

# GeoEnvironmental Consultants

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*Specialising in the Earth and what's built on it*

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## **REPORT**

### **GROUNDWATER MONITORING – MAY 2014 BINARY INDUSTRIES SITE MAGNESIUM COURT, NARANGBA, QLD**

Prepared for:

**DEPARTMENT OF ENVIRONMENT  
AND HERITAGE PROTECTION (EHP)**

**June 2014**

Ref N<sup>o</sup>: 5010/7GW

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6<sup>th</sup> June 2014

Our Ref: 5010/7GW

Your Ref: LS080414

Mr. Matt Karle, A/Manager Moreton District  
Environmental Services and Regulation  
**Department of Environment and Heritage Protection**  
33 King Street  
CABOOLTURE, QLD 4510

**RE: REPORT**  
**GROUNDWATER MONITORING – MAY 2014**  
**BINARY INDUSTRIES SITE**  
**MAGNESIUM COURT, NARANGBA, QLD**

Dear Matt,

We have pleasure in submitting two hard copies and one e-copy of our Final Report entitled "*Groundwater Monitoring, May 2014, Binary Industries Site, Magnesium Court, Narangba, QLD*" as requested by **EHP** on 11<sup>th</sup> April 2014 (PO No. 4500048222).

**GeoEnvironmental Consultants** conclude, on the basis of this monitoring event that groundwater conditions at the site require further assessment. Elevated concentrations of the heavy metals Cr, Cu, Pb and/or Zn (all twenty-one monitoring wells), pesticides, herbicides and phenolic compounds were detected wherein monitoring wells surrounding the Binary Industries facility and the un-named creek.

The concentration of PA herbicides and phenolic compounds had been generally decreasing in all wells from June 2007 through the May 2013 monitoring event. However, during the May 2014 monitoring event the highest levels of PA herbicides and phenolic compounds since monitoring commenced were measured in wells MW4, MW6, MW19 and MW23 (with the exception of well MW4 where the levels were the highest measured since August 2008). PA herbicides and phenols significantly increased in well MW23 north west of the Binary site. Further contaminant migration in this direction may require future installation of additional monitoring wells.

Damage to well MW4 was noted during field work associated with the May 2014 monitoring event. The well was able to be repaired and a sample obtained. It is our opinion that the data obtained from well MW4 appears consistent with historical results and results obtained from similar wells on this site. Further sampling of this well is recommended to evaluate the integrity of data from the well and determine whether the well should be replaced. Prior to further sampling of well MW4 the well should be re-surveyed so that accurate static water level elevation data can be obtained.

**GeoEnvironmental Consultants** recommend that **EHP** conduct further monitoring of groundwater conditions at the site in May 2015 to further assess impacts to groundwater and groundwater trends. A qualitative and quantitative risk assessment of the remaining contamination could be conducted following completion of the May 2015 monitor event to evaluate future site management and monitoring options if an evaluation of the data justifies this course of action. Given the significant increase in the levels of PA herbicides and phenolic compounds measured during this monitoring event it is unlikely that this will be justified.

It has been a pleasure performing these environmental services on your behalf. Should you have any queries regarding the contents of this report, please contact either Steve Termont-Schenk (0418-883-152) or myself (07-3367-2266).

Yours faithfully,

A handwritten signature in blue ink, appearing to read 'Mtisdall', is written over a light blue rectangular background.

Michael Tisdall BSc. PGDipSc.  
for **GeoEnvironmental Consultants Pty Ltd**

Encl: Final Report (2 copies, one electronic copy via e-mail)

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## **GLOSSARY OF ABBREVIATIONS**

The following abbreviations used in this report are defined here as a reference to assist review and understanding of the report:

AHD	Australian Height Datum
ALS	Australian Laboratory Services Pty Ltd
ANZECC	Australian and New Zealand Environment and Conservation Council
As	Arsenic
BTOC	Below Top of Casing
Cd	Cadmium
Cr	Chromium
Cu	Copper
EHP	Department of Environment & Heritage Protection, Queensland
EC	Electrical Conductivity
FMAE	Fresh and Marine Water Aquatic Ecosystem trigger levels as presented in the publication “ <i>Australian and New Zealand Guidelines for Fresh and Marine Water Quality</i> ”, (ANZECC, 2000)
Hg	Mercury
LOR	Level of Reporting
NATA	National Association of Testing Authorities Australia
NEPM	National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013
Ni	Nickel
OC/OP pesticides	Organochlorine and Organophosphorus pesticides
PA Herbicides	Phenoxyacetic Acid Herbicides
Pb	Lead
QC	Quality Control
SPH	Separate phase hydrocarbon
TOC	Top of Casing
Zn	Zinc

## 1.0 INTRODUCTION

**Department of Environment and Heritage Protection (EHP)** engaged **GeoEnvironmental Consultants Pty Ltd** (EHP Purchase Order No. 4500048222 dated 11<sup>th</sup> April 2014) to undertake environmental groundwater monitoring services at the Binary Industries site at Magnesium Court, Narangba, Queensland. The commission was for provision of groundwater monitoring and reporting services at the subject site in May 2014. The results of this monitoring round are presented in this report. All monitoring locations are shown on Drawing No. 1, *Monitoring Well Locations*.

### 1.1 Objective

The objective of this groundwater monitoring program is to monitor groundwater quality at the site as part of an on-going environmental monitoring and remediation program being undertaken by **EHP**. **EHP** conducts the groundwater monitoring to ascertain if there are any threats to groundwater as a result of the chemical fire that occurred at the site in August 2005.

We were advised by **EHP** that the primary contaminants of concern at the site are Phenols, herbicides (including Phenoxyacetic Acid Herbicides (PA herbicides) and Metolachlor) and Organochlorine and Organophosphorus pesticides (OC/OP pesticides) associated with the pesticide manufacturing, storage and distribution center that formerly operated at the Binary Industries site.

### 1.2 Scope of Work

The scope of work for this monitoring event to meet the stated project objectives consists of the following tasks:

- Gauge depth to water, purge four casing volumes of groundwater using dedicated disposable bailers supplied by **EHP** (or wells which purge dry in accordance with AS5667.11 1998: Water Quality Sampling or more recent additions) and allow groundwater to recover in the existing monitoring wells installed at the site and the **EHP** Background well (designated Backg'nd in this report);
- Sample each of the 20 operational groundwater monitoring wells located around the Binary Industries site and the **EHP** Background well using the dedicated disposable bailers;
- Collect two (2) duplicate samples, two (2) triplicate samples and one (1) rinsate sample for quality control purposes;
- Field measurement of groundwater samples for pH, temperature and electrical conductivity;
- Request analysis of 21 groundwater samples, two duplicate samples, one triplicate samples and one rinsate sample to detect the presence of site specific target analytes (per the list requested by **EHP** – 8 heavy metals including arsenic, cadmium, chromium, copper, mercury, nickel, lead and zinc (As, Cd, Cr, Cu, Pb, Ni, Zn and Hg), OC/OP pesticides, herbicides including Metolachlor and PA

herbicides) and 8 groundwater samples (Well Nos. MW2, 4, 5, 6, 11, 19, 23 and the **EHP** Background well) one duplicate sample and one triplicate sample for phenols in the NATA-registered laboratory of either ALS (primary laboratory) or SGS Australia (secondary laboratory for quality assurance) which are accredited for the methods performed as requested by **EHP**;

- On completion of sampling the monitoring wells were left in a secure condition with the caps locked, if requested. A condition report for each well is provided in Table 1 of this report; and
- Preparation of tabulated results of the groundwater sampling and analysis and a report including observations and well conditions, field monitoring results, a plan showing groundwater contours based on the gauging results and a summarised assessment of the results compared to the results of the November/December 2006, June and December 2007, August 2008, July 2011, May and November 2012 and the May 2013 monitoring rounds and the potential impact of groundwater discharge to the receiving environment based on the assessment criteria provided by **EHP**.

### 1.3 Previous Groundwater Monitoring

Previous rounds of groundwater monitoring at this site have been conducted by GHD and **EHP** intermittently since August 2005. Results of prior monitoring events were not made available to **GeoEnvironmental Consultants**. **GeoEnvironmental Consultants** conducted rounds of monitoring on all known groundwater monitoring wells in November/December 2006, June 2007, December 2007, August 2008, July 2011, May 2012, November 2012 and again in May 2013 with the results presented to **EHP** in January and July 2007, December 2007, September 2008, August 2011, June and November 2012 and June 2013, respectively. In addition, **GeoEnvironmental Consultants** installed and conducted monitoring on four new groundwater monitoring wells (MW21 through 24, inclusive) in May 2008. All known current monitoring locations at the site with the exception of the **EHP** Background well are shown on Drawing No. 1, *Monitoring Well Locations and Groundwater Contours*. The **EHP** Background well is located along the west side of Potassium Street north of the intersection of Boundary Road (UBD Ref: Map 79, F12).

## 2.0 SAMPLING AND ANALYSIS PROGRAM

### 2.1 Monitoring Well Inspection, Gauging and Purging

**GeoEnvironmental Consultants** visited the site on 7<sup>th</sup>, 8<sup>th</sup> and 9<sup>th</sup> May to carry out fieldwork associated with the May 2014 monitoring event. The condition of each monitoring well on arrival is noted on Table 1, *Well Condition, Groundwater Gauging Results and Field Water Quality Parameters*.

Most wells appeared to be in good condition except for:

- Monitoring Well No. MW4 which appears to have been hit by a vehicle or slasher which lifted the well and protective casing out of the ground. Following some rectification work consisting of removal of the bent steel protective casing and cutting off the aboveground portion of the PVC well casing a groundwater sample was able to



be obtained from the well for this monitoring event and a new flush-mounted surface cover was installed;

- Monitoring Well No. MW9 which has been hit and is bent over but is still operable;
- It is our assumption that Monitoring Well Nos MW8 and MW18 were never installed;
- Monitoring Well No. MW12 which was destroyed by construction of the fire access road prior to July 2011; and
- MW14, which has been filled with silt since early-2007 and is now dry.

Four of the wells (MW7, MW10, MW13 and MW15) located off-site along the un-named creek were not locked at the time of this monitoring event. In addition, all wells which are located within flush-mounted ‘Gatic’ covers (MW1, MW2, MW6, MW17 and the **EHP** Background well) were not locked.

Water levels were gauged in all monitoring wells on 7<sup>th</sup>, 8<sup>th</sup> or 9<sup>th</sup> May 2014 using an electronic interface probe equipped to measure the thickness of separate phase hydrocarbon (SPH), if present, and the depth to the static water level below the top of the well casing reference point. All wells were gauged prior to purging and again prior to gathering groundwater samples.

Field sampling was conducted in accordance with the EPA’s “*Water Quality Sampling Manual*” (3<sup>rd</sup> Edition, December 1999) and with reference to AS/NZS 5667.11:1998, “*Water Quality – Sampling*” and the “*Guideline for Contaminated Land Professionals, Queensland EHP (2012)*”. Monitoring wells were purged of at least three casing volumes, or until dry, using a disposable acrylic bailer or a submersible electronic pump. The volume of water purged from each monitoring well was measured and recorded on Table 1.

## 2.2 Water Sampling

Samples were gathered using a disposable acrylic bailer for each well. Field parameters were monitored during purging and sampling operations and recorded. Water quality parameters measured in the field are presented on Table No. 1, *Well Condition, Groundwater Gauging Results and Field Water Quality Parameters*.

Samples were collected in laboratory supplied and prepared bottles provided by the NATA-certified laboratory of the primary laboratory, Australian Laboratory Services (ALS) of Stafford, Queensland. To evaluate the accuracy of the primary laboratory one duplicate sample and two triplicate samples were collected in laboratory supplied and prepared bottles provided by the NATA-certified laboratory of SGS Environmental Services (SGS) of Pinkenba, Queensland. Samples intended for metals analysis were field-filtered through a field-filtering unit and pump equipped with disposable 0.45µm filter papers. All sampling equipment was decontaminated with phosphate free detergent and double rinsed in fresh water before gathering successive samples.

Samples were designated by a number that corresponded to the sample location (e.g. Sample No. MW1 relates to the groundwater sample collected from monitoring well MW1, Sample No. Backg’nd relates to the groundwater sample collected from the **EHP** Background well). Two field duplicate samples designated Sample Nos. DUP1 and DUP2 were gathered for quality control purposes during this sampling event from Monitoring Well No. MW19 and MW23, respectively. One field triplicate sample designated Sample No. TRIP1 was gathered for quality control purposes during this sampling event from Monitoring Well No. MW19.

One rinsate sample designated Sample No. RIN1 was gathered for quality control purposes after gathering a sample from Monitoring Well No. Backg'nd during this monitoring event.

A water sample was obtained from damaged Monitoring Well No. MW4 by removing the steel protective casing and cutting off the well standpipe which was kinked just below ground surface. A new flush-mounted Gattic well cover was installed at the ground surface and a well plug was inserted into the standpipe of well MW4 following sampling. A water sample could not be obtained from Monitoring Well No. MW12 as the well had been destroyed and no water was obtained from Monitoring Well No. MW14 as the well was full of silt and was dry. All groundwater samples were placed immediately into a chilled esky and transported on 12<sup>th</sup> May 2014 to ALS and SGS for analysis under strict chain-of-custody documentation.

### 2.3 Analytical Program

Twenty-one water samples, one duplicate sample and one rinsate samples collected during this monitoring event were analysed by the primary laboratory, ALS. Analyses included a suite of eight heavy metals including arsenic, cadmium, chromium, copper, lead, nickel, zinc and mercury (As, Cd, Cr, Cu, Pb, Ni, Zn and Hg); OC/OP pesticides; herbicides (including Metolachlor and PA herbicides) and phenols (wells MW2, 4, 5, 6, 11, 19, 23 and Backg'nd and quality control Sample No. DUP1). ALS is NATA-certified for each of these analyses.

One duplicate sample (Sample No. DUP2) and one triplicate water sample (Sample No. TRIP1) collected during this monitoring event were analysed by the secondary laboratory, SGS. Analyses included a suite of eight heavy metals including As, Cd, Cr, Cu, Pb, Ni, Zn and Hg; OC/OP pesticides; herbicides (including Metolachlor and PA herbicides) and phenols. SGS is NATA-certified for each of these analyses.

Details of laboratory methods and method detection limits (or LOR, level of reporting) utilised by ALS (the primary laboratory) for the various analyses are as follows:

ANALYTES	GROUNDWATER WATER	
	Laboratory Method	Level Of Reporting
<b>Trace Elements</b>		
Arsenic	ICPMS (USEPA 6020)	0.001 mg/L
Cadmium	ICPMS (USEPA 6020)	0.0001 mg/L
Chromium	ICPMS (USEPA 6020)	0.001 mg/L
Copper	ICPMS (USEPA 6020)	0.001 mg/L
Lead	ICPMS (USEPA 6020)	0.001 mg/L
Nickel	ICPMS (USEPA 6020)	0.001 mg/L
Zinc	ICPMS (USEPA 6020)	0.005 mg/L
Mercury	CV-FIMS	0.0001 mg/L
<b>OC/OP Pesticides</b>	USEPA 3510/8270	0.5 - 2 µg/L
<b>PA Herbicides</b>	LCMS (ALS EP202SL)	10 µg/L
<b>Multiresidue Pesticide Screen</b>	LCMS (ALS EP215LL)	0.010 µg/L
<b>Phenols</b>	SIM (ALS EP075)	1 - 2 µg/L

Table No. 2, *Groundwater Analytical Results, Metals, Pesticides and Herbicides*, present the analytical results for all water samples collected for analysis during this and prior monitoring events. Table No. 3, *Groundwater Analytical Results, Phenolic Compounds*, presents the phenolic compounds analytical results for wells MW2, 3, 4, 5, 6, 11, 19, 21, 22, 23, 24 and Backg'nd from all monitoring events as well as the results for samples DUP1, DUP2 and

TRIP1 from this monitoring event. Full NATA-certified laboratory reports from both ALS and SGS, Sample Receipt Notification and Chain of Custody documentation for samples collected during this monitoring event are included in Appendix A of this report. Laboratory quality control (QC) reports from ALS and SGS are also included in Appendix A.

### **3.0 ASSESSMENT CRITERIA**

There are currently no established guidelines available for the assessment of groundwater in Queensland. However, for the purpose of evaluating the groundwater quality the Australian National Environment Protection Council publication, *National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013* (NEPM, 2013), groundwater investigation levels (GILs) for protection of fresh, marine and drinking water quality are provided.

**GeoEnvironmental Consultants** have compared the results of this monitoring event with:

1. NEPM 2013 GILs for the protection of freshwater aquatic ecosystems based on ANZECC 2000 guidance levels for slightly to moderately disturbed ecosystems (95% level of protection) have been used, allowing for possible chronic effects and bioaccumulation with the exception of Metolachlor. **EHP** recommended a site-specific water quality criteria of 1  $\mu\text{g/L}$  applicable to stormwater discharges from the Binary Industries site be used as a trigger value for Metolachlor in groundwater. The ANZECC 2000 freshwater guidance levels were used to assess monitoring results prior to 2013.

### **4.0 GROUNDWATER MONITORING RESULTS**

Results of field and laboratory testing conducted during this monitoring event compared with the results obtained during previous monitoring events are discussed in the following sections. Refer to Table No. 1 for the results of field results from this monitoring event and Table Nos. 2 and 3 for analytical results for all water samples collected for analysis during this and prior monitoring events.

#### **4.1 Field Measurements**

##### **4.1.1 Static Water Levels**

Static water levels measured in monitoring wells during this monitoring event ranged between 0.100m (Monitoring Well Nos. MW10) to 10.980m (Monitoring Well No. MW22) below top of casing (BTOC). Groundwater elevations vary between a low of 10.472m Australian Height Datum (AHD) in Monitoring Well No. MW16 to a high of 20.894m AHD in Monitoring Well No. MW5.

Groundwater elevations in the vicinity of the Binary site ranged between 0.210m lower (MW2) to 2.335m lower (MW23) than measured during the previous monitoring event (May 2013). The groundwater elevation in the **EHP** Background well was 2.235m lower than measured in May 2013. All wells had lower groundwater levels than measured during the previous event. The largest falls (between 1.810m to 2.335m lower) were in wells MW3, 4,

22, 23 and 24, all located on the western side of the Binary site in the vicinity of the Binary Dam.

Schlencker Mapping surveyed all existing monitoring wells in either November 2006 or April 2008 to provide accurate top of standpipe elevations for all wells. However, due to the damage noted to well MW4 the elevation of this well has been estimated by subtracting the measured length of well casing cut off to obtain a water sample from the surveyed top of casing elevation. Refer to Table No. 1 for the results of gauging conducted on the 21 existing monitoring wells included in this monitoring event.

Separate phase hydrocarbon (SPH) was not measured in any of the monitoring wells at this site during this monitoring event. Groundwater elevation contours inferred from gauging results for this monitoring event are presented on Drawing No. 1. Review of Drawing No. 1 indicates that the groundwater hydraulic gradient is approximately 0.0193 generally to the east/northeast from a groundwater high mound located beneath the Binary Industries Dam.

The amount of this gradient, calculated as the difference in static water level across a given horizontal distance measured along the direction of travel, is almost the same as the gradient measured in May 2013 (0.0195) and November 2012 (0.0196). The flow direction is consistent with prior monitoring events.

#### **4.1.2 Electrical Conductivity (EC)**

Electrical conductivity measured in the field varied between a low of 121 $\mu$ S/cm in Monitoring Well No. MW17 to a high of 484 $\mu$ S/cm in Monitoring Well No. MW2 during this monitoring event. The **EHP** Background well had a field EC value of 954 $\mu$ S/cm. EC values measured in all monitoring wells surrounding the Binary Industries site were generally much lower than the EC value measured in May 2013 indicative of decreased rainfall and lower groundwater levels.

EC values in excess of 1,500 $\mu$ S/cm are indicative of either brackish groundwater conditions or organic chemical impact. No EC value in excess of 1,500  $\mu$ S/cm was measured during this monitoring event. Previously, only EC values in the **EHP** Background well have exceeded this level.

#### **4.1.3 pH Measurement**

Water pH measured in the field indicates that the groundwater is generally moderately to slightly acidic with a pH of between 3.46 (MW3) to 6.63 (MW1) in the twenty monitoring wells while the pH measured in the **EHP** Background well was pH 3.43). The lowest pH levels (levels less than 5.0) were all measured in wells located in close proximity to the perimeter of the Binary Industries site with the exception of the **EHP** Background well.

### **4.2 Analytical Results**

#### **4.2.1 Heavy Metals Results**

The May 2014 monitoring event results indicate the heavy metals Cr, Cu, Pb, and Zn are present at concentrations above the adopted environmental criteria in three or more wells of the twenty-one (21) site wells and the **EHP** Background well. The metalloid As as well as the

heavy metals Cd, Ni and Hg were detected at concentrations below adopted environmental criteria and/or below laboratory levels of reporting in all monitoring wells in this monitoring event. These results are consistent with the May 2013 results.

Review of all individual metalloid/metal concentrations and distributions for the May 2014 and preceding monitoring rounds has been undertaken to assess any distribution patterns and trends that may be emerging. The review indicates the following:

*Arsenic (As)*

In May 2014 As concentrations were below adopted criteria in all wells and were only detected in 7 wells. This is similar to May 2013 and a reduction from the 14 wells in which As has previously been detected. In previous rounds As has been detected at concentrations above environmental criteria in wells MW7, MW11, MW14 and MW20 located along the creek to the south east of the Binary site. Detectable As in November 2012 was present in one area centered on MW1/MW2/MW7/MW20 and two non-contiguous wells, MW16 and the **EHP** Background well, representing a similar area of detectable As occurrence.

*Cadmium (Cd)*

In May 2014 Cd concentrations were below adopted criteria in all wells and below the laboratory level of detection in all wells except the **EHP** Background well. This is similar to May 2013 and a reduction from the 21 wells in which Cd has previously been detected. In previous rounds Cd has been detected at concentrations above environmental criteria in most monitoring wells at the site, but consistently in none of the wells and no patterns or trends are apparent.

*Chromium (Cr)*

In May 2014 Cr concentrations were above adopted environmental criteria in 8 wells and were below levels of reporting in all other wells. This is an increase from the 5 wells above criteria in May 2013 but a reduction from the 13 wells in which Cr has previously been detected. In previous rounds Cr has been detected at concentrations above environmental criteria in 11 wells distributed widely over the monitored area. Cr concentrations above adopted criteria in May 2014 were present in three non-contiguous areas, the southern portion of the site (wells MW1, MW2, MW3, MW4 and MW7), an area in the eastern portion (wells MW11 and MW21) and well MW16, representing a mostly similar area of detectable Cr occurrence as observed previously. Cr was detected at the highest concentration in well MW11 along the creek and at a slightly lower concentration in adjacent well MW21 indicating the impact in these wells is relatively isolated.

*Copper (Cu)*

In May 2014 Cu concentrations were above adopted environmental criteria in 12 wells including the **EHP** Background well and were detected below criteria or levels of reporting in all other wells. In May 2013 Cu above adopted criteria was present in 11 wells while in previous rounds Cu has been detected at concentrations above environmental criteria in up to 18 wells distributed widely over the monitored area. Cu concentrations above adopted criteria in May 2014 were present in three broad areas. The largest area is centered around the Binary site (wells MW1, MW3, MW5, MW17, MW22, MW23 and MW24) which is consistent with the May 2013 results. The other two areas are non- contiguous and are located along the unnamed creek in wells not consistent with the prior round. Comparison of the wells with concentrations above environmental criteria from this monitoring event with those measured

in May 2013 indicates 5 wells had concentrations higher than measured in May 2013 while 6 wells had the same or lower concentrations.

#### *Lead (Pb)*

In May 2014 Pb concentrations were above adopted environmental criteria in 3 wells including the **EHP** Background well and were detected below criteria or levels of reporting in all other wells. This is similar to May 2013 but a reduction from the 21 wells in which Pb has previously been detected. In previous rounds Pb has been detected at concentrations above environmental criteria in 16 wells distributed widely over the monitored area. Pb concentrations above adopted criteria in May 2014 were present in two non-contiguous wells surrounding the Binary Industries site, wells MW3 and MW23 and in the **EHP** Background well. The May 2014 results indicate a somewhat similar distribution and concentration of Pb to that measured in May 2013.

#### *Nickel (Ni)*

In May 2014 Ni concentrations were below adopted criteria in all wells. Ni concentrations were detected in 15 wells including the **EHP** Background well and were below levels of reporting in 6 wells. This is a similar number of wells in which Ni has previously been detected. In previous rounds Ni has been detected at concentrations above environmental criteria in 8 wells distributed widely over the monitored area. Detected Ni concentrations in May 2014 were present in two broad areas centered around the west, south and east sides of the Binary site and in non-contiguous wells along the unnamed creek from MW7 to MW16. The Ni concentrations in May 2014 were generally the same or lower than the concentrations measured in the May 2013 monitoring round.

#### *Zinc (Zn)*

In May 2014 Zn concentrations were above adopted environmental criteria in all 21 wells including the **EHP** Background well. This is a similar number of wells in which Zn has previously exceeded the adopted guidelines and an increase from the 19 wells in May 2013. In previous rounds Zn has been detected at concentrations above environmental criteria in 22 wells distributed over the whole monitored area. The Zn concentrations in May 2014 were lower in 5 wells (generally south west of the Binary Industries site) and higher in 16 wells (generally surrounding the Binary site and along the un-named creek east of the site) than measured in May 2013. Significantly, the Zn concentration measured in well MW4 was the highest level ever recorded at the site and was an order of magnitude increase compared to the level measured in May 2013.

#### *Mercury (Hg)*

In May 2013 Hg concentrations were below levels of reporting in all 21 wells sampled. In previous rounds Hg has only been detected once (MW7 in 2007) and this was at a concentration below the adopted environmental criteria.

#### *Summary*

In summary, metal concentrations above environmental criteria have generally maintained a similar order of magnitude compared to the May 2013 results. The distribution of metal occurrence above criteria and levels of reporting have remained similar since November 2012 when it was reported that the areas had generally reduced in size from historical distributions. The distribution of metals in the May 2014 monitoring event reflects two broad areas of detectable concentrations centered around the Binary site and along the unnamed creek from

MW7 to MW16. Wells MW9, MW10 and MW20 tend to separate these two areas with all metal concentrations at or below the levels of reporting.

There have not been notable increases or decreases of any metals during this monitoring event as variations measured were similar to historical variations with the exception of the zinc concentration measured in well MW4. The zinc concentration measured in well MW4 was an order of magnitude higher than measured in May 2013 and the highest level ever recorded at the site in this well. Close scrutiny of the zinc results in this well is required in the future.

Further comparison of heavy metals in future monitoring events including all monitoring wells is required to evaluate whether the **EHP** Background well is representative of background levels of heavy metals in groundwater. Elevated concentrations (compared to the concentration detected in the **EHP** Background well) of As, Cr, Cu, and/or Zn were detected in 10 of the 21 wells included in this monitoring round with As and Cr being the most common metals to exceed the background concentrations. In May 2013 Cu and Zn were the two most common metals to exceed background concentrations. Concentrations of two or more metals exceeded the **EHP** Background well concentration in wells MW1, MW2, MW3, MW4 and MW16. Previously there has not been apparent spatial pattern to these wells. During this monitoring event 4 out of the 5 wells which contain two or more metals which exceed background concentrations are located on the south and west sides of the Binary industries site.

In our opinion the inconsistent spatial distribution of these wells makes it difficult to state with any certainty whether the elevated concentrations of As, Cr, Cu, Pb and Zn in monitoring wells are naturally occurring, are site related or are the result of impact from adjacent industries.

#### **4.2.2 Pesticide Results**

In the May 2014 and previous monitoring events, OC pesticide compounds were not detected at concentrations above the laboratory level of reporting or the adopted assessment criteria in any of the monitoring wells sampled.

The OP pesticide chlorpyrifos was detected adjacent to both the east and west boundaries of the Binary Industries site at concentrations of  $0.3524\mu\text{g/L}$  (MW4) and  $0.057\mu\text{g/L}$  (MW6) during this monitoring event. These levels of chlorpyrifos are above the laboratory level of reporting ( $0.02\mu\text{g/L}$ ) and the adopted assessment criteria ( $0.01\mu\text{g/L}$ ). Chlorpyrifos was not present above the laboratory level of reporting in any of the remaining wells. Chlorpyrifos was previously detected in well MW2 in June and December 2007 and again in May 2013 at concentrations of 1.6, 0.9 and  $0.032\mu\text{g/L}$  respectively and in well MW4 at concentrations of  $0.03\mu\text{g/L}$  to  $4.1\mu\text{g/L}$  during the November 2006, June 2007, August 2008, May 2012, November 2012 and May 2013 monitoring events. These concentrations were above the then current laboratory level of reporting ( $0.5\mu\text{g/L}$ ) and also the adopted assessment criteria. Chlorpyrifos was previously detected in well MW6 at concentration of  $0.024\mu\text{g/L}$  during the May 2013 monitoring event.

The OP pesticide dimethoate was only detected in well MW11 in December 2007 at a concentration of  $0.60\mu\text{g/L}$  which is above the adopted assessment criteria ( $0.015\mu\text{g/L}$ ). No other OP pesticides have been detected during any previous monitoring event.

### 4.2.3 Herbicide Results

Detectable levels of herbicides were measured in Monitoring Well Nos. MW2, MW4, MW5, MW6, MW10, MW11, MW19 and MW23. Most of these are the same wells that contained detectable levels of herbicides during the November 2012 and May 2013 monitoring events except wells MW10 and MW11 did not contain detectable herbicides and well MW20 previously did. Herbicides detected in these wells in this monitoring event included Metolachlor, 2,4-D, MCPA, Triclopyr, 2,4,6-T, Picloram, Clopyralid, Atrazine and Diuron.

The only compound detected that has a NEPM 2013 guideline level established is the Phenoxyacetic acid (PA) herbicide 2,4-D (280 $\mu\text{g/L}$  adopted criteria) which is also the PA herbicide compound detected at the highest concentration at the site (4,030 $\mu\text{g/L}$  in well MW4). This is a higher level of 2,4-D than measured since 2008. Historically, the level of 2,4-D in all wells has decreased steadily from concentrations measured in 2006/07. In well MW4 the level of 2,4-D was 53,200 and 65,300 $\mu\text{g/L}$  during the December 2006 and June 2007 monitoring events, respectively. This decreased to a concentration of 2,060 $\mu\text{g/L}$  in the May 2012 event.

The PA herbicide 2,4-D was also measured in wells MW19 and MW23 at concentrations of 322 $\mu\text{g/L}$  and 1,950 $\mu\text{g/L}$  which are above the adopted criteria. Historically 2,4-D has been detected in well MW19 at a concentration of less than detectable to 302  $\mu\text{g/L}$  with an apparent increasing trend. The PA herbicide 2,4-D was measured in well MW23 at a concentration of 54 $\mu\text{g/L}$  in May 2013 and 222 $\mu\text{g/L}$  in November 2012 which are less than the adopted criteria. These wells are located adjacent to the north west and south east corners of the Binary Industries site. It should be noted that the level of PA herbicides measured in well MW23 during this monitoring round were the highest level ever measured in that well. However, well MW24, located downgradient of well MW23, did not contain detectable concentrations of any herbicides and is therefore considered to be a good indicator of the extent of impact in this area.

Historically, the PA herbicide compound with the second highest concentration detected was MCPA. No guideline levels have been established for MCPA. MCPA concentrations have previously been steadily trending lower in all wells. MCPA was detected in monitoring wells MW4 and MW23 during this monitoring event at concentrations of 40 $\mu\text{g/L}$  and 24 $\mu\text{g/L}$ . The concentration of both 2,4-D and MCPA are reported on Table 2, *Groundwater Analytical Results*.

Detectable levels of the herbicide Metolachlor were measured in Monitoring Well Nos. MW2, MW4, MW5, MW6, MW10, MW11, MW19, and MW23 during the May 2014 monitoring event. These wells are located in an area centered on the Binary Industries site and downgradient of the north west corner and east side of the Binary Industries site.

Similar to May 2013, Metolachlor was measured at the highest concentration in wells MW4, MW6, MW19 and MW23 (30.7 $\mu\text{g/L}$ , 22.8 $\mu\text{g/L}$ , 18.4 $\mu\text{g/L}$  and 8.95 $\mu\text{g/L}$ , respectively). All these wells are located immediately adjacent to the Binary Industries site.

**EHP** previously advised that the ANZECC guideline Trigger Value for Metolachlor is 0.02 $\mu\text{g/L}$  although our review of the guidelines indicated there is insufficient data to determine a Trigger Value. Further, **EHP** previously recommended a pre-release water quality criteria of 1 $\mu\text{g/L}$  for Metolachlor for stormwater discharges from the Binary Industries site be used as the adopted criteria for groundwater. Utilising the criteria of 1 $\mu\text{g/L}$  for



Metolachlor, samples from monitoring wells MW4, MW6, MW19 and MW23 exceed the nominated Trigger Value. As previously stated, these monitoring wells are all located around the perimeter of the Binary Industries site.

Levels of Metolachlor had been showing a decreasing trend in all wells prior to this monitoring event. However, the level of Metolachlor measured during this monitoring event was the highest ever measured at the site in wells MW19 and MW23. In well MW4 and MW6 the level was the highest measured since August 2008 and May 2012, respectively. There has not been a discernible trend in Metolachlor concentrations thus far. It should be noted that applying a stormwater criteria to groundwater is a very conservative approach.

#### **4.2.4 Phenolic Compound Results**

During the May 2014 monitoring event detectable levels of Phenolic compounds were measured in 4 of the 8 monitoring wells analysed – wells MW4, MW6, MW19 and MW23. The compounds detected in these wells included 2,4,6- Trichlorophenol, 2,4-Dichlorophenol, 2,6-Dichlorophenol, 2-Methylphenol, 2-Chlorophenol and Phenol. 2,4-Dichlorophenol was the compound measured at the highest concentration in these wells with concentrations measured in MW4 (17,500 $\mu\text{g/L}$ ) and MW23 (5,140  $\mu\text{g/L}$ ) located adjacent to the north west corner of the site and MW19 (3,040  $\mu\text{g/L}$ ) located adjacent south east corner of the Binary Industries site.

The only compounds detected that have NEPM 2013 guideline levels established are 2,4,6-Trichlorophenol, 2,4-Dichlorophenol, 2-Chlorophenol and Phenol (3 $\mu\text{g/L}$ , 120 $\mu\text{g/L}$ , 340 $\mu\text{g/L}$  and 320 $\mu\text{g/L}$  adopted criteria, respectively). Concentrations of 2,4,6-Trichlorophenol and 2,4-Dichlorophenol in wells MW4, MW19 and MW23 were the only detections in excess of the adopted criteria. The level of Phenolic compounds had been generally decreasing in all wells from concentrations in the range of 3,000 to 5,000  $\mu\text{g/L}$  detected during the June 2007 and subsequent monitoring events. However, the level of Phenolic compounds measured in wells MW4 and MW19 since the November 2012 monitoring event had increased slightly and the levels measured in May 2014 are the highest levels ever measured in well MW4 and the highest level since May 2012 in well MW19. Phenolic compounds were not detectable in well MW23 in April 2008 when the well was last sampled for phenols.

The concentration of all Phenolic analytes included in the analytical suite for Monitoring Well Nos. MW2, MW3, MW4, MW5, MW6, MW11, MW19, MW21, MW22, MW23, MW24 and Backg'nd (the EHP background well) from this and prior monitoring events are reported on Table 3, *Groundwater Analytical Results, Phenolic Compounds*.

## **5.0 QUALITY ASSURANCE**

All groundwater samples collected during this monitoring event were collected in accordance with the Quality Assurance and Quality Control Procedures outlined in Appendix B. Groundwater field duplicate and triplicate analysis results are included in the laboratory reports in Appendix A and summarized in Table Nos. 2 and 3. Laboratory QA procedures are described in Appendix B and results reported in the ALS Quality Assurance Report included in Appendix A.

Data assessment of laboratory results and COC documentation indicates that:

- Sample integrity and container requirements were documented as acceptable;
- Holding time compliances were documented as acceptable;
- Matrix Spikes spike results were within acceptable control limits;
- Laboratory duplicate % RPD results were acceptable; and
- All laboratory QA/QC method blanks were found to be acceptable.

The Relative Percentage Differences (RPDs) for heavy metals and herbicide compounds in groundwater Sample No. DUP1/MW19 (ALS) ranged from +16.9% to -40% while the RPDs for heavy metals and herbicide compounds in groundwater Sample No. TRIP1/MW19 (SGS/ALS) ranged from +66.7% to -26%. RPDs for DUP2/MW23 (ALS) ranged from -7.2% to +66.7%. The RPDs for phenolic compounds in groundwater Sample No. DUP1/MW19 (ALS) ranged from +0.0% to -19.9% while the RPDs for Sample Nos. DUP1/MW4 and TRIP1/MW23 (both SGS/ALS) ranged from +116.5% to -97.9%.

The RPD results indicate acceptable precision within the whole process from sampling, sample preparation and laboratory analysis by both the primary laboratory ALS and the alternate laboratory SGS. However, a lower level of precision was apparent for the phenolic compounds between the two laboratories due to the high concentrations measured in the samples chosen for comparison.

The organic and inorganic data reported for this Binary Industries Groundwater Monitoring event can be considered to be of sufficient quality to enable valid assessment of site groundwater conditions and to achieve the project objectives.

Full NATA-certified laboratory reports from ALS and SGS for all parameters are included in Appendix A of this report.

## **6.0 CONCLUSIONS AND RECOMMENDATIONS**

**GeoEnvironmental Consultants** conclude, on the basis of this monitoring event that groundwater conditions at the site require further assessment. Elevated concentrations (compared to the concentration detected in the **EHP** Background well) of As, Cr, Cu and/or Zn were detected in up to 10 of the 21 monitoring wells included in this sampling event.

Chromium concentrations were above adopted environmental criteria in 8 wells and were below levels of reporting in all other wells. Copper concentrations were above adopted environmental criteria in 12 wells including the **EHP** Background well and were detected below criteria or levels of reporting in all other wells. Lead concentrations were above adopted environmental criteria in 3 wells including the **EHP** Background well and were detected below criteria or levels of reporting in all other wells. Zinc concentrations were above adopted environmental criteria in all 21 wells including the **EHP** Background well. Based upon our review of the results of this monitoring event we conclude that Cr, Cu, Pb and Zn concentrations and distribution were generally similar to the previous May 2013 sampling event. The most significant change noted was an order of magnitude increase in zinc in well MW4 to the highest level ever recorded at the site.

In our opinion, the spatial distribution of these wells makes it difficult to state with any certainty whether the elevated concentrations of Cr, Cu, Pb and/or Zn in monitoring wells are naturally occurring, are site related or are the result of impact from adjacent industries.

Based on the results of this groundwater monitoring event **GeoEnvironmental Consultants** conclude that there is impact from the pesticides, herbicides and phenolic compounds present in monitoring wells located around the perimeter of the Binary Industries facility (in the area of Monitoring Well Nos. MW2, MW4, MW5, MW6, MW10, MW11, MW19, MW20, MW21 and MW23).

The concentration of PA herbicides and phenolic compounds had been generally decreasing in all wells from concentrations measured the June 2007. This trend generally continued through the May 2013 event. However, during the May 2014 the highest levels of PA herbicides and phenolic compounds since monitoring commenced were measured in wells MW4, MW6, MW19 and MW23 with the exception of well MW4 where the levels were the highest measured since August 2008.

The concentration of phenolic compounds and herbicides previously detected in groundwater in the vicinity of former containment pond 2 (well MW11) were again significantly less during this monitoring event than measured during earlier monitoring events.

Damage to well MW4 was noted during field work associated with the May 2014 monitoring event. The well was able to be repaired and a sample obtained. It is our opinion that the data obtained from well MW4 appears consistent with historical results and results obtained from similar wells on this site. Further sampling of well MW4 is recommended to evaluate the integrity of data from the well and determine whether the well should be replaced. Prior to further sampling in May 2015 the existing well should be re-surveyed so that accurate static water level elevations can be determined.

**GeoEnvironmental Consultants** recommend that **EHP** conduct further monitoring of groundwater conditions at the site in May 2015 to further assess impacts to groundwater and groundwater trends. A qualitative and quantitative risk assessment of the remaining contamination could be conducted following completion of the May 2015 monitor event to evaluate future site management and monitoring options if an evaluation of the data justifies this course of action.

Given the significant increase in the levels of PA herbicides and phenolic compounds measured during this monitoring event it is unlikely that this will be justified. The fact that the results of this monitoring event indicate evidence of downgradient migration of herbicide and phenolic compound impact away from MW4 in a north westerly direction toward wells MW23 and MW24. The extent of this impact was not noted in well MW24. However, review of the results of future monitoring events may indicate the need to install additional monitoring wells further north west of well MW24 or in a north to north easterly direction away from MW4 and the Binary Dam area.

## 7.0 LIMITATIONS OF REPORT

**GeoEnvironmental Consultants** have prepared this groundwater monitoring report in accordance with generally accepted consulting practice. No warranty, expressed or implied, is made as to the results included in this report. The report has not been prepared for use by parties other than the **EHP** and their authorised Third Parties. It may not contain sufficient information for the purposes of other parties or for other uses and we accept no responsibility for other use of the data.

To the best of our knowledge, information contained in this report is accurate at the date of issue. However, subsurface conditions, including contaminant concentrations, are subject to change in a limited time. In addition, monitoring has been limited in extent and depth and there are always some variations in subsurface conditions across a site. Therefore, it is unlikely that the measurements and values obtained by sampling and analysis during this program will represent the extremes of conditions that exist within the site.

for **GeoEnvironmental Consultants Pty Ltd**



**Michael Tisdall** BSc. PGDipSc.  
Environmental Scientist



# DRAWING

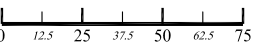
**BINARY INDUSTRIES  
FIRE SITE**

DRAWING NO. 1

**MONITORING WELL  
LOCATIONS AND  
GROUNDWATER CONTOURS**

(Gauged 7th, 8th & 9th of May 2014)

SCALE 1 : 2500



HORIZONTAL DATUM: GDA 94  
LEVEL DATUM: AHD  
GROUNDWATER  
CONTOUR INTERVAL: 1m

LEGEND:

SYMBOL	FEATURE
MW3 +	MONITORING WELL
27.143	LOCATION & NUMBER
20.643	RL Top of Well Standpipe (m)
	RL Groundwater (m)
	POND/DAM
	PROPERTY BOUNDARY
20	GROUNDWATER ELEVATION CONTOUR (mAHD)

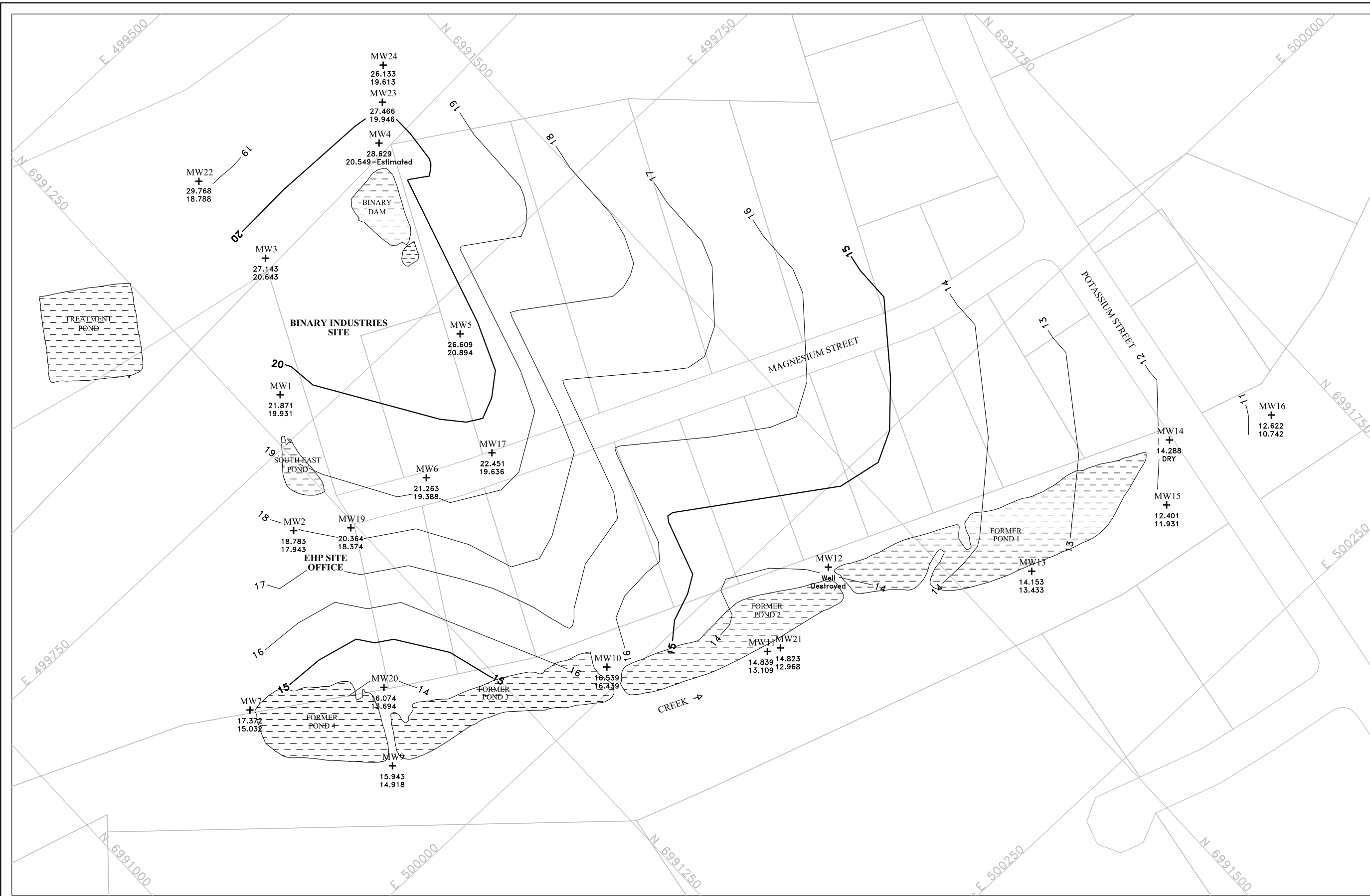
IMPORTANT NOTES:

1. Groundwater elevation contours shown have been interpreted from widely-spaced monitoring wells. Actual groundwater conditions may vary between well locations.
2. This drawing should be read in conjunction with the report, *Groundwater Monitoring Report*, Ref: 5010/TGW, dated June 2014 prepared by GeoEnvironmental Consultants Pty Ltd.
3. The EHP Background well is located along the West side of Potassium Street North of the intersection of Boundary Road (UBD Ref: Map 79, F12).

DIGITAL PHOTOGRAMMETRY BY:

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SHEET NUMBER:  
075106  
EDITION 11



## TABLES



**TABLE 1**  
**Well Condition, Groundwater Gauging Results and Field Water Quality Parameters**  
**EHP - Binary Industries Site, Magnesium Street, Narangba, QLD (May 2014)**

Monitoring Well ID	Purge Date	Volume Purged, L	Elevation TOC, mAHD	Groundwater Depth BTOC, m	Groundwater Elevation, mAHD	TOC to Surface Level, m	Sampling Date	Electrical Conductivity, µS/cm	pH	Sample Temperature °C	Sample Comments	Well Condition
MW 1	7/05/2014	20/20	21.871	1.94	19.931	-0.1	9/05/2014	208	6.63	21.6	slightly opaque, very slight odour.	Gattic. Bore surrounds go under water in rain, surface damaged, bore does not seal.
MW 2	7/05/2014	20/20	18.783	0.84	17.943	-0.07	9/05/2014	484	5.94	21.5	slightly opaque, very slight odour.	OK, Gattic, bore surrounds go under water in rain.
MW 3	7/05/2014	15/10	27.143	6.5	20.643	0.570	8/05/2014	482	3.46	21.2	slightly opaque, slight odour.	OK but screen becoming root clogged, standpipe, padlocked.
MW 4	8/05/2014	5	27.889*	7.34*	20.549*	Damaged	8/05/2014	448	4.75	21.7	slightly opaque, moderate odour.	PVC casing and steel protective casing damaged by vehicle (type unknown), PVC casing bent below ground level, unable to use standard bailer. Bore was repairable as internal and base of well seemed to be okay, padlocked. Reinstated well by pushing casing up, cutting off 0.74m of PVC casing and placing new Gattic cover in concrete at surface.
MW 5	9/05/2014	100	26.609	5.715	20.894	0.455	9/05/2014	231	4.69	21.8	clear, slight odour.	OK, standpipe, padlocked.
MW 6	7/05/2014	15/10	21.263	1.88	19.388	-0.06	8/05/2014	189	4.19	23.3	slightly opaque, moderate odour, some organics.	OK, Gattic, gatic screws removed, well potentially sampled by others?
MW 7	7/05/2014	7/5	17.372	2.34	15.032	0.55	9/05/2014	209	4.92	21.7	slightly opaque, slight stale odour	OK, standpipe, NO padlock.
MW 9	7/05/2014	30/20	15.943	1.025	14.918	0.715	9/05/2014	224	6.52	21.5	slightly opaque, moderate stale odour.	Standpipe knocked & bent, padlocked
MW 10	9/05/2014	80	16.539	0.1	16.439	1.090	9/05/2014	311	6.26	23.7	clear, no odour.	OK, standpipe, NO padlock, PVC above standpipe.
MW 11	7/05/2014	20/10	14.839	1.73	13.109	0.800	9/05/2014	411	5.70	21.8	very slightly opaque, slight odour.	OK, standpipe, padlocked.
MW 12	7/05/2014	nil	14.606	Well destroyed							No sample, well destroyed.	Well apparently destroyed by construction of fire access road
MW 13	7/05/2014	20/15	14.153	0.72	13.433	0.8	9/05/2014	205	5.66	21.8	clear, no odour.	OK, standpipe, NO padlock, PVC above standpipe.
MW 14	7/05/2014	nil	14.288	dry	dry	0.59					No sample, well filled with fine silt.	OK, standpipe, padlocked.
MW 15	7/05/2014	20/15	12.401	0.47	11.931	1.52	8/05/2014	229	4.56	21.3	clear, no odour.	OK, standpipe, NO padlock, PVC above standpipe.
MW 16	7/05/2014	7/4	12.622	1.88	10.742	0.77	8/05/2014	474	5.07	20.8	slightly opaque, very slight stale odour	OK, standpipe, padlocked.
MW 17	7/05/2014	14/10	22.451	2.815	19.636	-0.12	8/05/2014	121	5.37	23.4	slightly opaque, very slight odour.	OK, Gattic,
MW 19	9/05/2014	200+	20.364	1.99	18.374	0.635	9/05/2014	385	4.31	22.5	clear, moderate to strong odour.	OK, standpipe, padlocked.
MW 20	9/05/2014	200+	16.074	2.38	13.694	0.7approx	9/05/2014	228	5.66	21.9	slightly opaque, slight septic odour.	250mm dia, PVC Cap
MW 21	8/05/2014	20/15	14.823	1.855	12.968	0.85	9/05/2014	478	5.12	21.7	clear, moderate stale odour	OK, standpipe, padlocked.
MW 22	7/05/2014	18/10	29.768	10.98	18.788	0.8	8/05/2014	179	4.95	21.4	slightly opaque, no odour.	OK, standpipe, padlocked.
MW 23	7/05/2014	20/10	27.466	7.52	19.946	0.82	8/05/2014	310	3.74	21.4	slightly opaque, moderate odour.	OK, standpipe, padlocked.
MW 24	7/05/2014	20/15	26.133	6.52	19.613	0.88	8/05/2014	264	3.94	21.6	slightly opaque, no odour.	OK, standpipe, padlocked.
Backg'nd	8/05/2014	300+	Unknown	5.865	Unknown	-0.09	8/05/2014	954	3.43	21.4	clear, no odour	OK, gatic.

Notes: BTOC Below top of casing  
TOC Top of casing  
AHD Australian Height Datum

Duplicate sample (DUP 1) and Triplicate sample (TRIP1) from MW19, Duplicate sample (DUP 2) from MW23, Rinsate sample (RIN 1) from Backg'nd well.

\* Elevation TOC, Groundwater Depth BTOC and Groundwater Elevation shown for well MW4 have been calculated using the pre-damaged elevation of the well casing (28.629m AHD). The depth to groundwater from where the PVC casing was cutoff below ground surface was measured (7.34m) as well as the length of PVC cutoff (0.74m). These two measurements were deducted from the pre-damage top of casing elevation.

**TABLE 2**  
**Groundwater Analytical Results**  
**Metals, Pesticides and Herbicides**  
**EHP - Binary Industries Site, Magnesium Street, Narangba, QLD (December 2006 to May 2014)**

Monitoring Well ID/ Sample No.	Sampling Date	Arsenic	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	Mercury	OC Pesticides	OP Pesticides - Chlorpyrifos	Herbicide - Metolachlor	Phenoxyacetic Acid Herbicides	
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	2,4-D µg/L	MCPA µg/L
MW 1	9/05/2014	0.006	<LOR	<b>0.001</b>	<b>0.002</b>	<LOR	0.002	<b>0.022</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
	19/05/2013	0.001	<LOR	<LOR	<b>0.003</b>	<LOR	0.002	<b>0.019</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
	2/11/2012	0.009	<LOR	<LOR	<b>0.003</b>	<LOR	0.003	<b>0.078</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
	21/05/2012	0.01	<LOR	<LOR	0.001	<LOR	0.002	<b>0.009</b>	<LOR	<LOR	<LOR	0.02	<LOR	<LOR
	2/07/2011	<LOR	<LOR	<LOR	<b>0.002</b>	<LOR	0.003	<b>0.042</b>	<LOR	<LOR	<LOR	0.006	<LOR	<LOR
	21/08/2008	<LOR	<b>0.0002</b>	<LOR	<b>0.003</b>	<b>0.004</b>	0.010	<b>0.094</b>	<LOR	<LOR	<LOR	0.007	<LOR	<LOR
	6/12/2007	<LOR	<b>0.0004</b>	<LOR	<b>0.004</b>	0.002	0.005	<b>0.071</b>	<LOR	<LOR	<LOR	Not analysed	<LOR	<LOR
	13/06/2007	0.001	<LOR	<b>0.001</b>	<b>0.005</b>	0.003	<b>0.014</b>	<b>0.104</b>	<LOR	<LOR	<LOR	Not analysed	<LOR	<LOR
	1/12/2006	<LOR	<b>0.0002</b>	<LOR	0.001	<LOR	0.010	<b>0.056</b>	<LOR	<LOR	<LOR	Not analysed	<LOR	<LOR
MW 2	9/05/2014	0.008	<LOR	<b>0.001</b>	<LOR	<LOR	0.002	<b>0.020</b>	<LOR	<LOR	<LOR	0.176	<LOR	<LOR
	19/05/2013	0.009	<LOR	<LOR	<LOR	<LOR	0.003	<b>0.045</b>	<LOR	<LOR	<b>0.032</b>	0.219	<LOR	<LOR
	2/11/2012	<b>0.013</b>	<LOR	<LOR	0.001	<LOR	0.005	<b>0.041</b>	<LOR	<LOR	<LOR	0.260	<LOR	<LOR
	21/05/2012	0.012	<LOR	<LOR	<b>0.002</b>	<LOR	0.003	0.008	<LOR	<LOR	<LOR	0.510	<LOR	<LOR
	2/07/2011	0.009	<b>0.0002</b>	<LOR	<b>0.002</b>	<LOR	0.007	<b>0.088</b>	<LOR	<LOR	<LOR	0.520	<LOR	<LOR
	21/08/2008	<LOR	<LOR	<LOR	0.001	<LOR	0.006	<b>0.023</b>	<LOR	<LOR	<LOR	<b>8.44</b>	<LOR	<LOR
	7/12/2007	<LOR	<b>0.0004</b>	<LOR	<b>0.002</b>	<LOR	0.009	<b>0.042</b>	<LOR	<LOR	<b>0.9</b>	Not analysed	<LOR	<LOR
	13/06/2007	0.002	<b>0.0002</b>	<b>0.002</b>	<b>0.011</b>	0.003	<b>0.019</b>	<b>0.062</b>	<LOR	<LOR	<b>1.6</b>	Not analysed	<LOR	<LOR
	1/12/2006	<LOR	<b>0.0002</b>	<LOR	<b>0.002</b>	<LOR	0.009	<b>0.053</b>	<LOR	<LOR	<LOR	Not analysed	<LOR	<LOR
MW 3	8/05/2014	<LOR	<LOR	<b>0.002</b>	<b>0.004</b>	<b>0.012</b>	0.006	<b>0.270</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
	18/05/2013	<LOR	<LOR	<b>0.002</b>	<b>0.009</b>	<b>0.016</b>	0.006	<b>0.082</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
	1/11/2012	<LOR	0.0001	<b>0.002</b>	<b>0.005</b>	<b>0.021</b>	0.008	<b>0.113</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
	21/05/2012	<LOR	<LOR	<b>0.003</b>	<b>0.007</b>	<b>0.027</b>	0.006	<b>0.094</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
	2/07/2011	<LOR	<LOR	<b>0.003</b>	<b>0.004</b>	<b>0.025</b>	0.007	<b>0.162</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
	21/08/2008	<LOR	<LOR	<LOR	<b>0.002</b>	<b>0.008</b>	0.007	<b>0.036</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
	6/12/2007	<LOR	0.0001	<LOR	<b>0.002</b>	0.003	<b>0.018</b>	<b>0.032</b>	<LOR	<LOR	<LOR	Not analysed	13	<LOR
	14/06/2007	<LOR	<LOR	<LOR	<b>0.004</b>	0.002	<b>0.017</b>	<b>0.018</b>	<LOR	<LOR	<LOR	Not analysed	13	<LOR
	29/11/2006	<LOR	<b>0.0004</b>	<LOR	<b>0.005</b>	<b>0.006</b>	<b>0.034</b>	<b>0.046</b>	<LOR	<LOR	<LOR	Not analysed	<LOR	<LOR
MW 4	8/05/2014	0.005	<LOR	<b>0.002</b>	<LOR	<LOR	0.004	<b>0.635</b>	<LOR	<LOR	<b>0.352</b>	<b>30.70</b>	<b>4030</b>	40
	18/05/2013	<LOR	<LOR	<LOR	<b>0.002</b>	0.002	<LOR	<b>0.014</b>	<LOR	<LOR	<b>0.171</b>	<b>3.82</b>	<b>2420</b>	23
DUP1 (ALS)	18/05/2013	<LOR	<LOR	<LOR	0.001	0.002	<LOR	<b>0.012</b>	<LOR	<LOR	<b>0.198</b>	<b>4.08</b>	<b>2250</b>	21
	1/11/2012	<LOR	<LOR	<b>0.002</b>	<b>0.003</b>	<b>0.004</b>	0.002	<b>0.034</b>	<LOR	<LOR	<b>0.27</b>	<b>4.62</b>	<LOR	<LOR
	21/05/2012	<LOR	<LOR	<b>0.003</b>	<b>0.006</b>	<b>0.005</b>	0.003	<b>0.041</b>	<LOR	<LOR	<b>0.03</b>	<b>5.19</b>	<b>2060</b>	44
	2/07/2011	<LOR	<LOR	<b>0.003</b>	<b>0.008</b>	<b>0.010</b>	0.003	<b>0.070</b>	<LOR	<LOR	<LOR	<b>2.91</b>	<b>3020</b>	36
	21/08/2008	<LOR	<b>0.0002</b>	<b>0.004</b>	<b>0.008</b>	<b>0.022</b>	0.008	<b>0.112</b>	<LOR	<LOR	<b>1.6</b>	<b>38.3</b>	<b>28600</b>	273
	7/12/2007	0.001	<b>0.0002</b>	<b>0.006</b>	<b>0.021</b>	<b>0.016</b>	0.008	<b>0.137</b>	<LOR	<LOR	<LOR	Not analysed	<b>34200</b>	519
	14/06/2007	0.004	<LOR	<b>0.010</b>	<b>0.031</b>	<b>0.010</b>	0.009	<b>0.130</b>	<LOR	<LOR	<b>1.5</b>	Not analysed	<b>65300</b>	592
	29/11/2006	0.004	0.0001	<b>0.016</b>	<b>0.022</b>	<b>0.012</b>	0.005	<b>0.104</b>	<LOR	<LOR	<b>4.1</b>	Not analysed	<b>53200</b>	186
Level of Reporting (LOR)		0.001	0.0001	0.001	0.001	0.001	0.001	0.005	0.0001	0.5/2.0	0.02/2.0	0.01	10	10
Freshwater Guidelines		0.013	0.0002	0.001	0.0014	0.0034	0.011	0.008	0.00006	Varies	0.01	1.0	280	ID

**Guidelines: NEPM (2013):** Groundwater Investigation Levels (GILs) - Fresh waters. ANZECC 2000 freshwater guidelines prior to 2013.  
Metolachlor value recommended by EHP for Binary Industries site.  
ID - indicates insufficient data for determination of a reliable GILs Value  
Exceedences: **Bolded and underlined** results exceed nominated assessment criteria

**TABLE 2**  
**Groundwater Analytical Results**  
**Metals, Pesticides and Herbicides**  
**EHP - Binary Industries Site, Magnesium Street, Narangba, QLD (December 2006 to May 2014)**

Page 2 of 5

Monitoring Well ID/ Sample No.	Sampling Date	Arsenic	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	Mercury	OC Pesticides	OP Pesticides - Chlorpyrifos	Herbicide - Metolachlor	Phenoxyacetic Acid Herbicides		
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	2,4-D µg/L	MCPA µg/L
MW 5	9/05/2014	<LOR	<LOR	<LOR	<b>0.002</b>	<LOR	<LOR	<b>0.047</b>	<LOR	<LOR	<LOR	0.148	<LOR	<LOR	
	19/05/2013	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	0.005	<LOR	<LOR	<LOR	0.155	<LOR	<LOR	
	2/11/2012	<LOR	<LOR	<LOR	<b>0.002</b>	<LOR	<LOR	<b>0.035</b>	<LOR	<LOR	<LOR	<b>1.86</b>	<LOR	<LOR	
	22/05/2012	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<b>14.40</b>	<LOR	<LOR	
DUP2 (SGS)	22/05/2012	<LOR	0.0018	<LOR	<b>0.002</b>	<LOR	0.003	<b>0.012</b>	<LOR	<LOR	<LOR	<b>15.00</b>	<LOR	<LOR	
TRIP2 (SGS)	22/05/2012	<LOR	0.0018	<LOR	<b>0.002</b>	<LOR	0.004	<b>0.010</b>	<LOR	<LOR	<LOR	<b>20.00</b>	<LOR	<LOR	
	30/06/2011	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<b>10.40</b>	<LOR	<LOR	
	20/08/2008	<LOR	0.0001	<LOR	0.001	<b>0.057</b>	0.001	<b>0.016</b>	<LOR	<LOR	<LOR	<b>4.10</b>	<LOR	<LOR	
	6/12/2007	<LOR	0.0001	<LOR	<b>0.002</b>	<LOR	<LOR	<b>0.027</b>	<LOR	<LOR	<LOR	Not analysed	<LOR	<LOR	
	14/06/2007	<LOR	<LOR	0.001	<b>0.005</b>	<b>0.008</b>	0.003	<b>0.036</b>	<LOR	<LOR	<LOR	Not analysed	<LOR	<LOR	
	29/11/2006	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<b>0.018</b>	<LOR	<LOR	<LOR	Not analysed	<LOR	<LOR	
	MW 6	8/05/2014	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<b>0.038</b>	<LOR	<LOR	<b>0.057</b>	<b>22.8</b>	<LOR	<LOR
		18/05/2013	<LOR	<LOR	<LOR	<b>0.002</b>	<LOR	<LOR	<b>0.024</b>	<LOR	<LOR	<b>0.024</b>	<b>14.6</b>	<LOR	<LOR
1/11/2012		<LOR	<b>0.0002</b>	<LOR	<b>0.002</b>	<LOR	0.001	<b>0.029</b>	<LOR	<LOR	<LOR	<b>25.7</b>	11	<LOR	
21/05/2012		<LOR	<LOR	<LOR	<b>0.002</b>	<LOR	<LOR	<b>0.018</b>	<LOR	<LOR	<LOR	<b>26.4</b>	<LOR	<LOR	
2/07/2011		<LOR	<LOR	<LOR	<b>0.003</b>	0.001	0.001	<b>0.038</b>	<LOR	<LOR	<LOR	<b>14.4</b>	<LOR	<LOR	
20/08/2008		<LOR	<LOR	<LOR	<b>0.002</b>	<LOR	0.002	<b>0.037</b>	<LOR	<LOR	<LOR	<b>5.87</b>	<LOR	<LOR	
6/12/2007		0.001	<b>0.0003</b>	<LOR	<b>0.002</b>	0.001	0.002	<b>0.050</b>	<LOR	<LOR	<LOR	Not analysed	<LOR	<LOR	
13/06/2007		0.005	<LOR	0.002	<b>0.008</b>	<b>0.004</b>	0.004	<b>0.034</b>	<LOR	<LOR	<LOR	Not analysed	<LOR	<LOR	
DUP1/MW6	29/11/2006	<LOR	<LOR	<LOR	<b>0.005</b>	<LOR	0.002	<b>0.030</b>	<LOR	<LOR	<LOR	Not analysed	<LOR	<LOR	
MW 7	9/05/2014	<LOR	<LOR	<b>0.001</b>	<b>0.003</b>	<LOR	0.003	<b>0.127</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	
	19/05/2013	0.002	<LOR	<b>0.003</b>	<LOR	<LOR	0.002	<b>0.157</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	
	2/11/2012	0.003	<LOR	<b>0.002</b>	<b>0.002</b>	<LOR	0.001	<b>0.038</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	
	22/05/2012	0.002	<LOR	<b>0.002</b>	<b>0.003</b>	0.001	0.003	<b>0.105</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	
	1/07/2011	0.006	<LOR	<LOR	<b>0.006</b>	0.001	0.002	<b>0.195</b>	<LOR	<LOR	<LOR	0.006	<LOR	<LOR	
	22/08/2008	0.004	<LOR	0.001	<b>0.002</b>	<LOR	0.007	<b>0.115</b>	<LOR	<LOR	<LOR	0.045	<LOR	<LOR	
	7/12/2007	0.011	<b>0.0003</b>	<LOR	0.001	<LOR	<b>0.015</b>	<b>0.040</b>	0.0002	<LOR	<LOR	Not analysed	<LOR	<LOR	
	13/06/2007	0.012	<LOR	<b>0.004</b>	<b>0.005</b>	<b>0.006</b>	<b>0.021</b>	<b>0.041</b>	<LOR	<LOR	<LOR	Not analysed	<LOR	<LOR	
	1/12/2006	<b>0.014</b>	<LOR	<b>0.004</b>	0.001	0.002	<b>0.018</b>	<b>0.042</b>	<LOR	<LOR	<LOR	Not analysed	<LOR	<LOR	
MW 9	9/05/2014	<LOR	<LOR	<LOR	<b>0.002</b>	<LOR	<LOR	<b>0.015</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	
	19/05/2013	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<b>0.018</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	
	2/11/2012	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<b>0.020</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	
	22/05/2012	<LOR	<LOR	<LOR	0.001	<LOR	<LOR	<b>0.030</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	
	30/06/2011	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	0.018	<LOR	<LOR	
	21/08/2008	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	0.118	<LOR	<LOR	
	7/12/2007	<LOR	<b>0.0002</b>	<LOR	<LOR	<LOR	<LOR	<b>0.015</b>	<LOR	<LOR	<LOR	Not analysed	<LOR	<LOR	
	DUP2/MW9	7/12/2007	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<b>0.010</b>	<LOR	<LOR	<LOR	Not analysed	<LOR	<LOR
	13/06/2007	<LOR	<b>0.0002</b>	<LOR	0.001	0.001	<LOR	<LOR	<LOR	<LOR	<LOR	Not analysed	<LOR	<LOR	
	1/12/2006	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<b>0.017</b>	<LOR	<LOR	<LOR	Not analysed	<LOR	<LOR	
Level of Reporting (LOR)		0.001	0.0001	0.001	0.001	0.001	0.001	0.005	0.0001	0.5/2.0	0.02/2.0	0.01	10	10	
Freshwater Guidelines		0.013	0.0002	0.001	0.0014	0.0034	0.011	0.008	0.00006	Varies	0.01	1.0	280	ID	

**Guidelines: NEPM (2013):** Groundwater Investigation Levels (GILs) - Fresh waters. ANZECC 2000 freshwater guidelines prior to 2013.  
Metolachlor value recommended by EHP for Binary Industries site.  
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**Metals, Pesticides and Herbicides**  
**EHP - Binary Industries Site, Magnesium Street, Narangba, QLD (December 2006 to May 2014)**

Monitoring Well ID/ Sample No.	Sampling Date	Arsenic	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	Mercury	OC Pesticides	OP Pesticides - Dimethoate	Herbicide - Metolachlor	Phenoxyacetic Acid Herbicides		
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	2,4-D µg/L	MCPA µg/L	
MW 10	9/05/2014	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<b>0.008</b>	<LOR	<LOR	<LOR	0.012	<LOR	<LOR	
	19/05/2013	<LOR	<LOR	<LOR	<b>0.002</b>	<LOR	<LOR	<b>0.013</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	
	2/11/2012	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	0.007	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	
	22/05/2012	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	0.006	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	
	30/06/2011	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	0.033	<LOR	<LOR	
DUP1/MW10	30/06/2011	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	0.006	<LOR	<LOR	
DUP2/MW10	20/08/2008	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<b>0.009</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	
	20/08/2008	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<b>0.014</b>	<LOR	<LOR	<LOR	0.006	<LOR	<LOR	
DUP1/MW10	7/12/2007	<LOR	<b>0.0002</b>	<LOR	0.001	<LOR	<LOR	<b>0.019</b>	<LOR	<LOR	<LOR	Not analysed	<LOR	<LOR	
	13/06/2007	0.001	<LOR	<LOR	<b>0.002</b>	<b>0.012</b>	<LOR	0.005	<LOR	<LOR	<LOR	Not analysed	<LOR	<LOR	
	13/06/2007	<LOR	<LOR	<LOR	0.001	<b>0.013</b>	<LOR	0.007	<LOR	<LOR	<LOR	Not analysed	<LOR	<LOR	
	1/12/2006	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<b>0.026</b>	<LOR	<LOR	<LOR	Not analysed	<LOR	<LOR	
MW 11	9/05/2014	<LOR	<LOR	<b>0.004</b>	<LOR	<LOR	0.002	<b>0.040</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	
	19/05/2013	<LOR	<LOR	<b>0.005</b>	<LOR	<LOR	0.002	<b>0.032</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	
	2/11/2012	<LOR	<LOR	<b>0.005</b>	<LOR	<LOR	0.003	<b>0.023</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	
	22/05/2012	<LOR	<LOR	<b>0.010</b>	<b>0.002</b>	<LOR	0.003	<b>0.033</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	
	1/07/2011	0.002	<LOR	<b>0.010</b>	0.001	<LOR	0.003	<LOR	<LOR	<LOR	<LOR	0.010	<LOR	<LOR	
	20/08/2008	0.012	<LOR	<b>0.021</b>	<LOR	<LOR	0.003	<LOR	<LOR	<LOR	<LOR	0.016	<LOR	<LOR	
	5/12/2007	<b>0.015</b>	<b>0.0002</b>	<b>0.011</b>	<LOR	<LOR	0.007	<b>0.024</b>	<LOR	<LOR	<b>0.60</b>	Not analysed	<LOR	<LOR	
	13/06/2007	0.006	<LOR	<b>0.020</b>	0.001	<b>0.022</b>	0.008	<b>1.54</b>	<LOR	<LOR	<LOR	Not analysed	18	<LOR	
	1/12/2006	<b>0.093</b>	<LOR	<b>0.045</b>	<LOR	<LOR	0.008	<b>0.033</b>	<LOR	<LOR	<10	Not analysed	<b>68600</b>	195	
	MW 12	31/05/2014	Well appears to have been destroyed by construction of fire access road.												
to															
1/07/2011		Well appears to have been destroyed by construction of fire access road.													
20/08/2008		<LOR	<b>0.0004</b>	<LOR	0.001	<LOR	<LOR	<b>0.011</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
5/12/2007		<LOR	<LOR	<LOR	<b>0.002</b>	<LOR	<LOR	<b>0.022</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
MW 13	13/06/2007	<LOR	<LOR	<LOR	0.001	0.002	<LOR	0.006	<LOR	<LOR	<LOR	Not analysed	<LOR	<LOR	
	1/12/2006	0.003	<LOR	<LOR	<LOR	<LOR	<LOR	<b>0.014</b>	<LOR	<LOR	<LOR	Not analysed	<LOR	<LOR	
	9/05/2014	<LOR	<LOR	<LOR	0.001	<LOR	<LOR	<b>0.027</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	
	19/05/2013	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<b>0.010</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	
	2/11/2012	<LOR	<LOR	<LOR	<b>0.006</b>	<LOR	<LOR	<b>0.032</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	
	22/05/2012	<LOR	<LOR	<LOR	0.001	<LOR	<LOR	<b>0.018</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	
	1/07/2011	<LOR	<LOR	<LOR	<b>0.004</b>	<LOR	0.001	<b>0.034</b>	<LOR	<LOR	<LOR	0.008	<LOR	<LOR	
	20/08/2008	0.001	<LOR	<LOR	<b>0.002</b>	<LOR	<LOR	<b>0.015</b>	<LOR	<LOR	<LOR	0.011	<LOR	<LOR	
	5/12/2007	<LOR	<b>0.0003</b>	<LOR	<b>0.002</b>	<LOR	0.001	<b>0.061</b>	<LOR	<LOR	<LOR	Not analysed	<LOR	<LOR	
	13/06/2007	<LOR	<LOR	<LOR	<b>0.003</b>	<b>0.012</b>	0.004	<b>0.031</b>	<LOR	<LOR	<LOR	Not analysed	<LOR	<LOR	
1/12/2006	0.001	<LOR	<LOR	<LOR	<LOR	<LOR	<b>0.022</b>	<LOR	<LOR	<LOR	Not analysed	<LOR	<LOR		
MW 14	31/05/2014	Insufficient sample for analysis - Well dry and full of sediment													
	to														
	13/06/2007	Insufficient sample for analysis - Well dry and full of sediment													
	1/12/2006	<b>0.044</b>	<LOR	<b>0.003</b>	<LOR	<LOR	<b>0.010</b>	<LOR	<LOR	<LOR	<LOR	Not analysed	<LOR	<LOR	
Level of Reporting (LOR)		0.001	0.0001	0.001	0.001	0.001	0.001	0.005	0.0001	0.5/2.0	0.02/2.0	0.01	10	10	
Freshwater Guidelines		0.013	0.0002	0.001	0.0014	0.0034	0.011	0.008	0.00006	Varies	0.15	1.0	280	ID	

**Guidelines: NEPM (2013):** Groundwater Investigation Levels (GILs) - Fresh waters. ANZECC 2000 freshwater guidelines prior to 2013.  
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Metals, Pesticides and Herbicides**

**EHP - Binary Industries Site, Magnesium Street, Narangba, QLD (December 2006 to May 2014)**

Monitoring Well ID/ Sample No.	Sampling Date	Arsenic	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	Mercury	OC Pesticides	OP Pesticides - Chlorpyrifos	Herbicide - Metolachlor	Phenoxyacetic Acid Herbicides	
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	2,4-D µg/L	MCPA µg/L
MW 15	8/05/2014	<LOR	<LOR	<LOR	<b>0.002</b>	<LOR	0.002	<b>0.040</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
	18/05/2013	<LOR	<LOR	<LOR	<LOR	<LOR	0.002	<b>0.025</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
	1/11/2012	<LOR	<LOR	<LOR	<b>0.006</b>	<LOR	0.003	<b>0.059</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
	21/05/2012	<LOR	<b>0.0003</b>	<LOR	<b>0.002</b>	<LOR	0.002	<b>0.016</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
	1/07/2011	<LOR	<LOR	<LOR	0.001	<LOR	0.002	<b>0.039</b>	<LOR	<LOR	<LOR	0.006	<LOR	<LOR
	20/08/2008	<LOR	<LOR	<LOR	0.001	<LOR	0.001	<b>0.015</b>	<LOR	<LOR	<LOR	0.007	<LOR	<LOR
	5/12/2007	<LOR	<b>0.0002</b>	<LOR	<b>0.003</b>	<LOR	0.001	<b>0.020</b>	<LOR	<LOR	<LOR	Not analysed	<LOR	<LOR
	13/06/2007	<LOR	<LOR	<LOR	<b>0.003</b>	0.003	0.002	<b>0.011</b>	<LOR	<LOR	<LOR	Not analysed	<LOR	<LOR
	29/11/2006	<LOR	<LOR	<LOR	<b>0.002</b>	<LOR	0.003	<b>0.036</b>	<LOR	<LOR	<LOR	Not analysed	<LOR	<LOR
MW 16	8/05/2014	0.005	<LOR	<b>0.002</b>	<LOR	<LOR	0.004	<b>0.046</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
	18/05/2013	0.003	<LOR	<b>0.001</b>	0.001	<LOR	0.005	<b>0.064</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
	1/11/2012	0.002	<LOR	<LOR	<b>0.002</b>	<LOR	0.006	<b>0.226</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
	21/05/2012	0.002	<LOR	<b>0.001</b>	<b>0.004</b>	<LOR	0.004	<b>0.115</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
	1/07/2011	<LOR	0.0001	<LOR	<b>0.005</b>	0.001	0.005	<b>0.671</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
	22/08/2008	<LOR	<LOR	<LOR	<b>0.002</b>	<LOR	0.003	<b>0.175</b>	<LOR	<LOR	<LOR	0.008	<LOR	<LOR
	7/12/2007	0.001	<b>0.0003</b>	<LOR	<b>0.004</b>	0.002	0.004	<b>0.218</b>	<LOR	<LOR	<LOR	Not analysed	<LOR	<LOR
	14/06/2007	0.004	0.0001	<b>0.002</b>	<b>0.026</b>	<b>0.034</b>	<b>0.015</b>	<b>3.510</b>	<LOR	<LOR	<LOR	Not analysed	<LOR	<LOR
	1/12/2006	Insufficient sample for analysis												
MW 17	8/05/2014	0.002	<LOR	<LOR	<b>0.002</b>	<LOR	0.002	<b>0.042</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
	18/05/2013	<LOR	<LOR	<LOR	<b>0.003</b>	0.001	0.001	<b>0.020</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
	1/11/2012	<LOR	<LOR	<LOR	0.001	<LOR	<LOR	<b>0.012</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
	21/05/2012	<LOR	<LOR	<LOR	<b>0.004</b>	<LOR	<LOR	<b>0.020</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
	2/07/2011	<LOR	<LOR	<LOR	<b>0.002</b>	<LOR	0.001	<b>0.022</b>	<LOR	<LOR	<LOR	0.007	<LOR	<LOR
	20/08/2008	<LOR	<LOR	<LOR	<b>0.002</b>	<LOR	0.002	<b>0.026</b>	<LOR	<LOR	<LOR	0.011	<LOR	<LOR
	6/12/2007	0.002	<b>0.0006</b>	<LOR	<b>0.011</b>	0.001	0.004	<b>0.039</b>	<LOR	<LOR	<LOR	Not analysed	<LOR	<LOR
	14/06/2007	<LOR	<LOR	<b>0.001</b>	<b>0.009</b>	<b>0.010</b>	0.008	<b>0.013</b>	<LOR	<LOR	<LOR	Not analysed	<LOR	<LOR
	29/11/2006	<LOR	0.0001	<LOR	<b>0.002</b>	0.002	0.004	<b>0.031</b>	<LOR	<LOR	<LOR	Not analysed	<LOR	<LOR
9/05/2014	0.001	<LOR	<LOR	0.001	0.002	0.002	<b>0.032</b>	<LOR	<LOR	<LOR	<b>18.4</b>	<b>322</b>	<LOR	
RPD (DUP1/MW19)	0.0	0.0	0.0	0.0	-40.0	0.0	16.9	0.0	0.0	0.0	7.9	-1.2	0.0	
DUP1 (ALS)	8/05/2014	0.001	<LOR	<LOR	<LOR	0.003	0.002	<b>0.027</b>	<LOR	<LOR	<LOR	<b>17.0</b>	<b>326</b>	<LOR
RPD (TRIP1/MW19)	0.0	0.0	0.0	0.0	0.0	66.7	16.9	0.0	0.0	0.0	-26	0.0	0.0	
TRIP1 (SGS)	8/05/2014	0.001	<LOR	<LOR	0.001	0.002	0.001	<b>0.027</b>	<LOR	<LOR	<LOR	<b>24</b>	<b>280</b>	1.9
MW 19	19/05/2013	<LOR	<LOR	<LOR	<LOR	<b>0.005</b>	0.002	<b>0.023</b>	<LOR	<LOR	<LOR	<b>14.5</b>	<b>302</b>	<LOR
	2/11/2012	<LOR	<LOR	<LOR	<b>0.002</b>	0.003	0.003	<b>0.037</b>	<LOR	<LOR	<LOR	<b>7.46</b>	172	<LOR
	DUP2 (ALS)	2/11/2012	0.001	<LOR	<LOR	<b>0.002</b>	0.003	0.003	<b>0.036</b>	<LOR	<LOR	<LOR	<b>8.43</b>	174
DUP1 (ALS)	22/05/2012	<LOR	<LOR	<LOR	<LOR	0.003	0.002	<b>0.014</b>	<LOR	<LOR	<LOR	<b>11.0</b>	190	<LOR
TRIP1 (SGS)	22/05/2012	<LOR	<LOR	<LOR	<LOR	0.003	0.002	<b>0.014</b>	<LOR	<LOR	<LOR	<b>11.3</b>	181	<LOR
DUP1/MW19	30/06/2011	0.001	<LOR	<LOR	<b>0.002</b>	<LOR	0.002	<b>0.026</b>	<LOR	<LOR	<LOR	<b>4.44</b>	73	<LOR
	22/08/2008	<LOR	<LOR	<LOR	<LOR	0.002	0.003	<b>0.018</b>	<LOR	<LOR	<LOR	0.375	<LOR	<LOR
	7/12/2007	<LOR	<b>0.0002</b>	<LOR	<b>0.003</b>	<b>0.010</b>	0.003	<b>0.046</b>	<LOR	<LOR	<LOR	Not analysed	18	<LOR
DUP2/MW19	13/06/2007	<LOR	<LOR	<LOR	0.001	<b>0.009</b>	0.003	<b>0.022</b>	<LOR	<LOR	<LOR	Not analysed	15	<LOR
DUP2/MW19	13/06/2007	<LOR	<LOR	<LOR	0.001	<b>0.009</b>	0.003	<b>0.020</b>	<LOR	<LOR	<LOR	Not analysed	12	<LOR
DUP2/MW19	1/12/2006	<LOR	<LOR	<LOR	<b>0.002</b>	0.003	0.006	<b>0.047</b>	<LOR	<LOR	<LOR	Not analysed	<LOR	<LOR
DUP2/MW19	1/12/2006	<LOR	<LOR	<LOR	<b>0.002</b>	0.003	0.005	<b>0.055</b>	<LOR	<LOR	<LOR	Not analysed	<LOR	<LOR
Level of Reporting (LOR)		0.001	0.0001	0.001	0.001	0.001	0.001	0.005	0.0001	0.5/2.0	0.02/2.0	0.01	10	10
Freshwater Guidelines		0.013	0.0002	0.001	0.0014	0.0034	0.011	0.008	0.00006	Varies	0.01	280	ID	ID

**Guidelines: NEPM (2013):** Groundwater Investigation Levels (GILs) - Fresh waters. ANZECC 2000 freshwater guidelines prior to 2013.

Metolachlor value recommended by EHP for Binary Industries site.

ID - indicates insufficient data for determination of a reliable GILs Value

Exceedences: **Bolded and underlined** results exceed nominated assessment criteria

**TABLE 2**  
**Groundwater Analytical Results**  
**Metals, Pesticides and Herbicides**  
**EHP - Binary Industries Site, Magnesium Street, Narangba, QLD (December 2006 to May 2014)**

Monitoring Well ID/ Sample No.	Sampling Date	Arsenic	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	Mercury	OC Pesticides	OP Pesticides - Chlorpyrifos	Herbicide - Metolachlor	Phenoxyacetic Acid Herbicides	
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	2,4-D µg/L
MW 20	9/05/2014	<LOR	<LOR	<LOR	0.001	<LOR	<LOR	<b>0.020</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
	19/05/2013	0.008	<LOR	<LOR	<b>0.002</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	0.122	<LOR	<LOR
	2/11/2012	0.009	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	0.16	<LOR	<LOR
	22/05/2012	0.011	<LOR	<LOR	<b>0.002</b>	<LOR	0.001	<b>0.031</b>	<LOR	<LOR	<LOR	0.10	<LOR	<LOR
	30/06/2011	0.012	<LOR	<LOR	0.001	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	0.081	<LOR	<LOR
	21/08/2008	0.004	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	0.202	<LOR	<LOR
	7/12/2007	<b>0.029</b>	0.0001	<b>0.002</b>	<LOR	<LOR	0.002	<b>0.016</b>	<LOR	<LOR	<LOR	Not analysed	<LOR	<LOR
	13/06/2007	<b>0.020</b>	0.0001	<b>0.004</b>	0.001	0.001	0.002	<b>0.010</b>	<LOR	<LOR	<LOR	Not analysed	<LOR	<LOR
	29/11/2006	<b>0.060</b>	0.0001	<b>0.014</b>	<LOR	<LOR	0.003	<b>0.038</b>	<LOR	<LOR	<LOR	Not analysed	<LOR	<LOR
MW 21	9/05/2014	0.001	<LOR	<b>0.002</b>	<LOR	<LOR	0.003	<b>0.029</b>	<LOR	<LOR	<LOR	0.015	<LOR	<LOR
	19/05/2013	<LOR	<LOR	<b>0.003</b>	<LOR	<LOR	0.003	<b>0.010</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
	2/11/2012	<LOR	<LOR	<b>0.003</b>	<LOR	<LOR	0.003	<b>0.018</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
	22/05/2012	0.002	<LOR	<b>0.004</b>	<LOR	<LOR	0.004	<b>0.039</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
DUP2/MW21	1/07/2011	0.003	<LOR	<b>0.003</b>	<LOR	<LOR	0.006	<b>0.019</b>	<LOR	<LOR	<LOR	0.021	<LOR	<LOR
	1/07/2011	0.006	<LOR	<b>0.007</b>	<LOR	<LOR	<b>0.019</b>	<b>0.090</b>	<LOR	<LOR	<LOR	0.018	<LOR	<LOR
	20/08/2008	0.006	<LOR	<b>0.007</b>	<LOR	0.003	<b>0.019</b>	<b>0.090</b>	<LOR	<LOR	<LOR	0.018	<LOR	<LOR
DUP1/MW21	20/08/2008	0.007	<b>0.0002</b>	<b>0.007</b>	<LOR	0.003	<b>0.020</b>	<b>0.094</b>	<LOR	<LOR	<LOR	0.016	<LOR	<LOR
MW 22	23/04/2008	0.002	<b>0.0003</b>	<b>0.008</b>	<b>0.002</b>	<b>0.008</b>	<b>0.030</b>	<b>0.236</b>	<LOR	<LOR	<LOR	Not analysed	<LOR	<LOR
	8/05/2014	<LOR	<LOR	<LOR	<b>0.008</b>	0.003	0.002	<b>0.060</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
	18/05/2013	<LOR	<LOR	<LOR	<b>0.002</b>	<LOR	0.001	<b>0.035</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
	1/11/2012	<LOR	<LOR	<LOR	<b>0.004</b>	<b>0.016</b>	0.002	<b>0.049</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
	21/05/2012	<LOR	<LOR	<LOR	<b>0.009</b>	<b>0.024</b>	0.002	<b>0.055</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
	2/07/2011	<LOR	<LOR	<LOR	0.001	<b>0.004</b>	<LOR	<b>0.019</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
	21/08/2008	<LOR	<LOR	<LOR	0.001	<b>0.051</b>	<LOR	<b>0.018</b>	<LOR	<LOR	<LOR	0.008	<LOR	<LOR
	23/04/2008	<LOR	<b>0.0003</b>	<LOR	<b>0.002</b>	<b>0.044</b>	<LOR	<b>0.070</b>	<LOR	<LOR	<LOR	Not analysed	<LOR	<LOR
	8/05/2014	<LOR	<LOR	<LOR	<b>0.002</b>	<b>0.006</b>	0.002	<b>0.043</b>	<LOR	<LOR	<LOR	<b>8.95</b>	<b>1950</b>	24
RPD (DUP2/MW23)		0.0	0.0	0.0	0.0	-15.4	66.7	35.6	0.0	0.0	0.0	-67.2	19.7	0.0
DUP2 (SGS)	8/05/2014	<LOR	<LOR	<LOR	<b>0.002</b>	<b>0.007</b>	<LOR	<b>0.030</b>	<LOR	<LOR	<LOR	<b>18</b>	<b>1600</b>	18
MW 23	18/05/2013	<LOR	<LOR	<LOR	<b>0.004</b>	0.002	<LOR	<b>0.026</b>	<LOR	<LOR	<LOR	<b>2.18</b>	54	<LOR
DUP2 (ALS)	18/05/2013	<LOR	<LOR	<LOR	<b>0.003</b>	<b>0.007</b>	<LOR	<b>0.026</b>	<LOR	<LOR	<LOR	<b>2.43</b>	53	<LOR
	1/11/2012	<LOR	<LOR	<LOR	<b>0.006</b>	0.003	0.002	<b>0.048</b>	<LOR	<LOR	<LOR	<b>3.43</b>	222	<LOR
	21/05/2012	<LOR	<LOR	<LOR	<b>0.002</b>	<b>0.010</b>	<LOR	<b>0.016</b>	<LOR	<LOR	<LOR	0.01	<LOR	<LOR
	2/07/2011	<LOR	<LOR	<LOR	0.001	<b>0.004</b>	<LOR	<b>0.024</b>	<LOR	<LOR	<LOR	0.145	<LOR	<LOR
	21/08/2008	<LOR	<LOR	<LOR	<b>0.006</b>	0.019	0.003	<b>0.046</b>	<LOR	<LOR	<LOR	0.029	<LOR	<LOR
	23/04/2008	<LOR	<b>0.0004</b>	<LOR	<b>0.014</b>	<b>0.098</b>	<b>0.014</b>	<b>0.204</b>	<LOR	<LOR	<LOR	Not analysed	<LOR	<LOR
DUP1/MW23	23/04/2008	<LOR	<b>0.0003</b>	<LOR	<b>0.014</b>	<b>0.099</b>	<b>0.014</b>	<b>0.195</b>	<LOR	<LOR	<LOR	Not analysed	<LOR	<LOR
MW 24	8/05/2014	<LOR	<LOR	<LOR	<b>0.005</b>	0.002	0.003	<b>0.090</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
	18/05/2013	<LOR	<LOR	<LOR	<b>0.007</b>	<b>0.004</b>	0.003	<b>0.060</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
	1/11/2012	<LOR	<LOR	<LOR	<b>0.006</b>	<b>0.006</b>	0.003	<b>0.071</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
	21/05/2012	<LOR	<LOR	<LOR	<b>0.002</b>	<b>0.006</b>	0.002	<b>0.029</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
	2/07/2011	<LOR	0.0001	<b>0.001</b>	<b>0.002</b>	<b>0.061</b>	0.009	<b>0.111</b>	<LOR	<LOR	<LOR	0.005	<LOR	<LOR
	21/08/2008	<LOR	0.0001	<b>0.001</b>	<b>0.007</b>	<b>0.020</b>	0.008	<b>0.098</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
	23/04/2008	<LOR	<b>0.0004</b>	<b>0.002</b>	<b>0.020</b>	<b>0.044</b>	<b>0.014</b>	<b>0.171</b>	<LOR	<LOR	<LOR	Not analysed	<LOR	<LOR
Backg'nd	8/05/2014	0.004	0.0001	<LOR	<b>0.004</b>	<b>0.015</b>	0.006	<b>0.133</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
	18/05/2013	0.002	<LOR	<LOR	<b>0.005</b>	<b>0.013</b>	0.004	<b>0.032</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
	1/11/2012	<LOR	0.0001	<b>0.001</b>	<b>0.002</b>	<b>0.017</b>	0.004	<b>0.008</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
DUP1 (ALS)	1/11/2012	<LOR	0.0001	<LOR	<b>0.003</b>	<b>0.015</b>	0.004	<b>0.008</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
	21/05/2012	<LOR	<b>0.0003</b>	<b>0.002</b>	<b>0.010</b>	<b>0.008</b>	0.005	<b>0.051</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
	1/07/2011	0.001	<LOR	<LOR	<b>0.002</b>	<b>0.023</b>	0.005	<b>0.008</b>	<LOR	<LOR	<LOR	0.009	<LOR	<LOR
RIN 1(Backg'nd)	8/05/2014	<LOR	<LOR	<LOR	<b>0.006</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
RIN 1(Backg'nd)	18/05/2013	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
RIN 2 (MW 19)	19/05/2013	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Level of Reporting (LOR)		0.001	0.0001	0.001	0.001	0.001	0.001	0.005	0.0001	0.5/2.0	0.5/2.0	0.01	10	10
Freshwater Guidelines		0.013	0.0002	0.001	0.0014	0.0034	0.011	0.008	0.00006	Varies	0.01	1.0	280	ID

**Guidelines: NEPM (2013):** Groundwater Investigation Levels (GILs) - Fresh waters. ANZECC 2000 freshwater guidelines prior to 2013.  
Metolachlor value recommended by EHP for Binary Industries site.  
ID - indicates insufficient data for determination of a reliable GILs Value  
Exceedences: **Bolded and underlined** results exceed nominated assessment criteria

**TABLE 3**  
**Groundwater Analytical Results**  
**Phenolic Compounds**  
**EHP - Binary Industries Site, Magnesium Street, Narangba, QLD (June 2007 to May 2014)**

Phenolic Compound	Level of Reporting	Monitoring Well ID/ Sample No. MW 2						Monitoring Well ID/ Sample No. MW 3				Monitoring Well ID/ Sample No. MW 4							Monitoring Well ID/ Sample No. MW 5			Freshwater Guidelines	
		21-Aug-08	2-Jul-11	21-May-12	2-Nov-12	19-May-13	9-May-14	21-Aug-08	2-Jul-11	21-May-12	1-Nov-12	1-Jun-07	1-Dec-07	21-Aug-08	2-Jul-11	21-May-12	1-Nov-12	DUP1 - 18-May-13(ALS)	18-May-13	9-May-14	30-Jun-11		19-May-13
2,4,5-Trichlorophenol	1 µg/L	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	19.9	31	<1.9	<LOR	<LOR	<LOR	<LOR	<LOR	<9.5	<LOR	<LOR	<LOR	ID
2,4,6-Trichlorophenol	1 µg/L	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<b>38.9</b>	<b>32.9</b>	<b>9.8</b>	<LOR	1.7	<b>5.0</b>	<b>9.8</b>	<b>9.1</b>	<b>56.5</b>	<LOR	<LOR	<LOR	3
2,4-Dichlorophenol	1 µg/L	9.9	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<b>3080</b>	<b>653</b>	<b>230</b>	38	23.9	<b>202</b>	<b>2310</b>	<b>2300</b>	<b>17,500</b>	17.6	14.1	<LOR	120
2,4-Dimethylphenol	1 µg/L	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	6.2	<4.9	<1.9	1.1	<LOR	<LOR	<LOR	<LOR	<9.5	<LOR	<LOR	<LOR	ID
2,6-Dichlorophenol	1 µg/L	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	24.9	6.9	2.1	<LOR	<LOR	3.7	8.8	7.4	41.6	<LOR	<LOR	<LOR	ID
2-Chlorophenol	1 µg/L	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	16.6	7.8	3.6	6.4	8.8	6.5	14.6	13.4	121	<LOR	<LOR	<LOR	340
2-Methylphenol	1 µg/L	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	8.3	<4.9	<1.9	<LOR	<LOR	<LOR	<LOR	<LOR	<9.5	<LOR	<LOR	<LOR	NE
2-Nitrophenol	1 µg/L	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<2.0	<4.9	<1.9	<LOR	<LOR	<LOR	<LOR	<LOR	<9.5	<LOR	<LOR	<LOR	ID
3- & 4-Methylphenol	2 µg/L	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<3.9	<9.7	<3.9	<LOR	<LOR	<LOR	<LOR	<LOR	<19.0	<LOR	<LOR	<LOR	NE
4-Chloro-3-Methylphenol	1 µg/L	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<2.0	<4.9	<1.9	<LOR	<LOR	<LOR	<LOR	<LOR	149	<LOR	<LOR	<LOR	NE
Pentachlorophenol	2 µg/L	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<3.9	<9.7	<3.9	<LOR	<LOR	<LOR	<LOR	<LOR	<19.0	<LOR	<LOR	<LOR	3.6
Phenol	1 µg/L	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	4	7.5	<1.9	<LOR	<LOR	<LOR	<LOR	<LOR	<9.5	<LOR	<LOR	<LOR	320

**Guidelines: NEPM 2013:** Groundwater Investigation Levels, Fresh Waters, slightly to moderately disturbed systems and per ANZECC 2000 Guidelines prior to 2013.

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NE - indicates GILs value not established

**Exceedences: Bolded and underlined** results exceed nominated assessment criteria

Columns highlighted indicate results for current round of monitoring (May 2014)

**TABLE 3**  
**Groundwater Analytical Results**  
**Phenolic Compounds**  
**EHP - Binary Industries Site, Magnesium Street, Narangba, QLD (June 2007 to May 2014)**

Phenolic Compound	Level of Reporting	Monitoring Well ID/ Sample No. MW 6		Monitoring Well ID/ Sample No. MW11										Monitoring Well ID/ Sample No. MW 19										Freshwater Guidelines			
		23-Apr-13	9-May-14	1-Jun-07	1-Dec-07	20-Aug-08	1-Jul-11	22-May-12	2-Nov-12	19-May-13	9-May-14	22-Aug-08	30-Jun-11	DUP1 - 22-May-12(ALS)	TRIP1 - 22-May-12(SGS)	22-May-12	DUP2 - 2-Nov-12(ALS)	2-Nov-12	19-May-13	DUP1 - 9-May-14(ALS)	RPD (DUP1/MW19)	TRIP1 - 9-May-14(SGS)	RPD (TRIP1/MW19)		9-May-14		
2,4,5-Trichlorophenol	1 µg/L	<LOR	<LOR	3.8	6.7	<19.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	0.0	<LOR	0.0	<LOR	ID	
2,4,6-Trichlorophenol	1 µg/L	<LOR	1.2	<b>7.6</b>	<b>8.8</b>	<19.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	2.2	<b>12.9</b>	<LOR	<b>10.5</b>	<b>9.7</b>	<b>5.7</b>	<b>10</b>	<b>17.5</b>	-6.5	<b>9.8</b>	50.4	<b>16.4</b>	3		
2,4-Dichlorophenol	1 µg/L	<LOR	2.1	<b>4310</b>	<b>6100</b>	<b>564</b>	1.8	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<b>2240</b>	<b>3590</b>	<LOR	<b>3830</b>	<b>2420</b>	<b>1490</b>	<b>2110</b>	-1.3	<b>1000</b>	101.0	<b>3040</b>	120		
2,4-Dimethylphenol	1 µg/L	<LOR	<LOR	<2.0	<4.8	<19.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	0.0	<LOR	0.0	<LOR	ID		
2,6-Dichlorophenol	1 µg/L	<LOR	<LOR	22.4	24.2	<19.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	20.6	1.2	16.2	9.9	7.6	12.5	14.5	-17.2	<LOR	83.7	12.2	ID		
2-Chlorophenol	1 µg/L	<LOR	<LOR	29.3	177	<19.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	13	31.8	<LOR	29	23.7	13.5	36.9	41.5	-19.9	22	42.9	34	340	
2-Methylphenol	1 µg/L	<LOR	<LOR	<2.0	<4.8	<19.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	1.6	<LOR	1.4	2.6	1.3	10.4	16.8	-13.3	8.4	54.5	14.7	NE
2-Nitrophenol	1 µg/L	<LOR	<LOR	<2.0	<4.8	<19.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	0.0	<LOR	0.0	<LOR	ID		
3- & 4-Methylphenol	2 µg/L	<LOR	<LOR	32.1	<9.7	<38.5	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	0.0	<LOR	0.0	<LOR	NE		
4-Chloro-3-Methylphenol	1 µg/L	<LOR	<LOR	20.2	159	<19.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	0.0	<LOR	0.0	<LOR	NE		
Pentachlorophenol	2 µg/L	<LOR	<LOR	<4.0	<9.7	<38.5	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	0.0	<LOR	0.0	<LOR	3.6		
Phenol	1 µg/L	<LOR	<LOR	9.3	77.7	<19.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	4.4	2.2	3.9	6.3	4.1	60.6	48.1	-5.6	15	100.8	45.5	320

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**TABLE 3**  
**Groundwater Analytical Results**  
**Phenolic Compounds**  
**EHP - Binary Industries Site, Magnesium Street, Narangba, QLD (June 2007 to May 2014)**

Phenolic Compound	Level of Reporting	Monitoring Well ID/ Sample No. MW 21								Monitoring Well ID/ Sample No. MW 22	Monitoring Well ID/ Sample No. MW 23				Monitoring Well ID/ Sample No. MW 24	Monitoring Well ID/ Sample No. Backg'nd (the EHP background well)					Freshwater Guidelines
		Sample Date	23-Apr-08	DUP1 - 20/08/2008	20-Aug-08	DUP2 - 1/07/2011	1-Jul-11	22-May-12	2-Nov-12		23-Apr-08	23-Apr-08	DUP2 (SGS) 8/05/2014	RPD (DUP2/MW23)		8-May-14	23-Apr-08	1-Jul-11	22-May-12	1-Nov-12	
2,4,5-Trichlorophenol	1 µg/L	<9.6	<38.5	<38.7	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	0.0	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	ID
2,4,6-Trichlorophenol	1 µg/L	<9.6	<38.5	<38.7	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	116.5	9.1	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	3
2,4-Dichlorophenol	1 µg/L	<b>3520</b>	<b>4240</b>	<b>5070</b>	19.2	10.9	<LOR	<LOR	<LOR	<LOR	<b>15.000</b>	-97.9	<b>5140</b>	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	120
2,4-Dimethylphenol	1 µg/L	<9.6	<38.5	<38.7	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	0.0	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	ID
2,6-Dichlorophenol	1 µg/L	15.1	<38.5	<38.7	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	5.0	84.4	12.3	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	ID
2-Chlorophenol	1 µg/L	38.9	54.2	74.8	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	18	86.8	45.6	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	340
2-Methylphenol	1 µg/L	<9.6	<38.5	<38.7	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	0.0	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	NE
2-Nitrophenol	1 µg/L	<9.6	<38.5	<38.7	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	0.0	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	ID
3- & 4-Methylphenol	2 µg/L	<19.3	<76.9	<77.4	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	0.0	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	NE
4-Chloro-3-Methylphenol	1 µg/L	34.6	<38.5	<38.7	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	0.0	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	NE
Pentachlorophenol	2 µg/L	<19.3	<76.9	<77.4	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	0.0	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	3.6
Phenol	1 µg/L	<9.6	<38.5	<38.7	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	0.0	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	320

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# **APPENDICIES**

**APPENDIX A**  
**LABORATORY REPORTS**  
**AND**  
**CHAIN OF CUSTODY DOCUMENTATION**

## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>EB1411179</b> <b>Client</b> : <b>GEO ENVIRONMENTAL CONSULTANTS</b> <b>Contact</b> : <b>MR MIKE TISDALL</b> <b>Address</b> : <b>129 OUTLOOK CRESCENT</b> <b>BARDON QLD, AUSTRALIA 4065</b> <b>E-mail</b> : <b>mtisdall@bigpond.com</b> <b>Telephone</b> : <b>+61 33672266</b> <b>Facsimile</b> : <b>+61 07 33672377</b> <b>Project</b> : <b>EHP Binary Site</b> <b>Order number</b> : <b>5010/7.GW</b> <b>C-O-C number</b> : <b>----</b> <b>Sampler</b> : <b>----</b> <b>Site</b> : <b>Narangba, QLD</b>  <b>Quote number</b> : <b>BN/374/13</b>	<b>Page</b> : 1 of 23 <b>Laboratory</b> : Environmental Division Brisbane <b>Contact</b> : Customer Services <b>Address</b> : 2 Byth Street Stafford QLD Australia 4053  <b>E-mail</b> : Brisbane.Enviro.Services@alsglobal.com <b>Telephone</b> : +61 7 3243 7222 <b>Facsimile</b> : +61 7 3243 7218 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement  <b>Date Samples Received</b> : 12-MAY-2014 <b>Issue Date</b> : 26-MAY-2014  <b>No. of samples received</b> : 23 <b>No. of samples analysed</b> : 23
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This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### Signatories

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

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Andrew Epps	Metals Production Chemist	Brisbane Inorganics
Andrew Matheson	Senior Chemist	Brisbane Inorganics
Andrew Matheson	Senior Chemist	Brisbane Organics
Matt Frost	Senior Organic Chemist	Brisbane Organics
Phalak Inthaksone	Laboratory Manager - Organics	Sydney Organics



## General Comments

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

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

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

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

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

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

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

LOR = Limit of reporting

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

- **Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a,h)anthracene (1.0), Benzo(g,h,i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.**
- **EP068: Samples 'MW 4, MW 19 and MW 23' required dilution due to matrix interferences. LOR values have been adjusted accordingly and surrogate recovery has not been determined.**
- **EP075(SIM): LOR for 4-Chloro-3-methylphenol for sample 'DUP1' has been raised due to matrix interference.**
- **EP075(SIM): Sample 'MW 4' required dilution due to the presence of high level contaminants. LOR values have been adjusted accordingly.**
- **EP202: Poor matrix spike recoveries of compounds Clopyralid and Picloram due to matrix interferences. Confirmed by re-analysis.**



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	MW 1	MW 2	MW 3	MW 4	MW 5
				09-MAY-2014 15:00	09-MAY-2014 15:00	08-MAY-2014 15:00	08-MAY-2014 15:00	09-MAY-2014 15:00
				EB1411179-001	EB1411179-002	EB1411179-003	EB1411179-004	EB1411179-005
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	0.006	0.008	<0.001	0.005	<0.001
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	0.001	0.001	0.002	0.002	<0.001
Copper	7440-50-8	0.001	mg/L	0.002	<0.001	0.004	<0.001	0.002
Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.006	0.004	<0.001
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.012	<0.001	<0.001
Zinc	7440-66-6	0.005	mg/L	0.022	0.020	0.270	0.635	0.047
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<b>EP068A: Organochlorine Pesticides (OC)</b>								
alpha-BHC	319-84-6	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
beta-BHC	319-85-7	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
gamma-BHC	58-89-9	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
delta-BHC	319-86-8	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Heptachlor	76-44-8	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Aldrin	309-00-2	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Dieldrin	60-57-1	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
4,4'-DDE	72-55-9	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Endrin	72-20-8	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
4,4'-DDD	72-54-8	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
4,4'-DDT	50-29-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.4	<2.0
Endrin ketone	53494-70-5	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Methoxychlor	72-43-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.4	<2.0
^ Total Chlordane (sum)	----	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
^ Sum of DDD + DDE + DDT	----	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				MW 1	MW 2	MW 3	MW 4	MW 5
				09-MAY-2014 15:00	09-MAY-2014 15:00	08-MAY-2014 15:00	08-MAY-2014 15:00	09-MAY-2014 15:00
Compound	CAS Number	LOR	Unit	EB1411179-001	EB1411179-002	EB1411179-003	EB1411179-004	EB1411179-005
<b>EP068A: Organochlorine Pesticides (OC) - Continued</b>								
<b>EP068B: Organophosphorus Pesticides (OP)</b>								
Dichlorvos	62-73-7	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Monocrotophos	6923-22-4	2.0	µg/L	<2.0	<2.0	<2.0	<2.4	<2.0
Dimethoate	60-51-5	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Diazinon	333-41-5	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Parathion-methyl	298-00-0	2.0	µg/L	<2.0	<2.0	<2.0	<2.4	<2.0
Malathion	121-75-5	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Fenthion	55-38-9	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Parathion	56-38-2	2.0	µg/L	<2.0	<2.0	<2.0	<2.4	<2.0
Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Fenamiphos	22224-92-6	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Prothiofos	34643-46-4	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Ethion	563-12-2	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Carbophenothion	786-19-6	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	----	<1.0	----	<9.5	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	----	<1.0	----	<b>121</b>	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	----	<1.0	----	<9.5	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	----	<2.0	----	<19.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	----	<1.0	----	<9.5	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	----	<1.0	----	<9.5	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	----	<1.0	----	<b>17500</b>	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	----	<1.0	----	<b>41.6</b>	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	----	<1.0	----	<b>149</b>	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	----	<1.0	----	<b>56.5</b>	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	----	<1.0	----	<9.5	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	----	<2.0	----	<19.0	<2.0



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	MW 1	MW 2	MW 3	MW 4	MW 5
				09-MAY-2014 15:00	09-MAY-2014 15:00	08-MAY-2014 15:00	08-MAY-2014 15:00	09-MAY-2014 15:00
				EB1411179-001	EB1411179-002	EB1411179-003	EB1411179-004	EB1411179-005
<b>EP202A: Phenoxyacetic Acid Herbicides by LCMS</b>								
4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	<10	<10	<10	<10	<10
2,4-DB	94-82-6	10	µg/L	<10	<10	<10	<10	<10
Dicamba	1918-00-9	10	µg/L	<10	<10	<10	<10	<10
Mecoprop	93-65-2	10	µg/L	<10	<10	<10	<10	<10
MCPA	94-74-6	10	µg/L	<10	<10	<10	<b>40</b>	<10
2,4-DP	120-36-5	10	µg/L	<10	<10	<10	<10	<10
2,4-D	94-75-7	10	µg/L	<10	<10	<10	<b>4030</b>	<10
Triclopyr	55335-06-3	10	µg/L	<10	<10	<10	<b>17</b>	<10
2,4,5-TP (Silvex)	93-72-1	10	µg/L	<10	<10	<10	<10	<10
2,4,5-T	93-76-5	10	µg/L	<10	<10	<10	<10	<10
MCPB	94-81-5	10	µg/L	<10	<10	<10	<10	<10
Picloram	1918-02-1	10	µg/L	<10	<10	<10	<b>48</b>	<10
Clopyralid	1702-17-6	10	µg/L	<10	<10	<10	<b>29</b>	<10
Fluroxypyr	69377-81-7	10	µg/L	<10	<10	<10	<10	<10
2,6-D	575-90-6	10	µg/L	<10	<10	<10	<10	<10
2,4,6-T	575-89-3	10	µg/L	<10	<10	<10	<b>13</b>	<10
<b>EP215: Multiresidue Pesticide Residue Screen (Suite 2)</b>								
Simazine	122-34-9	0.005	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Diuron	330-54-1	0.005	µg/L	<0.005	<b>0.121</b>	<0.005	<b>9.60</b>	<b>0.023</b>
Atrazine	1912-24-9	0.005	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Molinate	2212-67-1	0.005	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Metolachlor	51218-45-2	0.005	µg/L	<0.005	<b>0.176</b>	<0.005	<b>30.7</b>	<b>0.148</b>
Malathion	121-75-5	0.002	µg/L	<0.004	<0.004	<0.004	<0.004	<0.004
Diazinon	333-41-5	0.005	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Thiobencarb	28249-77-6	0.005	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorpyrifos	2921-88-2	0.005	µg/L	<0.005	<0.005	<0.005	<b>0.352</b>	<0.005
Trifluralin	1582-09-8	0.005	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
<b>EP068S: Organochlorine Pesticide Surrogate</b>								
Dibromo-DDE	21655-73-2	0.1	%	<b>103</b>	<b>88.0</b>	<b>77.5</b>	<b>Not Determined</b>	<b>120</b>
<b>EP068T: Organophosphorus Pesticide Surrogate</b>								
DEF	78-48-8	0.1	%	<b>132</b>	<b>118</b>	<b>110</b>	<b>Not Determined</b>	<b>135</b>
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	----	<b>21.8</b>	----	<b>21.3</b>	<b>24.9</b>





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				MW 1	MW 2	MW 3	MW 4	MW 5
				09-MAY-2014 15:00	09-MAY-2014 15:00	08-MAY-2014 15:00	08-MAY-2014 15:00	09-MAY-2014 15:00
Compound	CAS Number	LOR	Unit	EB1411179-001	EB1411179-002	EB1411179-003	EB1411179-004	EB1411179-005
<b>EP075(SIM)S: Phenolic Compound Surrogates - Continued</b>								
2-Chlorophenol-D4	93951-73-6	0.1	%	----	50.3	----	60.3	60.0
2,4,6-Tribromophenol	118-79-6	0.1	%	----	59.2	----	60.2	61.3
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	----	60.1	----	58.2	71.4
Anthracene-d10	1719-06-8	0.1	%	----	63.7	----	55.8	79.0
4-Terphenyl-d14	1718-51-0	0.1	%	----	80.2	----	65.2	92.9
<b>EP202S: Phenoxyacetic Acid Herbicide Surrogate</b>								
2,4-Dichlorophenyl Acetic Acid	19719-28-9	0.1	%	96.2	111	126	128	126



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	MW 6	MW 7	MW 9	MW 10	MW 11
				08-MAY-2014 15:00	09-MAY-2014 15:00	09-MAY-2014 15:00	09-MAY-2014 15:00	09-MAY-2014 15:00
				EB1411179-006	EB1411179-007	EB1411179-008	EB1411179-009	EB1411179-010
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	<0.001	0.001	<0.001	<0.001	0.004
Copper	7440-50-8	0.001	mg/L	<0.001	0.003	0.002	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	<0.001	0.003	<0.001	<0.001	0.002
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	7440-66-6	0.005	mg/L	0.038	0.127	0.015	0.008	0.040
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<b>EP068A: Organochlorine Pesticides (OC)</b>								
alpha-BHC	319-84-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
beta-BHC	319-85-7	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
gamma-BHC	58-89-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
delta-BHC	319-86-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Heptachlor	76-44-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Aldrin	309-00-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Dieldrin	60-57-1	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
4,4'-DDE	72-55-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Endrin	72-20-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
4,4'-DDD	72-54-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
4,4'-DDT	50-29-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Endrin ketone	53494-70-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Methoxychlor	72-43-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
^ Total Chlordane (sum)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of DDD + DDE + DDT	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				MW 6	MW 7	MW 9	MW 10	MW 11
				08-MAY-2014 15:00	09-MAY-2014 15:00	09-MAY-2014 15:00	09-MAY-2014 15:00	09-MAY-2014 15:00
Compound	CAS Number	LOR	Unit	EB1411179-006	EB1411179-007	EB1411179-008	EB1411179-009	EB1411179-010
<b>EP068A: Organochlorine Pesticides (OC) - Continued</b>								
<b>EP068B: Organophosphorus Pesticides (OP)</b>								
Dichlorvos	62-73-7	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Monocrotophos	6923-22-4	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Dimethoate	60-51-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon	333-41-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Parathion-methyl	298-00-0	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Malathion	121-75-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Fenthion	55-38-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Parathion	56-38-2	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Fenamiphos	22224-92-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Prothiofos	34643-46-4	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	563-12-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Carbophenothion	786-19-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	----	----	----	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	----	----	----	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	----	----	----	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	----	----	----	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	----	----	----	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	----	----	----	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	2.1	----	----	----	<1.0
2,6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	----	----	----	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	----	----	----	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	1.2	----	----	----	<1.0
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	----	----	----	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	----	----	----	<2.0



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				MW 6	MW 7	MW 9	MW 10	MW 11
				08-MAY-2014 15:00	09-MAY-2014 15:00	09-MAY-2014 15:00	09-MAY-2014 15:00	09-MAY-2014 15:00
				EB1411179-006	EB1411179-007	EB1411179-008	EB1411179-009	EB1411179-010
Compound	CAS Number	LOR	Unit					
<b>EP202A: Phenoxyacetic Acid Herbicides by LCMS</b>								
4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	<10	<10	<10	<10	<10
2.4-DB	94-82-6	10	µg/L	<10	<10	<10	<10	<10
Dicamba	1918-00-9	10	µg/L	<10	<10	<10	<10	<10
Mecoprop	93-65-2	10	µg/L	<10	<10	<10	<10	<10
MCPA	94-74-6	10	µg/L	<10	<10	<10	<10	<10
2.4-DP	120-36-5	10	µg/L	<10	<10	<10	<10	<10
2.4-D	94-75-7	10	µg/L	<10	<10	<10	<10	<10
Triclopyr	55335-06-3	10	µg/L	<10	<10	<10	<10	<10
2.4.5-TP (Silvex)	93-72-1	10	µg/L	<10	<10	<10	<10	<10
2.4.5-T	93-76-5	10	µg/L	<10	<10	<10	<10	<10
MCPB	94-81-5	10	µg/L	<10	<10	<10	<10	<10
Picloram	1918-02-1	10	µg/L	<10	<10	<10	<10	<10
Clopyralid	1702-17-6	10	µg/L	16	<10	<10	<10	<10
Fluroxypyr	69377-81-7	10	µg/L	<10	<10	<10	<10	<10
2.6-D	575-90-6	10	µg/L	<10	<10	<10	<10	<10
2.4.6-T	575-89-3	10	µg/L	<10	<10	<10	<10	<10
<b>EP215: Multiresidue Pesticide Residue Screen (Suite 2)</b>								
Simazine	122-34-9	0.005	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Diuron	330-54-1	0.005	µg/L	3.83	<0.005	<0.005	<0.005	0.055
Atrazine	1912-24-9	0.005	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Molinate	2212-67-1	0.005	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Metolachlor	51218-45-2	0.005	µg/L	22.8	<0.005	<0.005	0.012	<0.005
Malathion	121-75-5	0.002	µg/L	<0.004	<0.004	<0.004	<0.004	<0.004
Diazinon	333-41-5	0.005	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Thiobencarb	28249-77-6	0.005	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorpyrifos	2921-88-2	0.005	µg/L	0.057	<0.005	<0.005	<0.005	<0.005
Trifluralin	1582-09-8	0.005	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
<b>EP068S: Organochlorine Pesticide Surrogate</b>								
Dibromo-DDE	21655-73-2	0.1	%	108	112	95.2	122	111
<b>EP068T: Organophosphorus Pesticide Surrogate</b>								
DEF	78-48-8	0.1	%	139	103	128	142	130
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	18.0	----	----	----	23.6



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				MW 6	MW 7	MW 9	MW 10	MW 11
				08-MAY-2014 15:00	09-MAY-2014 15:00	09-MAY-2014 15:00	09-MAY-2014 15:00	09-MAY-2014 15:00
				EB1411179-006	EB1411179-007	EB1411179-008	EB1411179-009	EB1411179-010
Compound	CAS Number	LOR	Unit					
<b>EP075(SIM)S: Phenolic Compound Surrogates - Continued</b>								
2-Chlorophenol-D4	93951-73-6	0.1	%	47.6	----	----	----	58.3
2,4,6-Tribromophenol	118-79-6	0.1	%	61.0	----	----	----	71.6
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	59.2	----	----	----	61.0
Anthracene-d10	1719-06-8	0.1	%	58.9	----	----	----	69.2
4-Terphenyl-d14	1718-51-0	0.1	%	84.1	----	----	----	85.5
<b>EP202S: Phenoxyacetic Acid Herbicide Surrogate</b>								
2,4-Dichlorophenyl Acetic Acid	19719-28-9	0.1	%	127	129	126	121	125



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				MW 13	MW 15	MW 16	MW 17	MW 19
				09-MAY-2014 15:00	08-MAY-2014 15:00	08-MAY-2014 15:00	08-MAY-2014 15:00	09-MAY-2014 15:00
Compound	CAS Number	LOR	Unit	EB1411179-011	EB1411179-012	EB1411179-013	EB1411179-014	EB1411179-015
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.005	0.002	0.001
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.002	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	0.001	0.002	<0.001	0.002	0.001
Nickel	7440-02-0	0.001	mg/L	<0.001	0.002	0.004	0.002	0.002
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	0.002
Zinc	7440-66-6	0.005	mg/L	0.027	0.040	0.046	0.042	0.032
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<b>EP068A: Organochlorine Pesticides (OC)</b>								
alpha-BHC	319-84-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<2.4
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<2.4
beta-BHC	319-85-7	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<2.4
gamma-BHC	58-89-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<2.4
delta-BHC	319-86-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<2.4
Heptachlor	76-44-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<2.4
Aldrin	309-00-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<2.4
Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<2.4
trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<2.4
alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<2.4
cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<2.4
Dieldrin	60-57-1	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<2.4
4,4'-DDE	72-55-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<2.4
Endrin	72-20-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<2.4
beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<2.4
4,4'-DDD	72-54-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<2.4
Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<2.4
Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<2.4
4,4'-DDT	50-29-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.4
Endrin ketone	53494-70-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<2.4
Methoxychlor	72-43-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.4
^ Total Chlordane (sum)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<2.4
^ Sum of DDD + DDE + DDT	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<2.4
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<2.4



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				MW 13	MW 15	MW 16	MW 17	MW 19
				09-MAY-2014 15:00	08-MAY-2014 15:00	08-MAY-2014 15:00	08-MAY-2014 15:00	09-MAY-2014 15:00
Compound	CAS Number	LOR	Unit	EB1411179-011	EB1411179-012	EB1411179-013	EB1411179-014	EB1411179-015
<b>EP068A: Organochlorine Pesticides (OC) - Continued</b>								
<b>EP068B: Organophosphorus Pesticides (OP)</b>								
Dichlorvos	62-73-7	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<2.4
Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<2.4
Monocrotophos	6923-22-4	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.4
Dimethoate	60-51-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<2.4
Diazinon	333-41-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<2.4
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<2.4
Parathion-methyl	298-00-0	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.4
Malathion	121-75-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<2.4
Fenthion	55-38-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<2.4
Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<2.4
Parathion	56-38-2	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.4
Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<2.4
Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<2.4
Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<2.4
Fenamiphos	22224-92-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<2.4
Prothiofos	34643-46-4	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<2.4
Ethion	563-12-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<2.4
Carbophenothion	786-19-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<2.4
Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<2.4
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	----	----	----	----	45.5
2-Chlorophenol	95-57-8	1.0	µg/L	----	----	----	----	34.0
2-Methylphenol	95-48-7	1.0	µg/L	----	----	----	----	14.7
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	----	----	----	----	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	----	----	----	----	<1.0
2,4-Dimethylphenol	105-67-9	1.0	µg/L	----	----	----	----	<1.0
2,4-Dichlorophenol	120-83-2	1.0	µg/L	----	----	----	----	3040
2,6-Dichlorophenol	87-65-0	1.0	µg/L	----	----	----	----	12.2
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	----	----	----	----	<1.0
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	----	----	----	----	16.4
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	----	----	----	----	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	----	----	----	----	<2.0



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	MW 13	MW 15	MW 16	MW 17	MW 19
				09-MAY-2014 15:00	08-MAY-2014 15:00	08-MAY-2014 15:00	08-MAY-2014 15:00	09-MAY-2014 15:00
				EB1411179-011	EB1411179-012	EB1411179-013	EB1411179-014	EB1411179-015
<b>EP202A: Phenoxyacetic Acid Herbicides by LCMS</b>								
4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	<10	<10	<10	<10	<10
2,4-DB	94-82-6	10	µg/L	<10	<10	<10	<10	<10
Dicamba	1918-00-9	10	µg/L	<10	<10	<10	<10	<10
Mecoprop	93-65-2	10	µg/L	<10	<10	<10	<10	<10
MCPA	94-74-6	10	µg/L	<10	<10	<10	<10	<10
2,4-DP	120-36-5	10	µg/L	<10	<10	<10	<10	<10
2,4-D	94-75-7	10	µg/L	<10	<10	<10	<10	322
Triclopyr	55335-06-3	10	µg/L	<10	<10	<10	<10	<10
2,4,5-TP (Silvex)	93-72-1	10	µg/L	<10	<10	<10	<10	<10
2,4,5-T	93-76-5	10	µg/L	<10	<10	<10	<10	<10
MCPB	94-81-5	10	µg/L	<10	<10	<10	<10	<10
Picloram	1918-02-1	10	µg/L	<10	<10	<10	<10	32
Clopyralid	1702-17-6	10	µg/L	<10	<10	<10	<10	16
Fluroxypyr	69377-81-7	10	µg/L	<10	<10	<10	<10	<10
2,6-D	575-90-6	10	µg/L	<10	<10	<10	<10	<10
2,4,6-T	575-89-3	10	µg/L	<10	<10	<10	<10	<10
<b>EP215: Multiresidue Pesticide Residue Screen (Suite 2)</b>								
Simazine	122-34-9	0.005	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Diuron	330-54-1	0.005	µg/L	<0.005	<0.005	<0.005	<0.005	18.1
Atrazine	1912-24-9	0.005	µg/L	<0.005	<0.005	<0.005	<0.005	0.054
Molinate	2212-67-1	0.005	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Metolachlor	51218-45-2	0.005	µg/L	<0.005	<0.005	<0.005	<0.005	18.4
Malathion	121-75-5	0.002	µg/L	<0.004	<0.004	<0.004	<0.004	<0.004
Diazinon	333-41-5	0.005	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Thiobencarb	28249-77-6	0.005	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorpyrifos	2921-88-2	0.005	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Trifluralin	1582-09-8	0.005	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
<b>EP068S: Organochlorine Pesticide Surrogate</b>								
Dibromo-DDE	21655-73-2	0.1	%	101	105	116	85.6	Not Determined
<b>EP068T: Organophosphorus Pesticide Surrogate</b>								
DEF	78-48-8	0.1	%	113	132	136	98.0	Not Determined
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	----	----	----	----	22.0





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				MW 13	MW 15	MW 16	MW 17	MW 19
				09-MAY-2014 15:00	08-MAY-2014 15:00	08-MAY-2014 15:00	08-MAY-2014 15:00	09-MAY-2014 15:00
Compound	CAS Number	LOR	Unit	EB1411179-011	EB1411179-012	EB1411179-013	EB1411179-014	EB1411179-015
<b>EP075(SIM)S: Phenolic Compound Surrogates - Continued</b>								
2-Chlorophenol-D4	93951-73-6	0.1	%	----	----	----	----	52.9
2,4,6-Tribromophenol	118-79-6	0.1	%	----	----	----	----	78.2
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	----	----	----	----	72.7
Anthracene-d10	1719-06-8	0.1	%	----	----	----	----	71.2
4-Terphenyl-d14	1718-51-0	0.1	%	----	----	----	----	61.2
<b>EP202S: Phenoxyacetic Acid Herbicide Surrogate</b>								
2,4-Dichlorophenyl Acetic Acid	19719-28-9	0.1	%	119	102	122	120	123



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				MW 20	MW 21	MW 22	MW 23	MW 24
				09-MAY-2014 15:00	09-MAY-2014 15:00	08-MAY-2014 15:00	08-MAY-2014 15:00	08-MAY-2014 15:00
Compound	CAS Number	LOR	Unit	EB1411179-016	EB1411179-017	EB1411179-018	EB1411179-019	EB1411179-020
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	<0.001	0.001	<0.001	<0.001	<0.001
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	<0.001	0.002	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	0.001	<0.001	0.008	0.002	0.005
Nickel	7440-02-0	0.001	mg/L	<0.001	0.003	0.002	0.002	0.003
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.003	0.006	0.002
Zinc	7440-66-6	0.005	mg/L	0.020	0.029	0.060	0.043	0.090
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<b>EP068A: Organochlorine Pesticides (OC)</b>								
alpha-BHC	319-84-6	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
beta-BHC	319-85-7	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
gamma-BHC	58-89-9	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
delta-BHC	319-86-8	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Heptachlor	76-44-8	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Aldrin	309-00-2	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Dieldrin	60-57-1	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
4,4'-DDE	72-55-9	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Endrin	72-20-8	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
4,4'-DDD	72-54-8	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
4,4'-DDT	50-29-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.4	<2.0
Endrin ketone	53494-70-5	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Methoxychlor	72-43-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.4	<2.0
^ Total Chlordane (sum)	----	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
^ Sum of DDD + DDE + DDT	----	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				MW 20	MW 21	MW 22	MW 23	MW 24
				09-MAY-2014 15:00	09-MAY-2014 15:00	08-MAY-2014 15:00	08-MAY-2014 15:00	08-MAY-2014 15:00
Compound	CAS Number	LOR	Unit	EB1411179-016	EB1411179-017	EB1411179-018	EB1411179-019	EB1411179-020
<b>EP068A: Organochlorine Pesticides (OC) - Continued</b>								
<b>EP068B: Organophosphorus Pesticides (OP)</b>								
Dichlorvos	62-73-7	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Monocrotophos	6923-22-4	2.0	µg/L	<2.0	<2.0	<2.0	<2.4	<2.0
Dimethoate	60-51-5	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Diazinon	333-41-5	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Parathion-methyl	298-00-0	2.0	µg/L	<2.0	<2.0	<2.0	<2.4	<2.0
Malathion	121-75-5	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Fenthion	55-38-9	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Parathion	56-38-2	2.0	µg/L	<2.0	<2.0	<2.0	<2.4	<2.0
Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Fenamiphos	22224-92-6	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Prothiofos	34643-46-4	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Ethion	563-12-2	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Carbophenothion	786-19-6	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	<0.5	<0.5	<2.4	<0.5
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	----	----	----	<1.0	----
2-Chlorophenol	95-57-8	1.0	µg/L	----	----	----	<b>45.6</b>	----
2-Methylphenol	95-48-7	1.0	µg/L	----	----	----	<1.0	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	----	----	----	<2.0	----
2-Nitrophenol	88-75-5	1.0	µg/L	----	----	----	<1.0	----
2,4-Dimethylphenol	105-67-9	1.0	µg/L	----	----	----	<1.0	----
2,4-Dichlorophenol	120-83-2	1.0	µg/L	----	----	----	<b>5140</b>	----
2,6-Dichlorophenol	87-65-0	1.0	µg/L	----	----	----	<b>12.3</b>	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	----	----	----	<1.0	----
2,4,6-Trichlorophenol	88-06-2	1.0	µg/L	----	----	----	<b>9.1</b>	----
2,4,5-Trichlorophenol	95-95-4	1.0	µg/L	----	----	----	<1.0	----
Pentachlorophenol	87-86-5	2.0	µg/L	----	----	----	<2.0	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	MW 20	MW 21	MW 22	MW 23	MW 24
				09-MAY-2014 15:00	09-MAY-2014 15:00	08-MAY-2014 15:00	08-MAY-2014 15:00	08-MAY-2014 15:00
				EB1411179-016	EB1411179-017	EB1411179-018	EB1411179-019	EB1411179-020
<b>EP202A: Phenoxyacetic Acid Herbicides by LCMS</b>								
4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	<10	<10	<10	<10	<10
2,4-DB	94-82-6	10	µg/L	<10	<10	<10	<10	<10
Dicamba	1918-00-9	10	µg/L	<10	<10	<10	<10	<10
Mecoprop	93-65-2	10	µg/L	<10	<10	<10	<10	<10
MCPA	94-74-6	10	µg/L	<10	<10	<10	24	<10
2,4-DP	120-36-5	10	µg/L	<10	<10	<10	<10	<10
2,4-D	94-75-7	10	µg/L	<10	<10	<10	1950	<10
Triclopyr	55335-06-3	10	µg/L	<10	<10	<10	<10	<10
2,4,5-TP (Silvex)	93-72-1	10	µg/L	<10	<10	<10	<10	<10
2,4,5-T	93-76-5	10	µg/L	<10	<10	<10	<10	<10
MCPB	94-81-5	10	µg/L	<10	<10	<10	<10	<10
Picloram	1918-02-1	10	µg/L	<10	<10	<10	13	<10
Clopyralid	1702-17-6	10	µg/L	<10	<10	<10	32	<10
Fluroxypyr	69377-81-7	10	µg/L	<10	<10	<10	<10	<10
2,6-D	575-90-6	10	µg/L	<10	<10	<10	<10	<10
2,4,6-T	575-89-3	10	µg/L	<10	<10	<10	<10	<10
<b>EP215: Multiresidue Pesticide Residue Screen (Suite 2)</b>								
Simazine	122-34-9	0.005	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Diuron	330-54-1	0.005	µg/L	<0.005	<0.005	<0.005	6.95	<0.005
Atrazine	1912-24-9	0.005	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Molinate	2212-67-1	0.005	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Metolachlor	51218-45-2	0.005	µg/L	<0.005	0.015	<0.005	8.95	<0.005
Malathion	121-75-5	0.002	µg/L	<0.004	<0.004	<0.004	<0.004	<0.004
Diazinon	333-41-5	0.005	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Thiobencarb	28249-77-6	0.005	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorpyrifos	2921-88-2	0.005	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Trifluralin	1582-09-8	0.005	µg/L	<0.010	<0.010	<0.010	<0.010	<0.010
<b>EP068S: Organochlorine Pesticide Surrogate</b>								
Dibromo-DDE	21655-73-2	0.1	%	101	109	123	Not Determined	112
<b>EP068T: Organophosphorus Pesticide Surrogate</b>								
DEF	78-48-8	0.1	%	116	123	130	Not Determined	126
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	----	----	----	19.2	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				MW 20	MW 21	MW 22	MW 23	MW 24
				09-MAY-2014 15:00	09-MAY-2014 15:00	08-MAY-2014 15:00	08-MAY-2014 15:00	08-MAY-2014 15:00
				EB1411179-016	EB1411179-017	EB1411179-018	EB1411179-019	EB1411179-020
Compound	CAS Number	LOR	Unit					
<b>EP075(SIM)S: Phenolic Compound Surrogates - Continued</b>								
2-Chlorophenol-D4	93951-73-6	0.1	%	----	----	----	54.9	----
2,4,6-Tribromophenol	118-79-6	0.1	%	----	----	----	62.6	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	----	----	----	67.0	----
Anthracene-d10	1719-06-8	0.1	%	----	----	----	57.8	----
4-Terphenyl-d14	1718-51-0	0.1	%	----	----	----	55.6	----
<b>EP202S: Phenoxyacetic Acid Herbicide Surrogate</b>								
2,4-Dichlorophenyl Acetic Acid	19719-28-9	0.1	%	112	122	117	133	127



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BACKG'ND	DUP 1	RIN 1	---	---
				08-MAY-2014 15:00	08-MAY-2014 15:00	08-MAY-2014 15:00	---	---
				EB1411179-021	EB1411179-022	EB1411179-023	---	---
Compound	CAS Number	LOR	Unit					
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Arsenic	7440-38-2	0.001	mg/L	0.004	0.001	<0.001	---	---
Cadmium	7440-43-9	0.0001	mg/L	0.0001	<0.0001	<0.0001	---	---
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	---	---
Copper	7440-50-8	0.001	mg/L	0.004	<0.001	0.006	---	---
Nickel	7440-02-0	0.001	mg/L	0.006	0.002	<0.001	---	---
Lead	7439-92-1	0.001	mg/L	0.015	0.003	<0.001	---	---
Zinc	7440-66-6	0.005	mg/L	0.133	0.027	<0.005	---	---
<b>EG035F: Dissolved Mercury by FIMS</b>								
Mercury	7439-97-6	0.0001	mg/L	0.0002	<0.0001	<0.0001	---	---
<b>EP068A: Organochlorine Pesticides (OC)</b>								
alpha-BHC	319-84-6	0.5	µg/L	<0.5	<0.5	<0.5	---	---
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	<0.5	<0.5	---	---
beta-BHC	319-85-7	0.5	µg/L	<0.5	<0.5	<0.5	---	---
gamma-BHC	58-89-9	0.5	µg/L	<0.5	<0.5	<0.5	---	---
delta-BHC	319-86-8	0.5	µg/L	<0.5	<0.5	<0.5	---	---
Heptachlor	76-44-8	0.5	µg/L	<0.5	<0.5	<0.5	---	---
Aldrin	309-00-2	0.5	µg/L	<0.5	<0.5	<0.5	---	---
Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	<0.5	<0.5	---	---
trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	<0.5	<0.5	---	---
alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	<0.5	<0.5	---	---
cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	<0.5	<0.5	---	---
Dieldrin	60-57-1	0.5	µg/L	<0.5	<0.5	<0.5	---	---
4,4'-DDE	72-55-9	0.5	µg/L	<0.5	<0.5	<0.5	---	---
Endrin	72-20-8	0.5	µg/L	<0.5	<0.5	<0.5	---	---
beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	<0.5	<0.5	---	---
4,4'-DDD	72-54-8	0.5	µg/L	<0.5	<0.5	<0.5	---	---
Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	<0.5	<0.5	---	---
Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	<0.5	<0.5	---	---
4,4'-DDT	50-29-3	2.0	µg/L	<2.0	<2.0	<2.0	---	---
Endrin ketone	53494-70-5	0.5	µg/L	<0.5	<0.5	<0.5	---	---
Methoxychlor	72-43-5	2.0	µg/L	<2.0	<2.0	<2.0	---	---
^ Total Chlordane (sum)	---	0.5	µg/L	<0.5	<0.5	<0.5	---	---
^ Sum of DDD + DDE + DDT	---	0.5	µg/L	<0.5	<0.5	<0.5	---	---
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	<0.5	<0.5	<0.5	---	---



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BACKG'ND	DUP 1	RIN 1	----	----
				08-MAY-2014 15:00	08-MAY-2014 15:00	08-MAY-2014 15:00	----	----
Compound	CAS Number	LOR	Unit	EB1411179-021	EB1411179-022	EB1411179-023	----	----
<b>EP068A: Organochlorine Pesticides (OC) - Continued</b>								
<b>EP068B: Organophosphorus Pesticides (OP)</b>								
Dichlorvos	62-73-7	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Monocrotophos	6923-22-4	2.0	µg/L	<2.0	<2.0	<2.0	----	----
Dimethoate	60-51-5	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Diazinon	333-41-5	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Parathion-methyl	298-00-0	2.0	µg/L	<2.0	<2.0	<2.0	----	----
Malathion	121-75-5	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Fenthion	55-38-9	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Parathion	56-38-2	2.0	µg/L	<2.0	<2.0	<2.0	----	----
Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Fenamiphos	22224-92-6	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Prothiofos	34643-46-4	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Ethion	563-12-2	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Carbophenothion	786-19-6	0.5	µg/L	<0.5	<0.5	<0.5	----	----
Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	<0.5	<0.5	----	----
<b>EP075(SIM)A: Phenolic Compounds</b>								
Phenol	108-95-2	1.0	µg/L	<1.0	48.1	----	----	----
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	41.5	----	----	----
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	16.8	----	----	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	----	----	----
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	----	----	----
2.4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	----	----	----
2.4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	3080	----	----	----
2.6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	14.5	----	----	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	<28.9	----	----	----
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	17.5	----	----	----
2.4.5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	----	----	----
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	----	----	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

Client sampling date / time

				BACKG'ND	DUP 1	RIN 1	---	---
				08-MAY-2014 15:00	08-MAY-2014 15:00	08-MAY-2014 15:00	---	---
Compound	CAS Number	LOR	Unit	EB1411179-021	EB1411179-022	EB1411179-023	---	---
<b>EP202A: Phenoxyacetic Acid Herbicides by LCMS</b>								
4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	<10	<10	<10	---	---
2,4-DB	94-82-6	10	µg/L	<10	<10	<10	---	---
Dicamba	1918-00-9	10	µg/L	<10	<10	<10	---	---
Mecoprop	93-65-2	10	µg/L	<10	<10	<10	---	---
MCPA	94-74-6	10	µg/L	<10	<10	<10	---	---
2,4-DP	120-36-5	10	µg/L	<10	<10	<10	---	---
2,4-D	94-75-7	10	µg/L	<10	<b>326</b>	<10	---	---
Triclopyr	55335-06-3	10	µg/L	<10	<10	<10	---	---
2,4,5-TP (Silvex)	93-72-1	10	µg/L	<10	<10	<10	---	---
2,4,5-T	93-76-5	10	µg/L	<10	<10	<10	---	---
MCPB	94-81-5	10	µg/L	<10	<10	<10	---	---
Picloram	1918-02-1	10	µg/L	<10	<b>33</b>	<10	---	---
Clopyralid	1702-17-6	10	µg/L	<10	<b>18</b>	<10	---	---
Fluroxypyr	69377-81-7	10	µg/L	<10	<10	<10	---	---
2,6-D	575-90-6	10	µg/L	<10	<10	<10	---	---
2,4,6-T	575-89-3	10	µg/L	<10	<10	<10	---	---
<b>EP215: Multiresidue Pesticide Residue Screen (Suite 2)</b>								
Simazine	122-34-9	0.005	µg/L	<0.005	<0.005	<0.005	---	---
Diuron	330-54-1	0.005	µg/L	<0.005	<b>17.5</b>	<0.005	---	---
Atrazine	1912-24-9	0.005	µg/L	<0.005	<b>0.056</b>	<0.005	---	---
Molinate	2212-67-1	0.005	µg/L	<0.005	<0.005	<0.005	---	---
Metolachlor	51218-45-2	0.005	µg/L	<0.005	<b>17.0</b>	<0.005	---	---
Malathion	121-75-5	0.002	µg/L	<0.004	<0.004	<0.004	---	---
Diazinon	333-41-5	0.005	µg/L	<0.005	<0.005	<0.005	---	---
Thiobencarb	28249-77-6	0.005	µg/L	<0.005	<0.005	<0.005	---	---
Chlorpyrifos	2921-88-2	0.005	µg/L	<0.005	<0.005	<0.005	---	---
Trifluralin	1582-09-8	0.005	µg/L	<0.010	<0.010	<0.010	---	---
<b>EP068S: Organochlorine Pesticide Surrogate</b>								
Dibromo-DDE	21655-73-2	0.1	%	<b>122</b>	<b>102</b>	<b>111</b>	---	---
<b>EP068T: Organophosphorus Pesticide Surrogate</b>								
DEF	78-48-8	0.1	%	<b>124</b>	<b>107</b>	<b>114</b>	---	---
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>								
Phenol-d6	13127-88-3	0.1	%	<b>22.6</b>	<b>26.6</b>	---	---	---





## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Client sample ID

				BACKG'ND	DUP 1	RIN 1	----	----
				08-MAY-2014 15:00	08-MAY-2014 15:00	08-MAY-2014 15:00	----	----
				EB1411179-021	EB1411179-022	EB1411179-023	----	----
Compound	CAS Number	LOR	Unit					
<b>EP075(SIM)S: Phenolic Compound Surrogates - Continued</b>								
2-Chlorophenol-D4	93951-73-6	0.1	%	60.4	68.6	----	----	----
2.4.6-Tribromophenol	118-79-6	0.1	%	75.4	89.4	----	----	----
<b>EP075(SIM)T: PAH Surrogates</b>								
2-Fluorobiphenyl	321-60-8	0.1	%	59.2	78.3	----	----	----
Anthracene-d10	1719-06-8	0.1	%	59.0	75.8	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	71.0	76.8	----	----	----
<b>EP202S: Phenoxyacetic Acid Herbicide Surrogate</b>								
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.1	%	130	127	110	----	----



## Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP068S: Organochlorine Pesticide Surrogate</b>			
Dibromo-DDE	21655-73-2	40.4	134.4
<b>EP068T: Organophosphorus Pesticide Surrogate</b>			
DEF	78-48-8	41.8	143.3
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10.0	71.9
2-Chlorophenol-D4	93951-73-6	26.8	130.2
2,4,6-Tribromophenol	118-79-6	19.3	180.8
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	13.9	146.1
Anthracene-d10	1719-06-8	34.6	137.4
4-Terphenyl-d14	1718-51-0	36.2	154.2
<b>EP202S: Phenoxyacetic Acid Herbicide Surrogate</b>			
2,4-Dichlorophenyl Acetic Acid	19719-28-9	64	140

## QUALITY CONTROL REPORT

<b>Work Order</b>	<b>: EB1411179</b>	<b>Page</b>	: 1 of 13
<b>Client</b>	<b>: GEO ENVIRONMENTAL CONSULTANTS</b>	<b>Laboratory</b>	: Environmental Division Brisbane
<b>Contact</b>	: MR MIKE TISDALL	<b>Contact</b>	: Customer Services
<b>Address</b>	: 129 OUTLOOK CRESCENT BARDON QLD, AUSTRALIA 4065	<b>Address</b>	: 2 Byth Street Stafford QLD Australia 4053
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<b>Telephone</b>	: +61 33672266	<b>Telephone</b>	: +61 7 3243 7222
<b>Facsimile</b>	: +61 07 33672377	<b>Facsimile</b>	: +61 7 3243 7218
<b>Project</b>	: EHP Binary Site	<b>QC Level</b>	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: Narangba, QLD	<b>Date Samples Received</b>	: 12-MAY-2014
<b>C-O-C number</b>	: ----	<b>Issue Date</b>	: 26-MAY-2014
<b>Sampler</b>	: ----	<b>No. of samples received</b>	: 23
<b>Order number</b>	: 5010/7.GW	<b>No. of samples analysed</b>	: 23
<b>Quote number</b>	: BN/374/13		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



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Laboratory 825

Accredited for  
compliance with  
ISO/IEC 17025.

### Signatories

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

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Andrew Epps	Metals Production Chemist	Brisbane Inorganics
Andrew Matheson	Senior Chemist	Brisbane Inorganics
Andrew Matheson	Senior Chemist	Brisbane Organics
Matt Frost	Senior Organic Chemist	Brisbane Organics
Phalak Inthaksone	Laboratory Manager - Organics	Sydney Organics



### **General Comments**

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

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

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

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

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 3441263)</b>									
EB1411179-001	MW 1	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.006	0.006	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.022	0.021	0.0	No Limit
EB1411179-010	MW 11	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.040	0.041	2.9	No Limit
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 3441265)</b>									
EB1411179-021	BACKG'ND	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	0.0001	0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.004	0.003	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	0.015	0.015	0.0	0% - 50%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.006	0.006	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.133	0.134	0.0	0% - 20%
<b>EG035F: Dissolved Mercury by FIMS (QC Lot: 3441262)</b>									
EB1411179-001	MW 1	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EB1411179-011	MW 13	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EG035F: Dissolved Mercury by FIMS (QC Lot: 3441264)</b>									
EB1411179-021	BACKG'ND	EG035F: Mercury	7439-97-6	0.0001	mg/L	0.0002	0.0002	0.0	No Limit
<b>EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 3435492)</b>									
EB1411179-001	MW 1	EP202-SL: 4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2,4-DB	94-82-6	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Dicamba	1918-00-9	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Mecoprop	93-65-2	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: MCPA	94-74-6	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2,4-DP	120-36-5	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2,4-D	94-75-7	10	µg/L	<10	<10	0.0	No Limit



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 3435492) - continued</b>									
EB1411179-001	MW 1	EP202-SL: Triclopyr	55335-06-3	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.4.5-TP (Silvex)	93-72-1	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.4.5-T	93-76-5	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: MCPB	94-81-5	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Picloram	1918-02-1	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Clopyralid	1702-17-6	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Fluroxypyr	69377-81-7	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.6-D	575-90-6	10	µg/L	<10	<10	0.0	No Limit
EB1411179-011	MW 13	EP202-SL: 2.4.6-T	575-89-3	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.4-DB	94-82-6	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Dicamba	1918-00-9	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Mecoprop	93-65-2	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: MCPA	94-74-6	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.4-DP	120-36-5	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.4-D	94-75-7	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Triclopyr	55335-06-3	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.4.5-TP (Silvex)	93-72-1	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.4.5-T	93-76-5	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: MCPB	94-81-5	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Picloram	1918-02-1	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Clopyralid	1702-17-6	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Fluroxypyr	69377-81-7	10	µg/L	<10	<10	0.0	No Limit
EP202-SL: 2.6-D	575-90-6	10	µg/L	<10	<10	0.0	No Limit		
EP202-SL: 2.4.6-T	575-89-3	10	µg/L	<10	<10	0.0	No Limit		
<b>EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 3435493)</b>									
EB1411179-021	BACK'ND	EP202-SL: 4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.4-DB	94-82-6	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Dicamba	1918-00-9	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Mecoprop	93-65-2	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: MCPA	94-74-6	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.4-DP	120-36-5	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.4-D	94-75-7	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Triclopyr	55335-06-3	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.4.5-TP (Silvex)	93-72-1	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.4.5-T	93-76-5	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: MCPB	94-81-5	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Picloram	1918-02-1	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Clopyralid	1702-17-6	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: Fluroxypyr	69377-81-7	10	µg/L	<10	<10	0.0	No Limit

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 Work Order : EB1411179  
 Client : GEO ENVIRONMENTAL CONSULTANTS  
 Project : EHP Binary Site



Sub-Matrix: <b>WATER</b>				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 3435493) - continued</b>									
EB1411179-021	BACKG'ND	EP202-SL: 2.6-D	575-90-6	10	µg/L	<10	<10	0.0	No Limit
		EP202-SL: 2.4.6-T	575-89-3	10	µg/L	<10	<10	0.0	No Limit



## Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3441263)</b>									
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.100 mg/L	101	84	116	
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.100 mg/L	100	88	109	
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.100 mg/L	101	87	113	
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.200 mg/L	87.6	85	115	
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.100 mg/L	96.3	89	110	
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.100 mg/L	104	86	116	
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.200 mg/L	89.2	86	118	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3441265)</b>									
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.100 mg/L	101	84	116	
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.100 mg/L	100	88	109	
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.100 mg/L	101	87	113	
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.200 mg/L	86.8	85	115	
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.100 mg/L	96.7	89	110	
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.100 mg/L	102	86	116	
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.200 mg/L	88.9	86	118	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3441262)</b>									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	107	84	118	
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3441264)</b>									
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	108	84	118	
<b>EP068A: Organochlorine Pesticides (OC) (QCLot: 3434137)</b>									
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	5 µg/L	107	45	125	
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	5 µg/L	98.4	41	121	
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	5 µg/L	112	39	122	
EP068: gamma-BHC	58-89-9	0.5	µg/L	<0.5	5 µg/L	106	42	119	
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	5 µg/L	110	53	112	
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	5 µg/L	102	45	118	
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	5 µg/L	95.4	52	123	
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	5 µg/L	115	52	124	
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	5 µg/L	115	48	125	
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	5 µg/L	105	54	128	
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	5 µg/L	113	51	125	
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	5 µg/L	# 124	50	124	
EP068: 4,4'-DDE	72-55-9	0.5	µg/L	<0.5	5 µg/L	113	56	122	
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	5 µg/L	124	47	129	





Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP068A: Organochlorine Pesticides (OC) (QCLot: 3434137) - continued</b>									
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	5 µg/L	109	50	126	
EP068: 4.4'-DDD	72-54-8	0.5	µg/L	<0.5	5 µg/L	87.7	52	124	
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	5 µg/L	121	49	131	
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	5 µg/L	106	37	124	
EP068: 4.4'-DDT	50-29-3	2.0	µg/L	<2.0	5 µg/L	# 148	35	131	
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	5 µg/L	115	45	129	
EP068: Methoxychlor	72-43-5	2.0	µg/L	<2.0	5 µg/L	# 141	31.5	135	
EP068: Total Chlordane (sum)	----	0.5	µg/L	<0.5	----	----	----	----	
EP068: Sum of DDD + DDE + DDT	----	0.5	µg/L	<0.5	----	----	----	----	
EP068: Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	<0.5	----	----	----	----	
<b>EP068A: Organochlorine Pesticides (OC) (QCLot: 3434161)</b>									
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	5 µg/L	61.2	45	125	
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	5 µg/L	53.6	41	121	
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	5 µg/L	56.6	39	122	
EP068: gamma-BHC	58-89-9	0.5	µg/L	<0.5	5 µg/L	43.0	42	119	
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	5 µg/L	54.0	53	112	
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	5 µg/L	76.0	45	118	
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	5 µg/L	55.9	52	123	
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	5 µg/L	64.0	52	124	
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	5 µg/L	50.0	48	125	
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	5 µg/L	67.2	54	128	
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	5 µg/L	66.0	51	125	
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	5 µg/L	55.8	50	124	
EP068: 4.4'-DDE	72-55-9	0.5	µg/L	<0.5	5 µg/L	63.3	56	122	
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	5 µg/L	50.0	47	129	
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	5 µg/L	85.0	50	126	
EP068: 4.4'-DDD	72-54-8	0.5	µg/L	<0.5	5 µg/L	55.6	52	124	
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	5 µg/L	56.0	49	131	
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	5 µg/L	47.5	37	124	
EP068: 4.4'-DDT	50-29-3	2.0	µg/L	<2.0	5 µg/L	76.0	35	131	
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	5 µg/L	102	45	129	
EP068: Methoxychlor	72-43-5	2.0	µg/L	<2.0	5 µg/L	80.0	31.5	135	
EP068: Total Chlordane (sum)	----	0.5	µg/L	<0.5	----	----	----	----	
EP068: Sum of DDD + DDE + DDT	----	0.5	µg/L	<0.5	----	----	----	----	
EP068: Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	<0.5	----	----	----	----	
<b>EP068B: Organophosphorus Pesticides (OP) (QCLot: 3434137)</b>									
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	5 µg/L	74.4	49	115	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP068B: Organophosphorus Pesticides (OP) (QCLot: 3434137) - continued</b>									
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	5 µg/L	87.0	44	118	
EP068: Monocrotophos	6923-22-4	2.0	µg/L	<2.0	5 µg/L	# 6.0	16	49	
EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	5 µg/L	82.3	41	111	
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	5 µg/L	107	44	129	
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	5 µg/L	89.1	50	118	
EP068: Parathion-methyl	298-00-0	2.0	µg/L	<2.0	5 µg/L	106	47	122	
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	5 µg/L	100	51	122	
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	5 µg/L	94.2	49	121	
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	5 µg/L	113	54	119	
EP068: Parathion	56-38-2	2.0	µg/L	<2.0	5 µg/L	104	43	123	
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	5 µg/L	89.1	52	126	
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	5 µg/L	106	50	127	
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	5 µg/L	114	52	124	
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	5 µg/L	87.5	43	121	
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	5 µg/L	118	53	126	
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	5 µg/L	97.4	50	127	
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	5 µg/L	99.4	48	128	
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	5 µg/L	103	44	130	
<b>EP068B: Organophosphorus Pesticides (OP) (QCLot: 3434161)</b>									
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	5 µg/L	58.3	49	115	
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	5 µg/L	60.7	44	118	
EP068: Monocrotophos	6923-22-4	2.0	µg/L	<2.0	5 µg/L	21.7	16	49	
EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	5 µg/L	70.3	41	111	
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	5 µg/L	66.8	44	129	
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	5 µg/L	61.2	50	118	
EP068: Parathion-methyl	298-00-0	2.0	µg/L	<2.0	5 µg/L	82.0	47	122	
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	5 µg/L	74.4	51	122	
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	5 µg/L	61.6	49	121	
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	5 µg/L	61.3	54	119	
EP068: Parathion	56-38-2	2.0	µg/L	<2.0	5 µg/L	76.0	43	123	
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	5 µg/L	57.4	52	126	
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	5 µg/L	66.0	50	127	
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	5 µg/L	58.4	52	124	
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	5 µg/L	49.1	43	121	
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	5 µg/L	59.2	53	126	
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	5 µg/L	63.4	50	127	
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	5 µg/L	60.9	48	128	
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	5 µg/L	48.8	44	130	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3434138)</b>									



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3434138) - continued</b>									
EP075(SIM): Phenol	108-95-2	1	µg/L	<1.0	10 µg/L	28.7	19	54	
EP075(SIM): 2-Chlorophenol	95-57-8	1	µg/L	<1.0	10 µg/L	62.5	52	102	
EP075(SIM): 2-Methylphenol	95-48-7	1	µg/L	<1.0	10 µg/L	57.5	46	102	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	µg/L	<1.0	20 µg/L	58.4	40	101	
EP075(SIM): 2-Nitrophenol	88-75-5	1	µg/L	<1.0	10 µg/L	62.5	43	119	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	1	µg/L	<1.0	10 µg/L	62.3	39	109	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	1	µg/L	<1.0	10 µg/L	64.1	55	115	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	1	µg/L	<1.0	10 µg/L	71.1	53	106	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	1	µg/L	<1.0	10 µg/L	68.1	40	102	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	1	µg/L	<1.0	10 µg/L	75.2	54	106	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	1	µg/L	<1.0	10 µg/L	66.7	54	108	
EP075(SIM): Pentachlorophenol	87-86-5	2	µg/L	<2.0	20 µg/L	64.6	21.2	135	
<b>EP075(SIM)A: Phenolic Compounds (QCLot: 3434162)</b>									
EP075(SIM): Phenol	108-95-2	1	µg/L	<1.0	10 µg/L	37.2	19	54	
EP075(SIM): 2-Chlorophenol	95-57-8	1	µg/L	<1.0	10 µg/L	90.2	52	102	
EP075(SIM): 2-Methylphenol	95-48-7	1	µg/L	<1.0	10 µg/L	80.6	46	102	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	µg/L	<1.0	20 µg/L	74.7	40	101	
EP075(SIM): 2-Nitrophenol	88-75-5	1	µg/L	<1.0	10 µg/L	100	43	119	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	1	µg/L	<1.0	10 µg/L	86.0	39	109	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	1	µg/L	<1.0	10 µg/L	102	55	115	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	1	µg/L	<1.0	10 µg/L	95.5	53	106	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	1	µg/L	<1.0	10 µg/L	95.6	40	102	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	1	µg/L	<1.0	10 µg/L	103	54	106	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	1	µg/L	<1.0	10 µg/L	102	54	108	
EP075(SIM): Pentachlorophenol	87-86-5	2	µg/L	<2.0	20 µg/L	100	21.2	135	
<b>EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 3435492)</b>									
EP202-SL: 4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	<10	100 µg/L	88.9	82	136	
EP202-SL: 2,4-DB	94-82-6	10	µg/L	<10	100 µg/L	84.5	65	147	
EP202-SL: Dicamba	1918-00-9	10	µg/L	<10	100 µg/L	94.5	83	137	
EP202-SL: Mecoprop	93-65-2	10	µg/L	<10	100 µg/L	84.5	75	143	
EP202-SL: MCPA	94-74-6	10	µg/L	<10	100 µg/L	85.6	76	140	
EP202-SL: 2,4-DP	120-36-5	10	µg/L	<10	100 µg/L	84.5	76	144	
EP202-SL: 2,4-D	94-75-7	10	µg/L	<10	100 µg/L	90.5	77	139	
EP202-SL: Triclopyr	55335-06-3	10	µg/L	<10	100 µg/L	86.7	77	141	
EP202-SL: 2,4,5-TP (Silvex)	93-72-1	10	µg/L	<10	100 µg/L	79.4	75	143	
EP202-SL: 2,4,5-T	93-76-5	10	µg/L	<10	100 µg/L	85.4	78	140	
EP202-SL: MCPB	94-81-5	10	µg/L	<10	100 µg/L	77.6	69.2	139	
EP202-SL: Picloram	1918-02-1	10	µg/L	<10	100 µg/L	101	76	144	
EP202-SL: Clopyralid	1702-17-6	10	µg/L	<10	100 µg/L	91.1	77	145	



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 3435492) - continued</b>									
EP202-SL: Fluroxypyr	69377-81-7	10	µg/L	<10	100 µg/L	90.0	77	145	
EP202-SL: 2.6-D	575-90-6	10	µg/L	<10	----	----	----	----	
EP202-SL: 2.4.6-T	575-89-3	10	µg/L	<10	----	----	----	----	
<b>EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 3435493)</b>									
EP202-SL: 4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	<10	100 µg/L	126	82	136	
EP202-SL: 2.4-DB	94-82-6	10	µg/L	<10	100 µg/L	119	65	147	
EP202-SL: Dicamba	1918-00-9	10	µg/L	<10	100 µg/L	121	83	137	
EP202-SL: Mecoprop	93-65-2	10	µg/L	<10	100 µg/L	120	75	143	
EP202-SL: MCPA	94-74-6	10	µg/L	<10	100 µg/L	124	76	140	
EP202-SL: 2.4-DP	120-36-5	10	µg/L	<10	100 µg/L	120	76	144	
EP202-SL: 2.4-D	94-75-7	10	µg/L	<10	100 µg/L	129	77	139	
EP202-SL: Triclopyr	55335-06-3	10	µg/L	<10	100 µg/L	126	77	141	
EP202-SL: 2.4.5-TP (Silvex)	93-72-1	10	µg/L	<10	100 µg/L	123	75	143	
EP202-SL: 2.4.5-T	93-76-5	10	µg/L	<10	100 µg/L	126	78	140	
EP202-SL: MCPB	94-81-5	10	µg/L	<10	100 µg/L	112	69.2	139	
EP202-SL: Picloram	1918-02-1	10	µg/L	<10	100 µg/L	131	76	144	
EP202-SL: Clopyralid	1702-17-6	10	µg/L	<10	100 µg/L	124	77	145	
EP202-SL: Fluroxypyr	69377-81-7	10	µg/L	<10	100 µg/L	129	77	145	
EP202-SL: 2.6-D	575-90-6	10	µg/L	<10	----	----	----	----	
EP202-SL: 2.4.6-T	575-89-3	10	µg/L	<10	----	----	----	----	
<b>EP215: Multiresidue Pesticide Residue Screen (Suite 2) (QCLot: 3437692)</b>									
EP215-LL: Simazine	122-34-9	0.005	µg/L	<0.005	0.0125 µg/L	88.6	65	130	
EP215-LL: Diuron	330-54-1	0.005	µg/L	<0.005	0.0125 µg/L	90.1	65	130	
EP215-LL: Atrazine	1912-24-9	0.005	µg/L	<0.005	0.0125 µg/L	81.6	65	130	
EP215-LL: Molinate	2212-67-1	0.005	µg/L	<0.005	0.0125 µg/L	91.7	65	130	
EP215-LL: Metolachlor	51218-45-2	0.005	µg/L	<0.005	0.0125 µg/L	79.7	65	130	
EP215-LL: Malathion	121-75-5	0.002	µg/L	<0.002	0.0125 µg/L	87.8	65	130	
EP215-LL: Diazinon	333-41-5	0.005	µg/L	<0.005	0.0125 µg/L	75.0	65	130	
EP215-LL: Thiobencarb	28249-77-6	0.005	µg/L	<0.005	0.0125 µg/L	80.8	65	130	
EP215-LL: Chlorpyrifos	2921-88-2	0.005	µg/L	<0.005	0.0125 µg/L	69.4	65	130	
EP215-LL: Trifluralin	1582-09-8	0.005	µg/L	<0.010	0.0625 µg/L	80.7	65	130	
<b>EP215: Multiresidue Pesticide Residue Screen (Suite 2) (QCLot: 3437694)</b>									
EP215-LL: Simazine	122-34-9	0.005	µg/L	<0.005	0.0125 µg/L	96.3	65	130	
EP215-LL: Diuron	330-54-1	0.005	µg/L	<0.005	0.0125 µg/L	85.4	65	130	
EP215-LL: Atrazine	1912-24-9	0.005	µg/L	<0.005	0.0125 µg/L	90.1	65	130	
EP215-LL: Molinate	2212-67-1	0.005	µg/L	<0.005	0.0125 µg/L	88.2	65	130	
EP215-LL: Metolachlor	51218-45-2	0.005	µg/L	<0.005	0.0125 µg/L	87.4	65	130	
EP215-LL: Malathion	121-75-5	0.002	µg/L	<0.002	0.0125 µg/L	72.4	65	130	
EP215-LL: Diazinon	333-41-5	0.005	µg/L	<0.005	0.0125 µg/L	82.6	65	130	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	High
<b>EP215: Multiresidue Pesticide Residue Screen (Suite 2) (QCLot: 3437694) - continued</b>									
EP215-LL: Thiobencarb	28249-77-6	0.005	µg/L	<0.005	0.0125 µg/L	74.2	65	130	
EP215-LL: Chlorpyrifos	2921-88-2	0.005	µg/L	<0.005	0.0125 µg/L	68.4	65	130	
EP215-LL: Trifluralin	1582-09-8	0.005	µg/L	<0.010	0.0625 µg/L	93.4	65	130	

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery(%) MS	Low	High
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3441263)</b>							
EB1411179-002	MW 2	EG020A-F: Arsenic	7440-38-2	0.100 mg/L	97.5	70	130
		EG020A-F: Cadmium	7440-43-9	0.100 mg/L	98.8	70	130
		EG020A-F: Chromium	7440-47-3	0.100 mg/L	95.6	70	130
		EG020A-F: Copper	7440-50-8	0.200 mg/L	83.9	70	130
		EG020A-F: Lead	7439-92-1	0.100 mg/L	92.2	70	130
		EG020A-F: Nickel	7440-02-0	0.100 mg/L	98.6	70	130
		EG020A-F: Zinc	7440-66-6	0.200 mg/L	86.7	70	130
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3441265)</b>							
EB1411179-022	DUP 1	EG020A-F: Arsenic	7440-38-2	0.100 mg/L	97.5	70	130
		EG020A-F: Cadmium	7440-43-9	0.100 mg/L	100	70	130
		EG020A-F: Chromium	7440-47-3	0.100 mg/L	95.2	70	130
		EG020A-F: Copper	7440-50-8	0.200 mg/L	83.4	70	130
		EG020A-F: Lead	7439-92-1	0.100 mg/L	90.4	70	130
		EG020A-F: Nickel	7440-02-0	0.100 mg/L	96.4	70	130
		EG020A-F: Zinc	7440-66-6	0.200 mg/L	86.8	70	130
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3441262)</b>							
EB1411179-002	MW 2	EG035F: Mercury	7439-97-6	0.010 mg/L	126	70	130
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3441264)</b>							
EB1411179-022	DUP 1	EG035F: Mercury	7439-97-6	0.010 mg/L	108	70	130
<b>EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 3435492)</b>							
EB1411179-001	MW 1	EP202-SL: Mecoprop	93-65-2	100 µg/L	97.1	75	143
		EP202-SL: MCPA	94-74-6	100 µg/L	99.5	76	140
		EP202-SL: 2.4-D	94-75-7	100 µg/L	101	77	139
		EP202-SL: Triclopyr	55335-06-3	100 µg/L	94.8	77	141
		EP202-SL: 2.4.5-T	93-76-5	100 µg/L	105	78	140
		EP202-SL: Picloram	1918-02-1	100 µg/L	# 69.0	76	144



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
Laboratory sample ID		Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery(%) MS	Recovery Limits (%) Low High
<b>EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 3435492) - continued</b>							
EB1411179-001		MW 1	EP202-SL: Clopyralid	1702-17-6	100 µg/L	# 61.5	77 145
<b>EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 3435493)</b>							
EB1411179-021		BACKG'ND	EP202-SL: Mecoprop	93-65-2	100 µg/L	98.8	75 143
			EP202-SL: MCPA	94-74-6	100 µg/L	92.1	76 140
			EP202-SL: 2.4-D	94-75-7	100 µg/L	98.8	77 139
			EP202-SL: Triclopyr	55335-06-3	100 µg/L	93.3	77 141
			EP202-SL: 2.4.5-T	93-76-5	100 µg/L	107	78 140
			EP202-SL: Picloram	1918-02-1	100 µg/L	# 58.2	76 144
			EP202-SL: Clopyralid	1702-17-6	100 µg/L	# 49.1	77 145

### Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID		Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%) MS MSD		Recovery Limits (%) Low High		RPDs (%) Value Control Limit	
<b>EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 3435492)</b>											
EB1411179-001		MW 1	EP202-SL: Mecoprop	93-65-2	100 µg/L	97.1	----	75	143	----	----
			EP202-SL: MCPA	94-74-6	100 µg/L	99.5	----	76	140	----	----
			EP202-SL: 2.4-D	94-75-7	100 µg/L	101	----	77	139	----	----
			EP202-SL: Triclopyr	55335-06-3	100 µg/L	94.8	----	77	141	----	----
			EP202-SL: 2.4.5-T	93-76-5	100 µg/L	105	----	78	140	----	----
			EP202-SL: Picloram	1918-02-1	100 µg/L	# 69.0	----	76	144	----	----
			EP202-SL: Clopyralid	1702-17-6	100 µg/L	# 61.5	----	77	145	----	----
<b>EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 3435493)</b>											
EB1411179-021		BACKG'ND	EP202-SL: Mecoprop	93-65-2	100 µg/L	98.8	----	75	143	----	----
			EP202-SL: MCPA	94-74-6	100 µg/L	92.1	----	76	140	----	----
			EP202-SL: 2.4-D	94-75-7	100 µg/L	98.8	----	77	139	----	----
			EP202-SL: Triclopyr	55335-06-3	100 µg/L	93.3	----	77	141	----	----
			EP202-SL: 2.4.5-T	93-76-5	100 µg/L	107	----	78	140	----	----
			EP202-SL: Picloram	1918-02-1	100 µg/L	# 58.2	----	76	144	----	----
			EP202-SL: Clopyralid	1702-17-6	100 µg/L	# 49.1	----	77	145	----	----
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3441262)</b>											
EB1411179-002		MW 2	EG035F: Mercury	7439-97-6	0.010 mg/L	126	----	70	130	----	----
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3441263)</b>											
EB1411179-002		MW 2	EG020A-F: Arsenic	7440-38-2	0.100 mg/L	97.5	----	70	130	----	----
			EG020A-F: Cadmium	7440-43-9	0.100 mg/L	98.8	----	70	130	----	----



Sub-Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3441263) - continued</b>										
EB1411179-002	MW 2	EG020A-F: Chromium	7440-47-3	0.100 mg/L	95.6	----	70	130	----	----
		EG020A-F: Copper	7440-50-8	0.200 mg/L	83.9	----	70	130	----	----
		EG020A-F: Lead	7439-92-1	0.100 mg/L	92.2	----	70	130	----	----
		EG020A-F: Nickel	7440-02-0	0.100 mg/L	98.6	----	70	130	----	----
		EG020A-F: Zinc	7440-66-6	0.200 mg/L	86.7	----	70	130	----	----
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 3441264)</b>										
EB1411179-022	DUP 1	EG035F: Mercury	7439-97-6	0.010 mg/L	108	----	70	130	----	----
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 3441265)</b>										
EB1411179-022	DUP 1	EG020A-F: Arsenic	7440-38-2	0.100 mg/L	97.5	----	70	130	----	----
		EG020A-F: Cadmium	7440-43-9	0.100 mg/L	100	----	70	130	----	----
		EG020A-F: Chromium	7440-47-3	0.100 mg/L	95.2	----	70	130	----	----
		EG020A-F: Copper	7440-50-8	0.200 mg/L	83.4	----	70	130	----	----
		EG020A-F: Lead	7439-92-1	0.100 mg/L	90.4	----	70	130	----	----
		EG020A-F: Nickel	7440-02-0	0.100 mg/L	96.4	----	70	130	----	----
		EG020A-F: Zinc	7440-66-6	0.200 mg/L	86.8	----	70	130	----	----

**SAMPLE RECEIPT NOTIFICATION (SRN)****Comprehensive Report****Work Order : EB1411179**

Client	: <b>GEO ENVIRONMENTAL CONSULTANTS</b>	Laboratory	: Environmental Division Brisbane
Contact	: MR MIKE TISDALL	Contact	: Customer Services
Address	: 129 OUTLOOK CRESCENT BARDON QLD, AUSTRALIA 4065	Address	: 2 Byth Street Stafford QLD Australia 4053
E-mail	: mtisdall@bigpond.com	E-mail	: Brisbane.Enviro.Services@alsglobal.com
Telephone	: +61 33672266	Telephone	: +61 7 3243 7222
Facsimile	: +61 07 33672377	Facsimile	: +61 7 3243 7218
Project	: EHP Binary Site	Page	: 1 of 3
Order number	: 5010/7.GW	Quote number	: EB2013GEOENV0277 (BN/374/13)
C-O-C number	: ----	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: Narangba, QLD		
Sampler	: ----		

**Dates**

Date Samples Received	: 12-MAY-2014	Issue Date	: 13-MAY-2014 13:18
Client Requested Due Date	: 20-MAY-2014	Scheduled Reporting Date	: <b>23-MAY-2014</b>

**Delivery Details**

Mode of Delivery	: Client Drop off	Temperature	: 2.5 < > 6.1°C - Ice bricks present
No. of coolers/boxes	: 5 MEDIUM	No. of samples received	: 23
Security Seal	: Not intact.	No. of samples analysed	: 23

**General Comments**

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Herbicides and Multiresidue Pesticide analysis will be conducted by ALS Environmental, Sydney, NATA accreditation no. 825, Site No. 10911 (Micro site no. 14913).**
- **Please be advised that turnaround time has been extended as the Herbicides and Multiresidua Pesticide are expected to be 8-10 days TAT upon receipt at ALS Sydney.**
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' etc. suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Please direct any queries related to sample condition / numbering / breakages to Matt Goodwin.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958),
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.





## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

## Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EP075 SIM Phenols only	SIM - Phenols only	WATER - EP202SL Phenoxvaccetic Acid	WATER - EP215LL Multiresidue Pesticide Screen (Suite)	WATER - W-02 8 Metals	WATER - W-12 OC/OP Pesticides
EB1411179-001	09-MAY-2014 15:00	MW 1		✓	✓	✓	✓	✓
EB1411179-002	09-MAY-2014 15:00	MW 2	✓	✓	✓	✓	✓	
EB1411179-003	08-MAY-2014 15:00	MW 3		✓	✓	✓	✓	
EB1411179-004	08-MAY-2014 15:00	MW 4	✓	✓	✓	✓	✓	
EB1411179-005	09-MAY-2014 15:00	MW 5	✓	✓	✓	✓	✓	
EB1411179-006	08-MAY-2014 15:00	MW 6	✓	✓	✓	✓	✓	
EB1411179-007	09-MAY-2014 15:00	MW 7		✓	✓	✓	✓	
EB1411179-008	09-MAY-2014 15:00	MW 9		✓	✓	✓	✓	
EB1411179-009	09-MAY-2014 15:00	MW 10		✓	✓	✓	✓	
EB1411179-010	09-MAY-2014 15:00	MW 11	✓	✓	✓	✓	✓	
EB1411179-011	09-MAY-2014 15:00	MW 13		✓	✓	✓	✓	
EB1411179-012	08-MAY-2014 15:00	MW 15		✓	✓	✓	✓	
EB1411179-013	08-MAY-2014 15:00	MW 16		✓	✓	✓	✓	
EB1411179-014	08-MAY-2014 15:00	MW 17		✓	✓	✓	✓	
EB1411179-015	09-MAY-2014 15:00	MW 19	✓	✓	✓	✓	✓	
EB1411179-016	09-MAY-2014 15:00	MW 20		✓	✓	✓	✓	
EB1411179-017	09-MAY-2014 15:00	MW 21		✓	✓	✓	✓	
EB1411179-018	08-MAY-2014 15:00	MW 22		✓	✓	✓	✓	
EB1411179-019	08-MAY-2014 15:00	MW 23	✓	✓	✓	✓	✓	
EB1411179-020	08-MAY-2014 15:00	MW 24		✓	✓	✓	✓	
EB1411179-021	08-MAY-2014 15:00	BACKG'ND	✓	✓	✓	✓	✓	
EB1411179-022	08-MAY-2014 15:00	DUP 1	✓	✓	✓	✓	✓	
EB1411179-023	08-MAY-2014 15:00	RIN 1		✓	✓	✓	✓	

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



---

### *Requested Deliverables*

**MR MIKE TISDALL**

- |  |       |                      |
|--|-------|----------------------|
| - *AU Certificate of Analysis - NATA ( COA )                     | Email | mtisdall@bigpond.com |
| - *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) ( QCI )    | Email | mtisdall@bigpond.com |
| - *AU QC Report - DEFAULT (Anon QC Rep) - NATA ( QC )            | Email | mtisdall@bigpond.com |
| - A4 - AU Sample Receipt Notification - Environmental HT ( SRN ) | Email | mtisdall@bigpond.com |
| - A4 - AU Tax Invoice ( INV )                                    | Email | mtisdall@bigpond.com |
| - Chain of Custody (CoC) ( COC )                                 | Email | mtisdall@bigpond.com |
| - EDI Format - ENMRG ( ENMRG )                                   | Email | mtisdall@bigpond.com |
| - EDI Format - XTab ( XTAB )                                     | Email | mtisdall@bigpond.com |

**MR STEVE TERMONT-SCHENK**

- |  |       |                      |
|--|-------|----------------------|
| - *AU Certificate of Analysis - NATA                     | Email | tsdownunda@gmail.com |
| - *AU Interpretive QC Report - DEFAULT (Anon QCI Rep)    | Email | tsdownunda@gmail.com |
| - *AU QC Report - DEFAULT (Anon QC Rep) - NATA           | Email | tsdownunda@gmail.com |
| - A4 - AU Sample Receipt Notification - Environmental HT | Email | tsdownunda@gmail.com |
| - Chain of Custody (CoC)                                 | Email | tsdownunda@gmail.com |
| - EDI Format - ENMRG                                     | Email | tsdownunda@gmail.com |
| - EDI Format - XTab                                      | Email | tsdownunda@gmail.com |
-

Chain of Custody Form

5010/7.GW

**From: -** GeoEnvironmental Consultants P/L  
**Contact:** 129 Outlook Crescent,  
 S. Termont-Schenk BARDON, QLD 4065  
 Ph: 0418-883 152 E: mtisdall@bigpond.com  
 tsdownunda@gmail.com

**Ph:** 07 3367 2266 M - 0407 178 802

**Project Manager:** Mike Tisdall / S. Termont-Schenk

**GeoEnvironmental Cons**  
 Specialising in the Earth and what's built on it

Environmental Division  
 Brisbane  
 Work Order  
**EB1411179**

Laboratory Services  
 nd Street  
 ORD, QLD 4053

**Quotation: BN/374/13**  
 Heery  
 22 Fax: 07-32437218  
 e.: 48hr 3day 5day 7day+

**Site Name:** EHP Binary Site  
**Location Code:** Narangba, Qld  
**Order No.:** 5010/7.GW



Lab No.	Sample No.	Date Collected	Sample Type		Preservation Method			No. of Containers		Phenols	DisMetals (As, Cd, Cr, Cu, Pb, Ni, Zn, Hg)	PhenoxyAcid Herbicides & LLmulti-residue pest screen	OC/OP Pesticide s	Other tests (specify) or notes
			Soil	Water	Ice	Acid	None	Glass	Plastic					
1	MW 1	9/05/2014		X	X	X		4	1		X	X	X	
2	MW 2	9/05/2014		X	X	X		4	1	X	X	X	X	Method Codes
3	MW 3	8/05/2014		X	X	X		4	1		X	X	X	Phenols;
4	MW 4	8/05/2014		X	X	X		4	1	X	X	X	X	EP075A(sim)
5	MW 5	9/05/2014		X	X	X		4	1	X	X	X	X	Metals;
6	MW 6	8/05/2014		X	X	X		4	1	X	X	X	X	W-02/USEPA 6020
7	MW 7	9/05/2014		X	X	X		4	1		X	X	X	Phenoxy Acid Herbicides;
8	MW 9	9/05/2014		X	X	X		4	1		X	X	X	EP202SL
9	MW 10	9/05/2014		X	X	X		4	1		X	X	X	Multiresidue Pesticide screen - Low level
10	MW 11	9/05/2014		X	X	X		4	1	X	X	X	X	EP215LL
11	MW 13	9/05/2014		X	X	X		4	1		X	X	X	OC/OP;
12	MW 15	8/05/2014		X	X	X		4	1		X	X	X	W-12/USEPA 3510/8270
13	MW 16	8/05/2014		X	X	X		4	1		X	X	X	
14	MW 17	8/05/2014		X	X	X		4	1		X	X	X	

**Relinquished by:** P. McGurgan 0413 258 403  
**Date:** 12-5-14  
**Time:** 9:50 AM

**Couriered by:** Dropped Off  
 9/11/14  
 P. McGurgan

**Date:** 12-5-14  
**Time:** 9:50 AM


**Received by:** [Signature]  
 JH

**Date:** 11/5/14  
**Time:** 11:35

Note: 1.

Chain of Custody Form

No.: **COC5010/7.GW**

<b>From: -</b> GeoEnvironmental Consultants P/L <b>Contact:</b> 129 Outlook Crescent, S. Termont-Schenk BARDON, QLD 4065 Ph: 0418-883 152 E: mtisdall@bigpond.com tsdownunda@gmail.com	 <p><b>GeoEnvironmental Consultants</b>  <small>Specialising in the Earth and what's built on it</small></p>	<b>To:</b> Australian Laboratory Services 32 Shand Street STAFFORD, QLD 4053  <b>ALS Quotation:</b> BN/374/13  <b>Contact:</b> Mr M. Heery Ph: (07)32437222 Fax: 07-32437218
<b>Ph:</b> 07 3367 2266 M - 0407 178 802	<b>Site Name:</b> EHP Binary Site <b>Location Code:</b> Narangba, Qld	<b>Turnaround Time.:</b> 48hr 3day 5day 7day+
<b>Project Manager.</b> Mike Tisdall / S. Termont-Schenk	<b>Order No.:</b> 5010/7.GW	

Lab No.	Sample No.	Date Collected	Sample Type		Preservation Method			No. of Containers		Analyses Requested					Comments  Other tests (specify) or notes
			Soil	Water	Ice	Acid	None	Glass	Plastic	Phenols	DisMetals (As, Cd, Cr, Cu, Pb, Ni, Zn, Hg)	Phenoxy Acid Herbicides & LL multi-residue pest screen	OC/OP Pesticides		
15	MW 19	9/05/2014		X	X	X		4	1	X		X	X	X	
16	MW 20	9/05/2014		X	X	X		4	1			X	X	X	Method Codes
17	MW 21	9/05/2014		X	X	X		4	1			X	X	X	Phenols;
18	MW 22	8/05/2014		X	X	X		4	1			X	X	X	EP075A(sim)
19	MW 23	8/05/2014		X	X	X		4	1	X		X	X	X	Metals;
20	MW 24	8/05/2014		X	X	X		4	1			X	X	X	W-02/USEPA 6020
21	BACKG'ND	8/05/2014		X	X	X		4	1	X		X	X	X	Phenoxy Acid Herbicides;
22	DUP 1	8/05/2014		X	X	X		4	1	X		X	X	X	EP202SL
23	RIN 1	8/05/2014		X	X	X		4	1			X	X	X	Multiresidue Pesticide screen - Low level
															EP215LL
															OC/OP;
															W-12/USEPA 3510/8270

<b>Relinquished by:</b> P. McGurgan 0413 258 403	<b>Date:</b> 12-5-14 <b>Time:</b> 9:50 AM	<b>Couriered by:</b> Dropped Off 	<b>Date:</b> 12-5-14 <b>Time:</b> 9:50 AM	<b>Received by:</b> 	<b>Date:</b> 11/5/14 <b>Time:</b> 1:19:55
---	--	--	--	--	--

Note: 1.

## CLIENT DETAILS

Contact MICHAEL TISDALL & Steven Termont-Schenck  
 Client Geoenvironmental Consultants  
 Address 129 Outlook Crescent  
 BARDON QLD 4065

Telephone 07 3367 2266  
 Facsimile 61 07 33672377  
 Email mtisdall@bigpond.com

Project **EHP Binary Site, Narangba, Q Event: 10**  
 Order Number **50107\_GW**  
 Samples 2  
 Date Received 12/5/2014

## LABORATORY DETAILS

Manager Andrew Tomlins  
 Laboratory SGS Brisbane Environmental  
 Address 59 Bancroft Road  
 PINKENBA QLD 4008

Telephone +61 7 3622 4700  
 Facsimile +61 7 3622 4799  
 Email au.environmental.brisbane@sgs.com

SGS Reference **BE009134 R2**  
 Report Number 0000029899  
 Date Reported 2/6/2014

## COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(20707/1706).

Phenols: The Limit of Reporting (LOR) was raised due to dilution of significantly high concentration of analytes in the sample.

TRH: The matrix spike and matrix spike duplicate do not pass SGS acceptance criteria due to matrix interference

Metals & Phenoxy Acid Herbicides subcontracted to SGS Perth Environmental, 10 Reid Rd Newburn WA, NATA Accreditation Number 2562, Site Number 898, PE088783 R0

SVOC: LOR was raised for sample #1-2 due to sample matrix interference.

Metals: Dissolved Zn: #1 Spike recovery failed due to matrix interference.

Multiresidue pesticide screen subcontracted to SGS Leeder Consulting, 4-5/18 Redland Drive, Mitcham VIC, NATA Accreditation Number 2562, Site number 14420, M140756

This report cancels and supersedes the report No.BE009134 R1. dated 02 June 2014 issued by SGS Environmental Services due to revision of speciated phenols results

## SIGNATORIES



**Michael Morrison**  
 Senior Organic Chemist

Trace Metals (Dissolved) in Water by ICPMS [AN318]

PARAMETER	UOM	LOR	TRIP 1	DUP 2
			WATER 8/5/2014 BE009134.001	WATER 8/5/2014 BE009134.002
Arsenic, As	µg/L	1.0	<b>1</b>	<1
Cadmium, Cd	µg/L	0.10	<0.1	<0.1
Copper, Cu	µg/L	1.0	<b>1</b>	<b>2</b>
Chromium, Cr	µg/L	1.0	<1	<1
Lead, Pb	µg/L	1.0	<b>2</b>	<b>7</b>
Nickel, Ni	µg/L	1.0	<b>1</b>	<1
Zinc, Zn	µg/L	5.0	<b>27</b>	<b>30</b>

Mercury (dissolved) in Water [AN311/AN312]

PARAMETER	UOM	LOR	TRIP 1	DUP 2
			WATER 8/5/2014 BE009134.001	WATER 8/5/2014 BE009134.002
Mercury	mg/L	0.00010	<0.0001	<0.0001

Speciated Phenols in Water [AN420]

PARAMETER	UOM	LOR	TRIP 1	DUP 2
			WATER 8/5/2014 BE009134.001	WATER 8/5/2014 BE009134.002
Phenol	µg/L	0.50	<b>15</b>	<0.5
2-methyl phenol (o-cresol)	µg/L	0.50	<b>8.4</b>	<0.5
3/4-methyl phenol (m/p-cresol)	µg/L	1.0	<10 †	<1
2-chlorophenol	µg/L	0.50	<b>22</b>	<b>18</b>
2,4-dimethylphenol	µg/L	0.50	<5.0 †	<0.5
2,6-dichlorophenol	µg/L	0.50	<5.0 †	<b>5.0</b>
2,4-dichlorophenol	µg/L	0.50	<b>1000</b>	<b>15000</b>
2,4,6-trichlorophenol	µg/L	0.50	<b>9.8</b>	<b>2.4</b>
2-nitrophenol	µg/L	0.50	<5.0 †	<0.5
4-nitrophenol	µg/L	1.0	<10 †	<1
2,4,5-trichlorophenol	µg/L	0.50	<5.0 †	<0.5
2,3,4,6-tetrachlorophenol	µg/L	0.50	<5.0 †	<0.5
Pentachlorophenol	µg/L	0.50	<5.0 †	<0.5
2,4-dinitrophenol	µg/L	2.0	<20 †	<2



OC Pesticides in Water [AN400/AN420]

PARAMETER	UOM	LOR	TRIP 1	DUP 2
			WATER 8/5/2014 BE009134.001	WATER 8/5/2014 BE009134.002
Alpha BHC	µg/L	0.10	<0.1	<0.1
Hexachlorobenzene (HCB)	µg/L	0.10	<0.1	<0.1
Beta BHC	µg/L	0.10	<0.1	<0.1
Lindane (gamma BHC)	µg/L	0.10	<0.1	<0.1
Delta BHC	µg/L	0.10	<0.1	<0.1
Heptachlor	µg/L	0.10	<0.1	<0.1
Aldrin	µg/L	0.10	<0.1	<0.1
Heptachlor epoxide	µg/L	0.10	<0.1	<0.1
Isodrin	µg/L	0.10	<0.1	<0.1
Gamma Chlordane	µg/L	0.10	<0.1	<0.1
Alpha Chlordane	µg/L	0.10	<0.1	<0.1
Alpha Endosulfan	µg/L	0.10	<0.1	<0.1
p,p'-DDE	µg/L	0.10	<0.1	<0.1
Dieldrin	µg/L	0.10	<0.1	<0.1
Endrin	µg/L	0.10	<0.1	<0.1
Beta Endosulfan	µg/L	0.10	<0.1	<0.1
p,p'-DDD	µg/L	0.10	<0.1	<0.1
Endosulfan sulphate	µg/L	0.10	<0.1	<0.1
p,p'-DDT	µg/L	0.10	<0.1	<0.1
Endrin ketone	µg/L	0.10	<0.1	<0.1
Methoxychlor	µg/L	0.10	<0.1	<0.1
Mirex	µg/L	0.10	<0.1	<0.1

OP Pesticides in Water [AN400/AN420]

PARAMETER	UOM	LOR	TRIP 1	DUP 2
			WATER 8/5/2014 BE009134.001	WATER 8/5/2014 BE009134.002
Dichlorvos	µg/L	1.0	<1	<1
Dimethoate	µg/L	1.0	<1	<1
Diazinon (Dimpylate)	µg/L	0.50	<0.5	<0.5
Fenitrothion	µg/L	0.20	<0.2	<0.2
Malathion	µg/L	0.20	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	µg/L	0.20	<0.2	<0.2
Parathion-ethyl (Parathion)	µg/L	0.20	<0.2	<0.2
Bromophos Ethyl	µg/L	0.20	<0.2	<0.2
Methodathion	µg/L	0.50	<0.5	<0.5
Ethion	µg/L	0.20	<0.2	<0.2
Azinphos-methyl	µg/L	0.20	<0.2	<0.2

Acid Herbicides in Water [AN420]

PARAMETER	UOM	LOR	TRIP 1	DUP 2
			WATER 8/5/2014 BE009134.001	WATER 8/5/2014 BE009134.002
Clopyralid	µg/L	0.50	<b>17</b>	<b>25</b>
4-chlorophenoxy acetic acid (4-CPA)	µg/L	1.0	<b>2</b>	<b>2</b>
Dicamba	µg/L	0.50	<b>3.8</b>	<b>5.7</b>
MCCP (Mecoprop)	µg/L	0.50	<0.5	<0.5
MCPA	µg/L	0.50	<b>1.9</b>	<b>18</b>
2,6-D	µg/L	0.50	<b>0.8</b>	<b>2.5</b>
Dichlorprop (2,4-DP)	µg/L	0.50	<0.5	<0.5
2,4-D	µg/L	0.50	<b>280</b>	<b>1600</b>
Bromoxynil	µg/L	0.50	<0.5	<0.5
Triclopyr	µg/L	0.50	<b>1.7</b>	<b>2.7</b>
2,4,6-trichlorophenoxyacetic acid	µg/L	0.50	<0.5	<0.5
2,4,5-TP (Silvex, Fenopop)	µg/L	0.50	<0.5	<0.5
2,4,5-T	µg/L	0.50	<0.5	<0.5
MCPB	µg/L	1.0	<1	<1
Dinoseb (Dinitrobutylphenol)	µg/L	0.50	<0.5	<0.5
Fluroxypyr	µg/L	0.50	<0.5	<0.5
2,4-DB	µg/L	0.50	<0.5	<0.5
Ioxynil	µg/L	1.0	<1	<1
Picloram	µg/L	1.0	<b>29</b>	<b>9</b>

Sample Subcontracted []

			TRIP 1	DUP 2
			WATER 8/5/2014	WATER 8/5/2014
PARAMETER	UOM	LOR	BE009134.001	BE009134.002
Sample Subcontracted*	No unit	-	See attached	See attached

METHOD

METHODOLOGY SUMMARY

<b>AN020</b>	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
<b>AN083</b>	Separatory funnels are used for aqueous samples and extracted by transferring an appropriate volume (mass) of liquid into a separatory funnel and adding 3 serial aliquots of dichloromethane. Samples receive a single extraction at pH 7 to recover base / neutral analytes and two extractions at pH < 2 to recover acidic analytes. QC samples are prepared by spiking organic free water with target analytes and extracting as per samples.
<b>AN311/AN312</b>	Mercury by Cold Vapour AAS in Waters: Mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500.
<b>AN318</b>	Determination of elements at trace level in waters by ICP-MS technique, in accordance with USEPA 6020A.
<b>AN400</b>	OC and OP Pesticides by GC-ECD: The determination of organochlorine (OC) and organophosphorus (OP) pesticides and polychlorinated biphenyls (PCBs) in soils, sludges and groundwater. (Based on USEPA methods 3510, 3550, 8140 and 8080.)
<b>AN420</b>	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).

FOOTNOTES

*	Analysis not covered by the scope of accreditation.	-	Not analysed.	UOM	Unit of Measure.
**	Indicative data, theoretical holding time exceeded.	NVL	Not validated.	LOR	Limit of Reporting.
^	Performed by outside laboratory.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

Samples analysed as received.  
Solid samples expressed on a dry weight basis.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: <http://www.sgs.com.au/pv.sgs/3~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf>

This document is issued, on the Client's behalf, by the Company under its General Conditions of Service available on request and accessible at <http://www.sgs.com/en/Terms-and-Conditions/General-Conditions-of-Services-English.aspx>. The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

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A.B.N. 44 000 964 278  
3 - 5, 18 Redland Drive  
Mitcham, Vic, 3132  
Telephone: (03) 9874 1988  
Fax: (03) 9874 1933

Chartered Chemists

19-May-2014

**REPORT NUMBER: M140756**

Site/Client Ref: BE009134

**SGS Environmental**

**59 Bancroft Road**

**Pinkenba**

**QLD 4008**

**Attention: SRA\_REPORTS\_BRISBANE**

## CERTIFICATE OF ANALYSIS

**SAMPLES:** Two samples were received for analysis

**DATE RECEIVED:** 13-May-2014

**DATE COMMENCED:** 13-May-2014

**METHODS:** See Attached Results

**RESULTS:** Please refer to attached pages for results.

Note: Results are based on samples as received at SGS Leeder Consulting's laboratories

**REPORTED BY:**

**Adam Atkinson**

Laboratory Manager



NATA Accredited Laboratory Number: 14429

Accredited for compliance  
with ISO/IEC 17025.

NATA accreditation does not cover the performance of Method(s) - MA-1452; USEPA 8270C Additional

**(I) RESULTS**

**Report N°: M140756**

**Matrix: Water**

**Method: MA-1452 Phenyl Urea Herbicides**

Sample units are expressed in mg/L

			Leeder ID	2014006163	2014006164	2014006165	2014006166
			Client ID	BE009134.001 TRIP1	BE009134.002 DUP2	BE009134.001 TRIP1	Method
			Sampled Date	8/05/2014	8/05/2014		
Analyte Name	CASNo	PQL				Duplicate	Blank
Diuron	330-54-1	0.001		0.010	0.004	0.010	nd

**Matrix: Water**

**Method: MA-83.WW.01 Nitrogen/Phosphorus Pesticides**

Sample units are expressed in mg/L

			Leeder ID	2014006163	2014006164	2014006165	2014006166
			Client ID	BE009134.001 TRIP1	BE009134.002 DUP2	BE009134.001 TRIP1	Method
			Sampled Date	8/05/2014	8/05/2014		
Analyte Name	CASNo	PQL				Duplicate	Blank
Atrazine	1912-24-9	0.001		nd	nd	nd	nd
Metolachlor	51218-45-2	0.001		0.024	0.018	0.024	nd
Molinate	2212-67-1	0.001		nd	nd	nd	nd
Trifluralin	1582-09-8	0.001		nd	nd	nd	nd
Simazine	122-34-9	0.001		nd	nd	nd	nd

**(I) RESULTS**

**Report N°: M140756**

**Matrix: Water**

**Method: MA-78.WW.03 Organophosphate Pesticides**

Sample units are expressed in mg/L

			Leeder ID	2014006163	2014006164	2014006165	2014006166
			Client ID	BE009134.001 TRIP1	BE009134.002 DUP2	BE009134.001 TRIP1	Method
			Sampled Date	8/05/2014	8/05/2014		
Analyte Name	CASNo	PQL			Duplicate	Blank	
Chlorpyrifos	2921-88-2	0.001	nd	nd	nd	nd	
Malathion	121-75-5	0.001	nd	nd	nd	nd	

**Matrix: Water**

**Method: USEPA 8270C.WW.ADD.00 Additional SVOCs in water**

Sample units are expressed in mg/L

			Leeder ID	2014006163	2014006164	2014006165	2014006166
			Client ID	BE009134.001 TRIP1	BE009134.002 DUP2	BE009134.001 TRIP1	Method
			Sampled Date	8/05/2014	8/05/2014		
Analyte Name	CASNo	PQL			Duplicate	Blank	
Diazinon	333-41-5	0.001	nd	nd	nd	nd	
Thiobencarb	28249-77-6	0.001	nd	nd	nd	nd	



**(I) RESULTS**

**Report N°: M140756**

**Matrix: Water**

**Method: Surrogate Recovery**

Sample units are expressed in %

			Leeder ID	2014006163	2014006164	2014006165	2014006166
			Client ID	BE009134.001 TRIP1	BE009134.002 DUP2	BE009134.001 TRIP1	Method
			Sampled Date	8/05/2014	8/05/2014		
Analyte Name	CASNo	PQL				Duplicate	Blank
Fluorobiphenyl	321-60-8		100	102	111	93	
Fluorophenol	367-12-4		77	73	76	70	
Nitrobenzene-d5	4165-60-0		102	86	112	112	
Phenol-d6	13127-88-3		77	76	71	70	
p-Terphenyl-d14	1718-51-0		97	85	94	91	
2,4,6-Tribromophenol	118-79-6		69	65	75	70	

## (II) QUALITY CONTROL

Report N°: M140756

**Matrix: Water**

**Method: MA-1452 Phenyl Urea Herbicides**

Quality Control Results are expressed in Percent Recovery of expected result

			Leeder ID	2014006167	2014006168
			Client ID	BE009134.002 DUP2	BE009134.002 DUP2
			Sampled Date		
Analyte Name	CASNo	PQL		Spike	Spike Dup
Diuron	330-54-1			80	87

**Matrix: Water**

**Method: MA-83.WW.01 Nitrogen/Phosphorus Pesticides**

Quality Control Results are expressed in Percent Recovery of expected result

			Leeder ID	2014006167	2014006168
			Client ID	BE009134.002 DUP2	BE009134.002 DUP2
			Sampled Date		
Analyte Name	CASNo	PQL		Spike	Spike Dup
Metolachlor	51218-45-2			78	76
Simazine	122-34-9			103	103

**(II) QUALITY CONTROL**

**Report N°: M140756**

**Matrix: Water**

**Method: Surrogate Recovery**

Quality Control Results are expressed in Percent Recovery of expected result

			Leeder ID	2014006167	2014006168
			Client ID	BE009134.002 DUP2	BE009134.002 DUP2
			Sampled Date		
Analyte Name	CASNo	PQL	Spike	Spike Dup	
Fluorobiphenyl	321-60-8		114	111	
Fluorophenol	367-12-4		89	96	
Nitrobenzene-d5	4165-60-0		85	94	
Phenol-d6	13127-88-3		100	95	
p-Terphenyl-d14	1718-51-0		116	100	
2,4,6-Tribromophenol	118-79-6		82	81	

**QUALIFIERS / NOTES FOR REPORTED RESULTS**

PQL	Practical Quantitation Limit
<i>is</i>	Insufficient Sample to perform this analysis.
T	Tentative identification based on computer library search of mass spectra.
ND	Not Detected – The analyte was not detected above the reported PQL.
NC	Not calculated, Results below PQL
<i>nr</i>	Not Requested for analysis.
R	Rejected Result – results for this analysis failed QC checks.
SQ	Semi-Quantitative result – quantitation based on a generic response factor for this class of analyte.
IM	Inappropriate method of analysis for this compound
U	Unable to provide Quality Control data – high levels of compounds in sample interfered with analysis of QC results.
UF	Unable to provide Quality Control data- Surrogates failed QC checks due to sample matrix effects
L	Analyte detected at a level above the linear response of calibration curve.
E	Estimated result. NATA accreditation does not cover estimated results.
C1	These compounds co-elute.
C2	These compounds co-elute.
CT	Elevated concentration. Results reported from carbon tube analysis
**	Sample shows non-petroleum hydrocarbon profile

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## **APPENDIX ONE.**

### **CHAIN OF CUSTODY DOCUMENT**



**SGS Environmental Services**  
 59 Bancroft Rd  
 PINKENBA QLD 4008  
  
 ATTN: Rebeca Val  
 Email: rebeca.val@sgs.com

### CHAIN OF CUSTODY & ANALYSIS REQUEST

Lab ID Number: \_\_\_\_\_ (please quote on all correspondence) Page 1 of 1

Company Name:	SGS Environmental Services	Project Name/No:	BE009134
Address:	59 Bancroft Rd Pinkenba QLD 4008	Purchase Order No:	TBA
Contact Name:	Rebeca Val	Results Required Date:	Standard
Laboratory Quotation No:		Telephone:	(07)3622 4700
		Email Results to:	rebeca.val@sgs.com, Sandhya.prasad@sgs.com au.environmental@sgs.com

SGS ID	Client Sample ID	Sampling Date/Time	Tick as Appropriate			NO. OF ITEMS	Pesticide Screen*	ANALYSIS REQUESTED. SPECIFY & TICK AS APPROPRIATE										Notes/Guidelines/LOR/ Special instructions																
			Solid Sample	Gas/Air Sample				Multiresidue																										
				Liquid Sample	Gas/Air Sample																													
BE009134.001	TRIP 1	8/5/14	X	X		X																											*simazine, diuron, atrazine,	
BE009134.002	DUP 2	8/5/14	X	X		X																											Molinate, metolachlor,	
																																		Malathion, diazinon,
																																		Thiobencarb,
																																		chloropyrifos, trifluralin

Relinquished By: LH  
 Date/Time: 12/5/14

Received By: Simon Phillip 1.8.14  
 Date/Time: 13/5/14 11:30

Relinquished By:  
 Date/Time:

Samples Intact: Yes / No  
 Sample Security Sealed: Yes / No

Quarantine: Yes / No  
 Hazards: e.g. may contain Asbestos

Comments / Subcontracting details:  
*i.e. samples subcontracted to SGS Sydney due to TAT requested*



## STATEMENT OF QA/QC PERFORMANCE

BE009134 R0

### CLIENT DETAILS

Contact MICHAEL TISDALL & Steven Termont-Schenck  
Client Geoenvironmental Consultants  
Address 129 Outlook Crescent  
BARDON QLD 4065

Telephone 07 3367 2266  
Facsimile 61 07 33672377  
Email mtisdall@bigpond.com

Project **EHP Binary Site, Narangba, Q Event: 10**  
Order Number **5010/7\_GW**  
Samples 2

### LABORATORY DETAILS

Manager Andrew Tomlins  
Laboratory SGS Brisbane Environmental  
Address 59 Bancroft Road  
PINKENBA QLD 4008

Telephone +61 7 3622 4700  
Facsimile +61 7 3622 4799  
Email au.environmental.brisbane@sgs.com

SGS Reference BE009134 R0  
Report Number 000029609  
Date Reported 22 May 2014

### COMMENTS

All the laboratory data for each environmental matrix was compared to SGS Environmental Services' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document and was supplied by the Client. This QA/QC Statement must be read in conjunction with the referenced Analytical Report. The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

METHOD BLANK

OP Pesticides in Water

2 items

### SAMPLE SUMMARY

Sample counts by matrix	2 Waters	Type of documentation received	COC
Date documentation received	12/5/2014	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	5.6°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes	Number of eskies/boxes received	1

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

### Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311/AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TRIP 1	BE009134.001	LB014216	08 May 2014	12 May 2014	05 Jun 2014	13 May 2014	05 Jun 2014	21 May 2014
DUP 2	BE009134.002	LB014216	08 May 2014	12 May 2014	05 Jun 2014	13 May 2014	05 Jun 2014	21 May 2014

### OC Pesticides in Water

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TRIP 1	BE009134.001	LB014226	08 May 2014	12 May 2014	15 May 2014	14 May 2014	23 Jun 2014	16 May 2014
DUP 2	BE009134.002	LB014226	08 May 2014	12 May 2014	15 May 2014	14 May 2014	23 Jun 2014	16 May 2014

### OP Pesticides in Water

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TRIP 1	BE009134.001	LB014226	08 May 2014	12 May 2014	15 May 2014	14 May 2014	23 Jun 2014	16 May 2014
DUP 2	BE009134.002	LB014226	08 May 2014	12 May 2014	15 May 2014	14 May 2014	23 Jun 2014	16 May 2014

### Speciated Phenols in Water

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TRIP 1	BE009134.001	LB014226	08 May 2014	12 May 2014	29 May 2014	14 May 2014	23 Jun 2014	16 May 2014
DUP 2	BE009134.002	LB014226	08 May 2014	12 May 2014	29 May 2014	14 May 2014	23 Jun 2014	16 May 2014



Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

**Acid Herbicides in Water**

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2,4-DCPAA (Surrogate)	TRIP 1	BE009134.001	%	40 - 130%	74
	DUP 2	BE009134.002	%	40 - 130%	72

**OC Pesticides in Water**

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	TRIP 1	BE009134.001	%	40 - 130%	74
	DUP 2	BE009134.002	%	40 - 130%	66
d14-p-terphenyl (Surrogate)	TRIP 1	BE009134.001	%	40 - 130%	66
	DUP 2	BE009134.002	%	40 - 130%	90
d5-nitrobenzene (Surrogate)	TRIP 1	BE009134.001	%	40 - 130%	78
	DUP 2	BE009134.002	%	40 - 130%	72

**OP Pesticides in Water**

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	TRIP 1	BE009134.001	%	40 - 130%	78
	DUP 2	BE009134.002	%	40 - 130%	72
d14-p-terphenyl (Surrogate)	TRIP 1	BE009134.001	%	40 - 130%	74
	DUP 2	BE009134.002	%	40 - 130%	66
d5-nitrobenzene (Surrogate)	TRIP 1	BE009134.001	%	40 - 130%	66
	DUP 2	BE009134.002	%	40 - 130%	90

**Speciated Phenols in Water**

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2,4,6-Tribromophenol (Surrogate)	TRIP 1	BE009134.001	%	40 - 130%	91
	DUP 2	BE009134.002	%	40 - 130%	94

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311/AN312

Sample Number	Parameter	Units	LOR
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OC Pesticides in Water

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number	Parameter	Units	LOR	Result
LB014226.001	Alpha BHC	µg/L	0.1	<0.1
	Hexachlorobenzene (HCB)	µg/L	0.1	<0.1
	Beta BHC	µg/L	0.1	<0.1
	Lindane (gamma BHC)	µg/L	0.1	<0.1
	Delta BHC	µg/L	0.1	<0.1
	Heptachlor	µg/L	0.1	<0.1
	Aldrin	µg/L	0.1	<0.1
	Heptachlor epoxide	µg/L	0.1	<0.1
	Isodrin	µg/L	0.1	<0.1
	Gamma Chlordane	µg/L	0.1	<0.1
	Alpha Chlordane	µg/L	0.1	<0.1
	Alpha Endosulfan	µg/L	0.1	<0.1
	p,p'-DDE	µg/L	0.1	<0.1
	Dieldrin	µg/L	0.1	<0.1
	Endrin	µg/L	0.1	<0.1
	Beta Endosulfan	µg/L	0.1	<0.1
	p,p'-DDD	µg/L	0.1	<0.1
	Endosulfan sulphate	µg/L	0.1	<0.1
	p,p'-DDT	µg/L	0.1	<0.1
	Endrin ketone	µg/L	0.1	<0.1
Methoxychlor	µg/L	0.1	<0.1	
Surrogates	Mirex	µg/L	0.1	<0.1
	d14-p-terphenyl (Surrogate)	%	-	80
	d5-nitrobenzene (Surrogate)	%	-	90

OP Pesticides in Water

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number	Parameter	Units	LOR	Result	
LB014226.001	Dichlorvos	µg/L	1	<1	
	Dimethoate	µg/L	1	<1	
	Diazinon (Dimpylate)	µg/L	0.5	<0.5	
	Fenitrothion	µg/L	0.2	<0.2	
	Malathion	µg/L	0.2	<0.2	
	Chlorpyrifos (Chlorpyrifos Ethyl)	µg/L	0.2	<0.2	
	Parathion-ethyl (Parathion)	µg/L	0.2	<0.2	
	Bromophos Ethyl	µg/L	0.2	<0.2	
	Methidathion	µg/L	0.5	<0.5	
	Ethion	µg/L	0.2	<0.2	
	Azinphos-methyl	µg/L	0.2	<0.2	
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	88
		d14-p-terphenyl (Surrogate)	%	-	88

Speciated Phenols in Water

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB014226.001	Phenol	µg/L	0.5	<0.5
	2-methyl phenol (o-cresol)	µg/L	0.5	<0.5
	3/4-methyl phenol (m/p-cresol)	µg/L	1	<1
	2-chlorophenol	µg/L	0.5	<0.5
	2,4-dimethylphenol	µg/L	0.5	<0.5
	2,6-dichlorophenol	µg/L	0.5	<0.5
	2,4-dichlorophenol	µg/L	0.5	<0.5
	2,4,6-trichlorophenol	µg/L	0.5	<0.5
	2-nitrophenol	µg/L	0.5	<0.5
	4-nitrophenol	µg/L	1	<1
	2,4,5-trichlorophenol	µg/L	0.5	<0.5
	Pentachlorophenol	µg/L	0.5	<0.5
	2,4-dinitrophenol	µg/L	2	<2

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula:  $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula:  $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311/AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
BE009059.003	LB014216.004	Mercury	µg/L	0.0001	4.28	4.31	16	1

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

**OC Pesticides in Water**

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB014226.002	Lindane (gamma BHC)	µg/L	0.1	1.1	1.25	60 - 140	85
	Heptachlor	µg/L	0.1	1.3	1.25	60 - 140	106
	Aldrin	µg/L	0.1	1.3	1.25	60 - 140	107
	Isodrin	µg/L	0.1	1.2	1.25	60 - 140	98
	Gamma Chlordane	µg/L	0.1	1.3	1.25	60 - 140	107
	Dieldrin	µg/L	0.1	1.4	1.25	60 - 140	110
	Endrin	µg/L	0.1	1.4	1.25	60 - 140	108
	Mirex	µg/L	0.1	1.2	1.25	60 - 140	98
Surrogates	d14-p-terphenyl (Surrogate)	%	-	0.3	100	60 - 140	66

**OP Pesticides in Water**

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB014226.002	Diazinon (Dimpylate)	µg/L	0.5	1.4	1.25	50 - 150	111
	Chlorpyrifos (Chlorpyrifos Ethyl)	µg/L	0.2	1.2	1.25	50 - 150	98
	Parathion-ethyl (Parathion)	µg/L	0.2	1.2	1.25	50 - 150	94
	Methidathion	µg/L	0.5	1.2	1.25	50 - 150	98

**Speciated Phenols in Water**

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB014226.003	Phenol	µg/L	0.5	NA	1.25	60 - 140	65
	2-methyl phenol (o-cresol)	µg/L	0.5	NA	1.25	60 - 140	86
	2,4-dichlorophenol	µg/L	0.5	NA	1.25	60 - 140	88
	2,4,6-trichlorophenol	µg/L	0.5	NA	1.25	60 - 140	87
	Pentachlorophenol	µg/L	0.5	NA	1.25	60 - 140	128

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub-sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

QC Sample	Sample Number	Parameter	Units	LOR
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Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula:  $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula:  $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: <http://www.sgs.com.au/~media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf>

- \* Non-accredited analysis.
- Sample not analysed for this analyte.
- ^ Analysis performed by external laboratory.

- IS Insufficient sample for analysis.
- LNR Sample listed, but not received.
- LOR Limit of reporting.
- QFH QC result is above the upper tolerance.
- QFL QC result is below the lower tolerance.

- ① At least 2 of 3 surrogates are within acceptance criteria.
- ② RPD failed acceptance criteria due to sample heterogeneity.
- ③ Results less than 5 times LOR preclude acceptance criteria for RPD.
- ④ Recovery failed acceptance criteria due to matrix interference.
- ⑤ Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
- ⑥ LOR was raised due to sample matrix interference.
- ⑦ LOR was raised due to dilution of significantly high concentration of analyte in sample.
- ⑧ Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
- ⑨ Low surrogate recovery due to the sample emulsifying during extraction.
- † Refer to Analytical Report comments for further information.

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## SAMPLE RECEIPT ADVICE

BE009134

### CLIENT DETAILS

Contact Michael Tisdall  
Client Geoenvironmental Consultants  
Address 81 Bishop Road  
BEACHMERE QLD 4510

Telephone 07 3367 2266  
Facsimile 07 3367 2377  
Email mtisdall@bigpond.com

Project **EHP Binary Site, Narangba, Q Event: 10**  
Order Number **5010/7\_GW**  
Samples 2

### LABORATORY DETAILS

Manager Andrew Tomlins  
Laboratory SGS Brisbane Environmental  
Address 59 Bancroft Road  
PINKENBA QLD 4008

Telephone +61 7 3622 4700  
Facsimile +61 7 3622 4799  
Email au.environmental.brisbane@sgs.com

Samples Received Mon 12/5/2014  
Report Due Mon 19/5/2014  
SGS Reference **BE009134**

### SUBMISSION DETAILS

This is to confirm that 2 samples were received on Monday 12/5/2014. Results are expected to be ready by Monday 19/5/2014. Please quote SGS reference BE009134 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	2 Waters	Type of documentation received	COC
Date documentation received	12/5/2014	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	5.6°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes	Number of eskies/boxes received	1

Samples will be held for one month for water samples and two months for soil samples from date of report, unless otherwise instructed.

### COMMENTS

To the extent not inconsistent with the other provisions of this document and unless specifically agreed otherwise in writing by SGS, all SGS services are rendered in accordance with the applicable SGS General Conditions of Service accessible at <http://www.sgs.com/en/Terms-and-Conditions/General-Conditions-of-Services-English.aspx> as at the date of this document. Attention is drawn to the limitations of liability and to the clauses of indemnification.



CLIENT DETAILS

Client **Geoenvironmental Consultants**

Project **EHP Binary Site, Narangba, Q Event: 10**

SUMMARY OF ANALYSIS

No.	Sample ID	Acid Herbicides in Water	Mercury (dissolved) in Water	OC Pesticides in Water	OP Pesticides in Water	Speciated Phenols in Water	Trace Metals (Dissolved) in Water by ICPMS
001	TRIP 1	20	1	26	15	15	7
002	DUP 2	20	1	26	15	15	7

CONTINUED OVERLEAF

The above table represents SGS Environmental Services' interpretation of the client-supplied Chain Of Custody document. The numbers shown in the table indicate the number of results requested in each package. Please indicate as soon as possible should your request differ from these details. Testing as per this table shall commence immediately unless the client intervenes with a correction.

CLIENT DETAILS

Client **Geoenvironmental Consultants**

Project **EHP Binary Site, Narangba, Q Event: 10**


SUMMARY OF ANALYSIS

No.	Sample ID	Sample Subcontracted
001	TRIP 1	1
002	DUP 2	1

The above table represents SGS Environmental Services' interpretation of the client-supplied Chain Of Custody document. The numbers shown in the table indicate the number of results requested in each package. Please indicate as soon as possible should your request differ from these details. Testing as per this table shall commence immediately unless the client intervenes with a correction.

**Chain of Custody Form**

No.: **COC5010/7.GW**

<b>From:</b> GeoEnvironmental Consultants P/L 129 Outlook Cres BARDON, QLD 4065 Ph-3367 2266								<b>To:</b> S G S Environmental Services 59 Bancroft Road PINKENBA, QLD 4008 Quotation: 3TSSA4			
<b>Contact:</b> Steve Termont-Schenk / Michael Tisdall				<b>Site Name:</b> EHP Binary Site				<b>Contact:</b> AU.Environmental.Brisbane@sgs.com			
<b>Ph:</b> 0418 883 152 <b>E:</b> tsdownunda@gmail.com 0407 178 802    mtsdall@bigpond.com				<b>Location Code:</b> Naranga, Q Event: 10				<b>Ph:</b> (07)3622 4700 <b>Fax:</b>			
<b>Project Manager:</b> Steve Termont-Schenk				<b>Order No.:</b> 5010/7_GW				<b>Turnaround Time.:</b> 48hr 3day 5day 7day+			
Lab No.	Sample No.	Date Collected	Sample Type		Preservation Method	No. of Containers		Analyses Requested			Comments (specify) or notes
			Soil	Water		Ice	Acid	Glass	Plastic	Phenols	
	TRIP 1	8/05/2014	X	X	None	4	1	X	X	X	
	DUP 2	8/05/2014	X	X		4	1	X	X	X	
<b>Relinquished by:</b> Peter McGurgan 0413 258 403			<b>Date:</b> 12-5-14 <b>Time:</b> 10:25 AM		<b>Couriered by:</b> <i>P McGurgan</i> <b>Dropped Off:</b>		<b>Date:</b> 12-5-14 <b>Time:</b> 10:25 AM		<b>Received by:</b> <i>MS</i>		<b>Date:</b> 12/5/14 <b>Time:</b> 10:25

\* Note: Detection Limits -

SGS Environmental Brisbane Bottle Map

Job No. B5009134

Eskies/Parcels: 1

Ice / Ice bricks 3

Temp: 5.6°C

Head Space: Y / N



Sample No.	P 125mL UP (nutrients)
	P 250 mL UP (Gen Chem)
	P 500 mL UP (Gen Chem)
	P 1L UP (Gen Chem)
<u>1-2</u>	<u>70mL (ALJ)</u> P 125 mL Acid Washed (metals)
	P 125 mL Acid Washed (FIELD FILTERED)
	P 500 mL Zn(CH3COO)2 + NaOH (sulphide)
	P 250 mL H2 SO4 (phenols / COD)
	P 250 mL WHITE NaOH (cyanide)
	P 250 mL WHITE UP (Algae)
	G 2.5 L CuSO4 (Dust)
	G 1L H2SO4 (TOG)
<u>4</u>	G 500 mL UP (organics)
	G100 mL UP (TOC/Organics)
	P 500 mL Sterile Na2S2O3 (bacto)
	P 200 mL Sterile Na2S2O3 (bacto)
	G 200 mL K2Cr2O7 (mercury)
	G 200 mL C6H8O6 (THM)
	G 40 mL Na2S2O3 (TRH/BTEX)
	G 250 mL Jar UP (soil)
<u>2</u>	Sample Matrix
	Lab Bottles Supplied

Comments:

**APPENDIX B**  
**QUALITY ASSURANCE AND**  
**QUALITY CONTROL PROCEDURES**

## APPENDIX B

### Q1 QUALITY ASSURANCE

The following procedures were utilized to ensure the integrity of the data collected during the assessment.

#### Q1.1 Sample Collection and Containers

All samples were collected by a **GeoEnvironmental Consultants** engineer or scientist specifically trained in hazardous waste field investigation techniques and health and safety procedures.

Soil sample collection (if applicable) included:

- Sample collection equipment is inspected by the **GeoEnvironmental Consultants** engineer / scientist prior to commencement of fieldwork to ensure equipment cleanliness and adequacy. Equipment is inspected for oil leaks or other potential sources of cross contamination;
- Soil samples are collected directly from the auger or ground;
- Selection by the engineer/scientist of depth(s) to be sampled;
- Sample handling is conducted in a work area that is wiped clean for each sampling event and kept clear of mess and potential cross contamination sources;
- The engineer/scientist wears a new pair of disposable nitrile gloves for each sample collection event; and
- Immediate transfer of soil by gloved hand and/or decontaminated sampling equipment to pre-labelled, 250 ml laboratory supplied glass jars with Teflon lid inserts. Jars are filled to ensure sufficient sample is provided for laboratory purposes. The container lip is cleaned if necessary before firmly screwing on the container lid. A clean lip is required to ensure that the Teflon lid insert is not damaged and that volatile and semi-volatile compounds do not escape from the container prior to analysis.

Groundwater sample collection included:

- Gauging depth to water (DTW) in each monitoring well prior to development, if developed, using a Depth to Water Gauge with  $\pm 3$ mm accuracy. The probe and tape was decontaminated between gauging events;
- Utilization of one-use, disposable bailers for each individual monitoring well. New bailer cord is used for each well. The disposable bailers were also used for well purging along with a pump on selected wells;
- Sample collection equipment is inspected by the **GeoEnvironmental Consultants** engineer / scientist prior to commencement of fieldwork to ensure equipment cleanliness and adequacy;
- The engineer/scientist wears a new pair of disposable nitrile gloves for each sample collection event;
- Utilization of the same disposable bailer to collect samples for field testing and laboratory analysis; and
- Immediate transfer of water from the bailer to pre-labeled, laboratory supplied glass bottles and vials and plastic bottles, as required for the particular analysis. The containers for laboratory analysis are filled to form a meniscus with no headspace prior to firmly sealing with lids with Teflon inserts.

## **Q1.2 Decontamination**

### Soil Sampling.

All field sampling equipment was decontaminated prior to use and between samples to prevent cross contamination. Equipment included the “split spoon” samplers from the drill rig and trowels, bowls, knives etc used by the engineer/scientist to transfer the sample to containers. Decontamination of equipment involved the following processes:

- Scrub in clean potable water to remove gross contamination;
- Scrub in a solution of Extran MA03, (phosphate free alkaline cleaner) in clean potable and/or deionised water;
- Rinse in clean potable and/or deionised water; and
- Air dry.

Between boreholes the hollow stem augers are removed to a designated cleaning area and all attached soil is removed using a high pressure water spray.

### Groundwater Sampling.

The dedicated disposable bailer in each well was rinsed with demineralized water prior to sampling. For this monitoring event there was no requirement to further decontaminate bailer sampling equipment as the dedicated bailers were used to transfer samples directly into laboratory prepared containers. The pump when used for purging was subject to decontamination procedures.

## **Q1.3 Field Records and Sample Identification**

Good, accurate documentation and record keeping at the time of fieldwork performance is considered critical for project success. Detailed field notes are recorded both on drill log sheets and field note books. Records include but are not limited to:

- Name and address of site;
- Identification of field personnel
- Identification of sampling locations
- Date of sample collection
- Method of sample collection
- Field measurements made e.g. conductivity, pH
- Depth of first groundwater occurrence
- Depth of static groundwater elevation
- Depth to bottom of borehole, screen/casing
- Number and volume of samples collected
- Survey data as applicable

All samples are identified with a unique sample number, the project number and date of collection. Sample identification details are also recorded on the drill log sheets and Chain of Custody documents. Sample containers are placed into zip lock plastic bags or wrapped in plastic to protect the sample label from damage.

## **Q1.4 Sample Transport**

All samples to be transported to the laboratory were packed securely in an Esky containing ice. Samples were transported under Chain of Custody procedures from the site to the laboratory.

Sample receipt advice from the laboratory indicated whether all sample containers arrived intact. The laboratory also advises if there are any irregularities between sample containers / numbers supplied and Chain of Custody requests.

## **Q1.5 Instrument Calibration**

Instruments used to conduct the field investigations and measurements were all calibrated in accordance with the manufacturers recommended procedures.

## **Q2 QUALITY CONTROL**

In order to assess the accuracy and precision of the analytical data obtained, the following quality control samples are collected:

### **Q2.1 Field Duplicates and Triplicates**

Field duplicates are a second sample taken from the same position as the first (or a split sample). One field duplicate is typically collected for each 10 (or fewer) samples. A lesser duplicate to field sample ratio may be acceptable under certain site conditions such as consistent lack of contamination and consistent ground conditions.

The field duplicate is analysed to check for consistency of laboratory performance and the variability of the contaminants in the sample. Field triplicate samples, when collected, are analysed by an alternate laboratory to assess the accuracy and consistency of the primary laboratory. Field duplicate and triplicate results are used to assess the precision of the whole process including sampling, sample preservation and analysis. Two field duplicates were gathered during this monitoring event. DUP1 from well MW19 was analysed by the primary laboratory, ALS and DUP2 from well MW23 was analysed by the alternate laboratory, SGS. A single field triplicate sample, TRIP1 from well MW19 was analysed by the alternate laboratory, SGS.

### **Q2.2 Equipment (Rinsate) Blanks**

Equipment blanks are deionised water solutions that are transported to the site, opened in the field, and poured over or through the sample collection device, collected in a sample container, and returned to the laboratory. Equipment blanks are used to check the cleanliness of the sampling device and to confirm the quality of field decontamination procedures.

One equipment blank is typically collected per sampling day or event. One equipment blank was collected for this monitoring event, Sample No. RIN1 was collected prior to gathering the sample from well Backg'nd and was analysed by the primary laboratory, ALS. All analytical results were less than reportable by the laboratory in Sample No. RIN1 except for copper which was measured at a concentration of 0.006mg/L which exceeds the adopted guideline for copper. The laboratory was requested to check this analysis and they confirmed the result by reanalysis of the sample. This detection indicates that a level of copper contamination may have been present on the dedicated bailer used in well Backg'nd. Review of the copper results from this monitoring event indicate a copper



concentration which was lower than measured in May 2013 and less than the maximum level recorded in the well in May 2012, 0.010mg/L. On the basis of this review we concluded this detection of copper did not have a meaningful impact on the quality of the data received.

### Q2.3 Field Blanks

Field blanks are deionised water that is taken to the sampling site and poured into the sample container prior to sample collection. The sample container remains open throughout the collection of samples and is then sealed and returned to the laboratory with the other samples.

Field blanks are typically collected when requested by the client or when warranted by specific site conditions and/or contaminants of concern. Field blanks perform a similar function to *Trip Blanks*, which are pre-prepared samples used to measure the incidental or accidental contamination of samples by volatile organic compounds (VOCs) during transport, field work and storage. Trip blanks are usually prepared by the laboratory using containers which are filled with VOC free water. These pre-prepared samples are then handled in the same manner as regular VOC sample collection containers.

### Q2.4 Matrix Spike Samples

Matrix spikes are samples prepared in the laboratory by spiking an aliquot of a field sample with known concentrations of specific analytes. The matrix spike is then analysed and the results are used to assess the effects of the sample matrix on the accuracy of the analyses.

Accuracy is assessed by calculation of *percent recovery*, where:

$$\text{Percent recovery (PR)} = X/T \times 100\%$$

Where X = the observed value of measurement  
T = "true" value

ALS specifies acceptable spike recoveries as follows:

- 86 – 127 % for metals.
- 16 – 138 % for OC/OP pesticides.
- 24 – 132 % for phenolics.
- 65 – 147 % for Phenoxyacetic Acid Herbicides.
- 65 – 130 % for Metolachlor and other multi-residue pesticides.

## Q2.5 Laboratory Control samples

Laboratory Control Samples (or Quality Control Check Samples) are samples prepared within the laboratory by spiking an aliquot of an appropriate clean matrix reagent with known concentrations of specific analytes. The check sample is then analysed and the results are used to assess the laboratory performance on sample preservation and analysis procedure.

Accuracy is assessed by calculation of *percent recovery*, where:

$$\text{Percent recovery (PR)} = X/T \times 100\%$$

Where X = the observed value of measurement  
T = "true" value

ALS routinely report these results in the project specific Quality Control Report.

## Q2.6 Relative Percentage Difference (RPD)

The relative percentage difference or RPD of each set of duplicate and triplicate samples is calculated and presented on Table Nos. 2 and 3 to assess overall precision, where:

$$\text{RPD} = \frac{(D1 - D2)}{(D1 + D2)/2} \times 100\%$$

where D1 = Sample concentration  
D2 = Duplicate (or triplicate) sample concentration