

DETAILED SITE INVESTIGATION REPORT

March 2020
J162772

Director of National Parks
Lot 2303 (Treated Effluent Spray
Irrigation Area)

C124546 : NW

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Detailed Site Investigation Report

Director of National Parks

Lot 2303 (Treated Effluent Spray Irrigation Area)

EXECUTIVE SUMMARY

Grencap Pty Ltd was commissioned by Director of National Parks ('the client') to undertake site contamination assessments of 26 commercial and industrial sites within the Northern Territory Township of Jabiru. The assessments were performed on the basis that the sites would continue under their present use and at this time not be redeveloped for other uses. This report presents the observations and findings from investigations performed at Lot 2303, which is a 32.43-hectare vacant site that is irrigated with treated effluent from the sewage ponds located to the south.

The aim of the assessment was to: -

- inform the client of any contamination that may be present at the site;
- provide a prioritised risk assessment for each site based on the potential impact to human health and the environment;
- provide recommendations for future management, remediation or removal works that should be considered as part of the remediation works for the town head lease; and
- provide cost estimates for recommended solutions.

The assessment of asbestos containing materials on the surface or in soils did not form part of the commissioned works performed by Grencap.

The scope of works included a site inspection, a desktop review of existing information, and intrusive investigations comprising sampling from fourteen soil bore locations.

The information available indicated the site has not been used for any industrial activities other than as an effluent spray irrigation area. Potential contaminants identified during the desk top review and site inspection included:

- Spillage and leakage from the ponds.

The soil investigation conducted found that all potential contaminants of concern in the near surface soils were reported below adopted guidelines.

Overall, the risk of significant exposure to future users of the Site (open space and industrial) to the identified chemicals of concern in the soils is considered low, however no assessment of the potential impact of nutrient levels in the soils on the quality of groundwater at the Site has been performed to date.

Further assessment is warranted.

Recommendations for the Site for ongoing similar use are provided in the table below.

Item	No.	Recommendation	Comment
Nutrients in groundwater	1	Given the level of nutrients encountered in the soils at the Site investigate as to whether groundwater has been impacted and is migrating down hydraulic gradient of the Site.	Based on the age of the facility and the impacts measured in soils it is considered necessary to determine if soils have led to an impact in groundwater quality, and in turn has this resulted in the down hydraulic gradient migration of impacted groundwater off site. Based on the findings of these investigations proactive remedial activities through the development and application of a Remedial Action Plan (RAP) may be required to prevent impacted groundwater from reaching potential receptors. If the investigations illustrate that potential receptors are not being impacted, on going monitoring and management of the impacted groundwater plume may be required through the development and application of a Site Management Plan (SMP).

Detailed Site Investigation

Director of National Parks

Lot 2303 (Treated Effluent Spray Irrigation Area)

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1 INTRODUCTION

1.1 Background

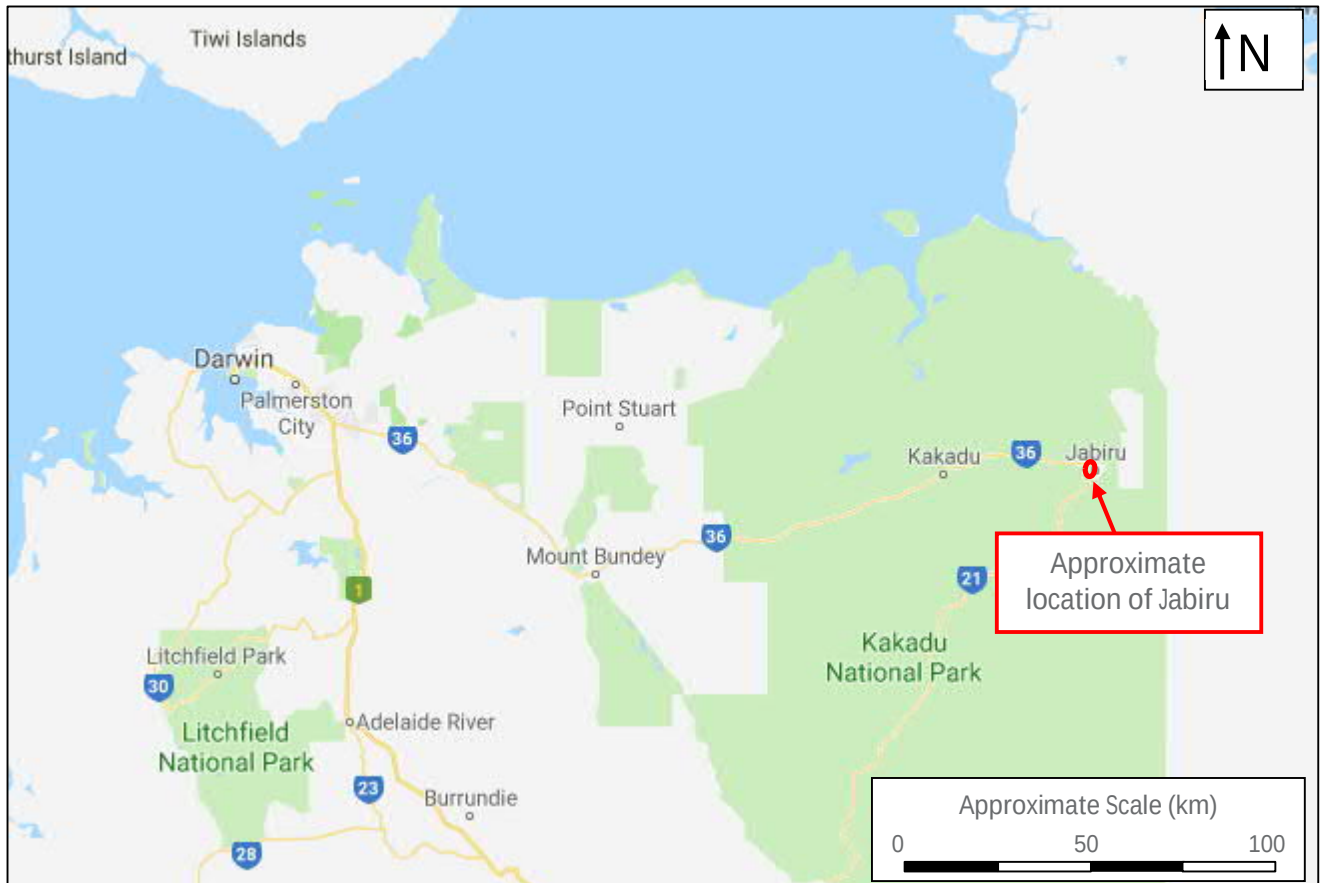
Greencap Pty Ltd (Greencap) was commissioned by Director of National Parks ('the client') to undertake site contamination assessments of 26 commercial and industrial sites within the Northern Territory Township of Jabiru. The assessments were performed on the basis that the sites would continue under their present use and at this time not be redeveloped for other uses.

The sites that have been assessed as part of this project are summarised in the table below, with this report presenting the observations and findings from investigations performed at Lot 2303 in the Jabiru township (the Site).

Table 1: Extent of Assessment at Jabiru

Lot No.	Current Land Use	Address (Suburb of Jabiru)	Area (ha)*	Title (Volume / Folio)	Survey ID	Town Planning Code
979	Transformer	190 Civic Drive	0.002	705 / 739	LTO 89/071	JABSP
2317	Town Camp	54 Lakeside Drive	55.58	705 / 712	LTO82/070A	MZ
890	Swimming Pool	56 Kinchela Road	1.03	705 / 758	LTO82/034A	JABREC
959	Light Industrial Land	8 Gregory Place	0.146	705 / 753	LTO84/105	JABSF
960		8A Gregory Place	0.201	705 / 737		
961		9A Gregory Place	0.0044	705 / 713		
2247	Industrial Land	11 Elsherana Road	0.411	667 / 303	LTO84/045	JABI1
2353	Green Waste Dump	Lot 2353	1.84	826 / 907	LTO2015/100B	MZ
	Go Kart Track		3.75			
	Cnr Leichardt & Civic Rd – Electrical Transformer		5.89			
2201	Electrical Sub-Station	8 Whites Road	0.285	667 / 286	LTO84/045	KABI1
945	Mechanical Workshop	7 Lakeside Drive	0.322	814 / 618	LTO82/036	JABSF
948	Council Municipal Depot	17 Lakeside Drive	3.110	705 / 789	LTO84/042	
2230	Industrial Yard and Workshop	39 Elsherana Road	0.327	667 / 287	LTO84/045	JABI1
2243		29 Elsherana Road	0.270	713 / 466		
2244		23 Elsherana Road	0.506	686 / 839		
2350		23 Whites Road	0.213	814 / 655	LTO2015/053C	
2302	Sewage Ponds	Lot 2302	6.5	705 / 771	LTO84/045	JABSP
2303	Treated Effluent Spray Irrigation Area	Lot 2303	32.43	705 / 746		
956	Maintenance Depot	39 Lakeside Drive	6.52	667 / 124	LTO84/106B	JABFU
2100	Water Pump Station	Lot 2100	3.5	705 / 786	LTO84/044	
2232 & 2233	Concrete Batch Plant	47-51 Elsherana Road	0.675	760 / 466 & 667 / 289	LTO84/045	JABI1
2321	Diesel Generators for Sewage Pump Station	33 Jabiru Crescent	0.2	705 / 732	LTO83/034B	JABO
931	Fire Station	1 Gregory Place	0.131	667 / 71	LTO84/042	JABSF
944	Service Station	1 Lakeside Drive	0.292	758 / 441	LTO82/036	
2352	Landfill	147 Elsherana Road	2.640	826 / 908	LTO2015/100C	JABSP

Jabiru is approximately 250 km east of Darwin within Kakadu National Park. The location of Jabiru is presented in Figure 1.



Source: <http://maps.sa.gov.au> (September 2019)

Figure 1: Locality Plan

The proposed environmental investigations presented in this document are intended to satisfy the requirements of key stakeholders to aid planning for the transition in tenure arrangement associated with the current lease from the Director of National Parks (i.e. Park Australia) to the Northern Territory Government's Jabiru Town Development Authority (JTDA). Information provided to Greencap indicates that the existing lease is due to expire in June 2021 and new leasing arrangements between the traditional owners and the Commonwealth Government will be negotiated before this end date.

The aim of the assessment was to: -

- inform the client of any contamination that may be present at the Site;
- provide a prioritised risk assessment for each site based on the potential impact to human health and the environment;
- provide recommendations for future management, remediation or removal works that should be considered as part of the remediation works for the town head lease; and,
- provide cost estimates for recommended solutions.

The assessment of asbestos containing materials on the surface or in soils did not form part of the commissioned works performed by Greencap.

1.2 Scope

This DSI has been prepared with reference to industry standards and guidelines including:

- National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013);
- Australian Standard AS 4482.1-2005 “Guide to the sampling and investigation of potentially contaminated soil. Part 1: Non-volatile and semi-volatile compounds”; and,
- Australian Standard AS 4482.1-2005 “Guide to the sampling and investigation of potentially contaminated soil. Part 2: Volatile substances”.

This investigation was undertaken in accordance with the proposed work outlined in Greencap’s Sampling, Analytical and Quality Plan (SAQP) prepared by Greencap in September 2019 for the Township of Jabiru, and has included:

- Review of previous environmental reports prepared for the Site and surrounds;
- A site inspection and clearance of below ground services at nominated test locations;
- The identification of potential contaminants associated with current and past activities on the Site;
- Soil logging and sample collection from 14 soil bores;
- Laboratory analysis of selected soil samples; and,
- The preparation of this report, documenting the findings of the sampling program, conclusions and recommendations, if required.

2 SITE DETAILS

2.1 Site Identification

The Site details are presented in Table 2, and the Site location and boundary are presented in Figure 2 and Figure 6 respectively. A survey plan with boundary coordinates and council zoning plans are included in Appendix A.

Table 2: Site Details

Category	Details
Current Land Use	Treated Effluent Spray Irrigation Area
Address	Lot 2303
Title (Volume/Folio)	705 / 746
Lot Number	2303
Survey ID	LTO84/045
Town Planning Code	JABSP
Area (ha)	32.43

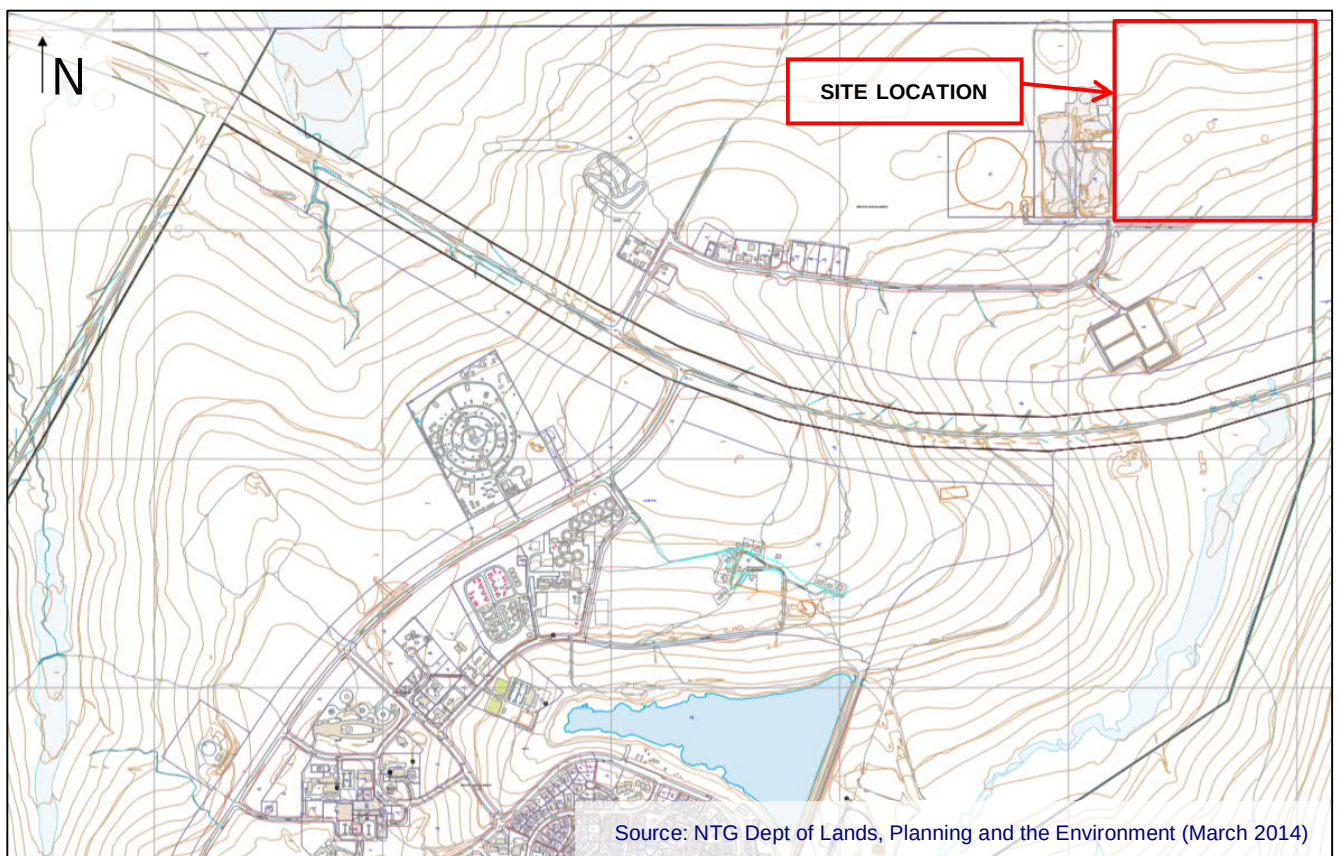


Figure 2: Site Location Plan

2.2 Geology and Hydrogeology

Geology

Jabiru is underlain by rock of Archaean age, as presented in Figure 3. The Archaean rocks are represented by granites, gneisses and schists. The Archaean inliers at Jabiru are located within Palaeo–Mesoproterozoic Pine Creek orogen (PCO). Rocks in the PCO include sandstone, shale, mudstone and carbonate rocks (Ahmad and McCready 2001, Worden et al 2008b).

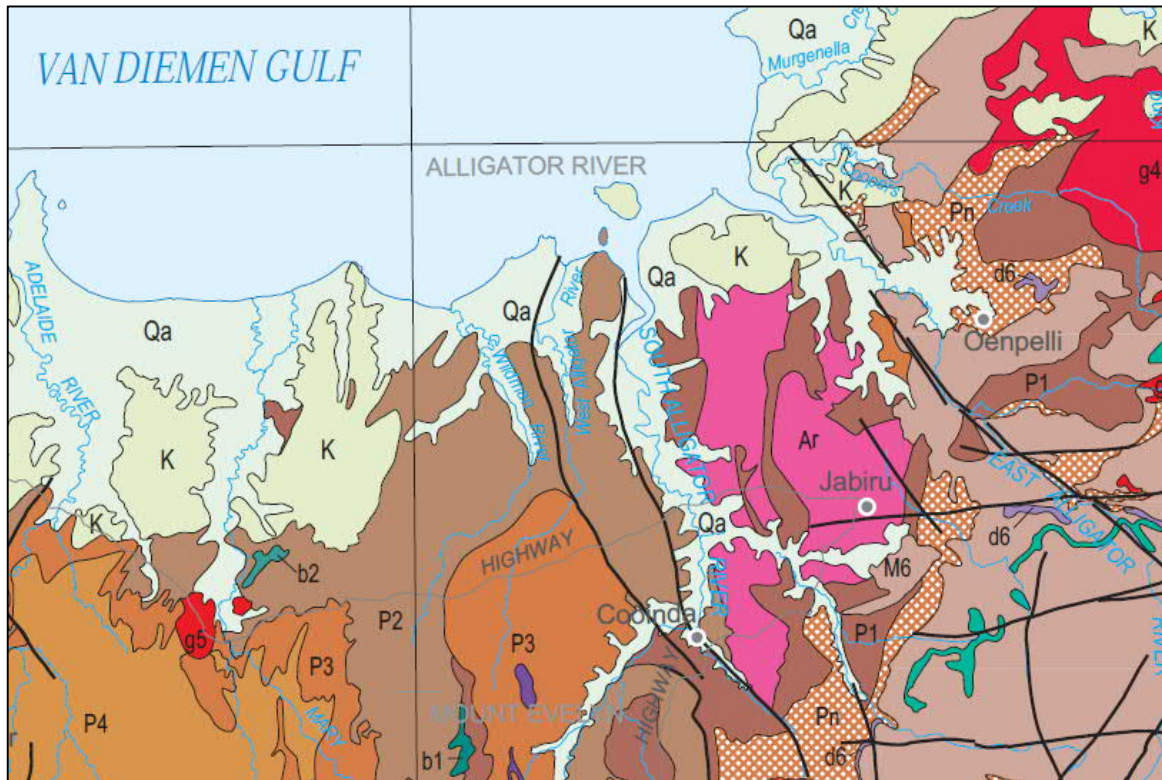


Figure 3: Northern Territory 2,500K Geological Map

Overlaying the basement rocks is Cainozoic regolith consisting of unconsolidated sand: ferruginous and clayey sand and nodular, concretionary, pisolitic and vermicular mottled laterite, in situ and reworked remnants of standard laterite profile, (1:100,000 Geological Series Cahill, Northern Territory, 1981).

Hydrology

Jabiru is located within the Magela Creek catchment as presented in Figure 4¹. The primary surface water bodies at Jabiru are the Jabiru Lake, Magela Creek and Baralil Creek.

Jabiru Lake is a dam feature which retains storm water runoff from town roads and reduces discharge of urban runoff into Magela Creek (Dept of Environment and Energy, Chapter 5). It is the policy of the Jabiru Town Council not to fertilise parklands abutting the lake.

Baralil Creek is relatively shallow tributary of Magela creek and acts as a surface water discharge point. The creek wraps around the southern and eastern boundary of Jabiru and flows in a northerly direction towards the Magela Creek. Magela Creek is the main water surface body which discharges into the East Alligator River.

¹ Wasson R and Bayliss P, CSIRO Oceans & Atmosphere BU, Brisbane, Australia., "River flow and climate in the 'Top End' of Australia for the last 1000 years, and the Asian- Australian monsoon"

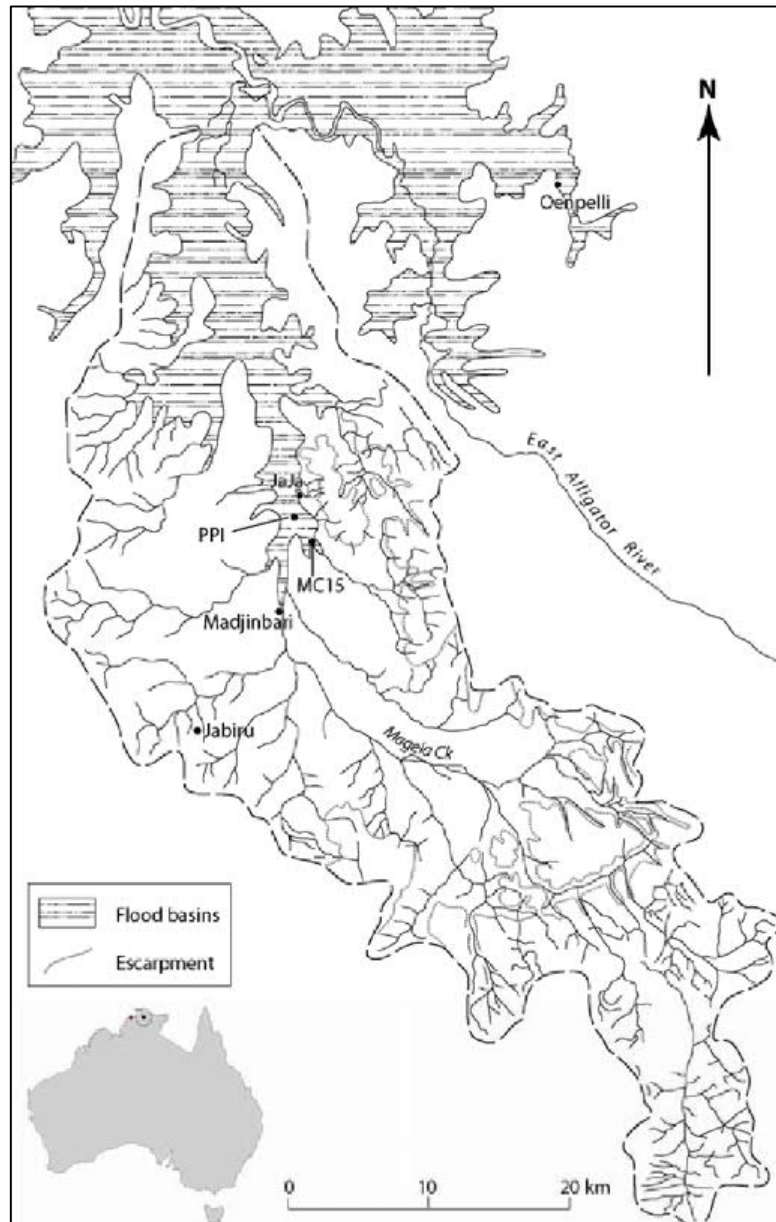


Figure 4: Map of the Magela Creek catchment

Hydrogeology

Groundwater aquifers in the vicinity of Jabiru are presented in Figure 5², groundwater quality is expected to be as follows:

- Groundwater is fresh and potable with total dissolved solids (TDS) ranging from 0 to 500 mg/L;
- The aquifer is located in typically fractured and weathered rocks with minor groundwater resources and a low yield; and,
- The aquifer is a local scale aquifer i.e. groundwater flows through the aquifer less than 5 km from recharge to discharge point.

² Tickell SJ, 2013, "The Groundwater of the Northern Territory"

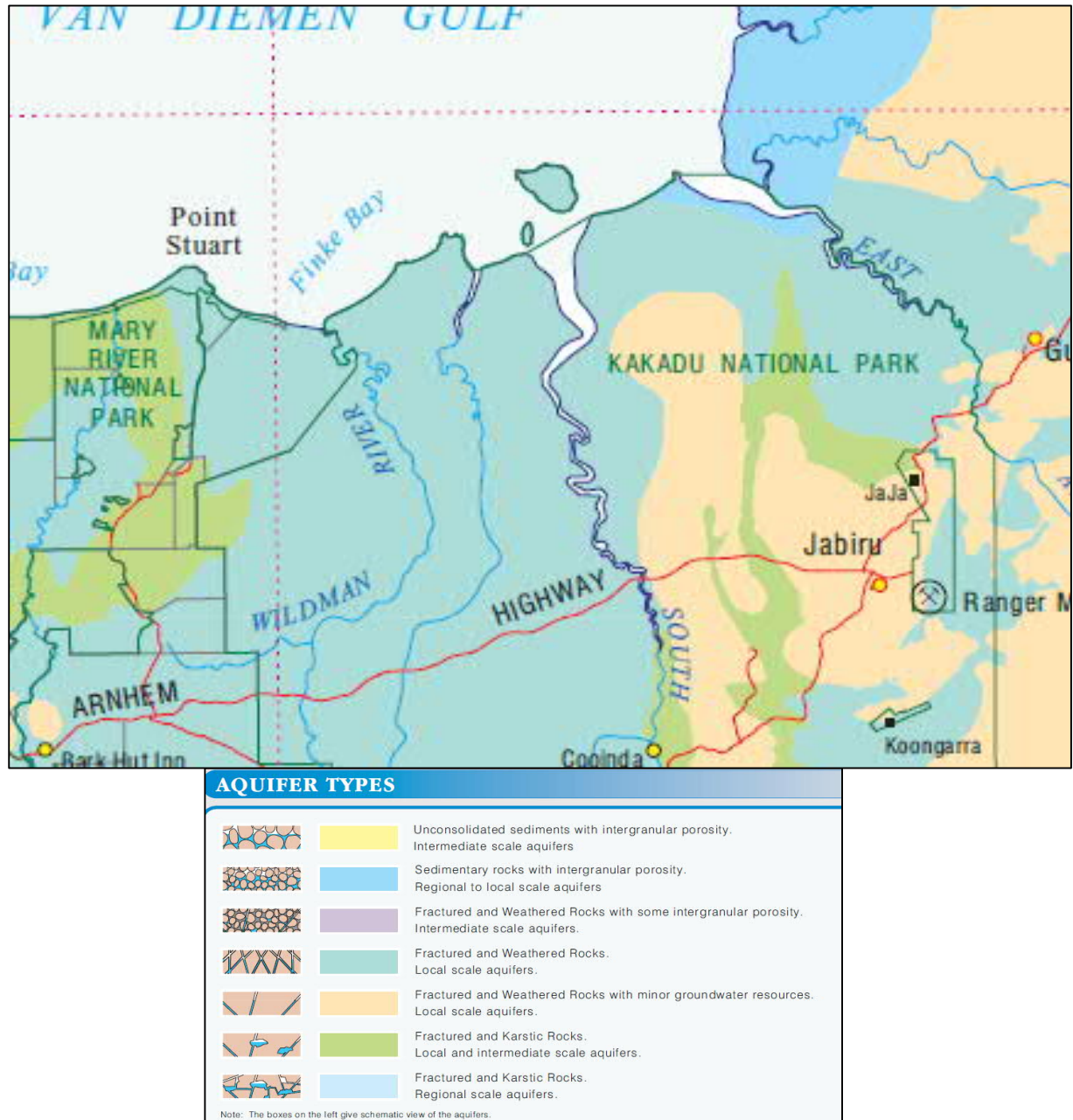


Figure 5: Groundwater of the Northern Territory

From a regional perspective, aquifers at Jabiru include a shallow aquifer within unconsolidated soils, or a deeper aquifer in weathered bedrock material within fractured rock (Dept of Environment and Energy, Chapter 8).

The recharge of the uppermost aquifer in the area likely occurs as a result of seasonal rainwater infiltration. Groundwater from shallow aquifers generally maintain flows in Magela Creek particularly during the wet season. Evapotranspiration likely causes a rapid decline in water level of the shallow aquifer during dry season.

Groundwater is used for the town water supply. The potable water is supplied from town bores approximately 20 km from Jabiru along the Arnhem Highway, outside the catchment of Magela Creek. Additionally, there are bores within the townsite that are used for non-domestic purposes.

Groundwater quality of the shallow aquifer at Jabiru is expected to be as follows:

- Groundwater is fresh and potable with total dissolved solids (TDS) ranging from 0 to 500 mg/L;

- The aquifer is located in typically fractured and weathered rocks with minor groundwater resources and a low yield; and,
- The aquifer is a local scale aquifer i.e. groundwater flows through the aquifer less than 5 km from recharge to discharge point.

2.3 Physical Setting

The Site is located in the northern outskirts of the Jabiru Township, to the north of Arnhem Highway. The Site has an elevation between 16 and 26 m AHD, and the Site and surrounding area have a gentle slope down to the south.

The nearby significant features in the area of the Site include:

- Jabiru Lake, approximately 1.6 km to the south west; and,
- Ranger Uranium Mine, approximately 5 km to the East.

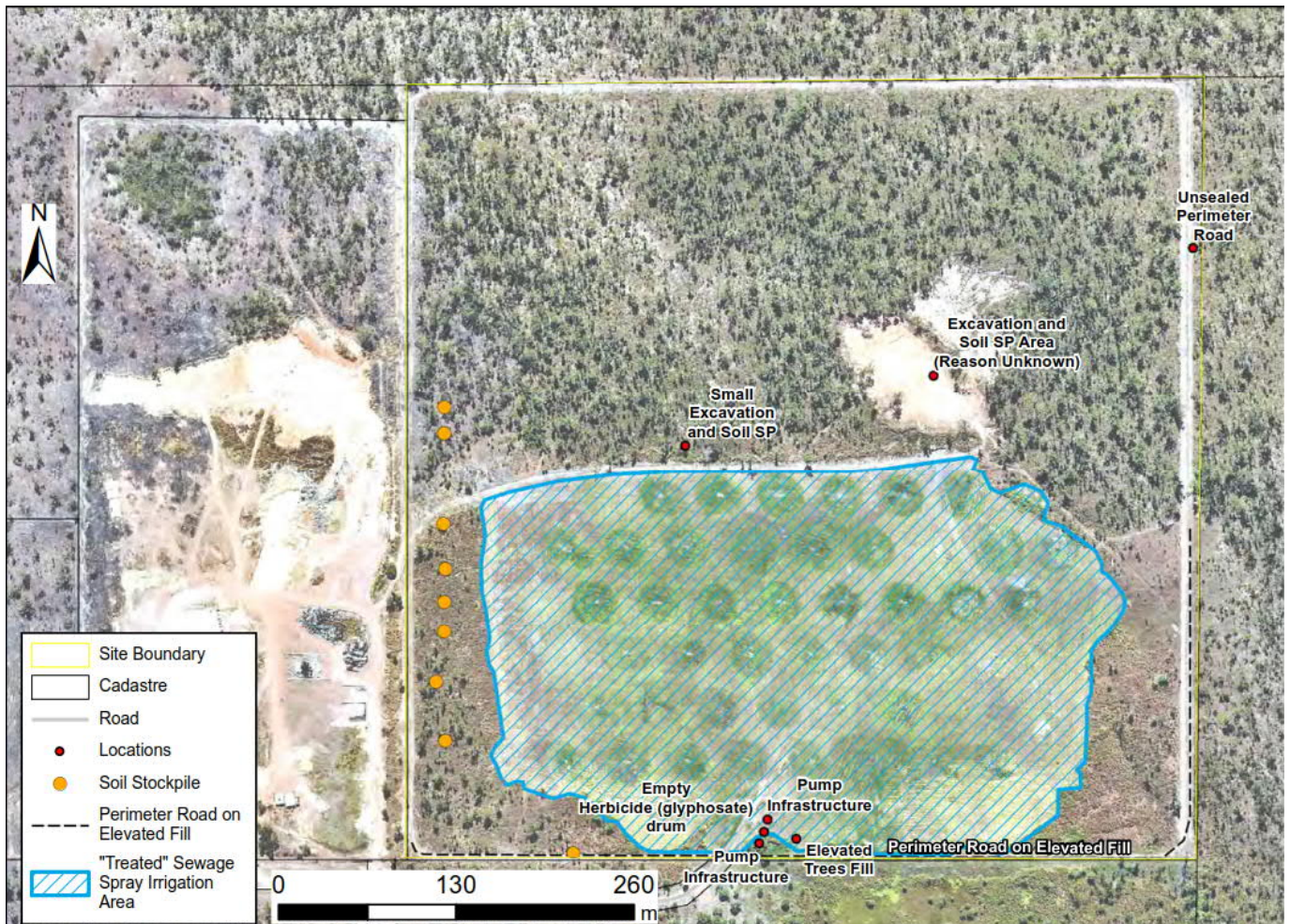
The nearest significant permanent water bodies to Jabiru include:

- Magella Creek, approximately 28 km north east;
- South Alligator River, approximately 35 km west; and,
- The Van Diemen Gulf approximately 69 km north west.

In addition, ephemeral unlined creeks are located within the western, southern and eastern portions of the township, the nearest of which is located approximately 200 metres to the south east of the Site.

2.4 Site Current Land Use

The Site area is approximately 32.43 hectares and comprises vacant land, approximately half of which has been cleared of trees and bushes, with the other half covered with native vegetation. The cleared grassed area has numerous sprinklers installed across it for regular discharge of wastewater from Lot 2302, the sewage treatment ponds. There is also an excavation/soil stockpile area in the northern portion of the Site and some pumping infrastructure near the southern boundary, adjacent the Site entrance. An aerial photo showing the Site features is presented in Figure 6.



Imagery (August 2019), cadastre and roads © Northern Territory of Australia 2019

All locations approximate and subject to survey

Figure 6: Site Boundary and Features

2.5 Surrounding Land Use

The Site is surrounded by vacant native bushland to the north, east and south. A landfill facility is located to the west.

2.6 Site Inspection for Contamination Indicators by Greencap

An experienced Greencap environmental scientist inspected the Site on 10 September 2019. The objectives of the inspection were to locate and identify:

- Potential sources of contamination at the Site in the form of structures and storage areas including underground tanks, waste pits, hazardous materials storage, electrical transformers and hydraulic equipment; and,
- Visual contamination indicators such as disturbed vegetation, discolouration, oily or disturbed soil and the presence of any odours.

The following potential sources of indicators of contamination were noted during the inspection:

- Wastewater from Lot 2302 discharged via sprinklers across the southern portion of the Site;
- An empty drum of herbicide located adjacent the pumping infrastructure near the southern boundary of the Site;

- A small area of ground surface covered in white flakes and small bones adjacent the pumping infrastructure; and
- Numerous stockpiles of soil, the majority of which are along the western boundary of the Site.

Photos of the Site are presented below.



Photograph 1: View east across the Site and turfed spray discharge area (panoramic)



Photograph 2: View north across the Site towards spray discharge area (panoramic)



Photograph 3: Excavation/soil stockpile area in northern portion of Site (panoramic)



Photograph 4: Empty drum of herbicide and small area of ground surface covered in white flakes and small bones adjacent pump infrastructure



Photograph 5: Ground surface covered in white flakes and small bones adjacent pump infrastructure



Photograph 6: Stockpiles of soil adjacent western boundary of Site

2.7 Proposed Future Land Use

The Site is currently zoned Utilities (per Jabiru Town Plan 2019, Appendix A).

No specific proposed development exists for the Site, and the Site lies outside of the Town Footprint area of the 2018-2028 Jabiru Masterplan (ref: Gundjeihmi Aboriginal Corporation).

3.1 Jabiru Contamination Assessment, GHD, September 2017

The investigation comprised a desktop review of relevant reports, historic aerial photographs and relevant records pertaining to the contamination status of Jabiru, interviews with key stakeholders and long-term residents, and a site inspection. No intrusive investigations were carried out as part of this investigation.

A total of 25 sites were assessed and contaminants of potential concern (COPC) associated with their uses were identified. For each site a risk rating (low, medium, high and very high) was determined through the evaluation of the likelihood and consequence of the associated contamination, and these rating have been provided in the table below. Of the 25 sites assessed by GHD, 21 have been included in the November 2019 Greencap investigation.

Lot No.	Land Use	Likelihood of contamination	Likely consequence of contamination	Risk Ranking
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]		[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]		[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]		[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]		[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]		[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
2303	Treated Effluent Spray Irrigation Area	Possible	Moderate	Medium
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

Lot No.	Land Use	Likelihood of contamination	Likely consequence of contamination	Risk Ranking
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

As part of the GHD review, Lot 2303 was given a 'Medium risk' ranking, with potential contaminants of concern identified to be; heavy metals, pathogens, nitrates, hydrocarbons, phenols, volatile organic compounds and semi volatile organic compounds. Key points noted by GHD in their investigation included: -

- Contaminants associated with sewage may be present where the nearby sewage treatment facilities have failed; and,
- The Site lies downgradient of a surface leachate pond associated with the landfill. Any flooding of this pond may result in surface water entering the Site from the landfill area.

3.2 Future of Jabiru Infrastructure, GHD, October 2017

In October 2017, GHD conducted a Future of Jabiru Infrastructure and Contaminated Sites Assessment. The purpose of the assessment was to inform the future state scenarios for Jabiru following the cessation of mining operations proposed to occur on or before 8 January 2021. The assessment comprised the following:

- A review of infrastructure (water, sewage, power distribution, roads, footpaths, drainage, housing and commercial and public buildings) status;
- Assessment of the airstrip and power station; and,
- Verification of the Jabiru Town Development Authority sublease register.

[REDACTED]

None of the findings in this report were relevant to Lot 2303.

4 POTENTIAL CONTAMINANTS OF CONCERN

4.1 Potentially Contaminating Activities

The review of the previous assessment works undertaken at the Site (as detailed in Section 3) and Greencap's site inspection (Section 2) has identified some potentially contaminating activities (PCAs). The details of each of the PCAs, contaminant persistence / mobility and commentary about the identified PCA are presented in Table 4.

Table 4: PCAs and related associated contaminants of concern

PCA and likely location	Contaminants of Potential Concern	Persistence / mobility in soils	Comments
Heavy metals, hydrocarbons, nutrients and bacteria associated with sewage. Use of pesticides and broadleaf herbicides associated with general weed control across the unsealed areas of the Site.	TRH, phenols, heavy metals, hydrocarbons, nutrients, pesticides herbicides	- Heavy metals – Mobility = low, persistence = high - Nutrients – Mobility = high, persistence = moderate - TRH – Mobility = moderate, persistence = moderate - Phenols – Mobility = low, persistence = moderate. - Pesticides - Mobility = low to moderate, persistence = moderate to high - Herbicides – Mobility = low to moderate, persistence = low to moderate	Potential impacts where sewage treatment prior to discharge has been ineffective. Accumulation of contaminants from ongoing application over the same area. Use of general pesticides / herbicides may have been previously undertaken across the Site. Impacts are likely limited to near surface soils.

NOTES:-

TRH = total recoverable hydrocarbons

5 DATA QUALITY OBJECTIVES

The following sections provide an overview of the data quality objectives (DQO) used to define the type, quantity and quality of data needed to make decisions relating to the environmental conditions of a site. The process for developing the project specific DQOs is described in the following sections.

5.1 State the Problem

The history of land use at the sites suggests that there are some potential sources of site contamination and PCAs that warrant further investigation. Soil underlying the sites may have been contaminated as a result of historical and current site activities. Site contamination assessments to assess any actual impact are considered required.

5.2 Identify the Decision

Will site contamination issues need to be factored into any site rehabilitation works possibly earmarked in the future.

5.3 Identify Inputs to the Decision

Sampling of soil will be conducted to assess the environmental condition of the Site and surrounds. If screening levels are exceeded or indicators of soil vapour contamination are identified, soil vapour sampling may be recommended to determine whether an unacceptable risk to human health exists.

The investigation program used a risk-based approach, with systematic grid-based sampling and required analysis, to characterise conditions across the Site. Environmental data will be assessed against open space criteria (NEPM C) and commercial industrial criteria (NEPM D) in line with the current and potential future uses of the Site. The assessment criteria for the relevant media are discussed further in Section 6.4.

5.4 Define the Study Boundaries

With reference to Appendix B of the ASC NEPM Schedule B(2), to define the boundaries of the study area, the spatial and temporal aspects of the environmental media need to be defined, as follows:

- A plan showing the geographical extent of the proposed investigation is presented in Appendix A;
- The spatial extent of the investigation is the Site boundary (Volume 705 / Folio 746), consistent with the boundary on the survey plan presented in Appendix A;
- The Site was not be split into segments for the investigation and the work covers the entire site area, as defined above; and,
- Initial soil data collection was limited to near surface materials. If any contamination indicators are noted during the investigation, additional data collection from deeper soils will be undertaken.

5.5 Develop a Decision Rule

If field observations and or soil data indicate the presence of site contamination that is determined to pose an unacceptable risk to the environment or human health, then remediation and / or management of those areas may need to be established with respect to potential future land uses. This may prompt further site-specific investigation, including the delineation of any impacts that are identified.

5.6 Specify Limits on Decision Errors

Data quality indicators (DQIs) of completeness, comparability, representativeness, precision and accuracy as presented in the NEPM are to be used to evaluate data acceptability. Decision error limits that the data will satisfy the DQIs and subsequent decisions of site suitability as acceptable when it is in fact not compliant would be 5% i.e. tolerable limits of 95% confidence.

If statistical analysis is undertaken it will be assessed with consideration to the limits outlined in Schedule B7 of the NEPM.

5.7 Optimise the Design for Obtaining Data

The investigation program includes a grid-based and targeted soil sampling program. The sampling density is below the minimum number of sampling locations suggested in Australian Standard AS4482.1 (Guide to the investigation and sampling of sites with potentially contaminated soil), however the application of treated sewerage is extensive and homogenous in nature. The limited number of samples is considered sufficient based on the lack of potential contamination sources potentially existing on the Site, as identified in both the GHD 2017 investigation, and the Site walkover conducted by Greencap.

Overall, the sampling density was considered appropriate in order to obtain sufficient information to inform the likely considerations required for site rehabilitation works with respect to site contamination.

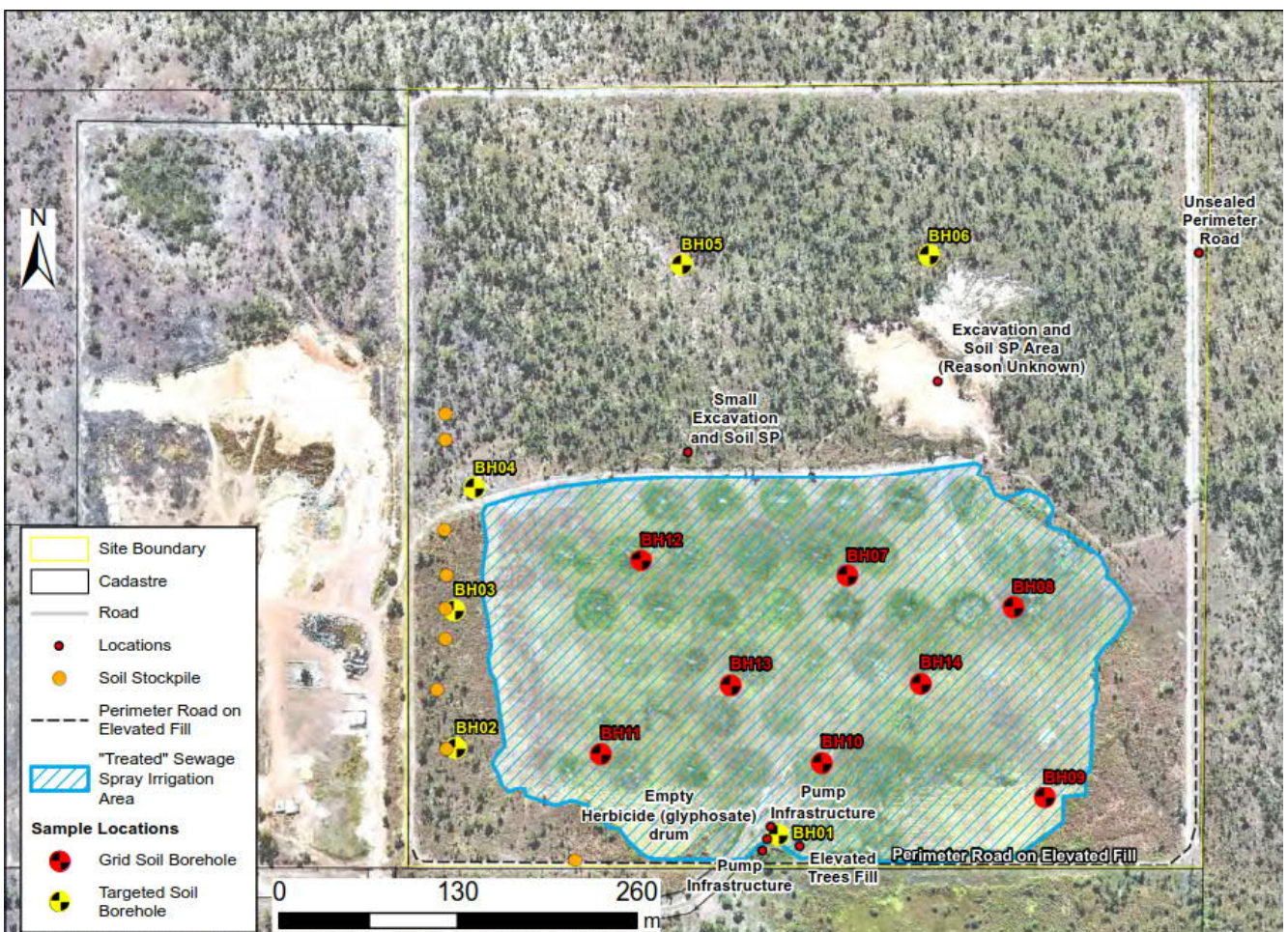
6 SOIL INVESTIGATION

6.1 Sampling Plan and Rationale

An intrusive soil investigation was undertaken by Greencap in October 2019, under the supervision of an experienced environmental field scientist. The investigation locations are shown in Figure 7 and a summary of the recent soil investigation types, locations and rationale is presented in Table 5.

Table 5: Soil investigation location and rationale

Type	No.	Max. Depth	Location IDs	Rationale
Grid-based soil bores	8	0.5m	BH07, BH08, BH09, BH10, BH11, BH12, BH13, BH14	Grid based testing to assess potential impacts that may be present.
Targeted soil bores	6	0.6m	BH01, BH02, BH03, BH04, BH05, BH06	Target based testing at soil stockpiles and northern native vegetation site area



Imagery (August 2019), cadastre and roads © Northern Territory of Australia 2019

All locations approximate and subject to survey

Figure 7: Soil Test Locations

6.2 Soil Sampling Methodology

The soil investigation comprised the following works to obtain environmental data for the Site:

- Using manual (hand auger) to collect soil samples at the Site;
- Surface samples were collected at each soil borehole location. The depth of sub-surface sampling at each soil borehole location was dependent on the relevant site COPCs, as detailed in Section 4.1;
- All samples were collected immediately following drilling and logged by an experienced environmental scientist;
- The sampler wore a clean pair of nitrile disposable gloves to collect each sample;
- All sampling equipment (i.e. hand auger) was decontaminated using phosphate free detergent, followed by rinsing in clean tap water and a final rinse in deionised water;
- Representative soil samples were collected at regular depth intervals from the soil boreholes (surface and half a metre), with additional samples collected where there was a change in lithology or indications of contamination such as discolouration, odour and or inclusions and at the top of natural soils. Soil samples were placed into Teflon sealed glass jars supplied by the laboratory with minimal headspace;
- Field screening was conducted for volatile compounds using a photo-ionisation detector (PID) with a 10.6 eV ultraviolet lamp;
- Soil samples were stored in a chilled portable esky and transported to the analytical laboratory with chain of custody documentation. All laboratories used were accredited with the National Association of Testing Authorities (NATA); and,
- Quality Assurance / Quality Control (QA/QC) sampling comprised intra and inter-laboratory duplicates samples collected as detailed in Section 7 (QA/QC).

6.3 Soil Analytical Program

Selected samples were analysed for potential contaminants of concern. The laboratories used for the soil investigation were Eurofins-mgt (primary laboratory) and ALS Laboratory Group (ALS) (secondary laboratory). Both laboratories are NATA approved with the analyses conducted within their NATA registration.

A summary of the analytical program is presented in Table 6. Results of the soil analyses are summarised in Section 6.5. Tables summarising analytical results are presented as an attachment to this report with laboratory certificates included in Appendix B. Field duplicate and blank samples were also collected during the soil investigation. A discussion of the QA/QC procedures undertaken is presented in Section 7.

Table 6: Soil Analytical Program Summary

Soil Type	Analytes					
	Hydrocarbons	Phenols	Heavy Metals	OC/OP Pesticides	Herbicides	Nutrients
Surface soil (natural)	3	10	14	13/10	11	10
Underlying natural soils	0	0	2	0	2	0
Totals	3	10	16	13	13	10

NOTES:-

NEPM screen for soil classification collected from adjoining Go-kart site

Hydrocarbons = TRH/BTEXN and PAH's

Heavy metals = arsenic, boron, beryllium, cobalt, cadmium, chromium (hexavalent), copper, iron, lead, manganese, mercury, nickel, selenium and zinc

OCP = organochlorine pesticides/ OPP = organophosphorus pesticides

6.4 Assessment Criteria/Investigation Levels

Soil concentrations have been compared with criteria specified in the NEPM. The following investigation exposure settings were considered relevant to the Site: -

- Ecological Investigation Levels (EILs) for urban residential and public open space;
- EILs for commercial and industrial land use;
- Health Investigation Levels (HILs) for public open space (HIL C); and,
- HILs for commercial and industrial use (HIL D).

6.4.1 Site Specific EILs

Site specific EILs were determined for some chemicals (as outlined in the NEPM) based on the proposed commercial land use and the following rationale:

- Pursuant to Section 2.5.8 of Schedule B1 of the NEPM, the Added Contaminant Limit (ACL) is based on soil characteristics including pH, cation exchange capacity (CEC) and clay content. Empirical relationships that can model the effect of these soil properties on toxicity are used to develop soil specific values. These soil specific values consider the biological availability of the element in various soils;
- Summing the calculated ambient background concentrations (ABC) with the ACL concentrations reported at the Site (i.e. $EIL = ABC + ACL$). For this report, ambient background concentrations of 0mg/kg were selected as a conservative approach; and,
- Calculating ACLs was based on using the data collected at the go kart track on Lot 2353. The lowest reported pH values (5.5), cation exchange capacity values (0.55 meq/100g), were used based on the soil analysis carried out at the nearby site of Lot 2353 Go Kart Track. Aged contaminants have been applied (where applicable) as subsurface soils across the Site are likely to be at least 2 years old.

The ACL values were calculated using the ASC NEPM Toolbox spreadsheet and are presented in Table 7.

Table 7: Calculated EILs

Chemical	EIL – Urban residential and Open Public Space (mg/kg)	EIL – Commercial and industrial (mg/kg)
Arsenic	100	160
Copper	60	85
DDT	180	640
Lead	1,100	1,800
Naphthalene	170	370
Nickel	15	20
Zinc	180	240

6.5 Soil Investigation Results

6.5.1 Subsurface Conditions

At the time of the intrusive soil investigation, there were no buildings or surface structures evident on the Site. Soils across the Site comprised brownish grey gravelly silty sands. Bore logs are provided in Appendix A.

6.5.2 Field Screening of Volatile Organic Compounds

Selected samples were screened for volatile organic compounds (VOCs) in the field using a photoionisation detector (PID) that was calibrated prior to use (Appendix D). Samples were placed in sealable plastic bags, agitated, and then a headspace reading taken using the PID. All PID readings were generally below 2 parts per million (ppm). The reported readings are representative of background conditions (i.e. negligible levels of volatiles). PID readings are recorded on the soil bore logs presented in Appendix C.

6.5.3 Laboratory Testing Results

Results of the soil investigation analytical testing are summarised in the Soil Investigation tables presented as attachments to this report. The NATA laboratory certificates are contained in Appendix B.

Nutrient concentrations were variable with Total N ranging from 460 mg/kg to 2,000 mg/kg within the spray discharge area however two location BH05 and BH06 outside of the spray area contained Total N at ~700 mg/kg some 200 m north of the discharge area. Ammonia was observed at <13 mg/kg with nitrate mostly below the LOR of 5 mg/kg. Phosphorous showed the same variability as nitrogen, being lowest outside the irrigation area.

All chemical test results were below the adopted guidelines. Results are summarised in a table at the end of the report.

7 QUALITY ASSURANCE / QUALITY CONTROL

Quality Assurance and Quality Control (QA/QC) measures for this investigation included:-

- appropriate sample labelling, preservation, storage and transport under chain of custody procedures;
- collection and analyses of field QA/QC samples including an inter laboratory duplicate sample;
- laboratory analyses conducted within appropriate holding times;
- use of laboratories that hold NATA accreditation for the analyses undertaken; and,
- analysis of laboratory QA/QC samples including matrix spikes, matrix spike duplicates, and surrogates.

The following sections detail the QA/QC analyses and consider the analytical data quality.

7.1 Internal Laboratory QA/QC

The results of the internal quality assurance programs of the laboratory are presented with the NATA test certificates in Appendix B. Appropriate internal QA/QC were reported by both laboratories as follows:

- Accuracy (laboratory spike and surrogate recovery samples) generally within 70% to 130% recovery;
- Precision (measured by duplicate analysis) generally within 30% relative percentage difference; and
- Minimum 95% completeness (measured by total number of analyses within acceptable limits).

7.2 Field Duplicate – Soil Analyses

Field duplicate samples were collected and analysed at the primary and secondary laboratories. Field duplicate testing and frequency related to the soil investigation is summarised in Table 8 and

Table 9.

Table 8: Soil Duplicate Analyses

Date	Primary ID	Intra laboratory ID	Inter laboratory ID	Duplicate Analysis
18/10/19	BH02_0.0-0.1	2303 QA01	2303 QA02	Hydrocarbons, OCP, Metals
18/10/19	BH12_0.0-0.1	2303 QA03		Herbicides, Nutrients, Metals, OCP, OPP, Phenols
18/10/19	BH12_0.1-0.1		2303 QA04	Phenols

Table 9: Soil Duplicate Frequency

Location	HC	Phenols	Metals	OCP	OPP	Herbicides	Nutrients
Total Number of Analyses	3	10	16	13	10	13	10
Duplicate Analyses – Primary Laboratory	1	1	2	2	1	1	1
Duplicate Analyses – Secondary Laboratory	1	1	1	1	0	0	0
Duplicate Frequency Primary – 1 per:	3	10	8	6.5	10	13	10
Duplicate Frequency Secondary – 1 per:	3	10	16	13	0	0	0

NOTES:

HC – Hydrocarbons = TRH, PAHs and BTEXN

OCP - organochlorine pesticides

OPP –organophosphorous pesticides

The frequency of intra-laboratory and inter-laboratory soil duplicate analyses for the main contaminants of concern is within the frequency suggested in AS4482.1-2005 of 1 per 20 analyses (5%). Nutrients and metals were inadvertently not subject to interlaboratory analysis at ALS.

Relative percentage difference (RPD) calculations from inter and intra laboratory duplicate soil analyses were generally within acceptable levels, with no RPDs outside the required ranges.

7.3 Blanks

Rinsate blank, trip blank and field blank samples were collected during the soil investigation works and analysed at the primary laboratory. Rinsate samples were collected from decontaminated sampling equipment each day (hand auger) of drilling or sampling works, while trip blank samples were used at a rate of 1 per batch of samples to assess potential for cross contamination during shipping and laboratory sources of contamination. A field blank was also collected at the rate of one per day of sampling to identify effects of ambient conditions during sampling and laboratory sources of contamination. A summary of the blank samples tested is summarised in Table 10. The laboratory certificate of analysis is included in Appendix B.

Table 10: Blank Sample Analyses

Date	Work Conducted	Sample Blanks	Analyses
15/10/2019	Hand Augering	Rinse – RB04 Trip – TB04 Field – FB04	Rinse – Metals Trip – BTEXN/C6-C10 Field - Metals

All reported concentrations, see the table at the end of this report, were below laboratory reporting limits indicating that decontamination procedures were acceptable, cross contamination between samples and sampling equipment did not occur and there was no introduction of volatiles into the samples during transport.

7.4 Data Quality Conclusions

Overall, the internal procedures reported by the laboratories and the quality of the field QA/QC analyses indicate the analytical data is of acceptable quality for the purposes of this investigation.

8 CONCLUSION

Greencap performed a detailed site investigation of Lot 2303, Jabiru. The intrusive investigation assessed the contamination status of the site to enable an assessment of whether site contamination issues need to be factored into any site rehabilitation works that may occur on the site in the future. The assessment was performed on the basis that the Site would continue under its present use and at this time not be redeveloped for other uses.

8.1 Site history & Site conditions

The information available indicated the Site has not been used for any industrial use, and there is no evidence that suggests buildings or structures have existed on the Site. Potential contaminants identified during the desk top review and site inspection included:

- Nutrients, phenols and metals from the application of treated wastewater; and,
- Use of pesticides and broadleaf herbicides associated with general weed control across the Site.

The main contaminants of concern associated with the above sources of site contamination were identified to include (but not necessarily limited to) hydrocarbons, phenols, nutrients, heavy metals, herbicides and pesticides.

No contamination indicators were noted during an inspection of the Site.

8.2 Soil investigation

The soil investigation comprised the drilling, collection, and chemical analysis of samples from eight grid-based and six targeted soil bores. Soils across the Site comprised in general of brownish grey gravelly silty sands.

No odours or staining were recorded during the soil investigation.

The reported concentrations of analytes were below the adopted ecological and health-based criteria used for the assessment of the Site, however nutrient concentrations were in general elevated with Total N ranging from 460 mg/kg to 2,000 mg/kg within the spray discharge area and even the two location outside of the spray area contained Total N of about 700 mg/kg. Total nitrogen does not have an applicable acceptance guideline value.

8.3 Concluding comment

The potential for site contamination to exist is medium based on current and historical land use.

A soil investigation has been conducted to assess near surface soils for potential contaminants of concern, and all contaminant concentrations were reported below adopted guidelines.

Overall, the risk of significant exposure to future users of the Site (open space and industrial) to the identified chemicals of concern in the soils is considered low, however no assessment of the potential impact of nutrient levels in the soils on the quality of groundwater at the Site has been performed to date.

Further assessment is warranted.

9 RECOMMENDATIONS

Recommendations for the Site for ongoing similar use are provided in the table below.

Table 11: Recommendations

Item	No.	Recommendation	Comment
Nutrients in groundwater	1	Given the level of nutrients encountered in the soils at the Site investigate as to whether groundwater has been impacted and is migrating down hydraulic gradient of the Site.	Based on the age of the facility and the impacts measured in soils it is considered necessary to determine if soils have led to an impact in groundwater quality, and in turn has this resulted in the down hydraulic gradient migration of impacted groundwater off site. Based on the findings of these investigations proactive remedial activities through the development and application of a Remedial Action Plan (RAP) may be required to prevent impacted groundwater from reaching potential receptors. If the investigations illustrate that potential receptors are not being impacted, on going monitoring and management of the impacted groundwater plume may be required through the development and application of a Site Management Plan (SMP).



March 2020

Detailed Site Investigation Report

Director of National Parks

Lot 2303 (Treated Effluent Spray Irrigation Area)

RESULTS SUMMARY TABLES (INCLUDING QA/QC)

														Field ID	2303_BH01_0.0-0.1	2303_BH01_0.15-0.25	2303_BH01_0.35-0.45	2303_BH02_0.0-0.1	2303_BH03_0.0-0.1	2303_BH04_0.0-0.1	2303_BH05_0.0-0.1	2303_BH06_0.0-0.1	2303_BH07_0.0-0.1	2303_BH08_0.0-0.1	2303_BH09_0.0-0.1
														LocCode	2303	2303	2303	2303	2303	2303	2303	2303	2303	2303	2303
														Sample_Depth_Range											
														Sampled_Date-Time	15/10/2019	15/10/2019	15/10/2019	15/10/2019	15/10/2019	15/10/2019	15/10/2019	15/10/2019	15/10/2019	15/10/2019	
														Matrix_Description											
														NEPM 2013 Table 18(7) Management Limits in Res / Parkland, Fine Soil											
Method_Type	ChemName	Units	EQ	NEPM 2013 EILs Comm/Ind Soil	NEPM 2013 EILs Urban residential/public open space soil	NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil	NEPM 2013 Table 1A(1) HILs Rec C Soil	NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand	NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion, Sand	NEPM 2013 Table 18(6) ESLs for Comm/Ind, Fine Soil	NEPM 2013 Table 18(6) ESLs for Urban Res, Fine Soil	NEPM 2013 Table 18(7) Management Limits Comm / Ind, Fine Soil	NEPM 2013 Table 18(7) Management Limits in Res / Parkland, Fine Soil												
Heavy Metal	Arsenic	mg/kg	2	160	100	3000	300	0-1m 1-2m 2-4m >4m	0-1m 1-2m 2-4m >4m	0-2m				<2	2.8	<2	6.2	<2	<2	2.3	<2	<2	<2		
	Beryllium	mg/kg	2			500	90							<2	<2	<2	<2	<2	<2	<2	<2	<2			
	Boron	mg/kg	10			300000	20000							<10	<10	<10	<10	<10	<10	<10	<10	<10			
	Cadmium	mg/kg	0.4			900	90							<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4			
	Cobalt	mg/kg	5			4000	300							<5	<5	<5	<5	<5	<5	<5	<5	<5			
	Copper	mg/kg	5	85	80	240000	17000							5.2	<5	<5	<5	<5	<5	<5	<5	<5	<5		
	Lead	mg/kg	5	1800	1100	1500	600							8.7	11	7.5	5.5	<5	7.5	8.2	<5	6.3	<5		
	Manganese	mg/kg	5			6000	19000							68	33	29	13	56	69	14	47	43			
	Mercury	mg/kg	0.1			730	80							<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		
	Nickel	mg/kg	5	20	15	6000	1200							<5	<5	<5	<5	<5	<5	<5	<5	<5	<5		
	Phosphorus	mg/kg	5											-	-	-	-	-	-	78	74	450	410	150	
	Selenium	mg/kg	2			10000	700							<2	<2	<2	<2	<2	<2	<2	<2	<2	<2		
	Zinc	mg/kg	5	240	180	400000	30000							12	<5	<5	30	<5	<5	<5	<5	<5	<5		
	Nutrients	Nitrite + Nitrate as N	mg/kg	5											-	-	-	-	-	-	<5	6.3	<5	<5	
Ammonia as N		mg/kg	5											-	-	-	-	-	-	<5	7.1	7.9	9.2	11	
Chromium (hexavalent)		mg/kg	1			3600	300							<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		
Kjeldahl Nitrogen Total		mg/kg	10											-	-	-	-	-	-	700	680	2000	1100	1800	
Moisture Content (dried @ 103°C)		%	1											3.9	4.4	4.9	2.1	3.6	<1	1.6	1.3	1.8	1.8	1.2	
Nitrate (as N)		mg/kg	5											-	-	-	-	-	-	<5	<5	6.2	<5	<5	
Nitrite (as N)		mg/kg	5											-	-	-	-	-	-	<5	<5	<5	<5	<5	
Nitrogen (Total)		mg/kg	10											-	-	-	-	-	-	700	680	2006	1100	1800	
pH (aqueous extract)		pH_Units	0.1											-	-	-	-	-	-	6.9	6.6	7.7	7.8	6.7	
Organochlorine pesticides EPAVic		mg/kg	0.1											-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Other organochlorine pesticides EPAVic		mg/kg	0.1											-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
4,4'-DDE		mg/kg	0.05											-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
a-BHC		mg/kg	0.05											-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Aldrin		mg/kg	0.05											-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Aldrin + Dieldrin	mg/kg	0.05			45	10							-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		
b-BHC	mg/kg	0.05											-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		
chlordane	mg/kg	0.1			530	70							-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		
d-BHC	mg/kg	0.05											-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		
DDO	mg/kg	0.05											-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		
DDT	mg/kg	0.05	640	180									-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		
DDT+DDE+DDD	mg/kg	0.05											-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		
Dieldrin	mg/kg	0.05			3600	400							-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		
Endosulfan I	mg/kg	0.05											-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		
Endosulfan II	mg/kg	0.05											-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		
Endosulfan sulphate	mg/kg	0.05											-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		
Endrin	mg/kg	0.05			100	20							-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		
Endrin aldehyde	mg/kg	0.05											-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		
Endrin ketone	mg/kg	0.05											-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		
g-BHC (Lindane)	mg/kg	0.05											-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		
Heptachlor	mg/kg	0.05			50	10							-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		
Heptachlor epoxide	mg/kg	0.05											-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		
Hexachlorobenzene	mg/kg	0.05			80	10							-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		
Methoxychlor	mg/kg	0.05			2500	400							-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		
Toxaphene	mg/kg	1			160	30							-	-	<1	<1	<1	<1	<1	<1	<1	<1	<1		
OPP	Tokuthion	mg/kg	0.2											-	-	-	-	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	
	Azinophos methyl	mg/kg	0.2											-	-	-	-	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	
	Bolstar (Sulprofos)	mg/kg	0.2											-	-	-	-	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	
	Chlorfenvinphos	mg/kg	0.2											-	-	-	-	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	
	Chlorpyrifos	mg/kg	0.2			2000	250							-	-	-	-	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	
	Chlorpyrifos-methyl	mg/kg	0.2											-	-	-	-	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	
	Coumaphos	mg/kg	2											-	-	-	-	-	-	<2	<2	<2	<2	<2	
	Demeton-O	mg/kg	0.2											-	-	-	-	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	
	Demeton-S	mg/kg	0.2											-	-	-	-	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	
	Diazinon	mg/kg	0.2											-	-	-	-	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	
	Dichlorvos	mg/kg	0.2											-	-	-	-	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	
	Dimethoate	mg/kg	0.2											-	-	-	-	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	
	Disulfoton	mg/kg	0.2											-	-	-	-	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	
	Ethion	mg/kg	0.2											-	-	-	-	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	
	Ethoprop	mg/kg	0.2											-	-	-	-	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	
	Fenitrothion	mg/kg	0.2											-	-	-	-	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	
	Fensulfotthion	mg/kg	0.2											-	-	-	-	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	
	Fenthion	mg/kg	0.2											-	-	-	-	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	
	EPN	mg/kg	0.2											-	-	-	-	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	
	Malathion	mg/kg	0.2											-	-	-	-	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	
	Merphos	mg/kg	0.2											-	-	-	-	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	
	Methyl parathion	mg/kg	0.2											-	-	-	-	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	
	Mevinphos (Phosdrin)	mg/kg	0.2											-	-	-	-	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	
	Monocrotophos	mg/kg	2											-	-	-	-	-	-	<2	<2	<2	<2	<2	
	Naled (Dibrom)	mg/kg	0.2								</														

				Field ID	2303 BH01 0.0-0.1	2303 BH01 0.15-0.25	2303 BH01 0.35-0.45	2303 BH02 0.0-0.1	2303 BH03 0.0-0.1	2303 BH04 0.0-0.1	2303 BH05 0.0-0.1	2303 BH06 0.0-0.1	2303 BH07 0.0-0.1	2303 BH08 0.0-0.1	2303 BH09 0.0-0.1	
				LocCode	2303	2303	2303	2303	2303	2303	2303	2303	2303	2303	2303	
				Sample Depth Range												
				Sampled Date-Time	15/10/2019	15/10/2019	15/10/2019	15/10/2019	15/10/2019	15/10/2019	15/10/2019	15/10/2019	15/10/2019	15/10/2019	15/10/2019	
				Matrix Description												
				NEPM 2013 EILs Comm/Ind Soil	NEPM 2013 EILs Urban residential/public open space soil	NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil	NEPM 2013 Table 1A(1) HILs Rec C Soil	NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand	NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion, Sand	NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil	NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil	NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Fine Soil	NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Fine Soil			
Method Type	ChemName	Units	EQL			0-1m	1-2m	2-4m	>4m	0-1m	1-2m	2-4m	>4m	0-2m		
SVOC	Benzo(g,h,i)perylene	mg/kg	0.5											-	-	
	Benzo(k)fluoranthene	mg/kg	0.5											-	-	
	Chrysene	mg/kg	0.5											-	-	
	Dibenzo(a,h)anthracene	mg/kg	0.5											-	-	
	Fluoranthene	mg/kg	0.5											-	-	
	Fluorene	mg/kg	0.5											-	-	
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5											-	-	
	Naphthalene	mg/kg	0.5					NL	NL	NL	NL	NL	NL	NL	-	-
	PAHs (Sum of total)	mg/kg	0.5		4000	300									-	-
	Phenanthrene	mg/kg	0.5												-	-
	Pyrene	mg/kg	0.5												-	-
	2,4,5-trichlorophenol	mg/kg	1												<1	<1
	2,4,6-trichlorophenol	mg/kg	1												<1	<1
	2,4-dichlorophenol	mg/kg	0.5												<0.5	<0.5
	2,4-dimethylphenol	mg/kg	0.5												<0.5	<0.5
	2,4-dinitrophenol	mg/kg	5												<5	<5
	2,6-dichlorophenol	mg/kg	0.5												<0.5	<0.5
	2-chlorophenol	mg/kg	0.5												<0.5	<0.5
	2-methylphenol	mg/kg	0.2												<0.2	<0.2
	2-nitrophenol	mg/kg	1												<1	<1
3,4-methylphenol	mg/kg	0.4												<0.4	<0.4	
4,6-Dinitro-2-methylphenol	mg/kg	5												<5	<5	
4,6-Dinitro-o-cyclohexyl phenol	mg/kg	20												<20	<20	
4-chloro-3-methylphenol	mg/kg	1												<1	<1	
4-nitrophenol	mg/kg	5												<5	<5	
Dinoseb	mg/kg	20												<20	<20	
Pentachlorophenol	mg/kg	1		660	120									<1	<1	
Phenol	mg/kg	0.5		240000	40000									<0.5	<0.5	
tetrachlorophenols	mg/kg	10												<10	<10	
Phenols (Total Halogenated)	mg/kg	1												<1	<1	
Phenols (Total Non Halogenated)	mg/kg	20												<20	<20	
TPH	C10 - C14	mg/kg	20											-	-	
	C15 - C28	mg/kg	50											-	-	
	C29-C36	mg/kg	50											-	-	
	+C10 - C36 (Sum of total)	mg/kg	50											-	-	
Volatile	Benzene	mg/kg	0.1					3	3	3	3	NL	NL	NL	NL	95
	Ethylbenzene	mg/kg	0.1					NL	NL	NL	NL	NL	NL	NL	NL	185
	Toluene	mg/kg	0.1					NL	NL	NL	NL	NL	NL	NL	NL	135
	Xylene (m & p)	mg/kg	0.2												<0.2	<0.2
	Xylene (o)	mg/kg	0.1												<0.1	<0.1
	Xylene Total	mg/kg	0.3					230	NL	NL	NL	NL	NL	NL	95	45

(Soil Properties from nearby GoKart lot used to calculated EILs)

Field ID	2303 BH10 0.0-0.1	2303 BH11 0.0-0.1	2303 BH12 0.0-0.1	2303 BH13 0.0-0.1	2303 BH14 0.0-0.1
LocCode	2303	2303	2303	2303	2303
Sample Depth Range					
Sampled Date-Time	15/10/2019	15/10/2019	15/10/2019	15/10/2019	15/10/2019
Matrix Description					

				Field ID	2303 BH10 0.0-0.1	2303 BH11 0.0-0.1	2303 BH12 0.0-0.1	2303 BH13 0.0-0.1	2303 BH14 0.0-0.1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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				Sampled_Date-Time	15/10/2019	15/10/2019	15/10/2019	15/10/2019	15/10/2019																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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				NEPM 2013 Table 1A(1) Hills Comm/Ind D Soil	NEPM 2013 Table 1A(1) Hills Rec C Soil	NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand	NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion, Sand	NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil	NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil	NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Fine Soil	NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Fine Soil																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
Method_Type	ChemName	Units	EOL	NEPM 2013 EILs Comm/Ind Soil	NEPM 2013 EILs Urban residential/public open space soil	NEPM 2013 Table 1A(1) Hills Comm/Ind D Soil	NEPM 2013 Table 1A(1) Hills Rec C Soil	NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand	NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion, Sand	NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil	NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil	NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Fine Soil	NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Fine Soil																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
SVOC	Benzo(a,h)perylene	mg/kg	0.5					0-1m	1-2m	2-4m	>4m	0-1m	1-2m	2-4m	>4m	0-2m																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						

(Soil Properties from nearby GoKart lot used to calculated EILs)

Detailed Site Inv
Lot 2303 Jabiru

Data Table: RPD Analysis



Field Duplicates (SOIL)

SDG Field ID	18-Oct-19 2303 BH02 0.0-0.1 15/10/2019	18-Oct-19 2303 QA01 15/10/2019	RPD	18-Oct-19 2303 BH12 0.0-0.1 15/10/2019	18-Oct-19 2303 QA03 15/10/2019	RPD	18-Oct-19 2303 BH02 0.0-0.1 15/10/2019	ALSE-Sydney 23-Oct-19 2303-QA02 15/10/2019	RPD	18-Oct-19 2303 BH12 0.0-0.1 15/10/2019	ALSE-Sydney 23-Oct-19 2303-QA04 15/10/2019	RPD
EqL Sampled Date/Time												
0.1	<0.1	<0.1	0				<0.1					
0.1	<0.1	<0.1	0				<0.1					
0.1	<0.1	<0.1	0				<0.1					
0.2	<0.2	<0.2	0				<0.2					
0.1	<0.1	<0.1	0				<0.1					
0.3	<0.3	<0.3	0				<0.3					
1(Primary): 0.5 (Interlab)				<1.0				<1.0		<1.0	<0.5	0
1(Primary): 0.5 (Interlab)				<1.0				<1.0		<1.0	<0.5	0
0.5				<0.5				<0.5		<0.5	<0.5	0
0.5				<0.5				<0.5		<0.5	<0.5	0
0.5				<0.5				<0.5		<0.5	<0.5	0
1(Primary): 2 (Interlab)				<1.0				<2.0		<1.0	<2.0	0
10				<10.0						<10.0		
20				<20.0						<20.0		
0.5				<0.5	<0.5	0				<0.5		
0.5				<0.5	<0.5	0				<0.5		
0.5				<0.5	<0.5	0				<0.5		
0.5				<0.5	<0.5	0				<0.5		
0.5				<0.5	<0.5	0				<0.5		
0.5				<0.5	<0.5	0				<0.5		
0.5				<0.5	<0.5	0				<0.5		
0.5				<0.5	<0.5	0				<0.5		
5				5.1	6.6	26				5.1		
5				6.8	6.9	1				6.8		
10				930.0	830.0	11				930.0		
1	2.1	1.3	47	17.0	15.0	13	2.1	1.0		17.0		
5				5.1	6.6	26				5.1		
5				<5.0	<5.0	0				<5.0		
10				935.1	836.6	11				935.1		
0.1				7.6	7.5	1				7.6		
2												
5	20.0	13.0	42	<5.0	<5.0	0	20.0			<5.0		
2	6.2	2.7	79	<2.0	<2.0	0	6.2			<2.0		
2	<2.0	<2.0	0	<2.0	<2.0	0	<2.0			<2.0		
10	<10.0	<10.0	0	<10.0	<10.0	0	<10.0			<10.0		
0.4	<0.4	<0.4	0	<0.4	<0.4	0	<0.4			<0.4		
5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0			<5.0		
5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0			<5.0		
5	75.0	86.0	14	7.4	8.6	15	75.0			7.4		
0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1			<0.1		
5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0			<5.0		
5				190.0	230.0	19				190.0		
2	<2.0	<2.0	0	<2.0	<2.0	0	<2.0			<2.0		
5	30.0	23.0	26	5.8	<5.0	15	30.0			5.8		
1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0			<1.0		
0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05			<0.05		
0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05			<0.05		
0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05			<0.05		
0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05			<0.05		
0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05			<0.05		
0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1			<0.1		
0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05			<0.05		
0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05			<0.05		
0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05			<0.05		
0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05			<0.05		
0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05			<0.05		
0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05			<0.05		
0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05			<0.05		
0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05			<0.05		
0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05			<0.05		
0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05			<0.05		
0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1			<0.1		
0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1			<0.1		
0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05			<0.05		
1	<1.0	<1.0	0	<1.0	<1.0	0	<1.0			<1.0		
0.2				<0.2	<0.2	0				<0.2		
0.2				<0.2	<0.2	0				<0.2		
0.2				<0.2	<0.2	0				<0.2		
0.2				<0.2	<0.2	0				<0.2		
2				<2.0	<2.0	0				<2.0		
0.2				<0.2	<0.2	0				<0.2		
0.2				<0.2	<0.2	0				<0.2		
0.2				<0.2	<0.2	0				<0.2		
0.2				<0.2	<0.2	0				<0.2		
0.2				<0.2	<0.2	0				<0.2		
0.2				<0.2	<0.2	0				<0.2		
0.2				<0.2	<0.2	0				<0.2		
0.2				<0.2	<0.2	0				<0.2		
0.2				<0.2	<0.2	0				<0.2		
0.2				<0.2	<0.2	0				<0.2		
0.2				<0.2	<0.2	0				<0.2		
0.2				<0.2	<0.2	0				<0.2		
0.2				<0.2	<0.2	0				<0.2		
0.5				<0.5	<0.5	0				<0.5		
0.5				<0.5	<0.5	0				<0.5		
0.5	<0.5	<0.5	0				<0.5					
0.5	<0.5	<0.5	0				<0.5					
0.5	<0.5	<0.5	0				<0.5					
0.5	<0.5	<0.5	0				<0.5					
0.5	<0.5	<0.5	0				<0.5					
0.5	<0.5	<0.5	0				<0.5					
0.5	<0.5	<0.5	0				<0.5					
0.5	<0.5	<0.5	0				<0.5					
0.5	<0.5	<0.5	0				<0.5					
0.5	<0.5	<0.5	0				<0.5					
0.5	<0.5	<0.5	0				<0.5					
0.5	<0.5	<0.5	0				<0.5					
0.5	<0.5	<0.5	0				<0.5					
0.5	<0.5	<0.5	0				<0.5					
0.5	<0.5	<0.5	0				<0.5					
0.5	<0.5	<0.5	0				<0.5					
0.5	<0.5	<0.5	0				<0.5					
0.5	<0.5	<0.5	0				<0.5					
0.5	<0.5	<0.5	0				<0.5					
0.5	<0.5	<0.5	0				<0.5					
0.5	<0.5	<0.5	0				<0.5					
0.5	<0.5	<0.5	0				<0.5					
0.5	<0.5	<0.5	0				<0.5					
0.5	<0.5	<0.5	0				<0.5					
0.5	<0.5	<0.5	0				<0.5					
0.5	<0.5	<0.5	0				<0.5					
0.5	<0.5	<0.5	0				<0.5					
0.5	<0.5	<0.5	0				<0.5					
0.5	<0.5	<0.5	0				<0.5					
0.5	<0.5	<0.5	0				<0.5					
0.5	<0.5	<0.5	0				<0.5					
0.5	<0.5	<0.5	0				<0.5					
0.5	<0.5	<0.5	0				<0.5					
0.5	<0.5	<0.5	0				<0.5					
0.5	<0.5	<0.5	0				<0.5					
0.5	<0.5	<0.5	0				<0.5					
0.5	<0.5	<0.5	0				<0.5					
0.5	<0.5	<0.5	0				<0.5					
0.5	<0.5	<0.5	0				<0.5					
0.5	<0.5	<0.5	0				<0.5					
0.5	<0.5	<0.5	0				<0.5					
0.5	<0.5	<0.5	0				<0.5					

*RPDs have only been considered where a concentration is greater than 1 times the EQL

**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 80 (1-10 x EQL); 50 (10-30 x EQL); 30 (> 30 x EQL)

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Detailed Site Investigation

Lot 2303 Jabiru

Field Blanks (WATER)

Data Table: Blank Analysis



SDG	18-Oct-19	18-Oct-19	18-Oct-19
Field ID	FB04	RB04	TB04
Sampled_Date/Time	15/10/2019	15/10/2019	15/10/2019
Sample Type	Field_B	Rinsate	Trip_B

Method_Type	ChemName	Units	EQL			
Heavy Metal	Antimony	mg/l	0.005	<0.005	<0.005	
	Arsenic	mg/l	0.001	<0.001	<0.001	
	Cadmium	mg/l	0.0002	<0.0002	<0.0002	
	Chromium (III+VI)	mg/l	0.001	<0.001	<0.001	
	Copper	mg/l	0.001	<0.001	<0.001	
	Lead	mg/l	0.001	<0.001	<0.001	
	Mercury	mg/l	0.0001	<0.0001	<0.0001	
	Nickel	mg/l	0.001	<0.001	<0.001	
	Zinc	mg/l	0.005	<0.005	<0.005	
Organic	Naphthalene	µg/l	10			<10
	C6 - C9	µg/l	20			<20
	C6-C10 less BTEX (F1)	mg/l	0.02			<0.02
	C6-C10	mg/l	0.02			<0.02
Volatile						
	Benzene	µg/l	1			<1
	Ethylbenzene	µg/l	1			<1
	Toluene	µg/l	1			<1
	Xylene (m & p)	µg/l	2			<2
	Xylene (o)	µg/l	1			<1
	Xylene Total	µg/l	3			<3

March 2020

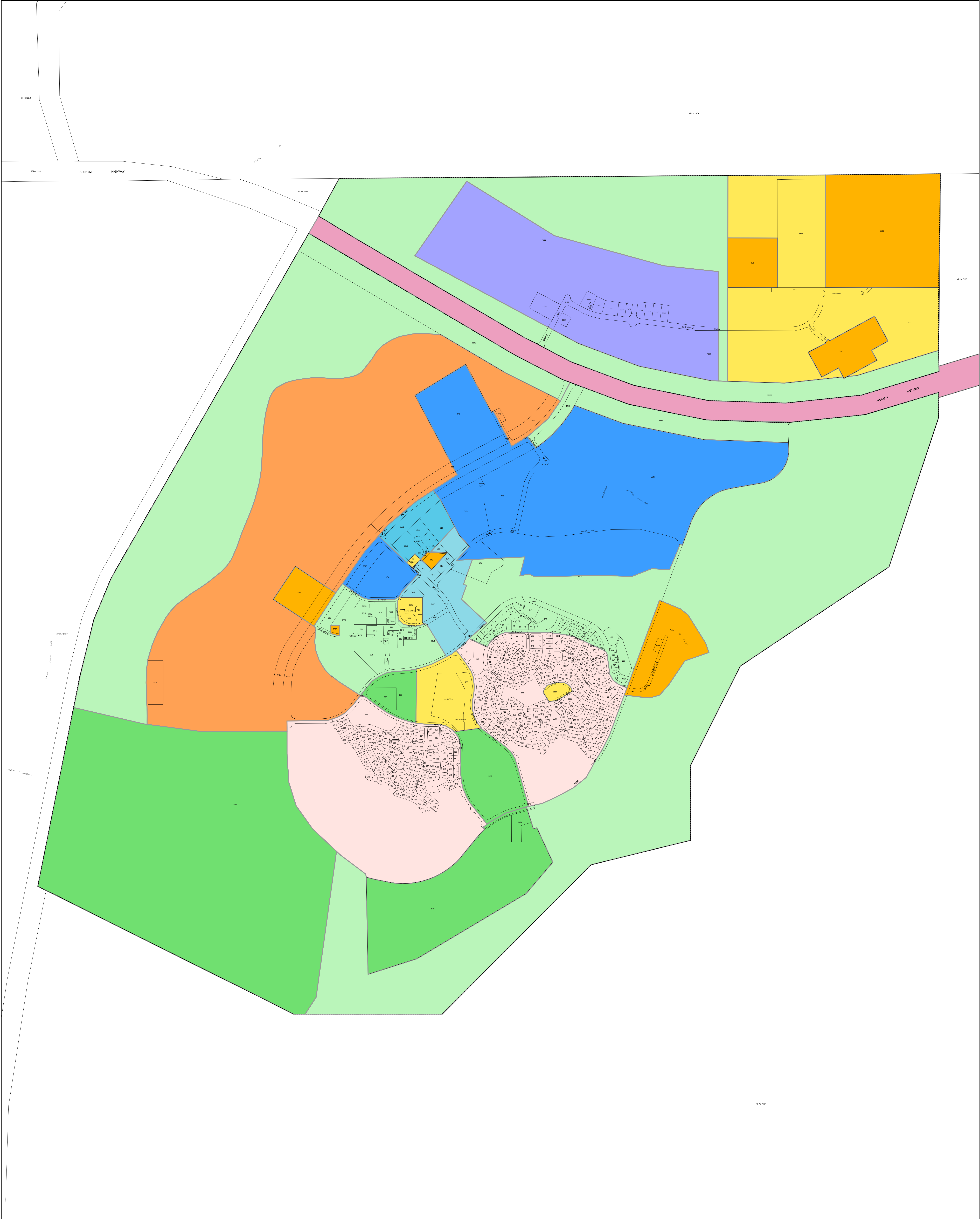
Detailed Site Investigation Report

Director of National Parks

Lot 2303 (Treated Effluent Spray Irrigation Area)

APPENDIX A SURVEY PLANS AND COUNCIL ZONING PLANS





RESIDENTIAL

RJ Residential

RECREATION

PSJ Public Open Space
ORJ Organised Recreation

ZONES

COMMERCIAL

CJ Commercial
SCJ Service Commercial
TCJ Tourist Commercial

OTHER

CPJ Community Purpose
FDJ Future Development

INDUSTRY

IJ Industrial

INFRASTRUCTURE

MJ Main Road
UJ Utilities

ADMINISTRATIVE BOUNDARIES

Town boundary -----

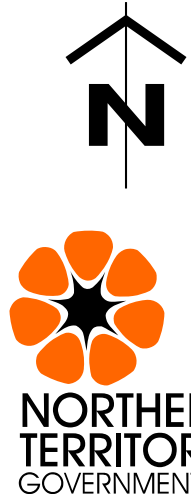
AREA PLAN(S)

Not applicable to this zoning map.

Jabiru Town Plan 2019

JABIRU

metres
120 0 120 240 360 480 metres
Cadastral data current as at August 2019





March 2020

Detailed Site Investigation Report

Director of National Parks

Lot 2303 (Treated Effluent Spray Irrigation Area)

APPENDIX B LABORATORY TEST CERTIFICATES

Greencap NT P/L
11/14 Winnellie Road
Winnellie
NT 0800



NATA Accredited
Accreditation Number 1261
Site Number 1254 & 14271

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or
measurements included in this document are traceable
to Australian/national standards.

Attention: **Stuart Carroll**

Report **683260-S**
Project name **JABIRU TOWN SCI**
Project ID **J162772**
Received Date **Oct 18, 2019**

Client Sample ID			2302_BH01_0.0-0.5	2302_BH02_0.0-0.1	2302_BH03_0.0-0.1	2302_BH04_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M19-Oc27583	M19-Oc27584	M19-Oc27585	M19-Oc27586
Date Sampled			Oct 15, 2019	Oct 15, 2019	Oct 15, 2019	Oct 15, 2019
Test/Reference	LOR	Unit				
Phenols (Halogenated)						
2-Chlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2,4-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2,4,5-Trichlorophenol	1	mg/kg	< 1	< 1	< 1	< 1
2,4,6-Trichlorophenol	1	mg/kg	< 1	< 1	< 1	< 1
2,6-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
4-Chloro-3-methylphenol	1	mg/kg	< 1	< 1	< 1	< 1
Pentachlorophenol	1	mg/kg	< 1	< 1	< 1	< 1
Tetrachlorophenols - Total	10	mg/kg	< 10	< 10	< 10	< 10
Total Halogenated Phenol*	1	mg/kg	< 1	< 1	< 1	< 1
Phenols (non-Halogenated)						
2-Cyclohexyl-4,6-dinitrophenol	20	mg/kg	< 20	< 20	< 20	< 20
2-Methyl-4,6-dinitrophenol	5	mg/kg	< 5	< 5	< 5	< 5
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
2-Nitrophenol	1.0	mg/kg	< 1	< 1	< 1	< 1
2,4-Dimethylphenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2,4-Dinitrophenol	5	mg/kg	< 5	< 5	< 5	< 5
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
4-Nitrophenol	5	mg/kg	< 5	< 5	< 5	< 5
Dinoseb	20	mg/kg	< 20	< 20	< 20	< 20
Phenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total Non-Halogenated Phenol*	20	mg/kg	< 20	< 20	< 20	< 20
Phenol-d6 (surr.)	1	%	85	69	63	59
Ammonia (as N)	5	mg/kg	36	6.4	17	14
Nitrate & Nitrite (as N)	5	mg/kg	< 5	< 5	< 5	< 5
Nitrate (as N)	5	mg/kg	< 5	< 5	< 5	< 5
Nitrite (as N)	5	mg/kg	< 5	< 5	< 5	< 5
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	6.9	5.9	5.9	7.5
Total Kjeldahl Nitrogen (as N)	10	mg/kg	300	78	600	540
Total Nitrogen (as N)*	10	mg/kg	300	78	600	540
Phosphorus	5	mg/kg	120	70	96	46
Sulphur	5	mg/kg	75	-	50	-
% Moisture	1	%	9.8	5.6	6.0	5.5

Client Sample ID			2302_BH01_0.0-0.5	2302_BH02_0.0-0.1	2302_BH03_0.0-0.1	2302_BH04_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M19-Oc27583	M19-Oc27584	M19-Oc27585	M19-Oc27586
Date Sampled			Oct 15, 2019	Oct 15, 2019	Oct 15, 2019	Oct 15, 2019
Test/Reference	LOR	Unit				
Pathogens						
E.coli	1	MPN/g	< 10	< 10	< 10	< 10
Somatic Coliphages (SAL)		PFU/g	M10< 1	M10< 1	M10< 1	M10< 1
Thermotolerant Coliforms	1	MPN/g	M10< 10	M10< 10	M10< 10	M10< 910

Client Sample ID			2302_BH05_0.0-0.1	2302_BH06_0.0-0.1	2302_BH07_0.0-0.1	2302_BH08_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M19-Oc27587	M19-Oc27588	M19-Oc27590	M19-Oc27592
Date Sampled			Oct 15, 2019	Oct 15, 2019	Oct 15, 2019	Oct 15, 2019
Test/Reference	LOR	Unit				
Phenols (Halogenated)						
2-Chlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2,4-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2,4,5-Trichlorophenol	1	mg/kg	< 1	< 1	< 1	< 1
2,4,6-Trichlorophenol	1	mg/kg	< 1	< 1	< 1	< 1
2,6-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
4-Chloro-3-methylphenol	1	mg/kg	< 1	< 1	< 1	< 1
Pentachlorophenol	1	mg/kg	< 1	< 1	< 1	< 1
Tetrachlorophenols - Total	10	mg/kg	< 10	< 10	< 10	< 10
Total Halogenated Phenol*	1	mg/kg	< 1	< 1	< 1	< 1
Phenols (non-Halogenated)						
2-Cyclohexyl-4,6-dinitrophenol	20	mg/kg	< 20	< 20	< 20	< 20
2-Methyl-4,6-dinitrophenol	5	mg/kg	< 5	< 5	< 5	< 5
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
2-Nitrophenol	1.0	mg/kg	< 1	< 1	< 1	< 1
2,4-Dimethylphenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2,4-Dinitrophenol	5	mg/kg	< 5	< 5	< 5	< 5
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
4-Nitrophenol	5	mg/kg	< 5	< 5	< 5	< 5
Dinoseb	20	mg/kg	< 20	< 20	< 20	< 20
Phenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total Non-Halogenated Phenol*	20	mg/kg	< 20	< 20	< 20	< 20
Phenol-d6 (surr.)	1	%	77	83	69	70
Ammonia (as N)	5	mg/kg	9.4	17	13	13
Nitrate & Nitrite (as N)	5	mg/kg	< 5	< 5	< 5	< 5
Nitrate (as N)	5	mg/kg	< 5	< 5	< 5	< 5
Nitrite (as N)	5	mg/kg	< 5	< 5	< 5	< 5
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	6.7	6.3	5.7	6.1
Total Kjeldahl Nitrogen (as N)	10	mg/kg	240	1100	300	780
Total Nitrogen (as N)*	10	mg/kg	240	1100	300	780
Phosphorus	5	mg/kg	66	90	67	74
Sulphur	5	mg/kg	33	-	61	-
% Moisture	1	%	5.2	3.0	6.0	6.0
Pathogens						
E.coli	1	MPN/g	< 10	< 10	< 10	< 10
Somatic Coliphages (SAL)		PFU/g	M10< 1	M10< 1	M10< 1	M10< 1
Thermotolerant Coliforms	1	MPN/g	M10< 10	M10< 31	M10< 10	M10< 10

Client Sample ID			2302_BH09_0.0-0.1	2302_BH10_0.0-0.1	2302_BH11_0.0-0.05	2302_QA01
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M19-Oc27593	M19-Oc27594	M19-Oc27595	M19-Oc27596
Date Sampled			Oct 15, 2019	Oct 15, 2019	Oct 15, 2019	Oct 15, 2019
Test/Reference	LOR	Unit				
Phenols (Halogenated)						
2-Chlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2,4-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2,4,5-Trichlorophenol	1	mg/kg	< 1	< 1	< 1	< 1
2,4,6-Trichlorophenol	1	mg/kg	< 1	< 1	< 1	< 1
2,6-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
4-Chloro-3-methylphenol	1	mg/kg	< 1	< 1	< 1	< 1
Pentachlorophenol	1	mg/kg	< 1	< 1	< 1	< 1
Tetrachlorophenols - Total	10	mg/kg	< 10	< 10	< 10	< 10
Total Halogenated Phenol*	1	mg/kg	< 1	< 1	< 1	< 1
Phenols (non-Halogenated)						
2-Cyclohexyl-4,6-dinitrophenol	20	mg/kg	< 20	< 20	< 20	< 20
2-Methyl-4,6-dinitrophenol	5	mg/kg	< 5	< 5	< 5	< 5
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
2-Nitrophenol	1.0	mg/kg	< 1	< 1	< 1	< 1
2,4-Dimethylphenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2,4-Dinitrophenol	5	mg/kg	< 5	< 5	< 5	< 5
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
4-Nitrophenol	5	mg/kg	< 5	< 5	< 5	< 5
Dinoseb	20	mg/kg	< 20	< 20	< 20	< 20
Phenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total Non-Halogenated Phenol*	20	mg/kg	< 20	< 20	< 20	< 20
Phenol-d6 (surr.)	1	%	89	89	90	84
Ammonia (as N)	5	mg/kg	24	26	34	6.0
Nitrate & Nitrite (as N)	5	mg/kg	5.0	< 5	< 5	< 5
Nitrate (as N)	5	mg/kg	5.0	< 5	< 5	< 5
Nitrite (as N)	5	mg/kg	< 5	< 5	< 5	< 5
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	6.4	5.6	6.5	6.0
Total Kjeldahl Nitrogen (as N)	10	mg/kg	600	1500	410	100
Total Nitrogen (as N)*	10	mg/kg	605	1500	410	100
Phosphorus	5	mg/kg	99	190	150	55
Sulphur	5	mg/kg	50	-	-	-
% Moisture	1	%	8.6	13	6.3	9.9
Pathogens						
E.coli	1	MPN/g	< 10	< 10	< 10	< 10
Somatic Coliphages (SAL)		PFU/g	M10< 1	M10< 1	M10< 1	M10< 1
Thermotolerant Coliforms	1	MPN/g	M10< 10	M10< 10	M10< 10	M10< 10

Client Sample ID			2303_BH01_0.0-0.1	2303_BH01_0.15-0.25	2303_BH01_0.35-0.45	2303_BH02_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M19-Oc27597	M19-Oc27598	M19-Oc27599	M19-Oc27600
Date Sampled			Oct 15, 2019	Oct 15, 2019	Oct 15, 2019	Oct 15, 2019
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	-	-	< 20
TRH C10-C14	20	mg/kg	-	-	-	< 20
TRH C15-C28	50	mg/kg	-	-	-	< 50
TRH C29-C36	50	mg/kg	-	-	-	< 50
TRH C10-C36 (Total)	50	mg/kg	-	-	-	< 50
BTEX						
Benzene	0.1	mg/kg	-	-	-	< 0.1
Toluene	0.1	mg/kg	-	-	-	< 0.1
Ethylbenzene	0.1	mg/kg	-	-	-	< 0.1
m&p-Xylenes	0.2	mg/kg	-	-	-	< 0.2
o-Xylene	0.1	mg/kg	-	-	-	< 0.1
Xylenes - Total	0.3	mg/kg	-	-	-	< 0.3
4-Bromofluorobenzene (surr.)	1	%	-	-	-	92
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	-	-	-	< 0.5
TRH C6-C10	20	mg/kg	-	-	-	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	-	-	-	< 20
TRH >C10-C16	50	mg/kg	-	-	-	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	-	-	-	< 50
TRH >C16-C34	100	mg/kg	-	-	-	< 100
TRH >C34-C40	100	mg/kg	-	-	-	< 100
TRH >C10-C40 (total)*	100	mg/kg	-	-	-	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	-	-	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	-	-	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	-	-	1.2
Acenaphthene	0.5	mg/kg	-	-	-	< 0.5
Acenaphthylene	0.5	mg/kg	-	-	-	< 0.5
Anthracene	0.5	mg/kg	-	-	-	< 0.5
Benz(a)anthracene	0.5	mg/kg	-	-	-	< 0.5
Benzo(a)pyrene	0.5	mg/kg	-	-	-	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	-	-	-	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	-	-	-	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	-	-	-	< 0.5
Chrysene	0.5	mg/kg	-	-	-	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	-	-	-	< 0.5
Fluoranthene	0.5	mg/kg	-	-	-	< 0.5
Fluorene	0.5	mg/kg	-	-	-	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	-	-	< 0.5
Naphthalene	0.5	mg/kg	-	-	-	< 0.5
Phenanthrene	0.5	mg/kg	-	-	-	< 0.5
Pyrene	0.5	mg/kg	-	-	-	< 0.5
Total PAH*	0.5	mg/kg	-	-	-	< 0.5
2-Fluorobiphenyl (surr.)	1	%	-	-	-	98
p-Terphenyl-d14 (surr.)	1	%	-	-	-	70

Client Sample ID			2303_BH01_0.0-0.1	2303_BH01_0.15-0.25	2303_BH01_0.35-0.45	2303_BH02_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M19-Oc27597	M19-Oc27598	M19-Oc27599	M19-Oc27600
Date Sampled			Oct 15, 2019	Oct 15, 2019	Oct 15, 2019	Oct 15, 2019
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	-	-	< 0.1
4,4'-DDD	0.05	mg/kg	-	-	-	< 0.05
4,4'-DDE	0.05	mg/kg	-	-	-	< 0.05
4,4'-DDT	0.05	mg/kg	-	-	-	< 0.05
a-BHC	0.05	mg/kg	-	-	-	< 0.05
Aldrin	0.05	mg/kg	-	-	-	< 0.05
b-BHC	0.05	mg/kg	-	-	-	< 0.05
d-BHC	0.05	mg/kg	-	-	-	< 0.05
Dieldrin	0.05	mg/kg	-	-	-	< 0.05
Endosulfan I	0.05	mg/kg	-	-	-	< 0.05
Endosulfan II	0.05	mg/kg	-	-	-	< 0.05
Endosulfan sulphate	0.05	mg/kg	-	-	-	< 0.05
Endrin	0.05	mg/kg	-	-	-	< 0.05
Endrin aldehyde	0.05	mg/kg	-	-	-	< 0.05
Endrin ketone	0.05	mg/kg	-	-	-	< 0.05
g-BHC (Lindane)	0.05	mg/kg	-	-	-	< 0.05
Heptachlor	0.05	mg/kg	-	-	-	< 0.05
Heptachlor epoxide	0.05	mg/kg	-	-	-	< 0.05
Hexachlorobenzene	0.05	mg/kg	-	-	-	< 0.05
Methoxychlor	0.05	mg/kg	-	-	-	< 0.05
Toxaphene	1	mg/kg	-	-	-	< 1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	-	-	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	-	-	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	-	-	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	-	-	< 0.1
Dibutylchloroendate (surr.)	1	%	-	-	-	95
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	104
Acid Herbicides						
2,4-D	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
2,4-DB	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
2,4,5-T	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
2,4,5-TP	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Actril (loxylin)	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Dicamba	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Dichlorprop	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Dinitro-o-cresol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Dinoseb	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
MCPA	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
MCPB	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Mecoprop	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Warfarin (surr.)	1	%	117	114	116	-
Chromium (hexavalent)	1	mg/kg	< 1	< 1	< 1	< 1
% Moisture	1	%	3.9	4.4	4.9	2.1
Heavy Metals						
Arsenic	2	mg/kg	< 2	2.8	< 2	6.2
Beryllium	2	mg/kg	< 2	< 2	< 2	< 2
Boron	10	mg/kg	< 10	< 10	< 10	< 10
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4

Client Sample ID			2303_BH01_0.0-0.1	2303_BH01_0.15-0.25	2303_BH01_0.35-0.45	2303_BH02_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M19-Oc27597	M19-Oc27598	M19-Oc27599	M19-Oc27600
Date Sampled			Oct 15, 2019	Oct 15, 2019	Oct 15, 2019	Oct 15, 2019
Test/Reference	LOR	Unit				
Heavy Metals						
Cobalt	5	mg/kg	< 5	< 5	< 5	< 5
Copper	5	mg/kg	5.2	< 5	< 5	< 5
Lead	5	mg/kg	8.7	11	< 5	20
Manganese	5	mg/kg	68	33	6.0	75
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	< 5	< 5	< 5
Selenium	2	mg/kg	< 2	< 2	< 2	< 2
Zinc	5	mg/kg	12	< 5	< 5	30

Client Sample ID			2303_BH03_0.0-0.1	2303_BH04_0.0-0.1	2303_BH05_0.0-0.1	2303_BH06_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M19-Oc27602	M19-Oc27604	M19-Oc27606	M19-Oc27607
Date Sampled			Oct 15, 2019	Oct 15, 2019	Oct 15, 2019	Oct 15, 2019
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	-	-
TRH C10-C14	20	mg/kg	< 20	< 20	-	-
TRH C15-C28	50	mg/kg	< 50	< 50	-	-
TRH C29-C36	50	mg/kg	< 50	< 50	-	-
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	-	-
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	-	-
Toluene	0.1	mg/kg	< 0.1	0.2	-	-
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	-	-
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	-	-
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	-	-
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	-	-
4-Bromofluorobenzene (surr.)	1	%	91	95	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	-	-
TRH C6-C10	20	mg/kg	< 20	< 20	-	-
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	-	-
TRH >C10-C16	50	mg/kg	< 50	< 50	-	-
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	-	-
TRH >C16-C34	100	mg/kg	< 100	< 100	-	-
TRH >C34-C40	100	mg/kg	< 100	< 100	-	-
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	-	-
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	-	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	-	-
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	-	-
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	-	-
Anthracene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5	-	-

Client Sample ID			2303_BH03_0.0-0.1	2303_BH04_0.0-0.1	2303_BH05_0.0-0.1	2303_BH06_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M19-Oc27602	M19-Oc27604	M19-Oc27606	M19-Oc27607
Date Sampled			Oct 15, 2019	Oct 15, 2019	Oct 15, 2019	Oct 15, 2019
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	-	-
Chrysene	0.5	mg/kg	< 0.5	< 0.5	-	-
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	-	-
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	-	-
Fluorene	0.5	mg/kg	< 0.5	< 0.5	-	-
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	-	-
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Pyrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	-	-
2-Fluorobiphenyl (surr.)	1	%	90	83	-	-
p-Terphenyl-d14 (surr.)	1	%	58	50	-	-
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4,4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4,4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4,4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
α-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
β-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
δ-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
γ-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Toxaphene	1	mg/kg	< 1	< 1	< 1	< 1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchloroendate (surr.)	1	%	75	77	130	139
Tetrachloro-m-xylene (surr.)	1	%	97	88	92	101
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	-	-	< 0.2	< 0.2
Bolstar	0.2	mg/kg	-	-	< 0.2	< 0.2
Chlorfenvinphos	0.2	mg/kg	-	-	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	-	-	< 0.2	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	-	-	< 0.2	< 0.2
Coumaphos	2	mg/kg	-	-	< 2	< 2
Demeton-S	0.2	mg/kg	-	-	< 0.2	< 0.2

Client Sample ID			2303_BH03_0.0-0.1	2303_BH04_0.0-0.1	2303_BH05_0.0-0.1	2303_BH06_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M19-Oc27602	M19-Oc27604	M19-Oc27606	M19-Oc27607
Date Sampled			Oct 15, 2019	Oct 15, 2019	Oct 15, 2019	Oct 15, 2019
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Demeton-O	0.2	mg/kg	-	-	< 0.2	< 0.2
Diazinon	0.2	mg/kg	-	-	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	-	-	< 0.2	< 0.2
Dimethoate	0.2	mg/kg	-	-	< 0.2	< 0.2
Disulfoton	0.2	mg/kg	-	-	< 0.2	< 0.2
EPN	0.2	mg/kg	-	-	< 0.2	< 0.2
Ethion	0.2	mg/kg	-	-	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	-	-	< 0.2	< 0.2
Ethyl parathion	0.2	mg/kg	-	-	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	-	-	< 0.2	< 0.2
Fensulfothion	0.2	mg/kg	-	-	< 0.2	< 0.2
Fenthion	0.2	mg/kg	-	-	< 0.2	< 0.2
Malathion	0.2	mg/kg	-	-	< 0.2	< 0.2
Merphos	0.2	mg/kg	-	-	< 0.2	< 0.2
Methyl parathion	0.2	mg/kg	-	-	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	-	-	< 0.2	< 0.2
Monocrotophos	2	mg/kg	-	-	< 2	< 2
Naled	0.2	mg/kg	-	-	< 0.2	< 0.2
Omethoate	2	mg/kg	-	-	< 2	< 2
Phorate	0.2	mg/kg	-	-	< 0.2	< 0.2
Pirimiphos-methyl	0.2	mg/kg	-	-	< 0.2	< 0.2
Pyrazophos	0.2	mg/kg	-	-	< 0.2	< 0.2
Ronnel	0.2	mg/kg	-	-	< 0.2	< 0.2
Terbufos	0.2	mg/kg	-	-	< 0.2	< 0.2
Tetrachlorvinphos	0.2	mg/kg	-	-	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	-	-	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	-	-	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	-	-	117	134
Acid Herbicides						
2,4-D	0.5	mg/kg	-	-	< 0.5	< 0.5
2,4-DB	0.5	mg/kg	-	-	< 0.5	< 0.5
2,4,5-T	0.5	mg/kg	-	-	< 0.5	< 0.5
2,4,5-TP	0.5	mg/kg	-	-	< 0.5	< 0.5
Actril (loxynil)	0.5	mg/kg	-	-	< 0.5	< 0.5
Dicamba	0.5	mg/kg	-	-	< 0.5	< 0.5
Dichlorprop	0.5	mg/kg	-	-	< 0.5	< 0.5
Dinitro-o-cresol	0.5	mg/kg	-	-	< 0.5	< 0.5
Dinoseb	0.5	mg/kg	-	-	< 0.5	< 0.5
MCPA	0.5	mg/kg	-	-	< 0.5	< 0.5
MCPB	0.5	mg/kg	-	-	< 0.5	< 0.5
Mecoprop	0.5	mg/kg	-	-	< 0.5	< 0.5
Warfarin (surr.)	1	%	-	-	114	107
Phenols (Halogenated)						
2-Chlorophenol	0.5	mg/kg	-	-	< 0.5	< 0.5
2,4-Dichlorophenol	0.5	mg/kg	-	-	< 0.5	< 0.5
2,4,5-Trichlorophenol	1	mg/kg	-	-	< 1	< 1
2,4,6-Trichlorophenol	1	mg/kg	-	-	< 1	< 1
2,6-Dichlorophenol	0.5	mg/kg	-	-	< 0.5	< 0.5
4-Chloro-3-methylphenol	1	mg/kg	-	-	< 1	< 1

Client Sample ID			2303_BH03_0.0-0.1	2303_BH04_0.0-0.1	2303_BH05_0.0-0.1	2303_BH06_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M19-Oc27602	M19-Oc27604	M19-Oc27606	M19-Oc27607
Date Sampled			Oct 15, 2019	Oct 15, 2019	Oct 15, 2019	Oct 15, 2019
Test/Reference	LOR	Unit				
Phenols (Halogenated)						
Pentachlorophenol	1	mg/kg	-	-	< 1	< 1
Tetrachlorophenols - Total	10	mg/kg	-	-	< 10	< 10
Total Halogenated Phenol*	1	mg/kg	-	-	< 1	< 1
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	-	-	< 20	< 20
2-Methyl-4.6-dinitrophenol	5	mg/kg	-	-	< 5	< 5
2-Methylphenol (o-Cresol)	0.2	mg/kg	-	-	< 0.2	< 0.2
2-Nitrophenol	1.0	mg/kg	-	-	< 1	< 1
2.4-Dimethylphenol	0.5	mg/kg	-	-	< 0.5	< 0.5
2.4-Dinitrophenol	5	mg/kg	-	-	< 5	< 5
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	-	-	< 0.4	< 0.4
4-Nitrophenol	5	mg/kg	-	-	< 5	< 5
Dinoseb	20	mg/kg	-	-	< 20	< 20
Phenol	0.5	mg/kg	-	-	< 0.5	< 0.5
Total Non-Halogenated Phenol*	20	mg/kg	-	-	< 20	< 20
Phenol-d6 (surr.)	1	%	-	-	114	123
Ammonia (as N)	5	mg/kg	-	-	7.1	7.9
Chromium (hexavalent)	1	mg/kg	< 1	< 1	< 1	< 1
Nitrate & Nitrite (as N)	5	mg/kg	-	-	< 5	< 5
Nitrate (as N)	5	mg/kg	-	-	< 5	< 5
Nitrite (as N)	5	mg/kg	-	-	< 5	< 5
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	-	-	6.9	6.6
Total Kjeldahl Nitrogen (as N)	10	mg/kg	-	-	700	680
Total Nitrogen (as N)*	10	mg/kg	-	-	700	680
Phosphorus	5	mg/kg	-	-	78	74
% Moisture	1	%	3.6	< 1	1.6	1.3
Heavy Metals						
Arsenic	2	mg/kg	< 2	< 2	2.3	< 2
Beryllium	2	mg/kg	< 2	< 2	< 2	< 2
Boron	10	mg/kg	< 10	< 10	< 10	< 10
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Cobalt	5	mg/kg	< 5	< 5	< 5	< 5
Copper	5	mg/kg	< 5	< 5	< 5	< 5
Lead	5	mg/kg	5.5	< 5	7.5	8.2
Manganese	5	mg/kg	29	13	56	69
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	< 5	< 5	< 5
Selenium	2	mg/kg	< 2	< 2	< 2	< 2
Zinc	5	mg/kg	< 5	< 5	< 5	< 5

Client Sample ID			2303_BH07_0. 0-0.1	2303_BH08_0. 0-0.1	2303_BH09_0. 0-0.1	2303_BH10_0. 0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M19-Oc27608	M19-Oc27611	M19-Oc27613	M19-Oc27615
Date Sampled			Oct 15, 2019	Oct 15, 2019	Oct 15, 2019	Oct 15, 2019
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4,4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4,4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4,4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Toxaphene	1	mg/kg	< 1	< 1	< 1	< 1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchloroendate (surr.)	1	%	136	121	114	115
Tetrachloro-m-xylene (surr.)	1	%	102	84	71	67
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Bolstar	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Coumaphos	2	mg/kg	< 2	< 2	< 2	< 2
Demeton-S	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Demeton-O	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Diazinon	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dimethoate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Disulfoton	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
EPN	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Malathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Merphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2

Client Sample ID			2303_BH07_0.0-0.1	2303_BH08_0.0-0.1	2303_BH09_0.0-0.1	2303_BH10_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M19-Oc27608	M19-Oc27611	M19-Oc27613	M19-Oc27615
Date Sampled			Oct 15, 2019	Oct 15, 2019	Oct 15, 2019	Oct 15, 2019
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Monocrotophos	2	mg/kg	< 2	< 2	< 2	< 2
Naled	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Omethoate	2	mg/kg	< 2	< 2	< 2	< 2
Phorate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ronnel	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Terbufos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	147	107	85	90
Acid Herbicides						
2,4-D	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2,4-DB	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2,4,5-T	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2,4,5-TP	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Actril (loxynil)	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dicamba	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorprop	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dinitro-o-cresol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dinoseb	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
MCPA	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
MCPB	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Mecoprop	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Warfarin (surr.)	1	%	90	97	97	93
Phenols (Halogenated)						
2-Chlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2,4-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2,4,5-Trichlorophenol	1	mg/kg	< 1	< 1	< 1	< 1
2,4,6-Trichlorophenol	1	mg/kg	< 1	< 1	< 1	< 1
2,6-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
4-Chloro-3-methylphenol	1	mg/kg	< 1	< 1	< 1	< 1
Pentachlorophenol	1	mg/kg	< 1	< 1	< 1	< 1
Tetrachlorophenols - Total	10	mg/kg	< 10	< 10	< 10	< 10
Total Halogenated Phenol*	1	mg/kg	< 1	< 1	< 1	< 1
Phenols (non-Halogenated)						
2-Cyclohexyl-4,6-dinitrophenol	20	mg/kg	< 20	< 20	< 20	< 20
2-Methyl-4,6-dinitrophenol	5	mg/kg	< 5	< 5	< 5	< 5
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
2-Nitrophenol	1.0	mg/kg	< 1	< 1	< 1	< 1
2,4-Dimethylphenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2,4-Dinitrophenol	5	mg/kg	< 5	< 5	< 5	< 5
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
4-Nitrophenol	5	mg/kg	< 5	< 5	< 5	< 5
Dinoseb	20	mg/kg	< 20	< 20	< 20	< 20
Phenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5

Client Sample ID			2303_BH07_0.0-0.1	2303_BH08_0.0-0.1	2303_BH09_0.0-0.1	2303_BH10_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M19-Oc27608	M19-Oc27611	M19-Oc27613	M19-Oc27615
Date Sampled			Oct 15, 2019	Oct 15, 2019	Oct 15, 2019	Oct 15, 2019
Test/Reference	LOR	Unit				
Phenols (non-Halogenated)						
Total Non-Halogenated Phenol*	20	mg/kg	< 20	< 20	< 20	< 20
Phenol-d6 (surr.)	1	%	110	99	63	66
Ammonia (as N)	5	mg/kg	9.0	9.2	11	12
Chromium (hexavalent)	1	mg/kg	< 1	< 1	< 1	< 1
Nitrate & Nitrite (as N)	5	mg/kg	6.3	< 5	< 5	6.5
Nitrate (as N)	5	mg/kg	6.2	< 5	< 5	5.6
Nitrite (as N)	5	mg/kg	< 5	< 5	< 5	< 5
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	7.7	7.8	6.7	8.1
Total Kjeldahl Nitrogen (as N)	10	mg/kg	2000	1100	1800	1800
Total Nitrogen (as N)*	10	mg/kg	2006.3	1100	1800	1806.5
Phosphorus	5	mg/kg	450	410	150	610
% Moisture	1	%	18	18	1.2	7.5
Heavy Metals						
Arsenic	2	mg/kg	< 2	< 2	< 2	< 2
Beryllium	2	mg/kg	< 2	< 2	< 2	< 2
Boron	10	mg/kg	< 10	< 10	< 10	< 10
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Cobalt	5	mg/kg	< 5	< 5	< 5	< 5
Copper	5	mg/kg	< 5	< 5	< 5	< 5
Lead	5	mg/kg	< 5	6.3	< 5	6.0
Manganese	5	mg/kg	14	47	43	25
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	< 5	< 5	< 5
Selenium	2	mg/kg	< 2	< 2	< 2	< 2
Zinc	5	mg/kg	< 5	< 5	< 5	< 5

Client Sample ID			2303_BH11_0.0-0.1	2303_BH12_0.0-0.1	2303_BH13_0.0-0.1	2303_BH14_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M19-Oc27617	M19-Oc27619	M19-Oc27621	M19-Oc27623
Date Sampled			Oct 15, 2019	Oct 15, 2019	Oct 15, 2019	Oct 15, 2019
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4,4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4,4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4,4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05

Client Sample ID			2303_BH11_0. 0-0.1	2303_BH12_0. 0-0.1	2303_BH13_0. 0-0.1	2303_BH14_0. 0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M19-Oc27617	M19-Oc27619	M19-Oc27621	M19-Oc27623
Date Sampled			Oct 15, 2019	Oct 15, 2019	Oct 15, 2019	Oct 15, 2019
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Toxaphene	1	mg/kg	< 1	< 1	< 1	< 1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchloroendate (surr.)	1	%	110	96	97	89
Tetrachloro-m-xylene (surr.)	1	%	77	68	69	67
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Bolstar	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Coumaphos	2	mg/kg	< 2	< 2	< 2	< 2
Demeton-S	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Demeton-O	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Diazinon	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dimethoate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Disulfoton	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
EPN	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Malathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Merphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Monocrotophos	2	mg/kg	< 2	< 2	< 2	< 2
Naled	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Omethoate	2	mg/kg	< 2	< 2	< 2	< 2
Phorate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ronnel	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Terbufos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	102	83	89	66

Client Sample ID			2303_BH11_0. 0-0.1	2303_BH12_0. 0-0.1	2303_BH13_0. 0-0.1	2303_BH14_0. 0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M19-Oc27617	M19-Oc27619	M19-Oc27621	M19-Oc27623
Date Sampled			Oct 15, 2019	Oct 15, 2019	Oct 15, 2019	Oct 15, 2019
Test/Reference	LOR	Unit				
Acid Herbicides						
2,4-D	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2,4-DB	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2,4,5-T	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2,4,5-TP	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Actril (loxynil)	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dicamba	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorprop	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dinitro-o-cresol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dinoseb	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
MCPA	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
MCPB	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Mecoprop	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Warfarin (surr.)	1	%	93	110	92	97
Phenols (Halogenated)						
2-Chlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2,4-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2,4,5-Trichlorophenol	1	mg/kg	< 1	< 1	< 1	< 1
2,4,6-Trichlorophenol	1	mg/kg	< 1	< 1	< 1	< 1
2,6-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
4-Chloro-3-methylphenol	1	mg/kg	< 1	< 1	< 1	< 1
Pentachlorophenol	1	mg/kg	< 1	< 1	< 1	< 1
Tetrachlorophenols - Total	10	mg/kg	< 10	< 10	< 10	< 10
Total Halogenated Phenol*	1	mg/kg	< 1	< 1	< 1	< 1
Phenols (non-Halogenated)						
2-Cyclohexyl-4,6-dinitrophenol	20	mg/kg	< 20	< 20	< 20	< 20
2-Methyl-4,6-dinitrophenol	5	mg/kg	< 5	< 5	< 5	< 5
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
2-Nitrophenol	1.0	mg/kg	< 1	< 1	< 1	< 1
2,4-Dimethylphenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2,4-Dinitrophenol	5	mg/kg	< 5	< 5	< 5	< 5
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
4-Nitrophenol	5	mg/kg	< 5	< 5	< 5	< 5
Dinoseb	20	mg/kg	< 20	< 20	< 20	< 20
Phenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total Non-Halogenated Phenol*	20	mg/kg	< 20	< 20	< 20	< 20
Phenol-d6 (surr.)	1	%	76	74	79	68
Ammonia (as N)	5	mg/kg	11	6.8	6.6	13
Chromium (hexavalent)	1	mg/kg	< 1	< 1	< 1	< 1
Nitrate & Nitrite (as N)	5	mg/kg	12	5.1	< 5	< 5
Nitrate (as N)	5	mg/kg	12	5.1	< 5	< 5
Nitrite (as N)	5	mg/kg	< 5	< 5	< 5	< 5
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	7.6	7.6	7.3	6.8
Total Kjeldahl Nitrogen (as N)	10	mg/kg	1500	930	460	870
Total Nitrogen (as N)*	10	mg/kg	1512	935.1	460	870
Phosphorus	5	mg/kg	210	190	88	280
% Moisture	1	%	12	17	13	< 1

Client Sample ID			2303_BH11_0.0-0.1	2303_BH12_0.0-0.1	2303_BH13_0.0-0.1	2303_BH14_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M19-Oc27617	M19-Oc27619	M19-Oc27621	M19-Oc27623
Date Sampled			Oct 15, 2019	Oct 15, 2019	Oct 15, 2019	Oct 15, 2019
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	< 2	< 2	< 2	< 2
Beryllium	2	mg/kg	< 2	< 2	< 2	< 2
Boron	10	mg/kg	< 10	< 10	< 10	< 10
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Cobalt	5	mg/kg	< 5	< 5	< 5	< 5
Copper	5	mg/kg	< 5	< 5	< 5	< 5
Lead	5	mg/kg	< 5	< 5	< 5	6.9
Manganese	5	mg/kg	8.0	7.4	< 5	18
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	< 5	< 5	< 5
Selenium	2	mg/kg	< 2	< 2	< 2	< 2
Zinc	5	mg/kg	< 5	5.8	< 5	< 5

Client Sample ID			2303_QA01	2303_QA03
Sample Matrix			Soil	Soil
Eurofins Sample No.			M19-Oc27625	M19-Oc27626
Date Sampled			Oct 15, 2019	Oct 15, 2019
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				
TRH C6-C9	20	mg/kg	< 20	-
TRH C10-C14	20	mg/kg	< 20	-
TRH C15-C28	50	mg/kg	< 50	-
TRH C29-C36	50	mg/kg	< 50	-
TRH C10-C36 (Total)	50	mg/kg	< 50	-
BTEX				
Benzene	0.1	mg/kg	< 0.1	-
Toluene	0.1	mg/kg	< 0.1	-
Ethylbenzene	0.1	mg/kg	< 0.1	-
m&p-Xylenes	0.2	mg/kg	< 0.2	-
o-Xylene	0.1	mg/kg	< 0.1	-
Xylenes - Total	0.3	mg/kg	< 0.3	-
4-Bromofluorobenzene (surr.)	1	%	79	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	-
TRH C6-C10	20	mg/kg	< 20	-
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	-
TRH >C10-C16	50	mg/kg	< 50	-
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	-
TRH >C16-C34	100	mg/kg	< 100	-
TRH >C34-C40	100	mg/kg	< 100	-
TRH >C10-C40 (total)*	100	mg/kg	< 100	-
Polycyclic Aromatic Hydrocarbons				
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	-
Acenaphthene	0.5	mg/kg	< 0.5	-
Acenaphthylene	0.5	mg/kg	< 0.5	-

Client Sample ID			2303_QA01	2303_QA03
Sample Matrix			Soil	Soil
Eurofins Sample No.			M19-Oc27625	M19-Oc27626
Date Sampled			Oct 15, 2019	Oct 15, 2019
Test/Reference	LOR	Unit		
Polycyclic Aromatic Hydrocarbons				
Anthracene	0.5	mg/kg	< 0.5	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	-
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	-
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	-
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	-
Chrysene	0.5	mg/kg	< 0.5	-
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	-
Fluoranthene	0.5	mg/kg	< 0.5	-
Fluorene	0.5	mg/kg	< 0.5	-
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	< 0.5	-
Naphthalene	0.5	mg/kg	< 0.5	-
Phenanthrene	0.5	mg/kg	< 0.5	-
Pyrene	0.5	mg/kg	< 0.5	-
Total PAH*	0.5	mg/kg	< 0.5	-
2-Fluorobiphenyl (surr.)	1	%	68	-
p-Terphenyl-d14 (surr.)	1	%	124	-
Organochlorine Pesticides				
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1
4,4'-DDD	0.05	mg/kg	< 0.05	< 0.05
4,4'-DDE	0.05	mg/kg	< 0.05	< 0.05
4,4'-DDT	0.05	mg/kg	< 0.05	< 0.05
α-BHC	0.05	mg/kg	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05
β-BHC	0.05	mg/kg	< 0.05	< 0.05
δ-BHC	0.05	mg/kg	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05
γ-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05
Toxaphene	1	mg/kg	< 1	< 1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1
Dibutylchloroendate (surr.)	1	%	105	99
Tetrachloro-m-xylene (surr.)	1	%	94	87

Client Sample ID			2303_QA01	2303_QA03
Sample Matrix			Soil	Soil
Eurofins Sample No.			M19-Oc27625	M19-Oc27626
Date Sampled			Oct 15, 2019	Oct 15, 2019
Test/Reference	LOR	Unit		
Organophosphorus Pesticides				
Azinphos-methyl	0.2	mg/kg	-	< 0.2
Bolstar	0.2	mg/kg	-	< 0.2
Chlorfenvinphos	0.2	mg/kg	-	< 0.2
Chlorpyrifos	0.2	mg/kg	-	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	-	< 0.2
Coumaphos	2	mg/kg	-	< 2
Demeton-S	0.2	mg/kg	-	< 0.2
Demeton-O	0.2	mg/kg	-	< 0.2
Diazinon	0.2	mg/kg	-	< 0.2
Dichlorvos	0.2	mg/kg	-	< 0.2
Dimethoate	0.2	mg/kg	-	< 0.2
Disulfoton	0.2	mg/kg	-	< 0.2
EPN	0.2	mg/kg	-	< 0.2
Ethion	0.2	mg/kg	-	< 0.2
Ethoprop	0.2	mg/kg	-	< 0.2
Ethyl parathion	0.2	mg/kg	-	< 0.2
Fenitrothion	0.2	mg/kg	-	< 0.2
Fensulfothion	0.2	mg/kg	-	< 0.2
Fenthion	0.2	mg/kg	-	< 0.2
Malathion	0.2	mg/kg	-	< 0.2
Merphos	0.2	mg/kg	-	< 0.2
Methyl parathion	0.2	mg/kg	-	< 0.2
Mevinphos	0.2	mg/kg	-	< 0.2
Monocrotophos	2	mg/kg	-	< 2
Naled	0.2	mg/kg	-	< 0.2
Omethoate	2	mg/kg	-	< 2
Phorate	0.2	mg/kg	-	< 0.2
Pirimiphos-methyl	0.2	mg/kg	-	< 0.2
Pyrazophos	0.2	mg/kg	-	< 0.2
Ronnel	0.2	mg/kg	-	< 0.2
Terbufos	0.2	mg/kg	-	< 0.2
Tetrachlorvinphos	0.2	mg/kg	-	< 0.2
Tokuthion	0.2	mg/kg	-	< 0.2
Trichloronate	0.2	mg/kg	-	< 0.2
Triphenylphosphate (surr.)	1	%	-	103
Acid Herbicides				
2,4-D	0.5	mg/kg	-	< 0.5
2,4-DB	0.5	mg/kg	-	< 0.5
2,4,5-T	0.5	mg/kg	-	< 0.5
2,4,5-TP	0.5	mg/kg	-	< 0.5
Atril (loxynil)	0.5	mg/kg	-	< 0.5
Dicamba	0.5	mg/kg	-	< 0.5
Dichlorprop	0.5	mg/kg	-	< 0.5
Dinitro-o-cresol	0.5	mg/kg	-	< 0.5
Dinoseb	0.5	mg/kg	-	< 0.5
MCPA	0.5	mg/kg	-	< 0.5
MCPB	0.5	mg/kg	-	< 0.5
Mecoprop	0.5	mg/kg	-	< 0.5
Warfarin (surr.)	1	%	-	96

Client Sample ID			2303_QA01	2303_QA03
Sample Matrix			Soil	Soil
Eurofins Sample No.			M19-Oc27625	M19-Oc27626
Date Sampled			Oct 15, 2019	Oct 15, 2019
Test/Reference	LOR	Unit		
Phenols (Halogenated)				
2-Chlorophenol	0.5	mg/kg	-	< 0.5
2,4-Dichlorophenol	0.5	mg/kg	-	< 0.5
2,4,5-Trichlorophenol	1	mg/kg	-	< 1
2,4,6-Trichlorophenol	1	mg/kg	-	< 1
2,6-Dichlorophenol	0.5	mg/kg	-	< 0.5
4-Chloro-3-methylphenol	1	mg/kg	-	< 1
Pentachlorophenol	1	mg/kg	-	< 1
Tetrachlorophenols - Total	10	mg/kg	-	< 10
Total Halogenated Phenol*	1	mg/kg	-	< 1
Phenols (non-Halogenated)				
2-Cyclohexyl-4,6-dinitrophenol	20	mg/kg	-	< 20
2-Methyl-4,6-dinitrophenol	5	mg/kg	-	< 5
2-Methylphenol (o-Cresol)	0.2	mg/kg	-	< 0.2
2-Nitrophenol	1.0	mg/kg	-	< 1
2,4-Dimethylphenol	0.5	mg/kg	-	< 0.5
2,4-Dinitrophenol	5	mg/kg	-	< 5
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	-	< 0.4
4-Nitrophenol	5	mg/kg	-	< 5
Dinoseb	20	mg/kg	-	< 20
Phenol	0.5	mg/kg	-	< 0.5
Total Non-Halogenated Phenol*	20	mg/kg	-	< 20
Phenol-d6 (surr.)	1	%	-	114
Ammonia (as N)	5	mg/kg	-	6.9
Chromium (hexavalent)	1	mg/kg	< 1	< 1
Nitrate & Nitrite (as N)	5	mg/kg	-	6.6
Nitrate (as N)	5	mg/kg	-	6.6
Nitrite (as N)	5	mg/kg	-	< 5
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	-	7.5
Total Kjeldahl Nitrogen (as N)	10	mg/kg	-	830
Total Nitrogen (as N)*	10	mg/kg	-	836.6
Phosphorus	5	mg/kg	-	230
% Moisture	1	%	1.3	15
Heavy Metals				
Arsenic	2	mg/kg	2.7	< 2
Beryllium	2	mg/kg	< 2	< 2
Boron	10	mg/kg	< 10	< 10
Cadmium	0.4	mg/kg	< 0.4	< 0.4
Cobalt	5	mg/kg	< 5	< 5
Copper	5	mg/kg	< 5	< 5
Lead	5	mg/kg	13	< 5
Manganese	5	mg/kg	86	8.6
Mercury	0.1	mg/kg	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	< 5
Selenium	2	mg/kg	< 2	< 2
Zinc	5	mg/kg	23	< 5

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Eurofins mgt Suite B6A			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Melbourne	Oct 21, 2019	14 Days
BTEX - Method: LTM-ORG-2010 TRH C6-C40	Melbourne	Oct 21, 2019	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Melbourne	Oct 21, 2019	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Melbourne	Oct 21, 2019	
Chromium (hexavalent) - Method: APHA 3500-Cr Hexavalent Chromium- (Extraction:- USEPA3060)	Melbourne	Oct 21, 2019	28 Days
NEPM 2013 Metals : Metals M12 - Method: LTM-MET-3030 by ICP-OES (hydride ICP-OES for Mercury)	Melbourne	Oct 21, 2019	28 Days
Polycyclic Aromatic Hydrocarbons - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water	Melbourne	Oct 21, 2019	14 Days
Acid Herbicides - Method: LTM-ORG-2180 Phenoxy Acid Herbicides	Melbourne	Oct 21, 2019	14 Days
pH (1:5 Aqueous extract at 25°C as rec.) - Method: LTM-GEN-7090 pH in soil by ISE	Melbourne	Oct 21, 2019	7 Days
Sulphur - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Melbourne	Oct 23, 2019	7 Days
E.coli - Method: LTM-MIC-6621 E.Coli and Total Coliforms by the MPN	Melbourne	Oct 19, 2019	72 Hour
Somatic Coliphages (SAL) - Method:	Melbourne	Oct 19, 2019	0 Hours
Thermotolerant Coliforms - Method: Inhouse: Thermotolerant Coliforms in Soil by MPN*	Melbourne	Oct 19, 2019	72 Hour
Eurofins mgt Suite B14			
Organochlorine Pesticides - Method: LTM-ORG-2220 OCP & PCB in Soil and Water (USEPA 8270)	Melbourne	Oct 21, 2019	14 Days
Organophosphorus Pesticides - Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS (USEPA 8081)	Melbourne	Oct 21, 2019	14 Days
Phenols (IWRG 621)			
Phenols (Halogenated) - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water	Melbourne	Oct 21, 2019	14 Days
Phenols (non-Halogenated) - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water	Melbourne	Oct 21, 2019	14 Days
Eurofins mgt Suite B19D: Total N, TKN, NOx, NO2, NO3, Total P			
Ammonia (as N) - Method: LTM-INO-4200 Ammonia by Discrete Analyser	Melbourne	Oct 21, 2019	28 Days
Nitrate & Nitrite (as N) - Method: LTM-INO-4120 Analysis of NOx NO2 NH3 by FIA	Melbourne	Oct 21, 2019	28 Days
Nitrate (as N) - Method: LTM-INO-4120 Analysis of NOx NO2 NH3 by FIA	Melbourne	Oct 21, 2019	28 Days
Nitrite (as N) - Method: LTM-INO-4120 Analysis of NOx NO2 NH3 by FIA	Melbourne	Oct 21, 2019	28 Days
Total Kjeldahl Nitrogen (as N) - Method: LTM-INO-4310 TKN in Waters & Soils by FIA	Melbourne	Oct 21, 2019	28 Days
Phosphorus - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Melbourne	Oct 21, 2019	180 Days

Description	Testing Site	Extracted	Holding Time
% Moisture	Melbourne	Oct 18, 2019	14 Days
- Method: LTM-GEN-7080 Moisture			
Heavy Metals	Melbourne	Oct 21, 2019	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			

Company Name: Greencap NT P/L
Address: 11/14 Winnellie Road
Winnellie
NT 0800

Project Name: JABIRU TOWN SCI
Project ID: J162772

Order No.:
Report #: 683260
Phone: 61 8 8984 4244
Fax: 61 8 8984 3105

Received: Oct 18, 2019 9:00 AM
Due: Oct 25, 2019
Priority: 5 Day
Contact Name: Stuart Carroll

Eurofins Analytical Services Manager : Cindi Guo

Sample Detail						Antimony	E.coli	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Somatic Coliphages (SAL)	Sulphur	Thermotolerant Coliforms	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Acid Herbicides	Metals M8	Phenols (IWRG 621)	Eurofins mgt Suite B14	NEPM 2013 Metals : Metals M13	Moisture Set	BTEXN and Volatile TRH	Eurofins mgt Suite B6A	Eurofins mgt Suite B19D: Total N, TKN, NOx, NO2, NO3, Total P
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217																							
Brisbane Laboratory - NATA Site # 20794																							
Perth Laboratory - NATA Site # 23736																							
External Laboratory																							
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID																		
1	2302_BH01_0.0-0.5	Oct 15, 2019		Soil	M19-Oc27583		X		X	X	X	X					X			X			X
2	2302_BH02_0.0-0.1	Oct 15, 2019		Soil	M19-Oc27584		X		X	X		X					X			X			X
3	2302_BH03_0.0-0.1	Oct 15, 2019		Soil	M19-Oc27585		X		X	X	X	X					X			X			X
4	2302_BH04_0.0-0.1	Oct 15, 2019		Soil	M19-Oc27586		X		X	X		X					X			X			X
5	2302_BH05_0.0-0.1	Oct 15, 2019		Soil	M19-Oc27587		X		X	X	X	X					X			X			X
6	2302_BH06_0.	Oct 15, 2019		Soil	M19-Oc27588		X		X	X		X					X			X			X

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Eurofins Analytical Services Manager : Cindi Guo

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Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217																							
Brisbane Laboratory - NATA Site # 20794																							
Perth Laboratory - NATA Site # 23736																							
	0-0.1																						
7	2302_BH06_0.1-0.2	Oct 15, 2019		Soil	M19-Oc27589			X															
8	2302_BH07_0.0-0.1	Oct 15, 2019		Soil	M19-Oc27590		X		X	X	X	X					X			X			X
9	2302_BH07_0.15-0.25	Oct 15, 2019		Soil	M19-Oc27591			X															
10	2302_BH08_0.0-0.1	Oct 15, 2019		Soil	M19-Oc27592		X		X	X		X					X			X			X
11	2302_BH09_0.0-0.1	Oct 15, 2019		Soil	M19-Oc27593		X		X	X	X	X					X			X			X
12	2302_BH10_0.0-0.1	Oct 15, 2019		Soil	M19-Oc27594		X		X	X		X					X			X			X
13	2302_BH11_0.	Oct 15, 2019		Soil	M19-Oc27595		X		X	X		X					X			X			X

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Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217																							
Brisbane Laboratory - NATA Site # 20794																							
Perth Laboratory - NATA Site # 23736																							
	0-0.05																						
14	2302_QA01	Oct 15, 2019		Soil	M19-Oc27596		X		X	X		X					X			X			X
15	2303_BH01_0.0-0.1	Oct 15, 2019		Soil	M19-Oc27597										X				X	X			
16	2303_BH01_0.15-0.25	Oct 15, 2019		Soil	M19-Oc27598										X				X	X			
17	2303_BH01_0.35-0.45	Oct 15, 2019		Soil	M19-Oc27599										X				X	X			
18	2303_BH02_0.0-0.1	Oct 15, 2019		Soil	M19-Oc27600								X	X						X		X	
19	2303_BH02_0.45-0.55	Oct 15, 2019		Soil	M19-Oc27601			X															
20	2303_BH03_0.0-0.1	Oct 15, 2019		Soil	M19-Oc27602								X	X						X		X	

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Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217																							
Brisbane Laboratory - NATA Site # 20794																							
Perth Laboratory - NATA Site # 23736																							
21	2303_BH03_0.5-0.6	Oct 15, 2019		Soil	M19-Oc27603			X															
22	2303_BH04_0.0-0.1	Oct 15, 2019		Soil	M19-Oc27604								X	X						X		X	
23	2303_BH04_0.4-0.5	Oct 15, 2019		Soil	M19-Oc27605			X															
24	2303_BH05_0.0-0.1	Oct 15, 2019		Soil	M19-Oc27606				X						X		X	X	X	X			X
25	2303_BH06_0.0-0.1	Oct 15, 2019		Soil	M19-Oc27607				X						X		X	X	X	X			X
26	2303_BH07_0.0-0.1	Oct 15, 2019		Soil	M19-Oc27608				X						X		X	X	X	X			X
27	2303_BH07_0.15-0.25	Oct 15, 2019		Soil	M19-Oc27609			X															

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Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217																							
Brisbane Laboratory - NATA Site # 20794																							
Perth Laboratory - NATA Site # 23736																							
28	2303_BH07_0_4-0.5	Oct 15, 2019		Soil	M19-Oc27610			X															
29	2303_BH08_0_0-0.1	Oct 15, 2019		Soil	M19-Oc27611				X						X		X	X	X	X			X
30	2303_BH08_0_2-0.3	Oct 15, 2019		Soil	M19-Oc27612			X															
31	2303_BH09_0_0-0.1	Oct 15, 2019		Soil	M19-Oc27613				X						X		X	X	X	X			X
32	2303_BH09_0_2-0.3	Oct 15, 2019		Soil	M19-Oc27614			X															
33	2303_BH10_0_0-0.1	Oct 15, 2019		Soil	M19-Oc27615				X						X		X	X	X	X			X
34	2303_BH10_0_2-0.3	Oct 15, 2019		Soil	M19-Oc27616			X															

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Contact Name: Stuart Carroll

Eurofins Analytical Services Manager : Cindi Guo

Sample Detail						Antimony	E.coli	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Somatic Coliphages (SAL)	Sulphur	Thermotolerant Coliforms	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Acid Herbicides	Metals M8	Phenols (IWRG 621)	Eurofins mgt Suite B14	NEPM 2013 Metals : Metals M13	Moisture Set	BTEXN and Volatile TRH	Eurofins mgt Suite B6A	Eurofins mgt Suite B19D: Total N, TKN, NOx, NO2, NO3, Total P
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217																							
Brisbane Laboratory - NATA Site # 20794																							
Perth Laboratory - NATA Site # 23736																							
35	2303_BH11_0_0-0.1	Oct 15, 2019		Soil	M19-Oc27617				X						X		X	X	X	X			X
36	2303_BH11_0_2-0.3	Oct 15, 2019		Soil	M19-Oc27618			X															
37	2303_BH12_0_0-0.1	Oct 15, 2019		Soil	M19-Oc27619				X						X		X	X	X	X			X
38	2303_BH12_0_2-0.3	Oct 15, 2019		Soil	M19-Oc27620			X															
39	2303_BH13_0_0-0.1	Oct 15, 2019		Soil	M19-Oc27621				X						X		X	X	X	X			X
40	2303_BH13_0_2-0.3	Oct 15, 2019		Soil	M19-Oc27622			X															
41	2303_BH14_0_0-0.1	Oct 15, 2019		Soil	M19-Oc27623				X						X		X	X	X	X			X

Company Name: Greencap NT P/L
Address: 11/14 Winnellie Road
Winnellie
NT 0800

Project Name: JABIRU TOWN SCI
Project ID: J162772

Order No.:
Report #: 683260
Phone: 61 8 8984 4244
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Received: Oct 18, 2019 9:00 AM
Due: Oct 25, 2019
Priority: 5 Day
Contact Name: Stuart Carroll

Eurofins Analytical Services Manager : Cindi Guo

Sample Detail						Antimony	E.coli	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Somatic Coliphages (SAL)	Sulphur	Thermotolerant Coliforms	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Acid Herbicides	Metals M8	Phenols (IWRG 621)	Eurofins mgt Suite B14	NEPM 2013 Metals : Metals M13	Moisture Set	BTEXN and Volatile TRH	Eurofins mgt Suite B6A	Eurofins mgt Suite B19D: Total N, TKN, NOx, NO2, NO3, Total P
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217																							
Brisbane Laboratory - NATA Site # 20794																							
Perth Laboratory - NATA Site # 23736																							
42	2303_BH14_0.2-0.3	Oct 15, 2019		Soil	M19-Oc27624			X															
43	2303_QA01	Oct 15, 2019		Soil	M19-Oc27625								X	X						X		X	
44	2303_QA03	Oct 15, 2019		Soil	M19-Oc27626				X						X		X	X	X	X			X
45	FB04	Oct 15, 2019		Water	M19-Oc27627	X										X							
46	RB04	Oct 15, 2019		Water	M19-Oc27628	X										X							
47	TB04	Oct 15, 2019		Water	M19-Oc27629																X		
48	2303_BH15	Oct 15, 2019		Soil	M19-Oc27630			X															
Test Counts						2	12	15	23	12	5	12	4	4	14	2	23	11	14	30	1	4	23

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.3
CP	Client Parent - QC was performed on samples pertaining to this report
NC	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 20-130% Phenols & 50-150% PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.3 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " - " in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g,h,i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a,h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4,4'-DDD	mg/kg	< 0.05			0.05	Pass	
4,4'-DDE	mg/kg	< 0.05			0.05	Pass	
4,4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-BHC	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Toxaphene	mg/kg	< 1			1	Pass	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/kg	< 0.2			0.2	Pass	
Bolstar	mg/kg	< 0.2			0.2	Pass	
Chlorfenvinphos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos-methyl	mg/kg	< 0.2			0.2	Pass	
Coumaphos	mg/kg	< 2			2	Pass	
Demeton-S	mg/kg	< 0.2			0.2	Pass	
Demeton-O	mg/kg	< 0.2			0.2	Pass	
Diazinon	mg/kg	< 0.2			0.2	Pass	
Dichlorvos	mg/kg	< 0.2			0.2	Pass	
Dimethoate	mg/kg	< 0.2			0.2	Pass	
Disulfoton	mg/kg	< 0.2			0.2	Pass	
EPN	mg/kg	< 0.2			0.2	Pass	
Ethion	mg/kg	< 0.2			0.2	Pass	
Ethoprop	mg/kg	< 0.2			0.2	Pass	
Ethyl parathion	mg/kg	< 0.2			0.2	Pass	
Fenitrothion	mg/kg	< 0.2			0.2	Pass	
Fensulfothion	mg/kg	< 0.2			0.2	Pass	
Fenthion	mg/kg	< 0.2			0.2	Pass	
Malathion	mg/kg	< 0.2			0.2	Pass	
Merphos	mg/kg	< 0.2			0.2	Pass	
Methyl parathion	mg/kg	< 0.2			0.2	Pass	
Mevinphos	mg/kg	< 0.2			0.2	Pass	
Monocrotophos	mg/kg	< 2			2	Pass	
Naled	mg/kg	< 0.2			0.2	Pass	
Omethoate	mg/kg	< 2			2	Pass	
Phorate	mg/kg	< 0.2			0.2	Pass	
Pirimiphos-methyl	mg/kg	< 0.2			0.2	Pass	
Pyrazophos	mg/kg	< 0.2			0.2	Pass	
Ronnel	mg/kg	< 0.2			0.2	Pass	
Terbufos	mg/kg	< 0.2			0.2	Pass	
Tetrachlorvinphos	mg/kg	< 0.2			0.2	Pass	
Tokuthion	mg/kg	< 0.2			0.2	Pass	
Trichloronate	mg/kg	< 0.2			0.2	Pass	
Method Blank							
Acid Herbicides							
2,4-D	mg/kg	< 0.5			0.5	Pass	
2,4-DB	mg/kg	< 0.5			0.5	Pass	
2,4,5-T	mg/kg	< 0.5			0.5	Pass	
2,4,5-TP	mg/kg	< 0.5			0.5	Pass	
Actril (loxynil)	mg/kg	< 0.5			0.5	Pass	
Dicamba	mg/kg	< 0.5			0.5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Dichlorprop	mg/kg	< 0.5			0.5	Pass	
Dinitro-o-cresol	mg/kg	< 0.5			0.5	Pass	
Dinoseb	mg/kg	< 0.5			0.5	Pass	
MCPA	mg/kg	< 0.5			0.5	Pass	
MCPB	mg/kg	< 0.5			0.5	Pass	
Mecoprop	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Phenols (Halogenated)							
2-Chlorophenol	mg/kg	< 0.5			0.5	Pass	
2,4-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
2,4,5-Trichlorophenol	mg/kg	< 1			1	Pass	
2,4,6-Trichlorophenol	mg/kg	< 1			1	Pass	
2,6-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
4-Chloro-3-methylphenol	mg/kg	< 1			1	Pass	
Pentachlorophenol	mg/kg	< 1			1	Pass	
Tetrachlorophenols - Total	mg/kg	< 10			10	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4,6-dinitrophenol	mg/kg	< 20			20	Pass	
2-Methyl-4,6-dinitrophenol	mg/kg	< 5			5	Pass	
2-Methylphenol (o-Cresol)	mg/kg	< 0.2			0.2	Pass	
2-Nitrophenol	mg/kg	< 1			1.0	Pass	
2,4-Dimethylphenol	mg/kg	< 0.5			0.5	Pass	
2,4-Dinitrophenol	mg/kg	< 5			5	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/kg	< 0.4			0.4	Pass	
4-Nitrophenol	mg/kg	< 5			5	Pass	
Dinoseb	mg/kg	< 20			20	Pass	
Phenol	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Ammonia (as N)	mg/kg	< 5			5	Pass	
Chromium (hexavalent)	mg/kg	< 1			1	Pass	
Nitrate & Nitrite (as N)	mg/kg	< 5			5	Pass	
Nitrate (as N)	mg/kg	< 5			5	Pass	
Nitrite (as N)	mg/kg	< 5			5	Pass	
Total Kjeldahl Nitrogen (as N)	mg/kg	< 10			10	Pass	
Phosphorus	mg/kg	< 5			5	Pass	
Sulphur	mg/kg	< 5			5	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Beryllium	mg/kg	< 2			2	Pass	
Boron	mg/kg	< 10			10	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Cobalt	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Manganese	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Selenium	mg/kg	< 2			2	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	120			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
TRH C10-C14	%	94			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	102			70-130	Pass	
Toluene	%	102			70-130	Pass	
Ethylbenzene	%	98			70-130	Pass	
m&p-Xylenes	%	97			70-130	Pass	
Xylenes - Total	%	98			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	96			70-130	Pass	
TRH C6-C10	%	115			70-130	Pass	
TRH >C10-C16	%	88			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	95			70-130	Pass	
Acenaphthylene	%	98			70-130	Pass	
Anthracene	%	79			70-130	Pass	
Benz(a)anthracene	%	75			70-130	Pass	
Benzo(a)pyrene	%	88			70-130	Pass	
Benzo(b&j)fluoranthene	%	76			70-130	Pass	
Benzo(g,h,i)perylene	%	126			70-130	Pass	
Benzo(k)fluoranthene	%	95			70-130	Pass	
Chrysene	%	101			70-130	Pass	
Dibenz(a,h)anthracene	%	112			70-130	Pass	
Fluoranthene	%	95			70-130	Pass	
Fluorene	%	98			70-130	Pass	
Indeno(1,2,3-cd)pyrene	%	126			70-130	Pass	
Naphthalene	%	95			70-130	Pass	
Phenanthrene	%	93			70-130	Pass	
Pyrene	%	93			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	80			70-130	Pass	
4,4'-DDD	%	92			70-130	Pass	
4,4'-DDE	%	84			70-130	Pass	
4,4'-DDT	%	76			70-130	Pass	
α-BHC	%	88			70-130	Pass	
Aldrin	%	82			70-130	Pass	
β-BHC	%	88			70-130	Pass	
δ-BHC	%	83			70-130	Pass	
Dieldrin	%	89			70-130	Pass	
Endosulfan I	%	89			70-130	Pass	
Endosulfan II	%	85			70-130	Pass	
Endosulfan sulphate	%	71			70-130	Pass	
Endrin	%	77			70-130	Pass	
Endrin aldehyde	%	88			70-130	Pass	
Endrin ketone	%	80			70-130	Pass	
γ-BHC (Lindane)	%	99			70-130	Pass	
Heptachlor	%	81			70-130	Pass	
Heptachlor epoxide	%	86			70-130	Pass	
Hexachlorobenzene	%	95			70-130	Pass	
Methoxychlor	%	74			70-130	Pass	
LCS - % Recovery							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Organophosphorus Pesticides							
Diazinon	%	84			70-130	Pass	
Dimethoate	%	81			70-130	Pass	
Ethion	%	74			70-130	Pass	
Fenitrothion	%	87			70-130	Pass	
Methyl parathion	%	92			70-130	Pass	
Mevinphos	%	90			70-130	Pass	
LCS - % Recovery							
Acid Herbicides							
2,4-D	%	70			70-130	Pass	
2,4-DB	%	73			70-130	Pass	
2,4,5-T	%	72			70-130	Pass	
2,4,5-TP	%	72			70-130	Pass	
Actril (loxynil)	%	79			70-130	Pass	
Dicamba	%	84			70-130	Pass	
Dichlorprop	%	102			70-130	Pass	
Dinitro-o-cresol	%	74			70-130	Pass	
Dinoseb	%	90			70-130	Pass	
MCPA	%	73			70-130	Pass	
MCPB	%	70			70-130	Pass	
Mecoprop	%	80			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	90			30-130	Pass	
2,4-Dichlorophenol	%	55			30-130	Pass	
2,4,5-Trichlorophenol	%	52			30-130	Pass	
2,4,6-Trichlorophenol	%	55			30-130	Pass	
2,6-Dichlorophenol	%	63			30-130	Pass	
4-Chloro-3-methylphenol	%	57			30-130	Pass	
Pentachlorophenol	%	51			30-130	Pass	
Tetrachlorophenols - Total	%	72			30-130	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4,6-dinitrophenol	%	82			30-130	Pass	
2-Methyl-4,6-dinitrophenol	%	85			30-130	Pass	
2-Methylphenol (o-Cresol)	%	65			30-130	Pass	
2-Nitrophenol	%	62			30-130	Pass	
2,4-Dimethylphenol	%	59			30-130	Pass	
2,4-Dinitrophenol	%	88			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	%	63			30-130	Pass	
4-Nitrophenol	%	63			30-130	Pass	
Dinoseb	%	79			30-130	Pass	
Phenol	%	92			30-130	Pass	
LCS - % Recovery							
Chromium (hexavalent)	%	96			70-130	Pass	
Total Kjeldahl Nitrogen (as N)	%	90			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	118			80-120	Pass	
Beryllium	%	116			80-120	Pass	
Boron	%	119			80-120	Pass	
Cadmium	%	90			80-120	Pass	
Cobalt	%	117			80-120	Pass	
Copper	%	111			80-120	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Lead			%	117			80-120	Pass	
Manganese			%	112			80-120	Pass	
Mercury			%	105			75-125	Pass	
Nickel			%	108			80-120	Pass	
Selenium			%	109			80-120	Pass	
Zinc			%	117			80-120	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M19-Oc27591	CP	%	103			70-130	Pass	
Acenaphthylene	M19-Oc27591	CP	%	99			70-130	Pass	
Anthracene	M19-Oc27591	CP	%	95			70-130	Pass	
Benz(a)anthracene	M19-Oc27591	CP	%	100			70-130	Pass	
Benzo(a)pyrene	M19-Oc27591	CP	%	107			70-130	Pass	
Benzo(b&j)fluoranthene	M19-Oc27591	CP	%	102			70-130	Pass	
Benzo(g,h,i)perylene	M19-Oc27591	CP	%	127			70-130	Pass	
Benzo(k)fluoranthene	M19-Oc27591	CP	%	114			70-130	Pass	
Chrysene	M19-Oc27591	CP	%	112			70-130	Pass	
Dibenz(a,h)anthracene	M19-Oc27591	CP	%	122			70-130	Pass	
Fluoranthene	M19-Oc27591	CP	%	116			70-130	Pass	
Fluorene	M19-Oc27591	CP	%	96			70-130	Pass	
Indeno(1,2,3-cd)pyrene	M19-Oc27591	CP	%	122			70-130	Pass	
Naphthalene	M19-Oc27591	CP	%	106			70-130	Pass	
Phenanthrene	M19-Oc27591	CP	%	96			70-130	Pass	
Pyrene	M19-Oc27591	CP	%	116			70-130	Pass	
Spike - % Recovery									
Phenols (Halogenated)				Result 1					
2-Chlorophenol	M19-Oc27591	CP	%	106			30-130	Pass	
2,4-Dichlorophenol	M19-Oc27591	CP	%	77			30-130	Pass	
2,4,5-Trichlorophenol	M19-Oc27591	CP	%	67			30-130	Pass	
2,4,6-Trichlorophenol	M19-Oc27591	CP	%	64			30-130	Pass	
2,6-Dichlorophenol	M19-Oc27591	CP	%	90			30-130	Pass	
4-Chloro-3-methylphenol	M19-Oc27591	CP	%	65			30-130	Pass	
Pentachlorophenol	M19-Oc27591	CP	%	67			30-130	Pass	
Tetrachlorophenols - Total	M19-Oc27591	CP	%	81			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
2-Cyclohexyl-4,6-dinitrophenol	M19-Oc27591	CP	%	78			30-130	Pass	
2-Methyl-4,6-dinitrophenol	M19-Oc27591	CP	%	79			30-130	Pass	
2-Methylphenol (o-Cresol)	M19-Oc27591	CP	%	86			30-130	Pass	
2-Nitrophenol	M19-Oc27591	CP	%	91			30-130	Pass	
2,4-Dimethylphenol	M19-Oc27591	CP	%	82			30-130	Pass	
2,4-Dinitrophenol	M19-Oc27591	CP	%	78			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	M19-Oc27591	CP	%	87			30-130	Pass	
4-Nitrophenol	M19-Oc27591	CP	%	70			30-130	Pass	
Dinoseb	M19-Oc27591	CP	%	76			30-130	Pass	
Phenol	M19-Oc27591	CP	%	100			30-130	Pass	
Spike - % Recovery									
Acid Herbicides				Result 1					
2,4-D	S19-Oc31597	NCP	%	73			70-130	Pass	
Actril (loxynil)	S19-Oc31597	NCP	%	120			70-130	Pass	
Dichlorprop	S19-Oc31597	NCP	%	77			70-130	Pass	
MCPA	S19-Oc31597	NCP	%	71			70-130	Pass	
MCPB	S19-Oc31597	NCP	%	70			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery								
				Result 1				
Chromium (hexavalent)	M19-Oc27597	CP	%	87		70-130	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1				
TRH C6-C9	M19-Oc28463	NCP	%	99		70-130	Pass	
TRH C10-C14	M19-Oc28470	NCP	%	86		70-130	Pass	
Spike - % Recovery								
BTEX				Result 1				
Benzene	M19-Oc28463	NCP	%	77		70-130	Pass	
Toluene	M19-Oc28463	NCP	%	81		70-130	Pass	
Ethylbenzene	M19-Oc28463	NCP	%	80		70-130	Pass	
m&p-Xylenes	M19-Oc28463	NCP	%	79		70-130	Pass	
o-Xylene	M19-Oc28463	NCP	%	80		70-130	Pass	
Xylenes - Total	M19-Oc28463	NCP	%	79		70-130	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1				
Naphthalene	M19-Oc28463	NCP	%	84		70-130	Pass	
TRH C6-C10	M19-Oc28463	NCP	%	95		70-130	Pass	
TRH >C10-C16	M19-Oc28470	NCP	%	82		70-130	Pass	
Spike - % Recovery								
Organochlorine Pesticides				Result 1				
Chlordanes - Total	S19-Oc29211	NCP	%	96		70-130	Pass	
4,4'-DDD	S19-Oc29211	NCP	%	75		70-130	Pass	
a-BHC	S19-Oc29211	NCP	%	109		70-130	Pass	
Aldrin	S19-Oc29211	NCP	%	114		70-130	Pass	
b-BHC	S19-Oc29211	NCP	%	79		70-130	Pass	
d-BHC	S19-Oc29211	NCP	%	92		70-130	Pass	
Dieldrin	S19-Oc29211	NCP	%	92		70-130	Pass	
Endosulfan I	S19-Oc29211	NCP	%	97		70-130	Pass	
Endosulfan II	S19-Oc29211	NCP	%	71		70-130	Pass	
Endrin aldehyde	S19-Oc29211	NCP	%	88		70-130	Pass	
g-BHC (Lindane)	S19-Oc29211	NCP	%	87		70-130	Pass	
Heptachlor epoxide	S19-Oc29211	NCP	%	81		70-130	Pass	
Spike - % Recovery								
Heavy Metals				Result 1				
Arsenic	M19-Oc27601	CP	%	124		75-125	Pass	
Beryllium	M19-Oc27601	CP	%	102		75-125	Pass	
Boron	M19-Oc27601	CP	%	98		75-125	Pass	
Cadmium	M19-Oc27601	CP	%	91		75-125	Pass	
Cobalt	M19-Oc27601	CP	%	124		75-125	Pass	
Copper	M19-Oc27601	CP	%	117		75-125	Pass	
Lead	M19-Oc27601	CP	%	122		75-125	Pass	
Manganese	M19-Oc27601	CP	%	111		75-125	Pass	
Mercury	M19-Oc27601	CP	%	107		70-130	Pass	
Nickel	M19-Oc27601	CP	%	116		75-125	Pass	
Selenium	M19-Oc27601	CP	%	107		75-125	Pass	
Zinc	M19-Oc27601	CP	%	105		75-125	Pass	
Spike - % Recovery								
Organochlorine Pesticides				Result 1				
4,4'-DDE	M19-Oc29777	NCP	%	103		70-130	Pass	
4,4'-DDT	M19-Oc29777	NCP	%	76		70-130	Pass	
Endosulfan sulphate	M19-Oc29777	NCP	%	114		70-130	Pass	
Endrin	M19-Oc29777	NCP	%	92		70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin ketone	M19-Oc29777	NCP	%	104			70-130	Pass	
Heptachlor	M19-Oc29777	NCP	%	103			70-130	Pass	
Hexachlorobenzene	M19-Oc29777	NCP	%	102			70-130	Pass	
Methoxychlor	M19-Oc29777	NCP	%	88			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M19-Oc27604	CP	%	99			70-130	Pass	
Acenaphthylene	M19-Oc27604	CP	%	101			70-130	Pass	
Anthracene	M19-Oc27604	CP	%	94			70-130	Pass	
Benz(a)anthracene	M19-Oc27604	CP	%	83			70-130	Pass	
Benzo(a)pyrene	M19-Oc27604	CP	%	95			70-130	Pass	
Benzo(b&j)fluoranthene	M19-Oc27604	CP	%	100			70-130	Pass	
Benzo(g,h,i)perylene	M19-Oc27604	CP	%	79			70-130	Pass	
Benzo(k)fluoranthene	M19-Oc27604	CP	%	111			70-130	Pass	
Chrysene	M19-Oc27604	CP	%	94			70-130	Pass	
Dibenz(a,h)anthracene	M19-Oc27604	CP	%	101			70-130	Pass	
Fluoranthene	M19-Oc27604	CP	%	99			70-130	Pass	
Fluorene	M19-Oc27604	CP	%	105			70-130	Pass	
Indeno(1,2,3-cd)pyrene	M19-Oc27604	CP	%	90			70-130	Pass	
Naphthalene	M19-Oc27604	CP	%	108			70-130	Pass	
Phenanthrene	M19-Oc27604	CP	%	104			70-130	Pass	
Pyrene	M19-Oc27604	CP	%	103			70-130	Pass	
Spike - % Recovery									
Phenols (Halogenated)				Result 1					
2-Chlorophenol	M19-Oc27604	CP	%	70			30-130	Pass	
2,4-Dichlorophenol	M19-Oc27604	CP	%	65			30-130	Pass	
2,4,5-Trichlorophenol	M19-Oc27604	CP	%	62			30-130	Pass	
2,4,6-Trichlorophenol	M19-Oc27604	CP	%	115			30-130	Pass	
2,6-Dichlorophenol	M19-Oc27604	CP	%	66			30-130	Pass	
4-Chloro-3-methylphenol	M19-Oc27604	CP	%	70			30-130	Pass	
Pentachlorophenol	M19-Oc27604	CP	%	54			30-130	Pass	
Tetrachlorophenols - Total	M19-Oc27604	CP	%	64			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
2-Cyclohexyl-4,6-dinitrophenol	M19-Oc27604	CP	%	42			30-130	Pass	
2-Methyl-4,6-dinitrophenol	M19-Oc27604	CP	%	46			30-130	Pass	
2-Methylphenol (o-Cresol)	M19-Oc27604	CP	%	72			30-130	Pass	
2-Nitrophenol	M19-Oc27604	CP	%	59			30-130	Pass	
2,4-Dimethylphenol	M19-Oc27604	CP	%	112			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	M19-Oc27604	CP	%	74			30-130	Pass	
4-Nitrophenol	M19-Oc27604	CP	%	33			30-130	Pass	
Dinoseb	M19-Oc27604	CP	%	53			30-130	Pass	
Phenol	M19-Oc27604	CP	%	71			30-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M19-Oc27614	CP	%	102			70-130	Pass	
Acenaphthylene	M19-Oc27614	CP	%	105			70-130	Pass	
Anthracene	M19-Oc27614	CP	%	95			70-130	Pass	
Benz(a)anthracene	M19-Oc27614	CP	%	84			70-130	Pass	
Benzo(a)pyrene	M19-Oc27614	CP	%	89			70-130	Pass	
Benzo(b&j)fluoranthene	M19-Oc27614	CP	%	97			70-130	Pass	
Benzo(g,h,i)perylene	M19-Oc27614	CP	%	94			70-130	Pass	
Benzo(k)fluoranthene	M19-Oc27614	CP	%	91			70-130	Pass	
Chrysene	M19-Oc27614	CP	%	120			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Dibenz(a,h)anthracene	M19-Oc27614	CP	%	80			70-130	Pass	
Fluoranthene	M19-Oc27614	CP	%	101			70-130	Pass	
Fluorene	M19-Oc27614	CP	%	104			70-130	Pass	
Indeno(1,2,3-cd)pyrene	M19-Oc27614	CP	%	78			70-130	Pass	
Naphthalene	M19-Oc27614	CP	%	107			70-130	Pass	
Phenanthrene	M19-Oc27614	CP	%	96			70-130	Pass	
Pyrene	M19-Oc27614	CP	%	101			70-130	Pass	
Spike - % Recovery									
Phenols (Halogenated)				Result 1					
2-Chlorophenol	M19-Oc27614	CP	%	102			30-130	Pass	
2,4-Dichlorophenol	M19-Oc27614	CP	%	94			30-130	Pass	
2,4,5-Trichlorophenol	M19-Oc27614	CP	%	72			30-130	Pass	
2,4,6-Trichlorophenol	M19-Oc27614	CP	%	84			30-130	Pass	
2,6-Dichlorophenol	M19-Oc27614	CP	%	105			30-130	Pass	
4-Chloro-3-methylphenol	M19-Oc27614	CP	%	96			30-130	Pass	
Pentachlorophenol	M19-Oc27614	CP	%	71			30-130	Pass	
Tetrachlorophenols - Total	M19-Oc27614	CP	%	92			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
2-Methyl-4,6-dinitrophenol	M19-Oc27614	CP	%	52			30-130	Pass	
2-Methylphenol (o-Cresol)	M19-Oc27614	CP	%	100			30-130	Pass	
2-Nitrophenol	M19-Oc27614	CP	%	98			30-130	Pass	
2,4-Dimethylphenol	M19-Oc27614	CP	%	69			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	M19-Oc27614	CP	%	86			30-130	Pass	
4-Nitrophenol	M19-Oc27614	CP	%	44			30-130	Pass	
Dinoseb	M19-Oc27614	CP	%	58			30-130	Pass	
Phenol	M19-Oc27614	CP	%	100			30-130	Pass	
Spike - % Recovery									
				Result 1					
Chromium (hexavalent)	M19-Oc27617	CP	%	106			70-130	Pass	
Spike - % Recovery									
Organophosphorus Pesticides				Result 1					
Diazinon	M19-Oc27620	CP	%	124			70-130	Pass	
Dimethoate	M19-Oc27620	CP	%	90			70-130	Pass	
Ethion	M19-Oc27620	CP	%	78			70-130	Pass	
Fenitrothion	M19-Oc27620	CP	%	79			70-130	Pass	
Methyl parathion	M19-Oc27620	CP	%	80			70-130	Pass	
Mevinphos	M19-Oc27620	CP	%	88			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M19-Oc27621	CP	%	109			75-125	Pass	
Beryllium	M19-Oc27621	CP	%	108			75-125	Pass	
Boron	M19-Oc27621	CP	%	106			75-125	Pass	
Cadmium	M19-Oc27621	CP	%	90			75-125	Pass	
Cobalt	M19-Oc27621	CP	%	118			75-125	Pass	
Copper	M19-Oc27621	CP	%	115			75-125	Pass	
Lead	M19-Oc27621	CP	%	119			75-125	Pass	
Manganese	M19-Oc27621	CP	%	112			75-125	Pass	
Mercury	M19-Oc27621	CP	%	102			70-130	Pass	
Nickel	M19-Oc27621	CP	%	114			75-125	Pass	
Selenium	M19-Oc27621	CP	%	102			75-125	Pass	
Zinc	M19-Oc27621	CP	%	113			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1	Result 2	RPD	Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
				Result 1	Result 2	RPD			
Ammonia (as N)	M19-Oc27583	CP	mg/kg	36	35	4.0	30%	Pass	
Nitrate & Nitrite (as N)	M19-Oc27583	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Nitrate (as N)	M19-Oc27583	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Nitrite (as N)	M19-Oc27583	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Sulphur	S19-Oc30232	NCP	mg/kg	140	140	2.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	M19-Oc27584	CP	%	5.6	5.3	6.0	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M19-Oc27588	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	M19-Oc27588	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	M19-Oc27588	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	M19-Oc27588	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	M19-Oc27588	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	M19-Oc27588	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g,h,i)perylene	M19-Oc27588	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	M19-Oc27588	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	M19-Oc27588	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a,h)anthracene	M19-Oc27588	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	M19-Oc27588	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	M19-Oc27588	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1,2,3-cd)pyrene	M19-Oc27588	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	M19-Oc27588	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	M19-Oc27588	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	M19-Oc27588	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Phenols (Halogenated)				Result 1	Result 2	RPD			
2-Chlorophenol	M19-Oc27588	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2,4-Dichlorophenol	M19-Oc27588	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2,4,5-Trichlorophenol	M19-Oc27588	CP	mg/kg	< 1	< 1	<1	30%	Pass	
2,4,6-Trichlorophenol	M19-Oc27588	CP	mg/kg	< 1	< 1	<1	30%	Pass	
2,6-Dichlorophenol	M19-Oc27588	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Chloro-3-methylphenol	M19-Oc27588	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Pentachlorophenol	M19-Oc27588	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Tetrachlorophenols - Total	M19-Oc27588	CP	mg/kg	< 10	< 10	<1	30%	Pass	
Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
2-Cyclohexyl-4,6-dinitrophenol	M19-Oc27588	CP	mg/kg	< 20	< 20	<1	30%	Pass	
2-Methyl-4,6-dinitrophenol	M19-Oc27588	CP	mg/kg	< 5	< 5	<1	30%	Pass	
2-Methylphenol (o-Cresol)	M19-Oc27588	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
2-Nitrophenol	M19-Oc27588	CP	mg/kg	< 1	< 1	<1	30%	Pass	
2,4-Dimethylphenol	M19-Oc27588	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2,4-Dinitrophenol	M19-Oc27588	CP	mg/kg	< 5	< 5	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	M19-Oc27588	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
4-Nitrophenol	M19-Oc27588	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Dinoseb	M19-Oc27588	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Phenol	M19-Oc27588	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
pH (1:5 Aqueous extract at 25°C as rec.)	M19-Oc27591	CP	pH Units	6.8	6.6	pass	30%	Pass	

Duplicate								
Acid Herbicides				Result 1	Result 2	RPD		
2.4-D	S19-Oc31595	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
2.4-DB	S19-Oc31595	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
2.4.5-T	S19-Oc31595	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
2.4.5-TP	S19-Oc31595	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Actril (loxynil)	S19-Oc31595	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Dicamba	S19-Oc31595	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Dichlorprop	S19-Oc31595	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Dinitro-o-cresol	S19-Oc31595	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Dinoseb	S19-Oc31595	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
MCPA	S19-Oc31595	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
MCPB	S19-Oc31595	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Mecoprop	S19-Oc31595	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD		
TRH C6-C9	M19-Oc29091	NCP	mg/kg	< 20	< 20	<1	30%	Pass
Duplicate								
BTEX				Result 1	Result 2	RPD		
Benzene	M19-Oc29091	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Toluene	M19-Oc29091	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Ethylbenzene	M19-Oc29091	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
m&p-Xylenes	M19-Oc29091	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
o-Xylene	M19-Oc29091	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Xylenes - Total	M19-Oc29091	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	M19-Oc29091	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
TRH C6-C10	M19-Oc29091	NCP	mg/kg	< 20	< 20	<1	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	M19-Oc27601	CP	mg/kg	2.4	2.3	2.0	30%	Pass
Beryllium	M19-Oc27601	CP	mg/kg	< 2	< 2	<1	30%	Pass
Boron	M19-Oc27601	CP	mg/kg	< 10	< 10	<1	30%	Pass
Cadmium	M19-Oc27601	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
Cobalt	M19-Oc27601	CP	mg/kg	< 5	< 5	<1	30%	Pass
Copper	M19-Oc27601	CP	mg/kg	< 5	< 5	<1	30%	Pass
Lead	M19-Oc27601	CP	mg/kg	10	11	2.0	30%	Pass
Manganese	M19-Oc27601	CP	mg/kg	32	32	<1	30%	Pass
Mercury	M19-Oc27601	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Nickel	M19-Oc27601	CP	mg/kg	< 5	< 5	<1	30%	Pass
Selenium	M19-Oc27601	CP	mg/kg	< 2	< 2	<1	30%	Pass
Zinc	M19-Oc27601	CP	mg/kg	6.1	6.5	6.0	30%	Pass
Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Acenaphthene	M19-Oc27603	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Acenaphthylene	M19-Oc27603	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Anthracene	M19-Oc27603	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benz(a)anthracene	M19-Oc27603	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(a)pyrene	M19-Oc27603	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(b&j)fluoranthene	M19-Oc27603	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(g,h,i)perylene	M19-Oc27603	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(k)fluoranthene	M19-Oc27603	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Chrysene	M19-Oc27603	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Dibenz(a,h)anthracene	M19-Oc27603	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluoranthene	M19-Oc27603	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass

Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Fluorene	M19-Oc27603	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Indeno(1.2.3-cd)pyrene	M19-Oc27603	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Naphthalene	M19-Oc27603	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Phenanthrene	M19-Oc27603	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Pyrene	M19-Oc27603	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Organochlorine Pesticides				Result 1	Result 2	RPD		
Chlordanes - Total	M19-Oc27603	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
4,4'-DDD	M19-Oc27603	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
4,4'-DDE	M19-Oc27603	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
4,4'-DDT	M19-Oc27603	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
a-BHC	M19-Oc27603	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Aldrin	M19-Oc27603	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
b-BHC	M19-Oc27603	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
d-BHC	M19-Oc27603	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Dieldrin	M19-Oc27603	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan I	M19-Oc27603	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan II	M19-Oc27603	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan sulphate	M19-Oc27603	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin	M19-Oc27603	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin aldehyde	M19-Oc27603	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin ketone	M19-Oc27603	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
g-BHC (Lindane)	M19-Oc27603	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor	M19-Oc27603	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor epoxide	M19-Oc27603	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Hexachlorobenzene	M19-Oc27603	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Methoxychlor	M19-Oc27603	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Duplicate								
Organophosphorus Pesticides				Result 1	Result 2	RPD		
Azinphos-methyl	M19-Oc27603	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Bolstar	M19-Oc27603	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Chlorfenvinphos	M19-Oc27603	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Chlorpyrifos	M19-Oc27603	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Chlorpyrifos-methyl	M19-Oc27603	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Coumaphos	M19-Oc27603	CP	mg/kg	< 2	< 2	<1	30%	Pass
Demeton-S	M19-Oc27603	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Demeton-O	M19-Oc27603	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Diazinon	M19-Oc27603	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Dichlorvos	M19-Oc27603	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Dimethoate	M19-Oc27603	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Disulfoton	M19-Oc27603	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
EPN	M19-Oc27603	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ethion	M19-Oc27603	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ethoprop	M19-Oc27603	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ethyl parathion	M19-Oc27603	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Fenitrothion	M19-Oc27603	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Fensulfthion	M19-Oc27603	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Fenthion	M19-Oc27603	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Malathion	M19-Oc27603	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Merphos	M19-Oc27603	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Methyl parathion	M19-Oc27603	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Mevinphos	M19-Oc27603	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Monocrotophos	M19-Oc27603	CP	mg/kg	< 2	< 2	<1	30%	Pass
Naled	M19-Oc27603	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass

Duplicate								
Organophosphorus Pesticides				Result 1	Result 2	RPD		
Omethoate	M19-Oc27603	CP	mg/kg	< 2	< 2	<1	30%	Pass
Phorate	M19-Oc27603	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Pirimiphos-methyl	M19-Oc27603	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Pyrazophos	M19-Oc27603	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ronnel	M19-Oc27603	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Terbufos	M19-Oc27603	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Tetrachlorvinphos	M19-Oc27603	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Tokuthion	M19-Oc27603	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Trichloronate	M19-Oc27603	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Duplicate								
Phenols (Halogenated)				Result 1	Result 2	RPD		
2-Chlorophenol	M19-Oc27603	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
2,4-Dichlorophenol	M19-Oc27603	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
2,4,5-Trichlorophenol	M19-Oc27603	CP	mg/kg	< 1	< 1	<1	30%	Pass
2,4,6-Trichlorophenol	M19-Oc27603	CP	mg/kg	< 1	< 1	<1	30%	Pass
2,6-Dichlorophenol	M19-Oc27603	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
4-Chloro-3-methylphenol	M19-Oc27603	CP	mg/kg	< 1	< 1	<1	30%	Pass
Pentachlorophenol	M19-Oc27603	CP	mg/kg	< 1	< 1	<1	30%	Pass
Tetrachlorophenols - Total	M19-Oc27603	CP	mg/kg	< 10	< 10	<1	30%	Pass
Duplicate								
Phenols (non-Halogenated)				Result 1	Result 2	RPD		
2-Cyclohexyl-4,6-dinitrophenol	M19-Oc27603	CP	mg/kg	< 20	< 20	<1	30%	Pass
2-Methyl-4,6-dinitrophenol	M19-Oc27603	CP	mg/kg	< 5	< 5	<1	30%	Pass
2-Methylphenol (o-Cresol)	M19-Oc27603	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
2-Nitrophenol	M19-Oc27603	CP	mg/kg	< 1	< 1	<1	30%	Pass
2,4-Dimethylphenol	M19-Oc27603	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
2,4-Dinitrophenol	M19-Oc27603	CP	mg/kg	< 5	< 5	<1	30%	Pass
3&4-Methylphenol (m&p-Cresol)	M19-Oc27603	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
4-Nitrophenol	M19-Oc27603	CP	mg/kg	< 5	< 5	<1	30%	Pass
Dinoseb	M19-Oc27603	CP	mg/kg	< 20	< 20	<1	30%	Pass
Phenol	M19-Oc27603	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
% Moisture	M19-Oc27604	CP	%	< 1	< 1	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Chromium (hexavalent)	M19-Oc27606	CP	mg/kg	< 1	< 1	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Ammonia (as N)	M19-Oc27608	CP	mg/kg	9.0	8.6	4.0	30%	Pass
Nitrate & Nitrite (as N)	M19-Oc27608	CP	mg/kg	6.3	6.3	<1	30%	Pass
Nitrate (as N)	M19-Oc27608	CP	mg/kg	6.2	6.3	1.0	30%	Pass
Nitrite (as N)	M19-Oc27608	CP	mg/kg	< 5	< 5	<1	30%	Pass
Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Acenaphthene	M19-Oc27609	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Acenaphthylene	M19-Oc27609	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Anthracene	M19-Oc27609	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benz(a)anthracene	M19-Oc27609	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(a)pyrene	M19-Oc27609	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(b&j)fluoranthene	M19-Oc27609	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(g,h,i)perylene	M19-Oc27609	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(k)fluoranthene	M19-Oc27609	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Chrysene	M19-Oc27609	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass

Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Dibenz(a,h)anthracene	M19-Oc27609	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluoranthene	M19-Oc27609	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluorene	M19-Oc27609	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Indeno(1.2.3-cd)pyrene	M19-Oc27609	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Naphthalene	M19-Oc27609	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Phenanthrene	M19-Oc27609	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Pyrene	M19-Oc27609	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Organochlorine Pesticides				Result 1	Result 2	RPD		
Chlordanes - Total	M19-Oc27609	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
4,4'-DDD	M19-Oc27609	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
4,4'-DDE	M19-Oc27609	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
4,4'-DDT	M19-Oc27609	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
a-BHC	M19-Oc27609	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Aldrin	M19-Oc27609	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
b-BHC	M19-Oc27609	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
d-BHC	M19-Oc27609	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Dieldrin	M19-Oc27609	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan I	M19-Oc27609	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan II	M19-Oc27609	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan sulphate	M19-Oc27609	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin	M19-Oc27609	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin aldehyde	M19-Oc27609	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin ketone	M19-Oc27609	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
g-BHC (Lindane)	M19-Oc27609	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor	M19-Oc27609	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor epoxide	M19-Oc27609	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Hexachlorobenzene	M19-Oc27609	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Methoxychlor	M19-Oc27609	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Toxaphene	M19-Oc27609	CP	mg/kg	< 1	< 1	<1	30%	Pass
Duplicate								
Organophosphorus Pesticides				Result 1	Result 2	RPD		
Azinphos-methyl	M19-Oc27609	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Bolstar	M19-Oc27609	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Chlorfenvinphos	M19-Oc27609	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Chlorpyrifos	M19-Oc27609	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Chlorpyrifos-methyl	M19-Oc27609	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Coumaphos	M19-Oc27609	CP	mg/kg	< 2	< 2	<1	30%	Pass
Demeton-S	M19-Oc27609	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Demeton-O	M19-Oc27609	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Diazinon	M19-Oc27609	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Dichlorvos	M19-Oc27609	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Dimethoate	M19-Oc27609	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Disulfoton	M19-Oc27609	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
EPN	M19-Oc27609	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ethion	M19-Oc27609	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ethoprop	M19-Oc27609	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ethyl parathion	M19-Oc27609	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Fenitrothion	M19-Oc27609	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Fensulfothion	M19-Oc27609	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Fenthion	M19-Oc27609	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Malathion	M19-Oc27609	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Merphos	M19-Oc27609	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Methyl parathion	M19-Oc27609	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass

Duplicate								
Organophosphorus Pesticides				Result 1	Result 2	RPD		
Mevinphos	M19-Oc27609	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Monocrotophos	M19-Oc27609	CP	mg/kg	< 2	< 2	<1	30%	Pass
Naled	M19-Oc27609	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Omethoate	M19-Oc27609	CP	mg/kg	< 2	< 2	<1	30%	Pass
Phorate	M19-Oc27609	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Pirimiphos-methyl	M19-Oc27609	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Pyrazophos	M19-Oc27609	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ronnel	M19-Oc27609	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Terbufos	M19-Oc27609	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Tetrachlorvinphos	M19-Oc27609	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Tokuthion	M19-Oc27609	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Trichloronate	M19-Oc27609	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Duplicate								
Phenols (Halogenated)				Result 1	Result 2	RPD		
2-Chlorophenol	M19-Oc27609	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
2,4-Dichlorophenol	M19-Oc27609	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
2,4,5-Trichlorophenol	M19-Oc27609	CP	mg/kg	< 1	< 1	<1	30%	Pass
2,4,6-Trichlorophenol	M19-Oc27609	CP	mg/kg	< 1	< 1	<1	30%	Pass
2,6-Dichlorophenol	M19-Oc27609	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
4-Chloro-3-methylphenol	M19-Oc27609	CP	mg/kg	< 1	< 1	<1	30%	Pass
Pentachlorophenol	M19-Oc27609	CP	mg/kg	< 1	< 1	<1	30%	Pass
Tetrachlorophenols - Total	M19-Oc27609	CP	mg/kg	< 10	< 10	<1	30%	Pass
Duplicate								
Phenols (non-Halogenated)				Result 1	Result 2	RPD		
2-Cyclohexyl-4,6-dinitrophenol	M19-Oc27609	CP	mg/kg	< 20	< 20	<1	30%	Pass
2-Methyl-4,6-dinitrophenol	M19-Oc27609	CP	mg/kg	< 5	< 5	<1	30%	Pass
2-Methylphenol (o-Cresol)	M19-Oc27609	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
2-Nitrophenol	M19-Oc27609	CP	mg/kg	< 1	< 1	<1	30%	Pass
2,4-Dimethylphenol	M19-Oc27609	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
2,4-Dinitrophenol	M19-Oc27609	CP	mg/kg	< 5	< 5	<1	30%	Pass
3&4-Methylphenol (m&p-Cresol)	M19-Oc27609	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
4-Nitrophenol	M19-Oc27609	CP	mg/kg	< 5	< 5	<1	30%	Pass
Dinoseb	M19-Oc27609	CP	mg/kg	< 20	< 20	<1	30%	Pass
Phenol	M19-Oc27609	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
pH (1:5 Aqueous extract at 25°C as rec.)	M19-Oc27610	CP	pH Units	8.4	8.6	pass	30%	Pass
Phosphorus	M19-Oc27610	CP	mg/kg	230	170	30	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	M19-Oc27613	CP	mg/kg	< 2	< 2	<1	30%	Pass
Beryllium	M19-Oc27613	CP	mg/kg	< 2	< 2	<1	30%	Pass
Boron	M19-Oc27613	CP	mg/kg	< 10	< 10	<1	30%	Pass
Cadmium	M19-Oc27613	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
Cobalt	M19-Oc27613	CP	mg/kg	< 5	< 5	<1	30%	Pass
Copper	M19-Oc27613	CP	mg/kg	< 5	< 5	<1	30%	Pass
Lead	M19-Oc27613	CP	mg/kg	< 5	< 5	<1	30%	Pass
Manganese	M19-Oc27613	CP	mg/kg	43	41	5.0	30%	Pass
Mercury	M19-Oc27613	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Nickel	M19-Oc27613	CP	mg/kg	< 5	< 5	<1	30%	Pass
Selenium	M19-Oc27613	CP	mg/kg	< 2	< 2	<1	30%	Pass
Zinc	M19-Oc27613	CP	mg/kg	< 5	< 5	<1	30%	Pass

Duplicate								
				Result 1	Result 2	RPD		
pH (1:5 Aqueous extract at 25°C as rec.)	M19-Oc27620	CP	pH Units	8.0	8.1	pass	30%	Pass
Phosphorus	M19-Oc27620	CP	mg/kg	140	150	5.0	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	M19-Oc27620	CP	mg/kg	< 2	< 2	<1	30%	Pass
Beryllium	M19-Oc27620	CP	mg/kg	< 2	< 2	<1	30%	Pass
Boron	M19-Oc27620	CP	mg/kg	< 10	< 10	<1	30%	Pass
Cadmium	M19-Oc27620	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
Cobalt	M19-Oc27620	CP	mg/kg	< 5	< 5	<1	30%	Pass
Copper	M19-Oc27620	CP	mg/kg	< 5	< 5	<1	30%	Pass
Lead	M19-Oc27620	CP	mg/kg	6.4	6.4	1.0	30%	Pass
Manganese	M19-Oc27620	CP	mg/kg	< 5	< 5	<1	30%	Pass
Mercury	M19-Oc27620	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Nickel	M19-Oc27620	CP	mg/kg	< 5	< 5	<1	30%	Pass
Selenium	M19-Oc27620	CP	mg/kg	< 2	< 2	<1	30%	Pass
Zinc	M19-Oc27620	CP	mg/kg	< 5	< 5	<1	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	M19-Oc27621	CP	mg/kg	< 2	< 2	<1	30%	Pass
Beryllium	M19-Oc27621	CP	mg/kg	< 2	< 2	<1	30%	Pass
Boron	M19-Oc27621	CP	mg/kg	< 10	< 10	<1	30%	Pass
Cadmium	M19-Oc27621	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
Cobalt	M19-Oc27621	CP	mg/kg	< 5	< 5	<1	30%	Pass
Copper	M19-Oc27621	CP	mg/kg	< 5	< 5	<1	30%	Pass
Lead	M19-Oc27621	CP	mg/kg	< 5	< 5	<1	30%	Pass
Manganese	M19-Oc27621	CP	mg/kg	< 5	< 5	<1	30%	Pass
Mercury	M19-Oc27621	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Nickel	M19-Oc27621	CP	mg/kg	< 5	< 5	<1	30%	Pass
Selenium	M19-Oc27621	CP	mg/kg	< 2	< 2	<1	30%	Pass
Zinc	M19-Oc27621	CP	mg/kg	< 5	< 5	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
pH (1:5 Aqueous extract at 25°C as rec.)	M19-Oc27624	CP	pH Units	7.1	6.9	pass	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD		
TRH C10-C14	M19-Oc27625	CP	mg/kg	< 20	< 20	<1	30%	Pass
TRH C15-C28	M19-Oc27625	CP	mg/kg	< 50	< 50	<1	30%	Pass
TRH C29-C36	M19-Oc27625	CP	mg/kg	< 50	< 50	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
TRH >C10-C16	M19-Oc27625	CP	mg/kg	< 50	< 50	<1	30%	Pass
TRH >C16-C34	M19-Oc27625	CP	mg/kg	< 100	< 100	<1	30%	Pass
TRH >C34-C40	M19-Oc27625	CP	mg/kg	< 100	< 100	<1	30%	Pass

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
M01	Microbiological Testing performed outside the recommended holding time
M10	NATA accreditation does not cover the performance of this service in soil matrices
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised By

Cindi Guo	Analytical Services Manager
Emily Rosenberg	Senior Analyst-Metal (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)
Julie Kay	Senior Analyst-Inorganic (VIC)
Nandhini Uthayakumaran	Senior Analyst-Microbiology (VIC)



Glenn Jackson General Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

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Greencap NT P/L
11/14 Winnellie Road
Winnellie
NT 0800



NATA Accredited
Accreditation Number 1261
Site Number 1254 & 14271

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or
measurements included in this document are traceable
to Australian/national standards.

Attention: **Stuart Carroll**

Report **683260-W**
Project name **JABIRU TOWN SCI**
Project ID **J162772**
Received Date **Oct 18, 2019**

Client Sample ID			FB04	RB04	TB04
Sample Matrix			Water	Water	Water
Eurofins Sample No.			M19-Oc27627	M19-Oc27628	M19-Oc27629
Date Sampled			Oct 15, 2019	Oct 15, 2019	Oct 15, 2019
Test/Reference	LOR	Unit			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
Naphthalene ^{N02}	0.01	mg/L	-	-	< 0.01
TRH C6-C10	0.02	mg/L	-	-	< 0.02
TRH C6-C10 less BTEX (F1) ^{N04}	0.02	mg/L	-	-	< 0.02
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					
TRH C6-C9	0.02	mg/L	-	-	< 0.02
BTEX					
Benzene	0.001	mg/L	-	-	< 0.001
Toluene	0.001	mg/L	-	-	< 0.001
Ethylbenzene	0.001	mg/L	-	-	< 0.001
m&p-Xylenes	0.002	mg/L	-	-	< 0.002
o-Xylene	0.001	mg/L	-	-	< 0.001
Xylenes - Total	0.003	mg/L	-	-	< 0.003
4-Bromofluorobenzene (surr.)	1	%	-	-	135
Heavy Metals					
Antimony	0.005	mg/L	< 0.005	< 0.005	-
Arsenic	0.001	mg/L	< 0.001	< 0.001	-
Cadmium	0.0002	mg/L	< 0.0002	< 0.0002	-
Chromium	0.001	mg/L	< 0.001	< 0.001	-
Copper	0.001	mg/L	< 0.001	< 0.001	-
Lead	0.001	mg/L	< 0.001	< 0.001	-
Mercury	0.0001	mg/L	< 0.0001	< 0.0001	-
Nickel	0.001	mg/L	< 0.001	< 0.001	-
Zinc	0.005	mg/L	< 0.005	< 0.005	-

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.

A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons	Melbourne	Oct 18, 2019	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Eurofins mgt Suite B6A			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Oct 18, 2019	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Melbourne	Oct 18, 2019	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Heavy Metals	Melbourne	Oct 18, 2019	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Metals M8	Melbourne	Oct 18, 2019	180 Days
- Method:			

Company Name: Greencap NT P/L
Address: 11/14 Winnellie Road
Winnellie
NT 0800

Project Name: JABIRU TOWN SCI
Project ID: J162772

Order No.:
Report #: 683260
Phone: 61 8 8984 4244
Fax: 61 8 8984 3105

Received: Oct 18, 2019 9:00 AM
Due: Oct 25, 2019
Priority: 5 Day
Contact Name: Stuart Carroll

Eurofins Analytical Services Manager : Cindi Guo

Sample Detail						Antimony	E.coli	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Somatic Coliphages (SAL)	Sulphur	Thermotolerant Coliforms	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Acid Herbicides	Metals M8	Phenols (IWRG 621)	Eurofins mgt Suite B14	NEPM 2013 Metals : Metals M13	Moisture Set	BTEXN and Volatile TRH	Eurofins mgt Suite B6A	Eurofins mgt Suite B19D: Total N, TKN, NOx, NO2, NO3, Total P
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217																							
Brisbane Laboratory - NATA Site # 20794																							
Perth Laboratory - NATA Site # 23736																							
External Laboratory																							
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID																		
1	2302_BH01_0.0-0.5	Oct 15, 2019		Soil	M19-Oc27583		X		X	X	X	X					X			X			X
2	2302_BH02_0.0-0.1	Oct 15, 2019		Soil	M19-Oc27584		X		X	X		X					X			X			X
3	2302_BH03_0.0-0.1	Oct 15, 2019		Soil	M19-Oc27585		X		X	X	X	X					X			X			X
4	2302_BH04_0.0-0.1	Oct 15, 2019		Soil	M19-Oc27586		X		X	X		X					X			X			X
5	2302_BH05_0.0-0.1	Oct 15, 2019		Soil	M19-Oc27587		X		X	X	X	X					X			X			X
6	2302_BH06_0.	Oct 15, 2019		Soil	M19-Oc27588		X		X	X		X					X			X			X

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Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217																							
Brisbane Laboratory - NATA Site # 20794																							
Perth Laboratory - NATA Site # 23736																							
	0-0.1																						
7	2302_BH06_0.1-0.2	Oct 15, 2019		Soil	M19-Oc27589			X															
8	2302_BH07_0.0-0.1	Oct 15, 2019		Soil	M19-Oc27590		X		X	X	X	X					X			X			X
9	2302_BH07_0.15-0.25	Oct 15, 2019		Soil	M19-Oc27591			X															
10	2302_BH08_0.0-0.1	Oct 15, 2019		Soil	M19-Oc27592		X		X	X		X					X			X			X
11	2302_BH09_0.0-0.1	Oct 15, 2019		Soil	M19-Oc27593		X		X	X	X	X					X			X			X
12	2302_BH10_0.0-0.1	Oct 15, 2019		Soil	M19-Oc27594		X		X	X		X					X			X			X
13	2302_BH11_0.	Oct 15, 2019		Soil	M19-Oc27595		X		X	X		X					X			X			X

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Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217																							
Brisbane Laboratory - NATA Site # 20794																							
Perth Laboratory - NATA Site # 23736																							
	0-0.05																						
14	2302_QA01	Oct 15, 2019		Soil	M19-Oc27596		X		X	X		X					X			X			X
15	2303_BH01_0.0-0.1	Oct 15, 2019		Soil	M19-Oc27597										X				X	X			
16	2303_BH01_0.15-0.25	Oct 15, 2019		Soil	M19-Oc27598										X				X	X			
17	2303_BH01_0.35-0.45	Oct 15, 2019		Soil	M19-Oc27599										X				X	X			
18	2303_BH02_0.0-0.1	Oct 15, 2019		Soil	M19-Oc27600								X	X						X		X	
19	2303_BH02_0.45-0.55	Oct 15, 2019		Soil	M19-Oc27601			X															
20	2303_BH03_0.0-0.1	Oct 15, 2019		Soil	M19-Oc27602								X	X						X		X	

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Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217																							
Brisbane Laboratory - NATA Site # 20794																							
Perth Laboratory - NATA Site # 23736																							
21	2303_BH03_0.5-0.6	Oct 15, 2019		Soil	M19-Oc27603			X															
22	2303_BH04_0.0-0.1	Oct 15, 2019		Soil	M19-Oc27604								X	X						X		X	
23	2303_BH04_0.4-0.5	Oct 15, 2019		Soil	M19-Oc27605			X															
24	2303_BH05_0.0-0.1	Oct 15, 2019		Soil	M19-Oc27606				X						X		X	X	X	X			X
25	2303_BH06_0.0-0.1	Oct 15, 2019		Soil	M19-Oc27607				X						X		X	X	X	X			X
26	2303_BH07_0.0-0.1	Oct 15, 2019		Soil	M19-Oc27608				X						X		X	X	X	X			X
27	2303_BH07_0.15-0.25	Oct 15, 2019		Soil	M19-Oc27609			X															

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Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217																							
Brisbane Laboratory - NATA Site # 20794																							
Perth Laboratory - NATA Site # 23736																							
28	2303_BH07_0.4-0.5	Oct 15, 2019		Soil	M19-Oc27610			X															
29	2303_BH08_0.0-0.1	Oct 15, 2019		Soil	M19-Oc27611				X						X		X	X	X	X			X
30	2303_BH08_0.2-0.3	Oct 15, 2019		Soil	M19-Oc27612			X															
31	2303_BH09_0.0-0.1	Oct 15, 2019		Soil	M19-Oc27613				X						X		X	X	X	X			X
32	2303_BH09_0.2-0.3	Oct 15, 2019		Soil	M19-Oc27614			X															
33	2303_BH10_0.0-0.1	Oct 15, 2019		Soil	M19-Oc27615				X						X		X	X	X	X			X
34	2303_BH10_0.2-0.3	Oct 15, 2019		Soil	M19-Oc27616			X															

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Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Sydney Laboratory - NATA Site # 18217																								
Brisbane Laboratory - NATA Site # 20794																								
Perth Laboratory - NATA Site # 23736																								
35	2303_BH11_0_0-0.1	Oct 15, 2019		Soil	M19-Oc27617				X						X		X	X	X	X				X
36	2303_BH11_0_2-0.3	Oct 15, 2019		Soil	M19-Oc27618			X																
37	2303_BH12_0_0-0.1	Oct 15, 2019		Soil	M19-Oc27619				X						X		X	X	X	X				X
38	2303_BH12_0_2-0.3	Oct 15, 2019		Soil	M19-Oc27620			X																
39	2303_BH13_0_0-0.1	Oct 15, 2019		Soil	M19-Oc27621				X						X		X	X	X	X				X
40	2303_BH13_0_2-0.3	Oct 15, 2019		Soil	M19-Oc27622			X																
41	2303_BH14_0_0-0.1	Oct 15, 2019		Soil	M19-Oc27623				X						X		X	X	X	X				X

Company Name: Greencap NT P/L
Address: 11/14 Winnellie Road
Winnellie
NT 0800

Project Name: JABIRU TOWN SCI
Project ID: J162772

Order No.:
Report #: 683260
Phone: 61 8 8984 4244
Fax: 61 8 8984 3105

Received: Oct 18, 2019 9:00 AM
Due: Oct 25, 2019
Priority: 5 Day
Contact Name: Stuart Carroll

Eurofins Analytical Services Manager : Cindi Guo

Sample Detail						Antimony	E.coli	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Somatic Coliphages (SAL)	Sulphur	Thermotolerant Coliforms	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Acid Herbicides	Metals M8	Phenols (IWRG 621)	Eurofins mgt Suite B14	NEPM 2013 Metals : Metals M13	Moisture Set	BTEXN and Volatile TRH	Eurofins mgt Suite B6A	Eurofins mgt Suite B19D: Total N, TKN, NOx, NO2, NO3, Total P
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217																							
Brisbane Laboratory - NATA Site # 20794																							
Perth Laboratory - NATA Site # 23736																							
42	2303_BH14_0.2-0.3	Oct 15, 2019		Soil	M19-Oc27624			X															
43	2303_QA01	Oct 15, 2019		Soil	M19-Oc27625								X	X						X		X	
44	2303_QA03	Oct 15, 2019		Soil	M19-Oc27626				X						X		X	X	X	X			X
45	FB04	Oct 15, 2019		Water	M19-Oc27627	X										X							
46	RB04	Oct 15, 2019		Water	M19-Oc27628	X										X							
47	TB04	Oct 15, 2019		Water	M19-Oc27629																X		
48	2303_BH15	Oct 15, 2019		Soil	M19-Oc27630			X															
Test Counts						2	12	15	23	12	5	12	4	4	14	2	23	11	14	30	1	4	23

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.3
CP	Client Parent - QC was performed on samples pertaining to this report
NC	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 20-130% Phenols & 50-150% PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.3 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " - " in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions									
Naphthalene			mg/L	< 0.01			0.01	Pass	
TRH C6-C10			mg/L	< 0.02			0.02	Pass	
Method Blank									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions									
TRH C6-C9			mg/L	< 0.02			0.02	Pass	
Method Blank									
BTEX									
Benzene			mg/L	< 0.001			0.001	Pass	
Toluene			mg/L	< 0.001			0.001	Pass	
Ethylbenzene			mg/L	< 0.001			0.001	Pass	
m&p-Xylenes			mg/L	< 0.002			0.002	Pass	
o-Xylene			mg/L	< 0.001			0.001	Pass	
Xylenes - Total			mg/L	< 0.003			0.003	Pass	
LCS - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions									
Naphthalene			%	117			70-130	Pass	
LCS - % Recovery									
BTEX									
Benzene			%	113			70-130	Pass	
Toluene			%	120			70-130	Pass	
Ethylbenzene			%	112			70-130	Pass	
m&p-Xylenes			%	122			70-130	Pass	
Xylenes - Total			%	119			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	B19-Oc27174	NCP	%	97			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	B19-Oc27174	NCP	%	120			70-130	Pass	
Toluene	B19-Oc27174	NCP	%	120			70-130	Pass	
Ethylbenzene	B19-Oc27174	NCP	%	118			70-130	Pass	
m&p-Xylenes	B19-Oc27174	NCP	%	115			70-130	Pass	
o-Xylene	B19-Oc27174	NCP	%	123			70-130	Pass	
Xylenes - Total	B19-Oc27174	NCP	%	117			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	B19-Oc27172	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
TRH C6-C10	B19-Oc27172	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	B19-Oc27172	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	B19-Oc27172	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	B19-Oc27172	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	B19-Oc27172	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	B19-Oc27172	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	

Duplicate								
BTEX				Result 1	Result 2	RPD		
o-Xylene	B19-Oc27172	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Xylenes - Total	B19-Oc27172	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.

Authorised By

Cindi Guo	Analytical Services Manager
Emily Rosenberg	Senior Analyst-Metal (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)



Glenn Jackson General Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

Eurofins shall not be liable for loss, cost, damages or expenses incurred by the client, or any other person or company, resulting from the use of any information or interpretation given in this report. In no case shall Eurofins be liable for consequential damages including, but not limited to, lost profits, damages for failure to meet deadlines and lost production arising from this report. This document shall not be reproduced except in full and relates only to the items tested. Unless indicated otherwise, the tests were performed on the samples as received.

Sample Receipt Advice

Company name: **Greencap NT P/L**
Contact name: **Stuart Carroll**
Project name: **JABIRU TOWN SCI**
Project ID: **J162772**
COC number: **Not provided**
Turn around time: **5 Day**
Date/Time received: **Oct 18, 2019 9:00 AM**
Eurofins reference: **683260**

Sample information

- ☒ A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- ☒ All samples have been received as described on the above COC.
- ☒ COC has been completed correctly.
- ☒ Attempt to chill was evident.
- ☒ Appropriately preserved sample containers have been used.
- ☒ All samples were received in good condition.
- ☒ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- ☒ Appropriate sample containers have been used.
- ☒ Sample containers for volatile analysis received with zero headspace.
- ☒ Split sample sent to requested external lab.
- ☒ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Notes

Received extra samples 2303_BH15, did not receive samples 2303_BH05_0.5-0.6 and 2303_BH06_0.5-0.6.

Contact notes

If you have any questions with respect to these samples please contact:

Cindi Guo on Phone : +61 3 8564 5000 or by e.mail: CindiGuo@eurofins.com

Results will be delivered electronically via e.mail to Stuart Carroll - stuart.carroll@greencap.com.au.

Note: A copy of these results will also be delivered to the general Greencap NT P/L email address.

Company Name: Greencap NT P/L
Address: 11/14 Winnellie Road
Winnellie
NT 0800

Project Name: JABIRU TOWN SCI
Project ID: J162772

Order No.:
Report #: 683260
Phone: 61 8 8984 4244
Fax: 61 8 8984 3105

Received: Oct 18, 2019 9:00 AM
Due: Oct 25, 2019
Priority: 5 Day
Contact Name: Stuart Carroll

Eurofins Analytical Services Manager : Cindi Guo

Sample Detail						Antimony	E.coli	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Somatic Coliphages (SAL)	Sulphur	Thermotolerant Coliforms	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Acid Herbicides	Metals M8	Phenols (IWRG 621)	Eurofins mgt Suite B14	NEPM 2013 Metals : Metals M13	Moisture Set	BTEXN and Volatile TRH	Eurofins mgt Suite B6A	Eurofins mgt Suite B19D: Total N, TKN, NOx, NO2, NO3, Total P
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217																							
Brisbane Laboratory - NATA Site # 20794																							
Perth Laboratory - NATA Site # 23736																							
External Laboratory																							
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID																		
1	2302_BH01_0.0-0.5	Oct 15, 2019		Soil	M19-Oc27583		X		X	X	X	X					X			X			X
2	2302_BH02_0.0-0.1	Oct 15, 2019		Soil	M19-Oc27584		X		X	X		X					X			X			X
3	2302_BH03_0.0-0.1	Oct 15, 2019		Soil	M19-Oc27585		X		X	X	X	X					X			X			X
4	2302_BH04_0.0-0.1	Oct 15, 2019		Soil	M19-Oc27586		X		X	X		X					X			X			X
5	2302_BH05_0.0-0.1	Oct 15, 2019		Soil	M19-Oc27587		X		X	X	X	X					X			X			X
6	2302_BH06_0.	Oct 15, 2019		Soil	M19-Oc27588		X		X	X		X					X			X			X

Company Name: Greencap NT P/L
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Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217																							
Brisbane Laboratory - NATA Site # 20794																							
Perth Laboratory - NATA Site # 23736																							
	0-0.1																						
7	2302_BH06_0.1-0.2	Oct 15, 2019		Soil	M19-Oc27589			X															
8	2302_BH07_0.0-0.1	Oct 15, 2019		Soil	M19-Oc27590		X		X	X	X	X					X			X			X
9	2302_BH07_0.15-0.25	Oct 15, 2019		Soil	M19-Oc27591			X															
10	2302_BH08_0.0-0.1	Oct 15, 2019		Soil	M19-Oc27592		X		X	X		X					X			X			X
11	2302_BH09_0.0-0.1	Oct 15, 2019		Soil	M19-Oc27593		X		X	X	X	X					X			X			X
12	2302_BH10_0.0-0.1	Oct 15, 2019		Soil	M19-Oc27594		X		X	X		X					X			X			X
13	2302_BH11_0.	Oct 15, 2019		Soil	M19-Oc27595		X		X	X		X					X			X			X

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Address: 11/14 Winnellie Road
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Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217																							
Brisbane Laboratory - NATA Site # 20794																							
Perth Laboratory - NATA Site # 23736																							
	0-0.05																						
14	2302_QA01	Oct 15, 2019		Soil	M19-Oc27596		X		X	X		X					X			X			X
15	2303_BH01_0.0-0.1	Oct 15, 2019		Soil	M19-Oc27597										X				X	X			
16	2303_BH01_0.15-0.25	Oct 15, 2019		Soil	M19-Oc27598										X				X	X			
17	2303_BH01_0.35-0.45	Oct 15, 2019		Soil	M19-Oc27599										X				X	X			
18	2303_BH02_0.0-0.1	Oct 15, 2019		Soil	M19-Oc27600								X	X						X		X	
19	2303_BH02_0.45-0.55	Oct 15, 2019		Soil	M19-Oc27601			X															
20	2303_BH03_0.0-0.1	Oct 15, 2019		Soil	M19-Oc27602								X	X						X		X	

Company Name:	Greencap NT P/L	Order No.:		Received:	Oct 18, 2019 9:00 AM
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[illegible]

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[illegible]

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Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Sydney Laboratory - NATA Site # 18217																								
Brisbane Laboratory - NATA Site # 20794																								
Perth Laboratory - NATA Site # 23736																								
35	2303_BH11_0_0-0.1	Oct 15, 2019		Soil	M19-Oc27617				X						X		X	X	X	X				X
36	2303_BH11_0_2-0.3	Oct 15, 2019		Soil	M19-Oc27618			X																
37	2303_BH12_0_0-0.1	Oct 15, 2019		Soil	M19-Oc27619				X						X		X	X	X	X				X
38	2303_BH12_0_2-0.3	Oct 15, 2019		Soil	M19-Oc27620			X																
39	2303_BH13_0_0-0.1	Oct 15, 2019		Soil	M19-Oc27621				X						X		X	X	X	X				X
40	2303_BH13_0_2-0.3	Oct 15, 2019		Soil	M19-Oc27622			X																
41	2303_BH14_0_0-0.1	Oct 15, 2019		Soil	M19-Oc27623				X						X		X	X	X	X				X

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Contact Name: Stuart Carroll

Eurofins Analytical Services Manager : Cindi Guo

Sample Detail						Antimony	E.coli	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Somatic Coliphages (SAL)	Sulphur	Thermotolerant Coliforms	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Acid Herbicides	Metals M8	Phenols (IWRG 621)	Eurofins mgt Suite B14	NEPM 2013 Metals : Metals M13	Moisture Set	BTEXN and Volatile TRH	Eurofins mgt Suite B6A	Eurofins mgt Suite B19D: Total N, TKN, NOx, NO2, NO3, Total P
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217																							
Brisbane Laboratory - NATA Site # 20794																							
Perth Laboratory - NATA Site # 23736																							
42	2303_BH14_0.2-0.3	Oct 15, 2019		Soil	M19-Oc27624			X															
43	2303_QA01	Oct 15, 2019		Soil	M19-Oc27625								X	X						X		X	
44	2303_QA03	Oct 15, 2019		Soil	M19-Oc27626				X						X		X	X	X	X			X
45	FB04	Oct 15, 2019		Water	M19-Oc27627	X										X							
46	RB04	Oct 15, 2019		Water	M19-Oc27628	X										X							
47	TB04	Oct 15, 2019		Water	M19-Oc27629																X		
48	2303_BH15	Oct 15, 2019		Soil	M19-Oc27630			X															
Test Counts						2	12	15	23	12	5	12	4	4	14	2	23	11	14	30	1	4	23

Client:	Director of Nat. Parks	Job no:	J162772	PO #:		Sampled by:	Stuart Carrol	Page:	10 of 1
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Notes:

Greencap Contact: Stuart Carroll
Phone #: 0466 776 038, (06) 7906 1300
Please email results to the following: stuart.carroll@greencap.com.au & chris.gamble@greencap.com.au

Chain of Custody:

Relinquished by:	Date:	Company:	Received by:	Date & Time
	16/10/19	Greencap 11/14 Winnellie Road, Winnellie, NT 0820 PO Box 39546, Winnellie, NT 0820	CAH To EF	18/10/19-9am

Enviro Sample Vic

From: Stuart Carroll <Stuart.Carroll@greencap.com.au>
Sent: Monday, 21 October 2019 1:11 PM
To: Enviro Sample Vic; Cindi Guo
Cc: Robin Birua
Subject: RE: [EXT]:Eurofins Sample Receipt Advice - Report 683260 : Site JABIRU TOWN SCI (J162772)

Hi Cindi/Joanne,

Please keep 2303-BH15 on hold for now. 2303_BH05_0.5-0.6 & 2303_BH06_0.5-0.6 will not be submitted.

Cheers
Stu

Stuart Carroll

Senior Consultant - Environment | Greencap

Unit 11 / 14 Winnellie Road Winnellie, NT 0820

D: 08 7906 1314 | **M:** 0466 776 038 | **E:** Stuart.Carroll@greencap.com.au | **in:** [LinkedIn](#)



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From: EnviroSampleVic@eurofins.com <EnviroSampleVic@eurofins.com>

Sent: Friday, 18 October 2019 8:04 PM

To: Stuart Carroll <Stuart.Carroll@greencap.com.au>

Subject: [EXT]:Eurofins Sample Receipt Advice - Report 683260 : Site JABIRU TOWN SCI (J162772)

CAUTION: This email originated from outside of the organisation. Do not click links or open attachments unless you recognise the sender and know the content is safe.

Received extra samples 2303_BH15, did not receive samples 2303_BH05_0.5-0.6 and 2303_BH06_0.5-0.6.

Dear Valued Client,

Please find attached a Sample Receipt Advice (SRA), a Summary Sheet and a scanned copy of your Chain-of-Custody (COC). It is important that you check this documentation to ensure that the details are correct such as the Client Job Number, Turn Around Time, any comments in the Notes section and sample numbers as well as the requested analysis. If there are any irregularities then please contact your Eurofins Analytical Services Manager as soon as possible to make certain that they get changed.

Regards

Joanne Devine

Sample Receipt

Eurofins | mgt

6 Monterey Road

Dandenong South VIC 3175

AUSTRALIA

Phone:+61 3 8564 5022

Email: Envirosamplevic@eurofins.com

Website:<http://environment.eurofins.com.au>

[EnviroNote 1079 - PFAS Fingerprinting](#)

[EnviroNote 1080 - Total Organofluorine Analysis & PFAS Investigations](#)

Click [here](#) to report this email as spam.

ScannedByWebsenseForEurofins

Cindi Guo

From: Stuart Carroll <Stuart.Carroll@greencap.com.au>
Sent: Wednesday, 23 October 2019 2:57 PM
To: Enviro Sample Vic; Cindi Guo
Subject: RE: [EXT]:Eurofins Sample Receipt Advice - Report 683260 : Site JABIRU TOWN SCI (J162772)

Follow Up Flag: Follow up
Flag Status: Flagged

EXTERNAL EMAIL*

Hi Cindi,

As discussed, if it is not too late can you please place analysis of the following samples on hold;

Greencap Sample ID	Eurofins Sample ID
2302_BH06_0.1-0.2	M19-Oc27589
2302_BH07_0.15-0.25	M19-Oc27591
2303_BH02_0.45-0.55	M19-Oc27601
2303_BH03_0.5-0.6	M19-Oc27603
2303_BH04_0.4-0.5	M19-Oc27605
2303_BH07_0.15-0.25	M19-Oc27609
2303_BH07_0.4-0.5	M19-Oc27610
2303_BH08_0.2-0.3	M19-Oc27612
2303_BH09_0.2-0.3	M19-Oc27614
2303_BH10_0.2-0.3	M19-Oc27616
2303_BH11_0.2-0.3	M19-Oc27618
2303_BH12_0.2-0.3	M19-Oc27620
2303_BH13_0.2-0.3	M19-Oc27622
2303_BH14_0.2-0.3	M19-Oc27624

Also, Suite R21 is not required for 2302_BH01_0.0-0.05 (M19-Oc27583).

In addition, can you please schedule analysis of sulphur in the following samples:

Greencap Sample ID	Eurofins Sample ID
2302_BH01_0.0-0.05	M19-Oc27583
2302_BH03_0.0-0.1	M19-Oc27585
2303_BH05_0.0-0.1	M19-Oc27587
2303_BH07_0.0-0.1	M19-Oc27590
2303_BH09_0.0-0.1	M19-Oc27593

I'll send through the request for the other job very shortly.

Thanks for your patience and much appreciated.

Stu

CERTIFICATE OF ANALYSIS

Work Order : **ES1934437**
Client : **GREENCAP-NAA PTY LTD**
Contact : **STUART CARROLL**
Address : **11/14 Winnellie Road**
WINNELLIE NT, AUSTRALIA 0820
Telephone : **+61 08 8984 4244**
Project : **J162772 Jabiru Contaminated Assessment - Director of**
National Parks
Order number : **PO 267163**
C-O-C number : **----**
Sampler : **STUART CARROLL**
Site : **Jabiru, Northern Territory**
Quote number : **EN/111/18 Primary Work Only**
No. of samples received : **15**
No. of samples analysed : **15**

Page : 1 of 14
Laboratory : Environmental Division Sydney
Contact : Peter Ravlic
Address : 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone : +6138549 9645
Date Samples Received : 23-Oct-2019 10:00
Date Analysis Commenced : 24-Oct-2019
Issue Date : 30-Oct-2019 15:13



Accreditation No. 825
 Accredited for compliance with
 ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

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

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Ankit Joshi	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Ashesh Patel	Senior Chemist	Sydney Inorganics, Smithfield, NSW
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Evie Sidarta	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW



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

Ø = ALS is not NATA accredited for these tests.

~ = Indicates an estimated value.

- EP202 :Particular samples required dilution due to sample matrix . LOR values have been adjusted accordingly.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) 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.

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	959-QA02	960-QA02	961-QA02	2353-GKT-QA02	2302-QA02
Client sampling date / time				14-Oct-2019 00:00	14-Oct-2019 00:00	14-Oct-2019 00:00	15-Oct-2019 00:00	15-Oct-2019 00:00	
Compound	CAS Number	LOR	Unit	ES1934437-001	ES1934437-002	ES1934437-003	ES1934437-004	ES1934437-005	
				Result	Result	Result	Result	Result	
EA055: Moisture Content									
Moisture Content	----	1.0	%	----	----	----	1.8	----	
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%	2.3	<1.0	1.5	----	<1.0	
EG005(ED093)T: Total Metals by ICP-AES									
Barium	7440-39-3	10	mg/kg	20	20	10	----	----	
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	----	----	
Boron	7440-42-8	50	mg/kg	<50	<50	<50	----	----	
Cobalt	7440-48-4	2	mg/kg	2	7	2	----	----	
Manganese	7439-96-5	5	mg/kg	84	201	50	----	----	
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	----	----	
Vanadium	7440-62-2	5	mg/kg	65	71	69	----	----	
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	----	
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	----	
Chromium	7440-47-3	2	mg/kg	74	123	48	143	----	
Copper	7440-50-8	5	mg/kg	<5	6	9	<5	----	
Lead	7439-92-1	5	mg/kg	5	11	<5	14	----	
Nickel	7440-02-0	2	mg/kg	3	5	<2	4	----	
Zinc	7440-66-6	5	mg/kg	<5	<5	6	43	----	
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	----	
EK055: Ammonia as N									
Ammonia as N	7664-41-7	20	mg/kg	<20	----	----	----	<20	
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	<0.1	----	----	----	<0.1	
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg	47.0	----	----	----	3.4	
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	47.0	----	----	----	3.4	
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	20	mg/kg	120	----	----	----	250	
EK062: Total Nitrogen as N (TKN + NOx)									
^ Total Nitrogen as N	----	20	mg/kg	170	----	----	----	250	
EK067G: Total Phosphorus as P by Discrete Analyser									



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	959-QA02	960-QA02	961-QA02	2353-GKT-QA02	2302-QA02
Client sampling date / time					14-Oct-2019 00:00	14-Oct-2019 00:00	14-Oct-2019 00:00	15-Oct-2019 00:00	15-Oct-2019 00:00
Compound	CAS Number	LOR	Unit		ES1934437-001	ES1934437-002	ES1934437-003	ES1934437-004	ES1934437-005
					Result	Result	Result	Result	Result
EK067G: Total Phosphorus as P by Discrete Analyser - Continued									
Total Phosphorus as P	----	2	mg/kg		163	----	----	----	105
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	<0.05	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	<0.05	----	----	----
beta-BHC	319-85-7	0.05	mg/kg		<0.05	<0.05	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	<0.05	----	----	----
delta-BHC	319-86-8	0.05	mg/kg		<0.05	<0.05	----	----	----
Heptachlor	76-44-8	0.05	mg/kg		<0.05	<0.05	----	----	----
Aldrin	309-00-2	0.05	mg/kg		<0.05	<0.05	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	<0.05	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	<0.05	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	<0.05	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	<0.05	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	<0.05	----	----	----
Dieldrin	60-57-1	0.05	mg/kg		<0.05	<0.05	----	----	----
4,4'-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	----	----	----
Endrin	72-20-8	0.05	mg/kg		<0.05	<0.05	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	<0.05	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	<0.05	----	----	----
4,4'-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	<0.05	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	----	----	----
4,4'-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	<0.05	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	<0.05	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	<0.05	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	<0.2	----	----	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	<0.05	----	----	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	<0.05	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	<0.05	----	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	959-QA02	960-QA02	961-QA02	2353-GKT-QA02	2302-QA02
Client sampling date / time					14-Oct-2019 00:00	14-Oct-2019 00:00	14-Oct-2019 00:00	15-Oct-2019 00:00	15-Oct-2019 00:00
Compound	CAS Number	LOR	Unit		ES1934437-001	ES1934437-002	ES1934437-003	ES1934437-004	ES1934437-005
					Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued									
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	<0.2	----	----	----
Malathion	121-75-5	0.05	mg/kg		<0.05	<0.05	----	----	----
Fenthion	55-38-9	0.05	mg/kg		<0.05	<0.05	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	<0.05	----	----	----
Parathion	56-38-2	0.2	mg/kg		<0.2	<0.2	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	<0.05	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	<0.05	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	<0.05	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	<0.05	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	<0.05	----	----	----
Ethion	563-12-2	0.05	mg/kg		<0.05	<0.05	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	<0.05	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	<0.05	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		----	----	----	<10	----
C10 - C14 Fraction	----	50	mg/kg		----	----	----	<50	----
C15 - C28 Fraction	----	100	mg/kg		----	----	----	<100	----
C29 - C36 Fraction	----	100	mg/kg		----	----	----	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		----	----	----	<50	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		----	----	----	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		----	----	----	<10	----
>C10 - C16 Fraction	----	50	mg/kg		----	----	----	<50	----
>C16 - C34 Fraction	----	100	mg/kg		----	----	----	<100	----
>C34 - C40 Fraction	----	100	mg/kg		----	----	----	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		----	----	----	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		----	----	----	<50	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		----	----	----	<0.2	----
Toluene	108-88-3	0.5	mg/kg		----	----	----	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg		----	----	----	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		----	----	----	<0.5	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	959-QA02	960-QA02	961-QA02	2353-GKT-QA02	2302-QA02
Client sampling date / time					14-Oct-2019 00:00	14-Oct-2019 00:00	14-Oct-2019 00:00	15-Oct-2019 00:00	15-Oct-2019 00:00
Compound	CAS Number	LOR	Unit		ES1934437-001	ES1934437-002	ES1934437-003	ES1934437-004	ES1934437-005
					Result	Result	Result	Result	Result
EP080: BTEXN - Continued									
ortho-Xylene	95-47-6	0.5	mg/kg		----	----	----	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg		----	----	----	<0.2	----
^ Total Xylenes	----	0.5	mg/kg		----	----	----	<0.5	----
Naphthalene	91-20-3	1	mg/kg		----	----	----	<1	----
EP202A: Phenoxyacetic Acid Herbicides by LCMS									
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg		<0.04	<0.04	----	----	----
2,4-DB	94-82-6	0.02	mg/kg		<0.04	<0.04	----	----	----
Dicamba	1918-00-9	0.02	mg/kg		<0.04	<0.04	----	----	----
Mecoprop	93-65-2	0.02	mg/kg		<0.04	<0.04	----	----	----
MCPA	94-74-6	0.02	mg/kg		<0.04	<0.04	----	----	----
2,4-DP	120-36-5	0.02	mg/kg		<0.04	<0.04	----	----	----
2,4-D	94-75-7	0.02	mg/kg		<0.04	<0.04	----	----	----
Triclopyr	55335-06-3	0.02	mg/kg		<0.04	<0.04	----	----	----
2,4,5-TP (Silvex)	93-72-1	0.02	mg/kg		<0.04	<0.04	----	----	----
2,4,5-T	93-76-5	0.02	mg/kg		<0.04	<0.04	----	----	----
MCPB	94-81-5	0.02	mg/kg		<0.04	<0.04	----	----	----
Picloram	1918-02-1	0.02	mg/kg		<0.04	<0.04	----	----	----
Clopyralid	1702-17-6	0.02	mg/kg		<0.04	<0.04	----	----	----
Fluroxypyr	69377-81-7	0.02	mg/kg		<0.04	<0.04	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		109	115	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		69.2	68.0	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%		----	----	----	104	----
Toluene-D8	2037-26-5	0.2	%		----	----	----	107	----
4-Bromofluorobenzene	460-00-4	0.2	%		----	----	----	107	----
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2,4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%		63.6	55.9	----	----	----



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Client sample ID

				2303-QA02	2303-QA04	979-QA02	2100-QA02 Received as 2100-QA01	2353-CNR-QA02
Client sampling date / time				15-Oct-2019 00:00	15-Oct-2019 00:00	16-Oct-2019 00:00	16-Oct-2019 00:00	16-Oct-2019 00:00
Compound	CAS Number	LOR	Unit	ES1934437-006	ES1934437-007	ES1934437-008	ES1934437-009	ES1934437-010
				Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)								
pH Value	----	0.1	pH Unit	6.3	8.3	----	----	----
EA055: Moisture Content								
Moisture Content	----	1.0	%	----	----	----	3.7	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	1.0	10.7	----	----	----
Moisture Content	----	1.0	%	----	----	2.8	----	2.4
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	----	----	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg	----	----	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	----	----	82	67	63
Copper	7440-50-8	5	mg/kg	----	----	9	<5	8
Lead	7439-92-1	5	mg/kg	----	----	6	10	19
Nickel	7440-02-0	2	mg/kg	----	----	4	<2	4
Zinc	7440-66-6	5	mg/kg	----	----	<5	12	33
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	----	----	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	----	<0.1	----	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
4,4'-DDE	72-55-9	0.05	mg/kg	----	----	<0.05	<0.05	<0.05



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Client sample ID

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	2303-QA02	2303-QA04	979-QA02	2100-QA02 Received as 2100-QA01	2353-CNR-QA02
Client sampling date / time				15-Oct-2019 00:00	15-Oct-2019 00:00	16-Oct-2019 00:00	16-Oct-2019 00:00	16-Oct-2019 00:00	
Compound	CAS Number	LOR	Unit	ES1934437-006	ES1934437-007	ES1934437-008	ES1934437-009	ES1934437-010	
				Result	Result	Result	Result	Result	
EP068A: Organochlorine Pesticides (OC) - Continued									
Endrin	72-20-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
beta-Endosulfan	33213-65-9	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
4,4'-DDD	72-54-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
Endrin aldehyde	7421-93-4	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
Endosulfan sulfate	1031-07-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
4,4'-DDT	50-29-3	0.2	mg/kg	----	----	<0.2	<0.2	<0.2	
Endrin ketone	53494-70-5	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
Methoxychlor	72-43-5	0.2	mg/kg	----	----	<0.2	<0.2	<0.2	
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/5 0-2	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	----	----	----	
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	----	----	----	
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	----	----	----	
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	----	----	----	
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	----	----	----	
2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	----	----	----	
2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	----	----	----	
2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	----	----	----	
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	----	----	----	
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	----	----	----	
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	----	----	----	
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	----	----	----	
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg	----	----	<10	<10	<10	
C10 - C14 Fraction	----	50	mg/kg	----	----	<50	<50	<50	
C15 - C28 Fraction	----	100	mg/kg	----	----	<100	<100	<100	
C29 - C36 Fraction	----	100	mg/kg	----	----	<100	<100	<100	
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	----	<50	<50	<50	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6 C10	10	mg/kg	----	----	<10	<10	<10	



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Client sample ID

				2303-QA02	2303-QA04	979-QA02	2100-QA02 Received as 2100-QA01	2353-CNR-QA02
Client sampling date / time				15-Oct-2019 00:00	15-Oct-2019 00:00	16-Oct-2019 00:00	16-Oct-2019 00:00	16-Oct-2019 00:00
Compound	CAS Number	LOR	Unit	ES1934437-006	ES1934437-007	ES1934437-008	ES1934437-009	ES1934437-010
				Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued								
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	----	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg	----	----	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	----	----	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	----	----	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	----	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	----	<50	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	----	----	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	----	----	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	----	----	<1	<1	<1
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	----	----	99.5	----	120
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	----	----	98.4	112	111
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	----	----	74.5	70.1	81.4
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	92.0	77.5	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%	103	81.2	----	----	----
2,4,6-Tribromophenol	118-79-6	0.5	%	79.4	61.6	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	97.4	86.3	----	----	----
Anthracene-d10	1719-06-8	0.5	%	105	93.9	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%	102	95.6	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.2	%	----	----	108	104	102



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Client sample ID

				2303-QA02	2303-QA04	979-QA02	2100-QA02 Received as 2100-QA01	2353-CNR-QA02
Client sampling date / time				15-Oct-2019 00:00	15-Oct-2019 00:00	16-Oct-2019 00:00	16-Oct-2019 00:00	16-Oct-2019 00:00
Compound	CAS Number	LOR	Unit	ES1934437-006	ES1934437-007	ES1934437-008	ES1934437-009	ES1934437-010
				Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates - Continued								
Toluene-D8	2037-26-5	0.2	%	----	----	110	108	105
4-Bromofluorobenzene	460-00-4	0.2	%	----	----	107	103	99.8



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	2322-23-QA02	2317-QA02	2317-QA04	2317-QA06	2317-QA08
Client sampling date / time					17-Oct-2019 00:00	17-Oct-2019 00:00	17-Oct-2019 00:00	18-Oct-2019 00:00	18-Oct-2019 00:00
Compound	CAS Number	LOR	Unit		ES1934437-011	ES1934437-012	ES1934437-013	ES1934437-014	ES1934437-015
					Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)									
pH Value	----	0.1	pH Unit		10.3	----	----	----	----
EA055: Moisture Content									
Moisture Content	----	1.0	%		1.8	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		----	1.5	8.6	1.4	7.4
EG005(ED093)T: Total Metals by ICP-AES									
Barium	7440-39-3	10	mg/kg		----	<10	40	40	<10
Beryllium	7440-41-7	1	mg/kg		----	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg		----	<50	<50	<50	<50
Cobalt	7440-48-4	2	mg/kg		----	<2	3	3	<2
Manganese	7439-96-5	5	mg/kg		----	51	158	123	34
Selenium	7782-49-2	5	mg/kg		----	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg		----	48	58	31	44
Arsenic	7440-38-2	5	mg/kg		<5	<5	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		25	44	53	36	51
Copper	7440-50-8	5	mg/kg		16	<5	5	23	<5
Lead	7439-92-1	5	mg/kg		<5	<5	<5	11	<5
Nickel	7440-02-0	2	mg/kg		4	<2	4	7	3
Zinc	7440-66-6	5	mg/kg		38	53	24	134	53
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	0.1	<0.1
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	2322-23-QA02	2317-QA02	2317-QA04	2317-QA06	2317-QA08
Client sampling date / time					17-Oct-2019 00:00	17-Oct-2019 00:00	17-Oct-2019 00:00	18-Oct-2019 00:00	18-Oct-2019 00:00
Compound	CAS Number	LOR	Unit		ES1934437-011	ES1934437-012	ES1934437-013	ES1934437-014	ES1934437-015
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	----	----	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	----	----	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	2322-23-QA02	2317-QA02	2317-QA04	2317-QA06	2317-QA08
Client sampling date / time					17-Oct-2019 00:00	17-Oct-2019 00:00	17-Oct-2019 00:00	18-Oct-2019 00:00	18-Oct-2019 00:00
Compound	CAS Number	LOR	Unit		ES1934437-011	ES1934437-012	ES1934437-013	ES1934437-014	ES1934437-015
				Result	Result	Result	Result	Result	Result
EP080: BTEXN - Continued									
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	----	----	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	----	----	----	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	----	----	----	----
Naphthalene	91-20-3	1	mg/kg		<1	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		93.6	78.9	101	94.9	110
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		69.3	62.1	99.6	85.9	105
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%		104	----	----	----	----
Toluene-D8	2037-26-5	0.2	%		105	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		99.8	----	----	----	----



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	73	133
Toluene-D8	2037-26-5	74	132
4-Bromofluorobenzene	460-00-4	72	130
EP202S: Phenoxyacetic Acid Herbicide Surrogate			
2,4-Dichlorophenyl Acetic Acid	19719-28-9	45	139

QUALITY CONTROL REPORT

Work Order	: ES1934437	Page	: 1 of 14
Client	: GREENCAP-NAA PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: STUART CARROLL	Contact	: Peter Ravlic
Address	: 11/14 Winnellie Road WINNELLIE NT, AUSTRALIA 0820	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 08 8984 4244	Telephone	: +6138549 9645
Project	: J162772 Jabiru Contaminated Assessment - Director of National Parks	Date Samples Received	: 23-Oct-2019
Order number	: PO 267163	Date Analysis Commenced	: 24-Oct-2019
C-O-C number	: ----	Issue Date	: 30-Oct-2019
Sampler	: STUART CARROLL		
Site	: Jabiru, Northern Territory		
Quote number	: EN/111/18 Primary Work Only		
No. of samples received	: 15		
No. of samples analysed	: 15		



Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

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

Signatories

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

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Ankit Joshi	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Ashesh Patel	Senior Chemist	Sydney Inorganics, Smithfield, NSW
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Evie Sidarta	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW



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

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: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 2663777)									
ES1934437-001	959-QA02	EG005T: Chromium	7440-47-3	2	mg/kg	74	74	0.00	0% - 20%
ES1934437-014	2317-QA06	EG005T: Zinc	7440-66-6	5	mg/kg	134	125	7.13	0% - 20%
ES1934437-001	959-QA02	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	20	20	0.00	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	3	2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	5	8	44.4	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	84	81	4.06	0% - 50%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	65	86	28.4	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
ES1934437-014	2317-QA06	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	40	40	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	36	38	4.76	0% - 50%
		EG005T: Cobalt	7440-48-4	2	mg/kg	3	7	78.1	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	7	9	25.2	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	23	29	23.2	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	11	18	50.2	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	123	138	11.4	0% - 20%



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 2663777) - continued									
ES1934437-014	2317-QA06	EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	31	35	12.2	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.00	No Limit
EA002: pH 1:5 (Soils) (QC Lot: 2661079)									
ES1934427-001	Anonymous	EA002: pH Value	----	0.1	pH Unit	8.7	8.6	0.00	0% - 20%
ES1934737-002	Anonymous	EA002: pH Value	----	0.1	pH Unit	4.1	4.1	0.00	0% - 20%
EA002: pH 1:5 (Soils) (QC Lot: 2666755)									
ES1935008-007	Anonymous	EA002: pH Value	----	0.1	pH Unit	9.3	9.3	0.00	0% - 20%
ES1934616-001	Anonymous	EA002: pH Value	----	0.1	pH Unit	7.7	7.7	0.00	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2663785)									
ES1934437-003	961-QA02	EA055: Moisture Content	----	0.1	%	1.5	2.5	48.2	No Limit
ES1934772-005	Anonymous	EA055: Moisture Content	----	0.1	%	17.6	17.0	3.44	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2663976)									
ES1934437-007	2303-QA04	EA055: Moisture Content	----	0.1	%	10.7	10.1	5.60	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2663778)									
ES1934437-014	2317-QA06	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.1	0.1	0.00	No Limit
ES1934437-001	959-QA02	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EK055: Ammonia as N (QC Lot: 2663347)									
ES1934437-001	959-QA02	EK055: Ammonia as N	7664-41-7	20	mg/kg	<20	<20	0.00	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 2666753)									
ES1934437-001	959-QA02	EK057G: Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES1935059-009	Anonymous	EK057G: Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 2666754)									
ES1934437-001	959-QA02	EK059G: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	47.0	48.0	2.14	0% - 20%
ES1935059-009	Anonymous	EK059G: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	1.8	1.8	0.00	0% - 50%
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 2663329)									
ES1934437-001	959-QA02	EK061G: Total Kjeldahl Nitrogen as N	----	20	mg/kg	120	120	0.00	No Limit
ES1934899-004	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	20	mg/kg	750	820	8.54	0% - 20%
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 2663328)									
ES1934437-001	959-QA02	EK067G: Total Phosphorus as P	----	2	mg/kg	163	158	3.35	0% - 20%
ES1934899-004	Anonymous	EK067G: Total Phosphorus as P	----	2	mg/kg	128	140	9.31	0% - 20%
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 2661045)									
ES1934847-002	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2661042)									
ES1934847-001	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2661042) - continued									
ES1934847-001	Anonymous	EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
ES1934847-002	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 2661042)									
ES1934847-001	Anonymous	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 2661042) - continued									
ES1934847-001	Anonymous	EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
ES1934847-002	Anonymous	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit		
EP075(SIM)A: Phenolic Compounds (QC Lot: 2661039)									
ES1934772-042	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)A: Phenolic Compounds (QC Lot: 2661039) - continued									
ES1934772-042	Anonymous	EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
ES1934772-060	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 2661044)	Anonymous	EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
		EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2661043)	Anonymous	EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
		EP071: C15 - C28 Fraction	----	100	mg/kg	200	220	13.3	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	170	180	8.97	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2661043) - continued									
ES1934847-002	Anonymous	EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2663348)									
ES1934770-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
ES1934885-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2661043)									
ES1934847-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	310	340	11.2	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	120	120	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
ES1934847-002	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2663348)									
ES1934770-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
ES1934885-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080: BTEXN (QC Lot: 2663348)									
ES1934770-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
ES1934885-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 2660409)									
EM1917412-001	Anonymous	EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2,4-DB	94-82-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2,4-DP	120-36-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2,4-D	94-75-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit		



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 2660409) - continued									
EM1917412-001	Anonymous	EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
EM1917611-002	Anonymous	EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-DB	94-82-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-DP	120-36-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	<0.02	0.00	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: **SOIL**

Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2663777)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	89.4	86.0	126
EG005T: Barium	7440-39-3	10	mg/kg	<10	143 mg/kg	102	85.0	115
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	5.63 mg/kg	106	90.0	113
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	99.2	83.0	113
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	95.5	76.0	128
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	16 mg/kg	108	88.0	120
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	96.9	86.0	120
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	84.3	80.0	114
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	106	85.0	117
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	105	87.0	123
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	107	75.0	131
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	29.6 mg/kg	105	92.0	122
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	105	80.0	122
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2663778)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	79.0	70.0	105
EK055: Ammonia as N (QCLot: 2663347)								
EK055: Ammonia as N	7664-41-7	20	mg/kg	<20	125 mg/kg	98.6	84.0	104
EK057G: Nitrite as N by Discrete Analyser (QCLot: 2666753)								
EK057G: Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	<0.1	2.5 mg/kg	96.6	85.0	111
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 2666754)								
EK059G: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	<0.1	2.5 mg/kg	106	88.0	118
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 2663329)								
EK061G: Total Kjeldahl Nitrogen as N	----	20	mg/kg	<20	1000 mg/kg	# 108	72.0	106
				<20	100 mg/kg	114	70.0	122
				<20	500 mg/kg	105	74.0	118
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 2663328)								
EK067G: Total Phosphorus as P	----	2	mg/kg	<2	442 mg/kg	# 110	76.0	108
				<2	100 mg/kg	103	78.0	116
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2661045)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	87.0	62.0	126
EP068A: Organochlorine Pesticides (OC) (QCLot: 2661042)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	85.0	69.0	113



Sub-Matrix: **SOIL**

Method: Compound				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
CAS Number	LOR	Unit	Result					
EP068A: Organochlorine Pesticides (OC) (QCLot: 2661042) - continued								
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	80.0	65.0	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	100	67.0	119
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	93.9	68.0	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	98.7	65.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	87.5	67.0	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	106	69.0	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	104	62.0	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	106	63.0	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	99.4	66.0	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	108	64.0	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	100	66.0	116
EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	106	67.0	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	107	67.0	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	108	69.0	115
EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	105	69.0	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	80.2	56.0	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	91.2	62.0	124
EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	83.2	66.0	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	88.0	64.0	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	77.8	54.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2661042)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	96.2	59.0	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	94.1	62.0	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	99.0	54.0	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	92.3	67.0	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	93.9	70.0	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	91.3	72.0	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	87.4	68.0	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	91.8	68.0	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	90.4	69.0	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	95.5	76.0	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	86.3	64.0	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	100	70.0	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	103	69.0	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	105	66.0	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	97.0	68.0	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	104	62.0	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	104	68.0	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	86.2	65.0	127

Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result		LCS	Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2661042) - continued								
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	78.1	41.0	123
EP075(SIM)A: Phenolic Compounds (QCLot: 2661039)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	87.9	71.0	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	91.8	72.0	124
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	105	71.0	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	102	67.0	127
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	82.4	54.0	114
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	107	68.0	126
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	85.5	66.0	120
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	108	70.0	120
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	104	70.0	116
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	81.8	54.0	114
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	82.4	60.0	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	29.8	10.0	57.0
EP075(SIM)A: Phenolic Compounds (QCLot: 2661044)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	98.0	71.0	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	97.4	72.0	124
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	90.1	71.0	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	93.5	67.0	127
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	82.7	54.0	114
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	90.7	68.0	126
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	95.9	66.0	120
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	95.1	70.0	120
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	90.6	70.0	116
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	92.7	54.0	114
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	93.7	60.0	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	40.1	10.0	57.0
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2661043)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	106	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	109	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	103	71.0	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2663348)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	101	68.4	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2661043)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	102	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	110	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	81.6	63.0	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2663348)								



Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2663348) - continued								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	96.7	68.4	128
EP080: BTEXN (QCLot: 2663348)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	96.2	62.0	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	94.1	67.0	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	90.3	65.0	117
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	91.5	66.0	118
	106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	93.9	68.0	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	85.1	63.0	119
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 2660409)								
EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	0.1 mg/kg	77.7	54.4	128
EP202: 2,4-DB	94-82-6	0.02	mg/kg	<0.02	0.1 mg/kg	90.0	45.5	130
EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	0.1 mg/kg	89.7	51.7	135
EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	0.1 mg/kg	86.4	60.0	130
EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	0.1 mg/kg	82.0	56.8	131
EP202: 2,4-DP	120-36-5	0.02	mg/kg	<0.02	0.1 mg/kg	99.6	50.0	141
EP202: 2,4-D	94-75-7	0.02	mg/kg	<0.02	0.1 mg/kg	98.6	68.5	131
EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	0.1 mg/kg	91.9	50.8	141
EP202: 2,4,5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	0.1 mg/kg	93.6	40.8	126
EP202: 2,4,5-T	93-76-5	0.02	mg/kg	<0.02	0.1 mg/kg	104	57.4	139
EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	0.1 mg/kg	87.2	38.9	137
EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	0.1 mg/kg	58.1	48.7	129
EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	0.1 mg/kg	70.3	49.4	106
EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	0.1 mg/kg	81.8	53.2	128

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: SOIL				Matrix Spike (MS) Report			
				Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%) Low High	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number				
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2663777)							
ES1934437-001	959-QA02	EG005T: Arsenic	7440-38-2	50 mg/kg	91.9	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	102	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	97.0	70.0	130
		EG005T: Copper	7440-50-8	250 mg/kg	101	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	120	70.0	130



Sub-Matrix: SOIL				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2663777) - continued							
ES1934437-001	959-QA02	EG005T: Nickel	7440-02-0	50 mg/kg	102	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	105	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2663778)							
ES1934437-001	959-QA02	EG035T: Mercury	7439-97-6	5 mg/kg	84.6	70.0	130
EK055: Ammonia as N (QCLot: 2663347)							
ES1934437-001	959-QA02	EK055: Ammonia as N	7664-41-7	125 mg/kg	106	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 2666753)							
ES1934437-001	959-QA02	EK057G: Nitrite as N (Sol.)	14797-65-0	2.5 mg/kg	92.7	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 2666754)							
ES1934437-001	959-QA02	EK059G: Nitrite + Nitrate as N (Sol.)	----	2.5 mg/kg	# Not Determined	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 2663329)							
ES1934437-001	959-QA02	EK061G: Total Kjeldahl Nitrogen as N	----	500 mg/kg	92.9	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 2663328)							
ES1934437-001	959-QA02	EK067G: Total Phosphorus as P	----	100 mg/kg	88.1	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2661045)							
ES1934847-001	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	92.0	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 2661042)							
ES1934847-001	Anonymous	EP068: gamma-BHC	58-89-9	0.5 mg/kg	105	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	85.8	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	100	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	85.6	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	102	70.0	130
		EP068: 4,4'-DDT	50-29-3	2 mg/kg	102	70.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2661042)							
ES1934847-001	Anonymous	EP068: Diazinon	333-41-5	0.5 mg/kg	85.7	70.0	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	79.2	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	91.9	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	101	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	74.4	70.0	130
EP075(SIM)A: Phenolic Compounds (QCLot: 2661039)							
ES1934772-042	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	94.9	70.0	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	95.0	70.0	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	85.8	60.0	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	92.5	70.0	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	63.0	20.0	130



Sub-Matrix: **SOIL**

Sub-Matrix: SOIL				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP075(SIM)A: Phenolic Compounds (QCLot: 2661044)							
ES1934847-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	95.4	70.0	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	98.3	70.0	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	76.6	60.0	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	96.1	70.0	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	45.8	20.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2661043)							
ES1934847-001	Anonymous	EP071: C10 - C14 Fraction	----	523 mg/kg	90.6	73.0	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	114	53.0	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	128	52.0	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2663348)							
ES1934770-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	96.6	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2661043)							
ES1934847-001	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	101	73.0	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	117	53.0	131
		EP071: >C34 - C40 Fraction	----	1058 mg/kg	121	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2663348)							
ES1934770-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	97.1	70.0	130
EP080: BTEXN (QCLot: 2663348)							
ES1934770-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	89.6	70.0	130
		EP080: Toluene	108-88-3	2.5 mg/kg	89.7	70.0	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	91.8	70.0	130
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	92.0	70.0	130
			106-42-3				
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	94.4	70.0	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	86.9	70.0	130
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 2660409)							
EM1917412-002	Anonymous	EP202: Mecoprop	93-65-2	0.1 mg/kg	105	60.0	140
		EP202: MCPA	94-74-6	0.1 mg/kg	106	57.0	143
		EP202: 2,4-D	94-75-7	0.1 mg/kg	105	68.0	139
		EP202: Triclopyr	55335-06-3	0.1 mg/kg	99.7	51.0	145
		EP202: 2,4,5-T	93-76-5	0.1 mg/kg	102	57.0	142
		EP202: Picloram	1918-02-1	0.1 mg/kg	79.5	49.0	138
		EP202: Clopyralid	1702-17-6	0.1 mg/kg	55.1	49.0	149

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: ES1934437	Page	: 1 of 10
Client	: GREENCAP-NAA PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: STUART CARROLL	Telephone	: +6138549 9645
Project	: J162772 Jabiru Contaminated Assessment - Director of National Parks	Date Samples Received	: 23-Oct-2019
Site	: Jabiru, Northern Territory	Issue Date	: 30-Oct-2019
Sampler	: STUART CARROLL	No. of samples received	: 15
Order number	: PO 267163	No. of samples analysed	: 15

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO** Method Blank value outliers occur.
- **NO** Duplicate outliers occur.
- Laboratory Control outliers exist - please see following pages for full details.
- Matrix Spike outliers exist - please see following pages for full details.
- For all regular sample matrices, **NO** surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- Quality Control Sample Frequency Outliers exist - please see following pages for full details.



Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser	QC-MRG2-26633280	----	Total Kjeldahl Nitrogen as N	----	108 %	72.0-106%	Recovery greater than upper control limit
EK067G: Total Phosphorus as P by Discrete Analyser	QC-MRG2-26633280	----	Total Phosphorus as P	----	110 %	76.0-108%	Recovery greater than upper control limit
Matrix Spike (MS) Recoveries							
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Ar	ES1934437--001	959-QA02	Nitrite + Nitrate as N (Sol.)	----	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method		Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA002: pH 1:5 (Soils)							
Soil Glass Jar - Unpreserved							
2303-QA02, 2303-QA04		28-Oct-2019	22-Oct-2019	6	----	----	----

Outliers : Frequency of Quality Control Samples

Matrix: **SOIL**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Laboratory Control Samples (LCS)					
Total Phosphorus By Discrete Analyser	2	18	11.11	15.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation



Matrix: **SOIL**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA002: pH 1:5 (Soils)								
Soil Glass Jar - Unpreserved (EA002) 2303-QA02,	2303-QA04	15-Oct-2019	28-Oct-2019	22-Oct-2019	✖	28-Oct-2019	28-Oct-2019	✓
Soil Glass Jar - Unpreserved (EA002) 2322-23-QA02		17-Oct-2019	24-Oct-2019	24-Oct-2019	✓	24-Oct-2019	24-Oct-2019	✓
EA055: Moisture Content								
Soil Glass Jar - Unpreserved (EA055) 2353-GKT-QA02		15-Oct-2019	----	----	----	25-Oct-2019	29-Oct-2019	✓
Soil Glass Jar - Unpreserved (EA055) 2100-QA02 - Received as 2100-QA01		16-Oct-2019	----	----	----	25-Oct-2019	30-Oct-2019	✓
Soil Glass Jar - Unpreserved (EA055) 2322-23-QA02		17-Oct-2019	----	----	----	25-Oct-2019	31-Oct-2019	✓
EA055: Moisture Content (Dried @ 105-110°C)								
Soil Glass Jar - Unpreserved (EA055) 959-QA02, 961-QA02	960-QA02,	14-Oct-2019	----	----	----	25-Oct-2019	28-Oct-2019	✓
Soil Glass Jar - Unpreserved (EA055) 2302-QA02, 2303-QA04	2303-QA02,	15-Oct-2019	----	----	----	25-Oct-2019	29-Oct-2019	✓
Soil Glass Jar - Unpreserved (EA055) 979-QA02,	2353-CNR-QA02	16-Oct-2019	----	----	----	25-Oct-2019	30-Oct-2019	✓
Soil Glass Jar - Unpreserved (EA055) 2317-QA02,	2317-QA04	17-Oct-2019	----	----	----	25-Oct-2019	31-Oct-2019	✓
Soil Glass Jar - Unpreserved (EA055) 2317-QA06,	2317-QA08	18-Oct-2019	----	----	----	25-Oct-2019	01-Nov-2019	✓
EG005(ED093)T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T) 959-QA02, 961-QA02	960-QA02,	14-Oct-2019	28-Oct-2019	11-Apr-2020	✓	28-Oct-2019	11-Apr-2020	✓
Soil Glass Jar - Unpreserved (EG005T) 2353-GKT-QA02		15-Oct-2019	28-Oct-2019	12-Apr-2020	✓	28-Oct-2019	12-Apr-2020	✓
Soil Glass Jar - Unpreserved (EG005T) 979-QA02, 2353-CNR-QA02	2100-QA02 - Received as 2100-QA01,	16-Oct-2019	28-Oct-2019	13-Apr-2020	✓	28-Oct-2019	13-Apr-2020	✓
Soil Glass Jar - Unpreserved (EG005T) 2322-23-QA02, 2317-QA04	2317-QA02,	17-Oct-2019	28-Oct-2019	14-Apr-2020	✓	28-Oct-2019	14-Apr-2020	✓
Soil Glass Jar - Unpreserved (EG005T) 2317-QA06,	2317-QA08	18-Oct-2019	28-Oct-2019	15-Apr-2020	✓	28-Oct-2019	15-Apr-2020	✓



Matrix: **SOIL**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T) 959-QA02, 961-QA02	960-QA02,	14-Oct-2019	28-Oct-2019	11-Nov-2019	✓	28-Oct-2019	11-Nov-2019	✓
Soil Glass Jar - Unpreserved (EG035T) 2353-GKT-QA02		15-Oct-2019	28-Oct-2019	12-Nov-2019	✓	28-Oct-2019	12-Nov-2019	✓
Soil Glass Jar - Unpreserved (EG035T) 979-QA02, 2353-CNR-QA02	2100-QA02 - Received as 2100-QA01,	16-Oct-2019	28-Oct-2019	13-Nov-2019	✓	28-Oct-2019	13-Nov-2019	✓
Soil Glass Jar - Unpreserved (EG035T) 2322-23-QA02, 2317-QA04	2317-QA02,	17-Oct-2019	28-Oct-2019	14-Nov-2019	✓	28-Oct-2019	14-Nov-2019	✓
Soil Glass Jar - Unpreserved (EG035T) 2317-QA06,	2317-QA08	18-Oct-2019	28-Oct-2019	15-Nov-2019	✓	28-Oct-2019	15-Nov-2019	✓
EK055: Ammonia as N								
Soil Glass Jar - Unpreserved (EK055) 959-QA02		14-Oct-2019	----	----	----	25-Oct-2019	11-Apr-2020	✓
Soil Glass Jar - Unpreserved (EK055) 2302-QA02		15-Oct-2019	----	----	----	25-Oct-2019	12-Apr-2020	✓
EK057G: Nitrite as N by Discrete Analyser								
Soil Glass Jar - Unpreserved (EK057G) 959-QA02		14-Oct-2019	28-Oct-2019	11-Apr-2020	✓	28-Oct-2019	11-Apr-2020	✓
Soil Glass Jar - Unpreserved (EK057G) 2302-QA02		15-Oct-2019	28-Oct-2019	12-Apr-2020	✓	28-Oct-2019	12-Apr-2020	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Soil Glass Jar - Unpreserved (EK059G) 959-QA02		14-Oct-2019	28-Oct-2019	11-Apr-2020	✓	28-Oct-2019	11-Apr-2020	✓
Soil Glass Jar - Unpreserved (EK059G) 2302-QA02		15-Oct-2019	28-Oct-2019	12-Apr-2020	✓	28-Oct-2019	12-Apr-2020	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Soil Glass Jar - Unpreserved (EK061G) 959-QA02		14-Oct-2019	25-Oct-2019	11-Apr-2020	✓	25-Oct-2019	11-Apr-2020	✓
Soil Glass Jar - Unpreserved (EK061G) 2302-QA02		15-Oct-2019	25-Oct-2019	12-Apr-2020	✓	25-Oct-2019	12-Apr-2020	✓
EK067G: Total Phosphorus as P by Discrete Analyser								
Soil Glass Jar - Unpreserved (EK067G) 959-QA02		14-Oct-2019	25-Oct-2019	11-Apr-2020	✓	25-Oct-2019	11-Apr-2020	✓
Soil Glass Jar - Unpreserved (EK067G) 2302-QA02		15-Oct-2019	25-Oct-2019	12-Apr-2020	✓	25-Oct-2019	12-Apr-2020	✓
EP066: Polychlorinated Biphenyls (PCB)								
Soil Glass Jar - Unpreserved (EP066) 979-QA02,	2353-CNR-QA02	16-Oct-2019	25-Oct-2019	30-Oct-2019	✓	29-Oct-2019	04-Dec-2019	✓



Matrix: **SOIL**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP068A: Organochlorine Pesticides (OC)								
Soil Glass Jar - Unpreserved (EP068) 959-QA02,	960-QA02	14-Oct-2019	25-Oct-2019	28-Oct-2019	✓	29-Oct-2019	04-Dec-2019	✓
Soil Glass Jar - Unpreserved (EP068) 979-QA02, 2353-CNR-QA02	2100-QA02 - Received as 2100-QA01,	16-Oct-2019	25-Oct-2019	30-Oct-2019	✓	29-Oct-2019	04-Dec-2019	✓
Soil Glass Jar - Unpreserved (EP068) 2322-23-QA02, 2317-QA04	2317-QA02,	17-Oct-2019	25-Oct-2019	31-Oct-2019	✓	29-Oct-2019	04-Dec-2019	✓
Soil Glass Jar - Unpreserved (EP068) 2317-QA06,	2317-QA08	18-Oct-2019	25-Oct-2019	01-Nov-2019	✓	29-Oct-2019	04-Dec-2019	✓
EP068B: Organophosphorus Pesticides (OP)								
Soil Glass Jar - Unpreserved (EP068) 959-QA02,	960-QA02	14-Oct-2019	25-Oct-2019	28-Oct-2019	✓	29-Oct-2019	04-Dec-2019	✓
EP075(SIM)A: Phenolic Compounds								
Soil Glass Jar - Unpreserved (EP075(SIM)) 2303-QA04		15-Oct-2019	24-Oct-2019	29-Oct-2019	✓	25-Oct-2019	03-Dec-2019	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) 2303-QA02		15-Oct-2019	25-Oct-2019	29-Oct-2019	✓	28-Oct-2019	04-Dec-2019	✓
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP080) 2353-GKT-QA02		15-Oct-2019	25-Oct-2019	29-Oct-2019	✓	28-Oct-2019	29-Oct-2019	✓
Soil Glass Jar - Unpreserved (EP080) 979-QA02, 2353-CNR-QA02	2100-QA02 - Received as 2100-QA01,	16-Oct-2019	25-Oct-2019	30-Oct-2019	✓	28-Oct-2019	30-Oct-2019	✓
Soil Glass Jar - Unpreserved (EP080) 2322-23-QA02		17-Oct-2019	25-Oct-2019	31-Oct-2019	✓	28-Oct-2019	31-Oct-2019	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Soil Glass Jar - Unpreserved (EP080) 2353-GKT-QA02		15-Oct-2019	25-Oct-2019	29-Oct-2019	✓	28-Oct-2019	29-Oct-2019	✓
Soil Glass Jar - Unpreserved (EP080) 979-QA02, 2353-CNR-QA02	2100-QA02 - Received as 2100-QA01,	16-Oct-2019	25-Oct-2019	30-Oct-2019	✓	28-Oct-2019	30-Oct-2019	✓
Soil Glass Jar - Unpreserved (EP080) 2322-23-QA02		17-Oct-2019	25-Oct-2019	31-Oct-2019	✓	28-Oct-2019	31-Oct-2019	✓
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080) 2353-GKT-QA02		15-Oct-2019	25-Oct-2019	29-Oct-2019	✓	28-Oct-2019	29-Oct-2019	✓
Soil Glass Jar - Unpreserved (EP080) 979-QA02, 2353-CNR-QA02	2100-QA02 - Received as 2100-QA01,	16-Oct-2019	25-Oct-2019	30-Oct-2019	✓	28-Oct-2019	30-Oct-2019	✓
Soil Glass Jar - Unpreserved (EP080) 2322-23-QA02		17-Oct-2019	25-Oct-2019	31-Oct-2019	✓	28-Oct-2019	31-Oct-2019	✓



Matrix: SOIL

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP202A: Phenoxyacetic Acid Herbicides by LCMS								
Soil Glass Jar - Unpreserved (EP202)								
959-QA02,	960-QA02	14-Oct-2019	25-Oct-2019	28-Oct-2019	✓	25-Oct-2019	04-Dec-2019	✓



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Buchi Ammonia	EK055	1	2	50.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	3	25	12.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	2	3	66.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N - Soluble by Discrete Analyser	EK057G	2	3	66.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	3	25	12.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	17	11.76	10.00	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	4	40	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	2	15	13.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	9	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TKN as N By Discrete Analyser	EK061G	2	20	10.00	9.52	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	4	19	21.05	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus By Discrete Analyser	EK067G	2	18	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	12	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Buchi Ammonia	EK055	1	2	50.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N - Soluble by Discrete Analyser	EK057G	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	25	8.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	9	11.11	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TKN as N By Discrete Analyser	EK061G	3	20	15.00	14.29	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus By Discrete Analyser	EK067G	2	18	11.11	15.00	✗	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	12	8.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Buchi Ammonia	EK055	1	2	50.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N - Soluble by Discrete Analyser	EK057G	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard



Matrix: **SOIL**

Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Method Blanks (MB) - Continued							
PAH/Phenols (SIM)	EP075(SIM)	2	25	8.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	9	11.11	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TKN as N By Discrete Analyser	EK061G	1	20	5.00	4.76	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus By Discrete Analyser	EK067G	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	12	8.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Buchi Ammonia	EK055	1	2	50.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N - Soluble by Discrete Analyser	EK057G	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	25	8.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	9	11.11	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TKN as N By Discrete Analyser	EK061G	1	20	5.00	4.76	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus By Discrete Analyser	EK067G	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	12	8.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	In house: Referenced to Rayment and Lyons 4A1 and APHA 4500H+. pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3)
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl ₂) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Buchi Ammonia	EK055	SOIL	In house: Referenced to APHA 4500-NH ₃ B&G, H Samples are steam distilled (Buchi) prior to analysis and quantified using titration, FIA or Discrete Analyser.
Nitrite as N - Soluble by Discrete Analyser	EK057G	SOIL	In house: Referenced to APHA 4500-NO ₃ - B. Nitrite in a water extract is determined by direct colourimetry by Discrete Analyser.
Nitrate as N - Soluble by Discrete Analyser	EK058G	SOIL	In house: Referenced to APHA 4500-NO ₃ - F. Nitrate in the 1:5 soil:water extract is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined separately by direct colourimetry and result for Nitrate calculated as the difference between the two results.
Nitrite and Nitrate as N (NO _x)- Soluble by Discrete Analyser	EK059G	SOIL	In house: Thermo Scientific Method D08727 and NEMI (National Environmental Method Index) Method ID: 9171. This method covers the determination of total oxidised nitrogen (NO _x -N) and nitrate (NO ₃ -N) by calculation, Combined oxidised Nitrogen (NO ₂ +NO ₃) in a water extract is determined by direct colourimetry by Discrete Analyser.
TKN as N By Discrete Analyser	EK061G	SOIL	In house: Referenced to APHA 4500-Norg-D Soil samples are digested using Kjeldahl digestion followed by determination by Discrete Analyser.
Total Nitrogen as N (TKN + NO _x) By Discrete Analyser	EK062G	SOIL	In house: Referenced to APHA 4500 Norg/NO ₃ - Total Nitrogen is determined as the sum of TKN and Oxidised Nitrogen, each determined separately as N.
Total Phosphorus By Discrete Analyser	EK067G	SOIL	In house: Referenced to APHA 4500 P-B&F This procedure involves sulfuric acid digestion and quantification using Discrete Analyser.
Polychlorinated Biphenyls (PCB)	EP066	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 504,505)



Analytical Methods	Method	Matrix	Method Descriptions
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM amended 2013.
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM amended 2013.
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	SOIL	In house: LCMS (Electrospray in negative mode). Residues of acid herbicides are extracted from soil samples under the alkaline condition. An aliquot of the alkaline aqueous phase is taken and acidified before a SPE cleanup. After eluting off from the SPE cartridge, residues of acid herbicides are dissolved in HPLC mobile phase prior to instrument analysis.
Preparation Methods	Method	Matrix	Method Descriptions
TKN/TP Digestion	EK061/EK067	SOIL	In house: Referenced to APHA 4500 Norg- D; APHA 4500 P - H. Macro Kjeldahl digestion.
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Extraction for Phenoxy Acid Herbicides in Soils.	EP202-PR	SOIL	In-House: Alkaline extract followed by SPE clean up of acidified portion of the sample extract.
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

61019

GREENCAP

Going Further in Managing Risk

GREENCAP
Sample Chain of Custody and Testing Request

client project location	GREENCAP Jabiru Contaminated Assessment - Director of National Parks Jabiru, Northern Territory	Job #. J162772	Purchase Order: PO 267163	Sampled by: Stuart Carroll	Date: 22/10/2019	Sheet 1 of 1
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Sample Identification	Sample Type	Date	Sampling Containers								Testing Requirements					
1 959-QA02	SOIL	14/10/2019	1							Suite S-3	X	X				OCP
2 960-QA02	SOIL	14/10/2019	1									X				
3 961-QA02	SOIL	14/10/2019	1							X	X					
4 2353-GKT-QA02	SOIL	15/10/2019	1													
5 2302-QA02	SOIL	15/10/2019	1													
6 2303-QA02	SOIL	15/10/2019	1													
7 2303-QA04	SOIL	15/10/2019	1													
8 979-QA02	SOIL	16/10/2019	1													
9 2100-QA02	SOIL	16/10/2019	1													
10 2353-CNR-QA02	SOIL	16/10/2019	1													
11 2322-23-QA02	SOIL	17/10/2019	1													
12 2317-QA02	SOIL	17/10/2019	1													
13 2317-QA04	SOIL	17/10/2019	1							X						
14 2317-QA06	SOIL	18/10/2019	1							X						
15 2317-QA08	SOIL	18/10/2019	1							X						

GREENCAP Contact : Stu

Phone:- 08 7906 1300 or 0466 776 038

Phone:- 08 7906 1300 or 0466 776 038

Phone: 66 7 550 1300 or 0-800 770 030

Please email results to the following : stuart.carroll@greencap.com.au; robin.birua@greencap.com

Please send invoice to the following: stuart.carroll@greencap.com.au; robin.birua@greencap.com.au

Chain of Custody:

RELINQUISHED BY:	DATE/TIME:
------------------	------------

RELINQUISHED BY: 	DATE/TIME:	RELINQUISHED BY:
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Stuart Carroll

12/14/2019
Stuart Carroll
PO Box 39546, Winnellie, NT 0820
22/10/2019

RELINQUISHED BY: 	DATE/TIME:	RELINQUISHED BY:
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DATE/TIME: 22/01/19 3:00pm

W. S. A. S.

61019

10 km

Environmental Division
Sydney

Work Order Reference

ES1934437



Telefon : 61-2-8784 854.

LAB OF ORIGIN:
DARWIN



March 2020

Detailed Site Investigation Report

Director of National Parks

Lot 2303 (Treated Effluent Spray Irrigation Area)

APPENDIX C SOIL BORE LOGS

Project Name: Jabiru Contaminant Assessment
Location: Township of Jabiru
Client: Director of National Parks
Drilling method: Hand Augering
Coordinates: _____
Total Depth: 0.5 m

Project No.: J162772
Date of Invest: 15/10/2019
Water Level: Not Found
Lot No.: 2303
Logged by: Stuart.C.
Checked by: Sam.K.

Depth (m)	Material Description	Graphic log	Depth (m)	Moisture Content	Other Observations (eg.Stains/Odours)	PID Headspace	Sample Details	Depth (m)
0.00	G.S. Greyish brown Silty fine to medium gravelly SAND		0.00	DRY	White and flake bones(small) on soil surface	0.0	BH01_0.0-0.1	0.00
0.05			0.05					0.05
0.10			0.10					0.10
0.15			0.15					0.15
0.20			0.20	Slightly Moist	No odour or visual evidence of contamination	0.0	BH01_0.15-0.25	0.20
0.25			0.25					0.25
0.30	Grey SAND		0.30					0.30
0.35			0.35				BH01_0.35-0.45	0.35
0.40			0.40	Slightly Moist	No odour or visual evidence of contamination	0.0		0.40
0.45			0.45					0.45
0.50	Terminated at 0.5m depth		0.50					0.50
0.55			0.55					0.55
0.60			0.60					0.60
0.65			0.65					0.65
0.70			0.70					0.70
0.75			0.75					0.75
0.80			0.80					0.80
0.85			0.85					0.85
0.90			0.90					0.90
0.95			0.95					0.95
1.00			1.00					1.00

Project Name: Jabiru Contaminant Assessment
Location: Township of Jabiru
Client: Director of National Parks
Drilling method: Hand Augering
Coordinates: _____
Total Depth: 0.55 m

Project No.: J162772
Date of Invest: 15/10/2019
Water Level: Not Found
Lot No.: 2303
Logged by: Stuart.C.
Checked by: Sam.K.

Depth (m)	Material Description	Graphic log	Depth (m)	Moisture Content	Other Observations (eg. Stains/Odours)	PID Headspace	Sample Details	Depth (m)
0.00	G.S. - Stockpile height ≈ 0.5 m bgl Greyish brown Silty fine to medium gravelly SAND		0.00					0.00
0.05			0.05				BH02_0.0-0.1 (QA01, QA02)	0.05
0.10			0.10					0.10
0.15			0.15					0.15
0.20			0.20					0.20
0.25			0.25	DRY	No odour or visual evidence of contamination	0.0		0.25
0.30			0.30					0.30
0.35			0.35					0.35
0.40			0.40					0.40
0.45	Yellowish brown Silty gravelly SAND		0.45				BH02_0.45-0.55	0.45
0.50			0.50	DRY	No odour or visual evidence of contamination	0.0		0.50
0.55	Terminated at 0.55m depth		0.55					0.55
0.60			0.60					0.60
0.65			0.65					0.65
0.70			0.70					0.70
0.75			0.75					0.75
0.80			0.80					0.80
0.85			0.85					0.85
0.90			0.90					0.90
0.95			0.95					0.95
1.00			1.00					1.00

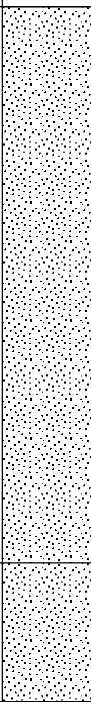
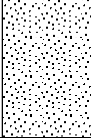
Project Name: Jabiru Contaminant Assessment
Location: Township of Jabiru
Client: Director of National Parks
Drilling method: Hand Augering
Coordinates: _____
Total Depth: 0.6 m

Project No.: J162772
Date of Invest: 15/10/2019
Water Level: Not Found
Lot No.: 2303
Logged by: Stuart.C.
Checked by: Sam.K.

Depth (m)	Material Description	Graphic log	Depth (m)	Moisture Content	Other Observations (eg. Stains/Odours)	PID Headspace	Sample Details	Depth (m)
0.00	G.S-Stockpile height ≈ 0.8 m bgl.		0.00					0.00
0.05			0.05		No odour or visual evidence of contamination	0.0	BH03_0.0-0.1	0.05
0.10			0.10					0.10
0.15			0.15					0.15
0.20	Brownish grey Silty fine to medium gravelly SAND		0.20					0.20
0.25			0.25					0.25
0.30			0.30	DRY				0.30
0.35			0.35					0.35
0.40			0.40					0.40
0.45			0.45					0.45
0.50			0.50		No odour or visual evidence of contamination	0.0	BH03_0.5-0.6	0.50
0.55			0.55					0.55
0.60	Terminated at 0.6m depth		0.60					0.60
0.65			0.65					0.65
0.70			0.70					0.70
0.75			0.75					0.75
0.80			0.80					0.80
0.85			0.85					0.85
0.90			0.90					0.90
0.95			0.95					0.95
1.00			1.00					1.00

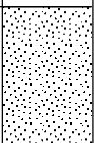
Project Name: Jabiru Contaminant Assessment
Location: Township of Jabiru
Client: Director of National Parks
Drilling method: Hand Augering
Coordinates: _____
Total Depth: 0.5 m

Project No.: J162772
Date of Invest: 15/10/2019
Water Level: Not Found
Lot No.: 2303
Logged by: Stuart.C.
Checked by: Sam.K.

Depth (m)	Material Description	Graphic log	Depth (m)	Moisture Content	Other Observations (eg. Stains/Odours)	PID Headspace	Sample Details	Depth (m)
0.00	G.S. Stockpile height ≈ 0.5 m bgl Brownish grey Silty fine to medium gravelly SAND		0.00	DRY	No odour or visual evidence of contamination	0.0	BH04_0.0-0.1	0.00
0.05			0.05					0.05
0.10			0.10					0.10
0.15			0.15					0.15
0.20			0.20					0.20
0.25			0.25					0.25
0.30			0.30					0.30
0.35			0.35					0.35
0.40	Yellowish brown Silty gravelly SAND		0.40	DRY	No odour or visual evidence of contamination	0.0	BH04_0.4-0.5	0.40
0.45			0.45					0.45
0.50	Terminated at 0.5m depth		0.50					0.50
0.55			0.55					0.55
0.60			0.60					0.60
0.65			0.65					0.65
0.70			0.70					0.70
0.75			0.75					0.75
0.80			0.80					0.80
0.85			0.85					0.85
0.90			0.90					0.90
0.95			0.95					0.95
1.00			1.00					1.00

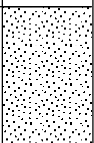
Project Name: Jabiru Contaminant Assessment
Location: Township of Jabiru
Client: Director of National Parks
Drilling method: Hand Augering
Coordinates: _____
Total Depth: 0.1 m

Project No.: J162772
Date of Invest: 15/10/2019
Water Level: Not Found
Lot No.: 2303
Logged by: Stuart.C.
Checked by: Sam.K.

Depth (m)	Material Description	Graphic log	Depth (m)	Moisture Content	Other Observations (eg. Stains/Odours)	PID Headspace	Sample Details	Depth (m)
0.00	G.S. Palebrownish grey Silty fine to medium gravelly SAND		0.00	DRY	No odour or visual evidence of contamination	0.0	BH05_0.0-0.1	0.00
0.05			0.05					0.05
0.10	Terminated at 0.1m depth		0.10					0.10
0.15			0.15					0.15
0.20			0.20					0.20
0.25			0.25					0.25
0.30			0.30					0.30
0.35			0.35					0.35
0.40			0.40					0.40
0.45			0.45					0.45
0.50			0.50					0.50
0.55			0.55					0.55
0.60			0.60					0.60
0.65			0.65					0.65
0.70			0.70					0.70
0.75			0.75					0.75
0.80			0.80					0.80
0.85			0.85					0.85
0.90			0.90					0.90
0.95			0.95					0.95
1.00			1.00					1.00

Project Name: Jabiru Contaminant Assessment
Location: Township of Jabiru
Client: Director of National Parks
Drilling method: Hand Augering
Coordinates: _____
Total Depth: 0.1 m

Project No.: J162772
Date of Invest: 15/10/2019
Water Level: Not Found
Lot No.: 2303
Logged by: Stuart.C.
Checked by: Sam.K.

Depth (m)	Material Description	Graphic log	Depth (m)	Moisture Content	Other Observations (eg. Stains/Odours)	PID Headspace	Sample Details	Depth (m)
0.00	G.S. Pale brownish grey Silty fine to medium gravelly SAND		0.00	DRY	No odour or visual evidence of contamination	0.0	BH06_0.0-0.1	0.00
0.05			0.05					0.05
0.10	Terminated at 0.1m depth		0.10					0.10
0.15			0.15					0.15
0.20			0.20					0.20
0.25			0.25					0.25
0.30			0.30					0.30
0.35			0.35					0.35
0.40			0.40					0.40
0.45			0.45					0.45
0.50			0.50					0.50
0.55			0.55					0.55
0.60			0.60					0.60
0.65			0.65					0.65
0.70			0.70					0.70
0.75			0.75					0.75
0.80			0.80					0.80
0.85			0.85					0.85
0.90			0.90					0.90
0.95			0.95					0.95
1.00			1.00					1.00

Project Name: Jabiru Contaminant Assessment
Location: Township of Jabiru
Client: Director of National Parks
Drilling method: Hand Augering
Coordinates: _____
Total Depth: 0.5 m

Project No.: J162772
Date of Invest: 15/10/2019
Water Level: Not Found
Lot No.: 2303
Logged by: Stuart.C.
Checked by: Sam.K.

Depth (m)	Material Description	Graphic log	Depth (m)	Moisture Content	Other Observations (eg. Stains/Odours)	PID Headspace	Sample Details	Depth (m)
0.00	G.S.		0.00					0.00
0.05	Grasses/Thin root-mat on top Dark greyish brown Silty fine to medium gravelly SAND		0.05	Slightly Moist	No odour or visual evidence of contamination	0.0	BH07_0.0-0.1	0.05
0.10	Light brown Silty fine to medium gravelly SAND Reworked natural		0.10					0.10
0.15			0.15					0.15
0.20			0.20	Slightly Moist	No odour or visual evidence of contamination	0.0	BH07_0.15-0.25	0.20
0.25			0.25					0.25
0.30			0.30					0.30
0.35			0.35					0.35
0.40	Light brown Silty fine to medium gravelly SAND with coarse lateritic gravels Reworked natural		0.40	Slightly Moist	No odour or visual evidence of contamination	0.0	BH07_0.4-0.5	0.40
0.45			0.45					0.45
0.50	Terminated at 0.5m depth		0.50					0.50
0.55			0.55					0.55
0.60			0.60					0.60
0.65			0.65					0.65
0.70			0.70					0.70
0.75			0.75					0.75
0.80			0.80					0.80
0.85			0.85					0.85
0.90			0.90					0.90
0.95			0.95					0.95
1.00			1.00					1.00

Project Name: Jabiru Contaminant Assessment
Location: Township of Jabiru
Client: Director of National Parks
Drilling method: Hand Augering
Coordinates: _____
Total Depth: 0.5 m

Project No.: J162772
Date of Invest: 15/10/2019
Water Level: Not Found
Lot No.: 2303
Logged by: Stuart.C.
Checked by: Sam.K.

Depth (m)	Material Description	Graphic log	Depth (m)	Moisture Content	Other Observations (eg. Stains/Odours)	PID Headspace	Sample Details	Depth (m)
0.00	G.S.		0.00					0.00
0.05	Grasses/Thin root-mat on top Dark greyish brown Silty fine to medium gravelly SAND		0.05					0.05
0.10			0.10					0.10
0.15			0.15					0.15
0.20			0.20	Slightly Moist	No odour or visual evidence of contamination	0.0	BH08_0.0-0.1	0.20
0.25	Light brown Silty fine to medium gravelly SAND Reworked natural		0.25					0.25
0.30			0.30					0.30
0.35			0.35					0.35
0.40			0.40	Slightly Moist	No odour or visual evidence of contamination	0.0	BH08_0.2-0.3	0.40
0.45	Light brown Silty fine to medium gravelly SAND with coarse lateritic gravels Reworked natural		0.45					0.45
0.50			0.50	Slightly Moist	No odour or visual evidence of contamination	0.0		0.50
0.55	Terminated at 0.5m depth		0.55					0.55
0.60			0.60					0.60
0.65			0.65					0.65
0.70			0.70					0.70
0.75			0.75					0.75
0.80			0.80					0.80
0.85			0.85					0.85
0.90			0.90					0.90
0.95			0.95					0.95
1.00			1.00					1.00

Project Name: Jabiru Contaminant Assessment
Location: Township of Jabiru
Client: Director of National Parks
Drilling method: Hand Augering
Coordinates: _____
Total Depth: 0.5 m

Project No.: J162772
Date of Invest: 15/10/2019
Water Level: Not Found
Lot No.: 2303
Logged by: Stuart.C.
Checked by: Sam.K.

Depth (m)	Material Description	Graphic log	Depth (m)	Moisture Content	Other Observations (eg. Stains/Odours)	PID Headspace	Sample Details	Depth (m)
0.00	G.S.		0.00					0.00
0.05	Dark greyish brown Silty fine to medium gravelly SAND		0.05	Slightly Moist	No odour or visual evidence of contamination	0.1	BH09_0.0-0.1	0.05
0.10	Light brown Silty fine to medium gravelly SAND Reworked natural		0.10					0.10
0.15			0.15	Slightly Moist	No odour or visual evidence of contamination	0.1	BH09_0.2-0.3	0.15
0.20			0.20					0.20
0.25			0.25					0.25
0.30			0.30					0.30
0.35			0.35					0.35
0.40			0.40					0.40
0.45			0.45					0.45
0.50	Terminated at 0.5m depth		0.50					0.50
0.55			0.55					0.55
0.60			0.60					0.60
0.65			0.65					0.65
0.70			0.70					0.70
0.75			0.75					0.75
0.80			0.80					0.80
0.85			0.85					0.85
0.90			0.90					0.90
0.95			0.95					0.95
1.00			1.00					1.00

Project Name: Jabiru Contaminant Assessment
Location: Township of Jabiru
Client: Director of National Parks
Drilling method: Hand Augering
Coordinates: _____
Total Depth: 0.5 m

Project No.: J162772
Date of Invest: 15/10/2019
Water Level: Not Found
Lot No.: 2303
Logged by: Stuart.C.
Checked by: Sam.K.

Depth (m)	Material Description	Graphic log	Depth (m)	Moisture Content	Other Observations (eg. Stains/Odours)	PID Headspace	Sample Details	Depth (m)
0.00	G.S.		0.00					0.00
0.05	Grasses/Thin root-mat on top Dark greyish brown Silty fine to medium gravelly SAND		0.05	Slightly Moist	No odour or visual evidence of contamination	0.0	BH10_0.0-0.1	0.05
0.10			0.10					0.10
0.15	Light brown Silty fine to medium gravelly SAND with coarse lateritic gravels Reworked natural		0.15	Slightly Moist	No odour or visual evidence of contamination	0.0	BH10_0.2-0.3	0.15
0.20			0.20					0.20
0.25			0.25					0.25
0.30			0.30					0.30
0.35			0.35					0.35
0.40			0.40					0.40
0.45			0.45					0.45
0.50	Terminated at 0.5m depth		0.50					0.50
0.55			0.55					0.55
0.60			0.60					0.60
0.65			0.65					0.65
0.70			0.70					0.70
0.75			0.75					0.75
0.80			0.80					0.80
0.85			0.85					0.85
0.90			0.90					0.90
0.95			0.95					0.95
1.00			1.00					1.00

Project Name: Jabiru Contaminant Assessment
Location: Township of Jabiru
Client: Director of National Parks
Drilling method: Hand Augering
Coordinates: _____
Total Depth: 0.5 m

Project No.: J162772
Date of Invest: 15/10/2019
Water Level: Not Found
Lot No.: 2303
Logged by: Stuart.C.
Checked by: Sam.K.

Depth (m)	Material Description	Graphic log	Depth (m)	Moisture Content	Other Observations (eg.Stains/Odours)	PID Headspace	Sample Details	Depth (m)
0.00	G.S.		0.00					0.00
0.05	Grasses/Thin root-mat on top Dark greyish brown Silty fine to medium SAND		0.05	Slightly Moist	No odour or visual evidence of contamination	0.0	BH11_0.0-0.1	0.05
0.10	Light grey Silty SAND		0.10					0.10
0.15			0.15					0.15
0.20			0.20				BH11_0.2-0.3	0.20
0.25			0.25			0.0		0.25
0.30			0.30	Slightly Moist	No odour or visual evidence of contamination			0.30
0.35			0.35					0.35
0.40			0.40					0.40
0.45			0.45					0.45
0.50	Terminated at 0.5m depth		0.50					0.50
0.55			0.55					0.55
0.60			0.60					0.60
0.65			0.65					0.65
0.70			0.70					0.70
0.75			0.75					0.75
0.80			0.80					0.80
0.85			0.85					0.85
0.90			0.90					0.90
0.95			0.95					0.95
1.00			1.00					1.00

Project Name: Jabiru Contaminant Assessment
Location: Township of Jabiru
Client: Director of National Parks
Drilling method: Hand Augering
Coordinates: _____
Total Depth: 0.5 m

Project No.: J162772
Date of Invest: 15/10/2019
Water Level: Not Found
Lot No.: 2303
Logged by: Stuart.C.
Checked by: Sam.K.

Depth (m)	Material Description	Graphic log	Depth (m)	Moisture Content	Other Observations (eg. Stains/Odours)	PID Headspace	Sample Details	Depth (m)
0.00	G.S.		0.00					0.00
0.05	Grasses/Thin root-mat on top Dark greyish brown Silty fine to medium SAND		0.05	Slightly Moist	No odour or visual evidence of contamination		BH12_0.0-0.1 (QA03, QA04)	0.05
0.10	Light grey Silty SAND		0.10					0.10
0.15			0.15					0.15
0.20			0.20	Slightly Moist	No odour or visual evidence of contamination		BH12_0.2-0.3	0.20
0.25			0.25					0.25
0.30			0.30					0.30
0.35			0.35					0.35
0.40	Light brown Silty fine to medium gravelly SAND with coarse lateritic gravels Reworked natural		0.40	Slightly Moist	No odour or visual evidence of contamination			0.40
0.45			0.45					0.45
0.50	Terminated at 0.5m depth		0.50					0.50
0.55			0.55					0.55
0.60			0.60					0.60
0.65			0.65					0.65
0.70			0.70					0.70
0.75			0.75					0.75
0.80			0.80					0.80
0.85			0.85					0.85
0.90			0.90					0.90
0.95			0.95					0.95
1.00			1.00					1.00

Project Name: Lot2303 Jabiru Contaminant Assessment
Location: Township of Jabiru
Client: Director of National Parks
Drilling method: Hand Augering
Coordinates: _____
Total Depth: 0.5 m

Project No.: J162772
Date of Invest: 15/10/2019
Water Level: Not Found
Lot No.: 2303
Logged by: Stuart.C.
Checked by: Sam.K.

Depth (m)	Material Description	Graphic log	Depth (m)	Moisture Content	Other Observations (eg. Stains/Odours)	PID Headspace	Sample Details	Depth (m)
0.00	G.S.		0.00					0.00
0.05	Grasses/Thin root-mat on top Dark greyish brown Silty fine to medium gravelly SAND		0.05	Slightly Moist	No odour or visual evidence of contamination	0.0	BH13_0.0-0.1	0.05
0.10			0.10					0.10
0.15			0.15					0.15
0.20	Light brown Silty fine to medium gravelly SAND Reworked natural		0.20	Slightly Moist		0.0	BH13_0.2-0.3	0.20
0.25			0.25					0.25
0.30			0.30					0.30
0.35			0.35					0.35
0.40			0.40					0.40
0.45			0.45		No odour or visual evidence of contamination			0.45
0.50	Terminated at 0.5m depth		0.50					0.50
0.55			0.55					0.55
0.60			0.60					0.60
0.65			0.65					0.65
0.70			0.70					0.70
0.75			0.75					0.75
0.80			0.80					0.80
0.85			0.85					0.85
0.90			0.90					0.90
0.95			0.95					0.95
1.00			1.00					1.00

Project Name: Lot2303 Jabiru Contaminant Assessment

Location: Township of Jabiru

Client: Director of National Parks

Drilling method: Hand Augering

Coordinates: _____

Total Depth: 0.3 m

Project No.: J162772

Date of Invest: 15/10/2019

Water Level: Not Found

Lot No.: 2303

Logged by: Stuart.C.

Checked by: Sam.K.

Depth (m)	Material Description	Graphic log	Depth (m)	Moisture Content	Other Observations (eg. Stains/Odours)	PID Headspace	Sample Details	Depth (m)
0.00	G.S.		0.00					0.00
0.05	Dark greyish brown Silty fine to medium gravelly SAND		0.05	Slightly Moist	No odour or visual evidence of contamination		BH14_0.0-0.1	0.05
0.10	Light brown Silty fine to medium gravelly SAND with coarse lateritic gravels Reworked natural		0.10					0.10
0.15			0.15			N/A		0.15
0.20			0.20	Slightly Moist	No odour or visual evidence of contamination		BH14_0.2-0.3	0.20
0.25			0.25					0.25
0.30	Terminated at 0.3m depth - Hand auger refusal		0.30					0.30
0.35			0.35					0.35
0.40			0.40					0.40
0.45			0.45					0.45
0.50			0.50					0.50
0.55			0.55					0.55
0.60			0.60					0.60
0.65			0.65					0.65
0.70			0.70					0.70
0.75			0.75					0.75
0.80			0.80					0.80
0.85			0.85					0.85
0.90			0.90					0.90
0.95			0.95					0.95
1.00			1.00					1.00

March 2020

Detailed Site Investigation Report

Director of National Parks

Lot 2303 (Treated Effluent Spray Irrigation Area)

APPENDIX D EQUIPMENT RECORDS AND CALIBRATION CERTIFICATES



Environmental monitoring
sampling equipment
Rentals and sales.

Tel: +61 8 9328 2900
fax: +61 8 9328 2677
eco@ecoenvironmental.com.au
www.ecoenvironmental.com.au
214 Lord St Perth WA 6000

Equipment Information

Instrument: MRPID 8B QLD
Serial Number: #911605

Equipment Check

	Enclosed	Returned	Comments
MiniRae PID Pump	☒	☐	
Protective Boot	☒	☐	
Metal Belt Clip	☒	☐	
Charger	☒	☐	
Rae Software	☒	☐	
Download Cable	☒	☐	
Instrument Manual	☒	☐	
Water Trap Filter (x2)	☒	☐	1 x unpacked, 1 x packed
Laminated Field Sheet	☒	☐	
Storm Carry Case	☒	☐	

Additional Items Enclosed

Humidity Filter + Adaptor	☒	☐	
Alkaline Battery Pack	☒	☐	Requires 4 AA Batteries (not included)

Sensor Calibration Details

	Pass	Fail	Comment
Lamp 10.6eV – Fresh Air Cal	☒	☐	WO 133034-6
Lamp 10.6eV – Isobutylene Gas 100ppm	☒	☐	Lot / Cyl 1

Alarm Limits

Alarm – Audible/ Visual	☒	☐	
Alarm – Low 50ppm	☒	☐	
Alarm – High 100ppm	☒	☐	

Inspection Details

Inspection for faults, corrosion, damage	☒	☐	
Deleted all previously logged data	☒	☐	
Correction factor set to 1.00	☒	☐	
Peak has been reset	☒	☐	
No moisture on lamp	☒	☐	

This is to certify that where possible, this instrument has been calibrated in accordance with the manufacturer's calibration procedure. ECO Standard Rental Terms and Conditions apply to all equipment calibrations.

Regards

Dave McCraw

3/10/19

Equipment Specialist
ECO Environmental Pty Ltd



Environmental monitoring
& sampling equipment
Rentals and sales.

Tel: +61 8 9328 2900
fax: +61 8 9328 2677
eco@ecoenvironmental.com.au
www.ecoenvironmental.com.au
214 Lord St Perth WA 6000

Equipment Information

Instrument: MRPID 2A
Serial Number: #595-000862

Equipment Check

	Enclosed	Returned	Comments
MiniRae PID Pump	☒	☐	
Protective Boot	☒	☐	
Spare battery pack + star driver	☒	☐	
Charger	☒	☐	
2 x Humidity Filters & 1 x Tube adaptor	☒	☐	
Download Cable	☒	☐	
Instrument Manual	☒	☐	
Water Trap Filter (x2)	☒	☐	
Laminated Field Sheet	☒	☐	
Carry Case	☒	☐	

Additional Items Enclosed

	☐	☐	
	☐	☐	

Sensor Calibration Details

	Pass	Fail	Comment
Lamp 10.6eV - Fresh Air Cal	☐	☐	
Lamp 10.6eV - Isobutylene Gas 100ppm	☒	☐	Lot 133034-6 / Cyl

Alarm Limits

Alarm - Audible/ Visual	☒	☐	
Alarm - Low 50ppm	☒	☐	
Alarm - High 100ppm	☒	☐	

Inspection Details

Inspection for faults, corrosion, damage	☒	☐	
Deleted all previously logged data	☒	☐	
Correction factor set to 1.00	☒	☐	
Peak has been reset	☒	☐	

This is to certify that where possible, this instrument has been calibrated in accordance with the manufacturer's calibration procedure. ECO Standard Rental Terms and Conditions apply to all equipment calibrations.

Regards

Dave McHaw 13/11/19

Equipment Specialist
ECO Environmental Pty Ltd