | Apr-10-15 | |
| Methyl tert-butyl ether | < 1.0 | 34000 | 1.0 | µg/L | N/A | Apr-10-15 | |
| Methylene chloride | < 3.0 | 980 | 3.0 | µg/L | N/A | Apr-10-15 | |
| 4-Methyl-2-Pentanone (MIBK) | < 10.0 | N/A | 10.0 | µg/L | N/A | Apr-10-15 | |
| Styrene | < 1.0 | 720 | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,1,1,2-Tetrachloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,1,2,2-Tetrachloroethane | < 1.0 | 1100 | 1.0 | µg/L | N/A | Apr-10-15 | |
| Tetrachloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| Toluene | < 1.0 | 390 | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,1,1-Trichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| 1,1,2-Trichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| Trichloroethene | < 1.0 | 200 | 1.0 | µg/L | N/A | Apr-10-15 | |
| Trichlorofluoromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| Vinyl chloride | < 2.0 | N/A | 2.0 | µg/L | N/A | Apr-10-15 | |
| m,p-Xylene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |
| o-Xylene | < 1.0 | N/A | 1.0 | µg/L | N/A | Apr-10-15 | |

| | | | |
|---|---|---|---|
| **REPORTED TO** | Morrison Hershfield Limited | **WORK ORDER** | 5040391 |
| **PROJECT** | Whistler Landfill - Spring/Fall | **REPORTED** | Apr-15-15 |

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: GW Intercept (5040391-07) [Water] Sampled: Apr-07-15, Continued** | | | | | | | F1 |
| ***Volatile Organic Compounds (VOC), Continued*** | | | | | | | |
| Xylenes (total) | < 2.0 | N/A | 2.0 | µg/L | N/A | Apr-10-15 | |
| *Surrogate: Toluene-d8* | *96* | | *70-130* | % | *N/A* | *Apr-10-15* | |
| *Surrogate: 4-Bromofluorobenzene* | *96* | | *70-130* | % | *N/A* | *Apr-10-15* | |
| *Surrogate: 1,4-Dichlorobenzene-d4* | *89* | | *70-130* | % | *N/A* | *Apr-10-15* | |
| **Sample ID: SFC2 (5040391-08) [Water] Sampled: Apr-07-15** | | | | | | | |
| ***Anions*** | | | | | | | |
| Bromide | < 0.1 | N/A | 0.1 | mg/L | N/A | Apr-10-15 | |
| Chloride | **13.8** | 1500 | 0.10 | mg/L | N/A | Apr-10-15 | |
| Fluoride | **0.05** | 2 | 0.01 | mg/L | N/A | Apr-10-15 | |
| Nitrite as N | **0.002** | 0.2 | 0.001 | mg/L | N/A | Apr-09-15 | |
| Sulfate | **68.9** | 1000 | 1.0 | mg/L | N/A | Apr-10-15 | |
| ***General Parameters*** | | | | | | | |
| Alkalinity, Total as CaCO3 | **61** | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Bicarbonate as CaCO3 | **61** | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Ammonia as N, Total | **0.416** | N/A | 0.005 | mg/L | N/A | Apr-10-15 | |
| Nitrate+Nitrite as N | **0.47** | 400 | 0.005 | mg/L | N/A | Apr-10-15 | |
| Nitrogen, Total Kjeldahl | **0.56** | N/A | 0.05 | mg/L | Apr-10-15 | Apr-10-15 | |
| Solids, Total Suspended | **9** | N/A | 2 | mg/L | N/A | Apr-10-15 | |
| pH | **6.73** | N/A | 0.01 | pH units | N/A | Apr-09-15 | HT2 |
| Conductivity (EC) | **309** | N/A | 2 | µS/cm | N/A | Apr-09-15 | |
| Chemical Oxygen Demand | < 5 | N/A | 5 | mg/L | N/A | Apr-14-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Hardness, Total (Total as CaCO3) | **109** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | **0.46** | 400 | 0.005 | mg/L | N/A | N/A | |
| Nitrogen, Total | **1.03** | N/A | 0.05 | mg/L | N/A | N/A | |
| ***Total Recoverable Metals*** | | | | | | | |
| Aluminum, total | **1.04** | N/A | 0.005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Antimony, total | **0.0001** | 0.2 | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Arsenic, total | < 0.0005 | 0.05 | 0.0005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Barium, total | **0.044** | 5 | 0.005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Beryllium, total | < 0.0001 | 0.053 | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Bismuth, total | < 0.0001 | N/A | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Boron, total | **0.047** | 50 | 0.004 | mg/L | Apr-09-15 | Apr-10-15 | |
| Cadmium, total | **0.00006** | 0.0001 | 0.00001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Calcium, total | **37.4** | N/A | 0.2 | mg/L | Apr-09-15 | Apr-10-15 | |
| Chromium, total | < 0.0005 | 0.01 | 0.0005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Cobalt, total | **0.00661** | 0.04 | 0.00005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Copper, total | **0.0221** | 0.02 | 0.0002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Iron, total | **2.99** | N/A | 0.01 | mg/L | Apr-09-15 | Apr-10-15 | |

| | | | |
|---|---|---|---|
| **REPORTED TO** | Morrison Hershfield Limited | **WORK ORDER** | 5040391 |
| **PROJECT** | Whistler Landfill - Spring/Fall | **REPORTED** | Apr-15-15 |

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: SFC2 (5040391-08) [Water] Sampled: Apr-07-15, Continued** | | | | | | | |
| ***Total Recoverable Metals, Continued*** | | | | | | | |
| Lead, total | < 0.0001 | 0.04 | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Lithium, total | **0.0005** | N/A | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Magnesium, total | **3.70** | N/A | 0.01 | mg/L | Apr-09-15 | Apr-10-15 | |
| Manganese, total | **0.679** | N/A | 0.0002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Mercury, total | < 0.00002 | 0.001 | 0.00002 | mg/L | Apr-13-15 | Apr-14-15 | |
| Molybdenum, total | **0.0042** | 10 | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Nickel, total | **0.0025** | 0.25 | 0.0002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Phosphorus, total | **0.036** | N/A | 0.020 | mg/L | Apr-09-15 | Apr-10-15 | |
| Potassium, total | **3.56** | N/A | 0.02 | mg/L | Apr-09-15 | Apr-10-15 | |
| Selenium, total | < 0.0005 | 0.01 | 0.0005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Silicon, total | **4.3** | N/A | 0.5 | mg/L | Apr-09-15 | Apr-10-15 | |
| Silver, total | **0.00011** | 0.0005 | 0.00005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Sodium, total | **14.2** | N/A | 0.02 | mg/L | Apr-09-15 | Apr-10-15 | |
| Strontium, total | **0.206** | N/A | 0.001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Sulfur, total | **20** | N/A | 1 | mg/L | Apr-09-15 | Apr-10-15 | |
| Tellurium, total | < 0.0002 | N/A | 0.0002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Thallium, total | < 0.00002 | 0.003 | 0.00002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Thorium, total | < 0.0001 | N/A | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Tin, total | < 0.0002 | N/A | 0.0002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Titanium, total | < 0.005 | 1 | 0.005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Uranium, total | **0.00009** | 3 | 0.00002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Vanadium, total | < 0.001 | N/A | 0.001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Zinc, total | **0.009** | 0.075 | 0.004 | mg/L | Apr-09-15 | Apr-10-15 | |
| Zirconium, total | < 0.0001 | N/A | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| **Sample ID: SFC2-Rep (5040391-09) [Water] Sampled: Apr-07-15** | | | | | | | |
| ***Anions*** | | | | | | | |
| Bromide | < 0.1 | N/A | 0.1 | mg/L | N/A | Apr-10-15 | |
| Chloride | **13.6** | 1500 | 0.10 | mg/L | N/A | Apr-10-15 | |
| Fluoride | < 0.05 | 2 | 0.01 | mg/L | N/A | Apr-10-15 | |
| Nitrite as N | **0.002** | 0.2 | 0.001 | mg/L | N/A | Apr-09-15 | |
| Sulfate | **69.1** | 1000 | 1.0 | mg/L | N/A | Apr-10-15 | |
| ***General Parameters*** | | | | | | | |
| Alkalinity, Total as CaCO3 | **59** | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Bicarbonate as CaCO3 | **59** | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Ammonia as N, Total | **0.453** | N/A | 0.005 | mg/L | N/A | Apr-10-15 | |
| Nitrate+Nitrite as N | **0.47** | 400 | 0.005 | mg/L | N/A | Apr-10-15 | |
| Nitrogen, Total Kjeldahl | **0.59** | N/A | 0.05 | mg/L | Apr-10-15 | Apr-10-15 | |
| Solids, Total Suspended | **8** | N/A | 2 | mg/L | N/A | Apr-10-15 | |
| pH | **6.77** | N/A | 0.01 | pH units | N/A | Apr-09-15 | HT2 |
| Conductivity (EC) | **307** | N/A | 2 | µS/cm | N/A | Apr-09-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5040391
**REPORTED** Apr-15-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: SFC2-Rep (5040391-09) [Water] Sampled: Apr-07-15, Continued** | | | | | | | |
| ***General Parameters, Continued*** | | | | | | | |
| Chemical Oxygen Demand | < 5 | N/A | 5 | mg/L | N/A | Apr-14-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Hardness, Total (Total as CaCO3) | **108** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | **0.47** | 400 | 0.005 | mg/L | N/A | N/A | |
| Nitrogen, Total | **1.06** | N/A | 0.05 | mg/L | N/A | N/A | |
| ***Total Recoverable Metals*** | | | | | | | |
| Aluminum, total | **1.16** | N/A | 0.005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Antimony, total | **0.0001** | 0.2 | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Arsenic, total | < 0.0005 | 0.05 | 0.0005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Barium, total | **0.043** | 5 | 0.005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Beryllium, total | < 0.0001 | 0.053 | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Bismuth, total | < 0.0001 | N/A | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Boron, total | **0.040** | 50 | 0.004 | mg/L | Apr-09-15 | Apr-10-15 | |
| Cadmium, total | **0.00008** | 0.0001 | 0.00001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Calcium, total | **37.2** | N/A | 0.2 | mg/L | Apr-09-15 | Apr-10-15 | |
| Chromium, total | < 0.0005 | 0.01 | 0.0005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Cobalt, total | **0.00652** | 0.04 | 0.00005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Copper, total | **0.0239** | 0.02 | 0.0002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Iron, total | **3.22** | N/A | 0.01 | mg/L | Apr-09-15 | Apr-10-15 | |
| Lead, total | < 0.0001 | 0.04 | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Lithium, total | **0.0005** | N/A | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Magnesium, total | **3.68** | N/A | 0.01 | mg/L | Apr-09-15 | Apr-10-15 | |
| Manganese, total | **0.671** | N/A | 0.0002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Mercury, total | < 0.00002 | 0.001 | 0.00002 | mg/L | Apr-13-15 | Apr-14-15 | |
| Molybdenum, total | **0.0043** | 10 | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Nickel, total | **0.0026** | 0.25 | 0.0002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Phosphorus, total | < 0.020 | N/A | 0.020 | mg/L | Apr-09-15 | Apr-10-15 | |
| Potassium, total | **3.56** | N/A | 0.02 | mg/L | Apr-09-15 | Apr-10-15 | |
| Selenium, total | < 0.0005 | 0.01 | 0.0005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Silicon, total | **4.5** | N/A | 0.5 | mg/L | Apr-09-15 | Apr-10-15 | |
| Silver, total | **0.00007** | 0.0005 | 0.00005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Sodium, total | **14.1** | N/A | 0.02 | mg/L | Apr-09-15 | Apr-10-15 | |
| Strontium, total | **0.204** | N/A | 0.001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Sulfur, total | **22** | N/A | 1 | mg/L | Apr-09-15 | Apr-10-15 | |
| Tellurium, total | < 0.0002 | N/A | 0.0002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Thallium, total | < 0.00002 | 0.003 | 0.00002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Thorium, total | **0.0001** | N/A | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Tin, total | < 0.0002 | N/A | 0.0002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Titanium, total | < 0.005 | 1 | 0.005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Uranium, total | **0.00010** | 3 | 0.00002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Vanadium, total | < 0.001 | N/A | 0.001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Zinc, total | **0.010** | 0.075 | 0.004 | mg/L | Apr-09-15 | Apr-10-15 | |
| Zirconium, total | **0.0001** | N/A | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |

# SAMPLE ANALYTICAL DATA

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5040391
**REPORTED** Apr-15-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: SFC3 (5040391-10) [Water] Sampled: Apr-07-15** | | | | | | | |
| ***Anions*** | | | | | | | |
| Bromide | < 0.1 | N/A | 0.1 | mg/L | N/A | Apr-10-15 | |
| Chloride | **25.0** | 1500 | 0.10 | mg/L | N/A | Apr-10-15 | |
| Fluoride | < 0.05 | 2 | 0.01 | mg/L | N/A | Apr-10-15 | |
| Nitrite as N | < 0.002 | 0.2 | 0.001 | mg/L | N/A | Apr-09-15 | |
| Sulfate | **26.9** | 1000 | 1.0 | mg/L | N/A | Apr-10-15 | |
| ***General Parameters*** | | | | | | | |
| Alkalinity, Total as CaCO3 | **29** | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Bicarbonate as CaCO3 | **29** | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Ammonia as N, Total | **0.093** | N/A | 0.005 | mg/L | N/A | Apr-10-15 | |
| Nitrate+Nitrite as N | **0.15** | 400 | 0.005 | mg/L | N/A | Apr-10-15 | |
| Nitrogen, Total Kjeldahl | **0.24** | N/A | 0.05 | mg/L | Apr-10-15 | Apr-10-15 | |
| Solids, Total Suspended | < 2 | N/A | 2 | mg/L | N/A | Apr-10-15 | |
| pH | **7.19** | N/A | 0.01 | pH units | N/A | Apr-09-15 | HT2 |
| Conductivity (EC) | **201** | N/A | 2 | µS/cm | N/A | Apr-09-15 | |
| Chemical Oxygen Demand | < 5 | N/A | 5 | mg/L | N/A | Apr-14-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Hardness, Total (Total as CaCO3) | **41.5** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | **0.15** | 400 | 0.005 | mg/L | N/A | N/A | |
| Nitrogen, Total | **0.39** | N/A | 0.05 | mg/L | N/A | N/A | |
| ***Total Recoverable Metals*** | | | | | | | |
| Aluminum, total | **0.055** | N/A | 0.005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Antimony, total | **0.0001** | 0.2 | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Arsenic, total | < 0.0005 | 0.05 | 0.0005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Barium, total | **0.019** | 5 | 0.005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Beryllium, total | < 0.0001 | 0.053 | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Bismuth, total | < 0.0001 | N/A | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Boron, total | **0.017** | 50 | 0.004 | mg/L | Apr-09-15 | Apr-10-15 | |
| Cadmium, total | **0.00002** | 0.0001 | 0.00001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Calcium, total | **13.8** | N/A | 0.2 | mg/L | Apr-09-15 | Apr-10-15 | |
| Chromium, total | **0.0007** | 0.01 | 0.0005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Cobalt, total | **0.00030** | 0.04 | 0.00005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Copper, total | **0.0025** | 0.02 | 0.0002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Iron, total | **0.09** | N/A | 0.01 | mg/L | Apr-09-15 | Apr-10-15 | |
| Lead, total | < 0.0001 | 0.04 | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Lithium, total | **0.0004** | N/A | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Magnesium, total | **1.72** | N/A | 0.01 | mg/L | Apr-09-15 | Apr-10-15 | |
| Manganese, total | **0.0108** | N/A | 0.0002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Mercury, total | < 0.00002 | 0.001 | 0.00002 | mg/L | Apr-13-15 | Apr-14-15 | |
| Molybdenum, total | **0.0006** | 10 | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Nickel, total | **0.0006** | 0.25 | 0.0002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Phosphorus, total | < 0.020 | N/A | 0.020 | mg/L | Apr-09-15 | Apr-10-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5040391
**REPORTED** Apr-15-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: SFC3 (5040391-10) [Water] Sampled: Apr-07-15, Continued** | | | | | | | |
| ***Total Recoverable Metals, Continued*** | | | | | | | |
| Potassium, total | **1.41** | N/A | 0.02 | mg/L | Apr-09-15 | Apr-10-15 | |
| Selenium, total | < 0.0005 | 0.01 | 0.0005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Silicon, total | **6.1** | N/A | 0.5 | mg/L | Apr-09-15 | Apr-10-15 | |
| Silver, total | **0.00005** | 0.0005 | 0.00005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Sodium, total | **21.6** | N/A | 0.02 | mg/L | Apr-09-15 | Apr-10-15 | |
| Strontium, total | **0.111** | N/A | 0.001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Sulfur, total | **6** | N/A | 1 | mg/L | Apr-09-15 | Apr-10-15 | |
| Tellurium, total | < 0.0002 | N/A | 0.0002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Thallium, total | < 0.00002 | 0.003 | 0.00002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Thorium, total | < 0.0001 | N/A | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Tin, total | < 0.0002 | N/A | 0.0002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Titanium, total | < 0.005 | 1 | 0.005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Uranium, total | < 0.00002 | 3 | 0.00002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Vanadium, total | < 0.001 | N/A | 0.001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Zinc, total | **0.004** | 0.075 | 0.004 | mg/L | Apr-09-15 | Apr-10-15 | |
| Zirconium, total | < 0.0001 | N/A | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| **Sample ID: SFC11 (5040391-11) [Water] Sampled: Apr-07-15** | | | | | | | |
| ***Anions*** | | | | | | | |
| Bromide | < 0.1 | N/A | 0.1 | mg/L | N/A | Apr-10-15 | |
| Chloride | **4.68** | 1500 | 0.10 | mg/L | N/A | Apr-10-15 | |
| Fluoride | < 0.05 | 2 | 0.01 | mg/L | N/A | Apr-10-15 | |
| Nitrite as N | < 0.002 | 0.2 | 0.001 | mg/L | N/A | Apr-09-15 | |
| Sulfate | **11.1** | 1000 | 1.0 | mg/L | N/A | Apr-10-15 | |
| ***General Parameters*** | | | | | | | |
| Alkalinity, Total as CaCO3 | **22** | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Bicarbonate as CaCO3 | **22** | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Ammonia as N, Total | < 0.005 | N/A | 0.005 | mg/L | N/A | Apr-10-15 | |
| Nitrate+Nitrite as N | **0.18** | 400 | 0.005 | mg/L | N/A | Apr-10-15 | |
| Nitrogen, Total Kjeldahl | **0.13** | N/A | 0.05 | mg/L | Apr-10-15 | Apr-10-15 | |
| Solids, Total Suspended | < 2 | N/A | 2 | mg/L | N/A | Apr-10-15 | |
| pH | **7.15** | N/A | 0.01 | pH units | N/A | Apr-09-15 | HT2 |
| Conductivity (EC) | **86** | N/A | 2 | µS/cm | N/A | Apr-09-15 | |
| Chemical Oxygen Demand | < 5 | N/A | 5 | mg/L | N/A | Apr-14-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Hardness, Total (Total as CaCO3) | **27.3** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | **0.18** | 400 | 0.005 | mg/L | N/A | N/A | |
| Nitrogen, Total | **0.32** | N/A | 0.05 | mg/L | N/A | N/A | |
| ***Total Recoverable Metals*** | | | | | | | |
| Aluminum, total | **0.123** | N/A | 0.005 | mg/L | Apr-09-15 | Apr-10-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5040391
**REPORTED** Apr-15-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: SFC11 (5040391-11) [Water] Sampled: Apr-07-15, Continued** | | | | | | | |
| ***Total Recoverable Metals, Continued*** | | | | | | | |
| Antimony, total | < 0.0001 | 0.2 | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Arsenic, total | < 0.0005 | 0.05 | 0.0005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Barium, total | **0.008** | 5 | 0.005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Beryllium, total | < 0.0001 | 0.053 | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Bismuth, total | < 0.0001 | N/A | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Boron, total | **0.011** | 50 | 0.004 | mg/L | Apr-09-15 | Apr-10-15 | |
| Cadmium, total | **0.00002** | 0.0001 | 0.00001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Calcium, total | **8.6** | N/A | 0.2 | mg/L | Apr-09-15 | Apr-10-15 | |
| Chromium, total | < 0.0005 | 0.01 | 0.0005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Cobalt, total | **0.00008** | 0.04 | 0.00005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Copper, total | **0.0013** | 0.02 | 0.0002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Iron, total | **0.07** | N/A | 0.01 | mg/L | Apr-09-15 | Apr-10-15 | |
| Lead, total | < 0.0001 | 0.04 | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Lithium, total | **0.0005** | N/A | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Magnesium, total | **1.43** | N/A | 0.01 | mg/L | Apr-09-15 | Apr-10-15 | |
| Manganese, total | **0.0022** | N/A | 0.0002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Mercury, total | < 0.00002 | 0.001 | 0.00002 | mg/L | Apr-13-15 | Apr-14-15 | |
| Molybdenum, total | **0.0003** | 10 | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Nickel, total | < 0.0002 | 0.25 | 0.0002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Phosphorus, total | **0.026** | N/A | 0.020 | mg/L | Apr-09-15 | Apr-10-15 | |
| Potassium, total | **0.57** | N/A | 0.02 | mg/L | Apr-09-15 | Apr-10-15 | |
| Selenium, total | < 0.0005 | 0.01 | 0.0005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Silicon, total | **7.0** | N/A | 0.5 | mg/L | Apr-09-15 | Apr-10-15 | |
| Silver, total | < 0.00005 | 0.0005 | 0.00005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Sodium, total | **5.49** | N/A | 0.02 | mg/L | Apr-09-15 | Apr-10-15 | |
| Strontium, total | **0.092** | N/A | 0.001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Sulfur, total | **2** | N/A | 1 | mg/L | Apr-09-15 | Apr-10-15 | |
| Tellurium, total | < 0.0002 | N/A | 0.0002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Thallium, total | < 0.00002 | 0.003 | 0.00002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Thorium, total | < 0.0001 | N/A | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Tin, total | < 0.0002 | N/A | 0.0002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Titanium, total | < 0.005 | 1 | 0.005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Uranium, total | < 0.00002 | 3 | 0.00002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Vanadium, total | < 0.001 | N/A | 0.001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Zinc, total | < 0.004 | 0.075 | 0.004 | mg/L | Apr-09-15 | Apr-10-15 | |
| Zirconium, total | < 0.0001 | N/A | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| **Sample ID: SFC 4B (5040391-12) [Water] Sampled: Apr-07-15** | | | | | | | |
| ***Anions*** | | | | | | | |
| Bromide | < 0.1 | N/A | 0.1 | mg/L | N/A | Apr-10-15 | |
| Chloride | **18.0** | 1500 | 0.10 | mg/L | N/A | Apr-10-15 | |
| Fluoride | **0.05** | 2 | 0.01 | mg/L | N/A | Apr-10-15 | |
| Nitrite as N | < 0.002 | 0.2 | 0.001 | mg/L | N/A | Apr-09-15 | |
| Sulfate | **66.6** | 1000 | 1.0 | mg/L | N/A | Apr-10-15 | |

| | | | |
|---|---|---|---|
| **REPORTED TO** | Morrison Hershfield Limited | **WORK ORDER** | 5040391 |
| **PROJECT** | Whistler Landfill - Spring/Fall | **REPORTED** | Apr-15-15 |

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: SFC 4B (5040391-12) [Water] Sampled: Apr-07-15, Continued** | | | | | | | |
| ***General Parameters*** | | | | | | | |
| Alkalinity, Total as CaCO3 | **35** | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Bicarbonate as CaCO3 | **35** | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Ammonia as N, Total | **0.321** | N/A | 0.005 | mg/L | N/A | Apr-10-15 | |
| Nitrate+Nitrite as N | **0.27** | 400 | 0.005 | mg/L | N/A | Apr-10-15 | |
| Nitrogen, Total Kjeldahl | **0.93** | N/A | 0.05 | mg/L | Apr-10-15 | Apr-10-15 | |
| Solids, Total Suspended | **2** | N/A | 2 | mg/L | N/A | Apr-10-15 | |
| pH | **7.36** | N/A | 0.01 | pH units | N/A | Apr-09-15 | HT2 |
| Conductivity (EC) | **278** | N/A | 2 | µS/cm | N/A | Apr-09-15 | |
| Chemical Oxygen Demand | < 5 | N/A | 5 | mg/L | N/A | Apr-14-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Hardness, Total (Total as CaCO3) | **95.5** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | **0.27** | 400 | 0.005 | mg/L | N/A | N/A | |
| Nitrogen, Total | **1.20** | N/A | 0.05 | mg/L | N/A | N/A | |
| ***Total Recoverable Metals*** | | | | | | | |
| Aluminum, total | **0.314** | N/A | 0.005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Antimony, total | < 0.0001 | 0.2 | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Arsenic, total | < 0.0005 | 0.05 | 0.0005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Barium, total | **0.027** | 5 | 0.005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Beryllium, total | < 0.0001 | 0.053 | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Bismuth, total | < 0.0001 | N/A | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Boron, total | **0.045** | 50 | 0.004 | mg/L | Apr-09-15 | Apr-10-15 | |
| Cadmium, total | **0.00005** | 0.0001 | 0.00001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Calcium, total | **31.9** | N/A | 0.2 | mg/L | Apr-09-15 | Apr-10-15 | |
| Chromium, total | < 0.0005 | 0.01 | 0.0005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Cobalt, total | **0.00328** | 0.04 | 0.00005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Copper, total | **0.0058** | 0.02 | 0.0002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Iron, total | **1.51** | N/A | 0.01 | mg/L | Apr-09-15 | Apr-10-15 | |
| Lead, total | < 0.0001 | 0.04 | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Lithium, total | **0.0005** | N/A | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Magnesium, total | **3.84** | N/A | 0.01 | mg/L | Apr-09-15 | Apr-10-15 | |
| Manganese, total | **0.524** | N/A | 0.0002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Mercury, total | < 0.00002 | 0.001 | 0.00002 | mg/L | Apr-13-15 | Apr-14-15 | |
| Molybdenum, total | **0.0013** | 10 | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Nickel, total | **0.0017** | 0.25 | 0.0002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Phosphorus, total | < 0.020 | N/A | 0.020 | mg/L | Apr-09-15 | Apr-10-15 | |
| Potassium, total | **2.28** | N/A | 0.02 | mg/L | Apr-09-15 | Apr-10-15 | |
| Selenium, total | < 0.0005 | 0.01 | 0.0005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Silicon, total | **6.3** | N/A | 0.5 | mg/L | Apr-09-15 | Apr-10-15 | |
| Silver, total | < 0.00005 | 0.0005 | 0.00005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Sodium, total | **14.2** | N/A | 0.02 | mg/L | Apr-09-15 | Apr-10-15 | |
| Strontium, total | **0.237** | N/A | 0.001 | mg/L | Apr-09-15 | Apr-10-15 | |

| | | | |
|---|---|---|---|
| **REPORTED TO** | Morrison Hershfield Limited | **WORK ORDER** | 5040391 |
| **PROJECT** | Whistler Landfill - Spring/Fall | **REPORTED** | Apr-15-15 |

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: SFC 4B (5040391-12) [Water] Sampled: Apr-07-15, Continued** | | | | | | | |
| ***Total Recoverable Metals, Continued*** | | | | | | | |
| Sulfur, total | **22** | N/A | 1 | mg/L | Apr-09-15 | Apr-10-15 | |
| Tellurium, total | < 0.0002 | N/A | 0.0002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Thallium, total | < 0.00002 | 0.003 | 0.00002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Thorium, total | < 0.0001 | N/A | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Tin, total | < 0.0002 | N/A | 0.0002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Titanium, total | < 0.005 | 1 | 0.005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Uranium, total | **0.00002** | 3 | 0.00002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Vanadium, total | < 0.001 | N/A | 0.001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Zinc, total | **0.007** | 0.075 | 0.004 | mg/L | Apr-09-15 | Apr-10-15 | |
| Zirconium, total | < 0.0001 | N/A | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| **Sample ID: SFC 2B (5040391-13) [Water] Sampled: Apr-07-15** | | | | | | | |
| ***Anions*** | | | | | | | |
| Bromide | < 0.1 | N/A | 0.1 | mg/L | N/A | Apr-10-15 | |
| Chloride | **7.62** | 1500 | 0.10 | mg/L | N/A | Apr-10-15 | |
| Fluoride | **0.33** | 2 | 0.01 | mg/L | N/A | Apr-10-15 | |
| Nitrite as N | **0.01** | 0.2 | 0.001 | mg/L | N/A | Apr-09-15 | |
| Sulfate | **240** | 1000 | 1.0 | mg/L | N/A | Apr-10-15 | |
| ***General Parameters*** | | | | | | | |
| Alkalinity, Total as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Bicarbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Ammonia as N, Total | **0.784** | N/A | 0.005 | mg/L | N/A | Apr-10-15 | |
| Nitrate+Nitrite as N | **3.64** | 400 | 0.005 | mg/L | N/A | Apr-10-15 | |
| Nitrogen, Total Kjeldahl | **1.41** | N/A | 0.05 | mg/L | Apr-10-15 | Apr-10-15 | |
| Solids, Total Suspended | **52** | N/A | 2 | mg/L | N/A | Apr-10-15 | |
| pH | **4.81** | N/A | 0.01 | pH units | N/A | Apr-09-15 | HT2 |
| Conductivity (EC) | **501** | N/A | 2 | µS/cm | N/A | Apr-09-15 | |
| Chemical Oxygen Demand | **13** | N/A | 5 | mg/L | N/A | Apr-14-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Hardness, Total (Total as CaCO3) | **188** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | **3.62** | 400 | 0.05 | mg/L | N/A | N/A | |
| Nitrogen, Total | **5.05** | N/A | 0.05 | mg/L | N/A | N/A | |
| ***Total Recoverable Metals*** | | | | | | | |
| Aluminum, total | **6.38** | N/A | 0.005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Antimony, total | < 0.0001 | 0.2 | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Arsenic, total | **0.0007** | 0.05 | 0.0005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Barium, total | **0.039** | 5 | 0.005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Beryllium, total | **0.0003** | 0.053 | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Bismuth, total | < 0.0001 | N/A | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Boron, total | **0.048** | 50 | 0.004 | mg/L | Apr-09-15 | Apr-10-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5040391
**REPORTED** Apr-15-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: SFC 2B (5040391-13) [Water] Sampled: Apr-07-15, Continued** | | | | | | | |
| ***Total Recoverable Metals, Continued*** | | | | | | | |
| Cadmium, total | **0.00040** | 0.0001 | 0.00001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Calcium, total | **59.6** | N/A | 0.2 | mg/L | Apr-09-15 | Apr-10-15 | |
| Chromium, total | **0.0015** | 0.01 | 0.0005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Cobalt, total | **0.0402** | 0.04 | 0.00005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Copper, total | **0.161** | 0.02 | 0.0002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Iron, total | **18.9** | N/A | 0.01 | mg/L | Apr-09-15 | Apr-10-15 | |
| Lead, total | < 0.0001 | 0.04 | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Lithium, total | **0.0033** | N/A | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Magnesium, total | **9.44** | N/A | 0.01 | mg/L | Apr-09-15 | Apr-10-15 | |
| Manganese, total | **2.05** | N/A | 0.0002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Mercury, total | < 0.00002 | 0.001 | 0.00002 | mg/L | Apr-13-15 | Apr-14-15 | |
| Molybdenum, total | **0.0003** | 10 | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Nickel, total | **0.0185** | 0.25 | 0.0002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Phosphorus, total | **0.103** | N/A | 0.020 | mg/L | Apr-09-15 | Apr-10-15 | |
| Potassium, total | **4.63** | N/A | 0.02 | mg/L | Apr-09-15 | Apr-10-15 | |
| Selenium, total | **0.0022** | 0.01 | 0.0005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Silicon, total | **7.7** | N/A | 0.5 | mg/L | Apr-09-15 | Apr-10-15 | |
| Silver, total | < 0.00005 | 0.0005 | 0.00005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Sodium, total | **10.9** | N/A | 0.02 | mg/L | Apr-09-15 | Apr-10-15 | |
| Strontium, total | **0.239** | N/A | 0.001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Sulfur, total | **69** | N/A | 1 | mg/L | Apr-09-15 | Apr-10-15 | |
| Tellurium, total | < 0.0002 | N/A | 0.0002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Thallium, total | < 0.00002 | 0.003 | 0.00002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Thorium, total | **0.0011** | N/A | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Tin, total | < 0.0002 | N/A | 0.0002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Titanium, total | < 0.005 | 1 | 0.005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Uranium, total | **0.00045** | 3 | 0.00002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Vanadium, total | < 0.001 | N/A | 0.001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Zinc, total | **0.045** | 0.075 | 0.004 | mg/L | Apr-09-15 | Apr-10-15 | |
| Zirconium, total | < 0.0001 | N/A | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| **Sample ID: Blank (5040391-14) [Water] Sampled: Apr-07-15** | | | | | | | |
| ***Anions*** | | | | | | | |
| Bromide | < 0.1 | N/A | 0.1 | mg/L | N/A | Apr-10-15 | |
| Chloride | < 0.10 | 1500 | 0.10 | mg/L | N/A | Apr-10-15 | |
| Fluoride | < 0.05 | 2 | 0.01 | mg/L | N/A | Apr-10-15 | |
| Nitrite as N | < 0.002 | 0.2 | 0.001 | mg/L | N/A | Apr-09-15 | |
| Sulfate | < 1.0 | 1000 | 1.0 | mg/L | N/A | Apr-10-15 | |
| ***General Parameters*** | | | | | | | |
| Alkalinity, Total as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Bicarbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Apr-09-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Apr-09-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5040391
**REPORTED** Apr-15-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: Blank (5040391-14) [Water] Sampled: Apr-07-15, Continued** | | | | | | | |
| ***General Parameters, Continued*** | | | | | | | |
| Ammonia as N, Total | **0.068** | N/A | 0.005 | mg/L | N/A | Apr-10-15 | |
| Nitrate+Nitrite as N | **0.005** | 400 | 0.005 | mg/L | N/A | Apr-10-15 | |
| Nitrogen, Total Kjeldahl | **0.16** | N/A | 0.05 | mg/L | Apr-10-15 | Apr-10-15 | |
| Solids, Total Suspended | < 2 | N/A | 2 | mg/L | N/A | Apr-10-15 | |
| pH | **5.61** | N/A | 0.01 | pH units | N/A | Apr-09-15 | HT2 |
| Conductivity (EC) | < 2 | N/A | 2 | µS/cm | N/A | Apr-09-15 | |
| Chemical Oxygen Demand | < 5 | N/A | 5 | mg/L | N/A | Apr-14-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Hardness, Total (Total as CaCO3) | < 0.50 | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | **0.005** | 400 | 0.005 | mg/L | N/A | N/A | |
| Nitrogen, Total | **0.16** | N/A | 0.05 | mg/L | N/A | N/A | |
| ***Total Recoverable Metals*** | | | | | | | |
| Aluminum, total | < 0.005 | N/A | 0.005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Antimony, total | < 0.0001 | 0.2 | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Arsenic, total | < 0.0005 | 0.05 | 0.0005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Barium, total | < 0.005 | 5 | 0.005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Beryllium, total | < 0.0001 | 0.053 | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Bismuth, total | < 0.0001 | N/A | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Boron, total | < 0.004 | 50 | 0.004 | mg/L | Apr-09-15 | Apr-10-15 | |
| Cadmium, total | < 0.00001 | 0.0001 | 0.00001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Calcium, total | < 0.2 | N/A | 0.2 | mg/L | Apr-09-15 | Apr-10-15 | |
| Chromium, total | < 0.0005 | 0.01 | 0.0005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Cobalt, total | < 0.00005 | 0.04 | 0.00005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Copper, total | < 0.0002 | 0.02 | 0.0002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Iron, total | < 0.01 | N/A | 0.01 | mg/L | Apr-09-15 | Apr-10-15 | |
| Lead, total | < 0.0001 | 0.04 | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Lithium, total | < 0.0001 | N/A | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Magnesium, total | < 0.01 | N/A | 0.01 | mg/L | Apr-09-15 | Apr-10-15 | |
| Manganese, total | < 0.0002 | N/A | 0.0002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Mercury, total | < 0.00002 | 0.001 | 0.00002 | mg/L | Apr-13-15 | Apr-14-15 | |
| Molybdenum, total | < 0.0001 | 10 | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Nickel, total | < 0.0002 | 0.25 | 0.0002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Phosphorus, total | < 0.020 | N/A | 0.020 | mg/L | Apr-09-15 | Apr-10-15 | |
| Potassium, total | < 0.02 | N/A | 0.02 | mg/L | Apr-09-15 | Apr-10-15 | |
| Selenium, total | < 0.0005 | 0.01 | 0.0005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Silicon, total | < 0.5 | N/A | 0.5 | mg/L | Apr-09-15 | Apr-10-15 | |
| Silver, total | < 0.00005 | 0.0005 | 0.00005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Sodium, total | < 0.02 | N/A | 0.02 | mg/L | Apr-09-15 | Apr-10-15 | |
| Strontium, total | < 0.001 | N/A | 0.001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Sulfur, total | < 1 | N/A | 1 | mg/L | Apr-09-15 | Apr-10-15 | |
| Tellurium, total | < 0.0002 | N/A | 0.0002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Thallium, total | < 0.00002 | 0.003 | 0.00002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Thorium, total | < 0.0001 | N/A | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Tin, total | < 0.0002 | N/A | 0.0002 | mg/L | Apr-09-15 | Apr-10-15 | |

| | | | |
|---|---|---|---|
| **REPORTED TO** | Morrison Hershfield Limited | **WORK ORDER** | 5040391 |
| **PROJECT** | Whistler Landfill - Spring/Fall | **REPORTED** | Apr-15-15 |

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: Blank (5040391-14) [Water] Sampled: Apr-07-15, Continued** | | | | | | | |
| ***Total Recoverable Metals, Continued*** | | | | | | | |
| Titanium, total | < 0.005 | 1 | 0.005 | mg/L | Apr-09-15 | Apr-10-15 | |
| Uranium, total | < 0.00002 | 3 | 0.00002 | mg/L | Apr-09-15 | Apr-10-15 | |
| Vanadium, total | < 0.001 | N/A | 0.001 | mg/L | Apr-09-15 | Apr-10-15 | |
| Zinc, total | < 0.004 | 0.075 | 0.004 | mg/L | Apr-09-15 | Apr-10-15 | |
| Zirconium, total | < 0.0001 | N/A | 0.0001 | mg/L | Apr-09-15 | Apr-10-15 | |

**Sample / Analysis Qualifiers:**

F1 The sample was not field-filtered and was therefore filtered through a 0.45 µm membrane in the laboratory and preserved with HNO3 prior to analysis for dissolved metals.

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

| | | | |
|---|---|---|---|
| **REPORTED TO** | Morrison Hershfield Limited | **WORK ORDER** | 5040391 |
| **PROJECT** | Whistler Landfill - Spring/Fall | **REPORTED** | Apr-15-15 |

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- **Method Blank (Blk)**: Laboratory reagent water is carried through sample preparation and analysis steps. Method Blanks indicate that results are free from contamination, i.e. not biased high from sources such as the sample container or the laboratory environment
- **Duplicate (Dup)**: Preparation and analysis of a replicate aliquot of a sample. Duplicates provide a measure of the analytical method's precision, i.e. how reproducible a result is. Duplicates are only reported if they are associated with your sample data.
- **Blank Spike (BS)**: A known amount of standard is carried through sample preparation and analysis steps. Blank Spikes, also known as laboratory control samples (LCS), are prepared from a different source of standard than used for the calibration. They ensure that the calibration is acceptable (i.e. not biased high or low) and also provide a measure of the analytical method's accuracy (i.e. closeness of the result to a target value).
- **Standard Reference Material (SRM)**: A material of similar matrix to the samples, externally certified for the parameter(s) listed. Standard Reference Materials ensure that the preparation steps in the method are adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

| Analyte | Result | MRL | Units | Spike Level | Source Result | % REC | REC Limit | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Aggregate Organic Parameters, Batch B5D0337*** | | | | | | | | | | |
| **Blank (B5D0337-BLK1)** | | | | Prepared: Apr-09-15, Analyzed: Apr-09-15 | | | | | | |
| VHw (6-10) | < 100 | 100 | µg/L | | | | | | | |
| **LCS (B5D0337-BS2)** | | | | Prepared: Apr-09-15, Analyzed: Apr-09-15 | | | | | | |
| VHw (6-10) | 1790 | 100 | µg/L | 2520 | | 71 | 57-107 | | | |
| ***Aggregate Organic Parameters, Batch B5D0399*** | | | | | | | | | | |
| **Blank (B5D0399-BLK1)** | | | | Prepared: Apr-10-15, Analyzed: Apr-12-15 | | | | | | |
| EPHw (10-19) | < 100 | 100 | µg/L | | | | | | | |
| EPHw (19-32) | < 100 | 100 | µg/L | | | | | | | |
| **LCS (B5D0399-BS2)** | | | | Prepared: Apr-10-15, Analyzed: Apr-12-15 | | | | | | |
| EPHw (10-19) | 2650 | 100 | µg/L | 3430 | | 77 | 63-123 | | | |
| EPHw (19-32) | 3970 | 100 | µg/L | 4950 | | 80 | 51-102 | | | |
| ***Anions, Batch B5D0324*** | | | | | | | | | | |
| **Blank (B5D0324-BLK1)** | | | | Prepared: Apr-10-15, Analyzed: Apr-10-15 | | | | | | |
| Bromide | < 0.1 | 0.1 | mg/L | | | | | | | |
| Chloride | < 0.10 | 0.10 | mg/L | | | | | | | |
| Fluoride | < 0.01 | 0.01 | mg/L | | | | | | | |
| Sulfate | < 1.0 | 1.0 | mg/L | | | | | | | |
| **Blank (B5D0324-BLK2)** | | | | Prepared: Apr-10-15, Analyzed: Apr-10-15 | | | | | | |
| Bromide | < 0.1 | 0.1 | mg/L | | | | | | | |
| Chloride | < 0.10 | 0.10 | mg/L | | | | | | | |
| Fluoride | < 0.01 | 0.01 | mg/L | | | | | | | |
| Sulfate | < 1.0 | 1.0 | mg/L | | | | | | | |
| **Blank (B5D0324-BLK3)** | | | | Prepared: Apr-11-15, Analyzed: Apr-11-15 | | | | | | |
| Bromide | < 0.1 | 0.1 | mg/L | | | | | | | |
| Chloride | < 0.10 | 0.10 | mg/L | | | | | | | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5040391
**REPORTED** Apr-15-15

| Analyte | Result | MRL | Units | Spike Level | Source Result | % REC | REC Limit | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Anions, Batch B5D0324, Continued*** | | | | | | | | | | |
| **Blank (B5D0324-BLK3), Continued** | | | | Prepared: Apr-11-15, Analyzed: Apr-11-15 | | | | | | |
| Fluoride | < 0.01 | 0.01 | mg/L | | | | | | | |
| Sulfate | < 1.0 | 1.0 | mg/L | | | | | | | |
| **LCS (B5D0324-BS1)** | | | | Prepared: Apr-10-15, Analyzed: Apr-10-15 | | | | | | |
| Bromide | 3.9 | 0.1 | mg/L | 4.00 | | 97 | 85-115 | | | |
| Chloride | 16.1 | 0.10 | mg/L | 16.0 | | 101 | 85-115 | | | |
| Fluoride | 3.85 | 0.01 | mg/L | 4.00 | | 96 | 85-115 | | | |
| Sulfate | 16.0 | 1.0 | mg/L | 16.0 | | 100 | 85-115 | | | |
| **LCS (B5D0324-BS2)** | | | | Prepared: Apr-10-15, Analyzed: Apr-10-15 | | | | | | |
| Bromide | 3.9 | 0.1 | mg/L | 4.00 | | 98 | 85-115 | | | |
| Chloride | 16.2 | 0.10 | mg/L | 16.0 | | 101 | 85-115 | | | |
| Fluoride | 3.93 | 0.01 | mg/L | 4.00 | | 98 | 85-115 | | | |
| Sulfate | 16.1 | 1.0 | mg/L | 16.0 | | 101 | 85-115 | | | |
| **LCS (B5D0324-BS3)** | | | | Prepared: Apr-11-15, Analyzed: Apr-11-15 | | | | | | |
| Bromide | 3.9 | 0.1 | mg/L | 4.00 | | 98 | 85-115 | | | |
| Chloride | 16.1 | 0.10 | mg/L | 16.0 | | 101 | 85-115 | | | |
| Fluoride | 4.00 | 0.01 | mg/L | 4.00 | | 100 | 85-115 | | | |
| Sulfate | 16.0 | 1.0 | mg/L | 16.0 | | 100 | 85-115 | | | |
| ***Anions, Batch B5D0346*** | | | | | | | | | | |
| **Blank (B5D0346-BLK1)** | | | | Prepared: Apr-09-15, Analyzed: Apr-09-15 | | | | | | |
| Nitrite as N | < 0.001 | 0.001 | mg/L | | | | | | | |
| **LCS (B5D0346-BS1)** | | | | Prepared: Apr-09-15, Analyzed: Apr-09-15 | | | | | | |
| Nitrite as N | 0.10 | 0.001 | mg/L | 0.100 | | 101 | 80-120 | | | |
| **Duplicate (B5D0346-DUP1)** | | **Source: 5040391-01** | | Prepared: Apr-09-15, Analyzed: Apr-09-15 | | | | | | |
| Nitrite as N | < 0.001 | 0.001 | mg/L | | < 0.002 | | | | 18 | |
| ***Dissolved Metals, Batch B5D0491*** | | | | | | | | | | |
| **Blank (B5D0491-BLK1)** | | | | Prepared: Apr-13-15, Analyzed: Apr-13-15 | | | | | | |
| Aluminum, dissolved | < 0.005 | 0.005 | mg/L | | | | | | | |
| Antimony, dissolved | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Arsenic, dissolved | < 0.0005 | 0.0005 | mg/L | | | | | | | |
| Barium, dissolved | < 0.005 | 0.005 | mg/L | | | | | | | |
| Beryllium, dissolved | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Bismuth, dissolved | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Boron, dissolved | < 0.004 | 0.004 | mg/L | | | | | | | |
| Cadmium, dissolved | < 0.00001 | 0.00001 | mg/L | | | | | | | |
| Calcium, dissolved | < 0.2 | 0.2 | mg/L | | | | | | | |
| Chromium, dissolved | < 0.0005 | 0.0005 | mg/L | | | | | | | |
| Cobalt, dissolved | < 0.00005 | 0.00005 | mg/L | | | | | | | |
| Copper, dissolved | < 0.0002 | 0.0002 | mg/L | | | | | | | |
| Iron, dissolved | < 0.010 | 0.010 | mg/L | | | | | | | |
| Lead, dissolved | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Lithium, dissolved | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Magnesium, dissolved | < 0.01 | 0.01 | mg/L | | | | | | | |
| Manganese, dissolved | < 0.0002 | 0.0002 | mg/L | | | | | | | |
| Molybdenum, dissolved | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Nickel, dissolved | < 0.0002 | 0.0002 | mg/L | | | | | | | |
| Phosphorus, dissolved | < 0.02 | 0.02 | mg/L | | | | | | | |
| Potassium, dissolved | < 0.02 | 0.02 | mg/L | | | | | | | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5040391
**REPORTED** Apr-15-15

| Analyte | Result | MRL | Units | Spike Level | Source Result | % REC | REC Limit | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Dissolved Metals, Batch B5D0491, Continued*** | | | | | | | | | | |
| **Blank (B5D0491-BLK1), Continued** | | | | Prepared: Apr-13-15, Analyzed: Apr-13-15 | | | | | | |
| Selenium, dissolved | < 0.0005 | 0.0005 | mg/L | | | | | | | |
| Silicon, dissolved | < 0.5 | 0.5 | mg/L | | | | | | | |
| Silver, dissolved | < 0.00005 | 0.00005 | mg/L | | | | | | | |
| Sodium, dissolved | < 0.02 | 0.02 | mg/L | | | | | | | |
| Strontium, dissolved | < 0.001 | 0.001 | mg/L | | | | | | | |
| Sulfur, dissolved | < 1 | 1 | mg/L | | | | | | | |
| Tellurium, dissolved | < 0.0002 | 0.0002 | mg/L | | | | | | | |
| Thallium, dissolved | < 0.00002 | 0.00002 | mg/L | | | | | | | |
| Thorium, dissolved | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Tin, dissolved | < 0.0002 | 0.0002 | mg/L | | | | | | | |
| Titanium, dissolved | < 0.005 | 0.005 | mg/L | | | | | | | |
| Uranium, dissolved | < 0.00002 | 0.00002 | mg/L | | | | | | | |
| Vanadium, dissolved | < 0.001 | 0.001 | mg/L | | | | | | | |
| Zinc, dissolved | < 0.004 | 0.004 | mg/L | | | | | | | |
| Zirconium, dissolved | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| **Matrix Spike (B5D0491-MS1)** | | **Source: 5040391-01** | | Prepared: Apr-13-15, Analyzed: Apr-13-15 | | | | | | |
| Antimony, dissolved | 0.380 | 0.0001 | mg/L | 0.400 | 0.0001 | 95 | 76-114 | | | |
| Arsenic, dissolved | 0.200 | 0.0005 | mg/L | 0.200 | 0.0081 | 96 | 81-115 | | | |
| Barium, dissolved | 1.05 | 0.005 | mg/L | 1.00 | 0.108 | 94 | 80-113 | | | |
| Beryllium, dissolved | 0.0974 | 0.0001 | mg/L | 0.100 | < 0.0001 | 97 | 69-109 | | | |
| Cadmium, dissolved | 0.0951 | 0.00001 | mg/L | 0.100 | < 0.00001 | 95 | 83-110 | | | |
| Chromium, dissolved | 0.403 | 0.0005 | mg/L | 0.400 | < 0.0005 | 101 | 85-115 | | | |
| Cobalt, dissolved | 0.400 | 0.00005 | mg/L | 0.400 | 0.00160 | 100 | 86-114 | | | |
| Copper, dissolved | 0.405 | 0.0002 | mg/L | 0.400 | < 0.0002 | 101 | 82-119 | | | |
| Iron, dissolved | 41.1 | 0.010 | mg/L | 2.00 | 41.6 | NR | 80-116 | | | SPK1 |
| Lead, dissolved | 0.203 | 0.0001 | mg/L | 0.200 | < 0.0001 | 101 | 83-112 | | | |
| Manganese, dissolved | 2.67 | 0.0002 | mg/L | 0.400 | 2.46 | 55 | 62-131 | | | SPK1 |
| Nickel, dissolved | 0.379 | 0.0002 | mg/L | 0.400 | 0.0009 | 94 | 81-115 | | | |
| Selenium, dissolved | 0.0964 | 0.0005 | mg/L | 0.100 | < 0.0005 | 96 | 79-115 | | | |
| Silver, dissolved | 0.102 | 0.00005 | mg/L | 0.100 | < 0.00005 | 102 | 69-121 | | | |
| Thallium, dissolved | 0.104 | 0.00002 | mg/L | 0.100 | < 0.00002 | 104 | 84-115 | | | |
| Vanadium, dissolved | 0.379 | 0.001 | mg/L | 0.400 | < 0.001 | 95 | 83-113 | | | |
| Zinc, dissolved | 0.951 | 0.004 | mg/L | 1.00 | 0.004 | 95 | 82-115 | | | |
| **Reference (B5D0491-SRM1)** | | | | Prepared: Apr-13-15, Analyzed: Apr-13-15 | | | | | | |
| Aluminum, dissolved | 0.240 | 0.005 | mg/L | 0.233 | | 103 | 58-142 | | | |
| Antimony, dissolved | 0.0520 | 0.0001 | mg/L | 0.0430 | | 121 | 75-125 | | | |
| Arsenic, dissolved | 0.458 | 0.0005 | mg/L | 0.438 | | 105 | 81-119 | | | |
| Barium, dissolved | 3.58 | 0.005 | mg/L | 3.35 | | 107 | 83-117 | | | |
| Beryllium, dissolved | 0.234 | 0.0001 | mg/L | 0.213 | | 110 | 80-120 | | | |
| Boron, dissolved | 1.82 | 0.004 | mg/L | 1.74 | | 104 | 74-117 | | | |
| Cadmium, dissolved | 0.231 | 0.00001 | mg/L | 0.224 | | 103 | 83-117 | | | |
| Calcium, dissolved | 8.5 | 0.2 | mg/L | 7.69 | | 110 | 76-124 | | | |
| Chromium, dissolved | 0.474 | 0.0005 | mg/L | 0.437 | | 109 | 81-119 | | | |
| Cobalt, dissolved | 0.138 | 0.00005 | mg/L | 0.128 | | 108 | 76-124 | | | |
| Copper, dissolved | 0.933 | 0.0002 | mg/L | 0.844 | | 111 | 84-116 | | | |
| Iron, dissolved | 1.38 | 0.010 | mg/L | 1.29 | | 107 | 74-126 | | | |
| Lead, dissolved | 0.123 | 0.0001 | mg/L | 0.112 | | 110 | 72-128 | | | |
| Lithium, dissolved | 0.118 | 0.0001 | mg/L | 0.104 | | 113 | 60-140 | | | |
| Magnesium, dissolved | 7.34 | 0.01 | mg/L | 6.92 | | 106 | 81-119 | | | |
| Manganese, dissolved | 0.360 | 0.0002 | mg/L | 0.345 | | 104 | 84-116 | | | |
| Molybdenum, dissolved | 0.464 | 0.0001 | mg/L | 0.426 | | 109 | 83-117 | | | |
| Nickel, dissolved | 0.922 | 0.0002 | mg/L | 0.840 | | 110 | 74-126 | | | |
| Phosphorus, dissolved | 0.52 | 0.02 | mg/L | 0.495 | | 105 | 68-132 | | | |
| Potassium, dissolved | 3.24 | 0.02 | mg/L | 3.19 | | 102 | 74-126 | | | |
| Selenium, dissolved | 0.0333 | 0.0005 | mg/L | 0.0331 | | 101 | 70-130 | | | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5040391
**REPORTED** Apr-15-15

| Analyte | Result | MRL | Units | Spike Level | Source Result | % REC | REC Limit | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Dissolved Metals, Batch B5D0491, Continued*** | | | | | | | | | | |
| **Reference (B5D0491-SRM1), Continued** | | | | Prepared: Apr-13-15, Analyzed: Apr-13-15 | | | | | | |
| Sodium, dissolved | 20.3 | 0.02 | mg/L | 19.1 | | 106 | 72-128 | | | |
| Strontium, dissolved | 0.954 | 0.001 | mg/L | 0.916 | | 104 | 84-113 | | | |
| Thallium, dissolved | 0.0417 | 0.00002 | mg/L | 0.0393 | | 106 | 57-143 | | | |
| Uranium, dissolved | 0.289 | 0.00002 | mg/L | 0.266 | | 109 | 85-115 | | | |
| Vanadium, dissolved | 0.915 | 0.001 | mg/L | 0.869 | | 105 | 87-113 | | | |
| Zinc, dissolved | 0.910 | 0.004 | mg/L | 0.881 | | 103 | 72-128 | | | |
| ***Dissolved Metals, Batch B5D0512*** | | | | | | | | | | |
| **Blank (B5D0512-BLK1)** | | | | Prepared: Apr-14-15, Analyzed: Apr-14-15 | | | | | | |
| Mercury, dissolved | < 0.00002 | 0.00002 | mg/L | | | | | | | |
| **Blank (B5D0512-BLK2)** | | | | Prepared: Apr-14-15, Analyzed: Apr-14-15 | | | | | | |
| Mercury, dissolved | < 0.00002 | 0.00002 | mg/L | | | | | | | |
| **Reference (B5D0512-SRM1)** | | | | Prepared: Apr-14-15, Analyzed: Apr-14-15 | | | | | | |
| Mercury, dissolved | 0.00432 | 0.00002 | mg/L | 0.00456 | | 95 | 50-150 | | | |
| **Reference (B5D0512-SRM2)** | | | | Prepared: Apr-14-15, Analyzed: Apr-14-15 | | | | | | |
| Mercury, dissolved | 0.00374 | 0.00002 | mg/L | 0.00456 | | 82 | 50-150 | | | |
| ***General Parameters, Batch B5D0335*** | | | | | | | | | | |
| **Blank (B5D0335-BLK1)** | | | | Prepared: Apr-10-15, Analyzed: Apr-10-15 | | | | | | |
| Solids, Total Suspended | < 2 | 2 | mg/L | | | | | | | |
| **Blank (B5D0335-BLK2)** | | | | Prepared: Apr-10-15, Analyzed: Apr-10-15 | | | | | | |
| Solids, Total Suspended | < 2 | 2 | mg/L | | | | | | | |
| **LCS (B5D0335-BS1)** | | | | Prepared: Apr-10-15, Analyzed: Apr-10-15 | | | | | | |
| Solids, Total Suspended | 50 | 2 | mg/L | 50.0 | | 101 | 85-110 | | | |
| **LCS (B5D0335-BS2)** | | | | Prepared: Apr-10-15, Analyzed: Apr-10-15 | | | | | | |
| Solids, Total Suspended | 55 | 2 | mg/L | 50.0 | | 110 | 85-110 | | | |
| ***General Parameters, Batch B5D0349*** | | | | | | | | | | |
| **Blank (B5D0349-BLK1)** | | | | Prepared: Apr-10-15, Analyzed: Apr-10-15 | | | | | | |
| Nitrate+Nitrite as N | < 0.005 | 0.005 | mg/L | | | | | | | |
| **LCS (B5D0349-BS1)** | | | | Prepared: Apr-10-15, Analyzed: Apr-10-15 | | | | | | |
| Nitrate+Nitrite as N | 101 | 0.005 | mg/L | 100 | | 101 | 91-108 | | | |
| **Duplicate (B5D0349-DUP1)** | | **Source: 5040391-10** | | Prepared: Apr-10-15, Analyzed: Apr-10-15 | | | | | | |
| Nitrate+Nitrite as N | 0.15 | 0.005 | mg/L | | 0.15 | | | 1 | 15 | |
| **Matrix Spike (B5D0349-MS1)** | | **Source: 5040391-05** | | Prepared: Apr-10-15, Analyzed: Apr-10-15 | | | | | | |
| Nitrate+Nitrite as N | 0.12 | 0.005 | mg/L | 0.0556 | 0.06 | 100 | 81-118 | | | |
| ***General Parameters, Batch B5D0354*** | | | | | | | | | | |
| **Blank (B5D0354-BLK1)** | | | | Prepared: Apr-09-15, Analyzed: Apr-09-15 | | | | | | |
| Alkalinity, Total as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Alkalinity, Bicarbonate as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Alkalinity, Carbonate as CaCO3 | < 1 | 1 | mg/L | | | | | | | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5040391
**REPORTED** Apr-15-15

| Analyte | Result | MRL | Units | Spike Level | Source Result | % REC | REC Limit | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| ***General Parameters, Batch B5D0354, Continued*** | | | | | | | | | | |
| **Blank (B5D0354-BLK1), Continued** | | | | Prepared: Apr-09-15, Analyzed: Apr-09-15 | | | | | | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Conductivity (EC) | < 2 | 2 | µS/cm | | | | | | | |
| **Blank (B5D0354-BLK2)** | | | | Prepared: Apr-09-15, Analyzed: Apr-09-15 | | | | | | |
| Alkalinity, Total as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Alkalinity, Bicarbonate as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Alkalinity, Carbonate as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Conductivity (EC) | < 2 | 2 | µS/cm | | | | | | | |
| **Blank (B5D0354-BLK3)** | | | | Prepared: Apr-09-15, Analyzed: Apr-09-15 | | | | | | |
| Alkalinity, Total as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Alkalinity, Bicarbonate as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Alkalinity, Carbonate as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Conductivity (EC) | < 2 | 2 | µS/cm | | | | | | | |
| **LCS (B5D0354-BS1)** | | | | Prepared: Apr-09-15, Analyzed: Apr-09-15 | | | | | | |
| Alkalinity, Total as CaCO3 | 104 | 1 | mg/L | 100 | | 104 | 96-108 | | | |
| **LCS (B5D0354-BS2)** | | | | Prepared: Apr-09-15, Analyzed: Apr-09-15 | | | | | | |
| Alkalinity, Total as CaCO3 | 100 | 1 | mg/L | 100 | | 100 | 96-108 | | | |
| **LCS (B5D0354-BS3)** | | | | Prepared: Apr-09-15, Analyzed: Apr-09-15 | | | | | | |
| Alkalinity, Total as CaCO3 | 102 | 1 | mg/L | 100 | | 102 | 96-108 | | | |
| **LCS (B5D0354-BS4)** | | | | Prepared: Apr-09-15, Analyzed: Apr-09-15 | | | | | | |
| Conductivity (EC) | 1420 | 2 | µS/cm | 1410 | | 101 | 93-104 | | | |
| **LCS (B5D0354-BS5)** | | | | Prepared: Apr-09-15, Analyzed: Apr-09-15 | | | | | | |
| Conductivity (EC) | 1420 | 2 | µS/cm | 1410 | | 100 | 93-104 | | | |
| **LCS (B5D0354-BS6)** | | | | Prepared: Apr-09-15, Analyzed: Apr-09-15 | | | | | | |
| Conductivity (EC) | 1420 | 2 | µS/cm | 1410 | | 101 | 93-104 | | | |
| **Reference (B5D0354-SRM1)** | | | | Prepared: Apr-09-15, Analyzed: Apr-09-15 | | | | | | |
| pH | 6.97 | 0.01 | pH units | 7.00 | | 100 | 98-102 | | | |
| **Reference (B5D0354-SRM2)** | | | | Prepared: Apr-09-15, Analyzed: Apr-09-15 | | | | | | |
| pH | 6.97 | 0.01 | pH units | 7.00 | | 100 | 98-102 | | | |
| **Reference (B5D0354-SRM3)** | | | | Prepared: Apr-09-15, Analyzed: Apr-09-15 | | | | | | |
| pH | 6.97 | 0.01 | pH units | 7.00 | | 100 | 98-102 | | | |
| ***General Parameters, Batch B5D0366*** | | | | | | | | | | |
| **Blank (B5D0366-BLK1)** | | | | Prepared: Apr-10-15, Analyzed: Apr-10-15 | | | | | | |
| Ammonia as N, Total | < 0.005 | 0.005 | mg/L | | | | | | | |
| **Blank (B5D0366-BLK2)** | | | | Prepared: Apr-10-15, Analyzed: Apr-10-15 | | | | | | |
| Ammonia as N, Total | < 0.005 | 0.005 | mg/L | | | | | | | |
| **LCS (B5D0366-BS1)** | | | | Prepared: Apr-10-15, Analyzed: Apr-10-15 | | | | | | |
| Ammonia as N, Total | 10.4 | 0.005 | mg/L | 10.0 | | 104 | 86-111 | | | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5040391
**REPORTED** Apr-15-15

| Analyte | Result | MRL | Units | Spike Level | Source Result | % REC | REC Limit | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| ***General Parameters, Batch B5D0366, Continued*** | | | | | | | | | | |
| **LCS (B5D0366-BS2)** | | | | Prepared: Apr-10-15, Analyzed: Apr-10-15 | | | | | | |
| Ammonia as N, Total | 10.1 | 0.005 | mg/L | 10.0 | | 101 | 86-111 | | | |
| **Duplicate (B5D0366-DUP1)** | | **Source: 5040391-01** | | Prepared: Apr-10-15, Analyzed: Apr-10-15 | | | | | | |
| Ammonia as N, Total | 6.54 | 0.005 | mg/L | | 6.51 | | | < 1 | 15 | |
| **Matrix Spike (B5D0366-MS1)** | | **Source: 5040391-01** | | Prepared: Apr-10-15, Analyzed: Apr-10-15 | | | | | | |
| Ammonia as N, Total | 6.61 | 0.005 | mg/L | 0.111 | 6.51 | 89 | 76-121 | | | |
| ***General Parameters, Batch B5D0372*** | | | | | | | | | | |
| **Blank (B5D0372-BLK1)** | | | | Prepared: Apr-10-15, Analyzed: Apr-10-15 | | | | | | |
| Nitrogen, Total Kjeldahl | < 0.05 | 0.05 | mg/L | | | | | | | |
| **Blank (B5D0372-BLK2)** | | | | Prepared: Apr-10-15, Analyzed: Apr-10-15 | | | | | | |
| Nitrogen, Total Kjeldahl | < 0.05 | 0.05 | mg/L | | | | | | | |
| **LCS (B5D0372-BS1)** | | | | Prepared: Apr-10-15, Analyzed: Apr-10-15 | | | | | | |
| Nitrogen, Total Kjeldahl | 11.2 | 0.05 | mg/L | 10.0 | | 112 | 89-116 | | | |
| **LCS (B5D0372-BS2)** | | | | Prepared: Apr-10-15, Analyzed: Apr-10-15 | | | | | | |
| Nitrogen, Total Kjeldahl | 10.8 | 0.05 | mg/L | 10.0 | | 108 | 89-116 | | | |
| **Duplicate (B5D0372-DUP1)** | | **Source: 5040391-01** | | Prepared: Apr-10-15, Analyzed: Apr-10-15 | | | | | | |
| Nitrogen, Total Kjeldahl | 7.13 | 0.05 | mg/L | | 6.83 | | | 4 | 15 | |
| **Matrix Spike (B5D0372-MS1)** | | **Source: 5040391-01** | | Prepared: Apr-10-15, Analyzed: Apr-10-15 | | | | | | |
| Nitrogen, Total Kjeldahl | 17.2 | 0.05 | mg/L | 10.0 | 6.83 | 104 | 79-126 | | | |
| ***General Parameters, Batch B5D0561*** | | | | | | | | | | |
| **Blank (B5D0561-BLK1)** | | | | Prepared: Apr-14-15, Analyzed: Apr-14-15 | | | | | | |
| Chemical Oxygen Demand | < 5 | 5 | mg/L | | | | | | | |
| **LCS (B5D0561-BS1)** | | | | Prepared: Apr-14-15, Analyzed: Apr-14-15 | | | | | | |
| Chemical Oxygen Demand | 49 | 5 | mg/L | 50.0 | | 99 | 82-119 | | | |
| **Duplicate (B5D0561-DUP1)** | | **Source: 5040391-01** | | Prepared: Apr-14-15, Analyzed: Apr-14-15 | | | | | | |
| Chemical Oxygen Demand | 9 | 5 | mg/L | | 9 | | | | 20 | |
| **Matrix Spike (B5D0561-MS1)** | | **Source: 5040391-01** | | Prepared: Apr-14-15, Analyzed: Apr-14-15 | | | | | | |
| Chemical Oxygen Demand | 24 | 5 | mg/L | 12.5 | 9 | 118 | 75-125 | | | |
| ***Polycyclic Aromatic Hydrocarbons (PAH), Batch B5D0399*** | | | | | | | | | | |
| **Blank (B5D0399-BLK1)** | | | | Prepared: Apr-10-15, Analyzed: Apr-12-15 | | | | | | |
| Acenaphthene | < 0.02 | 0.02 | µg/L | | | | | | | |
| Acenaphthylene | < 0.02 | 0.02 | µg/L | | | | | | | |
| Acridine | < 0.05 | 0.05 | µg/L | | | | | | | |
| Anthracene | < 0.01 | 0.01 | µg/L | | | | | | | |
| Benz (a) anthracene | < 0.01 | 0.01 | µg/L | | | | | | | |
| Benzo (a) pyrene | < 0.01 | 0.01 | µg/L | | | | | | | |
| Benzo (b) fluoranthene | < 0.02 | 0.02 | µg/L | | | | | | | |
| Benzo (g,h,i) perylene | < 0.02 | 0.02 | µg/L | | | | | | | |
| Benzo (k) fluoranthene | < 0.02 | 0.02 | µg/L | | | | | | | |
| Chrysene | < 0.02 | 0.02 | µg/L | | | | | | | |
| Dibenz (a,h) anthracene | < 0.02 | 0.02 | µg/L | | | | | | | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5040391
**REPORTED** Apr-15-15

| Analyte | Result | MRL | Units | Spike Level | Source Result | % REC | REC Limit | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Polycyclic Aromatic Hydrocarbons (PAH), Batch B5D0399, Continued*** | | | | | | | | | | |
| **Blank (B5D0399-BLK1), Continued** | | | | Prepared: Apr-10-15, Analyzed: Apr-12-15 | | | | | | |
| Fluoranthene | < 0.02 | 0.02 | µg/L | | | | | | | |
| Fluorene | < 0.02 | 0.02 | µg/L | | | | | | | |
| Indeno (1,2,3-cd) pyrene | < 0.02 | 0.02 | µg/L | | | | | | | |
| Naphthalene | < 0.05 | 0.05 | µg/L | | | | | | | |
| Phenanthrene | < 0.05 | 0.05 | µg/L | | | | | | | |
| Pyrene | < 0.02 | 0.02 | µg/L | | | | | | | |
| Quinoline | < 0.05 | 0.05 | µg/L | | | | | | | |
| *Surrogate: Naphthalene-d8* | *0.683* | | *µg/L* | *1.00* | | *68* | *40-96* | | | |
| *Surrogate: Acenaphthene-d10* | *0.696* | | *µg/L* | *1.00* | | *70* | *45-92* | | | |
| *Surrogate: Phenanthrene-d10* | *0.602* | | *µg/L* | *1.00* | | *60* | *48-90* | | | |
| *Surrogate: Chrysene-d12* | *0.908* | | *µg/L* | *1.00* | | *91* | *41-96* | | | |
| *Surrogate: Perylene-d12* | *0.909* | | *µg/L* | *1.00* | | *91* | *47-104* | | | |
| **LCS (B5D0399-BS1)** | | | | Prepared: Apr-10-15, Analyzed: Apr-12-15 | | | | | | |
| Acenaphthene | 0.85 | 0.02 | µg/L | 1.00 | | 85 | 54-92 | | | |
| Acenaphthylene | 0.84 | 0.02 | µg/L | 1.00 | | 84 | 54-95 | | | |
| Acridine | 0.69 | 0.05 | µg/L | 1.00 | | 69 | 49-87 | | | |
| Anthracene | 0.83 | 0.01 | µg/L | 1.00 | | 83 | 53-94 | | | |
| Benz (a) anthracene | 0.63 | 0.01 | µg/L | 1.00 | | 63 | 52-95 | | | |
| Benzo (a) pyrene | 0.94 | 0.01 | µg/L | 1.00 | | 94 | 52-103 | | | |
| Benzo (b) fluoranthene | 0.86 | 0.02 | µg/L | 1.00 | | 86 | 49-94 | | | |
| Benzo (g,h,i) perylene | 0.95 | 0.02 | µg/L | 1.00 | | 95 | 51-98 | | | |
| Benzo (k) fluoranthene | 0.97 | 0.02 | µg/L | 1.00 | | 97 | 49-105 | | | |
| Chrysene | 1.00 | 0.02 | µg/L | 1.00 | | 100 | 50-104 | | | |
| Dibenz (a,h) anthracene | 0.87 | 0.02 | µg/L | 1.00 | | 87 | 49-96 | | | |
| Fluoranthene | 1.00 | 0.02 | µg/L | 1.00 | | 100 | 53-102 | | | |
| Fluorene | 0.76 | 0.02 | µg/L | 1.00 | | 76 | 54-91 | | | |
| Indeno (1,2,3-cd) pyrene | 0.91 | 0.02 | µg/L | 1.00 | | 91 | 51-99 | | | |
| Naphthalene | 0.80 | 0.05 | µg/L | 1.00 | | 80 | 51-91 | | | |
| Phenanthrene | 0.85 | 0.05 | µg/L | 1.00 | | 85 | 56-96 | | | |
| Pyrene | 1.05 | 0.02 | µg/L | 1.00 | | 105 | 51-105 | | | |
| Quinoline | 0.84 | 0.05 | µg/L | 1.00 | | 84 | 48-126 | | | |
| *Surrogate: Naphthalene-d8* | *0.764* | | *µg/L* | *1.00* | | *76* | *40-96* | | | |
| *Surrogate: Acenaphthene-d10* | *0.827* | | *µg/L* | *1.00* | | *83* | *45-92* | | | |
| *Surrogate: Phenanthrene-d10* | *0.782* | | *µg/L* | *1.00* | | *78* | *48-90* | | | |
| *Surrogate: Chrysene-d12* | *0.895* | | *µg/L* | *1.00* | | *90* | *41-96* | | | |
| *Surrogate: Perylene-d12* | *0.885* | | *µg/L* | *1.00* | | *88* | *47-104* | | | |
| **LCS Dup (B5D0399-BSD1)** | | | | Prepared: Apr-10-15, Analyzed: Apr-12-15 | | | | | | |
| Acenaphthene | 0.87 | 0.02 | µg/L | 1.00 | | 87 | 54-92 | 2 | 20 | |
| Acenaphthylene | 0.88 | 0.02 | µg/L | 1.00 | | 88 | 54-95 | 5 | 20 | |
| Acridine | 0.77 | 0.05 | µg/L | 1.00 | | 77 | 49-87 | 11 | 20 | |
| Anthracene | 0.84 | 0.01 | µg/L | 1.00 | | 84 | 53-94 | 2 | 20 | |
| Benz (a) anthracene | 0.69 | 0.01 | µg/L | 1.00 | | 69 | 52-95 | 9 | 20 | |
| Benzo (a) pyrene | 0.96 | 0.01 | µg/L | 1.00 | | 96 | 52-103 | 2 | 20 | |
| Benzo (b) fluoranthene | 0.88 | 0.02 | µg/L | 1.00 | | 88 | 49-94 | 2 | 20 | |
| Benzo (g,h,i) perylene | 0.94 | 0.02 | µg/L | 1.00 | | 94 | 51-98 | < 1 | 20 | |
| Benzo (k) fluoranthene | 1.00 | 0.02 | µg/L | 1.00 | | 100 | 49-105 | 3 | 20 | |
| Chrysene | 1.01 | 0.02 | µg/L | 1.00 | | 101 | 50-104 | 1 | 20 | |
| Dibenz (a,h) anthracene | 0.89 | 0.02 | µg/L | 1.00 | | 89 | 49-96 | 1 | 20 | |
| Fluoranthene | 0.89 | 0.02 | µg/L | 1.00 | | 89 | 53-102 | 12 | 20 | |
| Fluorene | 0.77 | 0.02 | µg/L | 1.00 | | 77 | 54-91 | 1 | 20 | |
| Indeno (1,2,3-cd) pyrene | 0.92 | 0.02 | µg/L | 1.00 | | 92 | 51-99 | 1 | 20 | |
| Naphthalene | 0.81 | 0.05 | µg/L | 1.00 | | 81 | 51-91 | 2 | 20 | |
| Phenanthrene | 0.87 | 0.05 | µg/L | 1.00 | | 87 | 56-96 | 2 | 20 | |
| Pyrene | 0.98 | 0.02 | µg/L | 1.00 | | 98 | 51-105 | 7 | 20 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5040391
**REPORTED** Apr-15-15

| Analyte | Result | MRL | Units | Spike Level | Source Result | % REC | REC Limit | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Polycyclic Aromatic Hydrocarbons (PAH), Batch B5D0399, Continued*** | | | | | | | | | | |
| **LCS Dup (B5D0399-BSD1), Continued** | | | | Prepared: Apr-10-15, Analyzed: Apr-12-15 | | | | | | |
| Quinoline | 0.85 | 0.05 | µg/L | 1.00 | | 85 | 48-126 | 1 | 20 | |
| *Surrogate: Naphthalene-d8* | *0.791* | | *µg/L* | *1.00* | | *79* | *40-96* | | | |
| *Surrogate: Acenaphthene-d10* | *0.868* | | *µg/L* | *1.00* | | *87* | *45-92* | | | |
| *Surrogate: Phenanthrene-d10* | *0.828* | | *µg/L* | *1.00* | | *83* | *48-90* | | | |
| *Surrogate: Chrysene-d12* | *0.910* | | *µg/L* | *1.00* | | *91* | *41-96* | | | |
| *Surrogate: Perylene-d12* | *0.905* | | *µg/L* | *1.00* | | *91* | *47-104* | | | |
| ***Total Recoverable Metals, Batch B5D0361*** | | | | | | | | | | |
| **Blank (B5D0361-BLK1)** | | | | Prepared: Apr-09-15, Analyzed: Apr-10-15 | | | | | | |
| Aluminum, total | < 0.005 | 0.005 | mg/L | | | | | | | |
| Antimony, total | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Arsenic, total | < 0.0005 | 0.0005 | mg/L | | | | | | | |
| Barium, total | < 0.005 | 0.005 | mg/L | | | | | | | |
| Beryllium, total | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Bismuth, total | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Boron, total | < 0.004 | 0.004 | mg/L | | | | | | | |
| Cadmium, total | < 0.00001 | 0.00001 | mg/L | | | | | | | |
| Calcium, total | < 0.2 | 0.2 | mg/L | | | | | | | |
| Chromium, total | < 0.0005 | 0.0005 | mg/L | | | | | | | |
| Cobalt, total | < 0.00005 | 0.00005 | mg/L | | | | | | | |
| Copper, total | < 0.0002 | 0.0002 | mg/L | | | | | | | |
| Iron, total | < 0.01 | 0.01 | mg/L | | | | | | | |
| Lead, total | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Lithium, total | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Magnesium, total | < 0.01 | 0.01 | mg/L | | | | | | | |
| Manganese, total | < 0.0002 | 0.0002 | mg/L | | | | | | | |
| Molybdenum, total | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Nickel, total | < 0.0002 | 0.0002 | mg/L | | | | | | | |
| Phosphorus, total | < 0.020 | 0.020 | mg/L | | | | | | | |
| Potassium, total | < 0.02 | 0.02 | mg/L | | | | | | | |
| Selenium, total | < 0.0005 | 0.0005 | mg/L | | | | | | | |
| Silicon, total | < 0.5 | 0.5 | mg/L | | | | | | | |
| Silver, total | < 0.00005 | 0.00005 | mg/L | | | | | | | |
| Sodium, total | < 0.02 | 0.02 | mg/L | | | | | | | |
| Strontium, total | < 0.001 | 0.001 | mg/L | | | | | | | |
| Sulfur, total | < 1 | 1 | mg/L | | | | | | | |
| Tellurium, total | < 0.0002 | 0.0002 | mg/L | | | | | | | |
| Thallium, total | < 0.00002 | 0.00002 | mg/L | | | | | | | |
| Thorium, total | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Tin, total | < 0.0002 | 0.0002 | mg/L | | | | | | | |
| Titanium, total | < 0.005 | 0.005 | mg/L | | | | | | | |
| Uranium, total | < 0.00002 | 0.00002 | mg/L | | | | | | | |
| Vanadium, total | < 0.001 | 0.001 | mg/L | | | | | | | |
| Zinc, total | < 0.004 | 0.004 | mg/L | | | | | | | |
| Zirconium, total | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| **Duplicate (B5D0361-DUP1)** | | **Source: 5040391-13** | | Prepared: Apr-09-15, Analyzed: Apr-10-15 | | | | | | |
| Aluminum, total | 6.56 | 0.005 | mg/L | | 6.38 | | | 3 | 29 | |
| Antimony, total | < 0.0001 | 0.0001 | mg/L | | < 0.0001 | | | | 31 | |
| Arsenic, total | 0.0008 | 0.0005 | mg/L | | 0.0007 | | | | 15 | |
| Barium, total | 0.041 | 0.005 | mg/L | | 0.039 | | | 4 | 9 | |
| Beryllium, total | 0.0002 | 0.0001 | mg/L | | 0.0003 | | | | 16 | |
| Bismuth, total | < 0.0001 | 0.0001 | mg/L | | < 0.0001 | | | | 20 | |
| Boron, total | 0.042 | 0.004 | mg/L | | 0.048 | | | 13 | 29 | |
| Cadmium, total | 0.00042 | 0.00001 | mg/L | | 0.00040 | | | 4 | 33 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5040391
**REPORTED** Apr-15-15

| Analyte | Result | MRL | Units | Spike Level | Source Result | % REC | REC Limit | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Total Recoverable Metals, Batch B5D0361, Continued*** | | | | | | | | | | |
| **Duplicate (B5D0361-DUP1), Continued** | | **Source: 5040391-13** | | Prepared: Apr-09-15, Analyzed: Apr-10-15 | | | | | | |
| Calcium, total | 60.0 | 0.2 | mg/L | | 59.6 | | | < 1 | 12 | |
| Chromium, total | 0.0015 | 0.0005 | mg/L | | 0.0015 | | | | 12 | |
| Cobalt, total | 0.0419 | 0.00005 | mg/L | | 0.0402 | | | 4 | 13 | |
| Copper, total | 0.166 | 0.0002 | mg/L | | 0.161 | | | 3 | 37 | |
| Iron, total | 19.6 | 0.01 | mg/L | | 18.9 | | | 4 | 18 | |
| Lead, total | < 0.0001 | 0.0001 | mg/L | | < 0.0001 | | | | 23 | |
| Lithium, total | 0.0033 | 0.0001 | mg/L | | 0.0033 | | | 2 | 19 | |
| Magnesium, total | 9.67 | 0.01 | mg/L | | 9.44 | | | 2 | 10 | |
| Manganese, total | 2.11 | 0.0002 | mg/L | | 2.05 | | | 3 | 13 | |
| Molybdenum, total | 0.0002 | 0.0001 | mg/L | | 0.0003 | | | | 20 | |
| Nickel, total | 0.0193 | 0.0002 | mg/L | | 0.0185 | | | 4 | 28 | |
| Phosphorus, total | 0.106 | 0.020 | mg/L | | 0.103 | | | 3 | 24 | |
| Potassium, total | 4.86 | 0.02 | mg/L | | 4.63 | | | 5 | 13 | |
| Selenium, total | 0.0027 | 0.0005 | mg/L | | 0.0022 | | | 18 | 24 | |
| Silicon, total | 7.9 | 0.5 | mg/L | | 7.7 | | | 3 | 11 | |
| Silver, total | < 0.00005 | 0.00005 | mg/L | | < 0.00005 | | | | 18 | |
| Sodium, total | 11.2 | 0.02 | mg/L | | 10.9 | | | 2 | 10 | |
| Strontium, total | 0.250 | 0.001 | mg/L | | 0.239 | | | 5 | 9 | |
| Sulfur, total | 72 | 1 | mg/L | | 69 | | | 4 | 24 | |
| Tellurium, total | < 0.0002 | 0.0002 | mg/L | | < 0.0002 | | | | 20 | |
| Thallium, total | < 0.00002 | 0.00002 | mg/L | | < 0.00002 | | | | 24 | |
| Thorium, total | 0.0011 | 0.0001 | mg/L | | 0.0011 | | | 2 | 18 | |
| Tin, total | < 0.0002 | 0.0002 | mg/L | | < 0.0002 | | | | 18 | |
| Titanium, total | < 0.005 | 0.005 | mg/L | | < 0.005 | | | | 32 | |
| Uranium, total | 0.00046 | 0.00002 | mg/L | | 0.00045 | | | 2 | 14 | |
| Vanadium, total | < 0.001 | 0.001 | mg/L | | < 0.001 | | | | 17 | |
| Zinc, total | 0.047 | 0.004 | mg/L | | 0.045 | | | 5 | 8 | |
| Zirconium, total | < 0.0001 | 0.0001 | mg/L | | < 0.0001 | | | | 60 | |
| **Matrix Spike (B5D0361-MS1)** | | **Source: 5040391-14** | | Prepared: Apr-09-15, Analyzed: Apr-10-15 | | | | | | |
| Antimony, total | 0.423 | 0.0001 | mg/L | 0.400 | < 0.0001 | 106 | 84-125 | | | |
| Arsenic, total | 0.201 | 0.0005 | mg/L | 0.200 | < 0.0005 | 101 | 85-116 | | | |
| Barium, total | 1.00 | 0.005 | mg/L | 1.00 | < 0.005 | 100 | 87-114 | | | |
| Beryllium, total | 0.104 | 0.0001 | mg/L | 0.100 | < 0.0001 | 104 | 72-116 | | | |
| Cadmium, total | 0.103 | 0.00001 | mg/L | 0.100 | < 0.00001 | 103 | 90-112 | | | |
| Chromium, total | 0.427 | 0.0005 | mg/L | 0.400 | < 0.0005 | 107 | 89-120 | | | |
| Cobalt, total | 0.434 | 0.00005 | mg/L | 0.400 | < 0.00005 | 109 | 88-120 | | | |
| Copper, total | 0.449 | 0.0002 | mg/L | 0.400 | < 0.0002 | 112 | 88-125 | | | |
| Iron, total | 2.11 | 0.01 | mg/L | 2.00 | < 0.01 | 105 | 88-119 | | | |
| Lead, total | 0.211 | 0.0001 | mg/L | 0.200 | < 0.0001 | 106 | 89-118 | | | |
| Manganese, total | 0.408 | 0.0002 | mg/L | 0.400 | < 0.0002 | 102 | 84-120 | | | |
| Nickel, total | 0.418 | 0.0002 | mg/L | 0.400 | < 0.0002 | 104 | 87-119 | | | |
| Selenium, total | 0.0985 | 0.0005 | mg/L | 0.100 | < 0.0005 | 99 | 85-113 | | | |
| Silver, total | 0.113 | 0.00005 | mg/L | 0.100 | < 0.00005 | 113 | 89-119 | | | |
| Thallium, total | 0.108 | 0.00002 | mg/L | 0.100 | < 0.00002 | 108 | 92-119 | | | |
| Vanadium, total | 0.405 | 0.001 | mg/L | 0.400 | < 0.001 | 101 | 87-117 | | | |
| Zinc, total | 1.02 | 0.004 | mg/L | 1.00 | < 0.004 | 102 | 85-116 | | | |
| **Reference (B5D0361-SRM1)** | | | | Prepared: Apr-09-15, Analyzed: Apr-10-15 | | | | | | |
| Aluminum, total | 0.278 | 0.005 | mg/L | 0.296 | | 94 | 81-129 | | | |
| Antimony, total | 0.0507 | 0.0001 | mg/L | 0.0505 | | 100 | 88-114 | | | |
| Arsenic, total | 0.120 | 0.0005 | mg/L | 0.122 | | 99 | 88-114 | | | |
| Barium, total | 0.638 | 0.005 | mg/L | 0.777 | | 82 | 72-104 | | | |
| Beryllium, total | 0.0507 | 0.0001 | mg/L | 0.0488 | | 104 | 76-131 | | | |
| Boron, total | 3.55 | 0.004 | mg/L | 3.40 | | 104 | 75-121 | | | |
| Cadmium, total | 0.0484 | 0.00001 | mg/L | 0.0490 | | 99 | 89-111 | | | |
| Calcium, total | 10.1 | 0.2 | mg/L | 10.2 | | 99 | 86-121 | | | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5040391
**REPORTED** Apr-15-15

| Analyte | Result | MRL | Units | Spike Level | Source Result | % REC | REC Limit | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Total Recoverable Metals, Batch B5D0361, Continued*** | | | | | | | | | | |
| **Reference (B5D0361-SRM1), Continued** | | | | Prepared: Apr-09-15, Analyzed: Apr-10-15 | | | | | | |
| Chromium, total | 0.240 | 0.0005 | mg/L | 0.242 | | 99 | 89-114 | | | |
| Cobalt, total | 0.0389 | 0.00005 | mg/L | 0.0366 | | 106 | 91-113 | | | |
| Copper, total | 0.513 | 0.0002 | mg/L | 0.487 | | 105 | 91-115 | | | |
| Iron, total | 0.48 | 0.01 | mg/L | 0.469 | | 103 | 77-124 | | | |
| Lead, total | 0.204 | 0.0001 | mg/L | 0.193 | | 105 | 92-113 | | | |
| Lithium, total | 0.417 | 0.0001 | mg/L | 0.390 | | 107 | 85-115 | | | |
| Magnesium, total | 3.34 | 0.01 | mg/L | 3.31 | | 101 | 78-120 | | | |
| Manganese, total | 0.106 | 0.0002 | mg/L | 0.109 | | 97 | 90-114 | | | |
| Molybdenum, total | 0.203 | 0.0001 | mg/L | 0.197 | | 103 | 90-111 | | | |
| Nickel, total | 0.246 | 0.0002 | mg/L | 0.242 | | 102 | 90-111 | | | |
| Phosphorus, total | 0.218 | 0.020 | mg/L | 0.233 | | 93 | 85-115 | | | |
| Potassium, total | 5.93 | 0.02 | mg/L | 5.93 | | 100 | 84-113 | | | |
| Selenium, total | 0.109 | 0.0005 | mg/L | 0.115 | | 95 | 85-115 | | | |
| Sodium, total | 7.73 | 0.02 | mg/L | 7.64 | | 101 | 82-123 | | | |
| Strontium, total | 0.353 | 0.001 | mg/L | 0.363 | | 97 | 88-112 | | | |
| Thallium, total | 0.0840 | 0.00002 | mg/L | 0.0794 | | 106 | 91-114 | | | |
| Uranium, total | 0.0196 | 0.00002 | mg/L | 0.0192 | | 102 | 85-120 | | | |
| Vanadium, total | 0.367 | 0.001 | mg/L | 0.376 | | 98 | 86-111 | | | |
| Zinc, total | 2.40 | 0.004 | mg/L | 2.42 | | 99 | 85-111 | | | |
| ***Total Recoverable Metals, Batch B5D0517*** | | | | | | | | | | |
| **Blank (B5D0517-BLK1)** | | | | Prepared: Apr-13-15, Analyzed: Apr-14-15 | | | | | | |
| Mercury, total | < 0.00002 | 0.00002 | mg/L | | | | | | | |
| **Reference (B5D0517-SRM1)** | | | | Prepared: Apr-13-15, Analyzed: Apr-14-15 | | | | | | |
| Mercury, total | 0.00412 | 0.00002 | mg/L | 0.00456 | | 90 | 50-150 | | | |
| ***Volatile Organic Compounds (VOC), Batch B5D0337*** | | | | | | | | | | |
| **Blank (B5D0337-BLK1)** | | | | Prepared: Apr-09-15, Analyzed: Apr-09-15 | | | | | | |
| Acetone | < 10.0 | 10.0 | µg/L | | | | | | | |
| Benzene | < 0.5 | 0.5 | µg/L | | | | | | | |
| Bromodichloromethane | < 1.0 | 1.0 | µg/L | | | | | | | |
| Bromoform | < 1.0 | 1.0 | µg/L | | | | | | | |
| Bromomethane | < 2.0 | 2.0 | µg/L | | | | | | | |
| 2-Butanone (MEK) | < 5.0 | 5.0 | µg/L | | | | | | | |
| Carbon tetrachloride | < 1.0 | 1.0 | µg/L | | | | | | | |
| Chlorobenzene | < 1.0 | 1.0 | µg/L | | | | | | | |
| Chloroethane | < 2.0 | 2.0 | µg/L | | | | | | | |
| Chloroform | < 1.0 | 1.0 | µg/L | | | | | | | |
| Chloromethane | < 2.0 | 2.0 | µg/L | | | | | | | |
| Dibromochloromethane | < 1.0 | 1.0 | µg/L | | | | | | | |
| Dibromomethane | < 1.0 | 1.0 | µg/L | | | | | | | |
| 1,2-Dichlorobenzene | < 0.5 | 0.5 | µg/L | | | | | | | |
| 1,3-Dichlorobenzene | < 1.0 | 1.0 | µg/L | | | | | | | |
| 1,4-Dichlorobenzene | < 1.0 | 1.0 | µg/L | | | | | | | |
| 1,1-Dichloroethane | < 1.0 | 1.0 | µg/L | | | | | | | |
| 1,2-Dichloroethane | < 1.0 | 1.0 | µg/L | | | | | | | |
| 1,1-Dichloroethene | < 1.0 | 1.0 | µg/L | | | | | | | |
| cis-1,2-Dichloroethene | < 1.0 | 1.0 | µg/L | | | | | | | |
| trans-1,2-Dichloroethene | < 1.0 | 1.0 | µg/L | | | | | | | |
| 1,2-Dichloropropane | < 1.0 | 1.0 | µg/L | | | | | | | |
| cis-1,3-Dichloropropene | < 1.0 | 1.0 | µg/L | | | | | | | |
| trans-1,3-Dichloropropene | < 1.0 | 1.0 | µg/L | | | | | | | |
| Ethylbenzene | < 1.0 | 1.0 | µg/L | | | | | | | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5040391
**REPORTED** Apr-15-15

| Analyte | Result | MRL | Units | Spike Level | Source Result | % REC | REC Limit | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Volatile Organic Compounds (VOC), Batch B5D0337, Continued*** | | | | | | | | | | |
| **Blank (B5D0337-BLK1), Continued** | | | | Prepared: Apr-09-15, Analyzed: Apr-09-15 | | | | | | |
| Methyl tert-butyl ether | < 1.0 | 1.0 | µg/L | | | | | | | |
| Methylene chloride | < 3.0 | 3.0 | µg/L | | | | | | | |
| 4-Methyl-2-Pentanone (MIBK) | < 10.0 | 10.0 | µg/L | | | | | | | |
| Styrene | < 1.0 | 1.0 | µg/L | | | | | | | |
| 1,1,1,2-Tetrachloroethane | < 1.0 | 1.0 | µg/L | | | | | | | |
| 1,1,2,2-Tetrachloroethane | < 1.0 | 1.0 | µg/L | | | | | | | |
| Tetrachloroethene | < 1.0 | 1.0 | µg/L | | | | | | | |
| Toluene | < 1.0 | 1.0 | µg/L | | | | | | | |
| 1,1,1-Trichloroethane | < 1.0 | 1.0 | µg/L | | | | | | | |
| 1,1,2-Trichloroethane | < 1.0 | 1.0 | µg/L | | | | | | | |
| Trichloroethene | < 1.0 | 1.0 | µg/L | | | | | | | |
| Trichlorofluoromethane | < 1.0 | 1.0 | µg/L | | | | | | | |
| Vinyl chloride | < 2.0 | 2.0 | µg/L | | | | | | | |
| m,p-Xylene | < 1.0 | 1.0 | µg/L | | | | | | | |
| o-Xylene | < 1.0 | 1.0 | µg/L | | | | | | | |
| Xylenes (total) | < 2.0 | 2.0 | µg/L | | | | | | | |
| *Surrogate: Toluene-d8* | *24.1* | | *µg/L* | *25.0* | | *97* | *70-130* | | | |
| *Surrogate: 4-Bromofluorobenzene* | *24.3* | | *µg/L* | *25.0* | | *97* | *70-130* | | | |
| *Surrogate: 1,4-Dichlorobenzene-d4* | *23.8* | | *µg/L* | *26.0* | | *91* | *70-130* | | | |
| **LCS (B5D0337-BS1)** | | | | Prepared: Apr-09-15, Analyzed: Apr-09-15 | | | | | | |
| Acetone | 19.0 | 10.0 | µg/L | 20.0 | | 95 | 70-130 | | | |
| Benzene | 20.9 | 0.5 | µg/L | 20.0 | | 105 | 70-130 | | | |
| Bromodichloromethane | 20.8 | 1.0 | µg/L | 20.0 | | 104 | 70-130 | | | |
| Bromoform | 20.6 | 1.0 | µg/L | 20.0 | | 103 | 70-130 | | | |
| Bromomethane | 17.7 | 2.0 | µg/L | 20.0 | | 89 | 70-130 | | | |
| 2-Butanone (MEK) | 19.4 | 5.0 | µg/L | 20.0 | | 97 | 70-130 | | | |
| Carbon tetrachloride | 20.6 | 1.0 | µg/L | 20.0 | | 103 | 70-130 | | | |
| Chlorobenzene | 20.8 | 1.0 | µg/L | 20.0 | | 104 | 70-130 | | | |
| Chloroethane | 19.7 | 2.0 | µg/L | 20.0 | | 98 | 70-130 | | | |
| Chloroform | 21.5 | 1.0 | µg/L | 20.0 | | 107 | 70-130 | | | |
| Chloromethane | 18.6 | 2.0 | µg/L | 20.0 | | 93 | 70-130 | | | |
| Dibromochloromethane | 20.6 | 1.0 | µg/L | 20.0 | | 103 | 70-130 | | | |
| Dibromomethane | 21.0 | 1.0 | µg/L | 20.0 | | 105 | 70-130 | | | |
| 1,2-Dichlorobenzene | 21.0 | 0.5 | µg/L | 20.0 | | 105 | 70-130 | | | |
| 1,3-Dichlorobenzene | 20.7 | 1.0 | µg/L | 20.0 | | 104 | 70-130 | | | |
| 1,4-Dichlorobenzene | 20.8 | 1.0 | µg/L | 20.0 | | 104 | 70-130 | | | |
| 1,1-Dichloroethane | 20.9 | 1.0 | µg/L | 20.0 | | 104 | 70-130 | | | |
| 1,2-Dichloroethane | 21.7 | 1.0 | µg/L | 20.0 | | 108 | 70-130 | | | |
| 1,1-Dichloroethene | 18.0 | 1.0 | µg/L | 20.0 | | 90 | 70-130 | | | |
| cis-1,2-Dichloroethene | 19.7 | 1.0 | µg/L | 20.0 | | 98 | 70-130 | | | |
| trans-1,2-Dichloroethene | 19.9 | 1.0 | µg/L | 20.0 | | 100 | 70-130 | | | |
| 1,2-Dichloropropane | 20.1 | 1.0 | µg/L | 20.0 | | 100 | 70-130 | | | |
| cis-1,3-Dichloropropene | 16.9 | 1.0 | µg/L | 20.0 | | 84 | 70-130 | | | |
| trans-1,3-Dichloropropene | 17.3 | 1.0 | µg/L | 20.0 | | 86 | 70-130 | | | |
| Ethylbenzene | 20.7 | 1.0 | µg/L | 20.0 | | 103 | 70-130 | | | |
| Methyl tert-butyl ether | 20.6 | 1.0 | µg/L | 20.0 | | 103 | 70-130 | | | |
| Methylene chloride | 21.7 | 3.0 | µg/L | 20.0 | | 109 | 70-130 | | | |
| 4-Methyl-2-Pentanone (MIBK) | 20.9 | 10.0 | µg/L | 20.0 | | 105 | 70-130 | | | |
| Styrene | 20.2 | 1.0 | µg/L | 20.0 | | 101 | 70-130 | | | |
| 1,1,1,2-Tetrachloroethane | 20.2 | 1.0 | µg/L | 20.0 | | 101 | 70-130 | | | |
| 1,1,2,2-Tetrachloroethane | 21.3 | 1.0 | µg/L | 20.0 | | 106 | 70-130 | | | |
| Tetrachloroethene | 22.3 | 1.0 | µg/L | 20.0 | | 111 | 70-130 | | | |
| Toluene | 21.3 | 1.0 | µg/L | 20.0 | | 106 | 70-130 | | | |
| 1,1,1-Trichloroethane | 20.7 | 1.0 | µg/L | 20.0 | | 104 | 70-130 | | | |
| 1,1,2-Trichloroethane | 21.9 | 1.0 | µg/L | 20.0 | | 110 | 70-130 | | | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5040391
**REPORTED** Apr-15-15

| Analyte | Result | MRL | Units | Spike Level | Source Result | % REC | REC Limit | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Volatile Organic Compounds (VOC), Batch B5D0337, Continued*** | | | | | | | | | | |
| **LCS (B5D0337-BS1), Continued** | | | | Prepared: Apr-09-15, Analyzed: Apr-09-15 | | | | | | |
| Trichloroethene | 20.8 | 1.0 | µg/L | 20.0 | | 104 | 70-130 | | | |
| Trichlorofluoromethane | 21.6 | 1.0 | µg/L | 20.0 | | 108 | 70-130 | | | |
| Vinyl chloride | 19.0 | 2.0 | µg/L | 20.0 | | 95 | 70-130 | | | |
| m,p-Xylene | 41.5 | 1.0 | µg/L | 40.0 | | 104 | 70-130 | | | |
| o-Xylene | 20.6 | 1.0 | µg/L | 20.0 | | 103 | 70-130 | | | |
| Xylenes (total) | 62.1 | 2.0 | µg/L | 60.0 | | 104 | 70-130 | | | |
| *Surrogate: Toluene-d8* | *24.9* | | *µg/L* | *25.0* | | *100* | *70-130* | | | |
| *Surrogate: 4-Bromofluorobenzene* | *25.0* | | *µg/L* | *25.0* | | *100* | *70-130* | | | |
| *Surrogate: 1,4-Dichlorobenzene-d4* | *26.6* | | *µg/L* | *26.0* | | *102* | *70-130* | | | |

**QC Qualifiers:**

SPK1 The recovery of this analyte was outside of established control limits. The data was accepted based on performance of other batch QC.

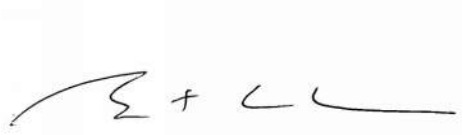
# CERTIFICATE OF ANALYSIS


| | | | |
|---|---|---|---|
| **REPORTED TO** | Morrison Hershfield Limited<br>310 - 4321 Still Creek Drive<br>Burnaby, BC V5C 6S7 | **TEL**<br>**FAX** | (604) 454-0402<br>(604) 454-0403 |
| **ATTENTION** | Josie Gilson | **WORK ORDER** | 5070710 |
| **PO NUMBER** | | **RECEIVED / TEMP** | Jul-10-15 16:15 / 8°C |
| **PROJECT** | Whistler Landfill - Summer/Winter | **REPORTED** | Jul-20-15 |
| **PROJECT INFO** | 5104016 | **COC NUMBER** | B33062 |


**General Comments:**

CARO Analytical Services employs methods which are conducted according to procedures accepted by appropriate regulatory agencies, and/or are conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts, except where otherwise agreed to by the client.

The results in this report apply to the samples analyzed in accordance with the Chain of Custody or Sample Requisition document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Samples will be disposed of 30 days after the test report has been issued unless otherwise agreed to in writing.



Authorized By: **Brent Coates, B.Sc.**
Division Manager, Richmond

***If you have any questions or concerns, please contact your Account Manager:***
***Kathleen Fyffe, Dipl T (kfyffe@caro.ca)***

# ANALYSIS INFORMATION

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Summer/Winter

**WORK ORDER** 5070710
**REPORTED** Jul-20-15

| Analysis Description | Method Reference | Technique | Location |
|---|---|---|---|
| Alkalinity in Water (Speciated) | APHA 2320 B | Titration with H2SO4 to pH 4.5 | Kelowna |
| Ammonia-N in Water (total) | APHA 4500-NH3 G* | Automated Colorimetry (Phenate) | Kelowna |
| Anions in Water by IC | APHA 4110 B | Ion Chromatography with Chemical Suppression of Eluent Conductivity | Kelowna |
| Chemical Oxygen Demand (low level) | APHA 5220 D | Closed Reflux, Colorimetry | Kelowna |
| Conductivity in Water | APHA 2510 B | Conductivity Meter | Kelowna |
| Dissolved Metals | APHA 3030 B / APHA 3125 B | 0.45 µm Filtration / Inductively Coupled Plasma Mass Spectrometry (ICP-MS) | Richmond |
| Hardness (as CaCO3) | APHA 2340 B | Calculation | N/A |
| Mercury, dissolved by CVAFS | EPA 245.7* | BrCl2 Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS) | Richmond |
| Mercury, total by CVAFS | EPA 245.7* | BrCl2 Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS) | Richmond |
| Nitrate+Nitrite-N in Water | APHA 4500-NO3- F | Automated Colorimetry (Cadmium Reduction) | Kelowna |
| Nitrite-N in Water, colorimetric | APHA 4500-NO3- F | Automated Colorimetry (Cadmium Reduction) | Kelowna |
| pH in Water | APHA 4500-H+ B | Electrometry | Kelowna |
| Total Dissolved Solids (Gravimetric) | APHA 2540 C* | Gravimetry (Dried at 103-105C) | Kelowna |
| Total Kjeldahl Nitrogen in Water | APHA 4500-Norg D* | Block Digestion and Flow Injection Analysis | Kelowna |
| Total Recoverable Metals | APHA 3030E* / APHA 3125 B | HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma Mass Spectrometry (ICP-MS) | Richmond |
| Total Suspended Solids | APHA 2540 D* | Gravimetry (Dried at 103-105C) | Kelowna |

***Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method***

**Method Reference Descriptions:**

| | |
|---|---|
| APHA | Standard Methods for the Examination of Water and Wastewater, 22nd Edition, American Public Health Association/American Water Works Association/Water Environment Federation |
| EPA | United States Environmental Protection Agency Test Methods |

**Glossary of Terms:**

| | |
|---|---|
| MRL | Method Reporting Limit |
| < | Less than the Reported Detection Limit (RDL) - the RDL may be higher than the MRL due to various factors such as dilutions, limited sample volume, high moisture, or interferences |
| mg/L | Milligrams per litre |
| pH units | pH < 7 = acidic, ph > 7 = basic |
| µS/cm | Microsiemens per centimetre |

**Standards / Guidelines Referenced in this Report:**

BC CSR Schedule 4/5/6/11 Residential/Aquatic Water
Website: http://www.env.gov.bc.ca/epd/remediation/leg_regs/csr.htm

***Note: In some cases, the values displayed on the report represent the lowest guideline and are to be verified by the end user***

# SAMPLE ANALYTICAL DATA

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Summer/Winter

**WORK ORDER** 5070710
**REPORTED** Jul-20-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW2S (5070710-01) [Water] Sampled: Jul-09-15** | | | | | | | |
| ***Anions*** | | | | | | | |
| Bromide | < 0.10 | N/A | 0.10 | mg/L | N/A | Jul-12-15 | |
| Chloride | **11.4** | 1500 | 0.10 | mg/L | N/A | Jul-12-15 | |
| Fluoride | **0.42** | 2 | 0.01 | mg/L | N/A | Jul-12-15 | |
| Nitrate+Nitrite as N | **0.019** | 400 | 0.005 | mg/L | N/A | Jul-15-15 | |
| Nitrite as N | < 0.005 | 0.2 | 0.005 | mg/L | N/A | Jul-15-15 | HT1 |
| Sulfate | **71.6** | 1000 | 1.0 | mg/L | N/A | Jul-12-15 | |
| ***General Parameters*** | | | | | | | |
| Alkalinity, Total as CaCO3 | **131** | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Bicarbonate as CaCO3 | **131** | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Chemical Oxygen Demand | **17** | N/A | 5 | mg/L | N/A | Jul-18-15 | |
| Conductivity (EC) | **404** | N/A | 2 | µS/cm | N/A | Jul-13-15 | |
| Ammonia as N, Total | **5.05** | N/A | 0.005 | mg/L | N/A | Jul-14-15 | |
| Nitrogen, Total Kjeldahl | **5.81** | N/A | 0.05 | mg/L | Jul-14-15 | Jul-16-15 | |
| pH | **6.64** | N/A | 0.01 | pH units | N/A | Jul-13-15 | HT2 |
| Solids, Total Dissolved | **219** | N/A | 10 | mg/L | N/A | Jul-15-15 | |
| Solids, Total Suspended | **197** | N/A | 2 | mg/L | N/A | Jul-14-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Hardness, Total (Diss. as CaCO3) | **132** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | **0.019** | 400 | 0.005 | mg/L | N/A | N/A | |
| Nitrogen, Total | **5.83** | N/A | 0.500 | mg/L | N/A | N/A | |
| ***Dissolved Metals*** | | | | | | | |
| Aluminum, dissolved | < 0.005 | N/A | 0.005 | mg/L | N/A | Jul-20-15 | |
| Antimony, dissolved | < 0.0001 | 0.2 | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Arsenic, dissolved | **0.0079** | 0.05 | 0.0005 | mg/L | N/A | Jul-20-15 | |
| Barium, dissolved | **0.085** | 5 | 0.005 | mg/L | N/A | Jul-20-15 | |
| Beryllium, dissolved | < 0.0001 | 0.053 | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Bismuth, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Boron, dissolved | **0.149** | 50 | 0.004 | mg/L | N/A | Jul-20-15 | |
| Cadmium, dissolved | **0.00002** | 0.0001 | 0.00001 | mg/L | N/A | Jul-20-15 | |
| Calcium, dissolved | **40.7** | N/A | 0.2 | mg/L | N/A | Jul-20-15 | |
| Chromium, dissolved | < 0.0005 | N/A | 0.0005 | mg/L | N/A | Jul-20-15 | |
| Cobalt, dissolved | **0.00238** | 0.04 | 0.00005 | mg/L | N/A | Jul-20-15 | |
| Copper, dissolved | **0.0002** | 0.02 | 0.0002 | mg/L | N/A | Jul-20-15 | |
| Iron, dissolved | **39.1** | N/A | 0.010 | mg/L | N/A | Jul-20-15 | |
| Lead, dissolved | < 0.0001 | 0.04 | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Lithium, dissolved | **0.0001** | N/A | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Magnesium, dissolved | **7.26** | N/A | 0.01 | mg/L | N/A | Jul-20-15 | |
| Manganese, dissolved | **1.98** | N/A | 0.0002 | mg/L | N/A | Jul-20-15 | |
| Mercury, dissolved | < 0.00002 | 0.001 | 0.00002 | mg/L | Jul-16-15 | Jul-20-15 | |
| Molybdenum, dissolved | **0.0060** | 10 | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Nickel, dissolved | **0.0009** | 0.25 | 0.0002 | mg/L | N/A | Jul-20-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Summer/Winter

**WORK ORDER** 5070710
**REPORTED** Jul-20-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW2S (5070710-01) [Water] Sampled: Jul-09-15, Continued** | | | | | | | |
| ***Dissolved Metals, Continued*** | | | | | | | |
| Phosphorus, dissolved | **0.02** | N/A | 0.02 | mg/L | N/A | Jul-20-15 | |
| Potassium, dissolved | **9.37** | N/A | 0.02 | mg/L | N/A | Jul-20-15 | |
| Selenium, dissolved | < 0.0005 | 0.01 | 0.0005 | mg/L | N/A | Jul-20-15 | |
| Silicon, dissolved | **9.7** | N/A | 0.5 | mg/L | N/A | Jul-20-15 | |
| Silver, dissolved | < 0.00005 | 0.0005 | 0.00005 | mg/L | N/A | Jul-20-15 | |
| Sodium, dissolved | **11.3** | N/A | 0.02 | mg/L | N/A | Jul-20-15 | |
| Strontium, dissolved | **0.231** | N/A | 0.001 | mg/L | N/A | Jul-20-15 | |
| Sulfur, dissolved | **23** | N/A | 1 | mg/L | N/A | Jul-20-15 | |
| Tellurium, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Jul-20-15 | |
| Thallium, dissolved | < 0.00002 | 0.003 | 0.00002 | mg/L | N/A | Jul-20-15 | |
| Thorium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Tin, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Jul-20-15 | |
| Titanium, dissolved | < 0.005 | 1 | 0.005 | mg/L | N/A | Jul-20-15 | |
| Uranium, dissolved | **0.00004** | 3 | 0.00002 | mg/L | N/A | Jul-20-15 | |
| Vanadium, dissolved | < 0.001 | N/A | 0.001 | mg/L | N/A | Jul-20-15 | |
| Zinc, dissolved | **0.006** | 0.075 | 0.004 | mg/L | N/A | Jul-20-15 | |
| Zirconium, dissolved | **0.0002** | N/A | 0.0001 | mg/L | N/A | Jul-20-15 | |
| **Sample ID: MW2D (5070710-02) [Water] Sampled: Jul-09-15** | | | | | | | |
| ***Anions*** | | | | | | | |
| Bromide | < 0.10 | N/A | 0.10 | mg/L | N/A | Jul-12-15 | |
| Chloride | **22.1** | 1500 | 0.10 | mg/L | N/A | Jul-12-15 | |
| Fluoride | **0.49** | 2 | 0.01 | mg/L | N/A | Jul-12-15 | |
| Nitrate+Nitrite as N | **0.027** | 400 | 0.005 | mg/L | N/A | Jul-15-15 | |
| Nitrite as N | < 0.005 | 0.2 | 0.005 | mg/L | N/A | Jul-15-15 | HT1 |
| Sulfate | **315** | 1000 | 1.0 | mg/L | N/A | Jul-12-15 | |
| ***General Parameters*** | | | | | | | |
| Alkalinity, Total as CaCO3 | **266** | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Bicarbonate as CaCO3 | **266** | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Chemical Oxygen Demand | **52** | N/A | 5 | mg/L | N/A | Jul-18-15 | |
| Conductivity (EC) | **1110** | N/A | 2 | µS/cm | N/A | Jul-13-15 | |
| Ammonia as N, Total | **12.2** | N/A | 0.005 | mg/L | N/A | Jul-14-15 | |
| Nitrogen, Total Kjeldahl | **12.2** | N/A | 0.05 | mg/L | Jul-14-15 | Jul-16-15 | |
| pH | **6.81** | N/A | 0.01 | pH units | N/A | Jul-13-15 | HT2 |
| Solids, Total Dissolved | **772** | N/A | 10 | mg/L | N/A | Jul-15-15 | |
| Solids, Total Suspended | **954** | N/A | 2 | mg/L | N/A | Jul-14-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Hardness, Total (Diss. as CaCO3) | **476** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | **0.027** | 400 | 0.005 | mg/L | N/A | N/A | |
| Nitrogen, Total | **12.3** | N/A | 0.500 | mg/L | N/A | N/A | |

| | | | |
|---|---|---|---|
| **REPORTED TO** | Morrison Hershfield Limited | **WORK ORDER** | 5070710 |
| **PROJECT** | Whistler Landfill - Summer/Winter | **REPORTED** | Jul-20-15 |

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW2D (5070710-02) [Water] Sampled: Jul-09-15, Continued** | | | | | | | |
| ***Dissolved Metals*** | | | | | | | |
| Aluminum, dissolved | **0.007** | N/A | 0.005 | mg/L | N/A | Jul-20-15 | |
| Antimony, dissolved | < 0.0001 | 0.2 | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Arsenic, dissolved | **0.0146** | 0.05 | 0.0005 | mg/L | N/A | Jul-20-15 | |
| Barium, dissolved | **0.031** | 5 | 0.005 | mg/L | N/A | Jul-20-15 | |
| Beryllium, dissolved | < 0.0001 | 0.053 | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Bismuth, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Boron, dissolved | **0.352** | 50 | 0.004 | mg/L | N/A | Jul-20-15 | |
| Cadmium, dissolved | **0.00001** | 0.0001 | 0.00001 | mg/L | N/A | Jul-20-15 | |
| Calcium, dissolved | **159** | N/A | 0.2 | mg/L | N/A | Jul-20-15 | |
| Chromium, dissolved | < 0.0005 | N/A | 0.0005 | mg/L | N/A | Jul-20-15 | |
| Cobalt, dissolved | **0.0151** | 0.04 | 0.00005 | mg/L | N/A | Jul-20-15 | |
| Copper, dissolved | **0.0004** | 0.02 | 0.0002 | mg/L | N/A | Jul-20-15 | |
| Iron, dissolved | **66.4** | N/A | 0.010 | mg/L | N/A | Jul-20-15 | |
| Lead, dissolved | < 0.0001 | 0.04 | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Lithium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Magnesium, dissolved | **19.2** | N/A | 0.01 | mg/L | N/A | Jul-20-15 | |
| Manganese, dissolved | **3.98** | N/A | 0.0002 | mg/L | N/A | Jul-20-15 | |
| Mercury, dissolved | < 0.00002 | 0.001 | 0.00002 | mg/L | Jul-16-15 | Jul-20-15 | |
| Molybdenum, dissolved | **0.0165** | 10 | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Nickel, dissolved | **0.0032** | 0.25 | 0.0002 | mg/L | N/A | Jul-20-15 | |
| Phosphorus, dissolved | **0.13** | N/A | 0.02 | mg/L | N/A | Jul-20-15 | |
| Potassium, dissolved | **20.7** | N/A | 0.02 | mg/L | N/A | Jul-20-15 | |
| Selenium, dissolved | < 0.0005 | 0.01 | 0.0005 | mg/L | N/A | Jul-20-15 | |
| Silicon, dissolved | **16.0** | N/A | 0.5 | mg/L | N/A | Jul-20-15 | |
| Silver, dissolved | < 0.00005 | 0.0005 | 0.00005 | mg/L | N/A | Jul-20-15 | |
| Sodium, dissolved | **35.0** | N/A | 0.02 | mg/L | N/A | Jul-20-15 | |
| Strontium, dissolved | **0.616** | N/A | 0.001 | mg/L | N/A | Jul-20-15 | |
| Sulfur, dissolved | **117** | N/A | 1 | mg/L | N/A | Jul-20-15 | |
| Tellurium, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Jul-20-15 | |
| Thallium, dissolved | < 0.00002 | 0.003 | 0.00002 | mg/L | N/A | Jul-20-15 | |
| Thorium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Tin, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Jul-20-15 | |
| Titanium, dissolved | < 0.005 | 1 | 0.005 | mg/L | N/A | Jul-20-15 | |
| Uranium, dissolved | **0.00020** | 3 | 0.00002 | mg/L | N/A | Jul-20-15 | |
| Vanadium, dissolved | < 0.001 | N/A | 0.001 | mg/L | N/A | Jul-20-15 | |
| Zinc, dissolved | **0.010** | 0.075 | 0.004 | mg/L | N/A | Jul-20-15 | |
| Zirconium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Jul-20-15 | |
| **Sample ID: MW3 (5070710-03) [Water] Sampled: Jul-09-15** | | | | | | | PRES |
| ***Anions*** | | | | | | | |
| Bromide | < 0.10 | N/A | 0.10 | mg/L | N/A | Jul-12-15 | |
| Chloride | **9.43** | 1500 | 0.10 | mg/L | N/A | Jul-12-15 | |
| Fluoride | **0.21** | 2 | 0.01 | mg/L | N/A | Jul-12-15 | |
| Nitrate+Nitrite as N | < 0.005 | 400 | 0.005 | mg/L | N/A | Jul-15-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Summer/Winter

**WORK ORDER** 5070710
**REPORTED** Jul-20-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW3 (5070710-03) [Water] Sampled: Jul-09-15, Continued** | | | | | | | PRES |
| ***Anions, Continued*** | | | | | | | |
| Nitrite as N | < 0.005 | 0.2 | 0.005 | mg/L | N/A | Jul-13-15 | HT1 |
| Sulfate | **22.1** | 1000 | 1.0 | mg/L | N/A | Jul-12-15 | |
| ***General Parameters*** | | | | | | | |
| Alkalinity, Total as CaCO3 | **35** | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Bicarbonate as CaCO3 | **35** | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Chemical Oxygen Demand | **6** | N/A | 5 | mg/L | N/A | Jul-18-15 | |
| Conductivity (EC) | **145** | N/A | 2 | µS/cm | N/A | Jul-13-15 | |
| Ammonia as N, Total | **0.285** | N/A | 0.005 | mg/L | N/A | Jul-14-15 | |
| Nitrogen, Total Kjeldahl | **0.43** | N/A | 0.05 | mg/L | Jul-14-15 | Jul-16-15 | |
| pH | **6.57** | N/A | 0.01 | pH units | N/A | Jul-13-15 | HT2 |
| Solids, Total Dissolved | **81** | N/A | 10 | mg/L | N/A | Jul-15-15 | |
| Solids, Total Suspended | < 2 | N/A | 2 | mg/L | N/A | Jul-14-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Hardness, Total (Diss. as CaCO3) | **39.9** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | < 0.005 | 400 | 0.005 | mg/L | N/A | N/A | |
| Nitrogen, Total | **0.428** | N/A | 0.050 | mg/L | N/A | N/A | |
| ***Dissolved Metals*** | | | | | | | |
| Aluminum, dissolved | **0.012** | N/A | 0.005 | mg/L | N/A | Jul-20-15 | |
| Antimony, dissolved | < 0.0001 | 0.2 | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Arsenic, dissolved | < 0.0005 | 0.05 | 0.0005 | mg/L | N/A | Jul-20-15 | |
| Barium, dissolved | **0.056** | 5 | 0.005 | mg/L | N/A | Jul-20-15 | |
| Beryllium, dissolved | < 0.0001 | 0.053 | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Bismuth, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Boron, dissolved | **0.011** | 50 | 0.004 | mg/L | N/A | Jul-20-15 | |
| Cadmium, dissolved | **0.00011** | 0.0001 | 0.00001 | mg/L | N/A | Jul-20-15 | |
| Calcium, dissolved | **12.3** | N/A | 0.2 | mg/L | N/A | Jul-20-15 | |
| Chromium, dissolved | < 0.0005 | N/A | 0.0005 | mg/L | N/A | Jul-20-15 | |
| Cobalt, dissolved | **0.00169** | 0.04 | 0.00005 | mg/L | N/A | Jul-20-15 | |
| Copper, dissolved | **0.0016** | 0.02 | 0.0002 | mg/L | N/A | Jul-20-15 | |
| Iron, dissolved | **0.204** | N/A | 0.010 | mg/L | N/A | Jul-20-15 | |
| Lead, dissolved | < 0.0001 | 0.04 | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Lithium, dissolved | **0.0001** | N/A | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Magnesium, dissolved | **2.23** | N/A | 0.01 | mg/L | N/A | Jul-20-15 | |
| Manganese, dissolved | **1.03** | N/A | 0.0002 | mg/L | N/A | Jul-20-15 | |
| Mercury, dissolved | < 0.00002 | 0.001 | 0.00002 | mg/L | Jul-16-15 | Jul-20-15 | |
| Molybdenum, dissolved | **0.0011** | 10 | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Nickel, dissolved | **0.0004** | 0.25 | 0.0002 | mg/L | N/A | Jul-20-15 | |
| Phosphorus, dissolved | < 0.02 | N/A | 0.02 | mg/L | N/A | Jul-20-15 | |
| Potassium, dissolved | **2.84** | N/A | 0.02 | mg/L | N/A | Jul-20-15 | |
| Selenium, dissolved | < 0.0005 | 0.01 | 0.0005 | mg/L | N/A | Jul-20-15 | |
| Silicon, dissolved | **7.5** | N/A | 0.5 | mg/L | N/A | Jul-20-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Summer/Winter

**WORK ORDER** 5070710
**REPORTED** Jul-20-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW3 (5070710-03) [Water] Sampled: Jul-09-15, Continued** | | | | | | | PRES |
| ***Dissolved Metals, Continued*** | | | | | | | |
| Silver, dissolved | < 0.00005 | 0.0005 | 0.00005 | mg/L | N/A | Jul-20-15 | |
| Sodium, dissolved | **8.78** | N/A | 0.02 | mg/L | N/A | Jul-20-15 | |
| Strontium, dissolved | **0.126** | N/A | 0.001 | mg/L | N/A | Jul-20-15 | |
| Sulfur, dissolved | **5** | N/A | 1 | mg/L | N/A | Jul-20-15 | |
| Tellurium, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Jul-20-15 | |
| Thallium, dissolved | **0.00006** | 0.003 | 0.00002 | mg/L | N/A | Jul-20-15 | |
| Thorium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Tin, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Jul-20-15 | |
| Titanium, dissolved | < 0.005 | 1 | 0.005 | mg/L | N/A | Jul-20-15 | |
| Uranium, dissolved | < 0.00002 | 3 | 0.00002 | mg/L | N/A | Jul-20-15 | |
| Vanadium, dissolved | < 0.001 | N/A | 0.001 | mg/L | N/A | Jul-20-15 | |
| Zinc, dissolved | **0.007** | 0.075 | 0.004 | mg/L | N/A | Jul-20-15 | |
| Zirconium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Jul-20-15 | |
| **Sample ID: MW4 (5070710-04) [Water] Sampled: Jul-09-15** | | | | | | | |
| ***Anions*** | | | | | | | |
| Bromide | < 0.10 | N/A | 0.10 | mg/L | N/A | Jul-12-15 | |
| Chloride | **15.9** | 1500 | 0.10 | mg/L | N/A | Jul-12-15 | |
| Fluoride | **0.36** | 2 | 0.01 | mg/L | N/A | Jul-12-15 | |
| Nitrate+Nitrite as N | **0.017** | 400 | 0.005 | mg/L | N/A | Jul-15-15 | |
| Nitrite as N | **0.007** | 0.2 | 0.005 | mg/L | N/A | Jul-13-15 | HT1 |
| Sulfate | **42.7** | 1000 | 1.0 | mg/L | N/A | Jul-12-15 | |
| ***General Parameters*** | | | | | | | |
| Alkalinity, Total as CaCO3 | **111** | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Bicarbonate as CaCO3 | **111** | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Chemical Oxygen Demand | **16** | N/A | 5 | mg/L | N/A | Jul-18-15 | |
| Conductivity (EC) | **355** | N/A | 2 | µS/cm | N/A | Jul-13-15 | |
| Ammonia as N, Total | **2.04** | N/A | 0.005 | mg/L | N/A | Jul-14-15 | |
| Nitrogen, Total Kjeldahl | **4.15** | N/A | 0.05 | mg/L | Jul-14-15 | Jul-16-15 | |
| pH | **6.76** | N/A | 0.01 | pH units | N/A | Jul-13-15 | HT2 |
| Solids, Total Dissolved | **211** | N/A | 10 | mg/L | N/A | Jul-15-15 | |
| Solids, Total Suspended | **383** | N/A | 2 | mg/L | N/A | Jul-14-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Hardness, Total (Diss. as CaCO3) | **111** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | **0.010** | 400 | 0.005 | mg/L | N/A | N/A | |
| Nitrogen, Total | **4.17** | N/A | 0.500 | mg/L | N/A | N/A | |
| ***Dissolved Metals*** | | | | | | | |
| Aluminum, dissolved | **0.007** | N/A | 0.005 | mg/L | N/A | Jul-20-15 | |
| Antimony, dissolved | < 0.0001 | 0.2 | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Arsenic, dissolved | **0.0043** | 0.05 | 0.0005 | mg/L | N/A | Jul-20-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Summer/Winter

**WORK ORDER** 5070710
**REPORTED** Jul-20-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW4 (5070710-04) [Water] Sampled: Jul-09-15, Continued** | | | | | | | |
| ***Dissolved Metals, Continued*** | | | | | | | |
| Barium, dissolved | **0.126** | 5 | 0.005 | mg/L | N/A | Jul-20-15 | |
| Beryllium, dissolved | < 0.0001 | 0.053 | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Bismuth, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Boron, dissolved | **0.060** | 50 | 0.004 | mg/L | N/A | Jul-20-15 | |
| Cadmium, dissolved | **0.00008** | 0.0001 | 0.00001 | mg/L | N/A | Jul-20-15 | |
| Calcium, dissolved | **35.8** | N/A | 0.2 | mg/L | N/A | Jul-20-15 | |
| Chromium, dissolved | < 0.0005 | N/A | 0.0005 | mg/L | N/A | Jul-20-15 | |
| Cobalt, dissolved | **0.0252** | 0.04 | 0.00005 | mg/L | N/A | Jul-20-15 | |
| Copper, dissolved | **0.0006** | 0.02 | 0.0002 | mg/L | N/A | Jul-20-15 | |
| Iron, dissolved | **39.3** | N/A | 0.010 | mg/L | N/A | Jul-20-15 | |
| Lead, dissolved | < 0.0001 | 0.04 | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Lithium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Magnesium, dissolved | **5.15** | N/A | 0.01 | mg/L | N/A | Jul-20-15 | |
| Manganese, dissolved | **2.43** | N/A | 0.0002 | mg/L | N/A | Jul-20-15 | |
| Mercury, dissolved | < 0.00002 | 0.001 | 0.00002 | mg/L | Jul-16-15 | Jul-20-15 | |
| Molybdenum, dissolved | **0.0165** | 10 | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Nickel, dissolved | **0.0028** | 0.25 | 0.0002 | mg/L | N/A | Jul-20-15 | |
| Phosphorus, dissolved | < 0.02 | N/A | 0.02 | mg/L | N/A | Jul-20-15 | |
| Potassium, dissolved | **5.50** | N/A | 0.02 | mg/L | N/A | Jul-20-15 | |
| Selenium, dissolved | < 0.0005 | 0.01 | 0.0005 | mg/L | N/A | Jul-20-15 | |
| Silicon, dissolved | **10.0** | N/A | 0.5 | mg/L | N/A | Jul-20-15 | |
| Silver, dissolved | < 0.00005 | 0.0005 | 0.00005 | mg/L | N/A | Jul-20-15 | |
| Sodium, dissolved | **17.4** | N/A | 0.02 | mg/L | N/A | Jul-20-15 | |
| Strontium, dissolved | **0.215** | N/A | 0.001 | mg/L | N/A | Jul-20-15 | |
| Sulfur, dissolved | **15** | N/A | 1 | mg/L | N/A | Jul-20-15 | |
| Tellurium, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Jul-20-15 | |
| Thallium, dissolved | < 0.00002 | 0.003 | 0.00002 | mg/L | N/A | Jul-20-15 | |
| Thorium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Tin, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Jul-20-15 | |
| Titanium, dissolved | < 0.005 | 1 | 0.005 | mg/L | N/A | Jul-20-15 | |
| Uranium, dissolved | **0.00015** | 3 | 0.00002 | mg/L | N/A | Jul-20-15 | |
| Vanadium, dissolved | < 0.001 | N/A | 0.001 | mg/L | N/A | Jul-20-15 | |
| Zinc, dissolved | **0.007** | 0.075 | 0.004 | mg/L | N/A | Jul-20-15 | |
| Zirconium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Jul-20-15 | |
| **Sample ID: MW6 (5070710-05) [Water] Sampled: Jul-09-15** | | | | | | | |
| ***Anions*** | | | | | | | |
| Bromide | < 0.10 | N/A | 0.10 | mg/L | N/A | Jul-12-15 | |
| Chloride | **103** | 1500 | 0.10 | mg/L | N/A | Jul-12-15 | |
| Fluoride | **0.72** | 2 | 0.01 | mg/L | N/A | Jul-12-15 | |
| Nitrate+Nitrite as N | **0.030** | 400 | 0.005 | mg/L | N/A | Jul-15-15 | |
| Nitrite as N | < 0.005 | 0.2 | 0.005 | mg/L | N/A | Jul-13-15 | HT1 |
| Sulfate | **138** | 1000 | 1.0 | mg/L | N/A | Jul-12-15 | |
| ***General Parameters*** | | | | | | | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Summer/Winter

**WORK ORDER** 5070710
**REPORTED** Jul-20-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW6 (5070710-05) [Water] Sampled: Jul-09-15, Continued** | | | | | | | |
| ***General Parameters, Continued*** | | | | | | | |
| Alkalinity, Total as CaCO3 | **9** | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Bicarbonate as CaCO3 | **9** | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Chemical Oxygen Demand | **7** | N/A | 5 | mg/L | N/A | Jul-18-15 | |
| Conductivity (EC) | **686** | N/A | 2 | µS/cm | N/A | Jul-13-15 | |
| Ammonia as N, Total | **0.045** | N/A | 0.005 | mg/L | N/A | Jul-14-15 | |
| Nitrogen, Total Kjeldahl | **0.42** | N/A | 0.05 | mg/L | Jul-14-15 | Jul-16-15 | |
| pH | **5.74** | N/A | 0.01 | pH units | N/A | Jul-13-15 | HT2 |
| Solids, Total Dissolved | **415** | N/A | 10 | mg/L | N/A | Jul-15-15 | |
| Solids, Total Suspended | **334** | N/A | 2 | mg/L | N/A | Jul-14-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Hardness, Total (Diss. as CaCO3) | **123** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | **0.030** | 400 | 0.005 | mg/L | N/A | N/A | |
| Nitrogen, Total | **0.448** | N/A | 0.050 | mg/L | N/A | N/A | |
| ***Dissolved Metals*** | | | | | | | |
| Aluminum, dissolved | **0.182** | N/A | 0.005 | mg/L | N/A | Jul-20-15 | |
| Antimony, dissolved | < 0.0001 | 0.2 | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Arsenic, dissolved | < 0.0005 | 0.05 | 0.0005 | mg/L | N/A | Jul-20-15 | |
| Barium, dissolved | **0.043** | 5 | 0.005 | mg/L | N/A | Jul-20-15 | |
| Beryllium, dissolved | < 0.0001 | 0.053 | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Bismuth, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Boron, dissolved | **0.012** | 50 | 0.004 | mg/L | N/A | Jul-20-15 | |
| Cadmium, dissolved | **0.00028** | 0.0001 | 0.00001 | mg/L | N/A | Jul-20-15 | |
| Calcium, dissolved | **39.9** | N/A | 0.2 | mg/L | N/A | Jul-20-15 | |
| Chromium, dissolved | < 0.0005 | N/A | 0.0005 | mg/L | N/A | Jul-20-15 | |
| Cobalt, dissolved | **0.00153** | 0.04 | 0.00005 | mg/L | N/A | Jul-20-15 | |
| Copper, dissolved | **0.0034** | 0.02 | 0.0002 | mg/L | N/A | Jul-20-15 | |
| Iron, dissolved | **0.025** | N/A | 0.010 | mg/L | N/A | Jul-20-15 | |
| Lead, dissolved | < 0.0001 | 0.04 | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Lithium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Magnesium, dissolved | **5.58** | N/A | 0.01 | mg/L | N/A | Jul-20-15 | |
| Manganese, dissolved | **0.498** | N/A | 0.0002 | mg/L | N/A | Jul-20-15 | |
| Mercury, dissolved | < 0.00002 | 0.001 | 0.00002 | mg/L | Jul-16-15 | Jul-20-15 | |
| Molybdenum, dissolved | **0.0002** | 10 | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Nickel, dissolved | **0.0026** | 0.25 | 0.0002 | mg/L | N/A | Jul-20-15 | |
| Phosphorus, dissolved | < 0.02 | N/A | 0.02 | mg/L | N/A | Jul-20-15 | |
| Potassium, dissolved | **3.65** | N/A | 0.02 | mg/L | N/A | Jul-20-15 | |
| Selenium, dissolved | < 0.0005 | 0.01 | 0.0005 | mg/L | N/A | Jul-20-15 | |
| Silicon, dissolved | **9.1** | N/A | 0.5 | mg/L | N/A | Jul-20-15 | |
| Silver, dissolved | < 0.00005 | 0.0005 | 0.00005 | mg/L | N/A | Jul-20-15 | |
| Sodium, dissolved | **87.9** | N/A | 0.02 | mg/L | N/A | Jul-20-15 | |
| Strontium, dissolved | **0.516** | N/A | 0.001 | mg/L | N/A | Jul-20-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Summer/Winter

**WORK ORDER** 5070710
**REPORTED** Jul-20-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW6 (5070710-05) [Water] Sampled: Jul-09-15, Continued** | | | | | | | |
| ***Dissolved Metals, Continued*** | | | | | | | |
| Sulfur, dissolved | **46** | N/A | 1 | mg/L | N/A | Jul-20-15 | |
| Tellurium, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Jul-20-15 | |
| Thallium, dissolved | **0.00005** | 0.003 | 0.00002 | mg/L | N/A | Jul-20-15 | |
| Thorium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Tin, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Jul-20-15 | |
| Titanium, dissolved | < 0.005 | 1 | 0.005 | mg/L | N/A | Jul-20-15 | |
| Uranium, dissolved | **0.00004** | 3 | 0.00002 | mg/L | N/A | Jul-20-15 | |
| Vanadium, dissolved | < 0.001 | N/A | 0.001 | mg/L | N/A | Jul-20-15 | |
| Zinc, dissolved | **0.006** | 0.075 | 0.004 | mg/L | N/A | Jul-20-15 | |
| Zirconium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Jul-20-15 | |
| **Sample ID: SFC2 (5070710-06) [Water] Sampled: Jul-09-15** | | | | | | | |
| ***Anions*** | | | | | | | |
| Bromide | < 0.10 | N/A | 0.10 | mg/L | N/A | Jul-12-15 | |
| Chloride | **14.2** | 1500 | 0.10 | mg/L | N/A | Jul-12-15 | |
| Fluoride | **0.42** | 2 | 0.01 | mg/L | N/A | Jul-12-15 | |
| Nitrate+Nitrite as N | **0.136** | 400 | 0.005 | mg/L | N/A | Jul-15-15 | |
| Nitrite as N | < 0.005 | 0.2 | 0.005 | mg/L | N/A | Jul-13-15 | HT1 |
| Sulfate | **52.8** | 1000 | 1.0 | mg/L | N/A | Jul-12-15 | |
| ***General Parameters*** | | | | | | | |
| Alkalinity, Total as CaCO3 | **67** | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Bicarbonate as CaCO3 | **67** | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Chemical Oxygen Demand | **11** | N/A | 5 | mg/L | N/A | Jul-18-15 | |
| Conductivity (EC) | **287** | N/A | 2 | µS/cm | N/A | Jul-13-15 | |
| Ammonia as N, Total | **0.700** | N/A | 0.005 | mg/L | N/A | Jul-14-15 | |
| Nitrogen, Total Kjeldahl | **0.78** | N/A | 0.05 | mg/L | Jul-14-15 | Jul-16-15 | |
| pH | **6.91** | N/A | 0.01 | pH units | N/A | Jul-13-15 | HT2 |
| Solids, Total Dissolved | **176** | N/A | 10 | mg/L | N/A | Jul-15-15 | |
| Solids, Total Suspended | **10** | N/A | 2 | mg/L | N/A | Jul-14-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Hardness, Total (Total as CaCO3) | **109** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | **0.136** | 400 | 0.005 | mg/L | N/A | N/A | |
| Nitrogen, Total | **0.912** | N/A | 0.050 | mg/L | N/A | N/A | |
| ***Total Recoverable Metals*** | | | | | | | |
| Aluminum, total | **0.096** | N/A | 0.005 | mg/L | Jul-16-15 | Jul-20-15 | |
| Antimony, total | < 0.0001 | 0.2 | 0.0001 | mg/L | Jul-16-15 | Jul-20-15 | |
| Arsenic, total | < 0.0005 | 0.05 | 0.0005 | mg/L | Jul-16-15 | Jul-20-15 | |
| Barium, total | **0.059** | 5 | 0.005 | mg/L | Jul-16-15 | Jul-20-15 | |
| Beryllium, total | < 0.0001 | 0.053 | 0.0001 | mg/L | Jul-16-15 | Jul-20-15 | |
| Bismuth, total | < 0.0001 | N/A | 0.0001 | mg/L | Jul-16-15 | Jul-20-15 | |

| | | | |
|---|---|---|---|
| **REPORTED TO** | Morrison Hershfield Limited | **WORK ORDER** | 5070710 |
| **PROJECT** | Whistler Landfill - Summer/Winter | **REPORTED** | Jul-20-15 |

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: SFC2 (5070710-06) [Water] Sampled: Jul-09-15, Continued** | | | | | | | |
| ***Total Recoverable Metals, Continued*** | | | | | | | |
| Boron, total | **0.055** | 50 | 0.004 | mg/L | Jul-16-15 | Jul-20-15 | |
| Cadmium, total | **0.00008** | 0.0001 | 0.00001 | mg/L | Jul-16-15 | Jul-20-15 | |
| Calcium, total | **37.1** | N/A | 0.2 | mg/L | Jul-16-15 | Jul-20-15 | |
| Chromium, total | < 0.0005 | N/A | 0.0005 | mg/L | Jul-16-15 | Jul-20-15 | |
| Cobalt, total | **0.00698** | 0.04 | 0.00005 | mg/L | Jul-16-15 | Jul-20-15 | |
| Copper, total | **0.0034** | 0.02 | 0.0002 | mg/L | Jul-16-15 | Jul-20-15 | |
| Iron, total | **4.49** | N/A | 0.01 | mg/L | Jul-16-15 | Jul-20-15 | |
| Lead, total | < 0.0001 | 0.04 | 0.0001 | mg/L | Jul-16-15 | Jul-20-15 | |
| Lithium, total | **0.0002** | N/A | 0.0001 | mg/L | Jul-16-15 | Jul-20-15 | |
| Magnesium, total | **3.86** | N/A | 0.01 | mg/L | Jul-16-15 | Jul-20-15 | |
| Manganese, total | **2.11** | N/A | 0.0002 | mg/L | Jul-16-15 | Jul-20-15 | |
| Mercury, total | < 0.00002 | 0.001 | 0.00002 | mg/L | Jul-17-15 | Jul-17-15 | |
| Molybdenum, total | **0.0026** | 10 | 0.0001 | mg/L | Jul-16-15 | Jul-20-15 | |
| Nickel, total | **0.0014** | 0.25 | 0.0002 | mg/L | Jul-16-15 | Jul-20-15 | |
| Phosphorus, total | < 0.02 | N/A | 0.02 | mg/L | Jul-16-15 | Jul-20-15 | |
| Potassium, total | **3.59** | N/A | 0.02 | mg/L | Jul-16-15 | Jul-20-15 | |
| Selenium, total | < 0.0005 | 0.01 | 0.0005 | mg/L | Jul-16-15 | Jul-20-15 | |
| Silicon, total | **5.3** | N/A | 0.5 | mg/L | Jul-16-15 | Jul-20-15 | |
| Silver, total | < 0.00005 | 0.0005 | 0.00005 | mg/L | Jul-16-15 | Jul-20-15 | |
| Sodium, total | **12.8** | N/A | 0.02 | mg/L | Jul-16-15 | Jul-20-15 | |
| Strontium, total | **0.253** | N/A | 0.001 | mg/L | Jul-16-15 | Jul-20-15 | |
| Sulfur, total | **19** | N/A | 1 | mg/L | Jul-16-15 | Jul-20-15 | |
| Tellurium, total | < 0.0002 | N/A | 0.0002 | mg/L | Jul-16-15 | Jul-20-15 | |
| Thallium, total | **0.00002** | 0.003 | 0.00002 | mg/L | Jul-16-15 | Jul-20-15 | |
| Thorium, total | < 0.0001 | N/A | 0.0001 | mg/L | Jul-16-15 | Jul-20-15 | |
| Tin, total | < 0.0002 | N/A | 0.0002 | mg/L | Jul-16-15 | Jul-20-15 | |
| Titanium, total | < 0.005 | 1 | 0.005 | mg/L | Jul-16-15 | Jul-20-15 | |
| Uranium, total | < 0.00002 | 3 | 0.00002 | mg/L | Jul-16-15 | Jul-20-15 | |
| Vanadium, total | < 0.001 | N/A | 0.001 | mg/L | Jul-16-15 | Jul-20-15 | |
| Zinc, total | < 0.004 | 0.075 | 0.004 | mg/L | Jul-16-15 | Jul-20-15 | |
| Zirconium, total | < 0.0001 | N/A | 0.0001 | mg/L | Jul-16-15 | Jul-20-15 | |
| **Sample ID: SFC3 (5070710-07) [Water] Sampled: Jul-09-15** | | | | | | | |
| ***Anions*** | | | | | | | |
| Bromide | < 0.10 | N/A | 0.10 | mg/L | N/A | Jul-12-15 | |
| Chloride | **13.8** | 1500 | 0.10 | mg/L | N/A | Jul-12-15 | |
| Fluoride | **0.34** | 2 | 0.01 | mg/L | N/A | Jul-12-15 | |
| Nitrate+Nitrite as N | **0.161** | 400 | 0.005 | mg/L | N/A | Jul-15-15 | |
| Nitrite as N | < 0.005 | 0.2 | 0.005 | mg/L | N/A | Jul-13-15 | HT1 |
| Sulfate | **13.1** | 1000 | 1.0 | mg/L | N/A | Jul-12-15 | |
| ***General Parameters*** | | | | | | | |
| Alkalinity, Total as CaCO3 | **32** | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Bicarbonate as CaCO3 | **32** | N/A | 1 | mg/L | N/A | Jul-13-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Summer/Winter

**WORK ORDER** 5070710
**REPORTED** Jul-20-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: SFC3 (5070710-07) [Water] Sampled: Jul-09-15, Continued** | | | | | | | |
| ***General Parameters, Continued*** | | | | | | | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Chemical Oxygen Demand | **9** | N/A | 5 | mg/L | N/A | Jul-18-15 | |
| Conductivity (EC) | **131** | N/A | 2 | µS/cm | N/A | Jul-13-15 | |
| Ammonia as N, Total | **0.060** | N/A | 0.005 | mg/L | N/A | Jul-14-15 | |
| Nitrogen, Total Kjeldahl | **0.29** | N/A | 0.05 | mg/L | Jul-14-15 | Jul-16-15 | |
| pH | **7.10** | N/A | 0.01 | pH units | N/A | Jul-13-15 | HT2 |
| Solids, Total Dissolved | **95** | N/A | 10 | mg/L | N/A | Jul-15-15 | |
| Solids, Total Suspended | **7** | N/A | 2 | mg/L | N/A | Jul-14-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Hardness, Total (Total as CaCO3) | **47.2** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | **0.161** | 400 | 0.005 | mg/L | N/A | N/A | |
| Nitrogen, Total | **0.455** | N/A | 0.050 | mg/L | N/A | N/A | |
| ***Total Recoverable Metals*** | | | | | | | |
| Aluminum, total | **0.046** | N/A | 0.005 | mg/L | Jul-16-15 | Jul-20-15 | |
| Antimony, total | < 0.0001 | 0.2 | 0.0001 | mg/L | Jul-16-15 | Jul-20-15 | |
| Arsenic, total | < 0.0005 | 0.05 | 0.0005 | mg/L | Jul-16-15 | Jul-20-15 | |
| Barium, total | **0.012** | 5 | 0.005 | mg/L | Jul-16-15 | Jul-20-15 | |
| Beryllium, total | < 0.0001 | 0.053 | 0.0001 | mg/L | Jul-16-15 | Jul-20-15 | |
| Bismuth, total | < 0.0001 | N/A | 0.0001 | mg/L | Jul-16-15 | Jul-20-15 | |
| Boron, total | **0.012** | 50 | 0.004 | mg/L | Jul-16-15 | Jul-20-15 | |
| Cadmium, total | **0.00001** | 0.0001 | 0.00001 | mg/L | Jul-16-15 | Jul-20-15 | |
| Calcium, total | **15.2** | N/A | 0.2 | mg/L | Jul-16-15 | Jul-20-15 | |
| Chromium, total | < 0.0005 | N/A | 0.0005 | mg/L | Jul-16-15 | Jul-20-15 | |
| Cobalt, total | **0.00095** | 0.04 | 0.00005 | mg/L | Jul-16-15 | Jul-20-15 | |
| Copper, total | **0.0007** | 0.02 | 0.0002 | mg/L | Jul-16-15 | Jul-20-15 | |
| Iron, total | **0.73** | N/A | 0.01 | mg/L | Jul-16-15 | Jul-20-15 | |
| Lead, total | < 0.0001 | 0.04 | 0.0001 | mg/L | Jul-16-15 | Jul-20-15 | |
| Lithium, total | **0.0006** | N/A | 0.0001 | mg/L | Jul-16-15 | Jul-20-15 | |
| Magnesium, total | **2.21** | N/A | 0.01 | mg/L | Jul-16-15 | Jul-20-15 | |
| Manganese, total | **0.125** | N/A | 0.0002 | mg/L | Jul-16-15 | Jul-20-15 | |
| Mercury, total | < 0.00002 | 0.001 | 0.00002 | mg/L | Jul-17-15 | Jul-17-15 | |
| Molybdenum, total | **0.0003** | 10 | 0.0001 | mg/L | Jul-16-15 | Jul-20-15 | |
| Nickel, total | **0.0002** | 0.25 | 0.0002 | mg/L | Jul-16-15 | Jul-20-15 | |
| Phosphorus, total | < 0.02 | N/A | 0.02 | mg/L | Jul-16-15 | Jul-20-15 | |
| Potassium, total | **0.70** | N/A | 0.02 | mg/L | Jul-16-15 | Jul-20-15 | |
| Selenium, total | < 0.0005 | 0.01 | 0.0005 | mg/L | Jul-16-15 | Jul-20-15 | |
| Silicon, total | **10.8** | N/A | 0.5 | mg/L | Jul-16-15 | Jul-20-15 | |
| Silver, total | < 0.00005 | 0.0005 | 0.00005 | mg/L | Jul-16-15 | Jul-20-15 | |
| Sodium, total | **7.96** | N/A | 0.02 | mg/L | Jul-16-15 | Jul-20-15 | |
| Strontium, total | **0.188** | N/A | 0.001 | mg/L | Jul-16-15 | Jul-20-15 | |
| Sulfur, total | < 1 | N/A | 1 | mg/L | Jul-16-15 | Jul-20-15 | |
| Tellurium, total | < 0.0002 | N/A | 0.0002 | mg/L | Jul-16-15 | Jul-20-15 | |
| Thallium, total | < 0.00002 | 0.003 | 0.00002 | mg/L | Jul-16-15 | Jul-20-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Summer/Winter

**WORK ORDER** 5070710
**REPORTED** Jul-20-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: SFC3 (5070710-07) [Water] Sampled: Jul-09-15, Continued** | | | | | | | |
| ***Total Recoverable Metals, Continued*** | | | | | | | |
| Thorium, total | < 0.0001 | N/A | 0.0001 | mg/L | Jul-16-15 | Jul-20-15 | |
| Tin, total | < 0.0002 | N/A | 0.0002 | mg/L | Jul-16-15 | Jul-20-15 | |
| Titanium, total | < 0.005 | 1 | 0.005 | mg/L | Jul-16-15 | Jul-20-15 | |
| Uranium, total | < 0.00002 | 3 | 0.00002 | mg/L | Jul-16-15 | Jul-20-15 | |
| Vanadium, total | < 0.001 | N/A | 0.001 | mg/L | Jul-16-15 | Jul-20-15 | |
| Zinc, total | < 0.004 | 0.075 | 0.004 | mg/L | Jul-16-15 | Jul-20-15 | |
| Zirconium, total | < 0.0001 | N/A | 0.0001 | mg/L | Jul-16-15 | Jul-20-15 | |
| **Sample ID: SFC4B (5070710-08) [Water] Sampled: Jul-09-15** | | | | | | | |
| ***Anions*** | | | | | | | |
| Bromide | < 0.10 | N/A | 0.10 | mg/L | N/A | Jul-12-15 | |
| Chloride | **35.5** | 1500 | 0.10 | mg/L | N/A | Jul-12-15 | |
| Fluoride | **0.57** | 2 | 0.01 | mg/L | N/A | Jul-12-15 | |
| Nitrate+Nitrite as N | **0.554** | 400 | 0.005 | mg/L | N/A | Jul-15-15 | |
| Nitrite as N | < 0.005 | 0.2 | 0.005 | mg/L | N/A | Jul-13-15 | HT1 |
| Sulfate | **49.7** | 1000 | 1.0 | mg/L | N/A | Jul-12-15 | |
| ***General Parameters*** | | | | | | | |
| Alkalinity, Total as CaCO3 | **49** | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Bicarbonate as CaCO3 | **49** | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Chemical Oxygen Demand | **6** | N/A | 5 | mg/L | N/A | Jul-18-15 | |
| Conductivity (EC) | **363** | N/A | 2 | µS/cm | N/A | Jul-13-15 | |
| Ammonia as N, Total | **0.041** | N/A | 0.005 | mg/L | N/A | Jul-14-15 | |
| Nitrogen, Total Kjeldahl | **0.21** | N/A | 0.05 | mg/L | Jul-14-15 | Jul-16-15 | |
| pH | **7.46** | N/A | 0.01 | pH units | N/A | Jul-13-15 | HT2 |
| Solids, Total Dissolved | **227** | N/A | 10 | mg/L | N/A | Jul-15-15 | |
| Solids, Total Suspended | **2** | N/A | 2 | mg/L | N/A | Jul-14-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Hardness, Total (Total as CaCO3) | < 0.50 | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | **0.554** | 400 | 0.005 | mg/L | N/A | N/A | |
| Nitrogen, Total | **0.765** | N/A | 0.050 | mg/L | N/A | N/A | |
| ***Total Recoverable Metals*** | | | | | | | |
| Aluminum, total | < 0.005 | N/A | 0.005 | mg/L | Jul-16-15 | Jul-20-15 | |
| Antimony, total | < 0.0001 | 0.2 | 0.0001 | mg/L | Jul-16-15 | Jul-20-15 | |
| Arsenic, total | < 0.0005 | 0.05 | 0.0005 | mg/L | Jul-16-15 | Jul-20-15 | |
| Barium, total | < 0.005 | 5 | 0.005 | mg/L | Jul-16-15 | Jul-20-15 | |
| Beryllium, total | < 0.0001 | 0.053 | 0.0001 | mg/L | Jul-16-15 | Jul-20-15 | |
| Bismuth, total | < 0.0001 | N/A | 0.0001 | mg/L | Jul-16-15 | Jul-20-15 | |
| Boron, total | < 0.004 | 50 | 0.004 | mg/L | Jul-16-15 | Jul-20-15 | |
| Cadmium, total | < 0.00001 | 0.0001 | 0.00001 | mg/L | Jul-16-15 | Jul-20-15 | |
| Calcium, total | < 0.2 | N/A | 0.2 | mg/L | Jul-16-15 | Jul-20-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Summer/Winter

**WORK ORDER** 5070710
**REPORTED** Jul-20-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: SFC4B (5070710-08) [Water] Sampled: Jul-09-15, Continued** | | | | | | | |
| ***Total Recoverable Metals, Continued*** | | | | | | | |
| Chromium, total | < 0.0005 | N/A | 0.0005 | mg/L | Jul-16-15 | Jul-20-15 | |
| Cobalt, total | < 0.00005 | 0.04 | 0.00005 | mg/L | Jul-16-15 | Jul-20-15 | |
| Copper, total | < 0.0002 | 0.02 | 0.0002 | mg/L | Jul-16-15 | Jul-20-15 | |
| Iron, total | < 0.01 | N/A | 0.01 | mg/L | Jul-16-15 | Jul-20-15 | |
| Lead, total | < 0.0001 | 0.04 | 0.0001 | mg/L | Jul-16-15 | Jul-20-15 | |
| Lithium, total | **0.0006** | N/A | 0.0001 | mg/L | Jul-16-15 | Jul-20-15 | |
| Magnesium, total | < 0.01 | N/A | 0.01 | mg/L | Jul-16-15 | Jul-20-15 | |
| Manganese, total | < 0.0002 | N/A | 0.0002 | mg/L | Jul-16-15 | Jul-20-15 | |
| Mercury, total | < 0.00002 | 0.001 | 0.00002 | mg/L | Jul-17-15 | Jul-17-15 | |
| Molybdenum, total | < 0.0001 | 10 | 0.0001 | mg/L | Jul-16-15 | Jul-20-15 | |
| Nickel, total | < 0.0002 | 0.25 | 0.0002 | mg/L | Jul-16-15 | Jul-20-15 | |
| Phosphorus, total | < 0.02 | N/A | 0.02 | mg/L | Jul-16-15 | Jul-20-15 | |
| Potassium, total | < 0.02 | N/A | 0.02 | mg/L | Jul-16-15 | Jul-20-15 | |
| Selenium, total | < 0.0005 | 0.01 | 0.0005 | mg/L | Jul-16-15 | Jul-20-15 | |
| Silicon, total | < 0.5 | N/A | 0.5 | mg/L | Jul-16-15 | Jul-20-15 | |
| Silver, total | < 0.00005 | 0.0005 | 0.00005 | mg/L | Jul-16-15 | Jul-20-15 | |
| Sodium, total | < 0.02 | N/A | 0.02 | mg/L | Jul-16-15 | Jul-20-15 | |
| Strontium, total | < 0.001 | N/A | 0.001 | mg/L | Jul-16-15 | Jul-20-15 | |
| Sulfur, total | < 1 | N/A | 1 | mg/L | Jul-16-15 | Jul-20-15 | |
| Tellurium, total | < 0.0002 | N/A | 0.0002 | mg/L | Jul-16-15 | Jul-20-15 | |
| Thallium, total | < 0.00002 | 0.003 | 0.00002 | mg/L | Jul-16-15 | Jul-20-15 | |
| Thorium, total | < 0.0001 | N/A | 0.0001 | mg/L | Jul-16-15 | Jul-20-15 | |
| Tin, total | < 0.0002 | N/A | 0.0002 | mg/L | Jul-16-15 | Jul-20-15 | |
| Titanium, total | < 0.005 | 1 | 0.005 | mg/L | Jul-16-15 | Jul-20-15 | |
| Uranium, total | < 0.00002 | 3 | 0.00002 | mg/L | Jul-16-15 | Jul-20-15 | |
| Vanadium, total | < 0.001 | N/A | 0.001 | mg/L | Jul-16-15 | Jul-20-15 | |
| Zinc, total | < 0.004 | 0.075 | 0.004 | mg/L | Jul-16-15 | Jul-20-15 | |
| Zirconium, total | < 0.0001 | N/A | 0.0001 | mg/L | Jul-16-15 | Jul-20-15 | |
| **Sample ID: SFC11 (5070710-09) [Water] Sampled: Jul-09-15** | | | | | | | |
| ***Anions*** | | | | | | | |
| Bromide | < 0.10 | N/A | 0.10 | mg/L | N/A | Jul-12-15 | |
| Chloride | **13.9** | 1500 | 0.10 | mg/L | N/A | Jul-12-15 | |
| Fluoride | **0.23** | 2 | 0.01 | mg/L | N/A | Jul-12-15 | |
| Nitrate+Nitrite as N | **0.169** | 400 | 0.005 | mg/L | N/A | Jul-15-15 | |
| Nitrite as N | < 0.005 | 0.2 | 0.005 | mg/L | N/A | Jul-13-15 | HT1 |
| Sulfate | **14.3** | 1000 | 1.0 | mg/L | N/A | Jul-12-15 | |
| ***General Parameters*** | | | | | | | |
| Alkalinity, Total as CaCO3 | **33** | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Bicarbonate as CaCO3 | **33** | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Chemical Oxygen Demand | < 5 | N/A | 5 | mg/L | N/A | Jul-18-15 | |

| | | | |
|---|---|---|---|
| **REPORTED TO** | Morrison Hershfield Limited | **WORK ORDER** | 5070710 |
| **PROJECT** | Whistler Landfill - Summer/Winter | **REPORTED** | Jul-20-15 |

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: SFC11 (5070710-09) [Water] Sampled: Jul-09-15, Continued** | | | | | | | |
| ***General Parameters, Continued*** | | | | | | | |
| Conductivity (EC) | **137** | N/A | 2 | µS/cm | N/A | Jul-13-15 | |
| Ammonia as N, Total | **0.036** | N/A | 0.005 | mg/L | N/A | Jul-14-15 | |
| Nitrogen, Total Kjeldahl | **0.10** | N/A | 0.05 | mg/L | Jul-14-15 | Jul-16-15 | |
| pH | **6.84** | N/A | 0.01 | pH units | N/A | Jul-13-15 | HT2 |
| Solids, Total Dissolved | **99** | N/A | 10 | mg/L | N/A | Jul-15-15 | |
| Solids, Total Suspended | < 2 | N/A | 2 | mg/L | N/A | Jul-14-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Hardness, Total (Total as CaCO3) | **47.4** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | **0.169** | 400 | 0.005 | mg/L | N/A | N/A | |
| Nitrogen, Total | **0.270** | N/A | 0.050 | mg/L | N/A | N/A | |
| ***Total Recoverable Metals*** | | | | | | | |
| Aluminum, total | **0.030** | N/A | 0.005 | mg/L | Jul-16-15 | Jul-20-15 | |
| Antimony, total | < 0.0001 | 0.2 | 0.0001 | mg/L | Jul-16-15 | Jul-20-15 | |
| Arsenic, total | < 0.0005 | 0.05 | 0.0005 | mg/L | Jul-16-15 | Jul-20-15 | |
| Barium, total | **0.011** | 5 | 0.005 | mg/L | Jul-16-15 | Jul-20-15 | |
| Beryllium, total | < 0.0001 | 0.053 | 0.0001 | mg/L | Jul-16-15 | Jul-20-15 | |
| Bismuth, total | < 0.0001 | N/A | 0.0001 | mg/L | Jul-16-15 | Jul-20-15 | |
| Boron, total | **0.012** | 50 | 0.004 | mg/L | Jul-16-15 | Jul-20-15 | |
| Cadmium, total | **0.00004** | 0.0001 | 0.00001 | mg/L | Jul-16-15 | Jul-20-15 | |
| Calcium, total | **15.3** | N/A | 0.2 | mg/L | Jul-16-15 | Jul-20-15 | |
| Chromium, total | < 0.0005 | N/A | 0.0005 | mg/L | Jul-16-15 | Jul-20-15 | |
| Cobalt, total | < 0.00005 | 0.04 | 0.00005 | mg/L | Jul-16-15 | Jul-20-15 | |
| Copper, total | **0.0005** | 0.02 | 0.0002 | mg/L | Jul-16-15 | Jul-20-15 | |
| Iron, total | **0.04** | N/A | 0.01 | mg/L | Jul-16-15 | Jul-20-15 | |
| Lead, total | < 0.0001 | 0.04 | 0.0001 | mg/L | Jul-16-15 | Jul-20-15 | |
| Lithium, total | **0.0007** | N/A | 0.0001 | mg/L | Jul-16-15 | Jul-20-15 | |
| Magnesium, total | **2.21** | N/A | 0.01 | mg/L | Jul-16-15 | Jul-20-15 | |
| Manganese, total | **0.0049** | N/A | 0.0002 | mg/L | Jul-16-15 | Jul-20-15 | |
| Mercury, total | < 0.00002 | 0.001 | 0.00002 | mg/L | Jul-17-15 | Jul-17-15 | |
| Molybdenum, total | **0.0003** | 10 | 0.0001 | mg/L | Jul-16-15 | Jul-20-15 | |
| Nickel, total | **0.0002** | 0.25 | 0.0002 | mg/L | Jul-16-15 | Jul-20-15 | |
| Phosphorus, total | < 0.02 | N/A | 0.02 | mg/L | Jul-16-15 | Jul-20-15 | |
| Potassium, total | **0.63** | N/A | 0.02 | mg/L | Jul-16-15 | Jul-20-15 | |
| Selenium, total | < 0.0005 | 0.01 | 0.0005 | mg/L | Jul-16-15 | Jul-20-15 | |
| Silicon, total | **10.9** | N/A | 0.5 | mg/L | Jul-16-15 | Jul-20-15 | |
| Silver, total | < 0.00005 | 0.0005 | 0.00005 | mg/L | Jul-16-15 | Jul-20-15 | |
| Sodium, total | **8.04** | N/A | 0.02 | mg/L | Jul-16-15 | Jul-20-15 | |
| Strontium, total | **0.194** | N/A | 0.001 | mg/L | Jul-16-15 | Jul-20-15 | |
| Sulfur, total | **2** | N/A | 1 | mg/L | Jul-16-15 | Jul-20-15 | |
| Tellurium, total | < 0.0002 | N/A | 0.0002 | mg/L | Jul-16-15 | Jul-20-15 | |
| Thallium, total | < 0.00002 | 0.003 | 0.00002 | mg/L | Jul-16-15 | Jul-20-15 | |
| Thorium, total | < 0.0001 | N/A | 0.0001 | mg/L | Jul-16-15 | Jul-20-15 | |
| Tin, total | < 0.0002 | N/A | 0.0002 | mg/L | Jul-16-15 | Jul-20-15 | |
| Titanium, total | < 0.005 | 1 | 0.005 | mg/L | Jul-16-15 | Jul-20-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Summer/Winter

**WORK ORDER** 5070710
**REPORTED** Jul-20-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: SFC11 (5070710-09) [Water] Sampled: Jul-09-15, Continued** | | | | | | | |
| ***Total Recoverable Metals, Continued*** | | | | | | | |
| Uranium, total | < 0.00002 | 3 | 0.00002 | mg/L | Jul-16-15 | Jul-20-15 | |
| Vanadium, total | < 0.001 | N/A | 0.001 | mg/L | Jul-16-15 | Jul-20-15 | |
| Zinc, total | < 0.004 | 0.075 | 0.004 | mg/L | Jul-16-15 | Jul-20-15 | |
| Zirconium, total | **0.0005** | N/A | 0.0001 | mg/L | Jul-16-15 | Jul-20-15 | |
| **Sample ID: GW Int (5070710-10) [Water] Sampled: Jul-09-15** | | | | | | | FILT, PRESa |
| ***Anions*** | | | | | | | |
| Bromide | < 0.10 | N/A | 0.10 | mg/L | N/A | Jul-12-15 | |
| Chloride | **88.3** | 1500 | 0.10 | mg/L | N/A | Jul-12-15 | |
| Fluoride | **0.53** | 2 | 0.01 | mg/L | N/A | Jul-12-15 | |
| Nitrate+Nitrite as N | **0.299** | 400 | 0.005 | mg/L | N/A | Jul-15-15 | |
| Nitrite as N | **0.027** | 0.2 | 0.005 | mg/L | N/A | Jul-13-15 | HT1 |
| Sulfate | **133** | 1000 | 1.0 | mg/L | N/A | Jul-12-15 | |
| ***General Parameters*** | | | | | | | |
| Alkalinity, Total as CaCO3 | **287** | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Bicarbonate as CaCO3 | **287** | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Chemical Oxygen Demand | **30** | N/A | 5 | mg/L | N/A | Jul-18-15 | |
| Conductivity (EC) | **1090** | N/A | 2 | µS/cm | N/A | Jul-13-15 | |
| Ammonia as N, Total | **22.9** | N/A | 0.005 | mg/L | N/A | Jul-14-15 | |
| Nitrogen, Total Kjeldahl | **22.9** | N/A | 0.05 | mg/L | Jul-14-15 | Jul-16-15 | |
| pH | **6.98** | N/A | 0.01 | pH units | N/A | Jul-13-15 | HT2 |
| Solids, Total Dissolved | **573** | N/A | 10 | mg/L | N/A | Jul-15-15 | |
| Solids, Total Suspended | **49** | N/A | 2 | mg/L | N/A | Jul-14-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Hardness, Total (Diss. as CaCO3) | **278** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | **0.272** | 400 | 0.005 | mg/L | N/A | N/A | |
| Nitrogen, Total | **23.2** | N/A | 1.25 | mg/L | N/A | N/A | |
| ***Dissolved Metals*** | | | | | | | |
| Aluminum, dissolved | **0.010** | N/A | 0.005 | mg/L | N/A | Jul-20-15 | |
| Antimony, dissolved | **0.0005** | 0.2 | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Arsenic, dissolved | < 0.0005 | 0.05 | 0.0005 | mg/L | N/A | Jul-20-15 | |
| Barium, dissolved | **0.086** | 5 | 0.005 | mg/L | N/A | Jul-20-15 | |
| Beryllium, dissolved | < 0.0001 | 0.053 | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Bismuth, dissolved | **0.0001** | N/A | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Boron, dissolved | **0.543** | 50 | 0.004 | mg/L | N/A | Jul-20-15 | |
| Cadmium, dissolved | **0.00006** | 0.0001 | 0.00001 | mg/L | N/A | Jul-20-15 | |
| Calcium, dissolved | **89.7** | N/A | 0.2 | mg/L | N/A | Jul-20-15 | |
| Chromium, dissolved | < 0.0005 | N/A | 0.0005 | mg/L | N/A | Jul-20-15 | |
| Cobalt, dissolved | **0.00739** | 0.04 | 0.00005 | mg/L | N/A | Jul-20-15 | |

| | | | |
|---|---|---|---|
| **REPORTED TO** | Morrison Hershfield Limited | **WORK ORDER** | 5070710 |
| **PROJECT** | Whistler Landfill - Summer/Winter | **REPORTED** | Jul-20-15 |

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: GW Int (5070710-10) [Water] Sampled: Jul-09-15, Continued** | | | | | | | FILT, PRESa |
| ***Dissolved Metals, Continued*** | | | | | | | |
| Copper, dissolved | **0.0151** | 0.02 | 0.0002 | mg/L | N/A | Jul-20-15 | |
| Iron, dissolved | **6.75** | N/A | 0.010 | mg/L | N/A | Jul-20-15 | |
| Lead, dissolved | **0.0003** | 0.04 | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Lithium, dissolved | **0.0005** | N/A | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Magnesium, dissolved | **13.1** | N/A | 0.01 | mg/L | N/A | Jul-20-15 | |
| Manganese, dissolved | **2.78** | N/A | 0.0002 | mg/L | N/A | Jul-20-15 | |
| Mercury, dissolved | < 0.00002 | 0.001 | 0.00002 | mg/L | Jul-16-15 | Jul-20-15 | |
| Molybdenum, dissolved | **0.0010** | 10 | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Nickel, dissolved | **0.0059** | 0.25 | 0.0002 | mg/L | N/A | Jul-20-15 | |
| Phosphorus, dissolved | < 0.02 | N/A | 0.02 | mg/L | N/A | Jul-20-15 | |
| Potassium, dissolved | **23.0** | N/A | 0.02 | mg/L | N/A | Jul-20-15 | |
| Selenium, dissolved | < 0.0005 | 0.01 | 0.0005 | mg/L | N/A | Jul-20-15 | |
| Silicon, dissolved | **9.2** | N/A | 0.5 | mg/L | N/A | Jul-20-15 | |
| Silver, dissolved | **0.00030** | 0.0005 | 0.00005 | mg/L | N/A | Jul-20-15 | |
| Sodium, dissolved | **79.1** | N/A | 0.02 | mg/L | N/A | Jul-20-15 | |
| Strontium, dissolved | **0.603** | N/A | 0.001 | mg/L | N/A | Jul-20-15 | |
| Sulfur, dissolved | **43** | N/A | 1 | mg/L | N/A | Jul-20-15 | |
| Tellurium, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Jul-20-15 | |
| Thallium, dissolved | < 0.00002 | 0.003 | 0.00002 | mg/L | N/A | Jul-20-15 | |
| Thorium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Tin, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Jul-20-15 | |
| Titanium, dissolved | < 0.005 | 1 | 0.005 | mg/L | N/A | Jul-20-15 | |
| Uranium, dissolved | **0.00007** | 3 | 0.00002 | mg/L | N/A | Jul-20-15 | |
| Vanadium, dissolved | < 0.001 | N/A | 0.001 | mg/L | N/A | Jul-20-15 | |
| Zinc, dissolved | **0.075** | 0.075 | 0.004 | mg/L | N/A | Jul-20-15 | |
| Zirconium, dissolved | **0.0001** | N/A | 0.0001 | mg/L | N/A | Jul-20-15 | |
| **Sample ID: MW6-D (5070710-11) [Water] Sampled: Jul-09-15** | | | | | | | |
| ***Anions*** | | | | | | | |
| Bromide | < 0.10 | N/A | 0.10 | mg/L | N/A | Jul-12-15 | |
| Chloride | **102** | 1500 | 0.10 | mg/L | N/A | Jul-12-15 | |
| Fluoride | **1.27** | 2 | 0.01 | mg/L | N/A | Jul-12-15 | |
| Nitrate+Nitrite as N | **0.032** | 400 | 0.005 | mg/L | N/A | Jul-15-15 | |
| Nitrite as N | < 0.005 | 0.2 | 0.005 | mg/L | N/A | Jul-13-15 | HT1 |
| Sulfate | **139** | 1000 | 1.0 | mg/L | N/A | Jul-12-15 | |
| ***General Parameters*** | | | | | | | |
| Alkalinity, Total as CaCO3 | **11** | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Bicarbonate as CaCO3 | **11** | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Chemical Oxygen Demand | **8** | N/A | 5 | mg/L | N/A | Jul-18-15 | |
| Conductivity (EC) | **701** | N/A | 2 | µS/cm | N/A | Jul-13-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Summer/Winter

**WORK ORDER** 5070710
**REPORTED** Jul-20-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW6-D (5070710-11) [Water] Sampled: Jul-09-15, Continued** | | | | | | | |
| ***General Parameters, Continued*** | | | | | | | |
| Ammonia as N, Total | **0.033** | N/A | 0.005 | mg/L | N/A | Jul-14-15 | |
| Nitrogen, Total Kjeldahl | **0.40** | N/A | 0.05 | mg/L | Jul-14-15 | Jul-16-15 | |
| pH | **5.88** | N/A | 0.01 | pH units | N/A | Jul-13-15 | HT2 |
| Solids, Total Dissolved | **413** | N/A | 10 | mg/L | N/A | Jul-15-15 | |
| Solids, Total Suspended | **278** | N/A | 2 | mg/L | N/A | Jul-14-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Hardness, Total (Diss. as CaCO3) | **125** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | **0.032** | 400 | 0.005 | mg/L | N/A | N/A | |
| Nitrogen, Total | **0.431** | N/A | 0.050 | mg/L | N/A | N/A | |
| ***Dissolved Metals*** | | | | | | | |
| Aluminum, dissolved | **0.185** | N/A | 0.005 | mg/L | N/A | Jul-20-15 | |
| Antimony, dissolved | < 0.0001 | 0.2 | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Arsenic, dissolved | < 0.0005 | 0.05 | 0.0005 | mg/L | N/A | Jul-20-15 | |
| Barium, dissolved | **0.043** | 5 | 0.005 | mg/L | N/A | Jul-20-15 | |
| Beryllium, dissolved | < 0.0001 | 0.053 | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Bismuth, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Boron, dissolved | **0.017** | 50 | 0.004 | mg/L | N/A | Jul-20-15 | |
| Cadmium, dissolved | **0.00029** | 0.0001 | 0.00001 | mg/L | N/A | Jul-20-15 | |
| Calcium, dissolved | **40.7** | N/A | 0.2 | mg/L | N/A | Jul-20-15 | |
| Chromium, dissolved | < 0.0005 | N/A | 0.0005 | mg/L | N/A | Jul-20-15 | |
| Cobalt, dissolved | **0.00155** | 0.04 | 0.00005 | mg/L | N/A | Jul-20-15 | |
| Copper, dissolved | **0.0030** | 0.02 | 0.0002 | mg/L | N/A | Jul-20-15 | |
| Iron, dissolved | **0.027** | N/A | 0.010 | mg/L | N/A | Jul-20-15 | |
| Lead, dissolved | < 0.0001 | 0.04 | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Lithium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Magnesium, dissolved | **5.63** | N/A | 0.01 | mg/L | N/A | Jul-20-15 | |
| Manganese, dissolved | **0.506** | N/A | 0.0002 | mg/L | N/A | Jul-20-15 | |
| Mercury, dissolved | < 0.00002 | 0.001 | 0.00002 | mg/L | Jul-16-15 | Jul-20-15 | |
| Molybdenum, dissolved | < 0.0001 | 10 | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Nickel, dissolved | **0.0028** | 0.25 | 0.0002 | mg/L | N/A | Jul-20-15 | |
| Phosphorus, dissolved | < 0.02 | N/A | 0.02 | mg/L | N/A | Jul-20-15 | |
| Potassium, dissolved | **3.77** | N/A | 0.02 | mg/L | N/A | Jul-20-15 | |
| Selenium, dissolved | < 0.0005 | 0.01 | 0.0005 | mg/L | N/A | Jul-20-15 | |
| Silicon, dissolved | **9.5** | N/A | 0.5 | mg/L | N/A | Jul-20-15 | |
| Silver, dissolved | < 0.00005 | 0.0005 | 0.00005 | mg/L | N/A | Jul-20-15 | |
| Sodium, dissolved | **88.8** | N/A | 0.02 | mg/L | N/A | Jul-20-15 | |
| Strontium, dissolved | **0.531** | N/A | 0.001 | mg/L | N/A | Jul-20-15 | |
| Sulfur, dissolved | **49** | N/A | 1 | mg/L | N/A | Jul-20-15 | |
| Tellurium, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Jul-20-15 | |
| Thallium, dissolved | **0.00006** | 0.003 | 0.00002 | mg/L | N/A | Jul-20-15 | |
| Thorium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Tin, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Jul-20-15 | |
| Titanium, dissolved | < 0.005 | 1 | 0.005 | mg/L | N/A | Jul-20-15 | |
| Uranium, dissolved | **0.00004** | 3 | 0.00002 | mg/L | N/A | Jul-20-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Summer/Winter

**WORK ORDER** 5070710
**REPORTED** Jul-20-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW6-D (5070710-11) [Water] Sampled: Jul-09-15, Continued** | | | | | | | |
| ***Dissolved Metals, Continued*** | | | | | | | |
| Vanadium, dissolved | < 0.001 | N/A | 0.001 | mg/L | N/A | Jul-20-15 | |
| Zinc, dissolved | **0.004** | 0.075 | 0.004 | mg/L | N/A | Jul-20-15 | |
| Zirconium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Jul-20-15 | |
| **Sample ID: Travel Blank (5070710-12) [Water] Sampled: Jul-09-15** | | | | | | | |
| ***Anions*** | | | | | | | |
| Bromide | < 0.10 | N/A | 0.10 | mg/L | N/A | Jul-12-15 | |
| Chloride | **7.31** | 1500 | 0.10 | mg/L | N/A | Jul-12-15 | |
| Fluoride | **0.62** | 2 | 0.01 | mg/L | N/A | Jul-12-15 | |
| Nitrate+Nitrite as N | < 0.005 | 400 | 0.005 | mg/L | N/A | Jul-15-15 | |
| Nitrite as N | < 0.005 | 0.2 | 0.005 | mg/L | N/A | Jul-13-15 | HT1 |
| Sulfate | < 1.0 | 1000 | 1.0 | mg/L | N/A | Jul-12-15 | |
| ***General Parameters*** | | | | | | | |
| Alkalinity, Total as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Bicarbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Jul-13-15 | |
| Chemical Oxygen Demand | < 5 | N/A | 5 | mg/L | N/A | Jul-18-15 | |
| Conductivity (EC) | < 2 | N/A | 2 | µS/cm | N/A | Jul-13-15 | |
| Ammonia as N, Total | **0.073** | N/A | 0.005 | mg/L | N/A | Jul-14-15 | |
| Nitrogen, Total Kjeldahl | **0.20** | N/A | 0.05 | mg/L | Jul-14-15 | Jul-16-15 | |
| pH | **5.89** | N/A | 0.01 | pH units | N/A | Jul-13-15 | HT2 |
| Solids, Total Dissolved | < 10 | N/A | 10 | mg/L | N/A | Jul-15-15 | |
| Solids, Total Suspended | **10** | N/A | 2 | mg/L | N/A | Jul-14-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Hardness, Total (Diss. as CaCO3) | < 0.50 | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | < 0.005 | 400 | 0.005 | mg/L | N/A | N/A | |
| Nitrogen, Total | **0.204** | N/A | 0.050 | mg/L | N/A | N/A | |
| ***Dissolved Metals*** | | | | | | | |
| Aluminum, dissolved | < 0.005 | N/A | 0.005 | mg/L | N/A | Jul-20-15 | |
| Antimony, dissolved | < 0.0001 | 0.2 | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Arsenic, dissolved | < 0.0005 | 0.05 | 0.0005 | mg/L | N/A | Jul-20-15 | |
| Barium, dissolved | < 0.005 | 5 | 0.005 | mg/L | N/A | Jul-20-15 | |
| Beryllium, dissolved | < 0.0001 | 0.053 | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Bismuth, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Boron, dissolved | < 0.004 | 50 | 0.004 | mg/L | N/A | Jul-20-15 | |
| Cadmium, dissolved | < 0.00001 | 0.0001 | 0.00001 | mg/L | N/A | Jul-20-15 | |
| Calcium, dissolved | < 0.2 | N/A | 0.2 | mg/L | N/A | Jul-20-15 | |
| Chromium, dissolved | < 0.0005 | N/A | 0.0005 | mg/L | N/A | Jul-20-15 | |
| Cobalt, dissolved | < 0.00005 | 0.04 | 0.00005 | mg/L | N/A | Jul-20-15 | |
| Copper, dissolved | < 0.0002 | 0.02 | 0.0002 | mg/L | N/A | Jul-20-15 | |
| Iron, dissolved | < 0.010 | N/A | 0.010 | mg/L | N/A | Jul-20-15 | |

| | | | |
|---|---|---|---|
| **REPORTED TO** | Morrison Hershfield Limited | **WORK ORDER** | 5070710 |
| **PROJECT** | Whistler Landfill - Summer/Winter | **REPORTED** | Jul-20-15 |

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: Travel Blank (5070710-12) [Water] Sampled: Jul-09-15, Continued** | | | | | | | |
| ***Dissolved Metals, Continued*** | | | | | | | |
| Lead, dissolved | < 0.0001 | 0.04 | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Lithium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Magnesium, dissolved | < 0.01 | N/A | 0.01 | mg/L | N/A | Jul-20-15 | |
| Manganese, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Jul-20-15 | |
| Mercury, dissolved | < 0.00002 | 0.001 | 0.00002 | mg/L | Jul-16-15 | Jul-20-15 | |
| Molybdenum, dissolved | < 0.0001 | 10 | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Nickel, dissolved | < 0.0002 | 0.25 | 0.0002 | mg/L | N/A | Jul-20-15 | |
| Phosphorus, dissolved | < 0.02 | N/A | 0.02 | mg/L | N/A | Jul-20-15 | |
| Potassium, dissolved | < 0.02 | N/A | 0.02 | mg/L | N/A | Jul-20-15 | |
| Selenium, dissolved | < 0.0005 | 0.01 | 0.0005 | mg/L | N/A | Jul-20-15 | |
| Silicon, dissolved | < 0.5 | N/A | 0.5 | mg/L | N/A | Jul-20-15 | |
| Silver, dissolved | < 0.00005 | 0.0005 | 0.00005 | mg/L | N/A | Jul-20-15 | |
| Sodium, dissolved | **0.03** | N/A | 0.02 | mg/L | N/A | Jul-20-15 | |
| Strontium, dissolved | < 0.001 | N/A | 0.001 | mg/L | N/A | Jul-20-15 | |
| Sulfur, dissolved | < 1 | N/A | 1 | mg/L | N/A | Jul-20-15 | |
| Tellurium, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Jul-20-15 | |
| Thallium, dissolved | < 0.00002 | 0.003 | 0.00002 | mg/L | N/A | Jul-20-15 | |
| Thorium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Jul-20-15 | |
| Tin, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Jul-20-15 | |
| Titanium, dissolved | < 0.005 | 1 | 0.005 | mg/L | N/A | Jul-20-15 | |
| Uranium, dissolved | < 0.00002 | 3 | 0.00002 | mg/L | N/A | Jul-20-15 | |
| Vanadium, dissolved | < 0.001 | N/A | 0.001 | mg/L | N/A | Jul-20-15 | |
| Zinc, dissolved | < 0.004 | 0.075 | 0.004 | mg/L | N/A | Jul-20-15 | |
| Zirconium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Jul-20-15 | |

**Sample / Analysis Qualifiers:**

| | |
|---|---|
| FILT | Sample has been filtered for Metals/Mercury in the laboratory. |
| HT1 | The sample was prepared / analyzed past the recommended holding time. |
| HT2 | The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended. |
| PRES | Sample has been preserved for Mercury in the laboratory and the holding time has been extended. |
| PRESa | Sample has been preserved for Metals/Mercury in the laboratory and the holding time has been extended. |

| | | | |
|---|---|---|---|
| **REPORTED TO** | Morrison Hershfield Limited | **WORK ORDER** | 5070710 |
| **PROJECT** | Whistler Landfill - Summer/Winter | **REPORTED** | Jul-20-15 |

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- **Method Blank (Blk)**: Laboratory reagent water is carried through sample preparation and analysis steps. Method Blanks indicate that results are free from contamination, i.e. not biased high from sources such as the sample container or the laboratory environment
- **Duplicate (Dup)**: Preparation and analysis of a replicate aliquot of a sample. Duplicates provide a measure of the analytical method's precision, i.e. how reproducible a result is. Duplicates are only reported if they are associated with your sample data.
- **Blank Spike (BS)**: A known amount of standard is carried through sample preparation and analysis steps. Blank Spikes, also known as laboratory control samples (LCS), are prepared from a different source of standard than used for the calibration. They ensure that the calibration is acceptable (i.e. not biased high or low) and also provide a measure of the analytical method's accuracy (i.e. closeness of the result to a target value).
- **Standard Reference Material (SRM)**: A material of similar matrix to the samples, externally certified for the parameter(s) listed. Standard Reference Materials ensure that the preparation steps in the method are adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

| Analyte | Result | MRL | Units | Spike Level | Source Result | % REC | REC Limit | % RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Anions, Batch B5G0531*** | | | | | | | | | | |
| **Blank (B5G0531-BLK1)** | | | | Prepared: Jul-15-15, Analyzed: Jul-15-15 | | | | | | |
| Nitrate+Nitrite as N | < 0.005 | 0.005 | mg/L | | | | | | | |
| **Blank (B5G0531-BLK2)** | | | | Prepared: Jul-15-15, Analyzed: Jul-15-15 | | | | | | |
| Nitrate+Nitrite as N | < 0.005 | 0.005 | mg/L | | | | | | | |
| **LCS (B5G0531-BS1)** | | | | Prepared: Jul-15-15, Analyzed: Jul-15-15 | | | | | | |
| Nitrate+Nitrite as N | 100 | 0.005 | mg/L | 100 | | 100 | 91-108 | | | |
| **LCS (B5G0531-BS2)** | | | | Prepared: Jul-15-15, Analyzed: Jul-15-15 | | | | | | |
| Nitrate+Nitrite as N | 101 | 0.005 | mg/L | 100 | | 101 | 91-108 | | | |
| ***Anions, Batch B5G0566*** | | | | | | | | | | |
| **Blank (B5G0566-BLK1)** | | | | Prepared: Jul-11-15, Analyzed: Jul-11-15 | | | | | | |
| Bromide | < 0.10 | 0.10 | mg/L | | | | | | | |
| Chloride | < 0.10 | 0.10 | mg/L | | | | | | | |
| Fluoride | < 0.01 | 0.01 | mg/L | | | | | | | |
| Sulfate | < 1.0 | 1.0 | mg/L | | | | | | | |
| **Blank (B5G0566-BLK2)** | | | | Prepared: Jul-11-15, Analyzed: Jul-11-15 | | | | | | |
| Bromide | < 0.10 | 0.10 | mg/L | | | | | | | |
| Chloride | < 0.10 | 0.10 | mg/L | | | | | | | |
| Fluoride | < 0.01 | 0.01 | mg/L | | | | | | | |
| Sulfate | < 1.0 | 1.0 | mg/L | | | | | | | |
| **LCS (B5G0566-BS1)** | | | | Prepared: Jul-15-15, Analyzed: Jul-15-15 | | | | | | |
| Bromide | 3.97 | 0.10 | mg/L | 4.00 | | 99 | 85-115 | | | |
| Chloride | 16.1 | 0.10 | mg/L | 16.0 | | 100 | 85-115 | | | |
| Fluoride | 4.00 | 0.01 | mg/L | 4.00 | | 100 | 85-115 | | | |
| Sulfate | 15.9 | 1.0 | mg/L | 16.0 | | 100 | 85-115 | | | |
| **LCS (B5G0566-BS2)** | | | | Prepared: Jul-15-15, Analyzed: Jul-15-15 | | | | | | |
| Bromide | 4.01 | 0.10 | mg/L | 4.00 | | 100 | 85-115 | | | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Summer/Winter

**WORK ORDER** 5070710
**REPORTED** Jul-20-15

| Analyte | Result | MRL | Units | Spike Level | Source Result | % REC | REC Limit | % RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Anions, Batch B5G0566, Continued*** | | | | | | | | | | |
| **LCS (B5G0566-BS2), Continued** | | | | Prepared: Jul-15-15, Analyzed: Jul-15-15 | | | | | | |
| Chloride | 16.0 | 0.10 | mg/L | 16.0 | | 100 | 85-115 | | | |
| Fluoride | 4.01 | 0.01 | mg/L | 4.00 | | 100 | 85-115 | | | |
| Sulfate | 16.0 | 1.0 | mg/L | 16.0 | | 100 | 85-115 | | | |
| ***Anions, Batch B5G0656*** | | | | | | | | | | |
| **Blank (B5G0656-BLK1)** | | | | Prepared: Jul-13-15, Analyzed: Jul-13-15 | | | | | | |
| Nitrite as N | < 0.005 | 0.005 | mg/L | | | | | | | |
| **Blank (B5G0656-BLK2)** | | | | Prepared: Jul-13-15, Analyzed: Jul-13-15 | | | | | | |
| Nitrite as N | < 0.005 | 0.005 | mg/L | | | | | | | |
| **LCS (B5G0656-BS1)** | | | | Prepared: Jul-13-15, Analyzed: Jul-13-15 | | | | | | |
| Nitrite as N | 100 | 0.005 | mg/L | 100 | | 100 | 80-120 | | | |
| **LCS (B5G0656-BS2)** | | | | Prepared: Jul-13-15, Analyzed: Jul-13-15 | | | | | | |
| Nitrite as N | 99.3 | 0.005 | mg/L | 100 | | 99 | 80-120 | | | |
| ***Dissolved Metals, Batch B5G0836*** | | | | | | | | | | |
| **Blank (B5G0836-BLK1)** | | | | Prepared: Jul-20-15, Analyzed: Jul-20-15 | | | | | | |
| Aluminum, dissolved | < 0.005 | 0.005 | mg/L | | | | | | | |
| Antimony, dissolved | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Arsenic, dissolved | < 0.0005 | 0.0005 | mg/L | | | | | | | |
| Barium, dissolved | < 0.005 | 0.005 | mg/L | | | | | | | |
| Beryllium, dissolved | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Bismuth, dissolved | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Boron, dissolved | < 0.004 | 0.004 | mg/L | | | | | | | |
| Cadmium, dissolved | < 0.00001 | 0.00001 | mg/L | | | | | | | |
| Calcium, dissolved | < 0.2 | 0.2 | mg/L | | | | | | | |
| Chromium, dissolved | < 0.0005 | 0.0005 | mg/L | | | | | | | |
| Cobalt, dissolved | < 0.00005 | 0.00005 | mg/L | | | | | | | |
| Copper, dissolved | < 0.0002 | 0.0002 | mg/L | | | | | | | |
| Iron, dissolved | < 0.010 | 0.010 | mg/L | | | | | | | |
| Lead, dissolved | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Lithium, dissolved | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Magnesium, dissolved | < 0.01 | 0.01 | mg/L | | | | | | | |
| Manganese, dissolved | < 0.0002 | 0.0002 | mg/L | | | | | | | |
| Molybdenum, dissolved | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Nickel, dissolved | < 0.0002 | 0.0002 | mg/L | | | | | | | |
| Phosphorus, dissolved | < 0.02 | 0.02 | mg/L | | | | | | | |
| Potassium, dissolved | < 0.02 | 0.02 | mg/L | | | | | | | |
| Selenium, dissolved | < 0.0005 | 0.0005 | mg/L | | | | | | | |
| Silicon, dissolved | < 0.5 | 0.5 | mg/L | | | | | | | |
| Silver, dissolved | < 0.00005 | 0.00005 | mg/L | | | | | | | |
| Sodium, dissolved | < 0.02 | 0.02 | mg/L | | | | | | | |
| Strontium, dissolved | < 0.001 | 0.001 | mg/L | | | | | | | |
| Sulfur, dissolved | < 1 | 1 | mg/L | | | | | | | |
| Tellurium, dissolved | < 0.0002 | 0.0002 | mg/L | | | | | | | |
| Thallium, dissolved | < 0.00002 | 0.00002 | mg/L | | | | | | | |
| Thorium, dissolved | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Tin, dissolved | < 0.0002 | 0.0002 | mg/L | | | | | | | |
| Titanium, dissolved | < 0.005 | 0.005 | mg/L | | | | | | | |
| Uranium, dissolved | < 0.00002 | 0.00002 | mg/L | | | | | | | |
| Vanadium, dissolved | < 0.001 | 0.001 | mg/L | | | | | | | |
| Zinc, dissolved | < 0.004 | 0.004 | mg/L | | | | | | | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Summer/Winter

**WORK ORDER** 5070710
**REPORTED** Jul-20-15

| Analyte | Result | MRL | Units | Spike Level | Source Result | % REC | REC Limit | % RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Dissolved Metals, Batch B5G0836, Continued*** | | | | | | | | | | |
| **Blank (B5G0836-BLK1), Continued** | | | | Prepared: Jul-20-15, Analyzed: Jul-20-15 | | | | | | |
| Zirconium, dissolved | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| **Matrix Spike (B5G0836-MS1)** | | **Source: 5070710-12** | | Prepared: Jul-17-15, Analyzed: Jul-17-15 | | | | | | |
| Antimony, dissolved | 0.378 | 0.0001 | mg/L | 0.400 | < 0.0001 | 95 | 76-114 | | | |
| Arsenic, dissolved | 0.179 | 0.0005 | mg/L | 0.200 | < 0.0005 | 90 | 81-115 | | | |
| Barium, dissolved | 0.999 | 0.005 | mg/L | 1.00 | < 0.005 | 100 | 80-113 | | | |
| Beryllium, dissolved | 0.0827 | 0.0001 | mg/L | 0.100 | < 0.0001 | 83 | 69-109 | | | |
| Cadmium, dissolved | 0.0940 | 0.00001 | mg/L | 0.100 | < 0.00001 | 94 | 83-110 | | | |
| Chromium, dissolved | 0.353 | 0.0005 | mg/L | 0.400 | < 0.0005 | 88 | 85-115 | | | |
| Cobalt, dissolved | 0.357 | 0.00005 | mg/L | 0.400 | < 0.00005 | 89 | 86-114 | | | |
| Copper, dissolved | 0.362 | 0.0002 | mg/L | 0.400 | < 0.0002 | 90 | 82-119 | | | |
| Iron, dissolved | 1.88 | 0.010 | mg/L | 2.00 | < 0.010 | 94 | 80-116 | | | |
| Lead, dissolved | 0.199 | 0.0001 | mg/L | 0.200 | < 0.0001 | 100 | 83-112 | | | |
| Manganese, dissolved | 0.370 | 0.0002 | mg/L | 0.400 | 0.0002 | 92 | 62-131 | | | |
| Nickel, dissolved | 0.349 | 0.0002 | mg/L | 0.400 | < 0.0002 | 87 | 81-115 | | | |
| Selenium, dissolved | 0.0980 | 0.0005 | mg/L | 0.100 | < 0.0005 | 98 | 79-115 | | | |
| Silver, dissolved | 0.0923 | 0.00005 | mg/L | 0.100 | < 0.00005 | 92 | 69-121 | | | |
| Thallium, dissolved | 0.103 | 0.00002 | mg/L | 0.100 | < 0.00002 | 103 | 84-115 | | | |
| Vanadium, dissolved | 0.342 | 0.001 | mg/L | 0.400 | < 0.001 | 86 | 83-113 | | | |
| Zinc, dissolved | 0.902 | 0.004 | mg/L | 1.00 | < 0.004 | 90 | 82-115 | | | |
| **Reference (B5G0836-SRM1)** | | | | Prepared: Jul-20-15, Analyzed: Jul-20-15 | | | | | | |
| Aluminum, dissolved | 0.223 | 0.005 | mg/L | 0.233 | | 96 | 58-142 | | | |
| Antimony, dissolved | 0.0434 | 0.0001 | mg/L | 0.0430 | | 101 | 75-125 | | | |
| Arsenic, dissolved | 0.419 | 0.0005 | mg/L | 0.438 | | 96 | 81-119 | | | |
| Barium, dissolved | 3.28 | 0.005 | mg/L | 3.35 | | 98 | 83-117 | | | |
| Beryllium, dissolved | 0.203 | 0.0001 | mg/L | 0.213 | | 95 | 80-120 | | | |
| Boron, dissolved | 1.74 | 0.004 | mg/L | 1.74 | | 100 | 74-117 | | | |
| Cadmium, dissolved | 0.216 | 0.00001 | mg/L | 0.224 | | 96 | 83-117 | | | |
| Calcium, dissolved | 7.9 | 0.2 | mg/L | 7.69 | | 102 | 76-124 | | | |
| Chromium, dissolved | 0.427 | 0.0005 | mg/L | 0.437 | | 98 | 81-119 | | | |
| Cobalt, dissolved | 0.130 | 0.00005 | mg/L | 0.128 | | 101 | 76-124 | | | |
| Copper, dissolved | 0.859 | 0.0002 | mg/L | 0.844 | | 102 | 84-116 | | | |
| Iron, dissolved | 1.29 | 0.010 | mg/L | 1.29 | | 100 | 74-126 | | | |
| Lead, dissolved | 0.112 | 0.0001 | mg/L | 0.112 | | 100 | 72-128 | | | |
| Lithium, dissolved | 0.104 | 0.0001 | mg/L | 0.104 | | 100 | 60-140 | | | |
| Magnesium, dissolved | 6.67 | 0.01 | mg/L | 6.92 | | 96 | 81-119 | | | |
| Manganese, dissolved | 0.338 | 0.0002 | mg/L | 0.345 | | 98 | 84-116 | | | |
| Molybdenum, dissolved | 0.423 | 0.0001 | mg/L | 0.426 | | 99 | 83-117 | | | |
| Nickel, dissolved | 0.836 | 0.0002 | mg/L | 0.840 | | 100 | 74-126 | | | |
| Phosphorus, dissolved | 0.42 | 0.02 | mg/L | 0.495 | | 85 | 68-132 | | | |
| Potassium, dissolved | 3.00 | 0.02 | mg/L | 3.19 | | 94 | 74-126 | | | |
| Selenium, dissolved | 0.0352 | 0.0005 | mg/L | 0.0331 | | 106 | 70-130 | | | |
| Sodium, dissolved | 18.7 | 0.02 | mg/L | 19.1 | | 98 | 72-128 | | | |
| Strontium, dissolved | 0.877 | 0.001 | mg/L | 0.916 | | 96 | 84-113 | | | |
| Thallium, dissolved | 0.0380 | 0.00002 | mg/L | 0.0393 | | 97 | 57-143 | | | |
| Uranium, dissolved | 0.259 | 0.00002 | mg/L | 0.266 | | 98 | 85-115 | | | |
| Vanadium, dissolved | 0.844 | 0.001 | mg/L | 0.869 | | 97 | 87-113 | | | |
| Zinc, dissolved | 0.847 | 0.004 | mg/L | 0.881 | | 96 | 72-128 | | | |
| ***Dissolved Metals, Batch B5G0853*** | | | | | | | | | | |
| **Blank (B5G0853-BLK1)** | | | | Prepared: Jul-16-15, Analyzed: Jul-20-15 | | | | | | |
| Mercury, dissolved | < 0.00002 | 0.00002 | mg/L | | | | | | | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Summer/Winter

**WORK ORDER** 5070710
**REPORTED** Jul-20-15

| Analyte | Result | MRL | Units | Spike Level | Source Result | % REC | REC Limit | % RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Dissolved Metals, Batch B5G0853, Continued*** | | | | | | | | | | |
| **Duplicate (B5G0853-DUP1)** | | **Source: 5070710-03** | | Prepared: Jul-16-15, Analyzed: Jul-20-15 | | | | | | |
| Mercury, dissolved | < 0.00002 | 0.00002 | mg/L | | < 0.00002 | | | | 20 | |
| **Matrix Spike (B5G0853-MS1)** | | **Source: 5070710-04** | | Prepared: Jul-16-15, Analyzed: Jul-20-15 | | | | | | |
| Mercury, dissolved | 0.00020 | 0.00002 | mg/L | 0.000250 | < 0.00002 | 79 | 70-130 | | | |
| **Reference (B5G0853-SRM1)** | | | | Prepared: Jul-16-15, Analyzed: Jul-20-15 | | | | | | |
| Mercury, dissolved | 0.00307 | 0.00002 | mg/L | 0.00456 | | 67 | 50-150 | | | |
| ***General Parameters, Batch B5G0469*** | | | | | | | | | | |
| **Blank (B5G0469-BLK1)** | | | | Prepared: Jul-14-15, Analyzed: Jul-14-15 | | | | | | |
| Ammonia as N, Total | < 0.005 | 0.005 | mg/L | | | | | | | |
| **Blank (B5G0469-BLK2)** | | | | Prepared: Jul-14-15, Analyzed: Jul-14-15 | | | | | | |
| Ammonia as N, Total | < 0.005 | 0.005 | mg/L | | | | | | | |
| **LCS (B5G0469-BS1)** | | | | Prepared: Jul-14-15, Analyzed: Jul-14-15 | | | | | | |
| Ammonia as N, Total | 10.9 | 0.005 | mg/L | 10.0 | | 109 | 86-111 | | | |
| **LCS (B5G0469-BS2)** | | | | Prepared: Jul-14-15, Analyzed: Jul-14-15 | | | | | | |
| Ammonia as N, Total | 10.8 | 0.005 | mg/L | 10.0 | | 108 | 86-111 | | | |
| ***General Parameters, Batch B5G0603*** | | | | | | | | | | |
| **Blank (B5G0603-BLK1)** | | | | Prepared: Jul-15-15, Analyzed: Jul-15-15 | | | | | | |
| Solids, Total Dissolved | < 10 | 10 | mg/L | | | | | | | |
| **Duplicate (B5G0603-DUP1)** | | **Source: 5070710-04** | | Prepared: Jul-15-15, Analyzed: Jul-15-15 | | | | | | |
| Solids, Total Dissolved | 218 | 10 | mg/L | | 211 | | | 3 | 16 | |
| **Reference (B5G0603-SRM1)** | | | | Prepared: Jul-15-15, Analyzed: Jul-15-15 | | | | | | |
| Solids, Total Dissolved | 243 | 10 | mg/L | 240 | | 101 | 0-200 | | | |
| ***General Parameters, Batch B5G0637*** | | | | | | | | | | |
| **Blank (B5G0637-BLK1)** | | | | Prepared: Jul-13-15, Analyzed: Jul-13-15 | | | | | | |
| Alkalinity, Total as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Alkalinity, Bicarbonate as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Alkalinity, Carbonate as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Conductivity (EC) | < 2 | 2 | µS/cm | | | | | | | |
| **LCS (B5G0637-BS1)** | | | | Prepared: Jul-13-15, Analyzed: Jul-13-15 | | | | | | |
| Alkalinity, Total as CaCO3 | 102 | 1 | mg/L | 100 | | 102 | 96-108 | | | |
| **LCS (B5G0637-BS2)** | | | | Prepared: Jul-13-15, Analyzed: Jul-13-15 | | | | | | |
| Conductivity (EC) | 1410 | 2 | µS/cm | 1410 | | 100 | 93-104 | | | |
| **Duplicate (B5G0637-DUP1)** | | **Source: 5070710-01** | | Prepared: Jul-13-15, Analyzed: Jul-13-15 | | | | | | |
| Alkalinity, Total as CaCO3 | 125 | 1 | mg/L | | 131 | | | 5 | 10 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | 1 | mg/L | | < 1 | | | | 10 | |
| Alkalinity, Bicarbonate as CaCO3 | 125 | 1 | mg/L | | 131 | | | 5 | 10 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | 1 | mg/L | | < 1 | | | | 10 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | 1 | mg/L | | < 1 | | | | 10 | |
| Conductivity (EC) | 405 | 2 | µS/cm | | 404 | | | < 1 | 5 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Summer/Winter

**WORK ORDER** 5070710
**REPORTED** Jul-20-15

| Analyte | Result | MRL | Units | Spike Level | Source Result | % REC | REC Limit | % RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| ***General Parameters, Batch B5G0637, Continued*** | | | | | | | | | | |
| **Duplicate (B5G0637-DUP1), Continued** | | **Source: 5070710-01** | | Prepared: Jul-13-15, Analyzed: Jul-13-15 | | | | | | |
| pH | 6.87 | 0.01 | pH units | | 6.64 | | | 3 | 5 | HT2 |
| **Reference (B5G0637-SRM1)** | | | | Prepared: Jul-13-15, Analyzed: Jul-13-15 | | | | | | |
| pH | 6.98 | 0.01 | pH units | 7.00 | | 100 | 98-102 | | | HT2 |
| ***General Parameters, Batch B5G0673*** | | | | | | | | | | |
| **Blank (B5G0673-BLK1)** | | | | Prepared: Jul-14-15, Analyzed: Jul-14-15 | | | | | | |
| Solids, Total Suspended | < 2 | 2 | mg/L | | | | | | | |
| **LCS (B5G0673-BS1)** | | | | Prepared: Jul-14-15, Analyzed: Jul-14-15 | | | | | | |
| Solids, Total Suspended | 49 | 2 | mg/L | 50.0 | | 98 | 85-110 | | | |
| ***General Parameters, Batch B5G0694*** | | | | | | | | | | |
| **Blank (B5G0694-BLK1)** | | | | Prepared: Jul-14-15, Analyzed: Jul-16-15 | | | | | | |
| Nitrogen, Total Kjeldahl | < 0.05 | 0.05 | mg/L | | | | | | | |
| **Blank (B5G0694-BLK2)** | | | | Prepared: Jul-14-15, Analyzed: Jul-16-15 | | | | | | |
| Nitrogen, Total Kjeldahl | < 0.05 | 0.05 | mg/L | | | | | | | |
| **LCS (B5G0694-BS1)** | | | | Prepared: Jul-14-15, Analyzed: Jul-16-15 | | | | | | |
| Nitrogen, Total Kjeldahl | 10.5 | 0.05 | mg/L | 10.0 | | 105 | 80-120 | | | |
| **LCS (B5G0694-BS2)** | | | | Prepared: Jul-14-15, Analyzed: Jul-16-15 | | | | | | |
| Nitrogen, Total Kjeldahl | 10.6 | 0.05 | mg/L | 10.0 | | 106 | 80-120 | | | |
| ***General Parameters, Batch B5G0827*** | | | | | | | | | | |
| **Blank (B5G0827-BLK1)** | | | | Prepared: Jul-18-15, Analyzed: Jul-18-15 | | | | | | |
| Chemical Oxygen Demand | < 5 | 5 | mg/L | | | | | | | |
| **Blank (B5G0827-BLK2)** | | | | Prepared: Jul-18-15, Analyzed: Jul-18-15 | | | | | | |
| Chemical Oxygen Demand | < 5 | 5 | mg/L | | | | | | | |
| **LCS (B5G0827-BS1)** | | | | Prepared: Jul-18-15, Analyzed: Jul-18-15 | | | | | | |
| Chemical Oxygen Demand | 50 | 5 | mg/L | 50.0 | | 99 | 82-119 | | | |
| **LCS (B5G0827-BS2)** | | | | Prepared: Jul-18-15, Analyzed: Jul-18-15 | | | | | | |
| Chemical Oxygen Demand | 48 | 5 | mg/L | 50.0 | | 96 | 82-119 | | | |
| **Duplicate (B5G0827-DUP2)** | | **Source: 5070710-01** | | Prepared: Jul-18-15, Analyzed: Jul-18-15 | | | | | | |
| Chemical Oxygen Demand | 16 | 5 | mg/L | | 17 | | | | 20 | |
| **Matrix Spike (B5G0827-MS2)** | | **Source: 5070710-01** | | Prepared: Jul-18-15, Analyzed: Jul-18-15 | | | | | | |
| Chemical Oxygen Demand | 29 | 5 | mg/L | 12.5 | 17 | 95 | 75-125 | | | |
| ***Total Recoverable Metals, Batch B5G0838*** | | | | | | | | | | |
| **Blank (B5G0838-BLK1)** | | | | Prepared: Jul-16-15, Analyzed: Jul-20-15 | | | | | | |
| Aluminum, total | < 0.005 | 0.005 | mg/L | | | | | | | |
| Antimony, total | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Arsenic, total | < 0.0005 | 0.0005 | mg/L | | | | | | | |
| Barium, total | < 0.005 | 0.005 | mg/L | | | | | | | |
| Beryllium, total | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Bismuth, total | < 0.0001 | 0.0001 | mg/L | | | | | | | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Summer/Winter

**WORK ORDER** 5070710
**REPORTED** Jul-20-15

| Analyte | Result | MRL | Units | Spike Level | Source Result | % REC | REC Limit | % RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Total Recoverable Metals, Batch B5G0838, Continued*** | | | | | | | | | | |
| **Blank (B5G0838-BLK1), Continued** | | | | Prepared: Jul-16-15, Analyzed: Jul-20-15 | | | | | | |
| Boron, total | < 0.004 | 0.004 | mg/L | | | | | | | |
| Cadmium, total | < 0.00001 | 0.00001 | mg/L | | | | | | | |
| Calcium, total | < 0.2 | 0.2 | mg/L | | | | | | | |
| Chromium, total | < 0.0005 | 0.0005 | mg/L | | | | | | | |
| Cobalt, total | < 0.00005 | 0.00005 | mg/L | | | | | | | |
| Copper, total | < 0.0002 | 0.0002 | mg/L | | | | | | | |
| Iron, total | < 0.01 | 0.01 | mg/L | | | | | | | |
| Lead, total | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Lithium, total | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Magnesium, total | < 0.01 | 0.01 | mg/L | | | | | | | |
| Manganese, total | < 0.0002 | 0.0002 | mg/L | | | | | | | |
| Molybdenum, total | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Nickel, total | < 0.0002 | 0.0002 | mg/L | | | | | | | |
| Phosphorus, total | < 0.02 | 0.02 | mg/L | | | | | | | |
| Potassium, total | < 0.02 | 0.02 | mg/L | | | | | | | |
| Selenium, total | < 0.0005 | 0.0005 | mg/L | | | | | | | |
| Silicon, total | < 0.5 | 0.5 | mg/L | | | | | | | |
| Silver, total | < 0.00005 | 0.00005 | mg/L | | | | | | | |
| Sodium, total | < 0.02 | 0.02 | mg/L | | | | | | | |
| Strontium, total | < 0.001 | 0.001 | mg/L | | | | | | | |
| Sulfur, total | < 1 | 1 | mg/L | | | | | | | |
| Tellurium, total | < 0.0002 | 0.0002 | mg/L | | | | | | | |
| Thallium, total | < 0.00002 | 0.00002 | mg/L | | | | | | | |
| Thorium, total | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Tin, total | < 0.0002 | 0.0002 | mg/L | | | | | | | |
| Titanium, total | < 0.005 | 0.005 | mg/L | | | | | | | |
| Uranium, total | < 0.00002 | 0.00002 | mg/L | | | | | | | |
| Vanadium, total | < 0.001 | 0.001 | mg/L | | | | | | | |
| Zinc, total | < 0.004 | 0.004 | mg/L | | | | | | | |
| Zirconium, total | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| **Matrix Spike (B5G0838-MS1)** | **Source: 5070710-06** | | | Prepared: Jul-16-15, Analyzed: Jul-17-15 | | | | | | |
| Antimony, total | 0.439 | 0.0001 | mg/L | 0.400 | < 0.0001 | 110 | 84-125 | | | |
| Arsenic, total | 0.193 | 0.0005 | mg/L | 0.200 | < 0.0005 | 97 | 85-116 | | | |
| Barium, total | 1.11 | 0.005 | mg/L | 1.00 | 0.059 | 105 | 87-114 | | | |
| Beryllium, total | 0.0855 | 0.0001 | mg/L | 0.100 | < 0.0001 | 85 | 72-116 | | | |
| Cadmium, total | 0.0995 | 0.00001 | mg/L | 0.100 | 0.00008 | 99 | 90-112 | | | |
| Chromium, total | 0.369 | 0.0005 | mg/L | 0.400 | < 0.0005 | 92 | 89-120 | | | |
| Cobalt, total | 0.380 | 0.00005 | mg/L | 0.400 | 0.00698 | 93 | 88-120 | | | |
| Copper, total | 0.380 | 0.0002 | mg/L | 0.400 | 0.0034 | 94 | 88-125 | | | |
| Iron, total | 5.90 | 0.01 | mg/L | 2.00 | 4.49 | 71 | 88-119 | | | SPK1 |
| Lead, total | 0.208 | 0.0001 | mg/L | 0.200 | < 0.0001 | 104 | 89-118 | | | |
| Manganese, total | 2.25 | 0.0002 | mg/L | 0.400 | 2.11 | 35 | 84-120 | | | SPK1 |
| Nickel, total | 0.366 | 0.0002 | mg/L | 0.400 | 0.0014 | 91 | 87-119 | | | |
| Selenium, total | 0.104 | 0.0005 | mg/L | 0.100 | < 0.0005 | 104 | 85-113 | | | |
| Silver, total | 0.0991 | 0.00005 | mg/L | 0.100 | < 0.00005 | 99 | 89-119 | | | |
| Thallium, total | 0.107 | 0.00002 | mg/L | 0.100 | 0.00002 | 107 | 92-119 | | | |
| Vanadium, total | 0.363 | 0.001 | mg/L | 0.400 | < 0.001 | 91 | 87-117 | | | |
| Zinc, total | 0.960 | 0.004 | mg/L | 1.00 | < 0.004 | 96 | 85-116 | | | |
| **Reference (B5G0838-SRM1)** | | | | Prepared: Jul-16-15, Analyzed: Jul-17-15 | | | | | | |
| Aluminum, total | 0.288 | 0.005 | mg/L | 0.296 | | 97 | 81-129 | | | |
| Antimony, total | 0.0547 | 0.0001 | mg/L | 0.0505 | | 108 | 88-114 | | | |
| Arsenic, total | 0.119 | 0.0005 | mg/L | 0.122 | | 98 | 88-114 | | | |
| Barium, total | 0.790 | 0.005 | mg/L | 0.777 | | 102 | 72-104 | | | |
| Beryllium, total | 0.0417 | 0.0001 | mg/L | 0.0488 | | 85 | 76-131 | | | |
| Boron, total | 2.92 | 0.004 | mg/L | 3.40 | | 86 | 75-121 | | | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Summer/Winter

**WORK ORDER** 5070710
**REPORTED** Jul-20-15

| Analyte | Result | MRL | Units | Spike Level | Source Result | % REC | REC Limit | % RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Total Recoverable Metals, Batch B5G0838, Continued*** | | | | | | | | | | |
| **Reference (B5G0838-SRM1), Continued** | | | | Prepared: Jul-16-15, Analyzed: Jul-17-15 | | | | | | |
| Cadmium, total | 0.0487 | 0.00001 | mg/L | 0.0490 | | 99 | 89-111 | | | |
| Calcium, total | 9.1 | 0.2 | mg/L | 10.2 | | 89 | 86-121 | | | |
| Chromium, total | 0.223 | 0.0005 | mg/L | 0.242 | | 92 | 89-114 | | | |
| Cobalt, total | 0.0354 | 0.00005 | mg/L | 0.0366 | | 97 | 91-113 | | | |
| Copper, total | 0.468 | 0.0002 | mg/L | 0.487 | | 96 | 91-115 | | | |
| Iron, total | 0.45 | 0.01 | mg/L | 0.469 | | 97 | 77-124 | | | |
| Lead, total | 0.199 | 0.0001 | mg/L | 0.193 | | 103 | 92-113 | | | |
| Lithium, total | 0.348 | 0.0001 | mg/L | 0.390 | | 89 | 85-115 | | | |
| Magnesium, total | 3.05 | 0.01 | mg/L | 3.31 | | 92 | 78-120 | | | |
| Manganese, total | 0.106 | 0.0002 | mg/L | 0.109 | | 97 | 90-114 | | | |
| Molybdenum, total | 0.202 | 0.0001 | mg/L | 0.197 | | 102 | 90-111 | | | |
| Nickel, total | 0.227 | 0.0002 | mg/L | 0.242 | | 94 | 90-111 | | | |
| Phosphorus, total | 0.21 | 0.02 | mg/L | 0.233 | | 90 | 85-115 | | | |
| Potassium, total | 5.92 | 0.02 | mg/L | 5.93 | | 100 | 84-113 | | | |
| Selenium, total | 0.120 | 0.0005 | mg/L | 0.115 | | 104 | 85-115 | | | |
| Sodium, total | 7.02 | 0.02 | mg/L | 7.64 | | 92 | 82-123 | | | |
| Strontium, total | 0.385 | 0.001 | mg/L | 0.363 | | 106 | 88-112 | | | |
| Thallium, total | 0.0830 | 0.00002 | mg/L | 0.0794 | | 105 | 91-114 | | | |
| Uranium, total | 0.0189 | 0.00002 | mg/L | 0.0192 | | 98 | 85-120 | | | |
| Vanadium, total | 0.344 | 0.001 | mg/L | 0.376 | | 91 | 86-111 | | | |
| Zinc, total | 2.31 | 0.004 | mg/L | 2.42 | | 96 | 85-111 | | | |
| ***Total Recoverable Metals, Batch B5G0914*** | | | | | | | | | | |
| **Blank (B5G0914-BLK1)** | | | | Prepared: Jul-17-15, Analyzed: Jul-17-15 | | | | | | |
| Mercury, total | < 0.00002 | 0.00002 | mg/L | | | | | | | |
| **Blank (B5G0914-BLK2)** | | | | Prepared: Jul-17-15, Analyzed: Jul-17-15 | | | | | | |
| Mercury, total | < 0.00002 | 0.00002 | mg/L | | | | | | | |
| **Duplicate (B5G0914-DUP2)** | | | **Source: 5070710-06** | Prepared: Jul-17-15, Analyzed: Jul-17-15 | | | | | | |
| Mercury, total | < 0.00002 | 0.00002 | mg/L | | < 0.00002 | | | | 20 | |
| **Reference (B5G0914-SRM1)** | | | | Prepared: Jul-17-15, Analyzed: Jul-17-15 | | | | | | |
| Mercury, total | 0.00298 | 0.00002 | mg/L | 0.00456 | | 65 | 50-150 | | | |
| **Reference (B5G0914-SRM2)** | | | | Prepared: Jul-17-15, Analyzed: Jul-17-15 | | | | | | |
| Mercury, total | 0.00324 | 0.00002 | mg/L | 0.00456 | | 71 | 50-150 | | | |

**QC Qualifiers:**

| | |
|---|---|
| HT2 | The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended. |
| SPK1 | The recovery of this analyte was outside of established control limits. The data was accepted based on performance of other batch QC. |

# CERTIFICATE OF ANALYSIS


**REPORTED TO** Morrison Hershfield Limited
310 - 4321 Still Creek Drive
Burnaby, BC V5C 6S7

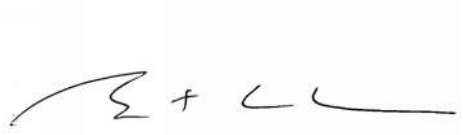
**TEL** (604) 454-0402
**FAX** (604) 454-0403


| | | | |
|---|---|---|---|
| **ATTENTION** | Josie Gilson | **WORK ORDER** | 5100220 |
| **PO NUMBER** | | **RECEIVED / TEMP** | Oct-03-15 11:21 / 7°C |
| **PROJECT** | Whistler Landfill - Spring/Fall | **REPORTED** | Oct-14-15 |
| **PROJECT INFO** | | **COC NUMBER** | 33326 |

**General Comments:**

CARO Analytical Services employs methods which are conducted according to procedures accepted by appropriate regulatory agencies, and/or are conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts, except where otherwise agreed to by the client.

The results in this report apply to the samples analyzed in accordance with the Chain of Custody or Sample Requisition document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Samples will be disposed of 30 days after the test report has been issued unless otherwise agreed to in writing.



Authorized By: **Brent Coates, B.Sc.**
Division Manager, Richmond

***If you have any questions or concerns, please contact your Account Manager:***
***Kathleen Fyffe, Dipl T (kfyffe@caro.ca)***

# ANALYSIS INFORMATION

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5100220
**REPORTED** Oct-14-15

| Analysis Description | Method Reference | Technique | Location |
|---|---|---|---|
| Alkalinity in Water (Speciated) | APHA 2320 B* | Titration with H2SO4 | Kelowna |
| Ammonia-N in Water (total) | APHA 4500-NH3 G* | Automated Colorimetry (Phenate) | Kelowna |
| Anions in Water by IC | APHA 4110 B | Ion Chromatography with Chemical Suppression of Eluent Conductivity | Kelowna |
| BOD (5-day) | APHA 5210 B | Dissolved Oxygen Meter | Richmond |
| Chemical Oxygen Demand | APHA 5220 D | Closed Reflux, Colorimetry | Richmond |
| Conductivity in Water | APHA 2510 B | Conductivity Meter | Richmond |
| Dissolved Metals | APHA 3030 B / APHA 3125 B | 0.45 µm Filtration / Inductively Coupled Plasma Mass Spectrometry (ICP-MS) | Richmond |
| EPH in Water | EPA 3511* / BCMOE EPHw | Hexane MicroExtraction (Base/Neutral) / Gas Chromatography (GC-FID) | Richmond |
| Hardness (as CaCO3) | APHA 2340 B | Calculation: 2.497 [Ca] + 4.118 [Mg] | N/A |
| HEPHw | BCMOE HEPHw | Calculation: EPHw19-32 - [ B(a)AN + B(a)P + FLAN + PY ] | N/A |
| LEPHw | BCMOE LEPHw | Calculation: EPHw10-19 - [ ANA + ACR + ANTH + FL + NA + PH ] | N/A |
| Mercury, dissolved by CVAFS | EPA 245.7* | BrCl2 Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS) | Richmond |
| Mercury, total by CVAFS | EPA 245.7* | BrCl2 Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS) | Richmond |
| Nitrate+Nitrite-N in Water | APHA 4500-NO3- F | Automated Colorimetry (Cadmium Reduction) | Kelowna |
| Nitrite-N in Water, colorimetric | APHA 4500-NO2 B | Colorimetry | Richmond |
| PAH in Water | EPA 3511* / EPA 8270D | Hexane MicroExtraction (Base/Neutral) / GC-MS (SIM) | Richmond |
| pH in Water | APHA 4500-H+ B | Electrometry | Richmond |
| Total Phosphorus in Water | APHA 4500-P B.5 / APHA 4500-P F | Persulfate Digestion / Automated Colorimetry (Ascorbic Acid) | Kelowna |
| Total Recoverable Metals | APHA 3030E* / APHA 3125 B | HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma Mass Spectrometry (ICP-MS) | Richmond |
| Total Suspended Solids | APHA 2540 D* | Gravimetry (Dried at 103-105C) | Richmond |
| VH in Water | EPA 5030B / BCMOE VHw | Purge&Trap / Gas Chromatography (GC-FID) | Richmond |
| VOC in Water | EPA 5030B / EPA 8260B | Purge&Trap / GC-MS (SIM) | Richmond |
| VPHw | BCMOE VPH | Calculation: VH - (Benzene + Toluene + Ethylbenzene + Xylenes + Styrene) | N/A |

***Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method***

**Method Reference Descriptions:**

| | |
|---|---|
| APHA | Standard Methods for the Examination of Water and Wastewater, 22nd Edition, American Public Health Association/American Water Works Association/Water Environment Federation |
| BCMOE | British Columbia Environmental Laboratory Manual, 2013, British Columbia Ministry of Environment |
| EPA | United States Environmental Protection Agency Test Methods |

# ANALYSIS INFORMATION

| | | | |
|---|---|---|---|
| **REPORTED TO** | Morrison Hershfield Limited | **WORK ORDER** | 5100220 |
| **PROJECT** | Whistler Landfill - Spring/Fall | **REPORTED** | Oct-14-15 |

**Glossary of Terms:**

| | |
|---|---|
| MRL | Method Reporting Limit |
| < | Less than the Reported Detection Limit (RDL) - the RDL may be higher than the MRL due to various factors such as dilutions, limited sample volume, high moisture, or interferences |
| mg/L | Milligrams per litre |
| pH units | pH < 7 = acidic, ph > 7 = basic |
| µg/L | Micrograms per litre |
| µS/cm | Microsiemens per centimetre |

**Standards / Guidelines Referenced in this Report:**

BC CSR Schedule 4/5/6/11 Residential/Aquatic Water

Website: http://www.env.gov.bc.ca/epd/remediation/leg_regs/csr.htm

***Note: In some cases, the values displayed on the report represent the lowest guideline and are to be verified by the end user***

# SAMPLE ANALYTICAL DATA

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5100220
**REPORTED** Oct-14-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: SFC 2 (5100220-01) [Water] Sampled: Oct-02-15** | | | | | | | |
| ***Anions*** | | | | | | | |
| Bromide | < 0.10 | N/A | 0.10 | mg/L | N/A | Oct-06-15 | |
| Chloride | **9.68** | 1500 | 0.10 | mg/L | N/A | Oct-06-15 | |
| Fluoride | **0.12** | 2 | 0.01 | mg/L | N/A | Oct-06-15 | |
| Nitrate+Nitrite as N | **0.463** | 400 | 0.005 | mg/L | N/A | Oct-07-15 | |
| Sulfate | **78.9** | 1000 | 1.0 | mg/L | N/A | Oct-06-15 | |
| Nitrite as N | < 0.005 | 0.2 | 0.005 | mg/L | N/A | Oct-05-15 | |
| ***General Parameters*** | | | | | | | |
| pH | **6.60** | N/A | 0.01 | pH units | N/A | Oct-05-15 | HT2 |
| Conductivity (EC) | **351** | N/A | 2 | µS/cm | N/A | Oct-05-15 | |
| Ammonia as N, Total | **0.332** | N/A | 0.005 | mg/L | N/A | Oct-13-15 | |
| Alkalinity, Total as CaCO3 | **71** | N/A | 1 | mg/L | N/A | Oct-06-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Oct-06-15 | |
| Alkalinity, Bicarbonate as CaCO3 | **71** | N/A | 1 | mg/L | N/A | Oct-06-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Oct-06-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Oct-06-15 | |
| Solids, Total Suspended | **18** | N/A | 2 | mg/L | N/A | Oct-06-15 | |
| BOD, 5-day | < 2 | N/A | 2 | mg/L | Oct-03-15 | Oct-08-15 | BOD2 |
| Chemical Oxygen Demand | < 20 | N/A | 20 | mg/L | N/A | Oct-03-15 | |
| Phosphorus, Total as P | **0.009** | N/A | 0.002 | mg/L | Oct-06-15 | Oct-07-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Hardness, Total (Total as CaCO3) | **150** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | **0.463** | 400 | 0.010 | mg/L | N/A | N/A | |
| ***Total Recoverable Metals*** | | | | | | | |
| Aluminum, total | **1.32** | N/A | 0.005 | mg/L | Oct-05-15 | Oct-05-15 | |
| Antimony, total | **0.0002** | 0.2 | 0.0001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Arsenic, total | < 0.0005 | 0.05 | 0.0005 | mg/L | Oct-05-15 | Oct-05-15 | |
| Barium, total | **0.060** | 5 | 0.005 | mg/L | Oct-05-15 | Oct-05-15 | |
| Beryllium, total | < 0.0001 | 0.053 | 0.0001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Bismuth, total | < 0.0001 | N/A | 0.0001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Boron, total | **0.031** | 50 | 0.004 | mg/L | Oct-05-15 | Oct-05-15 | |
| Cadmium, total | **0.00008** | 0.0001 | 0.00001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Calcium, total | **51.4** | N/A | 0.2 | mg/L | Oct-05-15 | Oct-05-15 | |
| Chromium, total | < 0.0005 | N/A | 0.0005 | mg/L | Oct-05-15 | Oct-05-15 | |
| Cobalt, total | **0.00898** | 0.04 | 0.00005 | mg/L | Oct-05-15 | Oct-05-15 | |
| Copper, total | **0.0217** | 0.02 | 0.0002 | mg/L | Oct-05-15 | Oct-05-15 | |
| Iron, total | **2.67** | N/A | 0.01 | mg/L | Oct-05-15 | Oct-05-15 | |
| Lead, total | < 0.0001 | 0.04 | 0.0001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Lithium, total | **0.0005** | N/A | 0.0001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Magnesium, total | **5.27** | N/A | 0.01 | mg/L | Oct-05-15 | Oct-05-15 | |
| Manganese, total | **0.794** | N/A | 0.0002 | mg/L | Oct-05-15 | Oct-05-15 | |
| Mercury, total | < 0.00002 | 0.001 | 0.00002 | mg/L | Oct-08-15 | Oct-08-15 | |
| Molybdenum, total | **0.0034** | 10 | 0.0001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Nickel, total | **0.0038** | 0.25 | 0.0002 | mg/L | Oct-05-15 | Oct-05-15 | |
| Phosphorus, total | **0.02** | N/A | 0.02 | mg/L | Oct-05-15 | Oct-05-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5100220
**REPORTED** Oct-14-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: SFC 2 (5100220-01) [Water] Sampled: Oct-02-15, Continued** | | | | | | | |
| ***Total Recoverable Metals, Continued*** | | | | | | | |
| Potassium, total | **5.27** | N/A | 0.02 | mg/L | Oct-05-15 | Oct-05-15 | |
| Selenium, total | < 0.0005 | 0.01 | 0.0005 | mg/L | Oct-05-15 | Oct-05-15 | |
| Silicon, total | **6.0** | N/A | 0.5 | mg/L | Oct-05-15 | Oct-05-15 | |
| Silver, total | < 0.00005 | 0.0005 | 0.00005 | mg/L | Oct-05-15 | Oct-05-15 | |
| Sodium, total | **16.4** | N/A | 0.02 | mg/L | Oct-05-15 | Oct-05-15 | |
| Strontium, total | **0.296** | N/A | 0.001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Sulfur, total | **31** | N/A | 1 | mg/L | Oct-05-15 | Oct-05-15 | |
| Tellurium, total | < 0.0002 | N/A | 0.0002 | mg/L | Oct-05-15 | Oct-05-15 | |
| Thallium, total | < 0.00002 | 0.003 | 0.00002 | mg/L | Oct-05-15 | Oct-05-15 | |
| Thorium, total | < 0.0001 | N/A | 0.0001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Tin, total | < 0.0002 | N/A | 0.0002 | mg/L | Oct-05-15 | Oct-05-15 | |
| Titanium, total | < 0.005 | 1 | 0.005 | mg/L | Oct-05-15 | Oct-05-15 | |
| Uranium, total | **0.00012** | 3 | 0.00002 | mg/L | Oct-05-15 | Oct-05-15 | |
| Vanadium, total | < 0.001 | N/A | 0.001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Zinc, total | **0.018** | 0.075 | 0.004 | mg/L | Oct-05-15 | Oct-05-15 | |
| Zirconium, total | < 0.0001 | N/A | 0.0001 | mg/L | Oct-05-15 | Oct-05-15 | |
| **Sample ID: SFC 2B (5100220-02) [Water] Sampled: Oct-02-15** | | | | | | | |
| ***Anions*** | | | | | | | |
| Bromide | < 0.10 | N/A | 0.10 | mg/L | N/A | Oct-06-15 | |
| Chloride | **9.06** | 1500 | 0.10 | mg/L | N/A | Oct-06-15 | |
| Fluoride | **1.05** | 2 | 0.01 | mg/L | N/A | Oct-06-15 | |
| Nitrate+Nitrite as N | **0.718** | 400 | 0.005 | mg/L | N/A | Oct-07-15 | |
| Sulfate | **1190** | 1000 | 1.0 | mg/L | N/A | Oct-06-15 | |
| Nitrite as N | < 0.005 | 0.2 | 0.005 | mg/L | N/A | Oct-05-15 | |
| ***General Parameters*** | | | | | | | |
| pH | **2.90** | N/A | 0.01 | pH units | N/A | Oct-05-15 | HT2 |
| Conductivity (EC) | **1830** | N/A | 2 | µS/cm | N/A | Oct-05-15 | |
| Ammonia as N, Total | **1.69** | N/A | 0.005 | mg/L | N/A | Oct-13-15 | |
| Alkalinity, Total as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Oct-07-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Oct-07-15 | |
| Alkalinity, Bicarbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Oct-07-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Oct-07-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Oct-07-15 | |
| Solids, Total Suspended | **131** | N/A | 2 | mg/L | N/A | Oct-06-15 | |
| BOD, 5-day | **7** | N/A | 2 | mg/L | Oct-03-15 | Oct-08-15 | |
| Chemical Oxygen Demand | **43** | N/A | 20 | mg/L | N/A | Oct-03-15 | |
| Phosphorus, Total as P | **0.202** | N/A | 0.002 | mg/L | Oct-06-15 | Oct-07-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Hardness, Total (Total as CaCO3) | **443** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | **0.718** | 400 | 0.010 | mg/L | N/A | N/A | |
| ***Total Recoverable Metals*** | | | | | | | |
| Aluminum, total | **55.0** | N/A | 0.005 | mg/L | Oct-05-15 | Oct-05-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5100220
**REPORTED** Oct-14-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: SFC 2B (5100220-02) [Water] Sampled: Oct-02-15, Continued** | | | | | | | |
| ***Total Recoverable Metals, Continued*** | | | | | | | |
| Antimony, total | < 0.0001 | 0.2 | 0.0001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Arsenic, total | **0.0041** | 0.05 | 0.0005 | mg/L | Oct-05-15 | Oct-05-15 | |
| Barium, total | **0.029** | 5 | 0.005 | mg/L | Oct-05-15 | Oct-05-15 | |
| Beryllium, total | **0.0015** | 0.053 | 0.0001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Bismuth, total | < 0.0001 | N/A | 0.0001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Boron, total | **0.038** | 50 | 0.004 | mg/L | Oct-05-15 | Oct-05-15 | |
| Cadmium, total | **0.00216** | 0.0001 | 0.00001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Calcium, total | **120** | N/A | 0.2 | mg/L | Oct-05-15 | Oct-05-15 | |
| Chromium, total | **0.0088** | N/A | 0.0005 | mg/L | Oct-05-15 | Oct-05-15 | |
| Cobalt, total | **0.275** | 0.04 | 0.00005 | mg/L | Oct-05-15 | Oct-05-15 | |
| Copper, total | **1.07** | 0.02 | 0.0002 | mg/L | Oct-05-15 | Oct-05-15 | |
| Iron, total | **130** | N/A | 0.01 | mg/L | Oct-05-15 | Oct-05-15 | |
| Lead, total | **0.0003** | 0.04 | 0.0001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Lithium, total | **0.0166** | N/A | 0.0001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Magnesium, total | **34.9** | N/A | 0.01 | mg/L | Oct-05-15 | Oct-05-15 | |
| Manganese, total | **7.35** | N/A | 0.0002 | mg/L | Oct-05-15 | Oct-05-15 | |
| Mercury, total | < 0.00002 | 0.001 | 0.00002 | mg/L | Oct-08-15 | Oct-08-15 | |
| Molybdenum, total | **0.0003** | 10 | 0.0001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Nickel, total | **0.123** | 0.25 | 0.0002 | mg/L | Oct-05-15 | Oct-05-15 | |
| Phosphorus, total | **0.29** | N/A | 0.02 | mg/L | Oct-05-15 | Oct-05-15 | |
| Potassium, total | **5.06** | N/A | 0.02 | mg/L | Oct-05-15 | Oct-05-15 | |
| Selenium, total | < 0.0005 | 0.01 | 0.0005 | mg/L | Oct-05-15 | Oct-05-15 | |
| Silicon, total | **24.8** | N/A | 0.5 | mg/L | Oct-05-15 | Oct-05-15 | |
| Silver, total | < 0.00005 | 0.0005 | 0.00005 | mg/L | Oct-05-15 | Oct-05-15 | |
| Sodium, total | **15.6** | N/A | 0.02 | mg/L | Oct-05-15 | Oct-05-15 | |
| Strontium, total | **0.444** | N/A | 0.001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Sulfur, total | **360** | N/A | 1 | mg/L | Oct-05-15 | Oct-05-15 | |
| Tellurium, total | < 0.0002 | N/A | 0.0002 | mg/L | Oct-05-15 | Oct-05-15 | |
| Thallium, total | < 0.00002 | 0.003 | 0.00002 | mg/L | Oct-05-15 | Oct-05-15 | |
| Thorium, total | **0.0091** | N/A | 0.0001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Tin, total | < 0.0002 | N/A | 0.0002 | mg/L | Oct-05-15 | Oct-05-15 | |
| Titanium, total | < 0.005 | 1 | 0.005 | mg/L | Oct-05-15 | Oct-05-15 | |
| Uranium, total | **0.00337** | 3 | 0.00002 | mg/L | Oct-05-15 | Oct-05-15 | |
| Vanadium, total | **0.002** | N/A | 0.001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Zinc, total | **0.259** | 0.075 | 0.004 | mg/L | Oct-05-15 | Oct-05-15 | |
| Zirconium, total | **0.0005** | N/A | 0.0001 | mg/L | Oct-05-15 | Oct-05-15 | |
| **Sample ID: SFC 3 (5100220-03) [Water] Sampled: Oct-02-15** | | | | | | | |
| ***Anions*** | | | | | | | |
| Bromide | < 0.10 | N/A | 0.10 | mg/L | N/A | Oct-06-15 | |
| Chloride | **30.3** | 1500 | 0.10 | mg/L | N/A | Oct-06-15 | |
| Fluoride | **0.31** | 2 | 0.01 | mg/L | N/A | Oct-06-15 | |
| Nitrate+Nitrite as N | **0.105** | 400 | 0.005 | mg/L | N/A | Oct-07-15 | |
| Sulfate | **47.6** | 1000 | 1.0 | mg/L | N/A | Oct-06-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5100220
**REPORTED** Oct-14-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: SFC 3 (5100220-03) [Water] Sampled: Oct-02-15, Continued** | | | | | | | |
| ***Anions, Continued*** | | | | | | | |
| Nitrite as N | < 0.005 | 0.2 | 0.005 | mg/L | N/A | Oct-05-15 | |
| ***General Parameters*** | | | | | | | |
| pH | **6.60** | N/A | 0.01 | pH units | N/A | Oct-05-15 | HT2 |
| Conductivity (EC) | **254** | N/A | 2 | µS/cm | N/A | Oct-05-15 | |
| Ammonia as N, Total | **0.093** | N/A | 0.005 | mg/L | N/A | Oct-13-15 | |
| Alkalinity, Total as CaCO3 | **28** | N/A | 1 | mg/L | N/A | Oct-06-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Oct-06-15 | |
| Alkalinity, Bicarbonate as CaCO3 | **28** | N/A | 1 | mg/L | N/A | Oct-06-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Oct-06-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Oct-06-15 | |
| Solids, Total Suspended | **45** | N/A | 2 | mg/L | N/A | Oct-06-15 | |
| BOD, 5-day | **4** | N/A | 2 | mg/L | Oct-03-15 | Oct-08-15 | |
| Chemical Oxygen Demand | **23** | N/A | 20 | mg/L | N/A | Oct-03-15 | |
| Phosphorus, Total as P | **0.022** | N/A | 0.002 | mg/L | Oct-06-15 | Oct-07-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Hardness, Total (Total as CaCO3) | **57.8** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | **0.105** | 400 | 0.010 | mg/L | N/A | N/A | |
| ***Total Recoverable Metals*** | | | | | | | |
| Aluminum, total | **0.909** | N/A | 0.005 | mg/L | Oct-05-15 | Oct-05-15 | |
| Antimony, total | < 0.0001 | 0.2 | 0.0001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Arsenic, total | < 0.0005 | 0.05 | 0.0005 | mg/L | Oct-05-15 | Oct-05-15 | |
| Barium, total | **0.033** | 5 | 0.005 | mg/L | Oct-05-15 | Oct-05-15 | |
| Beryllium, total | < 0.0001 | 0.053 | 0.0001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Bismuth, total | < 0.0001 | N/A | 0.0001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Boron, total | **0.012** | 50 | 0.004 | mg/L | Oct-05-15 | Oct-05-15 | |
| Cadmium, total | **0.00006** | 0.0001 | 0.00001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Calcium, total | **18.6** | N/A | 0.2 | mg/L | Oct-05-15 | Oct-05-15 | |
| Chromium, total | < 0.0005 | N/A | 0.0005 | mg/L | Oct-05-15 | Oct-05-15 | |
| Cobalt, total | **0.00223** | 0.04 | 0.00005 | mg/L | Oct-05-15 | Oct-05-15 | |
| Copper, total | **0.0221** | 0.02 | 0.0002 | mg/L | Oct-05-15 | Oct-05-15 | |
| Iron, total | **4.69** | N/A | 0.01 | mg/L | Oct-05-15 | Oct-05-15 | |
| Lead, total | **0.0002** | 0.04 | 0.0001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Lithium, total | **0.0005** | N/A | 0.0001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Magnesium, total | **2.72** | N/A | 0.01 | mg/L | Oct-05-15 | Oct-05-15 | |
| Manganese, total | **0.147** | N/A | 0.0002 | mg/L | Oct-05-15 | Oct-05-15 | |
| Mercury, total | < 0.00002 | 0.001 | 0.00002 | mg/L | Oct-08-15 | Oct-08-15 | |
| Molybdenum, total | **0.0006** | 10 | 0.0001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Nickel, total | **0.0014** | 0.25 | 0.0002 | mg/L | Oct-05-15 | Oct-05-15 | |
| Phosphorus, total | **0.06** | N/A | 0.02 | mg/L | Oct-05-15 | Oct-05-15 | |
| Potassium, total | **2.31** | N/A | 0.02 | mg/L | Oct-05-15 | Oct-05-15 | |
| Selenium, total | < 0.0005 | 0.01 | 0.0005 | mg/L | Oct-05-15 | Oct-05-15 | |
| Silicon, total | **9.2** | N/A | 0.5 | mg/L | Oct-05-15 | Oct-05-15 | |
| Silver, total | < 0.00005 | 0.0005 | 0.00005 | mg/L | Oct-05-15 | Oct-05-15 | |
| Sodium, total | **27.0** | N/A | 0.02 | mg/L | Oct-05-15 | Oct-05-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5100220
**REPORTED** Oct-14-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: SFC 3 (5100220-03) [Water] Sampled: Oct-02-15, Continued** | | | | | | | |
| ***Total Recoverable Metals, Continued*** | | | | | | | |
| Strontium, total | **0.180** | N/A | 0.001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Sulfur, total | **10** | N/A | 1 | mg/L | Oct-05-15 | Oct-05-15 | |
| Tellurium, total | < 0.0002 | N/A | 0.0002 | mg/L | Oct-05-15 | Oct-05-15 | |
| Thallium, total | < 0.00002 | 0.003 | 0.00002 | mg/L | Oct-05-15 | Oct-05-15 | |
| Thorium, total | **0.0001** | N/A | 0.0001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Tin, total | < 0.0002 | N/A | 0.0002 | mg/L | Oct-05-15 | Oct-05-15 | |
| Titanium, total | **0.013** | 1 | 0.005 | mg/L | Oct-05-15 | Oct-05-15 | |
| Uranium, total | **0.00007** | 3 | 0.00002 | mg/L | Oct-05-15 | Oct-05-15 | |
| Vanadium, total | **0.002** | N/A | 0.001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Zinc, total | **0.011** | 0.075 | 0.004 | mg/L | Oct-05-15 | Oct-05-15 | |
| Zirconium, total | **0.0001** | N/A | 0.0001 | mg/L | Oct-05-15 | Oct-05-15 | |
| **Sample ID: SFC 4 (5100220-04) [Water] Sampled: Oct-02-15** | | | | | | | |
| ***Anions*** | | | | | | | |
| Bromide | < 0.10 | N/A | 0.10 | mg/L | N/A | Oct-06-15 | |
| Chloride | **15.5** | 1500 | 0.10 | mg/L | N/A | Oct-06-15 | |
| Fluoride | < 0.05 | 2 | 0.01 | mg/L | N/A | Oct-06-15 | |
| Nitrate+Nitrite as N | **0.297** | 400 | 0.005 | mg/L | N/A | Oct-07-15 | |
| Sulfate | **53.9** | 1000 | 1.0 | mg/L | N/A | Oct-06-15 | |
| Nitrite as N | < 0.005 | 0.2 | 0.005 | mg/L | N/A | Oct-05-15 | |
| ***General Parameters*** | | | | | | | |
| pH | **7.20** | N/A | 0.01 | pH units | N/A | Oct-05-15 | HT2 |
| Conductivity (EC) | **260** | N/A | 2 | µS/cm | N/A | Oct-05-15 | |
| Ammonia as N, Total | **0.132** | N/A | 0.005 | mg/L | N/A | Oct-13-15 | |
| Alkalinity, Total as CaCO3 | **44** | N/A | 1 | mg/L | N/A | Oct-06-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Oct-06-15 | |
| Alkalinity, Bicarbonate as CaCO3 | **44** | N/A | 1 | mg/L | N/A | Oct-06-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Oct-06-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Oct-06-15 | |
| Solids, Total Suspended | < 4 | N/A | 2 | mg/L | N/A | Oct-06-15 | |
| BOD, 5-day | < 2 | N/A | 2 | mg/L | Oct-03-15 | Oct-08-15 | BOD2 |
| Chemical Oxygen Demand | < 20 | N/A | 20 | mg/L | N/A | Oct-03-15 | |
| Phosphorus, Total as P | < 0.002 | N/A | 0.002 | mg/L | Oct-06-15 | Oct-07-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Hardness, Total (Total as CaCO3) | **92.6** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | **0.297** | 400 | 0.010 | mg/L | N/A | N/A | |
| ***Total Recoverable Metals*** | | | | | | | |
| Aluminum, total | **0.113** | N/A | 0.005 | mg/L | Oct-05-15 | Oct-05-15 | |
| Antimony, total | < 0.0001 | 0.2 | 0.0001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Arsenic, total | < 0.0005 | 0.05 | 0.0005 | mg/L | Oct-05-15 | Oct-05-15 | |
| Barium, total | **0.026** | 5 | 0.005 | mg/L | Oct-05-15 | Oct-05-15 | |
| Beryllium, total | < 0.0001 | 0.053 | 0.0001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Bismuth, total | < 0.0001 | N/A | 0.0001 | mg/L | Oct-05-15 | Oct-05-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5100220
**REPORTED** Oct-14-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: SFC 4 (5100220-04) [Water] Sampled: Oct-02-15, Continued** | | | | | | | |
| ***Total Recoverable Metals, Continued*** | | | | | | | |
| Boron, total | **0.025** | 50 | 0.004 | mg/L | Oct-05-15 | Oct-05-15 | |
| Cadmium, total | **0.00005** | 0.0001 | 0.00001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Calcium, total | **30.7** | N/A | 0.2 | mg/L | Oct-05-15 | Oct-05-15 | |
| Chromium, total | < 0.0005 | N/A | 0.0005 | mg/L | Oct-05-15 | Oct-05-15 | |
| Cobalt, total | **0.00161** | 0.04 | 0.00005 | mg/L | Oct-05-15 | Oct-05-15 | |
| Copper, total | **0.0034** | 0.02 | 0.0002 | mg/L | Oct-05-15 | Oct-05-15 | |
| Iron, total | **0.24** | N/A | 0.01 | mg/L | Oct-05-15 | Oct-05-15 | |
| Lead, total | < 0.0001 | 0.04 | 0.0001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Lithium, total | **0.0004** | N/A | 0.0001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Magnesium, total | **3.87** | N/A | 0.01 | mg/L | Oct-05-15 | Oct-05-15 | |
| Manganese, total | **0.241** | N/A | 0.0002 | mg/L | Oct-05-15 | Oct-05-15 | |
| Mercury, total | < 0.00002 | 0.001 | 0.00002 | mg/L | Oct-08-15 | Oct-08-15 | |
| Molybdenum, total | **0.0009** | 10 | 0.0001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Nickel, total | **0.0011** | 0.25 | 0.0002 | mg/L | Oct-05-15 | Oct-05-15 | |
| Phosphorus, total | < 0.02 | N/A | 0.02 | mg/L | Oct-05-15 | Oct-05-15 | |
| Potassium, total | **2.75** | N/A | 0.02 | mg/L | Oct-05-15 | Oct-05-15 | |
| Selenium, total | < 0.0005 | 0.01 | 0.0005 | mg/L | Oct-05-15 | Oct-05-15 | |
| Silicon, total | **8.3** | N/A | 0.5 | mg/L | Oct-05-15 | Oct-05-15 | |
| Silver, total | < 0.00005 | 0.0005 | 0.00005 | mg/L | Oct-05-15 | Oct-05-15 | |
| Sodium, total | **15.4** | N/A | 0.02 | mg/L | Oct-05-15 | Oct-05-15 | |
| Strontium, total | **0.287** | N/A | 0.001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Sulfur, total | **17** | N/A | 1 | mg/L | Oct-05-15 | Oct-05-15 | |
| Tellurium, total | < 0.0002 | N/A | 0.0002 | mg/L | Oct-05-15 | Oct-05-15 | |
| Thallium, total | < 0.00002 | 0.003 | 0.00002 | mg/L | Oct-05-15 | Oct-05-15 | |
| Thorium, total | < 0.0001 | N/A | 0.0001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Tin, total | < 0.0002 | N/A | 0.0002 | mg/L | Oct-05-15 | Oct-05-15 | |
| Titanium, total | < 0.005 | 1 | 0.005 | mg/L | Oct-05-15 | Oct-05-15 | |
| Uranium, total | **0.00002** | 3 | 0.00002 | mg/L | Oct-05-15 | Oct-05-15 | |
| Vanadium, total | < 0.001 | N/A | 0.001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Zinc, total | **0.004** | 0.075 | 0.004 | mg/L | Oct-05-15 | Oct-05-15 | |
| Zirconium, total | < 0.0001 | N/A | 0.0001 | mg/L | Oct-05-15 | Oct-05-15 | |
| **Sample ID: SFC 11 (5100220-05) [Water] Sampled: Oct-02-15** | | | | | | | |
| ***Anions*** | | | | | | | |
| Bromide | < 0.10 | N/A | 0.10 | mg/L | N/A | Oct-06-15 | |
| Chloride | **5.07** | 1500 | 0.10 | mg/L | N/A | Oct-06-15 | |
| Fluoride | < 0.05 | 2 | 0.01 | mg/L | N/A | Oct-06-15 | |
| Nitrate+Nitrite as N | **0.107** | 400 | 0.005 | mg/L | N/A | Oct-07-15 | |
| Sulfate | **13.7** | 1000 | 1.0 | mg/L | N/A | Oct-06-15 | |
| Nitrite as N | < 0.005 | 0.2 | 0.005 | mg/L | N/A | Oct-05-15 | |
| ***General Parameters*** | | | | | | | |
| pH | **6.97** | N/A | 0.01 | pH units | N/A | Oct-05-15 | HT2 |
| Conductivity (EC) | **110** | N/A | 2 | µS/cm | N/A | Oct-05-15 | |
| Ammonia as N, Total | **0.089** | N/A | 0.005 | mg/L | N/A | Oct-13-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5100220
**REPORTED** Oct-14-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: SFC 11 (5100220-05) [Water] Sampled: Oct-02-15, Continued** | | | | | | | |
| ***General Parameters, Continued*** | | | | | | | |
| Alkalinity, Total as CaCO3 | **30** | N/A | 1 | mg/L | N/A | Oct-06-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Oct-06-15 | |
| Alkalinity, Bicarbonate as CaCO3 | **30** | N/A | 1 | mg/L | N/A | Oct-06-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Oct-06-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Oct-06-15 | |
| Solids, Total Suspended | < 4 | N/A | 2 | mg/L | N/A | Oct-06-15 | |
| BOD, 5-day | **3** | N/A | 2 | mg/L | Oct-03-15 | Oct-08-15 | |
| Chemical Oxygen Demand | < 20 | N/A | 20 | mg/L | N/A | Oct-03-15 | |
| Phosphorus, Total as P | **0.007** | N/A | 0.002 | mg/L | Oct-06-15 | Oct-07-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Hardness, Total (Total as CaCO3) | **38.0** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | **0.107** | 400 | 0.010 | mg/L | N/A | N/A | |
| ***Total Recoverable Metals*** | | | | | | | |
| Aluminum, total | **0.172** | N/A | 0.005 | mg/L | Oct-05-15 | Oct-05-15 | |
| Antimony, total | < 0.0001 | 0.2 | 0.0001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Arsenic, total | < 0.0005 | 0.05 | 0.0005 | mg/L | Oct-05-15 | Oct-05-15 | |
| Barium, total | **0.013** | 5 | 0.005 | mg/L | Oct-05-15 | Oct-05-15 | |
| Beryllium, total | < 0.0001 | 0.053 | 0.0001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Bismuth, total | < 0.0001 | N/A | 0.0001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Boron, total | **0.008** | 50 | 0.004 | mg/L | Oct-05-15 | Oct-05-15 | |
| Cadmium, total | **0.00002** | 0.0001 | 0.00001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Calcium, total | **11.7** | N/A | 0.2 | mg/L | Oct-05-15 | Oct-05-15 | |
| Chromium, total | < 0.0005 | N/A | 0.0005 | mg/L | Oct-05-15 | Oct-05-15 | |
| Cobalt, total | **0.00014** | 0.04 | 0.00005 | mg/L | Oct-05-15 | Oct-05-15 | |
| Copper, total | **0.0016** | 0.02 | 0.0002 | mg/L | Oct-05-15 | Oct-05-15 | |
| Iron, total | **0.17** | N/A | 0.01 | mg/L | Oct-05-15 | Oct-05-15 | |
| Lead, total | < 0.0001 | 0.04 | 0.0001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Lithium, total | **0.0005** | N/A | 0.0001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Magnesium, total | **2.11** | N/A | 0.01 | mg/L | Oct-05-15 | Oct-05-15 | |
| Manganese, total | **0.0147** | N/A | 0.0002 | mg/L | Oct-05-15 | Oct-05-15 | |
| Mercury, total | < 0.00002 | 0.001 | 0.00002 | mg/L | Oct-08-15 | Oct-08-15 | |
| Molybdenum, total | **0.0003** | 10 | 0.0001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Nickel, total | < 0.0002 | 0.25 | 0.0002 | mg/L | Oct-05-15 | Oct-05-15 | |
| Phosphorus, total | < 0.02 | N/A | 0.02 | mg/L | Oct-05-15 | Oct-05-15 | |
| Potassium, total | **1.01** | N/A | 0.02 | mg/L | Oct-05-15 | Oct-05-15 | |
| Selenium, total | < 0.0005 | 0.01 | 0.0005 | mg/L | Oct-05-15 | Oct-05-15 | |
| Silicon, total | **10.7** | N/A | 0.5 | mg/L | Oct-05-15 | Oct-05-15 | |
| Silver, total | < 0.00005 | 0.0005 | 0.00005 | mg/L | Oct-05-15 | Oct-05-15 | |
| Sodium, total | **7.55** | N/A | 0.02 | mg/L | Oct-05-15 | Oct-05-15 | |
| Strontium, total | **0.149** | N/A | 0.001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Sulfur, total | **2** | N/A | 1 | mg/L | Oct-05-15 | Oct-05-15 | |
| Tellurium, total | < 0.0002 | N/A | 0.0002 | mg/L | Oct-05-15 | Oct-05-15 | |
| Thallium, total | < 0.00002 | 0.003 | 0.00002 | mg/L | Oct-05-15 | Oct-05-15 | |
| Thorium, total | < 0.0001 | N/A | 0.0001 | mg/L | Oct-05-15 | Oct-05-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5100220
**REPORTED** Oct-14-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: SFC 11 (5100220-05) [Water] Sampled: Oct-02-15, Continued** | | | | | | | |
| ***Total Recoverable Metals, Continued*** | | | | | | | |
| Tin, total | < 0.0002 | N/A | 0.0002 | mg/L | Oct-05-15 | Oct-05-15 | |
| Titanium, total | **0.005** | 1 | 0.005 | mg/L | Oct-05-15 | Oct-05-15 | |
| Uranium, total | < 0.00002 | 3 | 0.00002 | mg/L | Oct-05-15 | Oct-05-15 | |
| Vanadium, total | **0.001** | N/A | 0.001 | mg/L | Oct-05-15 | Oct-05-15 | |
| Zinc, total | **0.004** | 0.075 | 0.004 | mg/L | Oct-05-15 | Oct-05-15 | |
| Zirconium, total | **0.0001** | N/A | 0.0001 | mg/L | Oct-05-15 | Oct-05-15 | |
| **Sample ID: LM (5100220-06) [Water] Sampled: Oct-02-15** | | | | | | | F1 |
| ***Anions*** | | | | | | | |
| Bromide | < 0.10 | N/A | 0.10 | mg/L | N/A | Oct-06-15 | |
| Chloride | **5.25** | 1500 | 0.10 | mg/L | N/A | Oct-06-15 | |
| Fluoride | **0.16** | 2 | 0.01 | mg/L | N/A | Oct-06-15 | |
| Nitrate+Nitrite as N | **20.3** | 400 | 0.005 | mg/L | N/A | Oct-07-15 | |
| Sulfate | **189** | 1000 | 1.0 | mg/L | N/A | Oct-06-15 | |
| Nitrite as N | **0.007** | 0.2 | 0.005 | mg/L | N/A | Oct-05-15 | |
| ***General Parameters*** | | | | | | | |
| pH | **6.31** | N/A | 0.01 | pH units | N/A | Oct-05-15 | HT2 |
| Conductivity (EC) | **779** | N/A | 2 | µS/cm | N/A | Oct-05-15 | |
| Ammonia as N, Total | **1.42** | N/A | 0.005 | mg/L | N/A | Oct-13-15 | |
| Alkalinity, Total as CaCO3 | **164** | N/A | 1 | mg/L | N/A | Oct-06-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Oct-06-15 | |
| Alkalinity, Bicarbonate as CaCO3 | **164** | N/A | 1 | mg/L | N/A | Oct-06-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Oct-06-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Oct-06-15 | |
| Solids, Total Suspended | **12** | N/A | 2 | mg/L | N/A | Oct-06-15 | |
| BOD, 5-day | < 2 | N/A | 2 | mg/L | Oct-03-15 | Oct-08-15 | BOD2 |
| Chemical Oxygen Demand | **30** | N/A | 20 | mg/L | N/A | Oct-03-15 | |
| Phosphorus, Total as P | **0.150** | N/A | 0.002 | mg/L | Oct-06-15 | Oct-07-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Hardness, Total (Diss. as CaCO3) | **395** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | **20.3** | 400 | 0.505 | mg/L | N/A | N/A | |
| ***Dissolved Metals*** | | | | | | | |
| Aluminum, dissolved | **0.020** | N/A | 0.005 | mg/L | N/A | Oct-08-15 | |
| Antimony, dissolved | **0.0002** | 0.2 | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Arsenic, dissolved | < 0.0005 | 0.05 | 0.0005 | mg/L | N/A | Oct-08-15 | |
| Barium, dissolved | **0.069** | 5 | 0.005 | mg/L | N/A | Oct-08-15 | |
| Beryllium, dissolved | < 0.0001 | 0.053 | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Bismuth, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Boron, dissolved | **0.066** | 50 | 0.004 | mg/L | N/A | Oct-08-15 | |
| Cadmium, dissolved | **0.00012** | 0.0001 | 0.00001 | mg/L | N/A | Oct-08-15 | |
| Calcium, dissolved | **137** | N/A | 0.2 | mg/L | N/A | Oct-08-15 | |
| Chromium, dissolved | < 0.0005 | N/A | 0.0005 | mg/L | N/A | Oct-08-15 | |
| Cobalt, dissolved | **0.00086** | 0.04 | 0.00005 | mg/L | N/A | Oct-08-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5100220
**REPORTED** Oct-14-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: LM (5100220-06) [Water] Sampled: Oct-02-15, Continued** | | | | | | | F1 |
| ***Dissolved Metals, Continued*** | | | | | | | |
| Copper, dissolved | **0.0340** | 0.02 | 0.0002 | mg/L | N/A | Oct-08-15 | |
| Iron, dissolved | **0.024** | N/A | 0.010 | mg/L | N/A | Oct-08-15 | |
| Lead, dissolved | < 0.0001 | 0.04 | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Lithium, dissolved | **0.0005** | N/A | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Magnesium, dissolved | **13.0** | N/A | 0.01 | mg/L | N/A | Oct-08-15 | |
| Manganese, dissolved | **0.446** | N/A | 0.0002 | mg/L | N/A | Oct-08-15 | |
| Mercury, dissolved | < 0.00002 | 0.001 | 0.00002 | mg/L | Oct-07-15 | Oct-08-15 | |
| Molybdenum, dissolved | **0.0008** | 10 | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Nickel, dissolved | **0.0029** | 0.25 | 0.0002 | mg/L | N/A | Oct-08-15 | |
| Phosphorus, dissolved | **0.15** | N/A | 0.02 | mg/L | N/A | Oct-08-15 | |
| Potassium, dissolved | **6.74** | N/A | 0.02 | mg/L | N/A | Oct-08-15 | |
| Selenium, dissolved | < 0.0005 | 0.01 | 0.0005 | mg/L | N/A | Oct-08-15 | |
| Silicon, dissolved | **14.0** | N/A | 0.5 | mg/L | N/A | Oct-08-15 | |
| Silver, dissolved | < 0.00005 | 0.0005 | 0.00005 | mg/L | N/A | Oct-08-15 | |
| Sodium, dissolved | **20.4** | N/A | 0.02 | mg/L | N/A | Oct-08-15 | |
| Strontium, dissolved | **0.539** | N/A | 0.001 | mg/L | N/A | Oct-08-15 | |
| Sulfur, dissolved | **69** | N/A | 1 | mg/L | N/A | Oct-08-15 | |
| Tellurium, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Oct-08-15 | |
| Thallium, dissolved | < 0.00002 | 0.003 | 0.00002 | mg/L | N/A | Oct-08-15 | |
| Thorium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Tin, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Oct-08-15 | |
| Titanium, dissolved | < 0.005 | 1 | 0.005 | mg/L | N/A | Oct-08-15 | |
| Uranium, dissolved | **0.00007** | 3 | 0.00002 | mg/L | N/A | Oct-08-15 | |
| Vanadium, dissolved | < 0.001 | N/A | 0.001 | mg/L | N/A | Oct-08-15 | |
| Zinc, dissolved | **0.030** | 0.075 | 0.004 | mg/L | N/A | Oct-08-15 | |
| Zirconium, dissolved | **0.0001** | N/A | 0.0001 | mg/L | N/A | Oct-08-15 | |
| ***BCMOE Aggregate Hydrocarbons*** | | | | | | | |
| VPHw | < 100 | 1500 | 100 | µg/L | N/A | N/A | |
| EPHw10-19 | < 250 | 5000 | 250 | µg/L | Oct-10-15 | Oct-12-15 | |
| EPHw19-32 | < 250 | N/A | 250 | µg/L | Oct-10-15 | Oct-12-15 | |
| LEPHw | < 250 | 500 | 250 | µg/L | N/A | N/A | |
| HEPHw | < 250 | N/A | 250 | µg/L | N/A | N/A | |
| VHw (6-10) | < 100 | 15000 | 100 | µg/L | N/A | Oct-07-15 | |
| ***Polycyclic Aromatic Hydrocarbons (PAH)*** | | | | | | | |
| Acenaphthene | < 0.05 | 60 | 0.05 | µg/L | Oct-10-15 | Oct-12-15 | |
| Acenaphthylene | < 0.20 | N/A | 0.20 | µg/L | Oct-10-15 | Oct-12-15 | |
| Acridine | < 0.10 | 0.5 | 0.10 | µg/L | Oct-10-15 | Oct-12-15 | |
| Anthracene | < 0.01 | 1 | 0.01 | µg/L | Oct-10-15 | Oct-12-15 | |
| Benz (a) anthracene | < 0.01 | 1 | 0.01 | µg/L | Oct-10-15 | Oct-12-15 | |
| Benzo (a) pyrene | < 0.01 | 0.1 | 0.01 | µg/L | Oct-10-15 | Oct-12-15 | |
| Benzo (b) fluoranthene | < 0.05 | N/A | 0.05 | µg/L | Oct-10-15 | Oct-12-15 | |
| Benzo (g,h,i) perylene | < 0.05 | N/A | 0.05 | µg/L | Oct-10-15 | Oct-12-15 | |
| Benzo (k) fluoranthene | < 0.05 | N/A | 0.05 | µg/L | Oct-10-15 | Oct-12-15 | |
| Chrysene | < 0.05 | 1 | 0.05 | µg/L | Oct-10-15 | Oct-12-15 | |

| | | | |
|---|---|---|---|
| **REPORTED TO** | Morrison Hershfield Limited | **WORK ORDER** | 5100220 |
| **PROJECT** | Whistler Landfill - Spring/Fall | **REPORTED** | Oct-14-15 |

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: LM (5100220-06) [Water] Sampled: Oct-02-15, Continued** | | | | | | | F1 |
| ***Polycyclic Aromatic Hydrocarbons (PAH), Continued*** | | | | | | | |
| Dibenz (a,h) anthracene | < 0.05 | N/A | 0.05 | µg/L | Oct-10-15 | Oct-12-15 | |
| Fluoranthene | < 0.03 | 2 | 0.03 | µg/L | Oct-10-15 | Oct-12-15 | |
| Fluorene | < 0.05 | 120 | 0.05 | µg/L | Oct-10-15 | Oct-12-15 | |
| Indeno (1,2,3-cd) pyrene | < 0.05 | N/A | 0.05 | µg/L | Oct-10-15 | Oct-12-15 | |
| Naphthalene | < 0.20 | 10 | 0.20 | µg/L | Oct-10-15 | Oct-12-15 | |
| Phenanthrene | < 0.10 | 3 | 0.10 | µg/L | Oct-10-15 | Oct-12-15 | |
| Pyrene | < 0.02 | 0.2 | 0.02 | µg/L | Oct-10-15 | Oct-12-15 | |
| Quinoline | < 0.10 | 34 | 0.10 | µg/L | Oct-10-15 | Oct-12-15 | |
| *Surrogate: Acridine-d9* | *73* | | *60-140* | % | *Oct-10-15* | *Oct-12-15* | |
| *Surrogate: Naphthalene-d8* | *109* | | *60-140* | % | *Oct-10-15* | *Oct-12-15* | |
| *Surrogate: Perylene-d12* | *97* | | *60-140* | % | *Oct-10-15* | *Oct-12-15* | |
| ***Volatile Organic Compounds (VOC)*** | | | | | | | |
| Benzene | < 0.5 | 1000 | 0.5 | µg/L | N/A | Oct-07-15 | |
| Bromodichloromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-07-15 | |
| Bromoform | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-07-15 | |
| Carbon tetrachloride | < 1.0 | 130 | 1.0 | µg/L | N/A | Oct-07-15 | |
| Chlorobenzene | < 1.0 | 13 | 1.0 | µg/L | N/A | Oct-07-15 | |
| Chloroethane | < 2.0 | N/A | 2.0 | µg/L | N/A | Oct-07-15 | |
| Chloroform | < 1.0 | 20 | 1.0 | µg/L | N/A | Oct-07-15 | |
| Dibromochloromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-07-15 | |
| Dibromomethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-07-15 | |
| 1,3-Dichlorobenzene | < 1.0 | 1500 | 1.0 | µg/L | N/A | Oct-07-15 | |
| 1,4-Dichlorobenzene | < 1.0 | 260 | 1.0 | µg/L | N/A | Oct-07-15 | |
| 1,1-Dichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-07-15 | |
| 1,2-Dichloroethane | < 1.0 | 1000 | 1.0 | µg/L | N/A | Oct-07-15 | |
| 1,1-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-07-15 | |
| cis-1,2-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-07-15 | |
| trans-1,2-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-07-15 | |
| 1,2-Dichloropropane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-07-15 | |
| cis-1,3-Dichloropropene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-07-15 | |
| trans-1,3-Dichloropropene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-07-15 | |
| Ethylbenzene | < 1.0 | 2000 | 1.0 | µg/L | N/A | Oct-07-15 | |
| Methyl tert-butyl ether | < 1.0 | 34000 | 1.0 | µg/L | N/A | Oct-07-15 | |
| Methylene chloride | < 3.0 | 980 | 3.0 | µg/L | N/A | Oct-07-15 | |
| Styrene | < 1.0 | 720 | 1.0 | µg/L | N/A | Oct-07-15 | |
| 1,1,2,2-Tetrachloroethane | < 1.0 | 1100 | 1.0 | µg/L | N/A | Oct-07-15 | |
| Tetrachloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-07-15 | |
| Toluene | < 1.0 | 390 | 1.0 | µg/L | N/A | Oct-07-15 | |
| 1,1,1-Trichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-07-15 | |
| 1,1,2-Trichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-07-15 | |
| Trichloroethene | < 1.0 | 200 | 1.0 | µg/L | N/A | Oct-07-15 | |
| Trichlorofluoromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-07-15 | |
| Vinyl chloride | < 2.0 | N/A | 2.0 | µg/L | N/A | Oct-07-15 | |
| Xylenes (total) | < 2.0 | N/A | 2.0 | µg/L | N/A | Oct-07-15 | |
| 1,2-Dibromoethane | < 0.3 | N/A | 0.3 | µg/L | N/A | Oct-07-15 | |

| | | | |
|---|---|---|---|
| **REPORTED TO** | Morrison Hershfield Limited | **WORK ORDER** | 5100220 |
| **PROJECT** | Whistler Landfill - Spring/Fall | **REPORTED** | Oct-14-15 |

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: LM (5100220-06) [Water] Sampled: Oct-02-15, Continued** | | | | | | | F1 |
| ***Volatile Organic Compounds (VOC), Continued*** | | | | | | | |
| 1,2-Dichlorobenzene | < 0.5 | 7 | 0.5 | µg/L | N/A | Oct-07-15 | |
| *Surrogate: Toluene-d8* | *85* | | *70-130* | % | *N/A* | *Oct-07-15* | |
| *Surrogate: 4-Bromofluorobenzene* | *62* | | *70-130* | % | *N/A* | *Oct-07-15* | S02 |
| *Surrogate: 1,4-Dichlorobenzene-d4* | *75* | | *70-130* | % | *N/A* | *Oct-07-15* | |
| **Sample ID: GW.INT (5100220-07) [Water] Sampled: Oct-02-15** | | | | | | | F1 |
| ***Anions*** | | | | | | | |
| Bromide | < 0.10 | N/A | 0.10 | mg/L | N/A | Oct-06-15 | |
| Chloride | **37.0** | 1500 | 0.10 | mg/L | N/A | Oct-06-15 | |
| Fluoride | **0.14** | 2 | 0.01 | mg/L | N/A | Oct-06-15 | |
| Nitrate+Nitrite as N | **0.016** | 400 | 0.005 | mg/L | N/A | Oct-07-15 | |
| Sulfate | **215** | 1000 | 1.0 | mg/L | N/A | Oct-06-15 | |
| Nitrite as N | < 0.005 | 0.2 | 0.005 | mg/L | N/A | Oct-05-15 | |
| ***General Parameters*** | | | | | | | |
| pH | **6.17** | N/A | 0.01 | pH units | N/A | Oct-05-15 | HT2 |
| Conductivity (EC) | **773** | N/A | 2 | µS/cm | N/A | Oct-05-15 | |
| Ammonia as N, Total | **1.27** | N/A | 0.005 | mg/L | N/A | Oct-13-15 | |
| Alkalinity, Total as CaCO3 | **124** | N/A | 1 | mg/L | N/A | Oct-06-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Oct-06-15 | |
| Alkalinity, Bicarbonate as CaCO3 | **124** | N/A | 1 | mg/L | N/A | Oct-06-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Oct-06-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Oct-06-15 | |
| Solids, Total Suspended | **35** | N/A | 2 | mg/L | N/A | Oct-06-15 | |
| BOD, 5-day | **5** | N/A | 2 | mg/L | Oct-03-15 | Oct-08-15 | |
| Chemical Oxygen Demand | **39** | N/A | 20 | mg/L | N/A | Oct-03-15 | |
| Phosphorus, Total as P | **0.026** | N/A | 0.002 | mg/L | Oct-06-15 | Oct-07-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Hardness, Total (Diss. as CaCO3) | **315** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | **0.016** | 400 | 0.010 | mg/L | N/A | N/A | |
| ***Dissolved Metals*** | | | | | | | |
| Aluminum, dissolved | < 0.005 | N/A | 0.005 | mg/L | N/A | Oct-08-15 | |
| Antimony, dissolved | < 0.0001 | 0.2 | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Arsenic, dissolved | < 0.0005 | 0.05 | 0.0005 | mg/L | N/A | Oct-08-15 | |
| Barium, dissolved | **0.086** | 5 | 0.005 | mg/L | N/A | Oct-08-15 | |
| Beryllium, dissolved | < 0.0001 | 0.053 | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Bismuth, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Boron, dissolved | **0.203** | 50 | 0.004 | mg/L | N/A | Oct-08-15 | |
| Cadmium, dissolved | **0.00002** | 0.0001 | 0.00001 | mg/L | N/A | Oct-08-15 | |
| Calcium, dissolved | **105** | N/A | 0.2 | mg/L | N/A | Oct-08-15 | |
| Chromium, dissolved | < 0.0005 | N/A | 0.0005 | mg/L | N/A | Oct-08-15 | |
| Cobalt, dissolved | **0.00747** | 0.04 | 0.00005 | mg/L | N/A | Oct-08-15 | |
| Copper, dissolved | **0.0170** | 0.02 | 0.0002 | mg/L | N/A | Oct-08-15 | |
| Iron, dissolved | **12.8** | N/A | 0.010 | mg/L | N/A | Oct-08-15 | |

| | | | |
|---|---|---|---|
| **REPORTED TO** | Morrison Hershfield Limited | **WORK ORDER** | 5100220 |
| **PROJECT** | Whistler Landfill - Spring/Fall | **REPORTED** | Oct-14-15 |

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: GW.INT (5100220-07) [Water] Sampled: Oct-02-15, Continued** | | | | | | | F1 |
| ***Dissolved Metals, Continued*** | | | | | | | |
| Lead, dissolved | < 0.0001 | 0.04 | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Lithium, dissolved | **0.0003** | N/A | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Magnesium, dissolved | **12.8** | N/A | 0.01 | mg/L | N/A | Oct-08-15 | |
| Manganese, dissolved | **3.69** | N/A | 0.0002 | mg/L | N/A | Oct-08-15 | |
| Mercury, dissolved | < 0.00002 | 0.001 | 0.00002 | mg/L | Oct-07-15 | Oct-08-15 | |
| Molybdenum, dissolved | **0.0001** | 10 | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Nickel, dissolved | **0.0039** | 0.25 | 0.0002 | mg/L | N/A | Oct-08-15 | |
| Phosphorus, dissolved | < 0.02 | N/A | 0.02 | mg/L | N/A | Oct-08-15 | |
| Potassium, dissolved | **6.84** | N/A | 0.02 | mg/L | N/A | Oct-08-15 | |
| Selenium, dissolved | < 0.0005 | 0.01 | 0.0005 | mg/L | N/A | Oct-08-15 | |
| Silicon, dissolved | **11.2** | N/A | 0.5 | mg/L | N/A | Oct-08-15 | |
| Silver, dissolved | **0.00029** | 0.0005 | 0.00005 | mg/L | N/A | Oct-08-15 | |
| Sodium, dissolved | **38.1** | N/A | 0.02 | mg/L | N/A | Oct-08-15 | |
| Strontium, dissolved | **0.729** | N/A | 0.001 | mg/L | N/A | Oct-08-15 | |
| Sulfur, dissolved | **82** | N/A | 1 | mg/L | N/A | Oct-08-15 | |
| Tellurium, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Oct-08-15 | |
| Thallium, dissolved | < 0.00002 | 0.003 | 0.00002 | mg/L | N/A | Oct-08-15 | |
| Thorium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Tin, dissolved | **0.0003** | N/A | 0.0002 | mg/L | N/A | Oct-08-15 | |
| Titanium, dissolved | < 0.005 | 1 | 0.005 | mg/L | N/A | Oct-08-15 | |
| Uranium, dissolved | < 0.00002 | 3 | 0.00002 | mg/L | N/A | Oct-08-15 | |
| Vanadium, dissolved | < 0.001 | N/A | 0.001 | mg/L | N/A | Oct-08-15 | |
| Zinc, dissolved | **0.041** | 0.075 | 0.004 | mg/L | N/A | Oct-08-15 | |
| Zirconium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Oct-08-15 | |
| ***BCMOE Aggregate Hydrocarbons*** | | | | | | | |
| VPHw | < 100 | 1500 | 100 | µg/L | N/A | N/A | |
| EPHw10-19 | < 250 | 5000 | 250 | µg/L | Oct-10-15 | Oct-12-15 | |
| EPHw19-32 | < 250 | N/A | 250 | µg/L | Oct-10-15 | Oct-12-15 | |
| LEPHw | < 250 | 500 | 250 | µg/L | N/A | N/A | |
| HEPHw | < 250 | N/A | 250 | µg/L | N/A | N/A | |
| VHw (6-10) | < 100 | 15000 | 100 | µg/L | N/A | Oct-07-15 | |
| ***Polycyclic Aromatic Hydrocarbons (PAH)*** | | | | | | | |
| Acenaphthene | **0.89** | 60 | 0.05 | µg/L | Oct-10-15 | Oct-12-15 | |
| Acenaphthylene | < 0.20 | N/A | 0.20 | µg/L | Oct-10-15 | Oct-12-15 | |
| Acridine | < 0.10 | 0.5 | 0.10 | µg/L | Oct-10-15 | Oct-12-15 | |
| Anthracene | **0.04** | 1 | 0.01 | µg/L | Oct-10-15 | Oct-12-15 | |
| Benz (a) anthracene | < 0.01 | 1 | 0.01 | µg/L | Oct-10-15 | Oct-12-15 | |
| Benzo (a) pyrene | < 0.01 | 0.1 | 0.01 | µg/L | Oct-10-15 | Oct-12-15 | |
| Benzo (b) fluoranthene | < 0.05 | N/A | 0.05 | µg/L | Oct-10-15 | Oct-12-15 | |
| Benzo (g,h,i) perylene | < 0.05 | N/A | 0.05 | µg/L | Oct-10-15 | Oct-12-15 | |
| Benzo (k) fluoranthene | < 0.05 | N/A | 0.05 | µg/L | Oct-10-15 | Oct-12-15 | |
| Chrysene | < 0.05 | 1 | 0.05 | µg/L | Oct-10-15 | Oct-12-15 | |
| Dibenz (a,h) anthracene | < 0.05 | N/A | 0.05 | µg/L | Oct-10-15 | Oct-12-15 | |
| Fluoranthene | **0.20** | 2 | 0.03 | µg/L | Oct-10-15 | Oct-12-15 | |

| | | | |
|---|---|---|---|
| **REPORTED TO** | Morrison Hershfield Limited | **WORK ORDER** | 5100220 |
| **PROJECT** | Whistler Landfill - Spring/Fall | **REPORTED** | Oct-14-15 |

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: GW.INT (5100220-07) [Water] Sampled: Oct-02-15, Continued** | | | | | | | F1 |
| ***Polycyclic Aromatic Hydrocarbons (PAH), Continued*** | | | | | | | |
| Fluorene | **0.28** | 120 | 0.05 | µg/L | Oct-10-15 | Oct-12-15 | |
| Indeno (1,2,3-cd) pyrene | < 0.05 | N/A | 0.05 | µg/L | Oct-10-15 | Oct-12-15 | |
| Naphthalene | < 0.20 | 10 | 0.20 | µg/L | Oct-10-15 | Oct-12-15 | |
| Phenanthrene | < 0.10 | 3 | 0.10 | µg/L | Oct-10-15 | Oct-12-15 | |
| Pyrene | **0.10** | 0.2 | 0.02 | µg/L | Oct-10-15 | Oct-12-15 | |
| Quinoline | < 0.10 | 34 | 0.10 | µg/L | Oct-10-15 | Oct-12-15 | |
| *Surrogate: Acridine-d9* | *95* | | *60-140* | % | *Oct-10-15* | *Oct-12-15* | |
| *Surrogate: Naphthalene-d8* | *127* | | *60-140* | % | *Oct-10-15* | *Oct-12-15* | |
| *Surrogate: Perylene-d12* | *91* | | *60-140* | % | *Oct-10-15* | *Oct-12-15* | |
| ***Volatile Organic Compounds (VOC)*** | | | | | | | |
| Benzene | < 0.5 | 1000 | 0.5 | µg/L | N/A | Oct-07-15 | |
| Bromodichloromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-07-15 | |
| Bromoform | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-07-15 | |
| Carbon tetrachloride | < 1.0 | 130 | 1.0 | µg/L | N/A | Oct-07-15 | |
| Chlorobenzene | < 1.0 | 13 | 1.0 | µg/L | N/A | Oct-07-15 | |
| Chloroethane | < 2.0 | N/A | 2.0 | µg/L | N/A | Oct-07-15 | |
| Chloroform | < 1.0 | 20 | 1.0 | µg/L | N/A | Oct-07-15 | |
| Dibromochloromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-07-15 | |
| Dibromomethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-07-15 | |
| 1,3-Dichlorobenzene | < 1.0 | 1500 | 1.0 | µg/L | N/A | Oct-07-15 | |
| 1,4-Dichlorobenzene | < 1.0 | 260 | 1.0 | µg/L | N/A | Oct-07-15 | |
| 1,1-Dichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-07-15 | |
| 1,2-Dichloroethane | < 1.0 | 1000 | 1.0 | µg/L | N/A | Oct-07-15 | |
| 1,1-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-07-15 | |
| cis-1,2-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-07-15 | |
| trans-1,2-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-07-15 | |
| 1,2-Dichloropropane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-07-15 | |
| cis-1,3-Dichloropropene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-07-15 | |
| trans-1,3-Dichloropropene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-07-15 | |
| Ethylbenzene | < 1.0 | 2000 | 1.0 | µg/L | N/A | Oct-07-15 | |
| Methyl tert-butyl ether | < 1.0 | 34000 | 1.0 | µg/L | N/A | Oct-07-15 | |
| Methylene chloride | < 3.0 | 980 | 3.0 | µg/L | N/A | Oct-07-15 | |
| Styrene | < 1.0 | 720 | 1.0 | µg/L | N/A | Oct-07-15 | |
| 1,1,2,2-Tetrachloroethane | < 1.0 | 1100 | 1.0 | µg/L | N/A | Oct-07-15 | |
| Tetrachloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-07-15 | |
| Toluene | < 1.0 | 390 | 1.0 | µg/L | N/A | Oct-07-15 | |
| 1,1,1-Trichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-07-15 | |
| 1,1,2-Trichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-07-15 | |
| Trichloroethene | < 1.0 | 200 | 1.0 | µg/L | N/A | Oct-07-15 | |
| Trichlorofluoromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-07-15 | |
| Vinyl chloride | < 2.0 | N/A | 2.0 | µg/L | N/A | Oct-07-15 | |
| Xylenes (total) | < 2.0 | N/A | 2.0 | µg/L | N/A | Oct-07-15 | |
| 1,2-Dibromoethane | < 0.3 | N/A | 0.3 | µg/L | N/A | Oct-07-15 | |
| 1,2-Dichlorobenzene | < 0.5 | 7 | 0.5 | µg/L | N/A | Oct-07-15 | |
| *Surrogate: Toluene-d8* | *90* | | *70-130* | % | *N/A* | *Oct-07-15* | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5100220
**REPORTED** Oct-14-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: GW.INT (5100220-07) [Water] Sampled: Oct-02-15, Continued** | | | | | | | F1 |
| ***Volatile Organic Compounds (VOC), Continued*** | | | | | | | |
| *Surrogate: 4-Bromofluorobenzene* | *68* | | *70-130* | % | *N/A* | *Oct-07-15* | S02 |
| *Surrogate: 1,4-Dichlorobenzene-d4* | *82* | | *70-130* | % | *N/A* | *Oct-07-15* | |
| **Sample ID: GW.INT-DUP (5100220-08) [Water] Sampled: Oct-02-15** | | | | | | | F1 |
| ***Anions*** | | | | | | | |
| Bromide | < 0.10 | N/A | 0.10 | mg/L | N/A | Oct-06-15 | |
| Chloride | **36.3** | 1500 | 0.10 | mg/L | N/A | Oct-06-15 | |
| Fluoride | **0.18** | 2 | 0.01 | mg/L | N/A | Oct-06-15 | |
| Nitrate+Nitrite as N | **0.014** | 400 | 0.005 | mg/L | N/A | Oct-07-15 | |
| Sulfate | **208** | 1000 | 1.0 | mg/L | N/A | Oct-06-15 | |
| Nitrite as N | < 0.005 | 0.2 | 0.005 | mg/L | N/A | Oct-05-15 | |
| ***General Parameters*** | | | | | | | |
| pH | **6.10** | N/A | 0.01 | pH units | N/A | Oct-05-15 | HT2 |
| Conductivity (EC) | **763** | N/A | 2 | µS/cm | N/A | Oct-05-15 | |
| Ammonia as N, Total | **1.28** | N/A | 0.005 | mg/L | N/A | Oct-13-15 | |
| Alkalinity, Total as CaCO3 | **126** | N/A | 1 | mg/L | N/A | Oct-06-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Oct-06-15 | |
| Alkalinity, Bicarbonate as CaCO3 | **126** | N/A | 1 | mg/L | N/A | Oct-06-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Oct-06-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Oct-06-15 | |
| Solids, Total Suspended | **50** | N/A | 2 | mg/L | N/A | Oct-06-15 | |
| BOD, 5-day | **4** | N/A | 2 | mg/L | Oct-03-15 | Oct-08-15 | |
| Chemical Oxygen Demand | < 20 | N/A | 20 | mg/L | N/A | Oct-03-15 | |
| Phosphorus, Total as P | **0.024** | N/A | 0.002 | mg/L | Oct-06-15 | Oct-07-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Hardness, Total (Diss. as CaCO3) | **317** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | **0.014** | 400 | 0.010 | mg/L | N/A | N/A | |
| ***Dissolved Metals*** | | | | | | | |
| Aluminum, dissolved | < 0.005 | N/A | 0.005 | mg/L | N/A | Oct-08-15 | |
| Antimony, dissolved | < 0.0001 | 0.2 | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Arsenic, dissolved | < 0.0005 | 0.05 | 0.0005 | mg/L | N/A | Oct-08-15 | |
| Barium, dissolved | **0.087** | 5 | 0.005 | mg/L | N/A | Oct-08-15 | |
| Beryllium, dissolved | < 0.0001 | 0.053 | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Bismuth, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Boron, dissolved | **0.207** | 50 | 0.004 | mg/L | N/A | Oct-08-15 | |
| Cadmium, dissolved | **0.00003** | 0.0001 | 0.00001 | mg/L | N/A | Oct-08-15 | |
| Calcium, dissolved | **106** | N/A | 0.2 | mg/L | N/A | Oct-08-15 | |
| Chromium, dissolved | < 0.0005 | N/A | 0.0005 | mg/L | N/A | Oct-08-15 | |
| Cobalt, dissolved | **0.00740** | 0.04 | 0.00005 | mg/L | N/A | Oct-08-15 | |
| Copper, dissolved | **0.0259** | 0.02 | 0.0002 | mg/L | N/A | Oct-08-15 | |
| Iron, dissolved | **14.2** | N/A | 0.010 | mg/L | N/A | Oct-08-15 | |
| Lead, dissolved | **0.0002** | 0.04 | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Lithium, dissolved | **0.0003** | N/A | 0.0001 | mg/L | N/A | Oct-08-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5100220
**REPORTED** Oct-14-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: GW.INT-DUP (5100220-08) [Water] Sampled: Oct-02-15, Continued** | | | | | | | F1 |
| ***Dissolved Metals, Continued*** | | | | | | | |
| Magnesium, dissolved | **12.7** | N/A | 0.01 | mg/L | N/A | Oct-08-15 | |
| Manganese, dissolved | **3.64** | N/A | 0.0002 | mg/L | N/A | Oct-08-15 | |
| Mercury, dissolved | **0.00009** | 0.001 | 0.00002 | mg/L | Oct-07-15 | Oct-08-15 | |
| Molybdenum, dissolved | **0.0001** | 10 | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Nickel, dissolved | **0.0038** | 0.25 | 0.0002 | mg/L | N/A | Oct-08-15 | |
| Phosphorus, dissolved | < 0.02 | N/A | 0.02 | mg/L | N/A | Oct-08-15 | |
| Potassium, dissolved | **6.87** | N/A | 0.02 | mg/L | N/A | Oct-08-15 | |
| Selenium, dissolved | < 0.0005 | 0.01 | 0.0005 | mg/L | N/A | Oct-08-15 | |
| Silicon, dissolved | **11.1** | N/A | 0.5 | mg/L | N/A | Oct-08-15 | |
| Silver, dissolved | **0.00110** | 0.0005 | 0.00005 | mg/L | N/A | Oct-08-15 | |
| Sodium, dissolved | **37.5** | N/A | 0.02 | mg/L | N/A | Oct-08-15 | |
| Strontium, dissolved | **0.737** | N/A | 0.001 | mg/L | N/A | Oct-08-15 | |
| Sulfur, dissolved | **81** | N/A | 1 | mg/L | N/A | Oct-08-15 | |
| Tellurium, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Oct-08-15 | |
| Thallium, dissolved | < 0.00002 | 0.003 | 0.00002 | mg/L | N/A | Oct-08-15 | |
| Thorium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Tin, dissolved | **0.0017** | N/A | 0.0002 | mg/L | N/A | Oct-08-15 | |
| Titanium, dissolved | < 0.005 | 1 | 0.005 | mg/L | N/A | Oct-08-15 | |
| Uranium, dissolved | < 0.00002 | 3 | 0.00002 | mg/L | N/A | Oct-08-15 | |
| Vanadium, dissolved | < 0.001 | N/A | 0.001 | mg/L | N/A | Oct-08-15 | |
| Zinc, dissolved | **0.041** | 0.075 | 0.004 | mg/L | N/A | Oct-08-15 | |
| Zirconium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Oct-08-15 | |
| ***BCMOE Aggregate Hydrocarbons*** | | | | | | | |
| VPHw | < 100 | 1500 | 100 | µg/L | N/A | N/A | |
| EPHw10-19 | **376** | 5000 | 250 | µg/L | Oct-10-15 | Oct-12-15 | |
| EPHw19-32 | **467** | N/A | 250 | µg/L | Oct-10-15 | Oct-12-15 | |
| LEPHw | **374** | 500 | 250 | µg/L | N/A | N/A | |
| HEPHw | **467** | N/A | 250 | µg/L | N/A | N/A | |
| VHw (6-10) | < 100 | 15000 | 100 | µg/L | N/A | Oct-08-15 | |
| ***Polycyclic Aromatic Hydrocarbons (PAH)*** | | | | | | | |
| Acenaphthene | **1.08** | 60 | 0.05 | µg/L | Oct-10-15 | Oct-12-15 | |
| Acenaphthylene | < 0.20 | N/A | 0.20 | µg/L | Oct-10-15 | Oct-12-15 | |
| Acridine | < 0.10 | 0.5 | 0.10 | µg/L | Oct-10-15 | Oct-12-15 | |
| Anthracene | **0.05** | 1 | 0.01 | µg/L | Oct-10-15 | Oct-12-15 | |
| Benz (a) anthracene | < 0.01 | 1 | 0.01 | µg/L | Oct-10-15 | Oct-12-15 | |
| Benzo (a) pyrene | < 0.01 | 0.1 | 0.01 | µg/L | Oct-10-15 | Oct-12-15 | |
| Benzo (b) fluoranthene | < 0.05 | N/A | 0.05 | µg/L | Oct-10-15 | Oct-12-15 | |
| Benzo (g,h,i) perylene | < 0.05 | N/A | 0.05 | µg/L | Oct-10-15 | Oct-12-15 | |
| Benzo (k) fluoranthene | < 0.05 | N/A | 0.05 | µg/L | Oct-10-15 | Oct-12-15 | |
| Chrysene | < 0.05 | 1 | 0.05 | µg/L | Oct-10-15 | Oct-12-15 | |
| Dibenz (a,h) anthracene | < 0.05 | N/A | 0.05 | µg/L | Oct-10-15 | Oct-12-15 | |
| Fluoranthene | **0.26** | 2 | 0.03 | µg/L | Oct-10-15 | Oct-12-15 | |
| Fluorene | **0.34** | 120 | 0.05 | µg/L | Oct-10-15 | Oct-12-15 | |
| Indeno (1,2,3-cd) pyrene | < 0.05 | N/A | 0.05 | µg/L | Oct-10-15 | Oct-12-15 | |

| | | | |
|---|---|---|---|
| **REPORTED TO** | Morrison Hershfield Limited | **WORK ORDER** | 5100220 |
| **PROJECT** | Whistler Landfill - Spring/Fall | **REPORTED** | Oct-14-15 |

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: GW.INT-DUP (5100220-08) [Water] Sampled: Oct-02-15, Continued** | | | | | | | F1 |
| ***Polycyclic Aromatic Hydrocarbons (PAH), Continued*** | | | | | | | |
| Naphthalene | < 0.20 | 10 | 0.20 | µg/L | Oct-10-15 | Oct-12-15 | |
| Phenanthrene | < 0.10 | 3 | 0.10 | µg/L | Oct-10-15 | Oct-12-15 | |
| Pyrene | **0.13** | 0.2 | 0.02 | µg/L | Oct-10-15 | Oct-12-15 | |
| Quinoline | < 0.10 | 34 | 0.10 | µg/L | Oct-10-15 | Oct-12-15 | |
| *Surrogate: Acridine-d9* | *110* | | *60-140* | % | *Oct-10-15* | *Oct-12-15* | |
| *Surrogate: Naphthalene-d8* | *134* | | *60-140* | % | *Oct-10-15* | *Oct-12-15* | |
| *Surrogate: Perylene-d12* | *105* | | *60-140* | % | *Oct-10-15* | *Oct-12-15* | |
| ***Volatile Organic Compounds (VOC)*** | | | | | | | |
| Benzene | < 0.5 | 1000 | 0.5 | µg/L | N/A | Oct-08-15 | |
| Bromodichloromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| Bromoform | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| Carbon tetrachloride | < 1.0 | 130 | 1.0 | µg/L | N/A | Oct-08-15 | |
| Chlorobenzene | < 1.0 | 13 | 1.0 | µg/L | N/A | Oct-08-15 | |
| Chloroethane | < 2.0 | N/A | 2.0 | µg/L | N/A | Oct-08-15 | |
| Chloroform | < 1.0 | 20 | 1.0 | µg/L | N/A | Oct-08-15 | |
| Dibromochloromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| Dibromomethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,3-Dichlorobenzene | < 1.0 | 1500 | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,4-Dichlorobenzene | < 1.0 | 260 | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,1-Dichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,2-Dichloroethane | < 1.0 | 1000 | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,1-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| cis-1,2-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| trans-1,2-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,2-Dichloropropane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| cis-1,3-Dichloropropene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| trans-1,3-Dichloropropene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| Ethylbenzene | < 1.0 | 2000 | 1.0 | µg/L | N/A | Oct-08-15 | |
| Methyl tert-butyl ether | < 1.0 | 34000 | 1.0 | µg/L | N/A | Oct-08-15 | |
| Methylene chloride | < 3.0 | 980 | 3.0 | µg/L | N/A | Oct-08-15 | |
| Styrene | < 1.0 | 720 | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,1,2,2-Tetrachloroethane | < 1.0 | 1100 | 1.0 | µg/L | N/A | Oct-08-15 | |
| Tetrachloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| Toluene | < 1.0 | 390 | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,1,1-Trichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,1,2-Trichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| Trichloroethene | < 1.0 | 200 | 1.0 | µg/L | N/A | Oct-08-15 | |
| Trichlorofluoromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| Vinyl chloride | < 2.0 | N/A | 2.0 | µg/L | N/A | Oct-08-15 | |
| Xylenes (total) | < 2.0 | N/A | 2.0 | µg/L | N/A | Oct-08-15 | |
| 1,2-Dibromoethane | < 0.3 | N/A | 0.3 | µg/L | N/A | Oct-08-15 | |
| 1,2-Dichlorobenzene | < 0.5 | 7 | 0.5 | µg/L | N/A | Oct-08-15 | |
| *Surrogate: Toluene-d8* | *98* | | *70-130* | % | *N/A* | *Oct-08-15* | |
| *Surrogate: 4-Bromofluorobenzene* | *70* | | *70-130* | % | *N/A* | *Oct-08-15* | |
| *Surrogate: 1,4-Dichlorobenzene-d4* | *87* | | *70-130* | % | *N/A* | *Oct-08-15* | |

| | | | |
|---|---|---|---|
| **REPORTED TO** | Morrison Hershfield Limited | **WORK ORDER** | 5100220 |
| **PROJECT** | Whistler Landfill - Spring/Fall | **REPORTED** | Oct-14-15 |

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW 2D (5100220-09) [Water] Sampled: Oct-02-15** | | | | | | | |
| ***Anions*** | | | | | | | |
| Bromide | < 0.10 | N/A | 0.10 | mg/L | N/A | Oct-06-15 | |
| Chloride | **16.0** | 1500 | 0.10 | mg/L | N/A | Oct-06-15 | |
| Fluoride | **0.11** | 2 | 0.01 | mg/L | N/A | Oct-06-15 | |
| Nitrate+Nitrite as N | **0.037** | 400 | 0.005 | mg/L | N/A | Oct-07-15 | |
| Sulfate | **309** | 1000 | 1.0 | mg/L | N/A | Oct-06-15 | |
| Nitrite as N | < 0.005 | 0.2 | 0.005 | mg/L | N/A | Oct-05-15 | |
| ***General Parameters*** | | | | | | | |
| pH | **6.38** | N/A | 0.01 | pH units | N/A | Oct-05-15 | HT2 |
| Conductivity (EC) | **1070** | N/A | 2 | µS/cm | N/A | Oct-05-15 | |
| Ammonia as N, Total | **10.1** | N/A | 0.005 | mg/L | N/A | Oct-13-15 | |
| Alkalinity, Total as CaCO3 | **256** | N/A | 1 | mg/L | N/A | Oct-07-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Oct-07-15 | |
| Alkalinity, Bicarbonate as CaCO3 | **256** | N/A | 1 | mg/L | N/A | Oct-07-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Oct-07-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Oct-07-15 | |
| Solids, Total Suspended | **1090** | N/A | 2 | mg/L | N/A | Oct-06-15 | |
| BOD, 5-day | **5** | N/A | 2 | mg/L | Oct-03-15 | Oct-08-15 | |
| Chemical Oxygen Demand | **218** | N/A | 20 | mg/L | N/A | Oct-03-15 | |
| Phosphorus, Total as P | **0.841** | N/A | 0.002 | mg/L | Oct-06-15 | Oct-07-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Hardness, Total (Diss. as CaCO3) | **476** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | **0.037** | 400 | 0.010 | mg/L | N/A | N/A | |
| ***Dissolved Metals*** | | | | | | | |
| Aluminum, dissolved | < 0.005 | N/A | 0.005 | mg/L | N/A | Oct-08-15 | |
| Antimony, dissolved | < 0.0001 | 0.2 | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Arsenic, dissolved | **0.0146** | 0.05 | 0.0005 | mg/L | N/A | Oct-08-15 | |
| Barium, dissolved | **0.030** | 5 | 0.005 | mg/L | N/A | Oct-08-15 | |
| Beryllium, dissolved | < 0.0001 | 0.053 | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Bismuth, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Boron, dissolved | **0.341** | 50 | 0.004 | mg/L | N/A | Oct-08-15 | |
| Cadmium, dissolved | < 0.00001 | 0.0001 | 0.00001 | mg/L | N/A | Oct-08-15 | |
| Calcium, dissolved | **159** | N/A | 0.2 | mg/L | N/A | Oct-08-15 | |
| Chromium, dissolved | < 0.0005 | N/A | 0.0005 | mg/L | N/A | Oct-08-15 | |
| Cobalt, dissolved | **0.0143** | 0.04 | 0.00005 | mg/L | N/A | Oct-08-15 | |
| Copper, dissolved | **0.0002** | 0.02 | 0.0002 | mg/L | N/A | Oct-08-15 | |
| Iron, dissolved | **65.8** | N/A | 0.010 | mg/L | N/A | Oct-08-15 | |
| Lead, dissolved | < 0.0001 | 0.04 | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Lithium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Magnesium, dissolved | **19.1** | N/A | 0.01 | mg/L | N/A | Oct-08-15 | |
| Manganese, dissolved | **4.21** | N/A | 0.0002 | mg/L | N/A | Oct-08-15 | |
| Mercury, dissolved | < 0.00002 | 0.001 | 0.00002 | mg/L | Oct-07-15 | Oct-08-15 | |
| Molybdenum, dissolved | **0.0159** | 10 | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Nickel, dissolved | **0.0032** | 0.25 | 0.0002 | mg/L | N/A | Oct-08-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5100220
**REPORTED** Oct-14-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW 2D (5100220-09) [Water] Sampled: Oct-02-15, Continued** | | | | | | | |
| ***Dissolved Metals, Continued*** | | | | | | | |
| Phosphorus, dissolved | **0.11** | N/A | 0.02 | mg/L | N/A | Oct-08-15 | |
| Potassium, dissolved | **20.9** | N/A | 0.02 | mg/L | N/A | Oct-08-15 | |
| Selenium, dissolved | < 0.0005 | 0.01 | 0.0005 | mg/L | N/A | Oct-08-15 | |
| Silicon, dissolved | **17.0** | N/A | 0.5 | mg/L | N/A | Oct-08-15 | |
| Silver, dissolved | < 0.00005 | 0.0005 | 0.00005 | mg/L | N/A | Oct-08-15 | |
| Sodium, dissolved | **32.6** | N/A | 0.02 | mg/L | N/A | Oct-08-15 | |
| Strontium, dissolved | **0.621** | N/A | 0.001 | mg/L | N/A | Oct-08-15 | |
| Sulfur, dissolved | **122** | N/A | 1 | mg/L | N/A | Oct-08-15 | |
| Tellurium, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Oct-08-15 | |
| Thallium, dissolved | < 0.00002 | 0.003 | 0.00002 | mg/L | N/A | Oct-08-15 | |
| Thorium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Tin, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Oct-08-15 | |
| Titanium, dissolved | < 0.005 | 1 | 0.005 | mg/L | N/A | Oct-08-15 | |
| Uranium, dissolved | **0.00019** | 3 | 0.00002 | mg/L | N/A | Oct-08-15 | |
| Vanadium, dissolved | < 0.001 | N/A | 0.001 | mg/L | N/A | Oct-08-15 | |
| Zinc, dissolved | **0.004** | 0.075 | 0.004 | mg/L | N/A | Oct-08-15 | |
| Zirconium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Oct-08-15 | |
| ***BCMOE Aggregate Hydrocarbons*** | | | | | | | |
| VPHw | < 100 | 1500 | 100 | µg/L | N/A | N/A | |
| EPHw10-19 | < 250 | 5000 | 250 | µg/L | Oct-10-15 | Oct-12-15 | |
| EPHw19-32 | < 250 | N/A | 250 | µg/L | Oct-10-15 | Oct-12-15 | |
| LEPHw | < 250 | 500 | 250 | µg/L | N/A | N/A | |
| HEPHw | < 250 | N/A | 250 | µg/L | N/A | N/A | |
| VHw (6-10) | < 100 | 15000 | 100 | µg/L | N/A | Oct-08-15 | |
| ***Polycyclic Aromatic Hydrocarbons (PAH)*** | | | | | | | |
| Acenaphthene | < 0.05 | 60 | 0.05 | µg/L | Oct-10-15 | Oct-12-15 | |
| Acenaphthylene | < 0.20 | N/A | 0.20 | µg/L | Oct-10-15 | Oct-12-15 | |
| Acridine | < 0.10 | 0.5 | 0.10 | µg/L | Oct-10-15 | Oct-12-15 | |
| Anthracene | < 0.01 | 1 | 0.01 | µg/L | Oct-10-15 | Oct-12-15 | |
| Benz (a) anthracene | < 0.01 | 1 | 0.01 | µg/L | Oct-10-15 | Oct-12-15 | |
| Benzo (a) pyrene | < 0.01 | 0.1 | 0.01 | µg/L | Oct-10-15 | Oct-12-15 | |
| Benzo (b) fluoranthene | < 0.05 | N/A | 0.05 | µg/L | Oct-10-15 | Oct-12-15 | |
| Benzo (g,h,i) perylene | < 0.05 | N/A | 0.05 | µg/L | Oct-10-15 | Oct-12-15 | |
| Benzo (k) fluoranthene | < 0.05 | N/A | 0.05 | µg/L | Oct-10-15 | Oct-12-15 | |
| Chrysene | < 0.05 | 1 | 0.05 | µg/L | Oct-10-15 | Oct-12-15 | |
| Dibenz (a,h) anthracene | < 0.05 | N/A | 0.05 | µg/L | Oct-10-15 | Oct-12-15 | |
| Fluoranthene | < 0.03 | 2 | 0.03 | µg/L | Oct-10-15 | Oct-12-15 | |
| Fluorene | < 0.05 | 120 | 0.05 | µg/L | Oct-10-15 | Oct-12-15 | |
| Indeno (1,2,3-cd) pyrene | < 0.05 | N/A | 0.05 | µg/L | Oct-10-15 | Oct-12-15 | |
| Naphthalene | < 0.20 | 10 | 0.20 | µg/L | Oct-10-15 | Oct-12-15 | |
| Phenanthrene | < 0.10 | 3 | 0.10 | µg/L | Oct-10-15 | Oct-12-15 | |
| Pyrene | < 0.02 | 0.2 | 0.02 | µg/L | Oct-10-15 | Oct-12-15 | |
| Quinoline | < 0.10 | 34 | 0.10 | µg/L | Oct-10-15 | Oct-12-15 | |
| *Surrogate: Acridine-d9* | *87* | | *60-140* | % | *Oct-10-15* | *Oct-12-15* | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5100220
**REPORTED** Oct-14-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW 2D (5100220-09) [Water] Sampled: Oct-02-15, Continued** | | | | | | | |
| ***Polycyclic Aromatic Hydrocarbons (PAH), Continued*** | | | | | | | |
| *Surrogate: Naphthalene-d8* | *126* | | *60-140* | % | *Oct-10-15* | *Oct-12-15* | |
| *Surrogate: Perylene-d12* | *103* | | *60-140* | % | *Oct-10-15* | *Oct-12-15* | |
| ***Volatile Organic Compounds (VOC)*** | | | | | | | |
| Benzene | < 0.5 | 1000 | 0.5 | µg/L | N/A | Oct-08-15 | |
| Bromodichloromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| Bromoform | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| Carbon tetrachloride | < 1.0 | 130 | 1.0 | µg/L | N/A | Oct-08-15 | |
| Chlorobenzene | < 1.0 | 13 | 1.0 | µg/L | N/A | Oct-08-15 | |
| Chloroethane | < 2.0 | N/A | 2.0 | µg/L | N/A | Oct-08-15 | |
| Chloroform | < 1.0 | 20 | 1.0 | µg/L | N/A | Oct-08-15 | |
| Dibromochloromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| Dibromomethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,3-Dichlorobenzene | < 1.0 | 1500 | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,4-Dichlorobenzene | < 1.0 | 260 | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,1-Dichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,2-Dichloroethane | < 1.0 | 1000 | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,1-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| cis-1,2-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| trans-1,2-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,2-Dichloropropane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| cis-1,3-Dichloropropene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| trans-1,3-Dichloropropene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| Ethylbenzene | < 1.0 | 2000 | 1.0 | µg/L | N/A | Oct-08-15 | |
| Methyl tert-butyl ether | < 1.0 | 34000 | 1.0 | µg/L | N/A | Oct-08-15 | |
| Methylene chloride | < 3.0 | 980 | 3.0 | µg/L | N/A | Oct-08-15 | |
| Styrene | < 1.0 | 720 | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,1,2,2-Tetrachloroethane | < 1.0 | 1100 | 1.0 | µg/L | N/A | Oct-08-15 | |
| Tetrachloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| Toluene | < 1.0 | 390 | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,1,1-Trichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,1,2-Trichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| Trichloroethene | < 1.0 | 200 | 1.0 | µg/L | N/A | Oct-08-15 | |
| Trichlorofluoromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| Vinyl chloride | < 2.0 | N/A | 2.0 | µg/L | N/A | Oct-08-15 | |
| Xylenes (total) | < 2.0 | N/A | 2.0 | µg/L | N/A | Oct-08-15 | |
| 1,2-Dibromoethane | < 0.3 | N/A | 0.3 | µg/L | N/A | Oct-08-15 | |
| 1,2-Dichlorobenzene | < 0.5 | 7 | 0.5 | µg/L | N/A | Oct-08-15 | |
| *Surrogate: Toluene-d8* | *83* | | *70-130* | % | *N/A* | *Oct-08-15* | |
| *Surrogate: 4-Bromofluorobenzene* | *59* | | *70-130* | % | *N/A* | *Oct-08-15* | S02 |
| *Surrogate: 1,4-Dichlorobenzene-d4* | *73* | | *70-130* | % | *N/A* | *Oct-08-15* | |
| **Sample ID: MW 2S (5100220-10) [Water] Sampled: Oct-02-15** | | | | | | | |
| ***Anions*** | | | | | | | |
| Bromide | < 0.10 | N/A | 0.10 | mg/L | N/A | Oct-06-15 | |

| | | | |
|---|---|---|---|
| **REPORTED TO** | Morrison Hershfield Limited | **WORK ORDER** | 5100220 |
| **PROJECT** | Whistler Landfill - Spring/Fall | **REPORTED** | Oct-14-15 |

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW 2S (5100220-10) [Water] Sampled: Oct-02-15, Continued** | | | | | | | |
| ***Anions, Continued*** | | | | | | | |
| Chloride | **10.9** | 1500 | 0.10 | mg/L | N/A | Oct-06-15 | |
| Fluoride | **0.08** | 2 | 0.01 | mg/L | N/A | Oct-06-15 | |
| Nitrate+Nitrite as N | **0.010** | 400 | 0.005 | mg/L | N/A | Oct-07-15 | |
| Sulfate | **71.9** | 1000 | 1.0 | mg/L | N/A | Oct-06-15 | |
| Nitrite as N | < 0.005 | 0.2 | 0.005 | mg/L | N/A | Oct-05-15 | |
| ***General Parameters*** | | | | | | | |
| pH | **6.42** | N/A | 0.01 | pH units | N/A | Oct-05-15 | HT2 |
| Conductivity (EC) | **366** | N/A | 2 | µS/cm | N/A | Oct-05-15 | |
| Ammonia as N, Total | **3.37** | N/A | 0.005 | mg/L | N/A | Oct-13-15 | |
| Alkalinity, Total as CaCO3 | **104** | N/A | 1 | mg/L | N/A | Oct-07-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Oct-07-15 | |
| Alkalinity, Bicarbonate as CaCO3 | **104** | N/A | 1 | mg/L | N/A | Oct-07-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Oct-07-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Oct-07-15 | |
| Solids, Total Suspended | **344** | N/A | 2 | mg/L | N/A | Oct-06-15 | |
| BOD, 5-day | **4** | N/A | 2 | mg/L | Oct-03-15 | Oct-08-15 | |
| Chemical Oxygen Demand | **53** | N/A | 20 | mg/L | N/A | Oct-03-15 | |
| Phosphorus, Total as P | **0.249** | N/A | 0.002 | mg/L | Oct-06-15 | Oct-07-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Hardness, Total (Diss. as CaCO3) | **120** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | **0.010** | 400 | 0.010 | mg/L | N/A | N/A | |
| ***Dissolved Metals*** | | | | | | | |
| Aluminum, dissolved | < 0.005 | N/A | 0.005 | mg/L | N/A | Oct-08-15 | |
| Antimony, dissolved | < 0.0001 | 0.2 | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Arsenic, dissolved | **0.0067** | 0.05 | 0.0005 | mg/L | N/A | Oct-08-15 | |
| Barium, dissolved | **0.075** | 5 | 0.005 | mg/L | N/A | Oct-08-15 | |
| Beryllium, dissolved | < 0.0001 | 0.053 | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Bismuth, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Boron, dissolved | **0.130** | 50 | 0.004 | mg/L | N/A | Oct-08-15 | |
| Cadmium, dissolved | < 0.00001 | 0.0001 | 0.00001 | mg/L | N/A | Oct-08-15 | |
| Calcium, dissolved | **36.1** | N/A | 0.2 | mg/L | N/A | Oct-08-15 | |
| Chromium, dissolved | < 0.0005 | N/A | 0.0005 | mg/L | N/A | Oct-08-15 | |
| Cobalt, dissolved | **0.00333** | 0.04 | 0.00005 | mg/L | N/A | Oct-08-15 | |
| Copper, dissolved | **0.0004** | 0.02 | 0.0002 | mg/L | N/A | Oct-08-15 | |
| Iron, dissolved | **37.6** | N/A | 0.010 | mg/L | N/A | Oct-08-15 | |
| Lead, dissolved | < 0.0001 | 0.04 | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Lithium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Magnesium, dissolved | **7.35** | N/A | 0.01 | mg/L | N/A | Oct-08-15 | |
| Manganese, dissolved | **1.55** | N/A | 0.0002 | mg/L | N/A | Oct-08-15 | |
| Mercury, dissolved | < 0.00002 | 0.001 | 0.00002 | mg/L | Oct-07-15 | Oct-08-15 | |
| Molybdenum, dissolved | **0.0077** | 10 | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Nickel, dissolved | **0.0010** | 0.25 | 0.0002 | mg/L | N/A | Oct-08-15 | |
| Phosphorus, dissolved | **0.04** | N/A | 0.02 | mg/L | N/A | Oct-08-15 | |
| Potassium, dissolved | **8.91** | N/A | 0.02 | mg/L | N/A | Oct-08-15 | |

| | | | |
|---|---|---|---|
| **REPORTED TO** | Morrison Hershfield Limited | **WORK ORDER** | 5100220 |
| **PROJECT** | Whistler Landfill - Spring/Fall | **REPORTED** | Oct-14-15 |

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW 2S (5100220-10) [Water] Sampled: Oct-02-15, Continued** | | | | | | | |
| ***Dissolved Metals, Continued*** | | | | | | | |
| Selenium, dissolved | < 0.0005 | 0.01 | 0.0005 | mg/L | N/A | Oct-08-15 | |
| Silicon, dissolved | **9.2** | N/A | 0.5 | mg/L | N/A | Oct-08-15 | |
| Silver, dissolved | < 0.00005 | 0.0005 | 0.00005 | mg/L | N/A | Oct-08-15 | |
| Sodium, dissolved | **8.13** | N/A | 0.02 | mg/L | N/A | Oct-08-15 | |
| Strontium, dissolved | **0.213** | N/A | 0.001 | mg/L | N/A | Oct-08-15 | |
| Sulfur, dissolved | **22** | N/A | 1 | mg/L | N/A | Oct-08-15 | |
| Tellurium, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Oct-08-15 | |
| Thallium, dissolved | < 0.00002 | 0.003 | 0.00002 | mg/L | N/A | Oct-08-15 | |
| Thorium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Tin, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Oct-08-15 | |
| Titanium, dissolved | < 0.005 | 1 | 0.005 | mg/L | N/A | Oct-08-15 | |
| Uranium, dissolved | **0.00003** | 3 | 0.00002 | mg/L | N/A | Oct-08-15 | |
| Vanadium, dissolved | < 0.001 | N/A | 0.001 | mg/L | N/A | Oct-08-15 | |
| Zinc, dissolved | **0.014** | 0.075 | 0.004 | mg/L | N/A | Oct-08-15 | |
| Zirconium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Oct-08-15 | |
| ***BCMOE Aggregate Hydrocarbons*** | | | | | | | |
| VPHw | < 100 | 1500 | 100 | µg/L | N/A | N/A | |
| EPHw10-19 | < 250 | 5000 | 250 | µg/L | Oct-10-15 | Oct-13-15 | |
| EPHw19-32 | < 250 | N/A | 250 | µg/L | Oct-10-15 | Oct-13-15 | |
| LEPHw | < 250 | 500 | 250 | µg/L | N/A | N/A | |
| HEPHw | < 250 | N/A | 250 | µg/L | N/A | N/A | |
| VHw (6-10) | < 100 | 15000 | 100 | µg/L | N/A | Oct-08-15 | |
| ***Polycyclic Aromatic Hydrocarbons (PAH)*** | | | | | | | |
| Acenaphthene | < 0.05 | 60 | 0.05 | µg/L | Oct-10-15 | Oct-13-15 | |
| Acenaphthylene | < 0.20 | N/A | 0.20 | µg/L | Oct-10-15 | Oct-13-15 | |
| Acridine | < 0.10 | 0.5 | 0.10 | µg/L | Oct-10-15 | Oct-13-15 | |
| Anthracene | < 0.01 | 1 | 0.01 | µg/L | Oct-10-15 | Oct-13-15 | |
| Benz (a) anthracene | < 0.01 | 1 | 0.01 | µg/L | Oct-10-15 | Oct-13-15 | |
| Benzo (a) pyrene | < 0.01 | 0.1 | 0.01 | µg/L | Oct-10-15 | Oct-13-15 | |
| Benzo (b) fluoranthene | < 0.05 | N/A | 0.05 | µg/L | Oct-10-15 | Oct-13-15 | |
| Benzo (g,h,i) perylene | < 0.05 | N/A | 0.05 | µg/L | Oct-10-15 | Oct-13-15 | |
| Benzo (k) fluoranthene | < 0.05 | N/A | 0.05 | µg/L | Oct-10-15 | Oct-13-15 | |
| Chrysene | < 0.05 | 1 | 0.05 | µg/L | Oct-10-15 | Oct-13-15 | |
| Dibenz (a,h) anthracene | < 0.05 | N/A | 0.05 | µg/L | Oct-10-15 | Oct-13-15 | |
| Fluoranthene | < 0.03 | 2 | 0.03 | µg/L | Oct-10-15 | Oct-13-15 | |
| Fluorene | < 0.05 | 120 | 0.05 | µg/L | Oct-10-15 | Oct-13-15 | |
| Indeno (1,2,3-cd) pyrene | < 0.05 | N/A | 0.05 | µg/L | Oct-10-15 | Oct-13-15 | |
| Naphthalene | < 0.20 | 10 | 0.20 | µg/L | Oct-10-15 | Oct-13-15 | |
| Phenanthrene | < 0.10 | 3 | 0.10 | µg/L | Oct-10-15 | Oct-13-15 | |
| Pyrene | < 0.02 | 0.2 | 0.02 | µg/L | Oct-10-15 | Oct-13-15 | |
| Quinoline | < 0.10 | 34 | 0.10 | µg/L | Oct-10-15 | Oct-13-15 | |
| *Surrogate: Acridine-d9* | *88* | | *60-140* | % | *Oct-10-15* | *Oct-13-15* | |
| *Surrogate: Naphthalene-d8* | *121* | | *60-140* | % | *Oct-10-15* | *Oct-13-15* | |
| *Surrogate: Perylene-d12* | *98* | | *60-140* | % | *Oct-10-15* | *Oct-13-15* | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5100220
**REPORTED** Oct-14-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW 2S (5100220-10) [Water] Sampled: Oct-02-15, Continued** | | | | | | | |
| ***Volatile Organic Compounds (VOC)*** | | | | | | | |
| Benzene | < 0.5 | 1000 | 0.5 | µg/L | N/A | Oct-08-15 | |
| Bromodichloromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| Bromoform | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| Carbon tetrachloride | < 1.0 | 130 | 1.0 | µg/L | N/A | Oct-08-15 | |
| Chlorobenzene | < 1.0 | 13 | 1.0 | µg/L | N/A | Oct-08-15 | |
| Chloroethane | < 2.0 | N/A | 2.0 | µg/L | N/A | Oct-08-15 | |
| Chloroform | < 1.0 | 20 | 1.0 | µg/L | N/A | Oct-08-15 | |
| Dibromochloromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| Dibromomethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,3-Dichlorobenzene | < 1.0 | 1500 | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,4-Dichlorobenzene | < 1.0 | 260 | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,1-Dichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,2-Dichloroethane | < 1.0 | 1000 | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,1-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| cis-1,2-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| trans-1,2-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,2-Dichloropropane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| cis-1,3-Dichloropropene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| trans-1,3-Dichloropropene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| Ethylbenzene | < 1.0 | 2000 | 1.0 | µg/L | N/A | Oct-08-15 | |
| Methyl tert-butyl ether | < 1.0 | 34000 | 1.0 | µg/L | N/A | Oct-08-15 | |
| Methylene chloride | < 3.0 | 980 | 3.0 | µg/L | N/A | Oct-08-15 | |
| Styrene | < 1.0 | 720 | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,1,2,2-Tetrachloroethane | < 1.0 | 1100 | 1.0 | µg/L | N/A | Oct-08-15 | |
| Tetrachloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| Toluene | < 1.0 | 390 | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,1,1-Trichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,1,2-Trichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| Trichloroethene | < 1.0 | 200 | 1.0 | µg/L | N/A | Oct-08-15 | |
| Trichlorofluoromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| Vinyl chloride | < 2.0 | N/A | 2.0 | µg/L | N/A | Oct-08-15 | |
| Xylenes (total) | < 2.0 | N/A | 2.0 | µg/L | N/A | Oct-08-15 | |
| 1,2-Dibromoethane | < 0.3 | N/A | 0.3 | µg/L | N/A | Oct-08-15 | |
| 1,2-Dichlorobenzene | < 0.5 | 7 | 0.5 | µg/L | N/A | Oct-08-15 | |
| *Surrogate: Toluene-d8* | *94* | | *70-130* | % | *N/A* | *Oct-08-15* | |
| *Surrogate: 4-Bromofluorobenzene* | *69* | | *70-130* | % | *N/A* | *Oct-08-15* | S02 |
| *Surrogate: 1,4-Dichlorobenzene-d4* | *81* | | *70-130* | % | *N/A* | *Oct-08-15* | |
| **Sample ID: MW 3 (5100220-11) [Water] Sampled: Oct-02-15** | | | | | | | |
| ***Anions*** | | | | | | | |
| Bromide | < 0.10 | N/A | 0.10 | mg/L | N/A | Oct-06-15 | |
| Chloride | **8.50** | 1500 | 0.10 | mg/L | N/A | Oct-06-15 | |
| Fluoride | **0.07** | 2 | 0.01 | mg/L | N/A | Oct-06-15 | |
| Nitrate+Nitrite as N | < 0.005 | 400 | 0.005 | mg/L | N/A | Oct-07-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5100220
**REPORTED** Oct-14-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW 3 (5100220-11) [Water] Sampled: Oct-02-15, Continued** | | | | | | | |
| ***Anions, Continued*** | | | | | | | |
| Sulfate | **32.6** | 1000 | 1.0 | mg/L | N/A | Oct-06-15 | |
| Nitrite as N | < 0.005 | 0.2 | 0.005 | mg/L | N/A | Oct-05-15 | |
| ***General Parameters*** | | | | | | | |
| pH | **6.12** | N/A | 0.01 | pH units | N/A | Oct-05-15 | HT2 |
| Conductivity (EC) | **168** | N/A | 2 | µS/cm | N/A | Oct-05-15 | |
| Ammonia as N, Total | **0.413** | N/A | 0.005 | mg/L | N/A | Oct-13-15 | |
| Alkalinity, Total as CaCO3 | **32** | N/A | 1 | mg/L | N/A | Oct-07-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Oct-07-15 | |
| Alkalinity, Bicarbonate as CaCO3 | **32** | N/A | 1 | mg/L | N/A | Oct-07-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Oct-07-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Oct-07-15 | |
| Solids, Total Suspended | **47** | N/A | 2 | mg/L | N/A | Oct-06-15 | |
| BOD, 5-day | < 2 | N/A | 2 | mg/L | Oct-03-15 | Oct-08-15 | BOD2 |
| Chemical Oxygen Demand | < 20 | N/A | 20 | mg/L | N/A | Oct-03-15 | |
| Phosphorus, Total as P | **0.030** | N/A | 0.002 | mg/L | Oct-06-15 | Oct-07-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Hardness, Total (Diss. as CaCO3) | **48.4** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | < 0.010 | 400 | 0.010 | mg/L | N/A | N/A | |
| ***Dissolved Metals*** | | | | | | | |
| Aluminum, dissolved | **0.017** | N/A | 0.005 | mg/L | N/A | Oct-08-15 | |
| Antimony, dissolved | < 0.0001 | 0.2 | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Arsenic, dissolved | < 0.0005 | 0.05 | 0.0005 | mg/L | N/A | Oct-08-15 | |
| Barium, dissolved | **0.064** | 5 | 0.005 | mg/L | N/A | Oct-08-15 | |
| Beryllium, dissolved | < 0.0001 | 0.053 | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Bismuth, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Boron, dissolved | **0.014** | 50 | 0.004 | mg/L | N/A | Oct-08-15 | |
| Cadmium, dissolved | **0.00027** | 0.0001 | 0.00001 | mg/L | N/A | Oct-08-15 | |
| Calcium, dissolved | **14.8** | N/A | 0.2 | mg/L | N/A | Oct-08-15 | |
| Chromium, dissolved | < 0.0005 | N/A | 0.0005 | mg/L | N/A | Oct-08-15 | |
| Cobalt, dissolved | **0.00577** | 0.04 | 0.00005 | mg/L | N/A | Oct-08-15 | |
| Copper, dissolved | **0.0034** | 0.02 | 0.0002 | mg/L | N/A | Oct-08-15 | |
| Iron, dissolved | **0.464** | N/A | 0.010 | mg/L | N/A | Oct-08-15 | |
| Lead, dissolved | < 0.0001 | 0.04 | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Lithium, dissolved | **0.0001** | N/A | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Magnesium, dissolved | **2.75** | N/A | 0.01 | mg/L | N/A | Oct-08-15 | |
| Manganese, dissolved | **1.85** | N/A | 0.0002 | mg/L | N/A | Oct-08-15 | |
| Mercury, dissolved | < 0.00002 | 0.001 | 0.00002 | mg/L | Oct-07-15 | Oct-08-15 | |
| Molybdenum, dissolved | **0.0011** | 10 | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Nickel, dissolved | **0.0022** | 0.25 | 0.0002 | mg/L | N/A | Oct-08-15 | |
| Phosphorus, dissolved | < 0.02 | N/A | 0.02 | mg/L | N/A | Oct-08-15 | |
| Potassium, dissolved | **3.31** | N/A | 0.02 | mg/L | N/A | Oct-08-15 | |
| Selenium, dissolved | < 0.0005 | 0.01 | 0.0005 | mg/L | N/A | Oct-08-15 | |
| Silicon, dissolved | **8.9** | N/A | 0.5 | mg/L | N/A | Oct-08-15 | |
| Silver, dissolved | < 0.00005 | 0.0005 | 0.00005 | mg/L | N/A | Oct-08-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5100220
**REPORTED** Oct-14-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW 3 (5100220-11) [Water] Sampled: Oct-02-15, Continued** | | | | | | | |
| ***Dissolved Metals, Continued*** | | | | | | | |
| Sodium, dissolved | **11.0** | N/A | 0.02 | mg/L | N/A | Oct-08-15 | |
| Strontium, dissolved | **0.128** | N/A | 0.001 | mg/L | N/A | Oct-08-15 | |
| Sulfur, dissolved | **10** | N/A | 1 | mg/L | N/A | Oct-08-15 | |
| Tellurium, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Oct-08-15 | |
| Thallium, dissolved | **0.00009** | 0.003 | 0.00002 | mg/L | N/A | Oct-08-15 | |
| Thorium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Tin, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Oct-08-15 | |
| Titanium, dissolved | < 0.005 | 1 | 0.005 | mg/L | N/A | Oct-08-15 | |
| Uranium, dissolved | < 0.00002 | 3 | 0.00002 | mg/L | N/A | Oct-08-15 | |
| Vanadium, dissolved | < 0.001 | N/A | 0.001 | mg/L | N/A | Oct-08-15 | |
| Zinc, dissolved | **0.010** | 0.075 | 0.004 | mg/L | N/A | Oct-08-15 | |
| Zirconium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Oct-08-15 | |
| ***BCMOE Aggregate Hydrocarbons*** | | | | | | | |
| VPHw | < 100 | 1500 | 100 | µg/L | N/A | N/A | |
| EPHw10-19 | < 250 | 5000 | 250 | µg/L | Oct-10-15 | Oct-13-15 | |
| EPHw19-32 | < 250 | N/A | 250 | µg/L | Oct-10-15 | Oct-13-15 | |
| LEPHw | < 250 | 500 | 250 | µg/L | N/A | N/A | |
| HEPHw | < 250 | N/A | 250 | µg/L | N/A | N/A | |
| VHw (6-10) | < 100 | 15000 | 100 | µg/L | N/A | Oct-08-15 | |
| ***Polycyclic Aromatic Hydrocarbons (PAH)*** | | | | | | | |
| Acenaphthene | < 0.05 | 60 | 0.05 | µg/L | Oct-10-15 | Oct-13-15 | |
| Acenaphthylene | < 0.20 | N/A | 0.20 | µg/L | Oct-10-15 | Oct-13-15 | |
| Acridine | < 0.10 | 0.5 | 0.10 | µg/L | Oct-10-15 | Oct-13-15 | |
| Anthracene | < 0.01 | 1 | 0.01 | µg/L | Oct-10-15 | Oct-13-15 | |
| Benz (a) anthracene | < 0.01 | 1 | 0.01 | µg/L | Oct-10-15 | Oct-13-15 | |
| Benzo (a) pyrene | < 0.01 | 0.1 | 0.01 | µg/L | Oct-10-15 | Oct-13-15 | |
| Benzo (b) fluoranthene | < 0.05 | N/A | 0.05 | µg/L | Oct-10-15 | Oct-13-15 | |
| Benzo (g,h,i) perylene | < 0.05 | N/A | 0.05 | µg/L | Oct-10-15 | Oct-13-15 | |
| Benzo (k) fluoranthene | < 0.05 | N/A | 0.05 | µg/L | Oct-10-15 | Oct-13-15 | |
| Chrysene | < 0.05 | 1 | 0.05 | µg/L | Oct-10-15 | Oct-13-15 | |
| Dibenz (a,h) anthracene | < 0.05 | N/A | 0.05 | µg/L | Oct-10-15 | Oct-13-15 | |
| Fluoranthene | < 0.03 | 2 | 0.03 | µg/L | Oct-10-15 | Oct-13-15 | |
| Fluorene | < 0.05 | 120 | 0.05 | µg/L | Oct-10-15 | Oct-13-15 | |
| Indeno (1,2,3-cd) pyrene | < 0.05 | N/A | 0.05 | µg/L | Oct-10-15 | Oct-13-15 | |
| Naphthalene | < 0.20 | 10 | 0.20 | µg/L | Oct-10-15 | Oct-13-15 | |
| Phenanthrene | < 0.10 | 3 | 0.10 | µg/L | Oct-10-15 | Oct-13-15 | |
| Pyrene | < 0.02 | 0.2 | 0.02 | µg/L | Oct-10-15 | Oct-13-15 | |
| Quinoline | < 0.10 | 34 | 0.10 | µg/L | Oct-10-15 | Oct-13-15 | |
| *Surrogate: Acridine-d9* | *92* | | *60-140* | % | *Oct-10-15* | *Oct-13-15* | |
| *Surrogate: Perylene-d12* | *121* | | *60-140* | % | *Oct-10-15* | *Oct-13-15* | |
| *Surrogate: Phenanthrene-d10* | *123* | | *60-140* | % | *Oct-10-15* | *Oct-13-15* | |
| ***Volatile Organic Compounds (VOC)*** | | | | | | | |
| Benzene | < 0.5 | 1000 | 0.5 | µg/L | N/A | Oct-08-15 | |
| Bromodichloromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |

| | | | |
|---|---|---|---|
| **REPORTED TO** | Morrison Hershfield Limited | **WORK ORDER** | 5100220 |
| **PROJECT** | Whistler Landfill - Spring/Fall | **REPORTED** | Oct-14-15 |

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW 3 (5100220-11) [Water] Sampled: Oct-02-15, Continued** | | | | | | | |
| ***Volatile Organic Compounds (VOC), Continued*** | | | | | | | |
| Bromoform | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| Carbon tetrachloride | < 1.0 | 130 | 1.0 | µg/L | N/A | Oct-08-15 | |
| Chlorobenzene | < 1.0 | 13 | 1.0 | µg/L | N/A | Oct-08-15 | |
| Chloroethane | < 2.0 | N/A | 2.0 | µg/L | N/A | Oct-08-15 | |
| Chloroform | < 1.0 | 20 | 1.0 | µg/L | N/A | Oct-08-15 | |
| Dibromochloromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| Dibromomethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,3-Dichlorobenzene | < 1.0 | 1500 | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,4-Dichlorobenzene | < 1.0 | 260 | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,1-Dichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,2-Dichloroethane | < 1.0 | 1000 | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,1-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| cis-1,2-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| trans-1,2-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,2-Dichloropropane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| cis-1,3-Dichloropropene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| trans-1,3-Dichloropropene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| Ethylbenzene | < 1.0 | 2000 | 1.0 | µg/L | N/A | Oct-08-15 | |
| Methyl tert-butyl ether | < 1.0 | 34000 | 1.0 | µg/L | N/A | Oct-08-15 | |
| Methylene chloride | < 3.0 | 980 | 3.0 | µg/L | N/A | Oct-08-15 | |
| Styrene | < 1.0 | 720 | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,1,2,2-Tetrachloroethane | < 1.0 | 1100 | 1.0 | µg/L | N/A | Oct-08-15 | |
| Tetrachloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| Toluene | < 1.0 | 390 | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,1,1-Trichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,1,2-Trichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| Trichloroethene | < 1.0 | 200 | 1.0 | µg/L | N/A | Oct-08-15 | |
| Trichlorofluoromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| Vinyl chloride | < 2.0 | N/A | 2.0 | µg/L | N/A | Oct-08-15 | |
| Xylenes (total) | < 2.0 | N/A | 2.0 | µg/L | N/A | Oct-08-15 | |
| 1,2-Dibromoethane | < 0.3 | N/A | 0.3 | µg/L | N/A | Oct-08-15 | |
| 1,2-Dichlorobenzene | < 0.5 | 7 | 0.5 | µg/L | N/A | Oct-08-15 | |
| *Surrogate: Toluene-d8* | *87* | | *70-130* | % | *N/A* | *Oct-08-15* | |
| *Surrogate: 4-Bromofluorobenzene* | *63* | | *70-130* | % | *N/A* | *Oct-08-15* | S02 |
| *Surrogate: 1,4-Dichlorobenzene-d4* | *75* | | *70-130* | % | *N/A* | *Oct-08-15* | |
| **Sample ID: MW 4 (5100220-12) [Water] Sampled: Oct-02-15** | | | | | | | |
| ***Anions*** | | | | | | | |
| Bromide | < 0.10 | N/A | 0.10 | mg/L | N/A | Oct-06-15 | |
| Chloride | **10.9** | 1500 | 0.10 | mg/L | N/A | Oct-06-15 | |
| Fluoride | **0.12** | 2 | 0.01 | mg/L | N/A | Oct-06-15 | |
| Nitrate+Nitrite as N | **0.021** | 400 | 0.005 | mg/L | N/A | Oct-07-15 | |
| Sulfate | **32.5** | 1000 | 1.0 | mg/L | N/A | Oct-06-15 | |
| Nitrite as N | < 0.005 | 0.2 | 0.005 | mg/L | N/A | Oct-05-15 | |

| | | | |
|---|---|---|---|
| **REPORTED TO** | Morrison Hershfield Limited | **WORK ORDER** | 5100220 |
| **PROJECT** | Whistler Landfill - Spring/Fall | **REPORTED** | Oct-14-15 |

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW 4 (5100220-12) [Water] Sampled: Oct-02-15, Continued** | | | | | | | |
| ***General Parameters*** | | | | | | | |
| pH | **6.32** | N/A | 0.01 | pH units | N/A | Oct-05-15 | HT2 |
| Conductivity (EC) | **265** | N/A | 2 | µS/cm | N/A | Oct-05-15 | |
| Ammonia as N, Total | **1.28** | N/A | 0.005 | mg/L | N/A | Oct-13-15 | |
| Alkalinity, Total as CaCO3 | **84** | N/A | 1 | mg/L | N/A | Oct-07-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Oct-07-15 | |
| Alkalinity, Bicarbonate as CaCO3 | **84** | N/A | 1 | mg/L | N/A | Oct-07-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Oct-07-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Oct-07-15 | |
| Solids, Total Suspended | **1110** | N/A | 2 | mg/L | N/A | Oct-06-15 | |
| BOD, 5-day | < 2 | N/A | 2 | mg/L | Oct-03-15 | Oct-08-15 | BOD2 |
| Chemical Oxygen Demand | **129** | N/A | 20 | mg/L | N/A | Oct-03-15 | |
| Phosphorus, Total as P | **0.650** | N/A | 0.002 | mg/L | Oct-06-15 | Oct-07-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Hardness, Total (Diss. as CaCO3) | **92.2** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | **0.021** | 400 | 0.010 | mg/L | N/A | N/A | |
| ***Dissolved Metals*** | | | | | | | |
| Aluminum, dissolved | **0.010** | N/A | 0.005 | mg/L | N/A | Oct-08-15 | |
| Antimony, dissolved | < 0.0001 | 0.2 | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Arsenic, dissolved | **0.0032** | 0.05 | 0.0005 | mg/L | N/A | Oct-08-15 | |
| Barium, dissolved | **0.107** | 5 | 0.005 | mg/L | N/A | Oct-08-15 | |
| Beryllium, dissolved | < 0.0001 | 0.053 | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Bismuth, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Boron, dissolved | **0.054** | 50 | 0.004 | mg/L | N/A | Oct-08-15 | |
| Cadmium, dissolved | **0.00051** | 0.0001 | 0.00001 | mg/L | N/A | Oct-08-15 | |
| Calcium, dissolved | **30.7** | N/A | 0.2 | mg/L | N/A | Oct-08-15 | |
| Chromium, dissolved | **0.0005** | N/A | 0.0005 | mg/L | N/A | Oct-08-15 | |
| Cobalt, dissolved | **0.0183** | 0.04 | 0.00005 | mg/L | N/A | Oct-08-15 | |
| Copper, dissolved | **0.0031** | 0.02 | 0.0002 | mg/L | N/A | Oct-08-15 | |
| Iron, dissolved | **16.7** | N/A | 0.010 | mg/L | N/A | Oct-08-15 | |
| Lead, dissolved | < 0.0001 | 0.04 | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Lithium, dissolved | **0.0003** | N/A | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Magnesium, dissolved | **3.79** | N/A | 0.01 | mg/L | N/A | Oct-08-15 | |
| Manganese, dissolved | **1.56** | N/A | 0.0002 | mg/L | N/A | Oct-08-15 | |
| Mercury, dissolved | < 0.00002 | 0.001 | 0.00002 | mg/L | Oct-07-15 | Oct-08-15 | |
| Molybdenum, dissolved | **0.0122** | 10 | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Nickel, dissolved | **0.0041** | 0.25 | 0.0002 | mg/L | N/A | Oct-08-15 | |
| Phosphorus, dissolved | < 0.02 | N/A | 0.02 | mg/L | N/A | Oct-08-15 | |
| Potassium, dissolved | **4.96** | N/A | 0.02 | mg/L | N/A | Oct-08-15 | |
| Selenium, dissolved | < 0.0005 | 0.01 | 0.0005 | mg/L | N/A | Oct-08-15 | |
| Silicon, dissolved | **10.9** | N/A | 0.5 | mg/L | N/A | Oct-08-15 | |
| Silver, dissolved | < 0.00005 | 0.0005 | 0.00005 | mg/L | N/A | Oct-08-15 | |
| Sodium, dissolved | **17.0** | N/A | 0.02 | mg/L | N/A | Oct-08-15 | |
| Strontium, dissolved | **0.223** | N/A | 0.001 | mg/L | N/A | Oct-08-15 | |
| Sulfur, dissolved | **12** | N/A | 1 | mg/L | N/A | Oct-08-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5100220
**REPORTED** Oct-14-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW 4 (5100220-12) [Water] Sampled: Oct-02-15, Continued** | | | | | | | |
| ***Dissolved Metals, Continued*** | | | | | | | |
| Tellurium, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Oct-08-15 | |
| Thallium, dissolved | **0.00003** | 0.003 | 0.00002 | mg/L | N/A | Oct-08-15 | |
| Thorium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Tin, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Oct-08-15 | |
| Titanium, dissolved | < 0.005 | 1 | 0.005 | mg/L | N/A | Oct-08-15 | |
| Uranium, dissolved | **0.00011** | 3 | 0.00002 | mg/L | N/A | Oct-08-15 | |
| Vanadium, dissolved | < 0.001 | N/A | 0.001 | mg/L | N/A | Oct-08-15 | |
| Zinc, dissolved | **0.007** | 0.075 | 0.004 | mg/L | N/A | Oct-08-15 | |
| Zirconium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Oct-08-15 | |
| ***BCMOE Aggregate Hydrocarbons*** | | | | | | | |
| VPHw | < 100 | 1500 | 100 | µg/L | N/A | N/A | |
| EPHw10-19 | < 250 | 5000 | 250 | µg/L | Oct-10-15 | Oct-13-15 | |
| EPHw19-32 | **532** | N/A | 250 | µg/L | Oct-10-15 | Oct-13-15 | |
| LEPHw | < 250 | 500 | 250 | µg/L | N/A | N/A | |
| HEPHw | **532** | N/A | 250 | µg/L | N/A | N/A | |
| VHw (6-10) | < 100 | 15000 | 100 | µg/L | N/A | Oct-08-15 | |
| ***Polycyclic Aromatic Hydrocarbons (PAH)*** | | | | | | | |
| Acenaphthene | < 0.05 | 60 | 0.05 | µg/L | Oct-10-15 | Oct-13-15 | |
| Acenaphthylene | < 0.20 | N/A | 0.20 | µg/L | Oct-10-15 | Oct-13-15 | |
| Acridine | < 0.10 | 0.5 | 0.10 | µg/L | Oct-10-15 | Oct-13-15 | |
| Anthracene | < 0.01 | 1 | 0.01 | µg/L | Oct-10-15 | Oct-13-15 | |
| Benz (a) anthracene | < 0.01 | 1 | 0.01 | µg/L | Oct-10-15 | Oct-13-15 | |
| Benzo (a) pyrene | < 0.01 | 0.1 | 0.01 | µg/L | Oct-10-15 | Oct-13-15 | |
| Benzo (b) fluoranthene | < 0.05 | N/A | 0.05 | µg/L | Oct-10-15 | Oct-13-15 | |
| Benzo (g,h,i) perylene | < 0.05 | N/A | 0.05 | µg/L | Oct-10-15 | Oct-13-15 | |
| Benzo (k) fluoranthene | < 0.05 | N/A | 0.05 | µg/L | Oct-10-15 | Oct-13-15 | |
| Chrysene | < 0.05 | 1 | 0.05 | µg/L | Oct-10-15 | Oct-13-15 | |
| Dibenz (a,h) anthracene | < 0.05 | N/A | 0.05 | µg/L | Oct-10-15 | Oct-13-15 | |
| Fluoranthene | < 0.03 | 2 | 0.03 | µg/L | Oct-10-15 | Oct-13-15 | |
| Fluorene | < 0.05 | 120 | 0.05 | µg/L | Oct-10-15 | Oct-13-15 | |
| Indeno (1,2,3-cd) pyrene | < 0.05 | N/A | 0.05 | µg/L | Oct-10-15 | Oct-13-15 | |
| Naphthalene | < 0.20 | 10 | 0.20 | µg/L | Oct-10-15 | Oct-13-15 | |
| Phenanthrene | < 0.10 | 3 | 0.10 | µg/L | Oct-10-15 | Oct-13-15 | |
| Pyrene | < 0.02 | 0.2 | 0.02 | µg/L | Oct-10-15 | Oct-13-15 | |
| Quinoline | < 0.10 | 34 | 0.10 | µg/L | Oct-10-15 | Oct-13-15 | |
| *Surrogate: Acridine-d9* | *83* | | *60-140* | % | *Oct-10-15* | *Oct-13-15* | |
| *Surrogate: Naphthalene-d8* | *123* | | *60-140* | % | *Oct-10-15* | *Oct-13-15* | |
| *Surrogate: Perylene-d12* | *116* | | *60-140* | % | *Oct-10-15* | *Oct-13-15* | |
| ***Volatile Organic Compounds (VOC)*** | | | | | | | |
| Benzene | < 0.5 | 1000 | 0.5 | µg/L | N/A | Oct-08-15 | |
| Bromodichloromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| Bromoform | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| Carbon tetrachloride | < 1.0 | 130 | 1.0 | µg/L | N/A | Oct-08-15 | |
| Chlorobenzene | < 1.0 | 13 | 1.0 | µg/L | N/A | Oct-08-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5100220
**REPORTED** Oct-14-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW 4 (5100220-12) [Water] Sampled: Oct-02-15, Continued** | | | | | | | |
| ***Volatile Organic Compounds (VOC), Continued*** | | | | | | | |
| Chloroethane | < 2.0 | N/A | 2.0 | µg/L | N/A | Oct-08-15 | |
| Chloroform | < 1.0 | 20 | 1.0 | µg/L | N/A | Oct-08-15 | |
| Dibromochloromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| Dibromomethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,3-Dichlorobenzene | < 1.0 | 1500 | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,4-Dichlorobenzene | < 1.0 | 260 | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,1-Dichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,2-Dichloroethane | < 1.0 | 1000 | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,1-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| cis-1,2-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| trans-1,2-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,2-Dichloropropane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| cis-1,3-Dichloropropene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| trans-1,3-Dichloropropene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| Ethylbenzene | < 1.0 | 2000 | 1.0 | µg/L | N/A | Oct-08-15 | |
| Methyl tert-butyl ether | < 1.0 | 34000 | 1.0 | µg/L | N/A | Oct-08-15 | |
| Methylene chloride | < 3.0 | 980 | 3.0 | µg/L | N/A | Oct-08-15 | |
| Styrene | < 1.0 | 720 | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,1,2,2-Tetrachloroethane | < 1.0 | 1100 | 1.0 | µg/L | N/A | Oct-08-15 | |
| Tetrachloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| Toluene | < 1.0 | 390 | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,1,1-Trichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,1,2-Trichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| Trichloroethene | < 1.0 | 200 | 1.0 | µg/L | N/A | Oct-08-15 | |
| Trichlorofluoromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| Vinyl chloride | < 2.0 | N/A | 2.0 | µg/L | N/A | Oct-08-15 | |
| Xylenes (total) | < 2.0 | N/A | 2.0 | µg/L | N/A | Oct-08-15 | |
| 1,2-Dibromoethane | < 0.3 | N/A | 0.3 | µg/L | N/A | Oct-08-15 | |
| 1,2-Dichlorobenzene | < 0.5 | 7 | 0.5 | µg/L | N/A | Oct-08-15 | |
| *Surrogate: Toluene-d8* | *74* | | *70-130* | % | *N/A* | *Oct-08-15* | |
| *Surrogate: 4-Bromofluorobenzene* | *62* | | *70-130* | % | *N/A* | *Oct-08-15* | S02 |
| *Surrogate: 1,4-Dichlorobenzene-d4* | *73* | | *70-130* | % | *N/A* | *Oct-08-15* | |
| **Sample ID: MW 6 (5100220-13) [Water] Sampled: Oct-02-15** | | | | | | | |
| ***Anions*** | | | | | | | |
| Bromide | < 0.10 | N/A | 0.10 | mg/L | N/A | Oct-06-15 | |
| Chloride | **46.2** | 1500 | 0.10 | mg/L | N/A | Oct-06-15 | |
| Fluoride | **0.20** | 2 | 0.01 | mg/L | N/A | Oct-06-15 | |
| Nitrate+Nitrite as N | **0.042** | 400 | 0.005 | mg/L | N/A | Oct-07-15 | |
| Sulfate | **126** | 1000 | 1.0 | mg/L | N/A | Oct-06-15 | |
| Nitrite as N | < 0.005 | 0.2 | 0.005 | mg/L | N/A | Oct-05-15 | |
| ***General Parameters*** | | | | | | | |
| pH | **6.05** | N/A | 0.01 | pH units | N/A | Oct-05-15 | HT2 |
| Conductivity (EC) | **542** | N/A | 2 | µS/cm | N/A | Oct-05-15 | |

| | | | |
|---|---|---|---|
| **REPORTED TO** | Morrison Hershfield Limited | **WORK ORDER** | 5100220 |
| **PROJECT** | Whistler Landfill - Spring/Fall | **REPORTED** | Oct-14-15 |

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW 6 (5100220-13) [Water] Sampled: Oct-02-15, Continued** | | | | | | | |
| ***General Parameters, Continued*** | | | | | | | |
| Ammonia as N, Total | **0.146** | N/A | 0.005 | mg/L | N/A | Oct-13-15 | |
| Alkalinity, Total as CaCO3 | **45** | N/A | 1 | mg/L | N/A | Oct-07-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Oct-07-15 | |
| Alkalinity, Bicarbonate as CaCO3 | **45** | N/A | 1 | mg/L | N/A | Oct-07-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Oct-07-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Oct-07-15 | |
| Solids, Total Suspended | **691** | N/A | 2 | mg/L | N/A | Oct-06-15 | |
| BOD, 5-day | < 2 | N/A | 2 | mg/L | Oct-03-15 | Oct-08-15 | BOD2 |
| Chemical Oxygen Demand | **116** | N/A | 20 | mg/L | N/A | Oct-03-15 | |
| Phosphorus, Total as P | **1.37** | N/A | 0.002 | mg/L | Oct-06-15 | Oct-07-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Hardness, Total (Diss. as CaCO3) | **108** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | **0.042** | 400 | 0.010 | mg/L | N/A | N/A | |
| ***Dissolved Metals*** | | | | | | | |
| Aluminum, dissolved | **0.039** | N/A | 0.005 | mg/L | N/A | Oct-08-15 | |
| Antimony, dissolved | < 0.0001 | 0.2 | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Arsenic, dissolved | < 0.0005 | 0.05 | 0.0005 | mg/L | N/A | Oct-08-15 | |
| Barium, dissolved | **0.049** | 5 | 0.005 | mg/L | N/A | Oct-08-15 | |
| Beryllium, dissolved | < 0.0001 | 0.053 | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Bismuth, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Boron, dissolved | **0.016** | 50 | 0.004 | mg/L | N/A | Oct-08-15 | |
| Cadmium, dissolved | **0.00010** | 0.0001 | 0.00001 | mg/L | N/A | Oct-08-15 | |
| Calcium, dissolved | **35.8** | N/A | 0.2 | mg/L | N/A | Oct-08-15 | |
| Chromium, dissolved | < 0.0005 | N/A | 0.0005 | mg/L | N/A | Oct-08-15 | |
| Cobalt, dissolved | **0.00488** | 0.04 | 0.00005 | mg/L | N/A | Oct-08-15 | |
| Copper, dissolved | **0.0028** | 0.02 | 0.0002 | mg/L | N/A | Oct-08-15 | |
| Iron, dissolved | **3.69** | N/A | 0.010 | mg/L | N/A | Oct-08-15 | |
| Lead, dissolved | < 0.0001 | 0.04 | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Lithium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Magnesium, dissolved | **4.51** | N/A | 0.01 | mg/L | N/A | Oct-08-15 | |
| Manganese, dissolved | **0.524** | N/A | 0.0002 | mg/L | N/A | Oct-08-15 | |
| Mercury, dissolved | < 0.00002 | 0.001 | 0.00002 | mg/L | Oct-07-15 | Oct-08-15 | |
| Molybdenum, dissolved | **0.0004** | 10 | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Nickel, dissolved | **0.0018** | 0.25 | 0.0002 | mg/L | N/A | Oct-08-15 | |
| Phosphorus, dissolved | < 0.02 | N/A | 0.02 | mg/L | N/A | Oct-08-15 | |
| Potassium, dissolved | **3.95** | N/A | 0.02 | mg/L | N/A | Oct-08-15 | |
| Selenium, dissolved | < 0.0005 | 0.01 | 0.0005 | mg/L | N/A | Oct-08-15 | |
| Silicon, dissolved | **10.1** | N/A | 0.5 | mg/L | N/A | Oct-08-15 | |
| Silver, dissolved | < 0.00005 | 0.0005 | 0.00005 | mg/L | N/A | Oct-08-15 | |
| Sodium, dissolved | **69.3** | N/A | 0.02 | mg/L | N/A | Oct-08-15 | |
| Strontium, dissolved | **0.297** | N/A | 0.001 | mg/L | N/A | Oct-08-15 | |
| Sulfur, dissolved | **46** | N/A | 1 | mg/L | N/A | Oct-08-15 | |
| Tellurium, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Oct-08-15 | |
| Thallium, dissolved | **0.00005** | 0.003 | 0.00002 | mg/L | N/A | Oct-08-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5100220
**REPORTED** Oct-14-15

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW 6 (5100220-13) [Water] Sampled: Oct-02-15, Continued** | | | | | | | |
| ***Dissolved Metals, Continued*** | | | | | | | |
| Thorium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Oct-08-15 | |
| Tin, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Oct-08-15 | |
| Titanium, dissolved | < 0.005 | 1 | 0.005 | mg/L | N/A | Oct-08-15 | |
| Uranium, dissolved | **0.00005** | 3 | 0.00002 | mg/L | N/A | Oct-08-15 | |
| Vanadium, dissolved | < 0.001 | N/A | 0.001 | mg/L | N/A | Oct-08-15 | |
| Zinc, dissolved | **0.004** | 0.075 | 0.004 | mg/L | N/A | Oct-08-15 | |
| Zirconium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Oct-08-15 | |
| ***BCMOE Aggregate Hydrocarbons*** | | | | | | | |
| VPHw | < 100 | 1500 | 100 | µg/L | N/A | N/A | |
| EPHw10-19 | **277** | 5000 | 250 | µg/L | Oct-07-15 | Oct-07-15 | |
| EPHw19-32 | **1410** | N/A | 250 | µg/L | Oct-07-15 | Oct-07-15 | |
| LEPHw | **277** | 500 | 250 | µg/L | N/A | N/A | |
| HEPHw | **1410** | N/A | 250 | µg/L | N/A | N/A | |
| VHw (6-10) | < 100 | 15000 | 100 | µg/L | N/A | Oct-08-15 | |
| *Surrogate: 2-Methylnonane (EPH)* | *66* | | *60-140* | % | *Oct-07-15* | *Oct-07-15* | |
| ***Polycyclic Aromatic Hydrocarbons (PAH)*** | | | | | | | |
| Acenaphthene | < 0.05 | 60 | 0.05 | µg/L | Oct-07-15 | Oct-07-15 | |
| Acenaphthylene | < 0.20 | N/A | 0.20 | µg/L | Oct-07-15 | Oct-07-15 | |
| Acridine | < 0.10 | 0.5 | 0.10 | µg/L | Oct-07-15 | Oct-07-15 | |
| Anthracene | < 0.01 | 1 | 0.01 | µg/L | Oct-07-15 | Oct-07-15 | |
| Benz (a) anthracene | < 0.01 | 1 | 0.01 | µg/L | Oct-07-15 | Oct-07-15 | |
| Benzo (a) pyrene | **0.32** | 0.1 | 0.01 | µg/L | Oct-07-15 | Oct-07-15 | |
| Benzo (b) fluoranthene | < 0.05 | N/A | 0.05 | µg/L | Oct-07-15 | Oct-07-15 | |
| Benzo (g,h,i) perylene | < 0.05 | N/A | 0.05 | µg/L | Oct-07-15 | Oct-07-15 | |
| Benzo (k) fluoranthene | < 0.05 | N/A | 0.05 | µg/L | Oct-07-15 | Oct-07-15 | |
| Chrysene | < 0.05 | 1 | 0.05 | µg/L | Oct-07-15 | Oct-07-15 | |
| Dibenz (a,h) anthracene | < 0.05 | N/A | 0.05 | µg/L | Oct-07-15 | Oct-07-15 | |
| Fluoranthene | < 0.03 | 2 | 0.03 | µg/L | Oct-07-15 | Oct-07-15 | |
| Fluorene | < 0.05 | 120 | 0.05 | µg/L | Oct-07-15 | Oct-07-15 | |
| Indeno (1,2,3-cd) pyrene | < 0.05 | N/A | 0.05 | µg/L | Oct-07-15 | Oct-07-15 | |
| Naphthalene | < 0.20 | 10 | 0.20 | µg/L | Oct-07-15 | Oct-07-15 | |
| Phenanthrene | < 0.10 | 3 | 0.10 | µg/L | Oct-07-15 | Oct-07-15 | |
| Pyrene | < 0.02 | 0.2 | 0.02 | µg/L | Oct-07-15 | Oct-07-15 | |
| Quinoline | < 0.10 | 34 | 0.10 | µg/L | Oct-07-15 | Oct-07-15 | |
| *Surrogate: Acenaphthene-d10* | *89* | | *60-140* | % | *Oct-07-15* | *Oct-07-15* | |
| *Surrogate: Perylene-d12* | *104* | | *60-140* | % | *Oct-07-15* | *Oct-07-15* | |
| *Surrogate: Phenanthrene-d10* | *80* | | *60-140* | % | *Oct-07-15* | *Oct-07-15* | |
| ***Volatile Organic Compounds (VOC)*** | | | | | | | |
| Benzene | < 0.5 | 1000 | 0.5 | µg/L | N/A | Oct-08-15 | |
| Bromodichloromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| Bromoform | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| Carbon tetrachloride | < 1.0 | 130 | 1.0 | µg/L | N/A | Oct-08-15 | |
| Chlorobenzene | < 1.0 | 13 | 1.0 | µg/L | N/A | Oct-08-15 | |
| Chloroethane | < 2.0 | N/A | 2.0 | µg/L | N/A | Oct-08-15 | |

| | | | |
|---|---|---|---|
| **REPORTED TO** | Morrison Hershfield Limited | **WORK ORDER** | 5100220 |
| **PROJECT** | Whistler Landfill - Spring/Fall | **REPORTED** | Oct-14-15 |

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW 6 (5100220-13) [Water] Sampled: Oct-02-15, Continued** | | | | | | | |
| ***Volatile Organic Compounds (VOC), Continued*** | | | | | | | |
| Chloroform | < 1.0 | 20 | 1.0 | µg/L | N/A | Oct-08-15 | |
| Dibromochloromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| Dibromomethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,3-Dichlorobenzene | < 1.0 | 1500 | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,4-Dichlorobenzene | < 1.0 | 260 | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,1-Dichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,2-Dichloroethane | < 1.0 | 1000 | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,1-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| cis-1,2-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| trans-1,2-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,2-Dichloropropane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| cis-1,3-Dichloropropene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| trans-1,3-Dichloropropene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| Ethylbenzene | < 1.0 | 2000 | 1.0 | µg/L | N/A | Oct-08-15 | |
| Methyl tert-butyl ether | < 1.0 | 34000 | 1.0 | µg/L | N/A | Oct-08-15 | |
| Methylene chloride | < 3.0 | 980 | 3.0 | µg/L | N/A | Oct-08-15 | |
| Styrene | < 1.0 | 720 | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,1,2,2-Tetrachloroethane | < 1.0 | 1100 | 1.0 | µg/L | N/A | Oct-08-15 | |
| Tetrachloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| Toluene | < 1.0 | 390 | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,1,1-Trichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| 1,1,2-Trichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| Trichloroethene | < 1.0 | 200 | 1.0 | µg/L | N/A | Oct-08-15 | |
| Trichlorofluoromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Oct-08-15 | |
| Vinyl chloride | < 2.0 | N/A | 2.0 | µg/L | N/A | Oct-08-15 | |
| Xylenes (total) | < 2.0 | N/A | 2.0 | µg/L | N/A | Oct-08-15 | |
| 1,2-Dibromoethane | < 0.3 | N/A | 0.3 | µg/L | N/A | Oct-08-15 | |
| 1,2-Dichlorobenzene | < 0.5 | 7 | 0.5 | µg/L | N/A | Oct-08-15 | |
| *Surrogate: Toluene-d8* | *85* | | *70-130* | % | *N/A* | *Oct-08-15* | |
| *Surrogate: 4-Bromofluorobenzene* | *61* | | *70-130* | % | *N/A* | *Oct-08-15* | S02 |
| *Surrogate: 1,4-Dichlorobenzene-d4* | *73* | | *70-130* | % | *N/A* | *Oct-08-15* | |

**Sample / Analysis Qualifiers:**

| | |
|---|---|
| BOD2 | The sample dilutions set-up for the BOD analysis did not meet the oxygen depletion criterion of at least 2 mg/L. |
| F1 | The sample was not field-filtered and was therefore filtered through a 0.45 µm membrane in the laboratory and preserved with HNO3 prior to analysis for dissolved metals. |
| HT2 | The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended. |
| S02 | Surrogate recovery outside of control limits. Data accepted based on acceptable recovery of other surrogates. |

| | | | |
|---|---|---|---|
| **REPORTED TO** | Morrison Hershfield Limited | **WORK ORDER** | 5100220 |
| **PROJECT** | Whistler Landfill - Spring/Fall | **REPORTED** | Oct-14-15 |

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- **Method Blank (Blk)**: Laboratory reagent water is carried through sample preparation and analysis steps. Method Blanks indicate that results are free from contamination, i.e. not biased high from sources such as the sample container or the laboratory environment
- **Duplicate (Dup)**: Preparation and analysis of a replicate aliquot of a sample. Duplicates provide a measure of the analytical method's precision, i.e. how reproducible a result is. Duplicates are only reported if they are associated with your sample data.
- **Blank Spike (BS)**: A known amount of standard is carried through sample preparation and analysis steps. Blank Spikes, also known as laboratory control samples (LCS), are prepared from a different source of standard than used for the calibration. They ensure that the calibration is acceptable (i.e. not biased high or low) and also provide a measure of the analytical method's accuracy (i.e. closeness of the result to a target value).
- **Standard Reference Material (SRM)**: A material of similar matrix to the samples, externally certified for the parameter(s) listed. Standard Reference Materials ensure that the preparation steps in the method are adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

| Analyte | Result | MRL | Units | Spike Level | Source Result | % REC | REC Limit | % RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Anions, Batch B5J0057*** | | | | | | | | | | |
| **Blank (B5J0057-BLK1)** | | | | Prepared: Oct-07-15, Analyzed: Oct-07-15 | | | | | | |
| Nitrate+Nitrite as N | < 0.005 | 0.005 | mg/L | | | | | | | |
| **Blank (B5J0057-BLK2)** | | | | Prepared: Oct-07-15, Analyzed: Oct-07-15 | | | | | | |
| Nitrate+Nitrite as N | < 0.005 | 0.005 | mg/L | | | | | | | |
| **LCS (B5J0057-BS1)** | | | | Prepared: Oct-07-15, Analyzed: Oct-07-15 | | | | | | |
| Nitrate+Nitrite as N | 0.505 | 0.005 | mg/L | 0.500 | | 101 | 91-108 | | | |
| **LCS (B5J0057-BS2)** | | | | Prepared: Oct-07-15, Analyzed: Oct-07-15 | | | | | | |
| Nitrate+Nitrite as N | 0.514 | 0.005 | mg/L | 0.500 | | 103 | 91-108 | | | |
| ***Anions, Batch B5J0227*** | | | | | | | | | | |
| **Blank (B5J0227-BLK1)** | | | | Prepared: Oct-05-15, Analyzed: Oct-05-15 | | | | | | |
| Nitrite as N | < 0.005 | 0.005 | mg/L | | | | | | | |
| **LCS (B5J0227-BS1)** | | | | Prepared: Oct-05-15, Analyzed: Oct-05-15 | | | | | | |
| Nitrite as N | 0.050 | 0.005 | mg/L | 0.0500 | | 100 | 90-110 | | | |
| **Duplicate (B5J0227-DUP1)** | | **Source: 5100220-03** | | Prepared: Oct-05-15, Analyzed: Oct-05-15 | | | | | | |
| Nitrite as N | < 0.005 | 0.005 | mg/L | | < 0.005 | | | | 20 | |
| **Matrix Spike (B5J0227-MS1)** | | **Source: 5100220-08** | | Prepared: Oct-05-15, Analyzed: Oct-05-15 | | | | | | |
| Nitrite as N | 0.052 | 0.005 | mg/L | 0.0500 | < 0.005 | 102 | 80-120 | | | |
| ***Anions, Batch B5J0311*** | | | | | | | | | | |
| **Blank (B5J0311-BLK1)** | | | | Prepared: Oct-06-15, Analyzed: Oct-06-15 | | | | | | |
| Bromide | < 0.10 | 0.10 | mg/L | | | | | | | |
| Chloride | < 0.10 | 0.10 | mg/L | | | | | | | |
| Fluoride | < 0.01 | 0.01 | mg/L | | | | | | | |
| Sulfate | < 1.0 | 1.0 | mg/L | | | | | | | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5100220
**REPORTED** Oct-14-15

| Analyte | Result | MRL | Units | Spike Level | Source Result | % REC | REC Limit | % RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Anions, Batch B5J0311, Continued*** | | | | | | | | | | |
| **Blank (B5J0311-BLK2)** | | | | Prepared: Oct-07-15, Analyzed: Oct-07-15 | | | | | | |
| Bromide | < 0.10 | 0.10 | mg/L | | | | | | | |
| Chloride | < 0.10 | 0.10 | mg/L | | | | | | | |
| Fluoride | < 0.01 | 0.01 | mg/L | | | | | | | |
| Sulfate | < 1.0 | 1.0 | mg/L | | | | | | | |
| **Blank (B5J0311-BLK3)** | | | | Prepared: Oct-07-15, Analyzed: Oct-07-15 | | | | | | |
| Bromide | < 0.10 | 0.10 | mg/L | | | | | | | |
| Chloride | < 0.10 | 0.10 | mg/L | | | | | | | |
| Fluoride | < 0.01 | 0.01 | mg/L | | | | | | | |
| Sulfate | < 1.0 | 1.0 | mg/L | | | | | | | |
| **LCS (B5J0311-BS1)** | | | | Prepared: Oct-06-15, Analyzed: Oct-06-15 | | | | | | |
| Bromide | 3.91 | 0.10 | mg/L | 4.00 | | 98 | 85-115 | | | |
| Chloride | 16.2 | 0.10 | mg/L | 16.0 | | 101 | 85-115 | | | |
| Fluoride | 3.90 | 0.01 | mg/L | 4.00 | | 97 | 85-115 | | | |
| Sulfate | 16.1 | 1.0 | mg/L | 16.0 | | 101 | 85-115 | | | |
| **LCS (B5J0311-BS2)** | | | | Prepared: Oct-07-15, Analyzed: Oct-07-15 | | | | | | |
| Bromide | 4.04 | 0.10 | mg/L | 4.00 | | 101 | 85-115 | | | |
| Chloride | 16.2 | 0.10 | mg/L | 16.0 | | 101 | 85-115 | | | |
| Fluoride | 3.98 | 0.01 | mg/L | 4.00 | | 100 | 85-115 | | | |
| Sulfate | 16.0 | 1.0 | mg/L | 16.0 | | 100 | 85-115 | | | |
| **LCS (B5J0311-BS3)** | | | | Prepared: Oct-07-15, Analyzed: Oct-07-15 | | | | | | |
| Bromide | 4.02 | 0.10 | mg/L | 4.00 | | 100 | 85-115 | | | |
| Chloride | 15.9 | 0.10 | mg/L | 16.0 | | 99 | 85-115 | | | |
| Fluoride | 3.95 | 0.01 | mg/L | 4.00 | | 99 | 85-115 | | | |
| Sulfate | 16.0 | 1.0 | mg/L | 16.0 | | 100 | 85-115 | | | |
| ***BCMOE Aggregate Hydrocarbons, Batch B5J0381*** | | | | | | | | | | |
| **Blank (B5J0381-BLK1)** | | | | Prepared: Oct-07-15, Analyzed: Oct-07-15 | | | | | | |
| EPHw10-19 | < 250 | 250 | µg/L | | | | | | | |
| EPHw19-32 | < 250 | 250 | µg/L | | | | | | | |
| *Surrogate: 2-Methylnonane (EPH)* | *292* | | *µg/L* | *436* | | *67* | *60-140* | | | |
| **LCS (B5J0381-BS2)** | | | | Prepared: Oct-07-15, Analyzed: Oct-07-15 | | | | | | |
| EPHw10-19 | 13800 | 250 | µg/L | 15400 | | 90 | 70-130 | | | |
| EPHw19-32 | 18800 | 250 | µg/L | 22200 | | 85 | 70-130 | | | |
| *Surrogate: 2-Methylnonane (EPH)* | *393* | | *µg/L* | *436* | | *90* | *60-140* | | | |
| ***BCMOE Aggregate Hydrocarbons, Batch B5J0387*** | | | | | | | | | | |
| **Blank (B5J0387-BLK1)** | | | | Prepared: Oct-07-15, Analyzed: Oct-07-15 | | | | | | |
| VHw (6-10) | < 100 | 100 | µg/L | | | | | | | |
| **LCS (B5J0387-BS2)** | | | | Prepared: Oct-07-15, Analyzed: Oct-07-15 | | | | | | |
| VHw (6-10) | 2920 | 100 | µg/L | 2970 | | 98 | 80-120 | | | |
| ***BCMOE Aggregate Hydrocarbons, Batch B5J0575*** | | | | | | | | | | |
| **Blank (B5J0575-BLK1)** | | | | Prepared: Oct-09-15, Analyzed: Oct-12-15 | | | | | | |
| EPHw10-19 | < 250 | 250 | µg/L | | | | | | | |
| EPHw19-32 | < 250 | 250 | µg/L | | | | | | | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5100220
**REPORTED** Oct-14-15

| Analyte | Result | MRL | Units | Spike Level | Source Result | % REC | REC Limit | % RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Dissolved Metals, Batch B5J0306*** | | | | | | | | | | |
| **Blank (B5J0306-BLK1)** | | | | Prepared: Oct-08-15, Analyzed: Oct-08-15 | | | | | | |
| Aluminum, dissolved | < 0.005 | 0.005 | mg/L | | | | | | | |
| Antimony, dissolved | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Arsenic, dissolved | < 0.0005 | 0.0005 | mg/L | | | | | | | |
| Barium, dissolved | < 0.005 | 0.005 | mg/L | | | | | | | |
| Beryllium, dissolved | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Bismuth, dissolved | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Boron, dissolved | < 0.004 | 0.004 | mg/L | | | | | | | |
| Cadmium, dissolved | < 0.00001 | 0.00001 | mg/L | | | | | | | |
| Calcium, dissolved | < 0.2 | 0.2 | mg/L | | | | | | | |
| Chromium, dissolved | < 0.0005 | 0.0005 | mg/L | | | | | | | |
| Cobalt, dissolved | < 0.00005 | 0.00005 | mg/L | | | | | | | |
| Copper, dissolved | < 0.0002 | 0.0002 | mg/L | | | | | | | |
| Iron, dissolved | < 0.010 | 0.010 | mg/L | | | | | | | |
| Lead, dissolved | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Lithium, dissolved | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Magnesium, dissolved | < 0.01 | 0.01 | mg/L | | | | | | | |
| Manganese, dissolved | < 0.0002 | 0.0002 | mg/L | | | | | | | |
| Molybdenum, dissolved | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Nickel, dissolved | < 0.0002 | 0.0002 | mg/L | | | | | | | |
| Phosphorus, dissolved | < 0.02 | 0.02 | mg/L | | | | | | | |
| Potassium, dissolved | < 0.02 | 0.02 | mg/L | | | | | | | |
| Selenium, dissolved | < 0.0005 | 0.0005 | mg/L | | | | | | | |
| Silicon, dissolved | < 0.5 | 0.5 | mg/L | | | | | | | |
| Silver, dissolved | < 0.00005 | 0.00005 | mg/L | | | | | | | |
| Sodium, dissolved | < 0.02 | 0.02 | mg/L | | | | | | | |
| Strontium, dissolved | < 0.001 | 0.001 | mg/L | | | | | | | |
| Sulfur, dissolved | < 1 | 1 | mg/L | | | | | | | |
| Tellurium, dissolved | < 0.0002 | 0.0002 | mg/L | | | | | | | |
| Thallium, dissolved | < 0.00002 | 0.00002 | mg/L | | | | | | | |
| Thorium, dissolved | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Tin, dissolved | < 0.0002 | 0.0002 | mg/L | | | | | | | |
| Titanium, dissolved | < 0.005 | 0.005 | mg/L | | | | | | | |
| Uranium, dissolved | < 0.00002 | 0.00002 | mg/L | | | | | | | |
| Vanadium, dissolved | < 0.001 | 0.001 | mg/L | | | | | | | |
| Zinc, dissolved | < 0.004 | 0.004 | mg/L | | | | | | | |
| Zirconium, dissolved | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| **Duplicate (B5J0306-DUP1)** | | | | **Source: 5100220-06** | Prepared: Oct-08-15, Analyzed: Oct-08-15 | | | | | |
| Aluminum, dissolved | 0.022 | 0.005 | mg/L | | 0.020 | | | | 11 | |
| Antimony, dissolved | 0.0002 | 0.0001 | mg/L | | 0.0002 | | | | 44 | |
| Arsenic, dissolved | < 0.0005 | 0.0005 | mg/L | | < 0.0005 | | | | 8 | |
| Barium, dissolved | 0.069 | 0.005 | mg/L | | 0.069 | | | < 1 | 7 | |
| Beryllium, dissolved | < 0.0001 | 0.0001 | mg/L | | < 0.0001 | | | | 14 | |
| Bismuth, dissolved | < 0.0001 | 0.0001 | mg/L | | < 0.0001 | | | | 20 | |
| Boron, dissolved | 0.065 | 0.004 | mg/L | | 0.066 | | | 1 | 13 | |
| Cadmium, dissolved | 0.00012 | 0.00001 | mg/L | | 0.00012 | | | < 1 | 27 | |
| Calcium, dissolved | 137 | 0.2 | mg/L | | 137 | | | < 1 | 8 | |
| Chromium, dissolved | < 0.0005 | 0.0005 | mg/L | | < 0.0005 | | | | 14 | |
| Cobalt, dissolved | 0.00087 | 0.00005 | mg/L | | 0.00086 | | | 2 | 10 | |
| Copper, dissolved | 0.0352 | 0.0002 | mg/L | | 0.0340 | | | 3 | 28 | |
| Iron, dissolved | 0.027 | 0.010 | mg/L | | 0.024 | | | | 14 | |
| Lead, dissolved | < 0.0001 | 0.0001 | mg/L | | < 0.0001 | | | | 26 | |
| Lithium, dissolved | 0.0005 | 0.0001 | mg/L | | 0.0005 | | | < 1 | 14 | |
| Magnesium, dissolved | 13.2 | 0.01 | mg/L | | 13.0 | | | 2 | 6 | |
| Manganese, dissolved | 0.453 | 0.0002 | mg/L | | 0.446 | | | 2 | 9 | |
| Molybdenum, dissolved | 0.0009 | 0.0001 | mg/L | | 0.0008 | | | 5 | 19 | |
| Nickel, dissolved | 0.0029 | 0.0002 | mg/L | | 0.0029 | | | < 1 | 21 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5100220
**REPORTED** Oct-14-15

| Analyte | Result | MRL | Units | Spike Level | Source Result | % REC | REC Limit | % RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Dissolved Metals, Batch B5J0306, Continued*** | | | | | | | | | | |
| **Duplicate (B5J0306-DUP1), Continued** | | **Source: 5100220-06** | | Prepared: Oct-08-15, Analyzed: Oct-08-15 | | | | | | |
| Phosphorus, dissolved | 0.16 | 0.02 | mg/L | | 0.15 | | | 5 | 14 | |
| Potassium, dissolved | 6.89 | 0.02 | mg/L | | 6.74 | | | 2 | 8 | |
| Selenium, dissolved | < 0.0005 | 0.0005 | mg/L | | < 0.0005 | | | | 36 | |
| Silicon, dissolved | 14.5 | 0.5 | mg/L | | 14.0 | | | 4 | 12 | |
| Silver, dissolved | < 0.00005 | 0.00005 | mg/L | | < 0.00005 | | | | 20 | |
| Sodium, dissolved | 20.9 | 0.02 | mg/L | | 20.4 | | | 2 | 6 | |
| Strontium, dissolved | 0.549 | 0.001 | mg/L | | 0.539 | | | 2 | 6 | |
| Sulfur, dissolved | 69 | 1 | mg/L | | 69 | | | < 1 | 26 | |
| Tellurium, dissolved | < 0.0002 | 0.0002 | mg/L | | < 0.0002 | | | | 20 | |
| Thallium, dissolved | < 0.00002 | 0.00002 | mg/L | | 0.00002 | | | | 13 | |
| Thorium, dissolved | < 0.0001 | 0.0001 | mg/L | | < 0.0001 | | | | 30 | |
| Tin, dissolved | < 0.0002 | 0.0002 | mg/L | | < 0.0002 | | | | 6 | |
| Titanium, dissolved | < 0.005 | 0.005 | mg/L | | < 0.005 | | | | 20 | |
| Uranium, dissolved | 0.00007 | 0.00002 | mg/L | | 0.00007 | | | | 14 | |
| Vanadium, dissolved | < 0.001 | 0.001 | mg/L | | < 0.001 | | | | 20 | |
| Zinc, dissolved | 0.032 | 0.004 | mg/L | | 0.030 | | | 4 | 11 | |
| Zirconium, dissolved | 0.0001 | 0.0001 | mg/L | | 0.0001 | | | | 36 | |
| **Reference (B5J0306-SRM1)** | | | | Prepared: Oct-08-15, Analyzed: Oct-08-15 | | | | | | |
| Aluminum, dissolved | 0.229 | 0.005 | mg/L | 0.233 | | 98 | 58-142 | | | |
| Antimony, dissolved | 0.0455 | 0.0001 | mg/L | 0.0430 | | 106 | 75-125 | | | |
| Arsenic, dissolved | 0.444 | 0.0005 | mg/L | 0.438 | | 101 | 81-119 | | | |
| Barium, dissolved | 3.37 | 0.005 | mg/L | 3.35 | | 101 | 83-117 | | | |
| Beryllium, dissolved | 0.212 | 0.0001 | mg/L | 0.213 | | 100 | 80-120 | | | |
| Boron, dissolved | 1.80 | 0.004 | mg/L | 1.74 | | 104 | 74-117 | | | |
| Cadmium, dissolved | 0.217 | 0.00001 | mg/L | 0.224 | | 97 | 83-117 | | | |
| Calcium, dissolved | 8.2 | 0.2 | mg/L | 7.69 | | 106 | 76-124 | | | |
| Chromium, dissolved | 0.439 | 0.0005 | mg/L | 0.437 | | 101 | 81-119 | | | |
| Cobalt, dissolved | 0.135 | 0.00005 | mg/L | 0.128 | | 105 | 76-124 | | | |
| Copper, dissolved | 0.866 | 0.0002 | mg/L | 0.844 | | 103 | 84-116 | | | |
| Iron, dissolved | 1.32 | 0.010 | mg/L | 1.29 | | 102 | 74-126 | | | |
| Lead, dissolved | 0.115 | 0.0001 | mg/L | 0.112 | | 103 | 72-128 | | | |
| Lithium, dissolved | 0.104 | 0.0001 | mg/L | 0.104 | | 100 | 60-140 | | | |
| Magnesium, dissolved | 6.89 | 0.01 | mg/L | 6.92 | | 100 | 81-119 | | | |
| Manganese, dissolved | 0.355 | 0.0002 | mg/L | 0.345 | | 103 | 84-116 | | | |
| Molybdenum, dissolved | 0.450 | 0.0001 | mg/L | 0.426 | | 106 | 83-117 | | | |
| Nickel, dissolved | 0.862 | 0.0002 | mg/L | 0.840 | | 103 | 74-126 | | | |
| Phosphorus, dissolved | 0.49 | 0.02 | mg/L | 0.495 | | 98 | 68-132 | | | |
| Potassium, dissolved | 3.26 | 0.02 | mg/L | 3.19 | | 102 | 74-126 | | | |
| Selenium, dissolved | 0.0340 | 0.0005 | mg/L | 0.0331 | | 103 | 70-130 | | | |
| Sodium, dissolved | 18.9 | 0.02 | mg/L | 19.1 | | 99 | 72-128 | | | |
| Strontium, dissolved | 0.910 | 0.001 | mg/L | 0.916 | | 99 | 84-113 | | | |
| Thallium, dissolved | 0.0390 | 0.00002 | mg/L | 0.0393 | | 99 | 57-143 | | | |
| Uranium, dissolved | 0.263 | 0.00002 | mg/L | 0.266 | | 99 | 85-115 | | | |
| Vanadium, dissolved | 0.860 | 0.001 | mg/L | 0.869 | | 99 | 87-113 | | | |
| Zinc, dissolved | 0.880 | 0.004 | mg/L | 0.881 | | 100 | 72-128 | | | |
| ***Dissolved Metals, Batch B5J0374*** | | | | | | | | | | |
| **Blank (B5J0374-BLK1)** | | | | Prepared: Oct-07-15, Analyzed: Oct-08-15 | | | | | | |
| Mercury, dissolved | < 0.00002 | 0.00002 | mg/L | | | | | | | |
| **Blank (B5J0374-BLK2)** | | | | Prepared: Oct-07-15, Analyzed: Oct-08-15 | | | | | | |
| Mercury, dissolved | < 0.00002 | 0.00002 | mg/L | | | | | | | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5100220
**REPORTED** Oct-14-15

| Analyte | Result | MRL | Units | Spike Level | Source Result | % REC | REC Limit | % RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Dissolved Metals, Batch B5J0374, Continued*** | | | | | | | | | | |
| **Reference (B5J0374-SRM1)** | | | | Prepared: Oct-07-15, Analyzed: Oct-08-15 | | | | | | |
| Mercury, dissolved | 0.00377 | 0.00002 | mg/L | 0.00456 | | 83 | 50-150 | | | |
| **Reference (B5J0374-SRM2)** | | | | Prepared: Oct-07-15, Analyzed: Oct-08-15 | | | | | | |
| Mercury, dissolved | 0.00348 | 0.00002 | mg/L | 0.00456 | | 76 | 50-150 | | | |
| ***General Parameters, Batch B5J0186*** | | | | | | | | | | |
| **Blank (B5J0186-BLK1)** | | | | Prepared: Oct-03-15, Analyzed: Oct-08-15 | | | | | | |
| BOD, 5-day | < 2 | 2 | mg/L | | | | | | | |
| **LCS (B5J0186-BS1)** | | | | Prepared: Oct-03-15, Analyzed: Oct-08-15 | | | | | | |
| BOD, 5-day | 190 | 2 | mg/L | 198 | | 96 | 85-115 | | | |
| **Reference (B5J0186-SRM1)** | | | | Prepared: Oct-03-15, Analyzed: Oct-08-15 | | | | | | |
| BOD, 5-day | 178 | 2 | mg/L | 198 | | 90 | 80-120 | | | |
| ***General Parameters, Batch B5J0188*** | | | | | | | | | | |
| **Blank (B5J0188-BLK1)** | | | | Prepared: Oct-03-15, Analyzed: Oct-03-15 | | | | | | |
| Chemical Oxygen Demand | < 20 | 20 | mg/L | | | | | | | |
| **LCS (B5J0188-BS1)** | | | | Prepared: Oct-03-15, Analyzed: Oct-03-15 | | | | | | |
| Chemical Oxygen Demand | 497 | 20 | mg/L | 500 | | 99 | 90-110 | | | |
| ***General Parameters, Batch B5J0251*** | | | | | | | | | | |
| **Blank (B5J0251-BLK1)** | | | | Prepared: Oct-05-15, Analyzed: Oct-05-15 | | | | | | |
| Conductivity (EC) | < 2 | 2 | µS/cm | | | | | | | |
| **Blank (B5J0251-BLK2)** | | | | Prepared: Oct-05-15, Analyzed: Oct-05-15 | | | | | | |
| Conductivity (EC) | < 2 | 2 | µS/cm | | | | | | | |
| **LCS (B5J0251-BS1)** | | | | Prepared: Oct-05-15, Analyzed: Oct-05-15 | | | | | | |
| Conductivity (EC) | 148 | 2 | µS/cm | 147 | | 100 | 88-112 | | | |
| **LCS (B5J0251-BS2)** | | | | Prepared: Oct-05-15, Analyzed: Oct-05-15 | | | | | | |
| Conductivity (EC) | 146 | 2 | µS/cm | 147 | | 99 | 88-112 | | | |
| **Duplicate (B5J0251-DUP2)** | | **Source: 5100220-08** | | Prepared: Oct-05-15, Analyzed: Oct-05-15 | | | | | | |
| Conductivity (EC) | 760 | 2 | µS/cm | | 763 | | | < 1 | 7 | |
| **Reference (B5J0251-SRM1)** | | | | Prepared: Oct-05-15, Analyzed: Oct-05-15 | | | | | | |
| Conductivity (EC) | 483 | 2 | µS/cm | 500 | | 97 | 90-110 | | | |
| **Reference (B5J0251-SRM2)** | | | | Prepared: Oct-05-15, Analyzed: Oct-05-15 | | | | | | |
| Conductivity (EC) | 482 | 2 | µS/cm | 500 | | 96 | 90-110 | | | |
| ***General Parameters, Batch B5J0252*** | | | | | | | | | | |
| **Duplicate (B5J0252-DUP2)** | | **Source: 5100220-02** | | Prepared: Oct-05-15, Analyzed: Oct-05-15 | | | | | | |
| pH | 2.89 | 0.01 | pH units | | 2.90 | | | < 1 | 4 | |
| **Reference (B5J0252-SRM1)** | | | | Prepared: Oct-05-15, Analyzed: Oct-05-15 | | | | | | |
| pH | 7.02 | 0.01 | pH units | 7.00 | | 100 | 98-102 | | | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5100220
**REPORTED** Oct-14-15

| Analyte | Result | MRL | Units | Spike Level | Source Result | % REC | REC Limit | % RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| ***General Parameters, Batch B5J0252, Continued*** | | | | | | | | | | |
| **Reference (B5J0252-SRM2)** | | | | Prepared: Oct-05-15, Analyzed: Oct-05-15 | | | | | | |
| pH | 7.01 | 0.01 | pH units | 7.00 | | 100 | 98-102 | | | |
| ***General Parameters, Batch B5J0288*** | | | | | | | | | | |
| **Blank (B5J0288-BLK1)** | | | | Prepared: Oct-06-15, Analyzed: Oct-06-15 | | | | | | |
| Solids, Total Suspended | < 1 | 2 | mg/L | | | | | | | |
| **Blank (B5J0288-BLK2)** | | | | Prepared: Oct-06-15, Analyzed: Oct-06-15 | | | | | | |
| Solids, Total Suspended | < 1 | 2 | mg/L | | | | | | | |
| **LCS (B5J0288-BS1)** | | | | Prepared: Oct-06-15, Analyzed: Oct-06-15 | | | | | | |
| Solids, Total Suspended | 52 | 2 | mg/L | 49.2 | | 105 | 83-107 | | | |
| **LCS (B5J0288-BS2)** | | | | Prepared: Oct-06-15, Analyzed: Oct-06-15 | | | | | | |
| Solids, Total Suspended | 55 | 2 | mg/L | 53.2 | | 103 | 83-107 | | | |
| ***General Parameters, Batch B5J0332*** | | | | | | | | | | |
| **Blank (B5J0332-BLK1)** | | | | Prepared: Oct-06-15, Analyzed: Oct-06-15 | | | | | | |
| Alkalinity, Total as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Alkalinity, Bicarbonate as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Alkalinity, Carbonate as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| **Blank (B5J0332-BLK2)** | | | | Prepared: Oct-06-15, Analyzed: Oct-06-15 | | | | | | |
| Alkalinity, Total as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Alkalinity, Bicarbonate as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Alkalinity, Carbonate as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| **LCS (B5J0332-BS1)** | | | | Prepared: Oct-06-15, Analyzed: Oct-06-15 | | | | | | |
| Alkalinity, Total as CaCO3 | 102 | 1 | mg/L | 100 | | 102 | 96-108 | | | |
| **LCS (B5J0332-BS2)** | | | | Prepared: Oct-06-15, Analyzed: Oct-06-15 | | | | | | |
| Alkalinity, Total as CaCO3 | 102 | 1 | mg/L | 100 | | 102 | 96-108 | | | |
| **Duplicate (B5J0332-DUP1)** | | **Source: 5100220-01** | | Prepared: Oct-06-15, Analyzed: Oct-06-15 | | | | | | |
| Alkalinity, Total as CaCO3 | 70 | 1 | mg/L | | 71 | | | < 1 | 10 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | 1 | mg/L | | < 1 | | | | 10 | |
| Alkalinity, Bicarbonate as CaCO3 | 70 | 1 | mg/L | | 71 | | | < 1 | 10 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | 1 | mg/L | | < 1 | | | | 10 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | 1 | mg/L | | < 1 | | | | 10 | |
| ***General Parameters, Batch B5J0336*** | | | | | | | | | | |
| **Blank (B5J0336-BLK1)** | | | | Prepared: Oct-06-15, Analyzed: Oct-07-15 | | | | | | |
| Phosphorus, Total as P | < 0.002 | 0.002 | mg/L | | | | | | | |
| **Blank (B5J0336-BLK2)** | | | | Prepared: Oct-06-15, Analyzed: Oct-07-15 | | | | | | |
| Phosphorus, Total as P | < 0.002 | 0.002 | mg/L | | | | | | | |
| **LCS (B5J0336-BS1)** | | | | Prepared: Oct-06-15, Analyzed: Oct-07-15 | | | | | | |
| Phosphorus, Total as P | 0.100 | 0.002 | mg/L | 0.100 | | 100 | 75-112 | | | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5100220
**REPORTED** Oct-14-15

| Analyte | Result | MRL | Units | Spike Level | Source Result | % REC | REC Limit | % RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| ***General Parameters, Batch B5J0336, Continued*** | | | | | | | | | | |
| **LCS (B5J0336-BS2)** | | | | Prepared: Oct-06-15, Analyzed: Oct-07-15 | | | | | | |
| Phosphorus, Total as P | 0.100 | 0.002 | mg/L | 0.100 | | 100 | 75-112 | | | |
| ***General Parameters, Batch B5J0366*** | | | | | | | | | | |
| **Blank (B5J0366-BLK1)** | | | | Prepared: Oct-07-15, Analyzed: Oct-07-15 | | | | | | |
| Alkalinity, Total as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Alkalinity, Bicarbonate as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Alkalinity, Carbonate as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| **Blank (B5J0366-BLK2)** | | | | Prepared: Oct-07-15, Analyzed: Oct-07-15 | | | | | | |
| Alkalinity, Total as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Alkalinity, Bicarbonate as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Alkalinity, Carbonate as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| **LCS (B5J0366-BS1)** | | | | Prepared: Oct-07-15, Analyzed: Oct-07-15 | | | | | | |
| Alkalinity, Total as CaCO3 | 100 | 1 | mg/L | 100 | | 100 | 96-108 | | | |
| **LCS (B5J0366-BS2)** | | | | Prepared: Oct-07-15, Analyzed: Oct-07-15 | | | | | | |
| Alkalinity, Total as CaCO3 | 102 | 1 | mg/L | 100 | | 102 | 96-108 | | | |
| **Duplicate (B5J0366-DUP1)** | | | **Source: 5100220-09** | Prepared: Oct-07-15, Analyzed: Oct-07-15 | | | | | | |
| Alkalinity, Total as CaCO3 | 256 | 1 | mg/L | | 256 | | | < 1 | 10 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | 1 | mg/L | | < 1 | | | | 10 | |
| Alkalinity, Bicarbonate as CaCO3 | 256 | 1 | mg/L | | 256 | | | < 1 | 10 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | 1 | mg/L | | < 1 | | | | 10 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | 1 | mg/L | | < 1 | | | | 10 | |
| ***General Parameters, Batch B5J0384*** | | | | | | | | | | |
| **Blank (B5J0384-BLK1)** | | | | Prepared: Oct-07-15, Analyzed: Oct-07-15 | | | | | | |
| Alkalinity, Total as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Alkalinity, Bicarbonate as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Alkalinity, Carbonate as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| **LCS (B5J0384-BS1)** | | | | Prepared: Oct-07-15, Analyzed: Oct-07-15 | | | | | | |
| Alkalinity, Total as CaCO3 | 103 | 1 | mg/L | 100 | | 103 | 96-108 | | | |
| ***General Parameters, Batch B5J0673*** | | | | | | | | | | |
| **Blank (B5J0673-BLK1)** | | | | Prepared: Oct-13-15, Analyzed: Oct-13-15 | | | | | | |
| Ammonia as N, Total | < 0.005 | 0.005 | mg/L | | | | | | | |
| **LCS (B5J0673-BS1)** | | | | Prepared: Oct-13-15, Analyzed: Oct-13-15 | | | | | | |
| Ammonia as N, Total | 1.00 | 0.005 | mg/L | 1.00 | | 100 | 86-111 | | | |
| **Duplicate (B5J0673-DUP1)** | | | **Source: 5100220-02** | Prepared: Oct-13-15, Analyzed: Oct-13-15 | | | | | | |
| Ammonia as N, Total | 1.70 | 0.005 | mg/L | | 1.69 | | | < 1 | 15 | |
| **Matrix Spike (B5J0673-MS1)** | | | **Source: 5100220-02** | Prepared: Oct-13-15, Analyzed: Oct-13-15 | | | | | | |
| Ammonia as N, Total | 1.99 | 0.005 | mg/L | 0.250 | 1.69 | 119 | 76-121 | | | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5100220
**REPORTED** Oct-14-15

| Analyte | Result | MRL | Units | Spike Level | Source Result | % REC | REC Limit | % RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Polycyclic Aromatic Hydrocarbons (PAH), Batch B5J0381*** | | | | | | | | | | |
| **Blank (B5J0381-BLK1)** | | | | Prepared: Oct-07-15, Analyzed: Oct-07-15 | | | | | | |
| Acenaphthene | < 0.05 | 0.05 | µg/L | | | | | | | |
| Acenaphthylene | < 0.20 | 0.20 | µg/L | | | | | | | |
| Acridine | < 0.10 | 0.10 | µg/L | | | | | | | |
| Anthracene | < 0.01 | 0.01 | µg/L | | | | | | | |
| Benz (a) anthracene | < 0.01 | 0.01 | µg/L | | | | | | | |
| Benzo (a) pyrene | < 0.01 | 0.01 | µg/L | | | | | | | |
| Benzo (b) fluoranthene | < 0.05 | 0.05 | µg/L | | | | | | | |
| Benzo (g,h,i) perylene | < 0.05 | 0.05 | µg/L | | | | | | | |
| Benzo (k) fluoranthene | < 0.05 | 0.05 | µg/L | | | | | | | |
| Chrysene | < 0.05 | 0.05 | µg/L | | | | | | | |
| Dibenz (a,h) anthracene | < 0.05 | 0.05 | µg/L | | | | | | | |
| Fluoranthene | < 0.03 | 0.03 | µg/L | | | | | | | |
| Fluorene | < 0.05 | 0.05 | µg/L | | | | | | | |
| Indeno (1,2,3-cd) pyrene | < 0.05 | 0.05 | µg/L | | | | | | | |
| Naphthalene | < 0.20 | 0.20 | µg/L | | | | | | | |
| Phenanthrene | < 0.10 | 0.10 | µg/L | | | | | | | |
| Pyrene | < 0.02 | 0.02 | µg/L | | | | | | | |
| Quinoline | < 0.10 | 0.10 | µg/L | | | | | | | |
| *Surrogate: Acridine-d9* | *3.36* | | *µg/L* | *4.44* | | *76* | *60-140* | | | |
| *Surrogate: Naphthalene-d8* | *4.44* | | *µg/L* | *4.44* | | *100* | *60-140* | | | |
| *Surrogate: Perylene-d12* | *4.68* | | *µg/L* | *4.44* | | *105* | *60-140* | | | |
| **LCS (B5J0381-BS1)** | | | | Prepared: Oct-07-15, Analyzed: Oct-07-15 | | | | | | |
| Acenaphthene | 4.90 | 0.05 | µg/L | 4.44 | | 110 | 70-130 | | | |
| Acenaphthylene | 5.27 | 0.20 | µg/L | 4.44 | | 119 | 70-130 | | | |
| Acridine | 3.93 | 0.10 | µg/L | 4.44 | | 88 | 60-140 | | | |
| Anthracene | 4.24 | 0.01 | µg/L | 4.44 | | 95 | 70-130 | | | |
| Benz (a) anthracene | 3.86 | 0.01 | µg/L | 4.44 | | 87 | 70-130 | | | |
| Benzo (a) pyrene | 4.16 | 0.01 | µg/L | 4.44 | | 94 | 70-130 | | | |
| Benzo (b) fluoranthene | 3.71 | 0.05 | µg/L | 4.44 | | 84 | 70-130 | | | |
| Benzo (g,h,i) perylene | 3.89 | 0.05 | µg/L | 4.44 | | 88 | 70-130 | | | |
| Benzo (k) fluoranthene | 3.79 | 0.05 | µg/L | 4.44 | | 85 | 70-130 | | | |
| Chrysene | 3.76 | 0.05 | µg/L | 4.44 | | 85 | 70-130 | | | |
| Dibenz (a,h) anthracene | 3.49 | 0.05 | µg/L | 4.44 | | 78 | 70-130 | | | |
| Fluoranthene | 4.08 | 0.03 | µg/L | 4.44 | | 92 | 70-130 | | | |
| Fluorene | 4.48 | 0.05 | µg/L | 4.44 | | 101 | 70-130 | | | |
| Indeno (1,2,3-cd) pyrene | 3.96 | 0.05 | µg/L | 4.44 | | 89 | 70-130 | | | |
| Naphthalene | 4.11 | 0.20 | µg/L | 4.44 | | 93 | 70-130 | | | |
| Phenanthrene | 4.28 | 0.10 | µg/L | 4.44 | | 96 | 70-130 | | | |
| Pyrene | 4.04 | 0.02 | µg/L | 4.44 | | 91 | 70-130 | | | |
| Quinoline | 4.91 | 0.10 | µg/L | 4.44 | | 111 | 70-130 | | | |
| *Surrogate: Acridine-d9* | *3.49* | | *µg/L* | *4.44* | | *78* | *60-140* | | | |
| *Surrogate: Naphthalene-d8* | *4.44* | | *µg/L* | *4.44* | | *100* | *60-140* | | | |
| *Surrogate: Perylene-d12* | *4.83* | | *µg/L* | *4.44* | | *109* | *60-140* | | | |
| **LCS Dup (B5J0381-BSD1)** | | | | Prepared: Oct-07-15, Analyzed: Oct-07-15 | | | | | | |
| Acenaphthene | 5.19 | 0.05 | µg/L | 4.44 | | 117 | 70-130 | 6 | 20 | |
| Acenaphthylene | 5.55 | 0.20 | µg/L | 4.44 | | 125 | 70-130 | 5 | 20 | |
| Acridine | 4.31 | 0.10 | µg/L | 4.44 | | 97 | 60-140 | 9 | 20 | |
| Anthracene | 4.53 | 0.01 | µg/L | 4.44 | | 102 | 70-130 | 7 | 20 | |
| Benz (a) anthracene | 4.18 | 0.01 | µg/L | 4.44 | | 94 | 70-130 | 8 | 20 | |
| Benzo (a) pyrene | 4.69 | 0.01 | µg/L | 4.44 | | 105 | 70-130 | 12 | 20 | |
| Benzo (b) fluoranthene | 4.07 | 0.05 | µg/L | 4.44 | | 92 | 70-130 | 9 | 20 | |
| Benzo (g,h,i) perylene | 4.15 | 0.05 | µg/L | 4.44 | | 93 | 70-130 | 6 | 20 | |
| Benzo (k) fluoranthene | 4.10 | 0.05 | µg/L | 4.44 | | 92 | 70-130 | 8 | 20 | |
| Chrysene | 4.02 | 0.05 | µg/L | 4.44 | | 90 | 70-130 | 7 | 20 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5100220
**REPORTED** Oct-14-15

| Analyte | Result | MRL | Units | Spike Level | Source Result | % REC | REC Limit | % RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Polycyclic Aromatic Hydrocarbons (PAH), Batch B5J0381, Continued*** | | | | | | | | | | |
| **LCS Dup (B5J0381-BSD1), Continued** | | | | Prepared: Oct-07-15, Analyzed: Oct-07-15 | | | | | | |
| Dibenz (a,h) anthracene | 3.78 | 0.05 | µg/L | 4.44 | | 85 | 70-130 | 8 | 20 | |
| Fluoranthene | 4.54 | 0.03 | µg/L | 4.44 | | 102 | 70-130 | 11 | 20 | |
| Fluorene | 4.77 | 0.05 | µg/L | 4.44 | | 107 | 70-130 | 6 | 20 | |
| Indeno (1,2,3-cd) pyrene | 4.30 | 0.05 | µg/L | 4.44 | | 97 | 70-130 | 8 | 20 | |
| Naphthalene | 4.13 | 0.20 | µg/L | 4.44 | | 93 | 70-130 | < 1 | 20 | |
| Phenanthrene | 4.54 | 0.10 | µg/L | 4.44 | | 102 | 70-130 | 6 | 20 | |
| Pyrene | 4.49 | 0.02 | µg/L | 4.44 | | 101 | 70-130 | 11 | 20 | |
| Quinoline | 4.92 | 0.10 | µg/L | 4.44 | | 111 | 70-130 | < 1 | 20 | |
| *Surrogate: Acridine-d9* | *3.86* | | *µg/L* | *4.44* | | *87* | *60-140* | | | |
| *Surrogate: Naphthalene-d8* | *4.44* | | *µg/L* | *4.44* | | *100* | *60-140* | | | |
| *Surrogate: Perylene-d12* | *4.89* | | *µg/L* | *4.44* | | *110* | *60-140* | | | |
| ***Polycyclic Aromatic Hydrocarbons (PAH), Batch B5J0575*** | | | | | | | | | | |
| **Blank (B5J0575-BLK1)** | | | | Prepared: Oct-09-15, Analyzed: Oct-12-15 | | | | | | |
| Acenaphthene | < 0.05 | 0.05 | µg/L | | | | | | | |
| Acenaphthylene | < 0.20 | 0.20 | µg/L | | | | | | | |
| Acridine | < 0.10 | 0.10 | µg/L | | | | | | | |
| Anthracene | < 0.01 | 0.01 | µg/L | | | | | | | |
| Benz (a) anthracene | < 0.01 | 0.01 | µg/L | | | | | | | |
| Benzo (a) pyrene | < 0.01 | 0.01 | µg/L | | | | | | | |
| Benzo (b) fluoranthene | < 0.05 | 0.05 | µg/L | | | | | | | |
| Benzo (g,h,i) perylene | < 0.05 | 0.05 | µg/L | | | | | | | |
| Benzo (k) fluoranthene | < 0.05 | 0.05 | µg/L | | | | | | | |
| Chrysene | < 0.05 | 0.05 | µg/L | | | | | | | |
| Dibenz (a,h) anthracene | < 0.05 | 0.05 | µg/L | | | | | | | |
| Fluoranthene | < 0.03 | 0.03 | µg/L | | | | | | | |
| Fluorene | < 0.05 | 0.05 | µg/L | | | | | | | |
| Indeno (1,2,3-cd) pyrene | < 0.05 | 0.05 | µg/L | | | | | | | |
| Naphthalene | < 0.20 | 0.20 | µg/L | | | | | | | |
| Phenanthrene | < 0.10 | 0.10 | µg/L | | | | | | | |
| Pyrene | < 0.02 | 0.02 | µg/L | | | | | | | |
| Quinoline | < 0.10 | 0.10 | µg/L | | | | | | | |
| *Surrogate: Acridine-d9* | *3.08* | | *µg/L* | *4.44* | | *69* | *60-140* | | | |
| *Surrogate: Perylene-d12* | *4.85* | | *µg/L* | *4.44* | | *109* | *60-140* | | | |
| *Surrogate: Phenanthrene-d10* | *2.71* | | *µg/L* | *4.44* | | *61* | *60-140* | | | |
| ***Total Recoverable Metals, Batch B5J0246*** | | | | | | | | | | |
| **Blank (B5J0246-BLK1)** | | | | Prepared: Oct-05-15, Analyzed: Oct-05-15 | | | | | | |
| Aluminum, total | < 0.005 | 0.005 | mg/L | | | | | | | |
| Antimony, total | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Arsenic, total | < 0.0005 | 0.0005 | mg/L | | | | | | | |
| Barium, total | < 0.005 | 0.005 | mg/L | | | | | | | |
| Beryllium, total | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Bismuth, total | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Boron, total | < 0.004 | 0.004 | mg/L | | | | | | | |
| Cadmium, total | < 0.00001 | 0.00001 | mg/L | | | | | | | |
| Calcium, total | < 0.2 | 0.2 | mg/L | | | | | | | |
| Chromium, total | < 0.0005 | 0.0005 | mg/L | | | | | | | |
| Cobalt, total | < 0.00005 | 0.00005 | mg/L | | | | | | | |
| Copper, total | < 0.0002 | 0.0002 | mg/L | | | | | | | |
| Iron, total | < 0.01 | 0.01 | mg/L | | | | | | | |
| Lead, total | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Lithium, total | < 0.0001 | 0.0001 | mg/L | | | | | | | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5100220
**REPORTED** Oct-14-15

| Analyte | Result | MRL | Units | Spike Level | Source Result | % REC | REC Limit | % RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Total Recoverable Metals, Batch B5J0246, Continued*** | | | | | | | | | | |
| **Blank (B5J0246-BLK1), Continued** | | | | Prepared: Oct-05-15, Analyzed: Oct-05-15 | | | | | | |
| Magnesium, total | < 0.01 | 0.01 | mg/L | | | | | | | |
| Manganese, total | < 0.0002 | 0.0002 | mg/L | | | | | | | |
| Molybdenum, total | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Nickel, total | < 0.0002 | 0.0002 | mg/L | | | | | | | |
| Phosphorus, total | < 0.02 | 0.02 | mg/L | | | | | | | |
| Potassium, total | < 0.02 | 0.02 | mg/L | | | | | | | |
| Selenium, total | < 0.0005 | 0.0005 | mg/L | | | | | | | |
| Silicon, total | < 0.5 | 0.5 | mg/L | | | | | | | |
| Silver, total | < 0.00005 | 0.00005 | mg/L | | | | | | | |
| Sodium, total | < 0.02 | 0.02 | mg/L | | | | | | | |
| Strontium, total | < 0.001 | 0.001 | mg/L | | | | | | | |
| Sulfur, total | < 1 | 1 | mg/L | | | | | | | |
| Tellurium, total | < 0.0002 | 0.0002 | mg/L | | | | | | | |
| Thallium, total | < 0.00002 | 0.00002 | mg/L | | | | | | | |
| Thorium, total | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Tin, total | < 0.0002 | 0.0002 | mg/L | | | | | | | |
| Titanium, total | < 0.005 | 0.005 | mg/L | | | | | | | |
| Uranium, total | < 0.00002 | 0.00002 | mg/L | | | | | | | |
| Vanadium, total | < 0.001 | 0.001 | mg/L | | | | | | | |
| Zinc, total | < 0.004 | 0.004 | mg/L | | | | | | | |
| Zirconium, total | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| **Reference (B5J0246-SRM1)** | | | | Prepared: Oct-05-15, Analyzed: Oct-05-15 | | | | | | |
| Aluminum, total | 0.328 | 0.005 | mg/L | 0.296 | | 111 | 81-129 | | | |
| Antimony, total | 0.0543 | 0.0001 | mg/L | 0.0505 | | 107 | 88-114 | | | |
| Arsenic, total | 0.139 | 0.0005 | mg/L | 0.122 | | 114 | 88-114 | | | |
| Barium, total | 0.762 | 0.005 | mg/L | 0.777 | | 98 | 72-104 | | | |
| Beryllium, total | 0.0444 | 0.0001 | mg/L | 0.0488 | | 91 | 76-131 | | | |
| Boron, total | 2.97 | 0.004 | mg/L | 3.40 | | 87 | 75-121 | | | |
| Cadmium, total | 0.0503 | 0.00001 | mg/L | 0.0490 | | 103 | 89-111 | | | |
| Calcium, total | 10.5 | 0.2 | mg/L | 10.2 | | 103 | 86-121 | | | |
| Chromium, total | 0.241 | 0.0005 | mg/L | 0.242 | | 100 | 89-114 | | | |
| Cobalt, total | 0.0372 | 0.00005 | mg/L | 0.0366 | | 102 | 91-113 | | | |
| Copper, total | 0.485 | 0.0002 | mg/L | 0.487 | | 100 | 91-115 | | | |
| Iron, total | 0.54 | 0.01 | mg/L | 0.469 | | 116 | 77-124 | | | |
| Lead, total | 0.204 | 0.0001 | mg/L | 0.193 | | 106 | 92-113 | | | |
| Lithium, total | 0.361 | 0.0001 | mg/L | 0.390 | | 92 | 85-115 | | | |
| Magnesium, total | 3.87 | 0.01 | mg/L | 3.31 | | 117 | 78-120 | | | |
| Manganese, total | 0.123 | 0.0002 | mg/L | 0.109 | | 113 | 90-114 | | | |
| Molybdenum, total | 0.189 | 0.0001 | mg/L | 0.197 | | 96 | 90-111 | | | |
| Nickel, total | 0.234 | 0.0002 | mg/L | 0.242 | | 97 | 90-111 | | | |
| Phosphorus, total | 0.25 | 0.02 | mg/L | 0.233 | | 109 | 85-115 | | | |
| Potassium, total | 6.15 | 0.02 | mg/L | 5.93 | | 104 | 84-113 | | | |
| Selenium, total | 0.117 | 0.0005 | mg/L | 0.115 | | 102 | 85-115 | | | |
| Sodium, total | 8.89 | 0.02 | mg/L | 7.64 | | 116 | 82-123 | | | |
| Strontium, total | 0.403 | 0.001 | mg/L | 0.363 | | 111 | 88-112 | | | |
| Thallium, total | 0.0847 | 0.00002 | mg/L | 0.0794 | | 107 | 91-114 | | | |
| Uranium, total | 0.0194 | 0.00002 | mg/L | 0.0192 | | 101 | 85-120 | | | |
| Vanadium, total | 0.368 | 0.001 | mg/L | 0.376 | | 98 | 86-111 | | | |
| Zinc, total | 2.68 | 0.004 | mg/L | 2.42 | | 111 | 85-111 | | | |
| ***Total Recoverable Metals, Batch B5J0483*** | | | | | | | | | | |
| **Blank (B5J0483-BLK1)** | | | | Prepared: Oct-08-15, Analyzed: Oct-08-15 | | | | | | |
| Mercury, total | < 0.00002 | 0.00002 | mg/L | | | | | | | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5100220
**REPORTED** Oct-14-15

| Analyte | Result | MRL | Units | Spike Level | Source Result | % REC | REC Limit | % RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Total Recoverable Metals, Batch B5J0483, Continued*** | | | | | | | | | | |
| **Duplicate (B5J0483-DUP1)** | | **Source: 5100220-01** | | Prepared: Oct-08-15, Analyzed: Oct-08-15 | | | | | | |
| Mercury, total | < 0.00002 | 0.00002 | mg/L | | < 0.00002 | | | | 20 | |
| **Matrix Spike (B5J0483-MS1)** | | **Source: 5100220-02** | | Prepared: Oct-08-15, Analyzed: Oct-08-15 | | | | | | |
| Mercury, total | 0.00022 | 0.00002 | mg/L | 0.000250 | < 0.00002 | 89 | 70-130 | | | |
| **Reference (B5J0483-SRM1)** | | | | Prepared: Oct-08-15, Analyzed: Oct-08-15 | | | | | | |
| Mercury, total | 0.00363 | 0.00002 | mg/L | 0.00456 | | 80 | 50-150 | | | |
| ***Volatile Organic Compounds (VOC), Batch B5J0387*** | | | | | | | | | | |
| **Blank (B5J0387-BLK1)** | | | | Prepared: Oct-07-15, Analyzed: Oct-07-15 | | | | | | |
| Acetone | < 10.0 | 10.0 | µg/L | | | | | | | |
| Benzene | < 0.5 | 0.5 | µg/L | | | | | | | |
| Bromodichloromethane | < 1.0 | 1.0 | µg/L | | | | | | | |
| Bromoform | < 1.0 | 1.0 | µg/L | | | | | | | |
| Bromomethane | < 2.0 | 2.0 | µg/L | | | | | | | |
| 2-Butanone (MEK) | < 5.0 | 5.0 | µg/L | | | | | | | |
| Carbon tetrachloride | < 1.0 | 1.0 | µg/L | | | | | | | |
| Chlorobenzene | < 1.0 | 1.0 | µg/L | | | | | | | |
| Chloroethane | < 2.0 | 2.0 | µg/L | | | | | | | |
| Chloroform | < 1.0 | 1.0 | µg/L | | | | | | | |
| Chloromethane | < 2.0 | 2.0 | µg/L | | | | | | | |
| Dibromochloromethane | < 1.0 | 1.0 | µg/L | | | | | | | |
| Dibromomethane | < 1.0 | 1.0 | µg/L | | | | | | | |
| 1,3-Dichlorobenzene | < 1.0 | 1.0 | µg/L | | | | | | | |
| 1,4-Dichlorobenzene | < 1.0 | 1.0 | µg/L | | | | | | | |
| 1,1-Dichloroethane | < 1.0 | 1.0 | µg/L | | | | | | | |
| 1,2-Dichloroethane | < 1.0 | 1.0 | µg/L | | | | | | | |
| 1,1-Dichloroethene | < 1.0 | 1.0 | µg/L | | | | | | | |
| cis-1,2-Dichloroethene | < 1.0 | 1.0 | µg/L | | | | | | | |
| trans-1,2-Dichloroethene | < 1.0 | 1.0 | µg/L | | | | | | | |
| 1,2-Dichloropropane | < 1.0 | 1.0 | µg/L | | | | | | | |
| cis-1,3-Dichloropropene | < 1.0 | 1.0 | µg/L | | | | | | | |
| trans-1,3-Dichloropropene | < 1.0 | 1.0 | µg/L | | | | | | | |
| Ethylbenzene | < 1.0 | 1.0 | µg/L | | | | | | | |
| Methyl tert-butyl ether | < 1.0 | 1.0 | µg/L | | | | | | | |
| Methylene chloride | < 3.0 | 3.0 | µg/L | | | | | | | |
| 4-Methyl-2-Pentanone (MIBK) | < 10.0 | 10.0 | µg/L | | | | | | | |
| Styrene | < 1.0 | 1.0 | µg/L | | | | | | | |
| 1,1,1,2-Tetrachloroethane | < 1.0 | 1.0 | µg/L | | | | | | | |
| 1,1,2,2-Tetrachloroethane | < 1.0 | 1.0 | µg/L | | | | | | | |
| Tetrachloroethene | < 1.0 | 1.0 | µg/L | | | | | | | |
| Toluene | < 1.0 | 1.0 | µg/L | | | | | | | |
| 1,1,1-Trichloroethane | < 1.0 | 1.0 | µg/L | | | | | | | |
| 1,1,2-Trichloroethane | < 1.0 | 1.0 | µg/L | | | | | | | |
| Trichloroethene | < 1.0 | 1.0 | µg/L | | | | | | | |
| Trichlorofluoromethane | < 1.0 | 1.0 | µg/L | | | | | | | |
| Vinyl chloride | < 2.0 | 2.0 | µg/L | | | | | | | |
| m,p-Xylene | < 1.0 | 1.0 | µg/L | | | | | | | |
| o-Xylene | < 1.0 | 1.0 | µg/L | | | | | | | |
| Xylenes (total) | < 2.0 | 2.0 | µg/L | | | | | | | |
| 1,2-Dibromoethane | < 0.3 | 0.3 | µg/L | | | | | | | |
| 1,2-Dichlorobenzene | < 0.5 | 0.5 | µg/L | | | | | | | |
| *Surrogate: Toluene-d8* | *30.4* | | *µg/L* | *25.0* | | *122* | *70-130* | | | |
| *Surrogate: 4-Bromofluorobenzene* | *27.3* | | *µg/L* | *31.5* | | *87* | *70-130* | | | |
| *Surrogate: 1,4-Dichlorobenzene-d4* | *25.6* | | *µg/L* | *25.0* | | *102* | *70-130* | | | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5100220
**REPORTED** Oct-14-15

| Analyte | Result | MRL | Units | Spike Level | Source Result | % REC | REC Limit | % RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Volatile Organic Compounds (VOC), Batch B5J0387, Continued*** | | | | | | | | | | |
| **LCS (B5J0387-BS1)** | | | | Prepared: Oct-07-15, Analyzed: Oct-07-15 | | | | | | |
| Acetone | 20.9 | 10.0 | µg/L | 20.0 | | 104 | 70-130 | | | |
| Benzene | 23.7 | 0.5 | µg/L | 20.0 | | 119 | 70-130 | | | |
| Bromodichloromethane | 21.9 | 1.0 | µg/L | 20.0 | | 109 | 70-130 | | | |
| Bromoform | 21.1 | 1.0 | µg/L | 20.0 | | 106 | 70-130 | | | |
| Bromomethane | 25.1 | 2.0 | µg/L | 20.0 | | 126 | 70-130 | | | |
| 2-Butanone (MEK) | 22.9 | 5.0 | µg/L | 20.0 | | 114 | 70-130 | | | |
| Carbon tetrachloride | 22.4 | 1.0 | µg/L | 20.0 | | 112 | 70-130 | | | |
| Chlorobenzene | 22.4 | 1.0 | µg/L | 20.0 | | 112 | 70-130 | | | |
| Chloroethane | 16.8 | 2.0 | µg/L | 20.0 | | 84 | 70-130 | | | |
| Chloroform | 23.7 | 1.0 | µg/L | 20.0 | | 118 | 70-130 | | | |
| Chloromethane | 23.2 | 2.0 | µg/L | 20.0 | | 116 | 70-130 | | | |
| Dibromochloromethane | 21.8 | 1.0 | µg/L | 20.0 | | 109 | 70-130 | | | |
| Dibromomethane | 22.2 | 1.0 | µg/L | 20.0 | | 111 | 70-130 | | | |
| 1,3-Dichlorobenzene | 22.1 | 1.0 | µg/L | 20.0 | | 111 | 70-130 | | | |
| 1,4-Dichlorobenzene | 21.9 | 1.0 | µg/L | 20.0 | | 110 | 70-130 | | | |
| 1,1-Dichloroethane | 22.8 | 1.0 | µg/L | 20.0 | | 114 | 70-130 | | | |
| 1,2-Dichloroethane | 23.5 | 1.0 | µg/L | 20.0 | | 118 | 70-130 | | | |
| 1,1-Dichloroethene | 23.7 | 1.0 | µg/L | 20.0 | | 119 | 70-130 | | | |
| cis-1,2-Dichloroethene | 21.7 | 1.0 | µg/L | 20.0 | | 108 | 70-130 | | | |
| trans-1,2-Dichloroethene | 22.1 | 1.0 | µg/L | 20.0 | | 111 | 70-130 | | | |
| 1,2-Dichloropropane | 21.8 | 1.0 | µg/L | 20.0 | | 109 | 70-130 | | | |
| cis-1,3-Dichloropropene | 20.4 | 1.0 | µg/L | 20.0 | | 102 | 70-130 | | | |
| trans-1,3-Dichloropropene | 21.4 | 1.0 | µg/L | 20.0 | | 107 | 70-130 | | | |
| Ethylbenzene | 23.0 | 1.0 | µg/L | 20.0 | | 115 | 70-130 | | | |
| Methyl tert-butyl ether | 21.6 | 1.0 | µg/L | 20.0 | | 108 | 70-130 | | | |
| Methylene chloride | 23.0 | 3.0 | µg/L | 20.0 | | 115 | 70-130 | | | |
| 4-Methyl-2-Pentanone (MIBK) | 21.8 | 10.0 | µg/L | 20.0 | | 109 | 70-130 | | | |
| Styrene | 22.0 | 1.0 | µg/L | 20.0 | | 110 | 70-130 | | | |
| 1,1,1,2-Tetrachloroethane | 21.2 | 1.0 | µg/L | 20.0 | | 106 | 70-130 | | | |
| 1,1,2,2-Tetrachloroethane | 23.9 | 1.0 | µg/L | 20.0 | | 120 | 70-130 | | | |
| Tetrachloroethene | 16.7 | 1.0 | µg/L | 20.0 | | 83 | 70-130 | | | |
| Toluene | 22.9 | 1.0 | µg/L | 20.0 | | 115 | 70-130 | | | |
| 1,1,1-Trichloroethane | 23.6 | 1.0 | µg/L | 20.0 | | 118 | 70-130 | | | |
| 1,1,2-Trichloroethane | 22.8 | 1.0 | µg/L | 20.0 | | 114 | 70-130 | | | |
| Trichloroethene | 22.4 | 1.0 | µg/L | 20.0 | | 112 | 70-130 | | | |
| Trichlorofluoromethane | 25.0 | 1.0 | µg/L | 20.0 | | 125 | 70-130 | | | |
| Vinyl chloride | 19.1 | 2.0 | µg/L | 20.0 | | 96 | 70-130 | | | |
| m,p-Xylene | 48.0 | 1.0 | µg/L | 40.0 | | 120 | 70-130 | | | |
| o-Xylene | 22.7 | 1.0 | µg/L | 20.0 | | 114 | 70-130 | | | |
| Xylenes (total) | 70.7 | 2.0 | µg/L | 60.0 | | 118 | 70-130 | | | |
| 1,2-Dibromoethane | 21.6 | 0.3 | µg/L | 20.0 | | 108 | 70-130 | | | |
| 1,2-Dichlorobenzene | 22.5 | 0.5 | µg/L | 20.0 | | 113 | 70-130 | | | |
| *Surrogate: Toluene-d8* | *29.4* | | *µg/L* | *25.0* | | *118* | *70-130* | | | |
| *Surrogate: 4-Bromofluorobenzene* | *27.8* | | *µg/L* | *31.5* | | *88* | *70-130* | | | |
| *Surrogate: 1,4-Dichlorobenzene-d4* | *30.5* | | *µg/L* | *25.0* | | *122* | *70-130* | | | |

# CERTIFICATE OF ANALYSIS


**REPORTED TO** Morrison Hershfield Limited
310 - 4321 Still Creek Drive
Burnaby, BC V5C 6S7

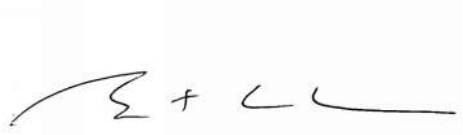
**TEL** (604) 454-0402
**FAX** (604) 454-0403


| | | | |
|---|---|---|---|
| **ATTENTION** | Josie Gilson | **WORK ORDER** | 5121430 |
| **PO NUMBER** | | **RECEIVED / TEMP** | Dec-22-15 15:15 / 7°C |
| **PROJECT** | Whistler Landfill - Spring/Fall | **REPORTED** | Jan-03-16 |
| **PROJECT INFO** | 5104016 | **COC NUMBER** | B41774 |

**General Comments:**

CARO Analytical Services employs methods which are conducted according to procedures accepted by appropriate regulatory agencies, and/or are conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts, except where otherwise agreed to by the client.

The results in this report apply to the samples analyzed in accordance with the Chain of Custody or Sample Requisition document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Samples will be disposed of 30 days after the test report has been issued unless otherwise agreed to in writing.



Authorized By: **Brent Coates, B.Sc.**
Division Manager, Richmond

***If you have any questions or concerns, please contact your Account Manager:***
***Kathleen Fyffe, Dipl T (kfyffe@caro.ca)***

# ANALYSIS INFORMATION

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5121430
**REPORTED** Jan-03-16

| Analysis Description | Method Reference | Technique | Location |
|---|---|---|---|
| Alkalinity in Water (Speciated) | APHA 2320 B* | Titration with H2SO4 | Kelowna |
| Ammonia-N in Water (total) | APHA 4500-NH3 G* | Automated Colorimetry (Phenate) | Kelowna |
| Anions in Water by IC | APHA 4110 B | Ion Chromatography with Chemical Suppression of Eluent Conductivity | Kelowna |
| BOD (5-day) | APHA 5210 B | Dissolved Oxygen Meter | Richmond |
| Chemical Oxygen Demand | APHA 5220 D | Closed Reflux, Colorimetry | Richmond |
| Conductivity in Water | APHA 2510 B | Conductivity Meter | Richmond |
| Dissolved Metals | APHA 3030 B / APHA 3125 B | 0.45 µm Filtration / Inductively Coupled Plasma Mass Spectrometry (ICP-MS) | Richmond |
| EPH in Water | EPA 3511* / BCMOE EPHw | Hexane MicroExtraction (Base/Neutral) / Gas Chromatography (GC-FID) | Richmond |
| Hardness (as CaCO3) | APHA 2340 B | Calculation: 2.497 [Ca] + 4.118 [Mg] | N/A |
| HEPHw | BCMOE HEPHw | Calculation: EPHw19-32 - [ B(a)AN + B(a)P + FLAN + PY ] | N/A |
| LEPHw | BCMOE LEPHw | Calculation: EPHw10-19 - [ ANA + ACR + ANTH + FL + NA + PH ] | N/A |
| Mercury, dissolved by CVAFS | EPA 245.7* | BrCl2 Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS) | Richmond |
| Mercury, total by CVAFS | EPA 245.7* | BrCl2 Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS) | Richmond |
| Nitrate+Nitrite-N in Water | APHA 4500-NO3- F | Automated Colorimetry (Cadmium Reduction) | Kelowna |
| Nitrite-N in Water, colorimetric | APHA 4500-NO2 B | Colorimetry | Richmond |
| PAH in Water | EPA 3511* / EPA 8270D | Hexane MicroExtraction (Base/Neutral) / GC-MS (SIM) | Richmond |
| pH in Water | APHA 4500-H+ B | Electrometry | Richmond |
| Total Phosphorus in Water | APHA 4500-P B.5 / APHA 4500-P F | Persulfate Digestion / Automated Colorimetry (Ascorbic Acid) | Kelowna |
| Total Recoverable Metals | APHA 3030E* / APHA 3125 B | HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma Mass Spectrometry (ICP-MS) | Richmond |
| Total Suspended Solids | APHA 2540 D* | Gravimetry (Dried at 103-105C) | Richmond |
| VH in Water | EPA 5030B / BCMOE VHw | Purge&Trap / Gas Chromatography (GC-FID) | Richmond |
| VOC in Water | EPA 5030B / EPA 8260B | Purge&Trap / GC-MS (SIM) | Richmond |
| VPHw | BCMOE VPH | Calculation: VH - (Benzene + Toluene + Ethylbenzene + Xylenes + Styrene) | N/A |

***Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method***

**Method Reference Descriptions:**

| | |
|---|---|
| APHA | Standard Methods for the Examination of Water and Wastewater, 22nd Edition, American Public Health Association/American Water Works Association/Water Environment Federation |
| BCMOE | British Columbia Environmental Laboratory Manual, 2013, British Columbia Ministry of Environment |
| EPA | United States Environmental Protection Agency Test Methods |

# ANALYSIS INFORMATION

| | | | |
|---|---|---|---|
| **REPORTED TO** | Morrison Hershfield Limited | **WORK ORDER** | 5121430 |
| **PROJECT** | Whistler Landfill - Spring/Fall | **REPORTED** | Jan-03-16 |

**Glossary of Terms:**

| | |
|---|---|
| MRL | Method Reporting Limit |
| < | Less than the Reported Detection Limit (RDL) - the RDL may be higher than the MRL due to various factors such as dilutions, limited sample volume, high moisture, or interferences |
| mg/L | Milligrams per litre |
| pH units | pH < 7 = acidic, ph > 7 = basic |
| µg/L | Micrograms per litre |
| µS/cm | Microsiemens per centimetre |

**Standards / Guidelines Referenced in this Report:**

BC CSR Schedule 4/5/6/11 Residential/Aquatic Water

Website: http://www.env.gov.bc.ca/epd/remediation/leg_regs/csr.htm

***Note: In some cases, the values displayed on the report represent the lowest guideline and are to be verified by the end user***

# SAMPLE ANALYTICAL DATA

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5121430
**REPORTED** Jan-03-16

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: SFC 2 (5121430-01) [Water] Sampled: Dec-21-15** | | | | | | | |
| ***Anions*** | | | | | | | |
| Bromide | < 0.10 | N/A | 0.10 | mg/L | N/A | Dec-23-15 | |
| Chloride | **14.3** | 1500 | 0.10 | mg/L | N/A | Dec-23-15 | |
| Fluoride | **0.10** | 2 | 0.05 | mg/L | N/A | Dec-23-15 | |
| Nitrate+Nitrite as N | **0.375** | 400 | 0.005 | mg/L | N/A | Dec-23-15 | |
| Sulfate | **78.7** | 1000 | 1.0 | mg/L | N/A | Dec-23-15 | |
| Nitrate as N | **0.502** | 400 | 0.010 | mg/L | N/A | Dec-23-15 | |
| Nitrite as N | < 0.010 | 0.2 | 0.010 | mg/L | N/A | Dec-23-15 | |
| ***General Parameters*** | | | | | | | |
| pH | **6.52** | N/A | 0.01 | pH units | N/A | Dec-23-15 | HT2 |
| Conductivity (EC) | **346** | N/A | 2 | µS/cm | N/A | Dec-23-15 | |
| Ammonia as N, Total | **0.492** | N/A | 0.005 | mg/L | N/A | Dec-24-15 | |
| Alkalinity, Total as CaCO3 | **57** | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Alkalinity, Bicarbonate as CaCO3 | **57** | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Solids, Total Suspended | **27** | N/A | 2 | mg/L | N/A | Dec-23-15 | |
| BOD, 5-day | < 2 | N/A | 2 | mg/L | Dec-24-15 | Dec-29-15 | BOD2 |
| Chemical Oxygen Demand | < 20 | N/A | 20 | mg/L | N/A | Dec-23-15 | |
| Phosphorus, Total as P | **0.025** | N/A | 0.002 | mg/L | Dec-24-15 | Dec-30-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Hardness, Total (Total as CaCO3) | **131** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | **0.375** | 400 | 0.010 | mg/L | N/A | N/A | |
| ***Total Recoverable Metals*** | | | | | | | |
| Aluminum, total | **1.79** | N/A | 0.005 | mg/L | Dec-23-15 | Dec-23-15 | |
| Antimony, total | **0.0004** | 0.2 | 0.0001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Arsenic, total | < 0.0005 | 0.05 | 0.0005 | mg/L | Dec-23-15 | Dec-23-15 | |
| Barium, total | **0.052** | 5 | 0.005 | mg/L | Dec-23-15 | Dec-23-15 | |
| Beryllium, total | < 0.0001 | 0.053 | 0.0001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Bismuth, total | < 0.0001 | N/A | 0.0001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Boron, total | **0.038** | 50 | 0.004 | mg/L | Dec-23-15 | Dec-23-15 | |
| Cadmium, total | **0.00010** | 0.0001 | 0.00001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Calcium, total | **44.4** | N/A | 0.2 | mg/L | Dec-23-15 | Dec-23-15 | |
| Chromium, total | **0.0006** | N/A | 0.0005 | mg/L | Dec-23-15 | Dec-23-15 | |
| Cobalt, total | **0.0105** | 0.04 | 0.00005 | mg/L | Dec-23-15 | Dec-23-15 | |
| Copper, total | **0.0347** | 0.02 | 0.0002 | mg/L | Dec-23-15 | Dec-23-15 | |
| Iron, total | **4.86** | N/A | 0.01 | mg/L | Dec-23-15 | Dec-23-15 | |
| Lead, total | < 0.0001 | 0.04 | 0.0001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Lithium, total | **0.0006** | N/A | 0.0001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Magnesium, total | **4.94** | N/A | 0.01 | mg/L | Dec-23-15 | Dec-23-15 | |
| Manganese, total | **1.11** | N/A | 0.0002 | mg/L | Dec-23-15 | Dec-23-15 | |
| Mercury, total | < 0.00002 | 0.001 | 0.00002 | mg/L | Dec-23-15 | Dec-23-15 | |
| Molybdenum, total | **0.0037** | 10 | 0.0001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Nickel, total | **0.0047** | 0.25 | 0.0002 | mg/L | Dec-23-15 | Dec-23-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5121430
**REPORTED** Jan-03-16

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: SFC 2 (5121430-01) [Water] Sampled: Dec-21-15, Continued** | | | | | | | |
| ***Total Recoverable Metals, Continued*** | | | | | | | |
| Phosphorus, total | < 0.02 | N/A | 0.02 | mg/L | Dec-23-15 | Dec-23-15 | |
| Potassium, total | **4.63** | N/A | 0.02 | mg/L | Dec-23-15 | Dec-23-15 | |
| Selenium, total | < 0.0005 | 0.01 | 0.0005 | mg/L | Dec-23-15 | Dec-23-15 | |
| Silicon, total | **5.3** | N/A | 0.5 | mg/L | Dec-23-15 | Dec-23-15 | |
| Silver, total | < 0.00005 | 0.0005 | 0.00005 | mg/L | Dec-23-15 | Dec-23-15 | |
| Sodium, total | **16.1** | N/A | 0.02 | mg/L | Dec-23-15 | Dec-23-15 | |
| Strontium, total | **0.255** | N/A | 0.001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Sulfur, total | **31** | N/A | 1 | mg/L | Dec-23-15 | Dec-23-15 | |
| Tellurium, total | < 0.0002 | N/A | 0.0002 | mg/L | Dec-23-15 | Dec-23-15 | |
| Thallium, total | < 0.00002 | 0.003 | 0.00002 | mg/L | Dec-23-15 | Dec-23-15 | |
| Thorium, total | **0.0002** | N/A | 0.0001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Tin, total | < 0.0002 | N/A | 0.0002 | mg/L | Dec-23-15 | Dec-23-15 | |
| Titanium, total | < 0.005 | 1 | 0.005 | mg/L | Dec-23-15 | Dec-23-15 | |
| Uranium, total | **0.00012** | 3 | 0.00002 | mg/L | Dec-23-15 | Dec-23-15 | |
| Vanadium, total | < 0.001 | N/A | 0.001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Zinc, total | **0.016** | 0.075 | 0.004 | mg/L | Dec-23-15 | Dec-23-15 | |
| Zirconium, total | < 0.0001 | N/A | 0.0001 | mg/L | Dec-23-15 | Dec-23-15 | |
| **Sample ID: SFC 2B (5121430-02) [Water] Sampled: Dec-21-15** | | | | | | | |
| ***Anions*** | | | | | | | |
| Bromide | < 0.10 | N/A | 0.10 | mg/L | N/A | Dec-23-15 | |
| Chloride | **8.19** | 1500 | 0.10 | mg/L | N/A | Dec-23-15 | |
| Fluoride | **0.40** | 2 | 0.05 | mg/L | N/A | Dec-23-15 | |
| Nitrate+Nitrite as N | **4.18** | 400 | 0.005 | mg/L | N/A | Dec-23-15 | |
| Sulfate | **380** | 1000 | 1.0 | mg/L | N/A | Dec-23-15 | |
| Nitrate as N | **3.81** | 400 | 0.010 | mg/L | N/A | Dec-23-15 | |
| Nitrite as N | **0.016** | 0.2 | 0.010 | mg/L | N/A | Dec-23-15 | |
| ***General Parameters*** | | | | | | | |
| pH | **4.48** | N/A | 0.01 | pH units | N/A | Dec-23-15 | HT2 |
| Conductivity (EC) | **649** | N/A | 2 | µS/cm | N/A | Dec-23-15 | |
| Ammonia as N, Total | **0.929** | N/A | 0.005 | mg/L | N/A | Dec-24-15 | |
| Alkalinity, Total as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Alkalinity, Bicarbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Solids, Total Suspended | **42** | N/A | 2 | mg/L | N/A | Dec-23-15 | |
| BOD, 5-day | < 2 | N/A | 2 | mg/L | Dec-24-15 | Dec-29-15 | BOD2 |
| Chemical Oxygen Demand | < 20 | N/A | 20 | mg/L | N/A | Dec-23-15 | |
| Phosphorus, Total as P | **0.175** | N/A | 0.002 | mg/L | Dec-24-15 | Dec-30-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Hardness, Total (Total as CaCO3) | **223** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | **4.16** | 400 | 0.030 | mg/L | N/A | N/A | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5121430
**REPORTED** Jan-03-16

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: SFC 2B (5121430-02) [Water] Sampled: Dec-21-15, Continued** | | | | | | | |
| ***Total Recoverable Metals*** | | | | | | | |
| Aluminum, total | **11.1** | N/A | 0.005 | mg/L | Dec-23-15 | Dec-23-15 | |
| Antimony, total | **0.0001** | 0.2 | 0.0001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Arsenic, total | **0.0014** | 0.05 | 0.0005 | mg/L | Dec-23-15 | Dec-23-15 | |
| Barium, total | **0.035** | 5 | 0.005 | mg/L | Dec-23-15 | Dec-23-15 | |
| Beryllium, total | **0.0003** | 0.053 | 0.0001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Bismuth, total | < 0.0001 | N/A | 0.0001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Boron, total | **0.041** | 50 | 0.004 | mg/L | Dec-23-15 | Dec-23-15 | |
| Cadmium, total | **0.00058** | 0.0001 | 0.00001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Calcium, total | **68.7** | N/A | 0.2 | mg/L | Dec-23-15 | Dec-23-15 | |
| Chromium, total | **0.0026** | N/A | 0.0005 | mg/L | Dec-23-15 | Dec-23-15 | |
| Cobalt, total | **0.0618** | 0.04 | 0.00005 | mg/L | Dec-23-15 | Dec-23-15 | |
| Copper, total | **0.237** | 0.02 | 0.0002 | mg/L | Dec-23-15 | Dec-23-15 | |
| Iron, total | **29.5** | N/A | 0.01 | mg/L | Dec-23-15 | Dec-23-15 | |
| Lead, total | < 0.0001 | 0.04 | 0.0001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Lithium, total | **0.0039** | N/A | 0.0001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Magnesium, total | **12.3** | N/A | 0.01 | mg/L | Dec-23-15 | Dec-23-15 | |
| Manganese, total | **3.36** | N/A | 0.0002 | mg/L | Dec-23-15 | Dec-23-15 | |
| Mercury, total | < 0.00002 | 0.001 | 0.00002 | mg/L | Dec-23-15 | Dec-23-15 | |
| Molybdenum, total | **0.0003** | 10 | 0.0001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Nickel, total | **0.0291** | 0.25 | 0.0002 | mg/L | Dec-23-15 | Dec-23-15 | |
| Phosphorus, total | **0.13** | N/A | 0.02 | mg/L | Dec-23-15 | Dec-23-15 | |
| Potassium, total | **5.49** | N/A | 0.02 | mg/L | Dec-23-15 | Dec-23-15 | |
| Selenium, total | < 0.0005 | 0.01 | 0.0005 | mg/L | Dec-23-15 | Dec-23-15 | |
| Silicon, total | **9.5** | N/A | 0.5 | mg/L | Dec-23-15 | Dec-23-15 | |
| Silver, total | < 0.00005 | 0.0005 | 0.00005 | mg/L | Dec-23-15 | Dec-23-15 | |
| Sodium, total | **11.5** | N/A | 0.02 | mg/L | Dec-23-15 | Dec-23-15 | |
| Strontium, total | **0.264** | N/A | 0.001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Sulfur, total | **99** | N/A | 1 | mg/L | Dec-23-15 | Dec-23-15 | |
| Tellurium, total | < 0.0002 | N/A | 0.0002 | mg/L | Dec-23-15 | Dec-23-15 | |
| Thallium, total | < 0.00002 | 0.003 | 0.00002 | mg/L | Dec-23-15 | Dec-23-15 | |
| Thorium, total | **0.0018** | N/A | 0.0001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Tin, total | < 0.0002 | N/A | 0.0002 | mg/L | Dec-23-15 | Dec-23-15 | |
| Titanium, total | < 0.005 | 1 | 0.005 | mg/L | Dec-23-15 | Dec-23-15 | |
| Uranium, total | **0.00066** | 3 | 0.00002 | mg/L | Dec-23-15 | Dec-23-15 | |
| Vanadium, total | < 0.001 | N/A | 0.001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Zinc, total | **0.079** | 0.075 | 0.004 | mg/L | Dec-23-15 | Dec-23-15 | |
| Zirconium, total | < 0.0001 | N/A | 0.0001 | mg/L | Dec-23-15 | Dec-23-15 | |
| **Sample ID: SFC 3 (5121430-03) [Water] Sampled: Dec-21-15** | | | | | | | |
| ***Anions*** | | | | | | | |
| Bromide | < 0.10 | N/A | 0.10 | mg/L | N/A | Dec-23-15 | |
| Chloride | **22.5** | 1500 | 0.10 | mg/L | N/A | Dec-23-15 | |
| Fluoride | < 0.05 | 2 | 0.05 | mg/L | N/A | Dec-23-15 | |
| Nitrate+Nitrite as N | **0.191** | 400 | 0.005 | mg/L | N/A | Dec-23-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5121430
**REPORTED** Jan-03-16

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: SFC 3 (5121430-03) [Water] Sampled: Dec-21-15, Continued** | | | | | | | |
| ***Anions, Continued*** | | | | | | | |
| Sulfate | **28.5** | 1000 | 1.0 | mg/L | N/A | Dec-23-15 | |
| Nitrate as N | **0.177** | 400 | 0.010 | mg/L | N/A | Dec-23-15 | |
| Nitrite as N | < 0.010 | 0.2 | 0.010 | mg/L | N/A | Dec-23-15 | |
| ***General Parameters*** | | | | | | | |
| pH | **6.74** | N/A | 0.01 | pH units | N/A | Dec-23-15 | HT2 |
| Conductivity (EC) | **200** | N/A | 2 | µS/cm | N/A | Dec-23-15 | |
| Ammonia as N, Total | < 0.005 | N/A | 0.005 | mg/L | N/A | Dec-24-15 | |
| Alkalinity, Total as CaCO3 | **27** | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Alkalinity, Bicarbonate as CaCO3 | **27** | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Solids, Total Suspended | < 2 | N/A | 2 | mg/L | N/A | Dec-23-15 | |
| BOD, 5-day | < 2 | N/A | 2 | mg/L | Dec-24-15 | Dec-29-15 | BOD2 |
| Chemical Oxygen Demand | < 20 | N/A | 20 | mg/L | N/A | Dec-23-15 | |
| Phosphorus, Total as P | **0.003** | N/A | 0.002 | mg/L | Dec-24-15 | Dec-30-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Hardness, Total (Total as CaCO3) | **46.6** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | **0.191** | 400 | 0.010 | mg/L | N/A | N/A | |
| ***Total Recoverable Metals*** | | | | | | | |
| Aluminum, total | **0.056** | N/A | 0.005 | mg/L | Dec-23-15 | Dec-23-15 | |
| Antimony, total | **0.0002** | 0.2 | 0.0001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Arsenic, total | < 0.0005 | 0.05 | 0.0005 | mg/L | Dec-23-15 | Dec-23-15 | |
| Barium, total | **0.020** | 5 | 0.005 | mg/L | Dec-23-15 | Dec-23-15 | |
| Beryllium, total | < 0.0001 | 0.053 | 0.0001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Bismuth, total | < 0.0001 | N/A | 0.0001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Boron, total | **0.010** | 50 | 0.004 | mg/L | Dec-23-15 | Dec-23-15 | |
| Cadmium, total | **0.00002** | 0.0001 | 0.00001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Calcium, total | **15.5** | N/A | 0.2 | mg/L | Dec-23-15 | Dec-23-15 | |
| Chromium, total | < 0.0005 | N/A | 0.0005 | mg/L | Dec-23-15 | Dec-23-15 | |
| Cobalt, total | **0.00026** | 0.04 | 0.00005 | mg/L | Dec-23-15 | Dec-23-15 | |
| Copper, total | **0.0024** | 0.02 | 0.0002 | mg/L | Dec-23-15 | Dec-23-15 | |
| Iron, total | **0.14** | N/A | 0.01 | mg/L | Dec-23-15 | Dec-23-15 | |
| Lead, total | < 0.0001 | 0.04 | 0.0001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Lithium, total | **0.0002** | N/A | 0.0001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Magnesium, total | **1.90** | N/A | 0.01 | mg/L | Dec-23-15 | Dec-23-15 | |
| Manganese, total | **0.0133** | N/A | 0.0002 | mg/L | Dec-23-15 | Dec-23-15 | |
| Mercury, total | < 0.00002 | 0.001 | 0.00002 | mg/L | Dec-23-15 | Dec-23-15 | |
| Molybdenum, total | **0.0004** | 10 | 0.0001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Nickel, total | **0.0004** | 0.25 | 0.0002 | mg/L | Dec-23-15 | Dec-23-15 | |
| Phosphorus, total | < 0.02 | N/A | 0.02 | mg/L | Dec-23-15 | Dec-23-15 | |
| Potassium, total | **1.49** | N/A | 0.02 | mg/L | Dec-23-15 | Dec-23-15 | |
| Selenium, total | < 0.0005 | 0.01 | 0.0005 | mg/L | Dec-23-15 | Dec-23-15 | |
| Silicon, total | **6.6** | N/A | 0.5 | mg/L | Dec-23-15 | Dec-23-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5121430
**REPORTED** Jan-03-16

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: SFC 3 (5121430-03) [Water] Sampled: Dec-21-15, Continued** | | | | | | | |
| ***Total Recoverable Metals, Continued*** | | | | | | | |
| Silver, total | < 0.00005 | 0.0005 | 0.00005 | mg/L | Dec-23-15 | Dec-23-15 | |
| Sodium, total | **19.8** | N/A | 0.02 | mg/L | Dec-23-15 | Dec-23-15 | |
| Strontium, total | **0.120** | N/A | 0.001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Sulfur, total | **9** | N/A | 1 | mg/L | Dec-23-15 | Dec-23-15 | |
| Tellurium, total | < 0.0002 | N/A | 0.0002 | mg/L | Dec-23-15 | Dec-23-15 | |
| Thallium, total | < 0.00002 | 0.003 | 0.00002 | mg/L | Dec-23-15 | Dec-23-15 | |
| Thorium, total | < 0.0001 | N/A | 0.0001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Tin, total | < 0.0002 | N/A | 0.0002 | mg/L | Dec-23-15 | Dec-23-15 | |
| Titanium, total | < 0.005 | 1 | 0.005 | mg/L | Dec-23-15 | Dec-23-15 | |
| Uranium, total | < 0.00002 | 3 | 0.00002 | mg/L | Dec-23-15 | Dec-23-15 | |
| Vanadium, total | < 0.001 | N/A | 0.001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Zinc, total | < 0.004 | 0.075 | 0.004 | mg/L | Dec-23-15 | Dec-23-15 | |
| Zirconium, total | < 0.0001 | N/A | 0.0001 | mg/L | Dec-23-15 | Dec-23-15 | |
| **Sample ID: SFC 4 (5121430-04) [Water] Sampled: Dec-21-15** | | | | | | | |
| ***Anions*** | | | | | | | |
| Bromide | < 0.10 | N/A | 0.10 | mg/L | N/A | Dec-23-15 | |
| Chloride | **14.9** | 1500 | 0.10 | mg/L | N/A | Dec-23-15 | |
| Fluoride | **0.05** | 2 | 0.05 | mg/L | N/A | Dec-23-15 | |
| Nitrate+Nitrite as N | **0.376** | 400 | 0.005 | mg/L | N/A | Dec-23-15 | |
| Sulfate | **54.4** | 1000 | 1.0 | mg/L | N/A | Dec-23-15 | |
| Nitrate as N | **0.355** | 400 | 0.010 | mg/L | N/A | Dec-23-15 | |
| Nitrite as N | < 0.010 | 0.2 | 0.010 | mg/L | N/A | Dec-23-15 | |
| ***General Parameters*** | | | | | | | |
| pH | **7.11** | N/A | 0.01 | pH units | N/A | Dec-23-15 | HT2 |
| Conductivity (EC) | **242** | N/A | 2 | µS/cm | N/A | Dec-23-15 | |
| Ammonia as N, Total | **0.098** | N/A | 0.005 | mg/L | N/A | Dec-24-15 | |
| Alkalinity, Total as CaCO3 | **31** | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Alkalinity, Bicarbonate as CaCO3 | **31** | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Solids, Total Suspended | **3** | N/A | 2 | mg/L | N/A | Dec-23-15 | |
| BOD, 5-day | < 2 | N/A | 2 | mg/L | Dec-24-15 | Dec-29-15 | BOD2 |
| Chemical Oxygen Demand | < 20 | N/A | 20 | mg/L | N/A | Dec-23-15 | |
| Phosphorus, Total as P | **0.005** | N/A | 0.002 | mg/L | Dec-24-15 | Dec-30-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Hardness, Total (Total as CaCO3) | **86.0** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | **0.376** | 400 | 0.010 | mg/L | N/A | N/A | |
| ***Total Recoverable Metals*** | | | | | | | |
| Aluminum, total | **0.484** | N/A | 0.005 | mg/L | Dec-23-15 | Dec-23-15 | |
| Antimony, total | **0.0002** | 0.2 | 0.0001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Arsenic, total | < 0.0005 | 0.05 | 0.0005 | mg/L | Dec-23-15 | Dec-23-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5121430
**REPORTED** Jan-03-16

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: SFC 4 (5121430-04) [Water] Sampled: Dec-21-15, Continued** | | | | | | | |
| ***Total Recoverable Metals, Continued*** | | | | | | | |
| Barium, total | **0.023** | 5 | 0.005 | mg/L | Dec-23-15 | Dec-23-15 | |
| Beryllium, total | < 0.0001 | 0.053 | 0.0001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Bismuth, total | < 0.0001 | N/A | 0.0001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Boron, total | **0.027** | 50 | 0.004 | mg/L | Dec-23-15 | Dec-23-15 | |
| Cadmium, total | **0.00004** | 0.0001 | 0.00001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Calcium, total | **28.6** | N/A | 0.2 | mg/L | Dec-23-15 | Dec-23-15 | |
| Chromium, total | < 0.0005 | N/A | 0.0005 | mg/L | Dec-23-15 | Dec-23-15 | |
| Cobalt, total | **0.00291** | 0.04 | 0.00005 | mg/L | Dec-23-15 | Dec-23-15 | |
| Copper, total | **0.0084** | 0.02 | 0.0002 | mg/L | Dec-23-15 | Dec-23-15 | |
| Iron, total | **1.01** | N/A | 0.01 | mg/L | Dec-23-15 | Dec-23-15 | |
| Lead, total | < 0.0001 | 0.04 | 0.0001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Lithium, total | **0.0004** | N/A | 0.0001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Magnesium, total | **3.54** | N/A | 0.01 | mg/L | Dec-23-15 | Dec-23-15 | |
| Manganese, total | **0.367** | N/A | 0.0002 | mg/L | Dec-23-15 | Dec-23-15 | |
| Mercury, total | < 0.00002 | 0.001 | 0.00002 | mg/L | Dec-23-15 | Dec-23-15 | |
| Molybdenum, total | **0.0009** | 10 | 0.0001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Nickel, total | **0.0019** | 0.25 | 0.0002 | mg/L | Dec-23-15 | Dec-23-15 | |
| Phosphorus, total | < 0.02 | N/A | 0.02 | mg/L | Dec-23-15 | Dec-23-15 | |
| Potassium, total | **2.23** | N/A | 0.02 | mg/L | Dec-23-15 | Dec-23-15 | |
| Selenium, total | < 0.0005 | 0.01 | 0.0005 | mg/L | Dec-23-15 | Dec-23-15 | |
| Silicon, total | **6.7** | N/A | 0.5 | mg/L | Dec-23-15 | Dec-23-15 | |
| Silver, total | < 0.00005 | 0.0005 | 0.00005 | mg/L | Dec-23-15 | Dec-23-15 | |
| Sodium, total | **12.3** | N/A | 0.02 | mg/L | Dec-23-15 | Dec-23-15 | |
| Strontium, total | **0.220** | N/A | 0.001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Sulfur, total | **19** | N/A | 1 | mg/L | Dec-23-15 | Dec-23-15 | |
| Tellurium, total | < 0.0002 | N/A | 0.0002 | mg/L | Dec-23-15 | Dec-23-15 | |
| Thallium, total | < 0.00002 | 0.003 | 0.00002 | mg/L | Dec-23-15 | Dec-23-15 | |
| Thorium, total | < 0.0001 | N/A | 0.0001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Tin, total | < 0.0002 | N/A | 0.0002 | mg/L | Dec-23-15 | Dec-23-15 | |
| Titanium, total | < 0.005 | 1 | 0.005 | mg/L | Dec-23-15 | Dec-23-15 | |
| Uranium, total | **0.00003** | 3 | 0.00002 | mg/L | Dec-23-15 | Dec-23-15 | |
| Vanadium, total | < 0.001 | N/A | 0.001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Zinc, total | **0.007** | 0.075 | 0.004 | mg/L | Dec-23-15 | Dec-23-15 | |
| Zirconium, total | < 0.0001 | N/A | 0.0001 | mg/L | Dec-23-15 | Dec-23-15 | |
| **Sample ID: SFC 11 (5121430-05) [Water] Sampled: Dec-21-15** | | | | | | | |
| ***Anions*** | | | | | | | |
| Bromide | < 0.10 | N/A | 0.10 | mg/L | N/A | Dec-23-15 | |
| Chloride | **5.55** | 1500 | 0.10 | mg/L | N/A | Dec-23-15 | |
| Fluoride | < 0.05 | 2 | 0.05 | mg/L | N/A | Dec-23-15 | |
| Nitrate+Nitrite as N | **0.295** | 400 | 0.005 | mg/L | N/A | Dec-23-15 | |
| Sulfate | **12.7** | 1000 | 1.0 | mg/L | N/A | Dec-23-15 | |
| Nitrate as N | **0.280** | 400 | 0.010 | mg/L | N/A | Dec-23-15 | |
| Nitrite as N | < 0.010 | 0.2 | 0.010 | mg/L | N/A | Dec-23-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5121430
**REPORTED** Jan-03-16

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: SFC 11 (5121430-05) [Water] Sampled: Dec-21-15, Continued** | | | | | | | |
| ***General Parameters*** | | | | | | | |
| pH | **6.67** | N/A | 0.01 | pH units | N/A | Dec-23-15 | HT2 |
| Conductivity (EC) | **100** | N/A | 2 | µS/cm | N/A | Dec-23-15 | |
| Ammonia as N, Total | < 0.005 | N/A | 0.005 | mg/L | N/A | Dec-24-15 | |
| Alkalinity, Total as CaCO3 | **25** | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Alkalinity, Bicarbonate as CaCO3 | **25** | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Solids, Total Suspended | < 2 | N/A | 2 | mg/L | N/A | Dec-23-15 | |
| BOD, 5-day | < 2 | N/A | 2 | mg/L | Dec-24-15 | Dec-29-15 | BOD2 |
| Chemical Oxygen Demand | < 20 | N/A | 20 | mg/L | N/A | Dec-23-15 | |
| Phosphorus, Total as P | **0.007** | N/A | 0.002 | mg/L | Dec-24-15 | Dec-30-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Hardness, Total (Total as CaCO3) | **34.6** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | **0.295** | 400 | 0.010 | mg/L | N/A | N/A | |
| ***Total Recoverable Metals*** | | | | | | | |
| Aluminum, total | **0.152** | N/A | 0.005 | mg/L | Dec-23-15 | Dec-23-15 | |
| Antimony, total | **0.0001** | 0.2 | 0.0001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Arsenic, total | < 0.0005 | 0.05 | 0.0005 | mg/L | Dec-23-15 | Dec-23-15 | |
| Barium, total | **0.010** | 5 | 0.005 | mg/L | Dec-23-15 | Dec-23-15 | |
| Beryllium, total | < 0.0001 | 0.053 | 0.0001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Bismuth, total | < 0.0001 | N/A | 0.0001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Boron, total | **0.008** | 50 | 0.004 | mg/L | Dec-23-15 | Dec-23-15 | |
| Cadmium, total | **0.00002** | 0.0001 | 0.00001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Calcium, total | **10.8** | N/A | 0.2 | mg/L | Dec-23-15 | Dec-23-15 | |
| Chromium, total | < 0.0005 | N/A | 0.0005 | mg/L | Dec-23-15 | Dec-23-15 | |
| Cobalt, total | **0.00006** | 0.04 | 0.00005 | mg/L | Dec-23-15 | Dec-23-15 | |
| Copper, total | **0.0016** | 0.02 | 0.0002 | mg/L | Dec-23-15 | Dec-23-15 | |
| Iron, total | **0.08** | N/A | 0.01 | mg/L | Dec-23-15 | Dec-23-15 | |
| Lead, total | **0.0001** | 0.04 | 0.0001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Lithium, total | **0.0004** | N/A | 0.0001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Magnesium, total | **1.82** | N/A | 0.01 | mg/L | Dec-23-15 | Dec-23-15 | |
| Manganese, total | **0.0029** | N/A | 0.0002 | mg/L | Dec-23-15 | Dec-23-15 | |
| Mercury, total | < 0.00002 | 0.001 | 0.00002 | mg/L | Dec-23-15 | Dec-23-15 | |
| Molybdenum, total | **0.0004** | 10 | 0.0001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Nickel, total | < 0.0002 | 0.25 | 0.0002 | mg/L | Dec-23-15 | Dec-23-15 | |
| Phosphorus, total | < 0.02 | N/A | 0.02 | mg/L | Dec-23-15 | Dec-23-15 | |
| Potassium, total | **0.76** | N/A | 0.02 | mg/L | Dec-23-15 | Dec-23-15 | |
| Selenium, total | < 0.0005 | 0.01 | 0.0005 | mg/L | Dec-23-15 | Dec-23-15 | |
| Silicon, total | **8.8** | N/A | 0.5 | mg/L | Dec-23-15 | Dec-23-15 | |
| Silver, total | < 0.00005 | 0.0005 | 0.00005 | mg/L | Dec-23-15 | Dec-23-15 | |
| Sodium, total | **6.38** | N/A | 0.02 | mg/L | Dec-23-15 | Dec-23-15 | |
| Strontium, total | **0.125** | N/A | 0.001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Sulfur, total | **5** | N/A | 1 | mg/L | Dec-23-15 | Dec-23-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5121430
**REPORTED** Jan-03-16

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: SFC 11 (5121430-05) [Water] Sampled: Dec-21-15, Continued** | | | | | | | |
| ***Total Recoverable Metals, Continued*** | | | | | | | |
| Tellurium, total | < 0.0002 | N/A | 0.0002 | mg/L | Dec-23-15 | Dec-23-15 | |
| Thallium, total | < 0.00002 | 0.003 | 0.00002 | mg/L | Dec-23-15 | Dec-23-15 | |
| Thorium, total | < 0.0001 | N/A | 0.0001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Tin, total | < 0.0002 | N/A | 0.0002 | mg/L | Dec-23-15 | Dec-23-15 | |
| Titanium, total | < 0.005 | 1 | 0.005 | mg/L | Dec-23-15 | Dec-23-15 | |
| Uranium, total | < 0.00002 | 3 | 0.00002 | mg/L | Dec-23-15 | Dec-23-15 | |
| Vanadium, total | < 0.001 | N/A | 0.001 | mg/L | Dec-23-15 | Dec-23-15 | |
| Zinc, total | < 0.004 | 0.075 | 0.004 | mg/L | Dec-23-15 | Dec-23-15 | |
| Zirconium, total | **0.0001** | N/A | 0.0001 | mg/L | Dec-23-15 | Dec-23-15 | |
| **Sample ID: MW 2S (5121430-06) [Water] Sampled: Dec-21-15** | | | | | | | |
| ***Anions*** | | | | | | | |
| Bromide | **0.10** | N/A | 0.10 | mg/L | N/A | Dec-23-15 | |
| Chloride | **25.4** | 1500 | 0.10 | mg/L | N/A | Dec-23-15 | |
| Fluoride | **0.11** | 2 | 0.05 | mg/L | N/A | Dec-23-15 | |
| Nitrate+Nitrite as N | **0.024** | 400 | 0.005 | mg/L | N/A | Dec-23-15 | |
| Sulfate | **112** | 1000 | 1.0 | mg/L | N/A | Dec-23-15 | |
| Nitrate as N | < 0.010 | 400 | 0.010 | mg/L | N/A | Dec-23-15 | |
| Nitrite as N | < 0.010 | 0.2 | 0.010 | mg/L | N/A | Dec-23-15 | |
| ***General Parameters*** | | | | | | | |
| pH | **6.39** | N/A | 0.01 | pH units | N/A | Dec-23-15 | HT2 |
| Conductivity (EC) | **619** | N/A | 2 | µS/cm | N/A | Dec-23-15 | |
| Ammonia as N, Total | **7.50** | N/A | 0.005 | mg/L | N/A | Dec-24-15 | |
| Alkalinity, Total as CaCO3 | **181** | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Alkalinity, Bicarbonate as CaCO3 | **181** | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Solids, Total Suspended | **180** | N/A | 2 | mg/L | N/A | Dec-23-15 | |
| BOD, 5-day | < 2 | N/A | 2 | mg/L | Dec-24-15 | Dec-29-15 | BOD2 |
| Chemical Oxygen Demand | **25** | N/A | 20 | mg/L | N/A | Dec-23-15 | |
| Phosphorus, Total as P | **0.126** | N/A | 0.002 | mg/L | Dec-24-15 | Dec-30-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Hardness, Total (Diss. as CaCO3) | **200** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | **0.024** | 400 | 0.010 | mg/L | N/A | N/A | |
| ***Dissolved Metals*** | | | | | | | |
| Aluminum, dissolved | < 0.005 | N/A | 0.005 | mg/L | N/A | Dec-23-15 | |
| Antimony, dissolved | **0.0003** | 0.2 | 0.0001 | mg/L | N/A | Dec-23-15 | |
| Arsenic, dissolved | **0.0076** | 0.05 | 0.0005 | mg/L | N/A | Dec-23-15 | |
| Barium, dissolved | **0.135** | 5 | 0.005 | mg/L | N/A | Dec-23-15 | |
| Beryllium, dissolved | < 0.0001 | 0.053 | 0.0001 | mg/L | N/A | Dec-23-15 | |
| Bismuth, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Dec-23-15 | |
| Boron, dissolved | **0.158** | 50 | 0.004 | mg/L | N/A | Dec-23-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5121430
**REPORTED** Jan-03-16

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW 2S (5121430-06) [Water] Sampled: Dec-21-15, Continued** | | | | | | | |
| ***Dissolved Metals, Continued*** | | | | | | | |
| Cadmium, dissolved | < 0.00001 | 0.0001 | 0.00001 | mg/L | N/A | Dec-23-15 | |
| Calcium, dissolved | **64.2** | N/A | 0.2 | mg/L | N/A | Dec-23-15 | |
| Chromium, dissolved | < 0.0005 | N/A | 0.0005 | mg/L | N/A | Dec-23-15 | |
| Cobalt, dissolved | **0.00281** | 0.04 | 0.00005 | mg/L | N/A | Dec-23-15 | |
| Copper, dissolved | < 0.0002 | 0.02 | 0.0002 | mg/L | N/A | Dec-23-15 | |
| Iron, dissolved | **55.6** | N/A | 0.010 | mg/L | N/A | Dec-23-15 | |
| Lead, dissolved | < 0.0001 | 0.04 | 0.0001 | mg/L | N/A | Dec-23-15 | |
| Lithium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Dec-23-15 | |
| Magnesium, dissolved | **9.61** | N/A | 0.01 | mg/L | N/A | Dec-23-15 | |
| Manganese, dissolved | **3.29** | N/A | 0.0002 | mg/L | N/A | Dec-23-15 | |
| Mercury, dissolved | < 0.00002 | 0.001 | 0.00002 | mg/L | Dec-23-15 | Dec-23-15 | |
| Molybdenum, dissolved | **0.0038** | 10 | 0.0001 | mg/L | N/A | Dec-23-15 | |
| Nickel, dissolved | **0.0011** | 0.25 | 0.0002 | mg/L | N/A | Dec-23-15 | |
| Phosphorus, dissolved | **0.03** | N/A | 0.02 | mg/L | N/A | Dec-23-15 | |
| Potassium, dissolved | **13.1** | N/A | 0.02 | mg/L | N/A | Dec-23-15 | |
| Selenium, dissolved | < 0.0005 | 0.01 | 0.0005 | mg/L | N/A | Dec-23-15 | |
| Silicon, dissolved | **11.0** | N/A | 0.5 | mg/L | N/A | Dec-23-15 | |
| Silver, dissolved | < 0.00005 | 0.0005 | 0.00005 | mg/L | N/A | Dec-23-15 | |
| Sodium, dissolved | **22.9** | N/A | 0.02 | mg/L | N/A | Dec-23-15 | |
| Strontium, dissolved | **0.352** | N/A | 0.001 | mg/L | N/A | Dec-23-15 | |
| Sulfur, dissolved | **40** | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Tellurium, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Dec-23-15 | |
| Thallium, dissolved | < 0.00002 | 0.003 | 0.00002 | mg/L | N/A | Dec-23-15 | |
| Thorium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Dec-23-15 | |
| Tin, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Dec-23-15 | |
| Titanium, dissolved | < 0.005 | 1 | 0.005 | mg/L | N/A | Dec-23-15 | |
| Uranium, dissolved | **0.00007** | 3 | 0.00002 | mg/L | N/A | Dec-23-15 | |
| Vanadium, dissolved | < 0.001 | N/A | 0.001 | mg/L | N/A | Dec-23-15 | |
| Zinc, dissolved | < 0.004 | 0.075 | 0.004 | mg/L | N/A | Dec-23-15 | |
| Zirconium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Dec-23-15 | |
| **Sample ID: MW 2D (5121430-07) [Water] Sampled: Dec-21-15** | | | | | | | |
| ***Anions*** | | | | | | | |
| Bromide | < 0.10 | N/A | 0.10 | mg/L | N/A | Dec-23-15 | |
| Chloride | **21.9** | 1500 | 0.10 | mg/L | N/A | Dec-23-15 | |
| Fluoride | **0.10** | 2 | 0.05 | mg/L | N/A | Dec-23-15 | |
| Nitrate+Nitrite as N | **0.020** | 400 | 0.005 | mg/L | N/A | Dec-23-15 | |
| Sulfate | **345** | 1000 | 1.0 | mg/L | N/A | Dec-23-15 | |
| Nitrate as N | < 0.010 | 400 | 0.010 | mg/L | N/A | Dec-23-15 | |
| Nitrite as N | < 0.010 | 0.2 | 0.010 | mg/L | N/A | Dec-23-15 | |
| ***General Parameters*** | | | | | | | |
| pH | **6.38** | N/A | 0.01 | pH units | N/A | Dec-23-15 | HT2 |
| Conductivity (EC) | **1210** | N/A | 2 | µS/cm | N/A | Dec-23-15 | |
| Ammonia as N, Total | **11.0** | N/A | 0.005 | mg/L | N/A | Dec-24-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5121430
**REPORTED** Jan-03-16

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW 2D (5121430-07) [Water] Sampled: Dec-21-15, Continued** | | | | | | | |
| ***General Parameters, Continued*** | | | | | | | |
| Alkalinity, Total as CaCO3 | **296** | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Alkalinity, Bicarbonate as CaCO3 | **296** | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Solids, Total Suspended | **800** | N/A | 2 | mg/L | N/A | Dec-23-15 | |
| BOD, 5-day | < 2 | N/A | 2 | mg/L | Dec-24-15 | Dec-29-15 | BOD2 |
| Chemical Oxygen Demand | **110** | N/A | 20 | mg/L | N/A | Dec-23-15 | |
| Phosphorus, Total as P | **1.02** | N/A | 0.002 | mg/L | Dec-24-15 | Dec-30-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Hardness, Total (Diss. as CaCO3) | **476** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | **0.020** | 400 | 0.010 | mg/L | N/A | N/A | |
| ***Dissolved Metals*** | | | | | | | |
| Aluminum, dissolved | < 0.005 | N/A | 0.005 | mg/L | N/A | Dec-23-15 | |
| Antimony, dissolved | **0.0002** | 0.2 | 0.0001 | mg/L | N/A | Dec-23-15 | |
| Arsenic, dissolved | **0.0145** | 0.05 | 0.0005 | mg/L | N/A | Dec-23-15 | |
| Barium, dissolved | **0.033** | 5 | 0.005 | mg/L | N/A | Dec-23-15 | |
| Beryllium, dissolved | < 0.0001 | 0.053 | 0.0001 | mg/L | N/A | Dec-23-15 | |
| Bismuth, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Dec-23-15 | |
| Boron, dissolved | **0.307** | 50 | 0.004 | mg/L | N/A | Dec-23-15 | |
| Cadmium, dissolved | < 0.00001 | 0.0001 | 0.00001 | mg/L | N/A | Dec-23-15 | |
| Calcium, dissolved | **159** | N/A | 0.2 | mg/L | N/A | Dec-23-15 | |
| Chromium, dissolved | < 0.0005 | N/A | 0.0005 | mg/L | N/A | Dec-23-15 | |
| Cobalt, dissolved | **0.0150** | 0.04 | 0.00005 | mg/L | N/A | Dec-23-15 | |
| Copper, dissolved | **0.0005** | 0.02 | 0.0002 | mg/L | N/A | Dec-23-15 | |
| Iron, dissolved | **65.5** | N/A | 0.010 | mg/L | N/A | Dec-23-15 | |
| Lead, dissolved | < 0.0001 | 0.04 | 0.0001 | mg/L | N/A | Dec-23-15 | |
| Lithium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Dec-23-15 | |
| Magnesium, dissolved | **18.9** | N/A | 0.01 | mg/L | N/A | Dec-23-15 | |
| Manganese, dissolved | **4.07** | N/A | 0.0002 | mg/L | N/A | Dec-23-15 | |
| Mercury, dissolved | < 0.00002 | 0.001 | 0.00002 | mg/L | Dec-23-15 | Dec-23-15 | |
| Molybdenum, dissolved | **0.0151** | 10 | 0.0001 | mg/L | N/A | Dec-23-15 | |
| Nickel, dissolved | **0.0035** | 0.25 | 0.0002 | mg/L | N/A | Dec-23-15 | |
| Phosphorus, dissolved | **0.10** | N/A | 0.02 | mg/L | N/A | Dec-23-15 | |
| Potassium, dissolved | **20.5** | N/A | 0.02 | mg/L | N/A | Dec-23-15 | |
| Selenium, dissolved | < 0.0005 | 0.01 | 0.0005 | mg/L | N/A | Dec-23-15 | |
| Silicon, dissolved | **14.6** | N/A | 0.5 | mg/L | N/A | Dec-23-15 | |
| Silver, dissolved | < 0.00005 | 0.0005 | 0.00005 | mg/L | N/A | Dec-23-15 | |
| Sodium, dissolved | **31.9** | N/A | 0.02 | mg/L | N/A | Dec-23-15 | |
| Strontium, dissolved | **0.623** | N/A | 0.001 | mg/L | N/A | Dec-23-15 | |
| Sulfur, dissolved | **116** | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Tellurium, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Dec-23-15 | |
| Thallium, dissolved | < 0.00002 | 0.003 | 0.00002 | mg/L | N/A | Dec-23-15 | |
| Thorium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Dec-23-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5121430
**REPORTED** Jan-03-16

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW 2D (5121430-07) [Water] Sampled: Dec-21-15, Continued** | | | | | | | |
| ***Dissolved Metals, Continued*** | | | | | | | |
| Tin, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Dec-23-15 | |
| Titanium, dissolved | < 0.005 | 1 | 0.005 | mg/L | N/A | Dec-23-15 | |
| Uranium, dissolved | **0.00021** | 3 | 0.00002 | mg/L | N/A | Dec-23-15 | |
| Vanadium, dissolved | < 0.001 | N/A | 0.001 | mg/L | N/A | Dec-23-15 | |
| Zinc, dissolved | < 0.004 | 0.075 | 0.004 | mg/L | N/A | Dec-23-15 | |
| Zirconium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Dec-23-15 | |
| **Sample ID: MW 3 (5121430-08) [Water] Sampled: Dec-21-15** | | | | | | | |
| ***Anions*** | | | | | | | |
| Bromide | **0.11** | N/A | 0.10 | mg/L | N/A | Dec-23-15 | |
| Chloride | **14.3** | 1500 | 0.10 | mg/L | N/A | Dec-23-15 | |
| Fluoride | < 0.05 | 2 | 0.05 | mg/L | N/A | Dec-23-15 | |
| Nitrate+Nitrite as N | **0.026** | 400 | 0.005 | mg/L | N/A | Dec-23-15 | |
| Sulfate | **32.0** | 1000 | 1.0 | mg/L | N/A | Dec-23-15 | |
| Nitrate as N | **0.023** | 400 | 0.010 | mg/L | N/A | Dec-23-15 | |
| Nitrite as N | < 0.010 | 0.2 | 0.010 | mg/L | N/A | Dec-23-15 | |
| ***General Parameters*** | | | | | | | |
| pH | **5.84** | N/A | 0.01 | pH units | N/A | Dec-23-15 | HT2 |
| Conductivity (EC) | **203** | N/A | 2 | µS/cm | N/A | Dec-23-15 | |
| Ammonia as N, Total | **0.386** | N/A | 0.005 | mg/L | N/A | Dec-24-15 | |
| Alkalinity, Total as CaCO3 | **38** | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Alkalinity, Bicarbonate as CaCO3 | **38** | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Solids, Total Suspended | **6** | N/A | 2 | mg/L | N/A | Dec-23-15 | |
| BOD, 5-day | < 2 | N/A | 2 | mg/L | Dec-24-15 | Dec-29-15 | BOD2 |
| Chemical Oxygen Demand | < 20 | N/A | 20 | mg/L | N/A | Dec-23-15 | |
| Phosphorus, Total as P | **0.048** | N/A | 0.002 | mg/L | Dec-24-15 | Dec-30-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Hardness, Total (Diss. as CaCO3) | **49.2** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | **0.026** | 400 | 0.010 | mg/L | N/A | N/A | |
| ***Dissolved Metals*** | | | | | | | |
| Aluminum, dissolved | **0.020** | N/A | 0.005 | mg/L | N/A | Dec-23-15 | |
| Antimony, dissolved | < 0.0001 | 0.2 | 0.0001 | mg/L | N/A | Dec-23-15 | |
| Arsenic, dissolved | < 0.0005 | 0.05 | 0.0005 | mg/L | N/A | Dec-23-15 | |
| Barium, dissolved | **0.071** | 5 | 0.005 | mg/L | N/A | Dec-23-15 | |
| Beryllium, dissolved | < 0.0001 | 0.053 | 0.0001 | mg/L | N/A | Dec-23-15 | |
| Bismuth, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Dec-23-15 | |
| Boron, dissolved | **0.012** | 50 | 0.004 | mg/L | N/A | Dec-23-15 | |
| Cadmium, dissolved | **0.00027** | 0.0001 | 0.00001 | mg/L | N/A | Dec-23-15 | |
| Calcium, dissolved | **14.9** | N/A | 0.2 | mg/L | N/A | Dec-23-15 | |
| Chromium, dissolved | < 0.0005 | N/A | 0.0005 | mg/L | N/A | Dec-23-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5121430
**REPORTED** Jan-03-16

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW 3 (5121430-08) [Water] Sampled: Dec-21-15, Continued** | | | | | | | |
| ***Dissolved Metals, Continued*** | | | | | | | |
| Cobalt, dissolved | **0.00748** | 0.04 | 0.00005 | mg/L | N/A | Dec-23-15 | |
| Copper, dissolved | **0.0036** | 0.02 | 0.0002 | mg/L | N/A | Dec-23-15 | |
| Iron, dissolved | **0.640** | N/A | 0.010 | mg/L | N/A | Dec-23-15 | |
| Lead, dissolved | < 0.0001 | 0.04 | 0.0001 | mg/L | N/A | Dec-23-15 | |
| Lithium, dissolved | **0.0001** | N/A | 0.0001 | mg/L | N/A | Dec-23-15 | |
| Magnesium, dissolved | **2.92** | N/A | 0.01 | mg/L | N/A | Dec-23-15 | |
| Manganese, dissolved | **1.94** | N/A | 0.0002 | mg/L | N/A | Dec-23-15 | |
| Mercury, dissolved | < 0.00002 | 0.001 | 0.00002 | mg/L | Dec-23-15 | Dec-23-15 | |
| Molybdenum, dissolved | **0.0008** | 10 | 0.0001 | mg/L | N/A | Dec-23-15 | |
| Nickel, dissolved | **0.0015** | 0.25 | 0.0002 | mg/L | N/A | Dec-23-15 | |
| Phosphorus, dissolved | < 0.02 | N/A | 0.02 | mg/L | N/A | Dec-23-15 | |
| Potassium, dissolved | **3.18** | N/A | 0.02 | mg/L | N/A | Dec-23-15 | |
| Selenium, dissolved | < 0.0005 | 0.01 | 0.0005 | mg/L | N/A | Dec-23-15 | |
| Silicon, dissolved | **7.6** | N/A | 0.5 | mg/L | N/A | Dec-23-15 | |
| Silver, dissolved | < 0.00005 | 0.0005 | 0.00005 | mg/L | N/A | Dec-23-15 | |
| Sodium, dissolved | **12.8** | N/A | 0.02 | mg/L | N/A | Dec-23-15 | |
| Strontium, dissolved | **0.123** | N/A | 0.001 | mg/L | N/A | Dec-23-15 | |
| Sulfur, dissolved | **10** | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Tellurium, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Dec-23-15 | |
| Thallium, dissolved | **0.00012** | 0.003 | 0.00002 | mg/L | N/A | Dec-23-15 | |
| Thorium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Dec-23-15 | |
| Tin, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Dec-23-15 | |
| Titanium, dissolved | < 0.005 | 1 | 0.005 | mg/L | N/A | Dec-23-15 | |
| Uranium, dissolved | < 0.00002 | 3 | 0.00002 | mg/L | N/A | Dec-23-15 | |
| Vanadium, dissolved | < 0.001 | N/A | 0.001 | mg/L | N/A | Dec-23-15 | |
| Zinc, dissolved | **0.006** | 0.075 | 0.004 | mg/L | N/A | Dec-23-15 | |
| Zirconium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Dec-23-15 | |
| **Sample ID: MW 4 (5121430-09) [Water] Sampled: Dec-21-15** | | | | | | | |
| ***Anions*** | | | | | | | |
| Bromide | < 0.10 | N/A | 0.10 | mg/L | N/A | Dec-23-15 | |
| Chloride | **22.4** | 1500 | 0.10 | mg/L | N/A | Dec-23-15 | |
| Fluoride | **0.14** | 2 | 0.05 | mg/L | N/A | Dec-23-15 | |
| Nitrate+Nitrite as N | **0.007** | 400 | 0.005 | mg/L | N/A | Dec-23-15 | |
| Sulfate | **50.0** | 1000 | 1.0 | mg/L | N/A | Dec-23-15 | |
| Nitrate as N | < 0.010 | 400 | 0.010 | mg/L | N/A | Dec-23-15 | |
| Nitrite as N | < 0.010 | 0.2 | 0.010 | mg/L | N/A | Dec-23-15 | |
| ***General Parameters*** | | | | | | | |
| pH | **6.22** | N/A | 0.01 | pH units | N/A | Dec-23-15 | HT2 |
| Conductivity (EC) | **453** | N/A | 2 | µS/cm | N/A | Dec-23-15 | |
| Ammonia as N, Total | **1.57** | N/A | 0.005 | mg/L | N/A | Dec-24-15 | |
| Alkalinity, Total as CaCO3 | **134** | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Alkalinity, Bicarbonate as CaCO3 | **134** | N/A | 1 | mg/L | N/A | Dec-23-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5121430
**REPORTED** Jan-03-16

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW 4 (5121430-09) [Water] Sampled: Dec-21-15, Continued** | | | | | | | |
| ***General Parameters, Continued*** | | | | | | | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Solids, Total Suspended | **1590** | N/A | 2 | mg/L | N/A | Dec-23-15 | |
| BOD, 5-day | < 2 | N/A | 2 | mg/L | Dec-24-15 | Dec-29-15 | BOD2 |
| Chemical Oxygen Demand | **84** | N/A | 20 | mg/L | N/A | Dec-23-15 | |
| Phosphorus, Total as P | **1.29** | N/A | 0.002 | mg/L | Dec-24-15 | Dec-30-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Hardness, Total (Diss. as CaCO3) | **132** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | < 0.010 | 400 | 0.010 | mg/L | N/A | N/A | |
| ***Dissolved Metals*** | | | | | | | |
| Aluminum, dissolved | **0.007** | N/A | 0.005 | mg/L | N/A | Dec-23-15 | |
| Antimony, dissolved | **0.0001** | 0.2 | 0.0001 | mg/L | N/A | Dec-23-15 | |
| Arsenic, dissolved | **0.0059** | 0.05 | 0.0005 | mg/L | N/A | Dec-23-15 | |
| Barium, dissolved | **0.187** | 5 | 0.005 | mg/L | N/A | Dec-23-15 | |
| Beryllium, dissolved | < 0.0001 | 0.053 | 0.0001 | mg/L | N/A | Dec-23-15 | |
| Bismuth, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Dec-23-15 | |
| Boron, dissolved | **0.068** | 50 | 0.004 | mg/L | N/A | Dec-23-15 | |
| Cadmium, dissolved | **0.00077** | 0.0001 | 0.00001 | mg/L | N/A | Dec-23-15 | |
| Calcium, dissolved | **43.9** | N/A | 0.2 | mg/L | N/A | Dec-23-15 | |
| Chromium, dissolved | < 0.0005 | N/A | 0.0005 | mg/L | N/A | Dec-23-15 | |
| Cobalt, dissolved | **0.0283** | 0.04 | 0.00005 | mg/L | N/A | Dec-23-15 | |
| Copper, dissolved | **0.0038** | 0.02 | 0.0002 | mg/L | N/A | Dec-23-15 | |
| Iron, dissolved | **39.6** | N/A | 0.010 | mg/L | N/A | Dec-23-15 | |
| Lead, dissolved | < 0.0001 | 0.04 | 0.0001 | mg/L | N/A | Dec-23-15 | |
| Lithium, dissolved | **0.0003** | N/A | 0.0001 | mg/L | N/A | Dec-23-15 | |
| Magnesium, dissolved | **5.55** | N/A | 0.01 | mg/L | N/A | Dec-23-15 | |
| Manganese, dissolved | **2.61** | N/A | 0.0002 | mg/L | N/A | Dec-23-15 | |
| Mercury, dissolved | < 0.00002 | 0.001 | 0.00002 | mg/L | Dec-23-15 | Dec-23-15 | |
| Molybdenum, dissolved | **0.0113** | 10 | 0.0001 | mg/L | N/A | Dec-23-15 | |
| Nickel, dissolved | **0.0049** | 0.25 | 0.0002 | mg/L | N/A | Dec-23-15 | |
| Phosphorus, dissolved | < 0.02 | N/A | 0.02 | mg/L | N/A | Dec-23-15 | |
| Potassium, dissolved | **6.34** | N/A | 0.02 | mg/L | N/A | Dec-23-15 | |
| Selenium, dissolved | < 0.0005 | 0.01 | 0.0005 | mg/L | N/A | Dec-23-15 | |
| Silicon, dissolved | **10.9** | N/A | 0.5 | mg/L | N/A | Dec-23-15 | |
| Silver, dissolved | < 0.00005 | 0.0005 | 0.00005 | mg/L | N/A | Dec-23-15 | |
| Sodium, dissolved | **26.4** | N/A | 0.02 | mg/L | N/A | Dec-23-15 | |
| Strontium, dissolved | **0.307** | N/A | 0.001 | mg/L | N/A | Dec-23-15 | |
| Sulfur, dissolved | **18** | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Tellurium, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Dec-23-15 | |
| Thallium, dissolved | **0.00005** | 0.003 | 0.00002 | mg/L | N/A | Dec-23-15 | |
| Thorium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Dec-23-15 | |
| Tin, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Dec-23-15 | |
| Titanium, dissolved | < 0.005 | 1 | 0.005 | mg/L | N/A | Dec-23-15 | |
| Uranium, dissolved | **0.00021** | 3 | 0.00002 | mg/L | N/A | Dec-23-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5121430
**REPORTED** Jan-03-16

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW 4 (5121430-09) [Water] Sampled: Dec-21-15, Continued** | | | | | | | |
| ***Dissolved Metals, Continued*** | | | | | | | |
| Vanadium, dissolved | < 0.001 | N/A | 0.001 | mg/L | N/A | Dec-23-15 | |
| Zinc, dissolved | **0.008** | 0.075 | 0.004 | mg/L | N/A | Dec-23-15 | |
| Zirconium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Dec-23-15 | |
| **Sample ID: MW 6 (5121430-10) [Water] Sampled: Dec-21-15** | | | | | | | |
| ***Anions*** | | | | | | | |
| Bromide | < 0.10 | N/A | 0.10 | mg/L | N/A | Dec-23-15 | |
| Chloride | **106** | 1500 | 0.10 | mg/L | N/A | Dec-23-15 | |
| Fluoride | **0.13** | 2 | 0.05 | mg/L | N/A | Dec-23-15 | |
| Nitrate+Nitrite as N | **0.032** | 400 | 0.005 | mg/L | N/A | Dec-23-15 | |
| Sulfate | **155** | 1000 | 1.0 | mg/L | N/A | Dec-23-15 | |
| Nitrate as N | **0.036** | 400 | 0.010 | mg/L | N/A | Dec-23-15 | |
| Nitrite as N | < 0.010 | 0.2 | 0.010 | mg/L | N/A | Dec-23-15 | |
| ***General Parameters*** | | | | | | | |
| pH | **5.47** | N/A | 0.01 | pH units | N/A | Dec-23-15 | HT2 |
| Conductivity (EC) | **721** | N/A | 2 | µS/cm | N/A | Dec-23-15 | |
| Ammonia as N, Total | < 0.005 | N/A | 0.005 | mg/L | N/A | Dec-24-15 | |
| Alkalinity, Total as CaCO3 | **9** | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Alkalinity, Bicarbonate as CaCO3 | **9** | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Solids, Total Suspended | **331** | N/A | 2 | mg/L | N/A | Dec-23-15 | |
| BOD, 5-day | < 2 | N/A | 2 | mg/L | Dec-24-15 | Dec-29-15 | BOD2 |
| Chemical Oxygen Demand | **38** | N/A | 20 | mg/L | N/A | Dec-23-15 | |
| Phosphorus, Total as P | **0.462** | N/A | 0.002 | mg/L | Dec-24-15 | Dec-30-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Hardness, Total (Diss. as CaCO3) | **137** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | **0.025** | 400 | 0.010 | mg/L | N/A | N/A | |
| ***Dissolved Metals*** | | | | | | | |
| Aluminum, dissolved | **0.151** | N/A | 0.005 | mg/L | N/A | Dec-23-15 | |
| Antimony, dissolved | < 0.0001 | 0.2 | 0.0001 | mg/L | N/A | Dec-23-15 | |
| Arsenic, dissolved | < 0.0005 | 0.05 | 0.0005 | mg/L | N/A | Dec-23-15 | |
| Barium, dissolved | **0.051** | 5 | 0.005 | mg/L | N/A | Dec-23-15 | |
| Beryllium, dissolved | < 0.0001 | 0.053 | 0.0001 | mg/L | N/A | Dec-23-15 | |
| Bismuth, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Dec-23-15 | |
| Boron, dissolved | **0.011** | 50 | 0.004 | mg/L | N/A | Dec-23-15 | |
| Cadmium, dissolved | **0.00031** | 0.0001 | 0.00001 | mg/L | N/A | Dec-23-15 | |
| Calcium, dissolved | **44.5** | N/A | 0.2 | mg/L | N/A | Dec-23-15 | |
| Chromium, dissolved | < 0.0005 | N/A | 0.0005 | mg/L | N/A | Dec-23-15 | |
| Cobalt, dissolved | **0.00137** | 0.04 | 0.00005 | mg/L | N/A | Dec-23-15 | |
| Copper, dissolved | **0.0031** | 0.02 | 0.0002 | mg/L | N/A | Dec-23-15 | |
| Iron, dissolved | **0.030** | N/A | 0.010 | mg/L | N/A | Dec-23-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5121430
**REPORTED** Jan-03-16

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: MW 6 (5121430-10) [Water] Sampled: Dec-21-15, Continued** | | | | | | | |
| ***Dissolved Metals, Continued*** | | | | | | | |
| Lead, dissolved | < 0.0001 | 0.04 | 0.0001 | mg/L | N/A | Dec-23-15 | |
| Lithium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Dec-23-15 | |
| Magnesium, dissolved | **6.22** | N/A | 0.01 | mg/L | N/A | Dec-23-15 | |
| Manganese, dissolved | **0.509** | N/A | 0.0002 | mg/L | N/A | Dec-23-15 | |
| Mercury, dissolved | < 0.00002 | 0.001 | 0.00002 | mg/L | Dec-23-15 | Dec-23-15 | |
| Molybdenum, dissolved | < 0.0001 | 10 | 0.0001 | mg/L | N/A | Dec-23-15 | |
| Nickel, dissolved | **0.0027** | 0.25 | 0.0002 | mg/L | N/A | Dec-23-15 | |
| Phosphorus, dissolved | < 0.02 | N/A | 0.02 | mg/L | N/A | Dec-23-15 | |
| Potassium, dissolved | **3.99** | N/A | 0.02 | mg/L | N/A | Dec-23-15 | |
| Selenium, dissolved | < 0.0005 | 0.01 | 0.0005 | mg/L | N/A | Dec-23-15 | |
| Silicon, dissolved | **9.1** | N/A | 0.5 | mg/L | N/A | Dec-23-15 | |
| Silver, dissolved | **0.00009** | 0.0005 | 0.00005 | mg/L | N/A | Dec-23-15 | |
| Sodium, dissolved | **82.4** | N/A | 0.02 | mg/L | N/A | Dec-23-15 | |
| Strontium, dissolved | **0.565** | N/A | 0.001 | mg/L | N/A | Dec-23-15 | |
| Sulfur, dissolved | **52** | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Tellurium, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Dec-23-15 | |
| Thallium, dissolved | **0.00005** | 0.003 | 0.00002 | mg/L | N/A | Dec-23-15 | |
| Thorium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Dec-23-15 | |
| Tin, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Dec-23-15 | |
| Titanium, dissolved | < 0.005 | 1 | 0.005 | mg/L | N/A | Dec-23-15 | |
| Uranium, dissolved | **0.00003** | 3 | 0.00002 | mg/L | N/A | Dec-23-15 | |
| Vanadium, dissolved | < 0.001 | N/A | 0.001 | mg/L | N/A | Dec-23-15 | |
| Zinc, dissolved | < 0.004 | 0.075 | 0.004 | mg/L | N/A | Dec-23-15 | |
| Zirconium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Dec-23-15 | |
| **Sample ID: GW.INT (5121430-11) [Water] Sampled: Dec-21-15** | | | | | | | |
| ***Anions*** | | | | | | | |
| Bromide | < 0.10 | N/A | 0.10 | mg/L | N/A | Dec-23-15 | |
| Chloride | **55.7** | 1500 | 0.10 | mg/L | N/A | Dec-23-15 | |
| Fluoride | **0.11** | 2 | 0.05 | mg/L | N/A | Dec-23-15 | |
| Nitrate+Nitrite as N | **0.013** | 400 | 0.005 | mg/L | N/A | Dec-23-15 | |
| Sulfate | **393** | 1000 | 1.0 | mg/L | N/A | Dec-23-15 | |
| Nitrate as N | < 0.010 | 400 | 0.010 | mg/L | N/A | Dec-23-15 | |
| Nitrite as N | < 0.010 | 0.2 | 0.010 | mg/L | N/A | Dec-23-15 | |
| ***General Parameters*** | | | | | | | |
| pH | **6.18** | N/A | 0.01 | pH units | N/A | Dec-23-15 | HT2 |
| Conductivity (EC) | **1170** | N/A | 2 | µS/cm | N/A | Dec-23-15 | |
| Ammonia as N, Total | **2.11** | N/A | 0.005 | mg/L | N/A | Dec-24-15 | |
| Alkalinity, Total as CaCO3 | **159** | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Alkalinity, Bicarbonate as CaCO3 | **159** | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Solids, Total Suspended | **60** | N/A | 2 | mg/L | N/A | Dec-23-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5121430
**REPORTED** Jan-03-16

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: GW.INT (5121430-11) [Water] Sampled: Dec-21-15, Continued** | | | | | | | |
| ***General Parameters, Continued*** | | | | | | | |
| BOD, 5-day | **3** | N/A | 2 | mg/L | Dec-24-15 | Dec-29-15 | |
| Chemical Oxygen Demand | < 20 | N/A | 20 | mg/L | N/A | Dec-23-15 | |
| Phosphorus, Total as P | **0.063** | N/A | 0.002 | mg/L | Dec-24-15 | Dec-30-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Hardness, Total (Diss. as CaCO3) | **455** | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | **0.013** | 400 | 0.010 | mg/L | N/A | N/A | |
| ***Dissolved Metals*** | | | | | | | |
| Aluminum, dissolved | **0.089** | N/A | 0.005 | mg/L | N/A | Dec-23-15 | |
| Antimony, dissolved | **0.0003** | 0.2 | 0.0001 | mg/L | N/A | Dec-23-15 | |
| Arsenic, dissolved | **0.0007** | 0.05 | 0.0005 | mg/L | N/A | Dec-23-15 | |
| Barium, dissolved | **0.125** | 5 | 0.005 | mg/L | N/A | Dec-23-15 | |
| Beryllium, dissolved | < 0.0001 | 0.053 | 0.0001 | mg/L | N/A | Dec-23-15 | |
| Bismuth, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Dec-23-15 | |
| Boron, dissolved | **0.255** | 50 | 0.004 | mg/L | N/A | Dec-23-15 | |
| Cadmium, dissolved | **0.00001** | 0.0001 | 0.00001 | mg/L | N/A | Dec-23-15 | |
| Calcium, dissolved | **154** | N/A | 0.2 | mg/L | N/A | Dec-23-15 | |
| Chromium, dissolved | < 0.0005 | N/A | 0.0005 | mg/L | N/A | Dec-23-15 | |
| Cobalt, dissolved | **0.0107** | 0.04 | 0.00005 | mg/L | N/A | Dec-23-15 | |
| Copper, dissolved | **0.0009** | 0.02 | 0.0002 | mg/L | N/A | Dec-23-15 | |
| Iron, dissolved | **35.9** | N/A | 0.010 | mg/L | N/A | Dec-23-15 | |
| Lead, dissolved | **0.0002** | 0.04 | 0.0001 | mg/L | N/A | Dec-23-15 | |
| Lithium, dissolved | **0.0004** | N/A | 0.0001 | mg/L | N/A | Dec-23-15 | |
| Magnesium, dissolved | **16.8** | N/A | 0.01 | mg/L | N/A | Dec-23-15 | |
| Manganese, dissolved | **4.24** | N/A | 0.0002 | mg/L | N/A | Dec-23-15 | |
| Mercury, dissolved | < 0.00002 | 0.001 | 0.00002 | mg/L | Dec-23-15 | Dec-23-15 | |
| Molybdenum, dissolved | **0.0004** | 10 | 0.0001 | mg/L | N/A | Dec-23-15 | |
| Nickel, dissolved | **0.0058** | 0.25 | 0.0002 | mg/L | N/A | Dec-23-15 | |
| Phosphorus, dissolved | **0.03** | N/A | 0.02 | mg/L | N/A | Dec-23-15 | |
| Potassium, dissolved | **8.76** | N/A | 0.02 | mg/L | N/A | Dec-23-15 | |
| Selenium, dissolved | < 0.0005 | 0.01 | 0.0005 | mg/L | N/A | Dec-23-15 | |
| Silicon, dissolved | **10.8** | N/A | 0.5 | mg/L | N/A | Dec-23-15 | |
| Silver, dissolved | < 0.00005 | 0.0005 | 0.00005 | mg/L | N/A | Dec-23-15 | |
| Sodium, dissolved | **45.9** | N/A | 0.02 | mg/L | N/A | Dec-23-15 | |
| Strontium, dissolved | **1.05** | N/A | 0.001 | mg/L | N/A | Dec-23-15 | |
| Sulfur, dissolved | **133** | N/A | 1 | mg/L | N/A | Dec-23-15 | |
| Tellurium, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Dec-23-15 | |
| Thallium, dissolved | < 0.00002 | 0.003 | 0.00002 | mg/L | N/A | Dec-23-15 | |
| Thorium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Dec-23-15 | |
| Tin, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Dec-23-15 | |
| Titanium, dissolved | < 0.005 | 1 | 0.005 | mg/L | N/A | Dec-23-15 | |
| Uranium, dissolved | **0.00003** | 3 | 0.00002 | mg/L | N/A | Dec-23-15 | |
| Vanadium, dissolved | < 0.001 | N/A | 0.001 | mg/L | N/A | Dec-23-15 | |
| Zinc, dissolved | **0.420** | 0.075 | 0.004 | mg/L | N/A | Dec-23-15 | |
| Zirconium, dissolved | **0.0001** | N/A | 0.0001 | mg/L | N/A | Dec-23-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5121430
**REPORTED** Jan-03-16

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: GW.INT (5121430-11) [Water] Sampled: Dec-21-15, Continued** | | | | | | | |
| ***BCMOE Aggregate Hydrocarbons*** | | | | | | | |
| VPHw | < 100 | 1500 | 100 | µg/L | N/A | N/A | |
| EPHw10-19 | < 250 | 5000 | 250 | µg/L | Dec-29-15 | Dec-30-15 | |
| EPHw19-32 | < 250 | N/A | 250 | µg/L | Dec-29-15 | Dec-30-15 | |
| LEPHw | < 250 | 500 | 250 | µg/L | N/A | N/A | |
| HEPHw | < 250 | N/A | 250 | µg/L | N/A | N/A | |
| VHw (6-10) | < 100 | 15000 | 100 | µg/L | N/A | Dec-31-15 | |
| *Surrogate: 2-Methylnonane (EPH)* | *74* | | *60-140* | % | *Dec-29-15* | *Dec-30-15* | |
| ***Polycyclic Aromatic Hydrocarbons (PAH)*** | | | | | | | |
| Acenaphthene | **0.91** | 60 | 0.05 | µg/L | Dec-29-15 | Dec-30-15 | |
| Acenaphthylene | < 0.20 | N/A | 0.20 | µg/L | Dec-29-15 | Dec-30-15 | |
| Acridine | < 0.10 | 0.5 | 0.10 | µg/L | Dec-29-15 | Dec-30-15 | |
| Anthracene | **0.04** | 1 | 0.01 | µg/L | Dec-29-15 | Dec-30-15 | |
| Benz (a) anthracene | < 0.01 | 1 | 0.01 | µg/L | Dec-29-15 | Dec-30-15 | |
| Benzo (a) pyrene | < 0.01 | 0.1 | 0.01 | µg/L | Dec-29-15 | Dec-30-15 | |
| Benzo (b) fluoranthene | < 0.05 | N/A | 0.05 | µg/L | Dec-29-15 | Dec-30-15 | |
| Benzo (g,h,i) perylene | < 0.05 | N/A | 0.05 | µg/L | Dec-29-15 | Dec-30-15 | |
| Benzo (k) fluoranthene | < 0.05 | N/A | 0.05 | µg/L | Dec-29-15 | Dec-30-15 | |
| Chrysene | < 0.05 | 1 | 0.05 | µg/L | Dec-29-15 | Dec-30-15 | |
| Dibenz (a,h) anthracene | < 0.05 | N/A | 0.05 | µg/L | Dec-29-15 | Dec-30-15 | |
| Fluoranthene | **0.16** | 2 | 0.03 | µg/L | Dec-29-15 | Dec-30-15 | |
| Fluorene | **0.32** | 120 | 0.05 | µg/L | Dec-29-15 | Dec-30-15 | |
| Indeno (1,2,3-cd) pyrene | < 0.05 | N/A | 0.05 | µg/L | Dec-29-15 | Dec-30-15 | |
| Naphthalene | < 0.20 | 10 | 0.20 | µg/L | Dec-29-15 | Dec-30-15 | |
| Phenanthrene | < 0.10 | 3 | 0.10 | µg/L | Dec-29-15 | Dec-30-15 | |
| Pyrene | **0.09** | 0.2 | 0.02 | µg/L | Dec-29-15 | Dec-30-15 | |
| Quinoline | < 0.10 | 34 | 0.10 | µg/L | Dec-29-15 | Dec-30-15 | |
| *Surrogate: Acridine-d9* | *87* | | *60-140* | % | *Dec-29-15* | *Dec-30-15* | |
| *Surrogate: Perylene-d12* | *76* | | *60-140* | % | *Dec-29-15* | *Dec-30-15* | |
| *Surrogate: Phenanthrene-d10* | *104* | | *60-140* | % | *Dec-29-15* | *Dec-30-15* | |
| ***Volatile Organic Compounds (VOC)*** | | | | | | | |
| Acetone | < 10.0 | N/A | 10.0 | µg/L | N/A | Dec-31-15 | |
| Benzene | < 0.5 | 1000 | 0.5 | µg/L | N/A | Dec-31-15 | |
| Bromodichloromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Dec-31-15 | |
| Bromoform | < 1.0 | N/A | 1.0 | µg/L | N/A | Dec-31-15 | |
| Bromomethane | < 2.0 | N/A | 2.0 | µg/L | N/A | Dec-31-15 | |
| 2-Butanone (MEK) | < 5.0 | N/A | 5.0 | µg/L | N/A | Dec-31-15 | |
| Carbon tetrachloride | < 1.0 | 130 | 1.0 | µg/L | N/A | Dec-31-15 | |
| Chlorobenzene | < 1.0 | 13 | 1.0 | µg/L | N/A | Dec-31-15 | |
| Chloroethane | < 2.0 | N/A | 2.0 | µg/L | N/A | Dec-31-15 | |
| Chloroform | < 1.0 | 20 | 1.0 | µg/L | N/A | Dec-31-15 | |
| Chloromethane | < 2.0 | N/A | 2.0 | µg/L | N/A | Dec-31-15 | |
| Dibromochloromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Dec-31-15 | |
| Dibromomethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Dec-31-15 | |
| 1,3-Dichlorobenzene | < 1.0 | 1500 | 1.0 | µg/L | N/A | Dec-31-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5121430
**REPORTED** Jan-03-16

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: GW.INT (5121430-11) [Water] Sampled: Dec-21-15, Continued** | | | | | | | |
| ***Volatile Organic Compounds (VOC), Continued*** | | | | | | | |
| 1,4-Dichlorobenzene | < 1.0 | 260 | 1.0 | µg/L | N/A | Dec-31-15 | |
| 1,1-Dichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Dec-31-15 | |
| 1,2-Dichloroethane | < 1.0 | 1000 | 1.0 | µg/L | N/A | Dec-31-15 | |
| 1,1-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Dec-31-15 | |
| cis-1,2-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Dec-31-15 | |
| trans-1,2-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Dec-31-15 | |
| 1,2-Dichloropropane | < 1.0 | N/A | 1.0 | µg/L | N/A | Dec-31-15 | |
| cis-1,3-Dichloropropene | < 1.0 | N/A | 1.0 | µg/L | N/A | Dec-31-15 | |
| trans-1,3-Dichloropropene | < 1.0 | N/A | 1.0 | µg/L | N/A | Dec-31-15 | |
| Ethylbenzene | < 1.0 | 2000 | 1.0 | µg/L | N/A | Dec-31-15 | |
| Methyl tert-butyl ether | < 1.0 | 34000 | 1.0 | µg/L | N/A | Dec-31-15 | |
| Methylene chloride | < 3.0 | 980 | 3.0 | µg/L | N/A | Dec-31-15 | |
| 4-Methyl-2-Pentanone (MIBK) | < 10.0 | N/A | 10.0 | µg/L | N/A | Dec-31-15 | |
| Styrene | < 1.0 | 720 | 1.0 | µg/L | N/A | Dec-31-15 | |
| 1,1,1,2-Tetrachloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Dec-31-15 | |
| 1,1,2,2-Tetrachloroethane | < 1.0 | 1100 | 1.0 | µg/L | N/A | Dec-31-15 | |
| Tetrachloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Dec-31-15 | |
| Toluene | < 1.0 | 390 | 1.0 | µg/L | N/A | Dec-31-15 | |
| 1,1,1-Trichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Dec-31-15 | |
| 1,1,2-Trichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Dec-31-15 | |
| Trichloroethene | < 1.0 | 200 | 1.0 | µg/L | N/A | Dec-31-15 | |
| Trichlorofluoromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Dec-31-15 | |
| Vinyl chloride | < 2.0 | N/A | 2.0 | µg/L | N/A | Dec-31-15 | |
| m,p-Xylene | < 1.0 | N/A | 1.0 | µg/L | N/A | Dec-31-15 | |
| o-Xylene | < 1.0 | N/A | 1.0 | µg/L | N/A | Dec-31-15 | |
| Xylenes (total) | < 2.0 | N/A | 2.0 | µg/L | N/A | Dec-31-15 | |
| 1,2-Dibromoethane | < 0.3 | N/A | 0.3 | µg/L | N/A | Dec-31-15 | |
| 1,2-Dichlorobenzene | < 0.5 | 7 | 0.5 | µg/L | N/A | Dec-31-15 | |
| *Surrogate: Toluene-d8* | *90* | | *70-130* | % | *N/A* | *Dec-31-15* | |
| *Surrogate: 4-Bromofluorobenzene* | *73* | | *70-130* | % | *N/A* | *Dec-31-15* | |
| *Surrogate: 1,4-Dichlorobenzene-d4* | *87* | | *70-130* | % | *N/A* | *Dec-31-15* | |
| **Sample ID: Field Blank (5121430-12) [Water] Sampled: Dec-21-15** | | | | | | | |
| ***Anions*** | | | | | | | |
| Bromide | < 0.10 | N/A | 0.10 | mg/L | N/A | Dec-24-15 | |
| Chloride | < 0.10 | 1500 | 0.10 | mg/L | N/A | Dec-24-15 | |
| Fluoride | < 0.05 | 2 | 0.05 | mg/L | N/A | Dec-24-15 | |
| Nitrate+Nitrite as N | < 0.005 | 400 | 0.005 | mg/L | N/A | Dec-30-15 | |
| Sulfate | < 1.0 | 1000 | 1.0 | mg/L | N/A | Dec-24-15 | |
| Nitrate as N | < 0.010 | 400 | 0.010 | mg/L | N/A | Dec-24-15 | |
| Nitrite as N | < 0.010 | 0.2 | 0.010 | mg/L | N/A | Dec-24-15 | |
| ***General Parameters*** | | | | | | | |
| pH | **6.10** | N/A | 0.01 | pH units | N/A | Dec-30-15 | HT2 |
| Conductivity (EC) | < 2 | N/A | 2 | µS/cm | N/A | Dec-30-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5121430
**REPORTED** Jan-03-16

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: Field Blank (5121430-12) [Water] Sampled: Dec-21-15, Continued** | | | | | | | |
| ***General Parameters, Continued*** | | | | | | | |
| Ammonia as N, Total | < 0.005 | N/A | 0.005 | mg/L | N/A | Dec-24-15 | |
| Alkalinity, Total as CaCO3 | **43** | N/A | 1 | mg/L | N/A | Dec-24-15 | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Dec-24-15 | |
| Alkalinity, Bicarbonate as CaCO3 | **43** | N/A | 1 | mg/L | N/A | Dec-24-15 | |
| Alkalinity, Carbonate as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Dec-24-15 | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | N/A | 1 | mg/L | N/A | Dec-24-15 | |
| Solids, Total Suspended | < 2 | N/A | 2 | mg/L | N/A | Dec-24-15 | |
| BOD, 5-day | < 2 | N/A | 2 | mg/L | Dec-24-15 | Dec-29-15 | BOD2 |
| Chemical Oxygen Demand | < 20 | N/A | 20 | mg/L | N/A | Dec-23-15 | |
| Phosphorus, Total as P | **0.059** | N/A | 0.002 | mg/L | Dec-24-15 | Dec-30-15 | |
| ***Calculated Parameters*** | | | | | | | |
| Hardness, Total (Diss. as CaCO3) | < 0.50 | N/A | 0.50 | mg/L | N/A | N/A | |
| Nitrate as N | < 0.010 | 400 | 0.010 | mg/L | N/A | N/A | |
| ***Dissolved Metals*** | | | | | | | |
| Aluminum, dissolved | < 0.005 | N/A | 0.005 | mg/L | N/A | Dec-29-15 | |
| Antimony, dissolved | < 0.0001 | 0.2 | 0.0001 | mg/L | N/A | Dec-29-15 | |
| Arsenic, dissolved | < 0.0005 | 0.05 | 0.0005 | mg/L | N/A | Dec-29-15 | |
| Barium, dissolved | < 0.005 | 5 | 0.005 | mg/L | N/A | Dec-29-15 | |
| Beryllium, dissolved | < 0.0001 | 0.053 | 0.0001 | mg/L | N/A | Dec-29-15 | |
| Bismuth, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Dec-29-15 | |
| Boron, dissolved | < 0.004 | 50 | 0.004 | mg/L | N/A | Dec-29-15 | |
| Cadmium, dissolved | < 0.00001 | 0.0001 | 0.00001 | mg/L | N/A | Dec-29-15 | |
| Calcium, dissolved | < 0.2 | N/A | 0.2 | mg/L | N/A | Dec-29-15 | |
| Chromium, dissolved | < 0.0005 | N/A | 0.0005 | mg/L | N/A | Dec-29-15 | |
| Cobalt, dissolved | < 0.00005 | 0.04 | 0.00005 | mg/L | N/A | Dec-29-15 | |
| Copper, dissolved | < 0.0002 | 0.02 | 0.0002 | mg/L | N/A | Dec-29-15 | |
| Iron, dissolved | < 0.010 | N/A | 0.010 | mg/L | N/A | Dec-29-15 | |
| Lead, dissolved | < 0.0001 | 0.04 | 0.0001 | mg/L | N/A | Dec-29-15 | |
| Lithium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Dec-29-15 | |
| Magnesium, dissolved | < 0.01 | N/A | 0.01 | mg/L | N/A | Dec-29-15 | |
| Manganese, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Dec-29-15 | |
| Mercury, dissolved | < 0.00002 | 0.001 | 0.00002 | mg/L | Dec-29-15 | Dec-30-15 | |
| Molybdenum, dissolved | < 0.0001 | 10 | 0.0001 | mg/L | N/A | Dec-29-15 | |
| Nickel, dissolved | < 0.0002 | 0.25 | 0.0002 | mg/L | N/A | Dec-29-15 | |
| Phosphorus, dissolved | < 0.02 | N/A | 0.02 | mg/L | N/A | Dec-29-15 | |
| Potassium, dissolved | < 0.02 | N/A | 0.02 | mg/L | N/A | Dec-29-15 | |
| Selenium, dissolved | < 0.0005 | 0.01 | 0.0005 | mg/L | N/A | Dec-29-15 | |
| Silicon, dissolved | < 0.5 | N/A | 0.5 | mg/L | N/A | Dec-29-15 | |
| Silver, dissolved | < 0.00005 | 0.0005 | 0.00005 | mg/L | N/A | Dec-29-15 | |
| Sodium, dissolved | < 0.02 | N/A | 0.02 | mg/L | N/A | Dec-29-15 | |
| Strontium, dissolved | < 0.001 | N/A | 0.001 | mg/L | N/A | Dec-29-15 | |
| Sulfur, dissolved | < 1 | N/A | 1 | mg/L | N/A | Dec-29-15 | |
| Tellurium, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Dec-29-15 | |
| Thallium, dissolved | < 0.00002 | 0.003 | 0.00002 | mg/L | N/A | Dec-29-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5121430
**REPORTED** Jan-03-16

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: Field Blank (5121430-12) [Water] Sampled: Dec-21-15, Continued** | | | | | | | |
| ***Dissolved Metals, Continued*** | | | | | | | |
| Thorium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Dec-29-15 | |
| Tin, dissolved | < 0.0002 | N/A | 0.0002 | mg/L | N/A | Dec-29-15 | |
| Titanium, dissolved | < 0.005 | 1 | 0.005 | mg/L | N/A | Dec-29-15 | |
| Uranium, dissolved | < 0.00002 | 3 | 0.00002 | mg/L | N/A | Dec-29-15 | |
| Vanadium, dissolved | < 0.001 | N/A | 0.001 | mg/L | N/A | Dec-29-15 | |
| Zinc, dissolved | < 0.004 | 0.075 | 0.004 | mg/L | N/A | Dec-29-15 | |
| Zirconium, dissolved | < 0.0001 | N/A | 0.0001 | mg/L | N/A | Dec-29-15 | |
| ***BCMOE Aggregate Hydrocarbons*** | | | | | | | |
| VPHw | < 100 | 1500 | 100 | µg/L | N/A | N/A | |
| EPHw10-19 | < 250 | 5000 | 250 | µg/L | Dec-29-15 | Dec-30-15 | |
| EPHw19-32 | < 250 | N/A | 250 | µg/L | Dec-29-15 | Dec-30-15 | |
| LEPHw | < 250 | 500 | 250 | µg/L | N/A | N/A | |
| HEPHw | < 250 | N/A | 250 | µg/L | N/A | N/A | |
| VHw (6-10) | < 100 | 15000 | 100 | µg/L | N/A | Dec-31-15 | |
| *Surrogate: 2-Methylnonane (EPH)* | *77* | | *60-140* | % | *Dec-29-15* | *Dec-30-15* | |
| ***Polycyclic Aromatic Hydrocarbons (PAH)*** | | | | | | | |
| Acenaphthene | < 0.05 | 60 | 0.05 | µg/L | Dec-29-15 | Dec-30-15 | |
| Acenaphthylene | < 0.20 | N/A | 0.20 | µg/L | Dec-29-15 | Dec-30-15 | |
| Acridine | < 0.10 | 0.5 | 0.10 | µg/L | Dec-29-15 | Dec-30-15 | |
| Anthracene | < 0.01 | 1 | 0.01 | µg/L | Dec-29-15 | Dec-30-15 | |
| Benz (a) anthracene | < 0.01 | 1 | 0.01 | µg/L | Dec-29-15 | Dec-30-15 | |
| Benzo (a) pyrene | < 0.01 | 0.1 | 0.01 | µg/L | Dec-29-15 | Dec-30-15 | |
| Benzo (b) fluoranthene | < 0.05 | N/A | 0.05 | µg/L | Dec-29-15 | Dec-30-15 | |
| Benzo (g,h,i) perylene | < 0.05 | N/A | 0.05 | µg/L | Dec-29-15 | Dec-30-15 | |
| Benzo (k) fluoranthene | < 0.05 | N/A | 0.05 | µg/L | Dec-29-15 | Dec-30-15 | |
| Chrysene | < 0.05 | 1 | 0.05 | µg/L | Dec-29-15 | Dec-30-15 | |
| Dibenz (a,h) anthracene | < 0.05 | N/A | 0.05 | µg/L | Dec-29-15 | Dec-30-15 | |
| Fluoranthene | < 0.03 | 2 | 0.03 | µg/L | Dec-29-15 | Dec-30-15 | |
| Fluorene | < 0.05 | 120 | 0.05 | µg/L | Dec-29-15 | Dec-30-15 | |
| Indeno (1,2,3-cd) pyrene | < 0.05 | N/A | 0.05 | µg/L | Dec-29-15 | Dec-30-15 | |
| Naphthalene | < 0.20 | 10 | 0.20 | µg/L | Dec-29-15 | Dec-30-15 | |
| Phenanthrene | < 0.10 | 3 | 0.10 | µg/L | Dec-29-15 | Dec-30-15 | |
| Pyrene | < 0.02 | 0.2 | 0.02 | µg/L | Dec-29-15 | Dec-30-15 | |
| Quinoline | < 0.10 | 34 | 0.10 | µg/L | Dec-29-15 | Dec-30-15 | |
| *Surrogate: Acridine-d9* | *44* | | *60-140* | % | *Dec-29-15* | *Dec-30-15* | S02 |
| *Surrogate: Perylene-d12* | *75* | | *60-140* | % | *Dec-29-15* | *Dec-30-15* | |
| *Surrogate: Phenanthrene-d10* | *69* | | *60-140* | % | *Dec-29-15* | *Dec-30-15* | |
| ***Volatile Organic Compounds (VOC)*** | | | | | | | |
| Acetone | < 10.0 | N/A | 10.0 | µg/L | N/A | Dec-31-15 | |
| Benzene | < 0.5 | 1000 | 0.5 | µg/L | N/A | Dec-31-15 | |
| Bromodichloromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Dec-31-15 | |
| Bromoform | < 1.0 | N/A | 1.0 | µg/L | N/A | Dec-31-15 | |
| Bromomethane | < 2.0 | N/A | 2.0 | µg/L | N/A | Dec-31-15 | |
| 2-Butanone (MEK) | < 5.0 | N/A | 5.0 | µg/L | N/A | Dec-31-15 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5121430
**REPORTED** Jan-03-16

| Analyte | Result / *Recovery* | Standard / Guideline | MRL / *Limits* | Units | Prepared | Analyzed | Notes |
|---|---|---|---|---|---|---|---|
| **Sample ID: Field Blank (5121430-12) [Water] Sampled: Dec-21-15, Continued** | | | | | | | |
| ***Volatile Organic Compounds (VOC), Continued*** | | | | | | | |
| Carbon tetrachloride | < 1.0 | 130 | 1.0 | µg/L | N/A | Dec-31-15 | |
| Chlorobenzene | < 1.0 | 13 | 1.0 | µg/L | N/A | Dec-31-15 | |
| Chloroethane | < 2.0 | N/A | 2.0 | µg/L | N/A | Dec-31-15 | |
| Chloroform | < 1.0 | 20 | 1.0 | µg/L | N/A | Dec-31-15 | |
| Chloromethane | < 2.0 | N/A | 2.0 | µg/L | N/A | Dec-31-15 | |
| Dibromochloromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Dec-31-15 | |
| Dibromomethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Dec-31-15 | |
| 1,3-Dichlorobenzene | < 1.0 | 1500 | 1.0 | µg/L | N/A | Dec-31-15 | |
| 1,4-Dichlorobenzene | < 1.0 | 260 | 1.0 | µg/L | N/A | Dec-31-15 | |
| 1,1-Dichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Dec-31-15 | |
| 1,2-Dichloroethane | < 1.0 | 1000 | 1.0 | µg/L | N/A | Dec-31-15 | |
| 1,1-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Dec-31-15 | |
| cis-1,2-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Dec-31-15 | |
| trans-1,2-Dichloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Dec-31-15 | |
| 1,2-Dichloropropane | < 1.0 | N/A | 1.0 | µg/L | N/A | Dec-31-15 | |
| cis-1,3-Dichloropropene | < 1.0 | N/A | 1.0 | µg/L | N/A | Dec-31-15 | |
| trans-1,3-Dichloropropene | < 1.0 | N/A | 1.0 | µg/L | N/A | Dec-31-15 | |
| Ethylbenzene | < 1.0 | 2000 | 1.0 | µg/L | N/A | Dec-31-15 | |
| Methyl tert-butyl ether | < 1.0 | 34000 | 1.0 | µg/L | N/A | Dec-31-15 | |
| Methylene chloride | < 3.0 | 980 | 3.0 | µg/L | N/A | Dec-31-15 | |
| 4-Methyl-2-Pentanone (MIBK) | < 10.0 | N/A | 10.0 | µg/L | N/A | Dec-31-15 | |
| Styrene | < 1.0 | 720 | 1.0 | µg/L | N/A | Dec-31-15 | |
| 1,1,1,2-Tetrachloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Dec-31-15 | |
| 1,1,2,2-Tetrachloroethane | < 1.0 | 1100 | 1.0 | µg/L | N/A | Dec-31-15 | |
| Tetrachloroethene | < 1.0 | N/A | 1.0 | µg/L | N/A | Dec-31-15 | |
| Toluene | < 1.0 | 390 | 1.0 | µg/L | N/A | Dec-31-15 | |
| 1,1,1-Trichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Dec-31-15 | |
| 1,1,2-Trichloroethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Dec-31-15 | |
| Trichloroethene | < 1.0 | 200 | 1.0 | µg/L | N/A | Dec-31-15 | |
| Trichlorofluoromethane | < 1.0 | N/A | 1.0 | µg/L | N/A | Dec-31-15 | |
| Vinyl chloride | < 2.0 | N/A | 2.0 | µg/L | N/A | Dec-31-15 | |
| m,p-Xylene | < 1.0 | N/A | 1.0 | µg/L | N/A | Dec-31-15 | |
| o-Xylene | < 1.0 | N/A | 1.0 | µg/L | N/A | Dec-31-15 | |
| Xylenes (total) | < 2.0 | N/A | 2.0 | µg/L | N/A | Dec-31-15 | |
| 1,2-Dibromoethane | < 0.3 | N/A | 0.3 | µg/L | N/A | Dec-31-15 | |
| 1,2-Dichlorobenzene | < 0.5 | 7 | 0.5 | µg/L | N/A | Dec-31-15 | |
| *Surrogate: Toluene-d8* | *92* | | *70-130* | % | *N/A* | *Dec-31-15* | |
| *Surrogate: 4-Bromofluorobenzene* | *75* | | *70-130* | % | *N/A* | *Dec-31-15* | |
| *Surrogate: 1,4-Dichlorobenzene-d4* | *88* | | *70-130* | % | *N/A* | *Dec-31-15* | |

| | | | |
|---|---|---|---|
| **REPORTED TO** | Morrison Hershfield Limited | **WORK ORDER** | 5121430 |
| **PROJECT** | Whistler Landfill - Spring/Fall | **REPORTED** | Jan-03-16 |

**Sample / Analysis Qualifiers:**

| | |
|---|---|
| BOD2 | The sample dilutions set-up for the BOD analysis did not meet the oxygen depletion criterion of at least 2 mg/L. |
| HT2 | The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended. |
| S02 | Surrogate recovery outside of control limits. Data accepted based on acceptable recovery of other surrogates. |

| | | | |
|---|---|---|---|
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The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- **Method Blank (Blk)**: Laboratory reagent water is carried through sample preparation and analysis steps. Method Blanks indicate that results are free from contamination, i.e. not biased high from sources such as the sample container or the laboratory environment
- **Duplicate (Dup)**: Preparation and analysis of a replicate aliquot of a sample. Duplicates provide a measure of the analytical method's precision, i.e. how reproducible a result is. Duplicates are only reported if they are associated with your sample data.
- **Blank Spike (BS)**: A known amount of standard is carried through sample preparation and analysis steps. Blank Spikes, also known as laboratory control samples (LCS), are prepared from a different source of standard than used for the calibration. They ensure that the calibration is acceptable (i.e. not biased high or low) and also provide a measure of the analytical method's accuracy (i.e. closeness of the result to a target value).
- **Standard Reference Material (SRM)**: A material of similar matrix to the samples, externally certified for the parameter(s) listed. Standard Reference Materials ensure that the preparation steps in the method are adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

| Analyte | Result | MRL | Units | Spike Level | Source Result | % REC | REC Limit | % RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Anions, Batch B5L1116*** | | | | | | | | | | |
| **Blank (B5L1116-BLK1)** | | | | Prepared: Dec-23-15, Analyzed: Dec-23-15 | | | | | | |
| Nitrate+Nitrite as N | < 0.005 | 0.005 | mg/L | | | | | | | |
| **LCS (B5L1116-BS1)** | | | | Prepared: Dec-23-15, Analyzed: Dec-23-15 | | | | | | |
| Nitrate+Nitrite as N | 0.501 | 0.005 | mg/L | 0.500 | | 100 | 91-108 | | | |
| ***Anions, Batch B5L1348*** | | | | | | | | | | |
| **Blank (B5L1348-BLK1)** | | | | Prepared: Dec-23-15, Analyzed: Dec-23-15 | | | | | | |
| Nitrite as N | < 0.005 | 0.005 | mg/L | | | | | | | |
| **LCS (B5L1348-BS1)** | | | | Prepared: Dec-23-15, Analyzed: Dec-23-15 | | | | | | |
| Nitrite as N | 0.053 | 0.005 | mg/L | 0.0500 | | 107 | 90-110 | | | |
| **Duplicate (B5L1348-DUP1)** | | **Source: 5121430-01** | | Prepared: Dec-23-15, Analyzed: Dec-23-15 | | | | | | |
| Nitrite as N | < 0.005 | 0.005 | mg/L | | < 0.005 | | | | 20 | |
| **Matrix Spike (B5L1348-MS1)** | | **Source: 5121430-05** | | Prepared: Dec-23-15, Analyzed: Dec-23-15 | | | | | | |
| Nitrite as N | 0.047 | 0.005 | mg/L | 0.0500 | < 0.005 | 92 | 80-120 | | | |
| ***Anions, Batch B5L1363*** | | | | | | | | | | |
| **Blank (B5L1363-BLK1)** | | | | Prepared: Dec-23-15, Analyzed: Dec-23-15 | | | | | | |
| Bromide | < 0.10 | 0.10 | mg/L | | | | | | | |
| Chloride | < 0.10 | 0.10 | mg/L | | | | | | | |
| Fluoride | < 0.01 | 0.01 | mg/L | | | | | | | |
| Sulfate | < 1.0 | 1.0 | mg/L | | | | | | | |
| Nitrate as N | < 0.010 | 0.010 | mg/L | | | | | | | |
| Nitrite as N | < 0.010 | 0.010 | mg/L | | | | | | | |
| **LCS (B5L1363-BS1)** | | | | Prepared: Dec-23-15, Analyzed: Dec-23-15 | | | | | | |
| Bromide | 4.21 | 0.10 | mg/L | 4.00 | | 105 | 85-115 | | | |
| Chloride | 16.9 | 0.10 | mg/L | 16.0 | | 106 | 90-110 | | | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5121430
**REPORTED** Jan-03-16

| Analyte | Result | MRL | Units | Spike Level | Source Result | % REC | REC Limit | % RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Anions, Batch B5L1363, Continued*** | | | | | | | | | | |
| **LCS (B5L1363-BS1), Continued** | | | | Prepared: Dec-23-15, Analyzed: Dec-23-15 | | | | | | |
| Fluoride | 3.94 | 0.01 | mg/L | 4.00 | | 99 | 85-115 | | | |
| Sulfate | 16.4 | 1.0 | mg/L | 16.0 | | 103 | 85-115 | | | |
| Nitrate as N | 4.20 | 0.010 | mg/L | 4.00 | | 105 | 85-115 | | | |
| Nitrite as N | 1.98 | 0.010 | mg/L | 2.00 | | 99 | 85-115 | | | |
| ***Anions, Batch B5L1406*** | | | | | | | | | | |
| **Blank (B5L1406-BLK1)** | | | | Prepared: Dec-30-15, Analyzed: Dec-30-15 | | | | | | |
| Nitrate+Nitrite as N | < 0.005 | 0.005 | mg/L | | | | | | | |
| **LCS (B5L1406-BS1)** | | | | Prepared: Dec-30-15, Analyzed: Dec-30-15 | | | | | | |
| Nitrate+Nitrite as N | 0.502 | 0.005 | mg/L | 0.500 | | 100 | 91-108 | | | |
| ***BCMOE Aggregate Hydrocarbons, Batch B5L1461*** | | | | | | | | | | |
| **Blank (B5L1461-BLK1)** | | | | Prepared: Dec-29-15, Analyzed: Dec-29-15 | | | | | | |
| EPHw10-19 | < 250 | 250 | µg/L | | | | | | | |
| EPHw19-32 | < 250 | 250 | µg/L | | | | | | | |
| *Surrogate: 2-Methylnonane (EPH)* | *546* | | *µg/L* | *444* | | *123* | *60-140* | | | |
| **LCS (B5L1461-BS2)** | | | | Prepared: Dec-29-15, Analyzed: Dec-29-15 | | | | | | |
| EPHw10-19 | 11300 | 250 | µg/L | 15400 | | 73 | 70-130 | | | |
| EPHw19-32 | 13500 | 250 | µg/L | 22200 | | 61 | 70-130 | | | SPK |
| *Surrogate: 2-Methylnonane (EPH)* | *444* | | *µg/L* | *444* | | *100* | *60-140* | | | |
| ***BCMOE Aggregate Hydrocarbons, Batch B5L1490*** | | | | | | | | | | |
| **Blank (B5L1490-BLK1)** | | | | Prepared: Dec-31-15, Analyzed: Dec-31-15 | | | | | | |
| VHw (6-10) | < 100 | 100 | µg/L | | | | | | | |
| **LCS (B5L1490-BS2)** | | | | Prepared: Dec-31-15, Analyzed: Dec-31-15 | | | | | | |
| VHw (6-10) | 2570 | 100 | µg/L | 2970 | | 87 | 80-120 | | | |
| **Duplicate (B5L1490-DUP1)** | | **Source: 5121430-12** | | Prepared: Dec-31-15, Analyzed: Dec-31-15 | | | | | | |
| VHw (6-10) | < 100 | 100 | µg/L | | < 100 | | | | 27 | |
| ***Dissolved Metals, Batch B5L1313*** | | | | | | | | | | |
| **Blank (B5L1313-BLK1)** | | | | Prepared: Dec-23-15, Analyzed: Dec-23-15 | | | | | | |
| Aluminum, dissolved | < 0.005 | 0.005 | mg/L | | | | | | | |
| Antimony, dissolved | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Arsenic, dissolved | < 0.0005 | 0.0005 | mg/L | | | | | | | |
| Barium, dissolved | < 0.005 | 0.005 | mg/L | | | | | | | |
| Beryllium, dissolved | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Bismuth, dissolved | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Boron, dissolved | < 0.004 | 0.004 | mg/L | | | | | | | |
| Cadmium, dissolved | < 0.00001 | 0.00001 | mg/L | | | | | | | |
| Calcium, dissolved | < 0.2 | 0.2 | mg/L | | | | | | | |
| Chromium, dissolved | < 0.0005 | 0.0005 | mg/L | | | | | | | |
| Cobalt, dissolved | < 0.00005 | 0.00005 | mg/L | | | | | | | |
| Copper, dissolved | < 0.0002 | 0.0002 | mg/L | | | | | | | |
| Iron, dissolved | < 0.010 | 0.010 | mg/L | | | | | | | |
| Lead, dissolved | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Lithium, dissolved | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Magnesium, dissolved | < 0.01 | 0.01 | mg/L | | | | | | | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5121430
**REPORTED** Jan-03-16

| Analyte | Result | MRL | Units | Spike Level | Source Result | % REC | REC Limit | % RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Dissolved Metals, Batch B5L1313, Continued*** | | | | | | | | | | |
| **Blank (B5L1313-BLK1), Continued** | | | | Prepared: Dec-23-15, Analyzed: Dec-23-15 | | | | | | |
| Manganese, dissolved | < 0.0002 | 0.0002 | mg/L | | | | | | | |
| Molybdenum, dissolved | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Nickel, dissolved | < 0.0002 | 0.0002 | mg/L | | | | | | | |
| Phosphorus, dissolved | < 0.02 | 0.02 | mg/L | | | | | | | |
| Potassium, dissolved | < 0.02 | 0.02 | mg/L | | | | | | | |
| Selenium, dissolved | < 0.0005 | 0.0005 | mg/L | | | | | | | |
| Silicon, dissolved | < 0.5 | 0.5 | mg/L | | | | | | | |
| Silver, dissolved | < 0.00005 | 0.00005 | mg/L | | | | | | | |
| Sodium, dissolved | < 0.02 | 0.02 | mg/L | | | | | | | |
| Strontium, dissolved | < 0.001 | 0.001 | mg/L | | | | | | | |
| Sulfur, dissolved | < 1 | 1 | mg/L | | | | | | | |
| Tellurium, dissolved | < 0.0002 | 0.0002 | mg/L | | | | | | | |
| Thallium, dissolved | < 0.00002 | 0.00002 | mg/L | | | | | | | |
| Thorium, dissolved | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Tin, dissolved | < 0.0002 | 0.0002 | mg/L | | | | | | | |
| Titanium, dissolved | < 0.005 | 0.005 | mg/L | | | | | | | |
| Uranium, dissolved | < 0.00002 | 0.00002 | mg/L | | | | | | | |
| Vanadium, dissolved | < 0.001 | 0.001 | mg/L | | | | | | | |
| Zinc, dissolved | < 0.004 | 0.004 | mg/L | | | | | | | |
| Zirconium, dissolved | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| **Matrix Spike (B5L1313-MS1)** | **Source: 5121430-07** | | | Prepared: Dec-23-15, Analyzed: Dec-23-15 | | | | | | |
| Antimony, dissolved | 0.365 | 0.0001 | mg/L | 0.400 | 0.0002 | 91 | 76-114 | | | |
| Arsenic, dissolved | 0.223 | 0.0005 | mg/L | 0.200 | 0.0145 | 104 | 81-115 | | | |
| Barium, dissolved | 1.02 | 0.005 | mg/L | 1.00 | 0.033 | 98 | 80-113 | | | |
| Beryllium, dissolved | 0.0922 | 0.0001 | mg/L | 0.100 | < 0.0001 | 92 | 69-109 | | | |
| Cadmium, dissolved | 0.101 | 0.00001 | mg/L | 0.100 | < 0.00001 | 101 | 83-110 | | | |
| Chromium, dissolved | 0.430 | 0.0005 | mg/L | 0.400 | < 0.0005 | 107 | 85-115 | | | |
| Cobalt, dissolved | 0.437 | 0.00005 | mg/L | 0.400 | 0.0150 | 106 | 86-114 | | | |
| Copper, dissolved | 0.421 | 0.0002 | mg/L | 0.400 | 0.0005 | 105 | 82-119 | | | |
| Iron, dissolved | 64.8 | 0.010 | mg/L | 2.00 | 65.5 | NR | 80-116 | | | SPK |
| Lead, dissolved | 0.200 | 0.0001 | mg/L | 0.200 | < 0.0001 | 100 | 83-112 | | | |
| Manganese, dissolved | 4.34 | 0.0002 | mg/L | 0.400 | 4.07 | 67 | 62-131 | | | |
| Nickel, dissolved | 0.421 | 0.0002 | mg/L | 0.400 | 0.0035 | 104 | 81-115 | | | |
| Selenium, dissolved | 0.113 | 0.0005 | mg/L | 0.100 | < 0.0005 | 113 | 79-115 | | | |
| Silver, dissolved | 0.0950 | 0.00005 | mg/L | 0.100 | < 0.00005 | 95 | 69-121 | | | |
| Thallium, dissolved | 0.105 | 0.00002 | mg/L | 0.100 | < 0.00002 | 105 | 84-115 | | | |
| Vanadium, dissolved | 0.425 | 0.001 | mg/L | 0.400 | < 0.001 | 106 | 83-113 | | | |
| Zinc, dissolved | 1.01 | 0.004 | mg/L | 1.00 | < 0.004 | 101 | 82-115 | | | |
| **Reference (B5L1313-SRM1)** | | | | Prepared: Dec-23-15, Analyzed: Dec-23-15 | | | | | | |
| Aluminum, dissolved | 0.251 | 0.005 | mg/L | 0.233 | | 108 | 58-142 | | | |
| Antimony, dissolved | 0.0450 | 0.0001 | mg/L | 0.0430 | | 105 | 75-125 | | | |
| Arsenic, dissolved | 0.475 | 0.0005 | mg/L | 0.438 | | 108 | 81-119 | | | |
| Barium, dissolved | 3.56 | 0.005 | mg/L | 3.35 | | 106 | 83-117 | | | |
| Beryllium, dissolved | 0.218 | 0.0001 | mg/L | 0.213 | | 103 | 80-120 | | | |
| Boron, dissolved | 1.70 | 0.004 | mg/L | 1.74 | | 98 | 74-117 | | | |
| Cadmium, dissolved | 0.239 | 0.00001 | mg/L | 0.224 | | 107 | 83-117 | | | |
| Calcium, dissolved | 8.6 | 0.2 | mg/L | 7.69 | | 112 | 76-124 | | | |
| Chromium, dissolved | 0.484 | 0.0005 | mg/L | 0.437 | | 111 | 81-119 | | | |
| Cobalt, dissolved | 0.149 | 0.00005 | mg/L | 0.128 | | 117 | 76-124 | | | |
| Copper, dissolved | 0.977 | 0.0002 | mg/L | 0.844 | | 116 | 84-116 | | | |
| Iron, dissolved | 1.43 | 0.010 | mg/L | 1.29 | | 111 | 74-126 | | | |
| Lead, dissolved | 0.119 | 0.0001 | mg/L | 0.112 | | 106 | 72-128 | | | |
| Lithium, dissolved | 0.109 | 0.0001 | mg/L | 0.104 | | 104 | 60-140 | | | |
| Magnesium, dissolved | 7.34 | 0.01 | mg/L | 6.92 | | 106 | 81-119 | | | |
| Manganese, dissolved | 0.385 | 0.0002 | mg/L | 0.345 | | 111 | 84-116 | | | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5121430
**REPORTED** Jan-03-16

| Analyte | Result | MRL | Units | Spike Level | Source Result | % REC | REC Limit | % RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Dissolved Metals, Batch B5L1313, Continued*** | | | | | | | | | | |
| **Reference (B5L1313-SRM1), Continued** | | | | Prepared: Dec-23-15, Analyzed: Dec-23-15 | | | | | | |
| Molybdenum, dissolved | 0.446 | 0.0001 | mg/L | 0.426 | | 105 | 83-117 | | | |
| Nickel, dissolved | 0.958 | 0.0002 | mg/L | 0.840 | | 114 | 74-126 | | | |
| Phosphorus, dissolved | 0.52 | 0.02 | mg/L | 0.495 | | 105 | 68-132 | | | |
| Potassium, dissolved | 3.51 | 0.02 | mg/L | 3.19 | | 110 | 74-126 | | | |
| Selenium, dissolved | 0.0399 | 0.0005 | mg/L | 0.0331 | | 120 | 70-130 | | | |
| Sodium, dissolved | 20.2 | 0.02 | mg/L | 19.1 | | 106 | 72-128 | | | |
| Strontium, dissolved | 0.981 | 0.001 | mg/L | 0.916 | | 107 | 84-113 | | | |
| Thallium, dissolved | 0.0413 | 0.00002 | mg/L | 0.0393 | | 105 | 57-143 | | | |
| Uranium, dissolved | 0.274 | 0.00002 | mg/L | 0.266 | | 103 | 85-115 | | | |
| Vanadium, dissolved | 0.951 | 0.001 | mg/L | 0.869 | | 109 | 87-113 | | | |
| Zinc, dissolved | 0.963 | 0.004 | mg/L | 0.881 | | 109 | 72-128 | | | |
| ***Dissolved Metals, Batch B5L1331*** | | | | | | | | | | |
| **Blank (B5L1331-BLK1)** | | | | Prepared: Dec-23-15, Analyzed: Dec-23-15 | | | | | | |
| Mercury, dissolved | < 0.00002 | 0.00002 | mg/L | | | | | | | |
| **Duplicate (B5L1331-DUP1)** | | **Source: 5121430-08** | | Prepared: Dec-23-15, Analyzed: Dec-23-15 | | | | | | |
| Mercury, dissolved | < 0.00002 | 0.00002 | mg/L | | < 0.00002 | | | | 20 | |
| **Matrix Spike (B5L1331-MS1)** | | **Source: 5121430-09** | | Prepared: Dec-23-15, Analyzed: Dec-23-15 | | | | | | |
| Mercury, dissolved | 0.00020 | 0.00002 | mg/L | 0.000250 | < 0.00002 | 78 | 70-130 | | | |
| **Reference (B5L1331-SRM1)** | | | | Prepared: Dec-23-15, Analyzed: Dec-23-15 | | | | | | |
| Mercury, dissolved | 0.00342 | 0.00002 | mg/L | 0.00456 | | 75 | 50-150 | | | |
| ***Dissolved Metals, Batch B5L1432*** | | | | | | | | | | |
| **Blank (B5L1432-BLK1)** | | | | Prepared: Dec-29-15, Analyzed: Dec-29-15 | | | | | | |
| Aluminum, dissolved | < 0.005 | 0.005 | mg/L | | | | | | | |
| Antimony, dissolved | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Arsenic, dissolved | < 0.0005 | 0.0005 | mg/L | | | | | | | |
| Barium, dissolved | < 0.005 | 0.005 | mg/L | | | | | | | |
| Beryllium, dissolved | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Bismuth, dissolved | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Boron, dissolved | < 0.004 | 0.004 | mg/L | | | | | | | |
| Cadmium, dissolved | < 0.00001 | 0.00001 | mg/L | | | | | | | |
| Calcium, dissolved | < 0.2 | 0.2 | mg/L | | | | | | | |
| Chromium, dissolved | < 0.0005 | 0.0005 | mg/L | | | | | | | |
| Cobalt, dissolved | < 0.00005 | 0.00005 | mg/L | | | | | | | |
| Copper, dissolved | < 0.0002 | 0.0002 | mg/L | | | | | | | |
| Iron, dissolved | < 0.010 | 0.010 | mg/L | | | | | | | |
| Lead, dissolved | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Lithium, dissolved | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Magnesium, dissolved | < 0.01 | 0.01 | mg/L | | | | | | | |
| Manganese, dissolved | < 0.0002 | 0.0002 | mg/L | | | | | | | |
| Molybdenum, dissolved | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Nickel, dissolved | < 0.0002 | 0.0002 | mg/L | | | | | | | |
| Phosphorus, dissolved | < 0.02 | 0.02 | mg/L | | | | | | | |
| Potassium, dissolved | < 0.02 | 0.02 | mg/L | | | | | | | |
| Selenium, dissolved | < 0.0005 | 0.0005 | mg/L | | | | | | | |
| Silicon, dissolved | < 0.5 | 0.5 | mg/L | | | | | | | |
| Silver, dissolved | < 0.00005 | 0.00005 | mg/L | | | | | | | |
| Sodium, dissolved | < 0.02 | 0.02 | mg/L | | | | | | | |
| Strontium, dissolved | < 0.001 | 0.001 | mg/L | | | | | | | |
| Sulfur, dissolved | < 1 | 1 | mg/L | | | | | | | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5121430
**REPORTED** Jan-03-16

| Analyte | Result | MRL | Units | Spike Level | Source Result | % REC | REC Limit | % RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Dissolved Metals, Batch B5L1432, Continued*** | | | | | | | | | | |
| **Blank (B5L1432-BLK1), Continued** | | | | Prepared: Dec-29-15, Analyzed: Dec-29-15 | | | | | | |
| Tellurium, dissolved | < 0.0002 | 0.0002 | mg/L | | | | | | | |
| Thallium, dissolved | < 0.00002 | 0.00002 | mg/L | | | | | | | |
| Thorium, dissolved | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Tin, dissolved | < 0.0002 | 0.0002 | mg/L | | | | | | | |
| Titanium, dissolved | < 0.005 | 0.005 | mg/L | | | | | | | |
| Uranium, dissolved | < 0.00002 | 0.00002 | mg/L | | | | | | | |
| Vanadium, dissolved | < 0.001 | 0.001 | mg/L | | | | | | | |
| Zinc, dissolved | < 0.004 | 0.004 | mg/L | | | | | | | |
| Zirconium, dissolved | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| **Matrix Spike (B5L1432-MS1)** | **Source: 5121430-12** | | | Prepared: Dec-29-15, Analyzed: Dec-29-15 | | | | | | |
| Antimony, dissolved | 0.333 | 0.0001 | mg/L | 0.400 | < 0.0001 | 83 | 76-114 | | | |
| Arsenic, dissolved | 0.193 | 0.0005 | mg/L | 0.200 | < 0.0005 | 96 | 81-115 | | | |
| Barium, dissolved | 0.897 | 0.005 | mg/L | 1.00 | < 0.005 | 90 | 80-113 | | | |
| Beryllium, dissolved | 0.0871 | 0.0001 | mg/L | 0.100 | < 0.0001 | 87 | 69-109 | | | |
| Cadmium, dissolved | 0.0935 | 0.00001 | mg/L | 0.100 | < 0.00001 | 93 | 83-110 | | | |
| Chromium, dissolved | 0.402 | 0.0005 | mg/L | 0.400 | < 0.0005 | 101 | 85-115 | | | |
| Cobalt, dissolved | 0.395 | 0.00005 | mg/L | 0.400 | < 0.00005 | 99 | 86-114 | | | |
| Copper, dissolved | 0.418 | 0.0002 | mg/L | 0.400 | < 0.0002 | 105 | 82-119 | | | |
| Iron, dissolved | 2.00 | 0.010 | mg/L | 2.00 | < 0.010 | 100 | 80-116 | | | |
| Lead, dissolved | 0.204 | 0.0001 | mg/L | 0.200 | < 0.0001 | 102 | 83-112 | | | |
| Manganese, dissolved | 0.392 | 0.0002 | mg/L | 0.400 | < 0.0002 | 98 | 62-131 | | | |
| Nickel, dissolved | 0.407 | 0.0002 | mg/L | 0.400 | < 0.0002 | 102 | 81-115 | | | |
| Selenium, dissolved | 0.114 | 0.0005 | mg/L | 0.100 | < 0.0005 | 114 | 79-115 | | | |
| Silver, dissolved | 0.108 | 0.00005 | mg/L | 0.100 | < 0.00005 | 108 | 69-121 | | | |
| Thallium, dissolved | 0.106 | 0.00002 | mg/L | 0.100 | < 0.00002 | 106 | 84-115 | | | |
| Vanadium, dissolved | 0.385 | 0.001 | mg/L | 0.400 | < 0.001 | 96 | 83-113 | | | |
| Zinc, dissolved | 0.966 | 0.004 | mg/L | 1.00 | < 0.004 | 97 | 82-115 | | | |
| **Reference (B5L1432-SRM1)** | | | | Prepared: Dec-29-15, Analyzed: Dec-29-15 | | | | | | |
| Aluminum, dissolved | 0.240 | 0.005 | mg/L | 0.233 | | 103 | 58-142 | | | |
| Antimony, dissolved | 0.0539 | 0.0001 | mg/L | 0.0430 | | 125 | 75-125 | | | |
| Arsenic, dissolved | 0.459 | 0.0005 | mg/L | 0.438 | | 105 | 81-119 | | | |
| Barium, dissolved | 3.29 | 0.005 | mg/L | 3.35 | | 98 | 83-117 | | | |
| Beryllium, dissolved | 0.205 | 0.0001 | mg/L | 0.213 | | 96 | 80-120 | | | |
| Boron, dissolved | 1.85 | 0.004 | mg/L | 1.74 | | 106 | 74-117 | | | |
| Cadmium, dissolved | 0.223 | 0.00001 | mg/L | 0.224 | | 100 | 83-117 | | | |
| Calcium, dissolved | 7.8 | 0.2 | mg/L | 7.69 | | 101 | 76-124 | | | |
| Chromium, dissolved | 0.468 | 0.0005 | mg/L | 0.437 | | 107 | 81-119 | | | |
| Cobalt, dissolved | 0.141 | 0.00005 | mg/L | 0.128 | | 110 | 76-124 | | | |
| Copper, dissolved | 0.934 | 0.0002 | mg/L | 0.844 | | 111 | 84-116 | | | |
| Iron, dissolved | 1.35 | 0.010 | mg/L | 1.29 | | 104 | 74-126 | | | |
| Lead, dissolved | 0.119 | 0.0001 | mg/L | 0.112 | | 106 | 72-128 | | | |
| Lithium, dissolved | 0.102 | 0.0001 | mg/L | 0.104 | | 98 | 60-140 | | | |
| Magnesium, dissolved | 7.21 | 0.01 | mg/L | 6.92 | | 104 | 81-119 | | | |
| Manganese, dissolved | 0.360 | 0.0002 | mg/L | 0.345 | | 104 | 84-116 | | | |
| Molybdenum, dissolved | 0.482 | 0.0001 | mg/L | 0.426 | | 113 | 83-117 | | | |
| Nickel, dissolved | 0.918 | 0.0002 | mg/L | 0.840 | | 109 | 74-126 | | | |
| Phosphorus, dissolved | 0.49 | 0.02 | mg/L | 0.495 | | 99 | 68-132 | | | |
| Potassium, dissolved | 3.29 | 0.02 | mg/L | 3.19 | | 103 | 74-126 | | | |
| Selenium, dissolved | 0.0336 | 0.0005 | mg/L | 0.0331 | | 101 | 70-130 | | | |
| Sodium, dissolved | 20.2 | 0.02 | mg/L | 19.1 | | 106 | 72-128 | | | |
| Strontium, dissolved | 0.889 | 0.001 | mg/L | 0.916 | | 97 | 84-113 | | | |
| Thallium, dissolved | 0.0411 | 0.00002 | mg/L | 0.0393 | | 105 | 57-143 | | | |
| Uranium, dissolved | 0.270 | 0.00002 | mg/L | 0.266 | | 101 | 85-115 | | | |
| Vanadium, dissolved | 0.901 | 0.001 | mg/L | 0.869 | | 104 | 87-113 | | | |
| Zinc, dissolved | 0.921 | 0.004 | mg/L | 0.881 | | 104 | 72-128 | | | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5121430
**REPORTED** Jan-03-16

| Analyte | Result | MRL | Units | Spike Level | Source Result | % REC | REC Limit | % RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Dissolved Metals, Batch B5L1454*** | | | | | | | | | | |
| **Blank (B5L1454-BLK1)** | | | | Prepared: Dec-29-15, Analyzed: Dec-30-15 | | | | | | |
| Mercury, dissolved | < 0.00002 | 0.00002 | mg/L | | | | | | | |
| **Reference (B5L1454-SRM1)** | | | | Prepared: Dec-29-15, Analyzed: Dec-30-15 | | | | | | |
| Mercury, dissolved | 0.00389 | 0.00002 | mg/L | 0.00456 | | 85 | 50-150 | | | |
| ***General Parameters, Batch B5L1294*** | | | | | | | | | | |
| **Blank (B5L1294-BLK1)** | | | | Prepared: Dec-24-15, Analyzed: Dec-24-15 | | | | | | |
| Ammonia as N, Total | < 0.005 | 0.005 | mg/L | | | | | | | |
| **LCS (B5L1294-BS1)** | | | | Prepared: Dec-24-15, Analyzed: Dec-24-15 | | | | | | |
| Ammonia as N, Total | 1.02 | 0.005 | mg/L | 1.00 | | 102 | 86-111 | | | |
| **Duplicate (B5L1294-DUP1)** | | **Source: 5121430-01** | | Prepared: Dec-24-15, Analyzed: Dec-24-15 | | | | | | |
| Ammonia as N, Total | 0.491 | 0.005 | mg/L | | 0.492 | | | < 1 | 15 | |
| **Matrix Spike (B5L1294-MS1)** | | **Source: 5121430-01** | | Prepared: Dec-24-15, Analyzed: Dec-24-15 | | | | | | |
| Ammonia as N, Total | 0.749 | 0.005 | mg/L | 0.250 | 0.492 | 103 | 76-121 | | | |
| ***General Parameters, Batch B5L1318*** | | | | | | | | | | |
| **Blank (B5L1318-BLK1)** | | | | Prepared: Dec-23-15, Analyzed: Dec-23-15 | | | | | | |
| Solids, Total Suspended | < 1 | 2 | mg/L | | | | | | | |
| **LCS (B5L1318-BS1)** | | | | Prepared: Dec-23-15, Analyzed: Dec-23-15 | | | | | | |
| Solids, Total Suspended | 53 | 2 | mg/L | 51.4 | | 103 | 83-107 | | | |
| **Duplicate (B5L1318-DUP1)** | | **Source: 5121430-07** | | Prepared: Dec-23-15, Analyzed: Dec-23-15 | | | | | | |
| Solids, Total Suspended | 940 | 2 | mg/L | | 800 | | | 16 | 26 | |
| ***General Parameters, Batch B5L1323*** | | | | | | | | | | |
| **LCS (B5L1323-BS1)** | | | | Prepared: Dec-23-15, Analyzed: Dec-23-15 | | | | | | |
| Chemical Oxygen Demand | 507 | 20 | mg/L | 500 | | 101 | 90-110 | | | |
| ***General Parameters, Batch B5L1324*** | | | | | | | | | | |
| **Duplicate (B5L1324-DUP1)** | | **Source: 5121430-03** | | Prepared: Dec-23-15, Analyzed: Dec-23-15 | | | | | | |
| pH | 6.76 | 0.01 | pH units | | 6.74 | | | < 1 | 4 | |
| **Reference (B5L1324-SRM1)** | | | | Prepared: Dec-23-15, Analyzed: Dec-23-15 | | | | | | |
| pH | 7.01 | 0.01 | pH units | 7.00 | | 100 | 98-102 | | | |
| ***General Parameters, Batch B5L1325*** | | | | | | | | | | |
| **Blank (B5L1325-BLK1)** | | | | Prepared: Dec-23-15, Analyzed: Dec-23-15 | | | | | | |
| Conductivity (EC) | < 2 | 2 | µS/cm | | | | | | | |
| **LCS (B5L1325-BS1)** | | | | Prepared: Dec-23-15, Analyzed: Dec-23-15 | | | | | | |
| Conductivity (EC) | 159 | 2 | µS/cm | 147 | | 108 | 88-112 | | | |
| **Duplicate (B5L1325-DUP1)** | | **Source: 5121430-07** | | Prepared: Dec-23-15, Analyzed: Dec-23-15 | | | | | | |
| Conductivity (EC) | 1200 | 2 | µS/cm | | 1210 | | | < 1 | 7 | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5121430
**REPORTED** Jan-03-16

| Analyte | Result | MRL | Units | Spike Level | Source Result | % REC | REC Limit | % RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| ***General Parameters, Batch B5L1325, Continued*** | | | | | | | | | | |
| **Reference (B5L1325-SRM1)** | | | | Prepared: Dec-23-15, Analyzed: Dec-23-15 | | | | | | |
| Conductivity (EC) | 514 | 2 | µS/cm | 500 | | 103 | 90-110 | | | |
| ***General Parameters, Batch B5L1333*** | | | | | | | | | | |
| **Blank (B5L1333-BLK1)** | | | | Prepared: Dec-23-15, Analyzed: Dec-23-15 | | | | | | |
| Alkalinity, Total as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Alkalinity, Bicarbonate as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Alkalinity, Carbonate as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| **LCS (B5L1333-BS1)** | | | | Prepared: Dec-23-15, Analyzed: Dec-23-15 | | | | | | |
| Alkalinity, Total as CaCO3 | 101 | 1 | mg/L | 100 | | 101 | 96-108 | | | |
| ***General Parameters, Batch B5L1385*** | | | | | | | | | | |
| **Blank (B5L1385-BLK1)** | | | | Prepared: Dec-24-15, Analyzed: Dec-29-15 | | | | | | |
| BOD, 5-day | < 1 | 2 | mg/L | | | | | | | |
| **LCS (B5L1385-BS1)** | | | | Prepared: Dec-24-15, Analyzed: Dec-29-15 | | | | | | |
| BOD, 5-day | 198 | 2 | mg/L | 198 | | 100 | 85-115 | | | |
| **Reference (B5L1385-SRM1)** | | | | Prepared: Dec-24-15, Analyzed: Dec-29-15 | | | | | | |
| BOD, 5-day | 214 | 2 | mg/L | 198 | | 108 | 66-136 | | | |
| ***General Parameters, Batch B5L1388*** | | | | | | | | | | |
| **Blank (B5L1388-BLK1)** | | | | Prepared: Dec-24-15, Analyzed: Dec-30-15 | | | | | | |
| Phosphorus, Total as P | < 0.002 | 0.002 | mg/L | | | | | | | |
| **Blank (B5L1388-BLK2)** | | | | Prepared: Dec-24-15, Analyzed: Dec-30-15 | | | | | | |
| Phosphorus, Total as P | < 0.002 | 0.002 | mg/L | | | | | | | |
| **LCS (B5L1388-BS1)** | | | | Prepared: Dec-24-15, Analyzed: Dec-30-15 | | | | | | |
| Phosphorus, Total as P | 0.097 | 0.002 | mg/L | 0.100 | | 97 | 75-112 | | | |
| **LCS (B5L1388-BS2)** | | | | Prepared: Dec-24-15, Analyzed: Dec-30-15 | | | | | | |
| Phosphorus, Total as P | 0.098 | 0.002 | mg/L | 0.100 | | 98 | 75-112 | | | |
| **Duplicate (B5L1388-DUP2)** | | **Source: 5121430-11** | | Prepared: Dec-24-15, Analyzed: Dec-30-15 | | | | | | |
| Phosphorus, Total as P | 0.050 | 0.002 | mg/L | | 0.063 | | | 23 | 30 | |
| **Matrix Spike (B5L1388-MS2)** | | **Source: 5121430-11** | | Prepared: Dec-24-15, Analyzed: Dec-30-15 | | | | | | |
| Phosphorus, Total as P | 0.550 | 0.002 | mg/L | 0.500 | 0.063 | 97 | 65-122 | | | |
| ***General Parameters, Batch B5L1399*** | | | | | | | | | | |
| **Blank (B5L1399-BLK1)** | | | | Prepared: Dec-24-15, Analyzed: Dec-24-15 | | | | | | |
| Alkalinity, Total as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Alkalinity, Phenolphthalein as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Alkalinity, Bicarbonate as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Alkalinity, Carbonate as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| Alkalinity, Hydroxide as CaCO3 | < 1 | 1 | mg/L | | | | | | | |
| **LCS (B5L1399-BS1)** | | | | Prepared: Dec-24-15, Analyzed: Dec-24-15 | | | | | | |
| Alkalinity, Total as CaCO3 | 102 | 1 | mg/L | 100 | | 102 | 96-108 | | | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5121430
**REPORTED** Jan-03-16

| Analyte | Result | MRL | Units | Spike Level | Source Result | % REC | REC Limit | % RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| ***General Parameters, Batch B5L1399, Continued*** | | | | | | | | | | |
| ***General Parameters, Batch B5L1412*** | | | | | | | | | | |
| **Blank (B5L1412-BLK1)** | | | | Prepared: Dec-24-15, Analyzed: Dec-24-15 | | | | | | |
| Solids, Total Suspended | < 0.1 | 2 | mg/L | | | | | | | |
| **LCS (B5L1412-BS1)** | | | | Prepared: Dec-24-15, Analyzed: Dec-24-15 | | | | | | |
| Solids, Total Suspended | 54 | 2 | mg/L | 58.0 | | 94 | 83-107 | | | |
| ***General Parameters, Batch B5L1491*** | | | | | | | | | | |
| **Reference (B5L1491-SRM1)** | | | | Prepared: Dec-30-15, Analyzed: Dec-30-15 | | | | | | |
| pH | 6.99 | 0.01 | pH units | 7.00 | | 100 | 98-102 | | | |
| ***General Parameters, Batch B5L1492*** | | | | | | | | | | |
| **Blank (B5L1492-BLK1)** | | | | Prepared: Dec-30-15, Analyzed: Dec-30-15 | | | | | | |
| Conductivity (EC) | < 2 | 2 | µS/cm | | | | | | | |
| **LCS (B5L1492-BS1)** | | | | Prepared: Dec-30-15, Analyzed: Dec-30-15 | | | | | | |
| Conductivity (EC) | 152 | 2 | µS/cm | 147 | | 104 | 88-112 | | | |
| **Reference (B5L1492-SRM1)** | | | | Prepared: Dec-30-15, Analyzed: Dec-30-15 | | | | | | |
| Conductivity (EC) | 503 | 2 | µS/cm | 500 | | 101 | 90-110 | | | |
| ***Polycyclic Aromatic Hydrocarbons (PAH), Batch B5L1461*** | | | | | | | | | | |
| **Blank (B5L1461-BLK1)** | | | | Prepared: Dec-29-15, Analyzed: Dec-29-15 | | | | | | |
| Acenaphthene | < 0.05 | 0.05 | µg/L | | | | | | | |
| Acenaphthylene | < 0.20 | 0.20 | µg/L | | | | | | | |
| Acridine | < 0.10 | 0.10 | µg/L | | | | | | | |
| Anthracene | < 0.01 | 0.01 | µg/L | | | | | | | |
| Benz (a) anthracene | < 0.01 | 0.01 | µg/L | | | | | | | |
| Benzo (a) pyrene | < 0.01 | 0.01 | µg/L | | | | | | | |
| Benzo (b) fluoranthene | < 0.05 | 0.05 | µg/L | | | | | | | |
| Benzo (g,h,i) perylene | < 0.05 | 0.05 | µg/L | | | | | | | |
| Benzo (k) fluoranthene | < 0.05 | 0.05 | µg/L | | | | | | | |
| Chrysene | < 0.05 | 0.05 | µg/L | | | | | | | |
| Dibenz (a,h) anthracene | < 0.05 | 0.05 | µg/L | | | | | | | |
| Fluoranthene | < 0.03 | 0.03 | µg/L | | | | | | | |
| Fluorene | < 0.05 | 0.05 | µg/L | | | | | | | |
| Indeno (1,2,3-cd) pyrene | < 0.05 | 0.05 | µg/L | | | | | | | |
| Naphthalene | < 0.20 | 0.20 | µg/L | | | | | | | |
| Phenanthrene | < 0.10 | 0.10 | µg/L | | | | | | | |
| Pyrene | < 0.02 | 0.02 | µg/L | | | | | | | |
| Quinoline | < 0.10 | 0.10 | µg/L | | | | | | | |
| *Surrogate: Acridine-d9* | *3.83* | | *µg/L* | *4.44* | | *86* | *60-140* | | | |
| *Surrogate: Perylene-d12* | *4.37* | | *µg/L* | *4.44* | | *98* | *60-140* | | | |
| *Surrogate: Phenanthrene-d10* | *4.28* | | *µg/L* | *4.44* | | *96* | *60-140* | | | |
| **LCS (B5L1461-BS1)** | | | | Prepared: Dec-29-15, Analyzed: Dec-29-15 | | | | | | |
| Acenaphthene | 4.68 | 0.05 | µg/L | 4.44 | | 105 | 70-130 | | | |
| Acenaphthylene | 5.12 | 0.20 | µg/L | 4.44 | | 115 | 70-130 | | | |
| Acridine | 4.12 | 0.10 | µg/L | 4.44 | | 93 | 60-140 | | | |
| Anthracene | 4.67 | 0.01 | µg/L | 4.44 | | 105 | 70-130 | | | |
| Benz (a) anthracene | 4.63 | 0.01 | µg/L | 4.44 | | 104 | 70-130 | | | |
| Benzo (a) pyrene | 4.79 | 0.01 | µg/L | 4.44 | | 108 | 70-130 | | | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5121430
**REPORTED** Jan-03-16

| Analyte | Result | MRL | Units | Spike Level | Source Result | % REC | REC Limit | % RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Polycyclic Aromatic Hydrocarbons (PAH), Batch B5L1461, Continued*** | | | | | | | | | | |
| **LCS (B5L1461-BS1), Continued** | | | | Prepared: Dec-29-15, Analyzed: Dec-29-15 | | | | | | |
| Benzo (b) fluoranthene | 4.71 | 0.05 | µg/L | 4.44 | | 106 | 70-130 | | | |
| Benzo (g,h,i) perylene | 4.66 | 0.05 | µg/L | 4.44 | | 105 | 70-130 | | | |
| Benzo (k) fluoranthene | 4.69 | 0.05 | µg/L | 4.44 | | 106 | 70-130 | | | |
| Chrysene | 4.80 | 0.05 | µg/L | 4.44 | | 108 | 70-130 | | | |
| Dibenz (a,h) anthracene | 4.06 | 0.05 | µg/L | 4.44 | | 91 | 70-130 | | | |
| Fluoranthene | 4.76 | 0.03 | µg/L | 4.44 | | 107 | 70-130 | | | |
| Fluorene | 4.55 | 0.05 | µg/L | 4.44 | | 102 | 70-130 | | | |
| Indeno (1,2,3-cd) pyrene | 4.40 | 0.05 | µg/L | 4.44 | | 99 | 70-130 | | | |
| Naphthalene | 3.84 | 0.20 | µg/L | 4.44 | | 86 | 70-130 | | | |
| Phenanthrene | 4.67 | 0.10 | µg/L | 4.44 | | 105 | 70-130 | | | |
| Pyrene | 4.86 | 0.02 | µg/L | 4.44 | | 109 | 70-130 | | | |
| Quinoline | 3.93 | 0.10 | µg/L | 4.44 | | 88 | 70-130 | | | |
| *Surrogate: Acridine-d9* | *4.59* | | *µg/L* | *4.44* | | *103* | *60-140* | | | |
| *Surrogate: Perylene-d12* | *5.05* | | *µg/L* | *4.44* | | *114* | *60-140* | | | |
| *Surrogate: Phenanthrene-d10* | *4.96* | | *µg/L* | *4.44* | | *112* | *60-140* | | | |
| **LCS Dup (B5L1461-BSD1)** | | | | Prepared: Dec-29-15, Analyzed: Dec-29-15 | | | | | | |
| Acenaphthene | 4.41 | 0.05 | µg/L | 4.44 | | 99 | 70-130 | 6 | 20 | |
| Acenaphthylene | 4.75 | 0.20 | µg/L | 4.44 | | 107 | 70-130 | 8 | 20 | |
| Acridine | 3.90 | 0.10 | µg/L | 4.44 | | 88 | 60-140 | 5 | 20 | |
| Anthracene | 4.46 | 0.01 | µg/L | 4.44 | | 100 | 70-130 | 5 | 20 | |
| Benz (a) anthracene | 4.44 | 0.01 | µg/L | 4.44 | | 100 | 70-130 | 4 | 20 | |
| Benzo (a) pyrene | 4.60 | 0.01 | µg/L | 4.44 | | 104 | 70-130 | 4 | 20 | |
| Benzo (b) fluoranthene | 4.40 | 0.05 | µg/L | 4.44 | | 99 | 70-130 | 7 | 20 | |
| Benzo (g,h,i) perylene | 4.50 | 0.05 | µg/L | 4.44 | | 101 | 70-130 | 3 | 20 | |
| Benzo (k) fluoranthene | 4.48 | 0.05 | µg/L | 4.44 | | 101 | 70-130 | 4 | 20 | |
| Chrysene | 4.64 | 0.05 | µg/L | 4.44 | | 104 | 70-130 | 3 | 20 | |
| Dibenz (a,h) anthracene | 3.95 | 0.05 | µg/L | 4.44 | | 89 | 70-130 | 3 | 20 | |
| Fluoranthene | 4.59 | 0.03 | µg/L | 4.44 | | 103 | 70-130 | 4 | 20 | |
| Fluorene | 4.35 | 0.05 | µg/L | 4.44 | | 98 | 70-130 | 5 | 20 | |
| Indeno (1,2,3-cd) pyrene | 4.31 | 0.05 | µg/L | 4.44 | | 97 | 70-130 | 2 | 20 | |
| Naphthalene | 3.80 | 0.20 | µg/L | 4.44 | | 86 | 70-130 | < 1 | 20 | |
| Phenanthrene | 4.48 | 0.10 | µg/L | 4.44 | | 101 | 70-130 | 4 | 20 | |
| Pyrene | 4.30 | 0.02 | µg/L | 4.44 | | 97 | 70-130 | 12 | 20 | |
| Quinoline | 3.83 | 0.10 | µg/L | 4.44 | | 86 | 70-130 | 2 | 20 | |
| *Surrogate: Acridine-d9* | *4.50* | | *µg/L* | *4.44* | | *101* | *60-140* | | | |
| *Surrogate: Perylene-d12* | *5.26* | | *µg/L* | *4.44* | | *118* | *60-140* | | | |
| *Surrogate: Phenanthrene-d10* | *4.93* | | *µg/L* | *4.44* | | *111* | *60-140* | | | |
| ***Total Recoverable Metals, Batch B5L1316*** | | | | | | | | | | |
| **Blank (B5L1316-BLK1)** | | | | Prepared: Dec-23-15, Analyzed: Dec-23-15 | | | | | | |
| Aluminum, total | < 0.005 | 0.005 | mg/L | | | | | | | |
| Antimony, total | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Arsenic, total | < 0.0005 | 0.0005 | mg/L | | | | | | | |
| Barium, total | < 0.005 | 0.005 | mg/L | | | | | | | |
| Beryllium, total | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Bismuth, total | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Boron, total | < 0.004 | 0.004 | mg/L | | | | | | | |
| Cadmium, total | < 0.00001 | 0.00001 | mg/L | | | | | | | |
| Calcium, total | < 0.2 | 0.2 | mg/L | | | | | | | |
| Chromium, total | < 0.0005 | 0.0005 | mg/L | | | | | | | |
| Cobalt, total | < 0.00005 | 0.00005 | mg/L | | | | | | | |
| Copper, total | < 0.0002 | 0.0002 | mg/L | | | | | | | |
| Iron, total | < 0.01 | 0.01 | mg/L | | | | | | | |
| Lead, total | < 0.0001 | 0.0001 | mg/L | | | | | | | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5121430
**REPORTED** Jan-03-16

| Analyte | Result | MRL | Units | Spike Level | Source Result | % REC | REC Limit | % RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Total Recoverable Metals, Batch B5L1316, Continued*** | | | | | | | | | | |
| **Blank (B5L1316-BLK1), Continued** | | | | Prepared: Dec-23-15, Analyzed: Dec-23-15 | | | | | | |
| Lithium, total | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Magnesium, total | < 0.01 | 0.01 | mg/L | | | | | | | |
| Manganese, total | < 0.0002 | 0.0002 | mg/L | | | | | | | |
| Molybdenum, total | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Nickel, total | < 0.0002 | 0.0002 | mg/L | | | | | | | |
| Phosphorus, total | < 0.02 | 0.02 | mg/L | | | | | | | |
| Potassium, total | < 0.02 | 0.02 | mg/L | | | | | | | |
| Selenium, total | < 0.0005 | 0.0005 | mg/L | | | | | | | |
| Silicon, total | < 0.5 | 0.5 | mg/L | | | | | | | |
| Silver, total | < 0.00005 | 0.00005 | mg/L | | | | | | | |
| Sodium, total | < 0.02 | 0.02 | mg/L | | | | | | | |
| Strontium, total | < 0.001 | 0.001 | mg/L | | | | | | | |
| Sulfur, total | < 1 | 1 | mg/L | | | | | | | |
| Tellurium, total | < 0.0002 | 0.0002 | mg/L | | | | | | | |
| Thallium, total | < 0.00002 | 0.00002 | mg/L | | | | | | | |
| Thorium, total | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| Tin, total | < 0.0002 | 0.0002 | mg/L | | | | | | | |
| Titanium, total | < 0.005 | 0.005 | mg/L | | | | | | | |
| Uranium, total | < 0.00002 | 0.00002 | mg/L | | | | | | | |
| Vanadium, total | < 0.001 | 0.001 | mg/L | | | | | | | |
| Zinc, total | < 0.004 | 0.004 | mg/L | | | | | | | |
| Zirconium, total | < 0.0001 | 0.0001 | mg/L | | | | | | | |
| **Matrix Spike (B5L1316-MS1)** | **Source: 5121430-01** | | | Prepared: Dec-23-15, Analyzed: Dec-23-15 | | | | | | |
| Antimony, total | 0.379 | 0.0001 | mg/L | 0.400 | 0.0004 | 95 | 84-125 | | | |
| Arsenic, total | 0.206 | 0.0005 | mg/L | 0.200 | < 0.0005 | 103 | 85-116 | | | |
| Barium, total | 1.01 | 0.005 | mg/L | 1.00 | 0.052 | 96 | 87-114 | | | |
| Beryllium, total | 0.103 | 0.0001 | mg/L | 0.100 | < 0.0001 | 103 | 72-116 | | | |
| Cadmium, total | 0.101 | 0.00001 | mg/L | 0.100 | 0.00010 | 101 | 90-112 | | | |
| Chromium, total | 0.427 | 0.0005 | mg/L | 0.400 | 0.0006 | 107 | 89-120 | | | |
| Cobalt, total | 0.427 | 0.00005 | mg/L | 0.400 | 0.0105 | 104 | 88-120 | | | |
| Copper, total | 0.459 | 0.0002 | mg/L | 0.400 | 0.0347 | 106 | 88-125 | | | |
| Iron, total | 6.40 | 0.01 | mg/L | 2.00 | 4.86 | 77 | 88-119 | | | SPK1 |
| Lead, total | 0.221 | 0.0001 | mg/L | 0.200 | < 0.0001 | 110 | 89-118 | | | |
| Manganese, total | 1.40 | 0.0002 | mg/L | 0.400 | 1.11 | 70 | 84-120 | | | SPK1 |
| Nickel, total | 0.430 | 0.0002 | mg/L | 0.400 | 0.0047 | 106 | 87-119 | | | |
| Selenium, total | 0.113 | 0.0005 | mg/L | 0.100 | < 0.0005 | 113 | 85-113 | | | |
| Silver, total | 0.112 | 0.00005 | mg/L | 0.100 | < 0.00005 | 112 | 89-119 | | | |
| Thallium, total | 0.114 | 0.00002 | mg/L | 0.100 | < 0.00002 | 114 | 92-119 | | | |
| Vanadium, total | 0.419 | 0.001 | mg/L | 0.400 | < 0.001 | 105 | 87-117 | | | |
| Zinc, total | 1.04 | 0.004 | mg/L | 1.00 | 0.016 | 102 | 85-116 | | | |
| **Reference (B5L1316-SRM1)** | | | | Prepared: Dec-23-15, Analyzed: Dec-23-15 | | | | | | |
| Aluminum, total | 0.295 | 0.005 | mg/L | 0.296 | | 100 | 81-129 | | | |
| Antimony, total | 0.0462 | 0.0001 | mg/L | 0.0505 | | 91 | 88-114 | | | |
| Arsenic, total | 0.127 | 0.0005 | mg/L | 0.122 | | 104 | 88-114 | | | |
| Barium, total | 0.687 | 0.005 | mg/L | 0.777 | | 88 | 72-104 | | | |
| Beryllium, total | 0.0445 | 0.0001 | mg/L | 0.0488 | | 91 | 76-131 | | | |
| Boron, total | 3.03 | 0.004 | mg/L | 3.40 | | 89 | 75-121 | | | |
| Cadmium, total | 0.0495 | 0.00001 | mg/L | 0.0490 | | 101 | 89-111 | | | |
| Calcium, total | 9.9 | 0.2 | mg/L | 10.2 | | 97 | 86-121 | | | |
| Chromium, total | 0.256 | 0.0005 | mg/L | 0.242 | | 106 | 89-114 | | | |
| Cobalt, total | 0.0412 | 0.00005 | mg/L | 0.0366 | | 112 | 91-113 | | | |
| Copper, total | 0.537 | 0.0002 | mg/L | 0.487 | | 110 | 91-115 | | | |
| Iron, total | 0.51 | 0.01 | mg/L | 0.469 | | 109 | 77-124 | | | |
| Lead, total | 0.186 | 0.0001 | mg/L | 0.193 | | 96 | 92-113 | | | |
| Lithium, total | 0.362 | 0.0001 | mg/L | 0.390 | | 93 | 85-115 | | | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5121430
**REPORTED** Jan-03-16

| Analyte | Result | MRL | Units | Spike Level | Source Result | % REC | REC Limit | % RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Total Recoverable Metals, Batch B5L1316, Continued*** | | | | | | | | | | |
| **Reference (B5L1316-SRM1), Continued** | | | | Prepared: Dec-23-15, Analyzed: Dec-23-15 | | | | | | |
| Magnesium, total | 3.54 | 0.01 | mg/L | 3.31 | | 107 | 78-120 | | | |
| Manganese, total | 0.115 | 0.0002 | mg/L | 0.109 | | 105 | 90-114 | | | |
| Molybdenum, total | 0.188 | 0.0001 | mg/L | 0.197 | | 95 | 90-111 | | | |
| Nickel, total | 0.261 | 0.0002 | mg/L | 0.242 | | 108 | 90-111 | | | |
| Phosphorus, total | 0.21 | 0.02 | mg/L | 0.233 | | 89 | 85-115 | | | |
| Potassium, total | 6.50 | 0.02 | mg/L | 5.93 | | 110 | 84-113 | | | |
| Selenium, total | 0.117 | 0.0005 | mg/L | 0.115 | | 102 | 85-115 | | | |
| Sodium, total | 7.97 | 0.02 | mg/L | 7.64 | | 104 | 82-123 | | | |
| Strontium, total | 0.371 | 0.001 | mg/L | 0.363 | | 102 | 88-112 | | | |
| Thallium, total | 0.0766 | 0.00002 | mg/L | 0.0794 | | 96 | 91-114 | | | |
| Uranium, total | 0.0176 | 0.00002 | mg/L | 0.0192 | | 92 | 85-120 | | | |
| Vanadium, total | 0.393 | 0.001 | mg/L | 0.376 | | 105 | 86-111 | | | |
| Zinc, total | 2.52 | 0.004 | mg/L | 2.42 | | 104 | 85-111 | | | |
| ***Total Recoverable Metals, Batch B5L1332*** | | | | | | | | | | |
| **Blank (B5L1332-BLK1)** | | | | Prepared: Dec-23-15, Analyzed: Dec-23-15 | | | | | | |
| Mercury, total | < 0.00002 | 0.00002 | mg/L | | | | | | | |
| **Duplicate (B5L1332-DUP1)** | | | **Source: 5121430-01** | Prepared: Dec-23-15, Analyzed: Dec-23-15 | | | | | | |
| Mercury, total | < 0.00002 | 0.00002 | mg/L | | < 0.00002 | | | | 20 | |
| **Matrix Spike (B5L1332-MS1)** | | | **Source: 5121430-02** | Prepared: Dec-23-15, Analyzed: Dec-23-15 | | | | | | |
| Mercury, total | 0.00022 | 0.00002 | mg/L | 0.000250 | < 0.00002 | 86 | 70-130 | | | |
| **Reference (B5L1332-SRM1)** | | | | Prepared: Dec-23-15, Analyzed: Dec-23-15 | | | | | | |
| Mercury, total | 0.00344 | 0.00002 | mg/L | 0.00456 | | 75 | 50-150 | | | |
| ***Volatile Organic Compounds (VOC), Batch B5L1490*** | | | | | | | | | | |
| **Blank (B5L1490-BLK1)** | | | | Prepared: Dec-31-15, Analyzed: Dec-31-15 | | | | | | |
| Acetone | < 10.0 | 10.0 | µg/L | | | | | | | |
| Benzene | < 0.5 | 0.5 | µg/L | | | | | | | |
| Bromodichloromethane | < 1.0 | 1.0 | µg/L | | | | | | | |
| Bromoform | < 1.0 | 1.0 | µg/L | | | | | | | |
| Bromomethane | < 2.0 | 2.0 | µg/L | | | | | | | |
| 2-Butanone (MEK) | < 5.0 | 5.0 | µg/L | | | | | | | |
| Carbon tetrachloride | < 1.0 | 1.0 | µg/L | | | | | | | |
| Chlorobenzene | < 1.0 | 1.0 | µg/L | | | | | | | |
| Chloroethane | < 2.0 | 2.0 | µg/L | | | | | | | |
| Chloroform | < 1.0 | 1.0 | µg/L | | | | | | | |
| Chloromethane | < 2.0 | 2.0 | µg/L | | | | | | | |
| Dibromochloromethane | < 1.0 | 1.0 | µg/L | | | | | | | |
| Dibromomethane | < 1.0 | 1.0 | µg/L | | | | | | | |
| 1,3-Dichlorobenzene | < 1.0 | 1.0 | µg/L | | | | | | | |
| 1,4-Dichlorobenzene | < 1.0 | 1.0 | µg/L | | | | | | | |
| 1,1-Dichloroethane | < 1.0 | 1.0 | µg/L | | | | | | | |
| 1,2-Dichloroethane | < 1.0 | 1.0 | µg/L | | | | | | | |
| 1,1-Dichloroethene | < 1.0 | 1.0 | µg/L | | | | | | | |
| cis-1,2-Dichloroethene | < 1.0 | 1.0 | µg/L | | | | | | | |
| trans-1,2-Dichloroethene | < 1.0 | 1.0 | µg/L | | | | | | | |
| 1,2-Dichloropropane | < 1.0 | 1.0 | µg/L | | | | | | | |
| cis-1,3-Dichloropropene | < 1.0 | 1.0 | µg/L | | | | | | | |
| trans-1,3-Dichloropropene | < 1.0 | 1.0 | µg/L | | | | | | | |
| Ethylbenzene | < 1.0 | 1.0 | µg/L | | | | | | | |
| Methyl tert-butyl ether | < 1.0 | 1.0 | µg/L | | | | | | | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5121430
**REPORTED** Jan-03-16

| Analyte | Result | MRL | Units | Spike Level | Source Result | % REC | REC Limit | % RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Volatile Organic Compounds (VOC), Batch B5L1490, Continued*** | | | | | | | | | | |
| **Blank (B5L1490-BLK1), Continued** | | | | Prepared: Dec-31-15, Analyzed: Dec-31-15 | | | | | | |
| Methylene chloride | < 3.0 | 3.0 | µg/L | | | | | | | |
| 4-Methyl-2-Pentanone (MIBK) | < 10.0 | 10.0 | µg/L | | | | | | | |
| Styrene | < 1.0 | 1.0 | µg/L | | | | | | | |
| 1,1,1,2-Tetrachloroethane | < 1.0 | 1.0 | µg/L | | | | | | | |
| 1,1,2,2-Tetrachloroethane | < 1.0 | 1.0 | µg/L | | | | | | | |
| Tetrachloroethene | < 1.0 | 1.0 | µg/L | | | | | | | |
| Toluene | < 1.0 | 1.0 | µg/L | | | | | | | |
| 1,1,1-Trichloroethane | < 1.0 | 1.0 | µg/L | | | | | | | |
| 1,1,2-Trichloroethane | < 1.0 | 1.0 | µg/L | | | | | | | |
| Trichloroethene | < 1.0 | 1.0 | µg/L | | | | | | | |
| Trichlorofluoromethane | < 1.0 | 1.0 | µg/L | | | | | | | |
| Vinyl chloride | < 2.0 | 2.0 | µg/L | | | | | | | |
| m,p-Xylene | < 1.0 | 1.0 | µg/L | | | | | | | |
| o-Xylene | < 1.0 | 1.0 | µg/L | | | | | | | |
| Xylenes (total) | < 2.0 | 2.0 | µg/L | | | | | | | |
| 1,2-Dibromoethane | < 0.3 | 0.3 | µg/L | | | | | | | |
| 1,2-Dichlorobenzene | < 0.5 | 0.5 | µg/L | | | | | | | |
| *Surrogate: Toluene-d8* | *25.1* | | *µg/L* | *25.0* | | *101* | *70-130* | | | |
| *Surrogate: 4-Bromofluorobenzene* | *25.2* | | *µg/L* | *31.5* | | *80* | *70-130* | | | |
| *Surrogate: 1,4-Dichlorobenzene-d4* | *23.7* | | *µg/L* | *25.0* | | *95* | *70-130* | | | |
| **LCS (B5L1490-BS1)** | | | | Prepared: Dec-31-15, Analyzed: Dec-31-15 | | | | | | |
| Acetone | 17.1 | 10.0 | µg/L | 20.0 | | 85 | 70-130 | | | |
| Benzene | 23.5 | 0.5 | µg/L | 20.0 | | 118 | 70-130 | | | |
| Bromodichloromethane | 25.5 | 1.0 | µg/L | 20.0 | | 128 | 70-130 | | | |
| Bromoform | 23.8 | 1.0 | µg/L | 20.0 | | 119 | 70-130 | | | |
| Bromomethane | 15.2 | 2.0 | µg/L | 20.0 | | 76 | 70-130 | | | |
| 2-Butanone (MEK) | 21.7 | 5.0 | µg/L | 20.0 | | 109 | 70-130 | | | |
| Carbon tetrachloride | 23.6 | 1.0 | µg/L | 20.0 | | 118 | 70-130 | | | |
| Chlorobenzene | 26.3 | 1.0 | µg/L | 20.0 | | 132 | 70-130 | | | SPK1 |
| Chloroethane | 23.5 | 2.0 | µg/L | 20.0 | | 118 | 70-130 | | | |
| Chloroform | 22.9 | 1.0 | µg/L | 20.0 | | 114 | 70-130 | | | |
| Chloromethane | 20.8 | 2.0 | µg/L | 20.0 | | 104 | 70-130 | | | |
| Dibromochloromethane | 25.8 | 1.0 | µg/L | 20.0 | | 129 | 70-130 | | | |
| Dibromomethane | 26.4 | 1.0 | µg/L | 20.0 | | 132 | 70-130 | | | SPK1 |
| 1,3-Dichlorobenzene | 25.6 | 1.0 | µg/L | 20.0 | | 128 | 70-130 | | | |
| 1,4-Dichlorobenzene | 25.3 | 1.0 | µg/L | 20.0 | | 127 | 70-130 | | | |
| 1,1-Dichloroethane | 25.2 | 1.0 | µg/L | 20.0 | | 126 | 70-130 | | | |
| 1,2-Dichloroethane | 25.6 | 1.0 | µg/L | 20.0 | | 128 | 70-130 | | | |
| 1,1-Dichloroethene | 19.5 | 1.0 | µg/L | 20.0 | | 97 | 70-130 | | | |
| cis-1,2-Dichloroethene | 25.7 | 1.0 | µg/L | 20.0 | | 129 | 70-130 | | | |
| trans-1,2-Dichloroethene | 23.8 | 1.0 | µg/L | 20.0 | | 119 | 70-130 | | | |
| 1,2-Dichloropropane | 25.8 | 1.0 | µg/L | 20.0 | | 129 | 70-130 | | | |
| cis-1,3-Dichloropropene | 23.2 | 1.0 | µg/L | 20.0 | | 116 | 70-130 | | | |
| trans-1,3-Dichloropropene | 22.2 | 1.0 | µg/L | 20.0 | | 111 | 70-130 | | | |
| Ethylbenzene | 25.6 | 1.0 | µg/L | 20.0 | | 128 | 70-130 | | | |
| Methyl tert-butyl ether | 25.0 | 1.0 | µg/L | 20.0 | | 125 | 70-130 | | | |
| Methylene chloride | 25.8 | 3.0 | µg/L | 20.0 | | 129 | 70-130 | | | |
| 4-Methyl-2-Pentanone (MIBK) | 26.8 | 10.0 | µg/L | 20.0 | | 134 | 70-130 | | | SPK1 |
| Styrene | 23.6 | 1.0 | µg/L | 20.0 | | 118 | 70-130 | | | |
| 1,1,1,2-Tetrachloroethane | 25.3 | 1.0 | µg/L | 20.0 | | 127 | 70-130 | | | |
| 1,1,2,2-Tetrachloroethane | 24.8 | 1.0 | µg/L | 20.0 | | 124 | 70-130 | | | |
| Tetrachloroethene | 26.3 | 1.0 | µg/L | 20.0 | | 132 | 70-130 | | | SPK1 |
| Toluene | 26.0 | 1.0 | µg/L | 20.0 | | 130 | 70-130 | | | |
| 1,1,1-Trichloroethane | 24.2 | 1.0 | µg/L | 20.0 | | 121 | 70-130 | | | |
| 1,1,2-Trichloroethane | 26.5 | 1.0 | µg/L | 20.0 | | 132 | 70-130 | | | SPK1 |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5121430
**REPORTED** Jan-03-16

| Analyte | Result | MRL | Units | Spike Level | Source Result | % REC | REC Limit | % RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Volatile Organic Compounds (VOC), Batch B5L1490, Continued*** | | | | | | | | | | |
| **LCS (B5L1490-BS1), Continued** | | | | Prepared: Dec-31-15, Analyzed: Dec-31-15 | | | | | | |
| Trichloroethene | 25.3 | 1.0 | µg/L | 20.0 | | 127 | 70-130 | | | |
| Trichlorofluoromethane | 22.0 | 1.0 | µg/L | 20.0 | | 110 | 70-130 | | | |
| Vinyl chloride | 21.7 | 2.0 | µg/L | 20.0 | | 108 | 70-130 | | | |
| m,p-Xylene | 45.9 | 1.0 | µg/L | 40.0 | | 115 | 70-130 | | | |
| o-Xylene | 23.9 | 1.0 | µg/L | 20.0 | | 120 | 70-130 | | | |
| Xylenes (total) | 69.8 | 2.0 | µg/L | 60.0 | | 116 | 70-130 | | | |
| 1,2-Dibromoethane | 25.5 | 0.3 | µg/L | 20.0 | | 127 | 70-130 | | | |
| 1,2-Dichlorobenzene | 26.0 | 0.5 | µg/L | 20.0 | | 130 | 70-130 | | | |
| *Surrogate: Toluene-d8* | *29.1* | | *µg/L* | *25.0* | | *116* | *70-130* | | | |
| *Surrogate: 4-Bromofluorobenzene* | *28.7* | | *µg/L* | *31.5* | | *91* | *70-130* | | | |
| *Surrogate: 1,4-Dichlorobenzene-d4* | *29.6* | | *µg/L* | *25.0* | | *118* | *70-130* | | | |
| **Duplicate (B5L1490-DUP1)** | | **Source: 5121430-12** | | Prepared: Dec-31-15, Analyzed: Dec-31-15 | | | | | | |
| Acetone | < 10.0 | 10.0 | µg/L | | < 10.0 | | | | | 20 |
| Benzene | < 0.5 | 0.5 | µg/L | | < 0.5 | | | | | 20 |
| Bromodichloromethane | < 1.0 | 1.0 | µg/L | | < 1.0 | | | | | 20 |
| Bromoform | < 1.0 | 1.0 | µg/L | | < 1.0 | | | | | 20 |
| Bromomethane | < 2.0 | 2.0 | µg/L | | < 2.0 | | | | | 20 |
| 2-Butanone (MEK) | < 5.0 | 5.0 | µg/L | | < 5.0 | | | | | 20 |
| Carbon tetrachloride | < 1.0 | 1.0 | µg/L | | < 1.0 | | | | | 20 |
| Chlorobenzene | < 1.0 | 1.0 | µg/L | | < 1.0 | | | | | 20 |
| Chloroethane | < 2.0 | 2.0 | µg/L | | < 2.0 | | | | | 20 |
| Chloroform | < 1.0 | 1.0 | µg/L | | < 1.0 | | | | | 20 |
| Chloromethane | < 2.0 | 2.0 | µg/L | | < 2.0 | | | | | 20 |
| Dibromochloromethane | < 1.0 | 1.0 | µg/L | | < 1.0 | | | | | 20 |
| Dibromomethane | < 1.0 | 1.0 | µg/L | | < 1.0 | | | | | 20 |
| 1,3-Dichlorobenzene | < 1.0 | 1.0 | µg/L | | < 1.0 | | | | | 20 |
| 1,4-Dichlorobenzene | < 1.0 | 1.0 | µg/L | | < 1.0 | | | | | 20 |
| 1,1-Dichloroethane | < 1.0 | 1.0 | µg/L | | < 1.0 | | | | | 20 |
| 1,2-Dichloroethane | < 1.0 | 1.0 | µg/L | | < 1.0 | | | | | 20 |
| 1,1-Dichloroethene | < 1.0 | 1.0 | µg/L | | < 1.0 | | | | | 20 |
| cis-1,2-Dichloroethene | < 1.0 | 1.0 | µg/L | | < 1.0 | | | | | 20 |
| trans-1,2-Dichloroethene | < 1.0 | 1.0 | µg/L | | < 1.0 | | | | | 20 |
| 1,2-Dichloropropane | < 1.0 | 1.0 | µg/L | | < 1.0 | | | | | 20 |
| cis-1,3-Dichloropropene | < 1.0 | 1.0 | µg/L | | < 1.0 | | | | | 20 |
| trans-1,3-Dichloropropene | < 1.0 | 1.0 | µg/L | | < 1.0 | | | | | 20 |
| Ethylbenzene | < 1.0 | 1.0 | µg/L | | < 1.0 | | | | | 20 |
| Methyl tert-butyl ether | < 1.0 | 1.0 | µg/L | | < 1.0 | | | | | 20 |
| Methylene chloride | < 3.0 | 3.0 | µg/L | | < 3.0 | | | | | 20 |
| 4-Methyl-2-Pentanone (MIBK) | < 10.0 | 10.0 | µg/L | | < 10.0 | | | | | 20 |
| Styrene | < 1.0 | 1.0 | µg/L | | < 1.0 | | | | | 20 |
| 1,1,1,2-Tetrachloroethane | < 1.0 | 1.0 | µg/L | | < 1.0 | | | | | 20 |
| 1,1,2,2-Tetrachloroethane | < 1.0 | 1.0 | µg/L | | < 1.0 | | | | | 20 |
| Tetrachloroethene | < 1.0 | 1.0 | µg/L | | < 1.0 | | | | | 20 |
| Toluene | < 1.0 | 1.0 | µg/L | | < 1.0 | | | | | 20 |
| 1,1,1-Trichloroethane | < 1.0 | 1.0 | µg/L | | < 1.0 | | | | | 20 |
| 1,1,2-Trichloroethane | < 1.0 | 1.0 | µg/L | | < 1.0 | | | | | 20 |
| Trichloroethene | < 1.0 | 1.0 | µg/L | | < 1.0 | | | | | 20 |
| Trichlorofluoromethane | < 1.0 | 1.0 | µg/L | | < 1.0 | | | | | 20 |
| Vinyl chloride | < 2.0 | 2.0 | µg/L | | < 2.0 | | | | | 20 |
| m,p-Xylene | < 1.0 | 1.0 | µg/L | | < 1.0 | | | | | 20 |
| o-Xylene | < 1.0 | 1.0 | µg/L | | < 1.0 | | | | | 20 |
| Xylenes (total) | < 2.0 | 2.0 | µg/L | | < 2.0 | | | | | 20 |
| 1,2-Dibromoethane | < 0.3 | 0.3 | µg/L | | < 0.3 | | | | | 20 |
| 1,2-Dichlorobenzene | < 0.5 | 0.5 | µg/L | | < 0.5 | | | | | 20 |
| *Surrogate: Toluene-d8* | *22.5* | | *µg/L* | *25.0* | | *90* | *70-130* | | | |

**REPORTED TO** Morrison Hershfield Limited
**PROJECT** Whistler Landfill - Spring/Fall

**WORK ORDER** 5121430
**REPORTED** Jan-03-16

| Analyte | Result | MRL | Units | Spike Level | Source Result | % REC | REC Limit | % RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Volatile Organic Compounds (VOC), Batch B5L1490, Continued*** | | | | | | | | | | |
| **Duplicate (B5L1490-DUP1), Continued** | | | **Source: 5121430-12** | Prepared: Dec-31-15, Analyzed: Dec-31-15 | | | | | | |
| *Surrogate: 4-Bromofluorobenzene* | *22.4* | | *µg/L* | *31.5* | | *71* | *70-130* | | | |
| *Surrogate: 1,4-Dichlorobenzene-d4* | *20.4* | | *µg/L* | *25.0* | | *81* | *70-130* | | | |

**QC Qualifiers:**

| | |
|---|---|
| S02 | Surrogate recovery outside of control limits. Data accepted based on acceptable recovery of other surrogates. |
| SPK | The recovery of this analyte was outside of established control limits. |
| SPK1 | The recovery of this analyte was outside of established control limits. The data was accepted based on performance of other batch QC. |

# APPENDIX B: Field Data Collection Results for Leachate, Groundwater, and Surface Water Monitorin

| | | Groundwater Levels | | | | | Water Quality | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Well ID | Date | Ground Surface elevation | Top of Well Riser Elevation | Depth to Water | Static Water Level Elevation | | Temp | Conductivi | D.O. | pH | ORP | Comments |
| | | mASML | mASML | m below top of well riser | mASL | | C | uS/cm | mg/l | | | |
| MW2D | Q1 -April 7, 2015 | 603.84 | 604.9 | 6.06 | 598.84 | | 8.2 | 863.0 | 1.71 | 6.55 | -57.2 | |
| MW2S | | 603.84 | 604.94 | 6.01 | 598.93 | | 8.0 | 342.4 | 3.79 | 6.8 | -56.7 | |
| MW3 | | 600.61 | 601.47 | 1.47 | 600.00 | | 8.1 | 132.6 | 3.02 | 5.94 | 75.2 | |
| MW4 | | 596.54 | 677.54 | 4.09 | 673.45 | | 7.9 | 347.1 | 1.57 | 5.91 | 79.2 | |
| MW6 | | 610.88 | 610.88 | 4.73 | 606.15 | | 6.8 | 487.8 | 4.43 | 5.57 | 198.6 | |
| SFC2 | | | | | | | 7.0 | 204.2 | 9.63 | 6.41 | 99.6 | All SFC locaitons were quite red with algae |
| SFC2B | | | | | | | 11.2 | 370.9 | 7.02 | 4.99 | 173.6 | |
| SFC3 | | | | | | | 6.6 | 103.4 | 12.47 | 6.93 | 119.6 | |
| SFC11 | | | | | | | 5.5 | 54.4 | 12.63 | 7.02 | 111.5 | |
| SFC4B | | | | | | | 6.5 | 181.5 | 12.2 | 7.17 | -24.2 | Noted recent clearing at rd edge near sample locat'n |
| Leachate Manhole | | | | | | | 8.4 | 283.9 | 5.03 | 6.15 | 235.6 | |
| GW Interceptor | | | | | | | 8.6 | 693.0 | 2.69 | 6.22 | 62.5 | |
| MW2D | Q2 - July 9, 2015 | 603.84 | 604.9 | 6.69 | 598.21 | | 8.7 | 834 | 2.1 | 6.38 | 10.9 | |
| MW2S | | 603.84 | 604.94 | 6.63 | 598.31 | | 10 | 358 | 3.04 | 6.23 | 14 | |
| MW3 | | 600.61 | 601.47 | 2.02 | 599.45 | | 9.7 | 107.5 | 1.73 | 6.04 | 104.3 | |
| MW4 | | 596.54 | 677.54 | 4.21 | 673.33 | | 9.5 | 312 | 0.93 | 6.7 | -1.6 | |
| MW6 | | 610.88 | 610.88 | 5.97 | 604.91 | | 12.6 | 527 | 3.07 | 6.43 | 247.2 | |
| SFC2 | | | | | | | 9.4 | 210.4 | 6.81 | 6.57 | 72.1 | |
| SFC2B | | | | | | | | | | | | No water to sample at SFC-2B, low water levels at all the SFC stations |
| SFC3 | | | | | | | 8.6 | 92.6 | 9.31 | 6.9 | 24.4 | |
| SFC11 | | | | | | | 7.1 | 90 | 8.51 | 6.62 | 85 | |
| SFC4B | | | | | | | 11.7 | 274.1 | 8.63 | 6.95 | 98.4 | |
| GW Interceptor | | | | | | | 11.4 | 835 | 0.72 | 6.5 | 30.1 | |
| MW2D | Q3 - October 2, 2015 | 603.84 | 604.9 | 6.6 | 598.3 | | 8.3 | | 1.75 | 6.57 | -26.3 | |
| MW2S | | 603.84 | 604.94 | 6.57 | 598.37 | | 8.5 | | 2.28 | 6.81 | -44.1 | |
| MW3 | | 600.61 | 601.47 | 1.61 | 599.86 | | 10.3 | | 2.43 | 6.02 | 70.9 | |
| MW4 | | 596.54 | 677.54 | 4.36 | 673.18 | | 8.3 | | 1.39 | 6.23 | 67 | |
| MW6 | | 610.88 | 610.88 | 4.78 | 606.1 | | 9.4 | 577.8 | 5.58 | 6.19 | 379.9 | |
| SFC2 | | | | | | | 9.7 | 361.4 | 7.09 | 6.47 | 53.6 | |
| SFC2B | | | | | | | 10.5 | 1862 | 2.86 | 3.07 | 427.8 | |
| SFC3 | | | | | | | 9.4 | 264.9 | 8.17 | 6.3 | 404.5 | |
| SFC11 | | | | | | | 8.8 | 77.7 | 9.61 | 6.42 | 384.6 | |
| SFC4B | | | | | | | 9.5 | 271.3 | 88.91 | 7.21 | 19.4 | |
| GW Interceptor | | | | | | | 9.6 | 843 | 3.04 | 6.17 | -55.7 | |
| Leachate Manhole | | | | | | | 12.5 | 22.3 | 3.8 | 6.23 | 78.8 | |
| MW2D | Q4 - December 21, 2015 | 603.84 | 604.9 | 5.95 | 598.95 | | 7.3 | 828 | 1.18 | 6.5 | 20.6 | Needs new tubing |
| MW2S | | 603.84 | 604.94 | 5.91 | 599.03 | | 5.7 | 436.6 | 3.18 | 6.62 | 39.9 | Needs new tubing |
| MW3 | | 600.61 | 601.47 | 1.48 | 599.99 | | 8.5 | 139 | 1.9 | 5.78 | 35 | |
| MW4 | | 596.54 | 677.54 | 4.05 | 673.49 | | 7.8 | 335.9 | 1.03 | 6.44 | -34.6 | Needs new tubing |
| MW6 | | 610.88 | 610.88 | 5.94 | 604.94 | | 7.9 | 478.4 | 6.94 | 5.41 | 64.2 | Needs new tubing |
| SFC2 | | | | | | | 7.7 | 231.3 | 7.82 | 6.13 | 90.6 | |
| SFC2B | | | | | | | 2 | 361.1 | 5.61 | 4.37 | 127.3 | |
| SFC3 | | | | | | | 4.2 | 117.7 | 10.41 | 6.48 | 39.8 | |
| SFC11 | | | | | | | 4.7 | 58.4 | 10.89 | 6.36 | 33.7 | |
| SFC4B | | | | | | | 3.9 | 141.8 | 1087 | 6.77 | 34.8 | |
| GW Interceptor | | | | | | | 8.3 | 783 | 2.26 | 6.16 | 627 | |

# APPENDIX C: List of Analytical Parameters

# ANALYTICAL SERVICES CAPABILITIES

**PREPARED FOR** Morrison Hershfield Limited **DATE** May-06-15

## Packages and their Respective Analyses:

**Package:** **BTEX/VH/VPH in Water Pkg** TAT (Days): 5
Container(s): 2 x 40 mL AG - NaHSO4 HT (Days): 14

**Calculated Analyte(s) Included:** VPHw

**Analyses Included:**

| | |
|---|---|
| BTEX in Water | VH in Water |

**Package:** **Dissolved Metals by ICPMS (low) Pkg** TAT (Days): 5
Container(s): 125 mL HDPE - Filtered + HNO3 HT (Days): 180

**Calculated Analyte(s) Included:** Hardness, Total (Diss. as CaCO3)

**Analyses Included:**

| | | |
|---|---|---|
| Aluminum, dissolved by ICPMS (low) | Antimony, dissolved by ICPMS (low) | Arsenic, dissolved by ICPMS (low) |
| Barium, dissolved by ICPMS (low) | Beryllium, dissolved by ICPMS (low) | Bismuth, dissolved by ICPMS (low) |
| Boron, dissolved by ICPMS (low) | Cadmium, dissolved by ICPMS (low) | Calcium, dissolved by ICPMS (low) |
| Chromium, dissolved by ICPMS (low) | Cobalt, dissolved by ICPMS (low) | Copper, dissolved by ICPMS (low) |
| Iron, dissolved by ICPMS (low) | Lead, dissolved by ICPMS (low) | Lithium, dissolved by ICPMS (low) |
| Magnesium, dissolved by ICPMS (low) | Manganese, dissolved by ICPMS (low) | Molybdenum, dissolved by ICPMS (low) |
| Nickel, dissolved by ICPMS (low) | Phosphorus, dissolved by ICPMS (low) | Potassium, dissolved by ICPMS (low) |
| Selenium, dissolved by ICPMS (low) | Silicon, dissolved by ICPMS (low) | Silver, dissolved by ICPMS (low) |
| Sodium, dissolved by ICPMS (low) | Strontium, dissolved by ICPMS (low) | Sulfur, dissolved by ICPMS (low) |
| Tellurium, dissolved by ICPMS (low) | Thallium, dissolved by ICPMS (low) | Thorium, dissolved by ICPMS (low) |
| Tin, dissolved by ICPMS (low) | Titanium, dissolved by ICPMS (low) | Uranium, dissolved by ICPMS (low) |
| Vanadium, dissolved by ICPMS (low) | Zinc, dissolved by ICPMS (low) | Zirconium, dissolved by ICPMS (low) |

**Package:** **Dissolved Metals by ICPMS (ultra low) Pkg** TAT (Days): 5
Container(s): 125 mL HDPE - Filtered + HNO3 HT (Days): 180

**Calculated Analyte(s) Included:** Hardness, Total (Diss. as CaCO3)

**Analyses Included:**

| | | |
|---|---|---|
| Aluminum, dissolved by ICPMS (ultra low) | Antimony, dissolved by ICPMS (ultra low) | Arsenic, dissolved by ICPMS (ultra low) |
| Barium, dissolved by ICPMS (ultra low) | Beryllium, dissolved by ICPMS (ultra low) | Bismuth, dissolved by ICPMS (ultra low) |
| Boron, dissolved by ICPMS (ultra low) | Cadmium, dissolved by ICPMS (ultra low) | Calcium, dissolved by ICPMS (ultra low) |
| Chromium, dissolved by ICPMS (ultra low) | Cobalt, dissolved by ICPMS (ultra low) | Copper, dissolved by ICPMS (ultra low) |
| Iron, dissolved by ICPMS (ultra low) | Lead, dissolved by ICPMS (ultra low) | Lithium, dissolved by ICPMS (ultra low) |
| Magnesium, dissolved by ICPMS (ultra low) | Manganese, dissolved by ICPMS (ultra low) | Molybdenum, dissolved by ICPMS (ultra low) |
| Nickel, dissolved by ICPMS (ultra low) | Phosphorus, dissolved by ICPMS (ultra low) | Potassium, dissolved by ICPMS (ultra low) |
| Selenium, dissolved by ICPMS (ultra low) | Silicon, dissolved by ICPMS (ultra low) | Silver, dissolved by ICPMS (ultra low) |
| Sodium, dissolved by ICPMS (ultra low) | Strontium, dissolved by ICPMS (ultra low) | Sulfur, dissolved by ICPMS (ultra low) |
| Tellurium, dissolved by ICPMS (ultra low) | Thallium, dissolved by ICPMS (ultra low) | Thorium, dissolved by ICPMS (ultra low) |
| Tin, dissolved by ICPMS (ultra low) | Titanium, dissolved by ICPMS (ultra low) | Uranium, dissolved by ICPMS (ultra low) |
| Vanadium, dissolved by ICPMS (ultra low) | Zinc, dissolved by ICPMS (ultra low) | Zirconium, dissolved by ICPMS (ultra low) |

# ANALYTICAL SERVICES CAPABILITIES

**PREPARED FOR** Morrison Hershfield Limited **DATE** May-06-15

## Packages and their Respective Analyses:

**Package:** **Dissolved Metals by ICPMS Pkg** TAT (Days): 5
Container(s): 125 mL HDPE - Filtered + HNO3 HT (Days): 180

**Calculated Analyte(s) Included:** Hardness, Total (Diss. as CaCO3)

**Analyses Included:**

| | | |
|---|---|---|
| Aluminum, dissolved by ICPMS | Antimony, dissolved by ICPMS | Arsenic, dissolved by ICPMS |
| Barium, dissolved by ICPMS | Beryllium, dissolved by ICPMS | Bismuth, dissolved by ICPMS |
| Boron, dissolved by ICPMS | Cadmium, dissolved by ICPMS | Calcium, dissolved by ICPMS |
| Chromium, dissolved by ICPMS | Cobalt, dissolved by ICPMS | Copper, dissolved by ICPMS |
| Iron, dissolved by ICPMS | Lead, dissolved by ICPMS | Lithium, dissolved by ICPMS |
| Magnesium, dissolved by ICPMS | Manganese, dissolved by ICPMS | Molybdenum, dissolved by ICPMS |
| Nickel, dissolved by ICPMS | Phosphorus, dissolved by ICPMS | Potassium, dissolved by ICPMS |
| Selenium, dissolved by ICPMS | Silicon, dissolved by ICPMS | Silver, dissolved by ICPMS |
| Sodium, dissolved by ICPMS | Strontium, dissolved by ICPMS | Sulfur, dissolved by ICPMS |
| Tellurium, dissolved by ICPMS | Thallium, dissolved by ICPMS | Thorium, dissolved by ICPMS |
| Tin, dissolved by ICPMS | Titanium, dissolved by ICPMS | Uranium, dissolved by ICPMS |
| Vanadium, dissolved by ICPMS | Zinc, dissolved by ICPMS | Zirconium, dissolved by ICPMS |

**Package:** **L/HEPH in Water Pkg** TAT (Days): 5
Container(s): 1 L AG - NaHSO4 HT (Days): 14

**Calculated Analyte(s) Included:** LEPHw; HEPHw; Total PAH

**Analyses Included:**

| | |
|---|---|
| EPH in Water | PAH in Water |

**Package:** **Total Nitrogen in Water Pkg** TAT (Days): 5
Container(s): 125 mL HDPE - H2SO4 500 mL HDPE - Unpreserved HT (Days): 3

**Analyses Included:**

| | | |
|---|---|---|
| Nitrate+Nitrite-N in Water | Nitrite-N in Water, colorimetric | Total Kjeldahl Nitrogen |

**Package:** **Total Recoverable Metals by ICPMS (low) Pkg** TAT (Days): 5
Container(s): 125 mL HDPE - HNO3 HT (Days): 180

**Calculated Analyte(s) Included:** Hardness, Total (Total as CaCO3)

**Analyses Included:**

| | | |
|---|---|---|
| Aluminum, total by ICPMS (low) | Antimony, total by ICPMS (low) | Arsenic, total by ICPMS (low) |
| Barium, total by ICPMS (low) | Beryllium, total by ICPMS (low) | Bismuth, total by ICPMS (low) |
| Boron, total by ICPMS (low) | Cadmium, total by ICPMS (low) | Calcium, total by ICPMS (low) |
| Chromium, total by ICPMS (low) | Cobalt, total by ICPMS (low) | Copper, total by ICPMS (low) |
| Iron, total by ICPMS (low) | Lead, total by ICPMS (low) | Lithium, total by ICPMS (low) |
| Magnesium, total by ICPMS (low) | Manganese, total by ICPMS (low) | Molybedenum, total by ICPMS (low) |
| Nickel, total by ICPMS (low) | Phosphorus, total by ICPMS (low) | Potassium, total by ICPMS (low) |
| Selenium, total by ICPMS (low) | Silicon, total by ICPMS (low) | Silver, total by ICPMS (low) |
| Sodium, total by ICPMS (low) | Strontium, total by ICPMS (low) | Sulfur, total by ICPMS (low) |
| Tellurium, total by ICPMS (low) | Thallium, total by ICPMS (low) | Thorium, total by ICPMS (low) |
| Tin, total by ICPMS (low) | Titanium, total by ICPMS (low) | Uranium, total by ICPMS (low) |
| Vanadium, total by ICPMS (low) | Zinc, total by ICPMS (low) | Zirconium, total by ICPMS (low) |

# ANALYTICAL SERVICES CAPABILITIES

**PREPARED FOR** Morrison Hershfield Limited **DATE** May-06-15

## Packages and their Respective Analyses:

**Package:** **Total Recoverable Metals by ICPMS (ultra low) Pkg** TAT (Days): 5
Container(s): 125 mL HDPE - HNO3 HT (Days): 180

**Calculated Analyte(s) Included:** Hardness, Total (Total as CaCO3)

**Analyses Included:**

| | | |
|---|---|---|
| Aluminum, total by ICPMS (ultra low) | Antimony, total by ICPMS (ultra low) | Arsenic, total by ICPMS (ultra low) |
| Barium, total by ICPMS (ultra low) | Beryllium, total by ICPMS (ultra low) | Bismuth, total by ICPMS (ultra low) |
| Boron, total by ICPMS (ultra low) | Cadmium, total by ICPMS (ultra low) | Calcium, total by ICPMS (ultra low) |
| Chromium, total by ICPMS (ultra low) | Cobalt, total by ICPMS (ultra low) | Copper, total by ICPMS (ultra low) |
| Iron, total by ICPMS (ultra low) | Lead, total by ICPMS (ultra low) | Lithium, total by ICPMS (ultra low) |
| Magnesium, total by ICPMS (ultra low) | Manganese, total by ICPMS (ultra low) | Molybedenum, total by ICPMS (Ultra low) |
| Nickel, total by ICPMS (ultra low) | Phosphorus, total by ICPMS (ultra low) | Potassium, total by ICPMS (ultra low) |
| Selenium, total by ICPMS (ultra low) | Silicon, total by ICPMS (ultra low) | Silver, total by ICPMS (ultra low) |
| Sodium, total by ICPMS (ultra low) | Strontium, total by ICPMS (ultra low) | Sulfur, total by ICPMS (ultra low) |
| Tellurium, total by ICPMS (ultra low) | Thallium, total by ICPMS (ultra low) | Thorium, total by ICPMS (ultra low) |
| Tin, total by ICPMS (ultra low) | Titanium, total by ICPMS (ultra low) | Uranium, total by ICPMS (ultra low) |
| Vanadium, total by ICPMS (ultra low) | Zinc, total by ICPMS (ultra low) | Zirconium, total by ICPMS (ultra low) |

**Package:** **Total Recoverable Metals by ICPMS Pkg** TAT (Days): 5
Container(s): 125 mL HDPE - HNO3 HT (Days): 180

**Calculated Analyte(s) Included:** Hardness, Total (Total as CaCO3)

**Analyses Included:**

| | | |
|---|---|---|
| Aluminum, total by ICPMS | Antimony, total by ICPMS | Arsenic, total by ICPMS |
| Barium, total by ICPMS | Beryllium, total by ICPMS | Bismuth, total by ICPMS |
| Boron, total by ICPMS | Cadmium, total by ICPMS | Calcium, total by ICPMS |
| Chromium, total by ICPMS | Cobalt, total by ICPMS | Copper, total by ICPMS |
| Iron, total by ICPMS | Lead, total by ICPMS | Lithium, total by ICPMS |
| Magnesium, total by ICPMS | Manganese, total by ICPMS | Molybedenum, total by ICPMS |
| Nickel, total by ICPMS | Phosphorus, total by ICPMS | Potassium, total by ICPMS |
| Selenium, total by ICPMS | Silicon, total by ICPMS | Silver, total by ICPMS |
| Sodium, total by ICPMS | Strontium, total by ICPMS | Sulfur, total by ICPMS |
| Tellurium, total by ICPMS | Thallium, total by ICPMS | Thorium, total by ICPMS |
| Tin, total by ICPMS | Titanium, total by ICPMS | Uranium, total by ICPMS |
| Vanadium, total by ICPMS | Zinc, total by ICPMS | Zirconium, total by ICPMS |

**Package:** **VOC/VH/VPH in Water Pkg** TAT (Days): 5
Container(s): 2 x 40 mL AG - NaHSO4 HT (Days): 14

**Calculated Analyte(s) Included:** VPHw

**Analyses Included:**

| | |
|---|---|
| VH in Water | VOC in Water |

**PREPARED FOR** Morrison Hershfield Limited **DATE** May-06-15

## Analysis Details:

**Analysis:** Bromide in Water by IC | Matrix: Water | TAT (Days): 5
Version: Default | Units: mg/L | Location: Kelowna | HT (Days): 28
Analysis Ref: APHA 4110 B | Prep Ref: KEL | Container: 500 mL HDPE - Unpreserved

| Analyte / Default RDL: | |
|---|---|
| Bromide | 0.05 |

**Analysis:** BTEX in Water | Matrix: Water | TAT (Days): 5
Version: Default | Units: ug/L | Location: Richmond | HT (Days): 14
Analysis Ref: EPA 8260B | Prep Ref: N/A | Container: 2 x 40 mL AG - NaHSO4

| Analyte / Default RDL: | | | | | |
|---|---|---|---|---|---|
| Benzene | 0.5 | Ethylbenzene | 0.5 | Methyl tert-butyl ether | 0.5 |
| Styrene | 0.5 | Toluene | 0.5 | Xylenes (total) | 1 |

**Analysis:** Chemical Oxygen Demand | Matrix: Water | TAT (Days): 5
Version: Default | Units: mg/L | Location: Kelowna | HT (Days): 28
Analysis Ref: APHA 5220 D | Prep Ref: N/A | Container: 125 mL HDPE - H2SO4

| Analyte / Default RDL: | |
|---|---|
| Chemical Oxygen Demand | 20 |

**Analysis:** Chloride in Water by IC | Matrix: Water | TAT (Days): 5
Version: Default | Units: mg/L | Location: Kelowna | HT (Days): 28
Analysis Ref: APHA 4110 B | Prep Ref: KEL | Container: 500 mL HDPE - Unpreserved

| Analyte / Default RDL: | |
|---|---|
| Chloride | 0.05 |

**Analysis:** Conductivity in Water | Matrix: Water | TAT (Days): 5
Version: Default | Units: uS/cm | Location: Richmond | HT (Days): 28
Analysis Ref: APHA 2510 B | Prep Ref: N/A | Container: 1 L HDPE - Unpreserved

| Analyte / Default RDL: | |
|---|---|
| Conductivity (EC) | 1 |

**Analysis:** Dissolved Metals by ICPMS | Matrix: Water | TAT (Days): 5
Version: Default | Units: mg/L | Location: Richmond | HT (Days): 180
Analysis Ref: APHA 3125 B | Prep Ref: N/A | Container: 125 mL HDPE - Filtered + HNO3

| Analyte / Default RDL: | | | | | |
|---|---|---|---|---|---|
| Aluminum, dissolved | 0.05 | Antimony, dissolved | 0.001 | Arsenic, dissolved | 0.005 |
| Barium, dissolved | 0.05 | Beryllium, dissolved | 0.001 | Bismuth, dissolved | 0.001 |
| Boron, dissolved | 0.04 | Cadmium, dissolved | 0.0001 | Calcium, dissolved | 2 |
| Chromium, dissolved | 0.005 | Cobalt, dissolved | 0.0005 | Copper, dissolved | 0.002 |
| Iron, dissolved | 0.1 | Lead, dissolved | 0.001 | Lithium, dissolved | 0.001 |
| Magnesium, dissolved | 0.1 | Manganese, dissolved | 0.002 | Molybdenum, dissolved | 0.001 |
| Nickel, dissolved | 0.002 | Phosphorus, dissolved | 0.2 | Potassium, dissolved | 0.2 |
| Selenium, dissolved | 0.005 | Silicon, dissolved | 5 | Silver, dissolved | 0.0005 |
| Sodium, dissolved | 0.2 | Strontium, dissolved | 0.01 | Tellurium, dissolved | 0.002 |
| Thallium, dissolved | 0.0002 | Thorium, dissolved | 0.001 | Tin, dissolved | 0.002 |
| Titanium, dissolved | 0.05 | Uranium, dissolved | 0.0002 | Vanadium, dissolved | 0.01 |
| Zinc, dissolved | 0.04 | Zirconium, dissolved | 0.001 | | |

**PREPARED FOR** Morrison Hershfield Limited **DATE** May-06-15

## Analysis Details:

| | | | | | |
|---|---|---|---|---|---|
| **Analysis:** | **Dissolved Metals by ICPMS (Low)** | | Matrix: | Water | TAT (Days): 5 |
| Version: | Default | Units: mg/L | Location: | Richmond | HT (Days): 180 |
| Analysis Ref: | APHA 3125 B | Prep Ref: N/A | Container: | 125 mL HDPE - Filtered + HNO3 | |

**Analyte / Default RDL:**

| | | | | | |
|---|---|---|---|---|---|
| Aluminum, dissolved | 0.005 | Antimony, dissolved | 0.0001 | Arsenic, dissolved | 0.0005 |
| Barium, dissolved | 0.005 | Beryllium, dissolved | 0.0001 | Bismuth, dissolved | 0.0001 |
| Boron, dissolved | 0.004 | Cadmium, dissolved | 0.00001 | Calcium, dissolved | 0.2 |
| Chromium, dissolved | 0.0005 | Cobalt, dissolved | 0.00005 | Copper, dissolved | 0.0002 |
| Iron, dissolved | 0.01 | Lead, dissolved | 0.0001 | Lithium, dissolved | 0.0001 |
| Magnesium, dissolved | 0.01 | Manganese, dissolved | 0.0002 | Molybdenum, dissolved | 0.0001 |
| Nickel, dissolved | 0.0002 | Phosphorus, dissolved | 0.02 | Potassium, dissolved | 0.02 |
| Selenium, dissolved | 0.0005 | Silicon, dissolved | 0.5 | Silver, dissolved | 0.00005 |
| Sodium, dissolved | 0.02 | Strontium, dissolved | 0.001 | Sulfur, dissolved | 1 |
| Tellurium, dissolved | 0.0002 | Thallium, dissolved | 0.00002 | Thorium, dissolved | 0.0001 |
| Tin, dissolved | 0.0002 | Titanium, dissolved | 0.005 | Uranium, dissolved | 0.00002 |
| Vanadium, dissolved | 0.001 | Zinc, dissolved | 0.004 | Zirconium, dissolved | 0.0001 |

| | | | | | |
|---|---|---|---|---|---|
| **Analysis:** | **Dissolved Metals by ICPMS (Ultra Low)** | | Matrix: | Water | TAT (Days): 5 |
| Version: | Default | Units: ug/L | Location: | Richmond | HT (Days): 180 |
| Analysis Ref: | APHA 3125 B | Prep Ref: N/A | Container: | 125 mL HDPE - Filtered + HNO3 | |

**Analyte / Default RDL:**

| | | | | | |
|---|---|---|---|---|---|
| Aluminum, dissolved | 1 | Antimony, dissolved | 0.05 | Arsenic, dissolved | 0.05 |
| Barium, dissolved | 0.1 | Beryllium, dissolved | 0.01 | Bismuth, dissolved | 0.01 |
| Boron, dissolved | 1 | Cadmium, dissolved | 0.002 | Calcium, dissolved | 40 |
| Chromium, dissolved | 0.1 | Cobalt, dissolved | 0.005 | Copper, dissolved | 0.1 |
| Iron, dissolved | 2 | Lead, dissolved | 0.05 | Lithium, dissolved | 0.05 |
| Magnesium, dissolved | 5 | Manganese, dissolved | 0.05 | Molybdenum, dissolved | 0.01 |
| Nickel, dissolved | 0.02 | Phosphorus, dissolved | 10 | Potassium, dissolved | 10 |
| Selenium, dissolved | 0.1 | Silicon, dissolved | 50 | Silver, dissolved | 0.01 |
| Sodium, dissolved | 10 | Strontium, dissolved | 0.1 | Sulfur, dissolved | 500 |
| Tellurium, dissolved | 0.05 | Thallium, dissolved | 0.004 | Thorium, dissolved | 0.01 |
| Tin, dissolved | 0.05 | Titanium, dissolved | 0.2 | Uranium, dissolved | 0.001 |
| Vanadium, dissolved | 0.2 | Zinc, dissolved | 1 | Zirconium, dissolved | 0.01 |

| | | | | | |
|---|---|---|---|---|---|
| **Analysis:** | **EPH in Water** | | Matrix: | Water | TAT (Days): 5 |
| Version: | Default | Units: ug/L | Location: | Richmond | HT (Days): 14 |
| Analysis Ref: | BCMOE EPHw | Prep Ref: Base/Neutral | Container: | 1 L AG - NaHSO4 | |

**Analyte / Default RDL:**

| | | | |
|---|---|---|---|
| EPHw (10-19) | 50 | EPHw (19-32) | 50 |

| | | | | | |
|---|---|---|---|---|---|
| **Analysis:** | **Fluoride in Water by IC** | | Matrix: | Water | TAT (Days): 5 |
| Version: | Default | Units: mg/L | Location: | Kelowna | HT (Days): 28 |
| Analysis Ref: | APHA 4110 B | Prep Ref: KEL | Container: | 500 mL HDPE - Unpreserved | |

**Analyte / Default RDL:**

| | |
|---|---|
| Fluoride | 0.05 |

| | | | | | |
|---|---|---|---|---|---|
| **Analysis:** | **Nitrate+Nitrite-N in Water** | | Matrix: | Water | TAT (Days): 5 |
| Version: | Default | Units: mg/L | Location: | Kelowna | HT (Days): 28 |
| Analysis Ref: | APHA 4500-NO3- F | Prep Ref: N/A | Container: | 125 mL HDPE - H2SO4 | |

**Analyte / Default RDL:**

| | |
|---|---|
| Nitrate+Nitrite as N | 0.002 |

# ANALYTICAL SERVICES CAPABILITIES

**PREPARED FOR** Morrison Hershfield Limited **DATE** May-06-15

## Analysis Details:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Analysis:** | **Nitrite-N in Water, colorimetric** | | | Matrix: | Water | TAT (Days): | 5 |
| Version: | Default | | Units: mg/L | Location: | Kelowna | HT (Days): | 3 |
| Analysis Ref: | APHA 4500-NO2 B | Prep Ref: | N/A | Container: | 500 mL HDPE - Unpreserved | | |

| Analyte / Default RDL: | |
|---|---|
| Nitrite as N | 0.002 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Analysis:** | **PAH in Water** | | | Matrix: | Water | TAT (Days): | 5 |
| Version: | Default | | Units: ug/L | Location: | Richmond | HT (Days): | 14 |
| Analysis Ref: | EPA 8270D | Prep Ref: | Base/Neutral | Container: | 1 L AG - NaHSO4 | | |

| Analyte / Default RDL: | | | | | |
|---|---|---|---|---|---|
| Acenaphthene | 0.05 | Acenaphthylene | 0.05 | Acridine | 0.05 |
| Anthracene | 0.05 | Benz (a) anthracene | 0.05 | Benzo (a) pyrene | 0.01 |
| Benzo (b) fluoranthene | 0.05 | Benzo (g,h,i) perylene | 0.05 | Benzo (k) fluoranthene | 0.05 |
| Chrysene | 0.05 | Dibenz (a,h) anthracene | 0.05 | Fluoranthene | 0.05 |
| Fluorene | 0.05 | Indeno (1,2,3-cd) pyrene | 0.05 | Naphthalene | 0.3 |
| Phenanthrene | 0.1 | Pyrene | 0.02 | Quinoline | 0.1 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Analysis:** | **pH in Water** | | | Matrix: | Water | TAT (Days): | 5 |
| Version: | Default | | Units: pH units | Location: | Richmond | HT (Days): | 0.01 |
| Analysis Ref: | APHA 4500-H+ B | Prep Ref: | N/A | Container: | 1 L HDPE - Unpreserved | | |

| Analyte / Default RDL: | |
|---|---|
| pH | 0.01 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Analysis:** | **Phosphorus, Total (persulfate)** | | | Matrix: | Water | TAT (Days): | 5 |
| Version: | Default | | Units: mg/L | Location: | Kelowna | HT (Days): | 28 |
| Analysis Ref: | APHA 4500-P H | Prep Ref: | N/A | Container: | 125 mL HDPE - H2SO4 | | |

| Analyte / Default RDL: | |
|---|---|
| Phosphorus, Total as P | 0.001 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Analysis:** | **Sulfate in Water by IC** | | | Matrix: | Water | TAT (Days): | 5 |
| Version: | Default | | Units: mg/L | Location: | Kelowna | HT (Days): | 28 |
| Analysis Ref: | APHA 4110 B | Prep Ref: | KEL | Container: | 500 mL HDPE - Unpreserved | | |

| Analyte / Default RDL: | |
|---|---|
| Sulfate | 0.2 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Analysis:** | **Total Recoverable Metals by ICPMS** | | | Matrix: | Water | TAT (Days): | 5 |
| Version: | Default | | Units: mg/L | Location: | Richmond | HT (Days): | 180 |
| Analysis Ref: | APHA 3125 B | Prep Ref: | N/A | Container: | 125 mL HDPE - HNO3 | | |

| Analyte / Default RDL: | | | | | |
|---|---|---|---|---|---|
| Aluminum, total | 0.05 | Antimony, total | 0.001 | Arsenic, total | 0.005 |
| Barium, total | 0.05 | Beryllium, total | 0.001 | Bismuth, total | 0.001 |
| Boron, total | 0.04 | Cadmium, total | 0.0001 | Calcium, total | 2 |
| Chromium, total | 0.005 | Cobalt, total | 0.0005 | Copper, total | 0.002 |
| Iron, total | 0.1 | Lead, total | 0.001 | Lithium, total | 0.001 |
| Magnesium, total | 0.1 | Manganese, total | 0.002 | Molybdenum, total | 0.001 |
| Nickel, total | 0.002 | Phosphorus, total | 0.2 | Potassium, total | 0.2 |
| Selenium, total | 0.005 | Silicon, total | 5 | Silver, total | 0.0005 |
| Sodium, total | 0.2 | Strontium, total | 0.01 | Sulfur, total | 10 |
| Tellurium, total | 0.002 | Thallium, total | 0.0002 | Thorium, total | 0.001 |
| Tin, total | 0.002 | Titanium, total | 0.05 | Uranium, total | 0.0002 |
| Vanadium, total | 0.01 | Zinc, total | 0.04 | Zirconium, total | 0.001 |

**PREPARED FOR** Morrison Hershfield Limited **DATE** May-06-15

## Analysis Details:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Analysis:** | **Total Recoverable Metals by ICPMS (Low)** | | | Matrix: | Water | TAT (Days): | 5 |
| Version: | Default | | Units: mg/L | Location: | Richmond | HT (Days): | 180 |
| Analysis Ref: | APHA 3125 B | Prep Ref: | N/A | Container: | 125 mL HDPE - HNO3 | | |

| Analyte / Default RDL: | | | | | |
|---|---|---|---|---|---|
| Aluminum, total | 0.005 | Antimony, total | 0.0001 | Arsenic, total | 0.0005 |
| Barium, total | 0.005 | Beryllium, total | 0.0001 | Bismuth, total | 0.0001 |
| Boron, total | 0.004 | Cadmium, total | 0.00001 | Calcium, total | 0.2 |
| Chromium, total | 0.0005 | Cobalt, total | 0.00005 | Copper, total | 0.0002 |
| Iron, total | 0.01 | Lead, total | 0.0001 | Lithium, total | 0.0001 |
| Magnesium, total | 0.01 | Manganese, total | 0.0002 | Molybdenum, total | 0.0001 |
| Nickel, total | 0.0002 | Phosphorus, total | 0.02 | Potassium, total | 0.02 |
| Selenium, total | 0.0005 | Silicon, total | 0.5 | Silver, total | 0.00005 |
| Sodium, total | 0.02 | Strontium, total | 0.001 | Sulfur, total | 1 |
| Tellurium, total | 0.0002 | Thallium, total | 0.00002 | Thorium, total | 0.0001 |
| Tin, total | 0.0002 | Titanium, total | 0.005 | Uranium, total | 0.00002 |
| Vanadium, total | 0.001 | Zinc, total | 0.004 | Zirconium, total | 0.0001 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Analysis:** | **Total Recoverable Metals by ICPMS (Ultra Low)** | | | Matrix: | Water | TAT (Days): | 5 |
| Version: | Default | | Units: ug/L | Location: | Richmond | HT (Days): | 180 |
| Analysis Ref: | APHA 3125 B | Prep Ref: | N/A | Container: | 125 mL HDPE - HNO3 | | |

| Analyte / Default RDL: | | | | | |
|---|---|---|---|---|---|
| Aluminum, total | 1 | Antimony, total | 0.05 | Arsenic, total | 0.05 |
| Barium, total | 0.1 | Beryllium, total | 0.01 | Bismuth, total | 0.01 |
| Boron, total | 1 | Cadmium, total | 0.002 | Calcium, total | 40 |
| Chromium, total | 0.1 | Cobalt, total | 0.005 | Copper, total | 0.1 |
| Iron, total | 2 | Lead, total | 0.05 | Lithium, total | 0.05 |
| Magnesium, total | 5 | Manganese, total | 0.05 | Molybdenum, total | 0.01 |
| Nickel, total | 0.02 | Phosphorus, total | 10 | Potassium, total | 10 |
| Selenium, total | 0.1 | Silicon, total | 50 | Silver, total | 0.01 |
| Sodium, total | 10 | Strontium, total | 0.1 | Sulfur, total | 500 |
| Tellurium, total | 0.05 | Thallium, total | 0.004 | Thorium, total | 0.01 |
| Tin, total | 0.05 | Titanium, total | 0.2 | Uranium, total | 0.001 |
| Vanadium, total | 0.2 | Zinc, total | 1 | Zirconium, total | 0.01 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Analysis:** | **Total Suspended Solids** | | | Matrix: | Water | TAT (Days): | 5 |
| Version: | Default | | Units: mg/L | Location: | Edmonton | HT (Days): | 7 |
| Analysis Ref: | APHA 2540 D* | Prep Ref: | N/A | Container: | 1 L HDPE - Unpreserved | | |

| Analyte / Default RDL: | |
|---|---|
| Solids, Total Suspended | 1 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Analysis:** | **VH in Water** | | | Matrix: | Water | TAT (Days): | 5 |
| Version: | Default | | Units: ug/L | Location: | Richmond | HT (Days): | 14 |
| Analysis Ref: | BCMOE VHw | Prep Ref: | N/A | Container: | 2 x 40 mL AG - NaHSO4 | | |

| Analyte / Default RDL: | |
|---|---|
| VHw (6-10) | 100 |

# ANALYTICAL SERVICES CAPABILITIES

**PREPARED FOR** Morrison Hershfield Limited **DATE** May-06-15

## Analysis Details:

| | | | | | |
|---|---|---|---|---|---|
| **Analysis:** | **VOC in Water** | | Matrix: | Water | TAT (Days): 5 |
| Version: | Default | Units: ug/L | Location: | Richmond | HT (Days): 14 |
| Analysis Ref: | EPA 8260B | Prep Ref: N/A | Container: | 2 x 40 mL AG - NaHSO4 | |

| **Analyte / Default RDL:** | | | | | |
|---|---|---|---|---|---|
| Benzene | 0.5 | Bromodichloromethane | 0.5 | Bromoform | 0.5 |
| Carbon tetrachloride | 0.5 | Chlorobenzene | 0.5 | Chloroethane | 1 |
| Chloroform | 0.5 | Dibromochloromethane | 0.5 | 1,2-Dibromoethane | 0.3 |
| Dibromomethane | 1 | 1,2-Dichlorobenzene | 0.5 | 1,3-Dichlorobenzene | 0.5 |
| 1,4-Dichlorobenzene | 0.5 | 1,1-Dichloroethane | 0.5 | 1,2-Dichloroethane | 0.5 |
| 1,1-Dichloroethene | 1 | cis-1,2-Dichloroethene | 0.5 | trans-1,2-Dichloroethene | 0.5 |
| 1,2-Dichloropropane | 0.5 | cis-1,3-Dichloropropene | 0.5 | trans-1,3-Dichloropropene | 0.5 |
| Ethylbenzene | 0.5 | Methyl tert-butyl ether | 0.5 | Methylene chloride | 1 |
| Styrene | 0.5 | 1,1,2,2-Tetrachloroethane | 0.5 | Tetrachloroethene | 0.5 |
| Toluene | 0.5 | 1,1,1-Trichloroethane | 0.5 | 1,1,2-Trichloroethane | 0.5 |
| Trichloroethene | 0.5 | Trichlorofluoromethane | 1 | Vinyl chloride | 1 |
| Xylenes (total) | 1 | | | | |

* in Analysis/Prep Ref indicates that modifications have been made from the reference method