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A+ GRI Rating: Sustainability Report 2010

3 May 2012

Our ref: 2175684A LT_5642/AH/kt

David Raymond
Environmental & Sustainability Manager
7-Eleven Stores Pty Ltd
357 Ferntree Gully Road
Mount Waverly, VIC 3149

Dear David

**Environmental Site Assessment - 7-Eleven Service Station -
4 Endeavour Avenue & Bennett Road, St.Clair, NSW (Site No: 2277)**

1. Introduction

In January 2012, 7-Eleven Stores Pty Ltd (7-Eleven) commissioned Parsons Brinckerhoff Australia Pty Ltd (Parsons Brinckerhoff) to undertake an Environmental Site Assessment (ESA) for the operating service station site located at 4 Endeavour Avenue & Bennett Road, St.Clair, NSW. The site location is presented in Figure 1 and the site layout is presented in Figure 2 of Attachment A.

1.1 Objectives

The objectives of this ESA were to:

- Assess the potential for the site activities, as a service station, to have contaminated and/or polluted the soil and/or groundwater underlying the site;
- Provide recommendations for future works.

1.2 Scope of works

The scopes of works were:

- Service location.
- Non-destructive drilling (NDD) clearance of all soil bore and groundwater monitoring well locations to a minimum depth of 1.5 metres below ground level (mBGL).
- Drilling of three boreholes to a maximum depth of 2 mBGL.
- Drilling and installation of one groundwater monitoring well to a maximum depth of 6 mBGL.

- Laboratory analysis of selected soil samples for total petroleum hydrocarbons (TPH), benzene, toluene, ethyl benzene, xylenes (BTEX), polycyclic aromatic hydrocarbons (PAHs) and lead.
- Well development using a high density polyethylene (HDPE) bailer.
- Gauging, purging and sampling of six existing and newly installed groundwater monitoring wells.
- Laboratory analysis of groundwater samples for TPH, BTEX, PAH, lead, pH and total dissolved solids (TDS).
- Well survey of all groundwater monitoring wells.

2. Methodology

Drilling and soil sampling was conducted on 28 March 2012 and groundwater sampling was conducted on 4 April 2012.

2.1 Soil

A summary of the drilling works and associated soil sampling is included in Table 2-1.

Table 2-1 Field soil sampling methodology

Activity	Details
Soil bore and locations	Soil bores SB101-SB103 were installed near the central fuel bowsers. The proposed locations were intended to be closer to the fuel bowsers, however, a second concrete slab at 0.5 mBGL was encountered and the soil bores moved further out. Proposed soil bore SB104 hit refusal on the same concrete slab and an alternative location could not be found. Proposed soil bore SB105 was not possible due to proximity of the UST farm and services at the site boundary. An alternative location could not be found. Soil bore MW101 was located in the south-eastern corner of the site.
Service location	Dial Before You Dig (DBYD) underground service plans were obtained prior to the fieldwork. An independent contractor was engaged to identify the location of underground services prior to soil intrusive activities.
Concrete cutting	Concrete coring was required at the three soil bore drilling locations.
Borehole drilling	One groundwater monitoring well (MW101) and three soil bores (SB101-SB103) were drilled during the soil investigation. The drilling locations were cleared using non-destructive digging (NDD) to a minimum depth of 1.5 mBGL. A Geoprobe rig was used to extend these soil bores using push tube to refusal on siltstone and then solid auger.
Borehole logging	Soil and rock type classifications were based on Australian Standard AS1726. Borehole logs are presented in Attachment B.
Soil sampling	Soil sampling was undertaken in accordance with Parsons Brinckerhoff field procedures and Australian Standard AS4482.1.2005 Soil samples were obtained during borehole drilling using a push tube and from the hand auger during NDD clearance. Soil samples were collected at 0.2, 0.5 and 1.0 mBGL, and every metre thereafter with additional soil samples collected where changes in lithology or evidence of contamination occurred.
Soil screening	Soil samples were screened by headspace analysis using a handheld photo-ionisation detector (PID) which was calibrated daily to a known concentration of isobutylene gas.
Soil bore abandonment	Soil bores (SB101-SB103) were backfilled with bentonite and completed with cement grout after sample collection. Soil bore MW101 was converted into a groundwater monitoring well.
Decontamination procedure	All equipment requiring decontamination (hand auger, trowel and interface probe) was washed using a Decon 90 detergent solution and potable water between sample locations.

Activity	Details
Sample preservation	Soil samples for laboratory analysis were collected in laboratory supplied and appropriately preserved containers and stored on ice on-site and in transit to the laboratory. Samples were received by the laboratories within the required holding times accompanied by Chain of Custody documentation (Attachment E).
Sample analysis	Selected soil samples were analysed for TPH, BTEX, PAH and lead.
Storage of waste soil	Drill cuttings were temporarily stored within sealed 205 litre drums on site before being removed by a licensed waste disposal contractor.

2.2 Groundwater

A summary of the well construction and associated groundwater sampling is included in Table 2-2.

Table 2-2 Field groundwater sampling methodology

Activity	Details
Well construction	One groundwater monitoring well (MW101) was installed by Parsons Brinckerhoff on 28 March 2012 to a maximum depth of 6 mBGL. The monitoring wells were constructed using 50 mm Class 18 PVC casing and machine slotted screen.
Well survey	All new and existing groundwater monitoring wells were surveyed by a licensed surveyor to obtain the height of the casing (metres above height datum (mAHD) and the location co-ordinates (Appendix E).
Well development	A minimum of three bore volumes were removed using disposable bailers until groundwater quality parameters stabilised or where wells were purged dry.
Well gauging	All monitoring wells were gauged using a decontaminated interface meter prior to its use. Groundwater monitoring well gauging data is presented in Attachment C.
Well purging	Groundwater was abstracted from groundwater monitoring wells using dedicated disposable bailers. Three sets of groundwater quality parameters were recorded (or until acceptable parameter stabilisation was achieved). Groundwater monitoring well purging field sheets are presented in Attachment C.
Sampling method	Dedicated disposable HDPE bailers were used to obtain groundwater samples. All samples were field filtered for lead analysis.
Decontamination procedure	All equipment requiring decontamination (e.g. interface probe) was washed using a Decon 90 detergent solution and potable water.
Sample preservation	Groundwater samples for laboratory analysis were collected in laboratory supplied and appropriately preserved sample containers. Samples were stored on ice while on-site and in transit to the laboratory. Samples were delivered to the laboratories within the specified holding times accompanied by Chain of Custody documentation (Attachment F).
Sample analysis	Groundwater samples were analysed for TPH, BTEX, PAH, lead, pH and TDS. Field parameters including pH, conductivity, oxidation/reduction potential (redox), temperature and dissolved oxygen were recorded at the time of sampling
Storage of purged groundwater	Purged groundwater is temporarily stored within sealed 205-litre drums onsite prior to removal by a licensed waste contractor.

3. Site investigations

3.1 Site condition

The site is located in an area approximately 50 metres Australian Height Datum (mAHD). The surrounding topography slopes to the south towards

The entire site is concrete hardstand and is square in shape. A retail building is located along the western boundary with the fuel bowsers and canopy in the centre of the site. The UST farm is located between the fuel bowsers and the eastern boundary.

Immediate neighbouring land uses at the time of the assessment include:

- North – Mark Leece Sporting Complex playing fields opposite Endeavour Avenue.
- South – carpark and large shopping complex including Woolworths.
- East – carpark to the large shopping complex to the south of the site.
- West – Red Rooster restaurant.

A summary of the underground storage tanks (USTs) is included in Table 3-1.

Table 3-1 Summary of site underground storage tanks

Tank ID	Product Type	Size (litres)
T1	E10	54,800
T2	E10	54,800
T3	PULP 98	20,900
T4	ULP 92	54,800
T5	LPG	30,000

3.2 Geology

The regional map of the area (Department of Mineral Resources, 1991, Geological Series Sheet 9030, Edition 1, Penrith, Scale 1:100,000) and the NSW Natural Resources Atlas (http://www.nratlas.nsw.gov.au viewed 3rd February 2012) indicates that the regional geology in the area of the site consists of Bringelly Shale from the Mesozoic period. The formation comprises of shale, carbonaceous claystone, claystone, laminate, fine to medium grained lithic sandstone, rare coal and tuff.

A search of the CSIRO Australian Soil Resource Information System (ASRIS, http://www.asris.csiro.au/index_ie.html viewed 3rd February 2012) indicated that the site is located in an area where there is an 'extremely low probability' of the occurrence of acid sulfate soils (ASS).

Table 3-2 Site specific geology summary

Depth (mBGL)	Lithology
0.0 – 0.5	FILL: Silty CLAY; low to high plasticity, grey with red mottling, some sand and gravels
0.5 – 3.5	Silty CLAY: low plasticity, red-brown, some gravels, soft, dry
3.5 – 5.5	SHALE; weathered, grey, some clay, soft

3.3 Hydrogeology

The nearest surface water receptor is Byrnes Creek located approximately 50 metres to the north of the site.

A search of the Department of Natural Resources (DNR) licensed borehole register (http://waterinfo.nsw.gov.au/gw viewed 1st February 2012) indicated that there no registered bores within a 1 km radius of the site. The nearest 6 groundwater bore is at approximately 1.7 km north-west of the site and are registered for monitoring purpose.

3.4 Summary of previous environmental investigations

A summary of previous environmental investigations is provided in Table 3-3.

Table 3-3 Previous environmental investigations

Type and date of investigation	Consultant	Findings
Remediation Action Plan, July 2009	Parsons Brinckerhoff (Ref: PR_0358)	A remediation action plan (RAP) was prepared for the proposed UST removal works and soil validated for continued petroleum use.
Phase 1 ESA, November 2009	Parsons Brinckerhoff (Ref: PR_0484)	A desktop study of the site was undertaken.
Phase 2 ESA, August 2010	URS (Ref: 42424301)	Five groundwater monitoring wells were installed across the site and subsequently sampled. Standing water levels (SWLs) ranged between 2.470 mBTOC (MW05) and 10.185 mBTOC (MW04) with groundwater flow expected to be directed towards the north-west. All soil samples collected during drilling works reported concentrations of TPH, BTEX and lead below the laboratory limit of reporting.
GME, September 2011	Parsons Brinckerhoff (Ref: St Clair 2277 GME_2011)	Standing water levels (SWLs) ranged between 2.512 mBTOC (MW01) and 3.512 mBTOC (MW04) with groundwater flow expected to be directed towards the north-west. All soil samples collected during drilling works reported concentrations of TPH, BTEX, PAHs and lead below or equal to the laboratory limit of reporting.

4. Adopted Guidelines

4.1 Soil

To assess the contamination status of soils at a service station site, the NSW EPA refers to NSW EPA (1997) Guidelines for the NSW Site Auditor Scheme and the NSW EPA (2006) Guidelines for the NSW Site Auditor Scheme (2nd Edition). Reference is also made to the National Environmental Protection Council (1999) National Environmental Protection (Assessment of Site Contamination) Measure (NEPM).

The NEPM (1999) does not include investigation levels of TPH and BTEX. For assessing contamination by these compounds at sensitive sites, the NSW EPA (1994) Guidelines for Assessing Service Station Sites have been adopted. The NSW EPA has also recommended that these threshold values should also be used to assess the suitability of sites for less stringent uses, such as commercial/industrial.

The adopted soil investigation levels have been summarised in Table 4-1.

Table 4-1 Soil investigation levels

Analyte	Sensitive Land Use [1]	NEHF F [2]	Adopted Assessment Criteria
	(mg/kg)	(mg/kg)	(mg/kg)
TPH C_6-C_9	65	-	**65**
TPH C_{10}-C_{36}	1,000	-	**1,000**
Benzene	1	-	**1**
Toluene	1.4	-	**1.4**
Ethyl benzene	3.1	-	**3.1**
Total xylenes	14	-	**14**
Lead	300	1,500	**300**
Benzo (a) pyrene	1	5	**1**
Total PAHs	20	100	**20**

Note: - No investigation level available

[1] NSW EPA (1997) Guidelines for Assessing Service Station Sites

[2] NSW EPA (2006) Guidelines for the NSW Site Auditor Scheme – Commercial/Industrial

4.2 Groundwater

For assessing groundwater quality, it is necessary to assess the potential uses of groundwater down gradient of the site being investigated. The nearest surface water receptor to the site is Byrnes Creek located approximately 50 metres to the north. Byrnes Creek flows through open parkland and sporting playing fields and may be used for recreational purposes. Hence, Section 5 for Guidelines for recreational water quality and aesthetics values in the ANZECC (2000) Fresh and Marine Water Quality Guidelines has been considered to assess the groundwater quality.

There are seven registered groundwater extraction bores within 1,000 m of the site. These bores were predominantly registered for irrigation purposes. Based on the potential uses of the bores the ANZECC (2000) Fresh and Marine Water Quality Guidelines – Long-term trigger values have been considered.

The threshold concentrations presented in the ANZECC (2000) Fresh and Marine Waters Quality Guidelines are considered applicable for the protection of aquatic ecosystems of the receiving waters. As these guidelines apply to receiving waters, it is generally conservative to apply these to groundwater discharging to receiving waters. It is important to note that these are not threshold values at which an environmental problem is likely to occur if exceeded, rather, if the trigger values are exceeded, then further action is required which may include either further site-specific investigations to assess whether or not there is an actual problem or management/remedial action should be undertaken.

It is understood that the EPA's policy is that the trigger values for the protection of 95% of aquatic ecosystems should be used except where contaminants are potentially bio-accumulative in which case the trigger values for the protection of 99% of species should be used. Therefore, trigger values for the protection of 95% of freshwater water species have been selected for the majority of contaminants. For these contaminants, low reliability trigger values have been adopted when applicable.

Based on an electrical conductivity range of 19,620 µS/cm to 25,800 µS/cm, the groundwater beneath the site is considered to be too saline to be potable and hence, drinking water guidelines has not been considered.

The adopted groundwater investigation levels have been summarised in Table 4-2.

Table 4-2 Groundwater investigation levels

Analyte	Freshwater [1]	Recreational [2]	Irrigation[3]	Adopted Assessment Criteria
	(µg/L)	(µg/L)	(µg/L)	(µg/L)
TPH C_6-C_9	-	-	-	-
TPH C_{10}-C_{36}	-	-	-	-
Benzene	950	10	-	10
Toluene	180	-	-	180
Ethyl benzene	80	-	-	80
Lead	3.4	50	2,000	3.4
Benzo (a) pyrene	0.2	-	-	0.2
Naphthalene	16	-	-	16
Phenanthrene	2 [4]	-	-	2
Anthracene	0.4 [4]	-	-	0.4
Fluoranthene	1.4 [4]	-	-	1.4

Notes: [1] Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC/ARMCANZ, 2000) – trigger values for freshwater – protection of 95% of species.

[2] Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC/ARMCANZ, 2000) – Recreation

[3] Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC/ARMCANZ, 2000) – Irrigation

[4] Low reliability water quality values used as indicators only

5. Results/ Discussion

5.1 Soil

The following summarises the soil sampling results:

- Soil bores SB102, SB103 and MW101 reported concentrations of TPH, BTEX and PAHs below the laboratory limit of reporting.
- TPH C_{15}-C_{28} (210 mg/kg), TPH C_{29}-C_{36} (100 mg/kg) and total PAHs (5.6 mg/kg) was detected in soil bore SB101 at 0.25-0.35 mBGL located near the central southern boundary.
- During the previous drilling investigation conducted by URS in June 2010, a minimum of three soil samples were collected for the five well locations drilled. TPH, BTEX and phenols concentrations were reported below the laboratory limit of reporting for all samples. Some PAHs were detected in soil sample MW4 at 0.2 mBGL, however, were below the adopted assessment criteria.

5.2 Groundwater

A summary of the groundwater gauging results has been included in Table 5-1.

Table 5-1 Gauging results

Well ID	Depth to groundwater (mTOC)	Casing height (mAHD)	SWL (mAHD)
MW01B	1.941	46.290	44.349
MW02	2.518	46.220	43.702
MW03	2.743	46.180	43.437
MW04	2.218	46.470	44.252
MW05	2.269	46.580	44.311
MW101	2.753	47.230	44.477

Groundwater levels have risen by approximately 0.5 metres since the last GME conducted in September 2011. Groundwater flow is directed to the north-west which is consistent with previous reports.

The groundwater quality parameters measured in the field indicated the following:

- pH values ranged between 6.75 and 7.47 indicating near neutral conditions.
- Electrical conductivity ranged between 19,620 and 25,800 µS/cm indicative of high salinity
- Redox potential ranged between 10 and 91 mV indicating aerobic conditions
- Average dissolved oxygen is 2.63 indicating moderately oxygenated conditions.

The following summarises the groundwater sampling results:

- Wells MW02, MW03, MW04, MW05 and MW101 reported concentrations of TPH, BTEX and lead below the laboratory limit of reporting.
- TPH C_{15}-C_{28} (790 µg/L), TPH C_{29}-C_{36} (660 µg/L) and benzene (2 µg/L) concentrations were detected in well MW01B located in the south-west corner of the site.
- Phenanthrene (2.5 µg/L) exceeded the low reliability water quality values in freshwater for groundwater in well MW01B. Some PAHs were also detected in wells MW03, MW04 and MW101, however, were below the adopted assessment criteria.
- Previous groundwater investigations conducted at the site in 2010 and 2011 have reported concentrations of all petroleum contaminants below or equal to the laboratory limit of reporting. The heavy end concentrations detected in well MW01B during the current investigation is likely due to a small surface spill of oil and is unlikely to pose a risk to site users.

6. Quality Assurance / Quality Control (QA/QC)

A summary of the QA/QC requirements has been included in Table 6-1.

Table 6-1 Data validation

QA/QC requirement	Completed	Comments
Boreholes were cleared with NDD for a minimum of 1.5 mBGL.	Yes	None
Bores were developed and purged according to AS/NZS 5667.11	Yes	None
Samples delivered to laboratory within holding times and with correct preservative.	Yes	None
All laboratory analyses NATA accredited.	Yes	None
Required number of sample duplicates and blanks taken.	Yes	None
Sample blanks reported results below detection limits.	Yes	None
Sample duplicates reported RPDs within limits set by AS4482.1	Yes	None

In consideration of the nature and magnitude of the variations, it was considered that the results and conclusions of this report had not been significantly affected by the sampling or analytical procedures, and therefore it is considered that the overall quality of the data is sufficient to support the findings of this report.

7. Conclusions and Recommendations

Based on the results of the investigation, Parsons Brinckerhoff concludes the following:

- Soil bores SB102, SB103 and MW101 reported concentrations of TPH, BTEX and PAHs below the laboratory limit of reporting.
- TPH C_{15}-C_{28} (210 mg/kg), TPH C_{29}-C_{36} (100 mg/kg) and total PAHs (5.6 mg/kg) was detected in soil bore SB101 at 0.25-0.35 mBGL located near the central southern boundary.
- Groundwater in wells MW02, MW03, MW04, MW05 and MW101 reported concentrations of TPH, BTEX and lead below the laboratory limit of reporting.
- TPH C_{15}-C_{28} (790 µg/L), TPH C_{29}-C_{36} (660 µg/L) and benzene (2 µg/L) concentrations in groundwater were detected in well MW01B located in the south-west corner of the site.
- Phenanthrene (2.5 µg/L) exceeded the low reliability water quality values in freshwater for groundwater in well MW01B. Some PAHs were also detected in wells MW03, MW04 and MW101, however, were below the adopted assessment criteria.
- Previous groundwater investigations conducted at the site in 2010 and 2011 have reported concentrations of all petroleum contaminants below or equal to the laboratory limit of reporting. The heavy end TPH concentrations detected in well MW01B during the current investigation is likely due to a small surface spill of oil and is unlikely to pose a risk to site users.
- Parsons Brinckerhoff recommends on-going groundwater monitoring.

Should you require any additional information, please contact the undersigned on (02) 9272 5195.

Yours sincerely,

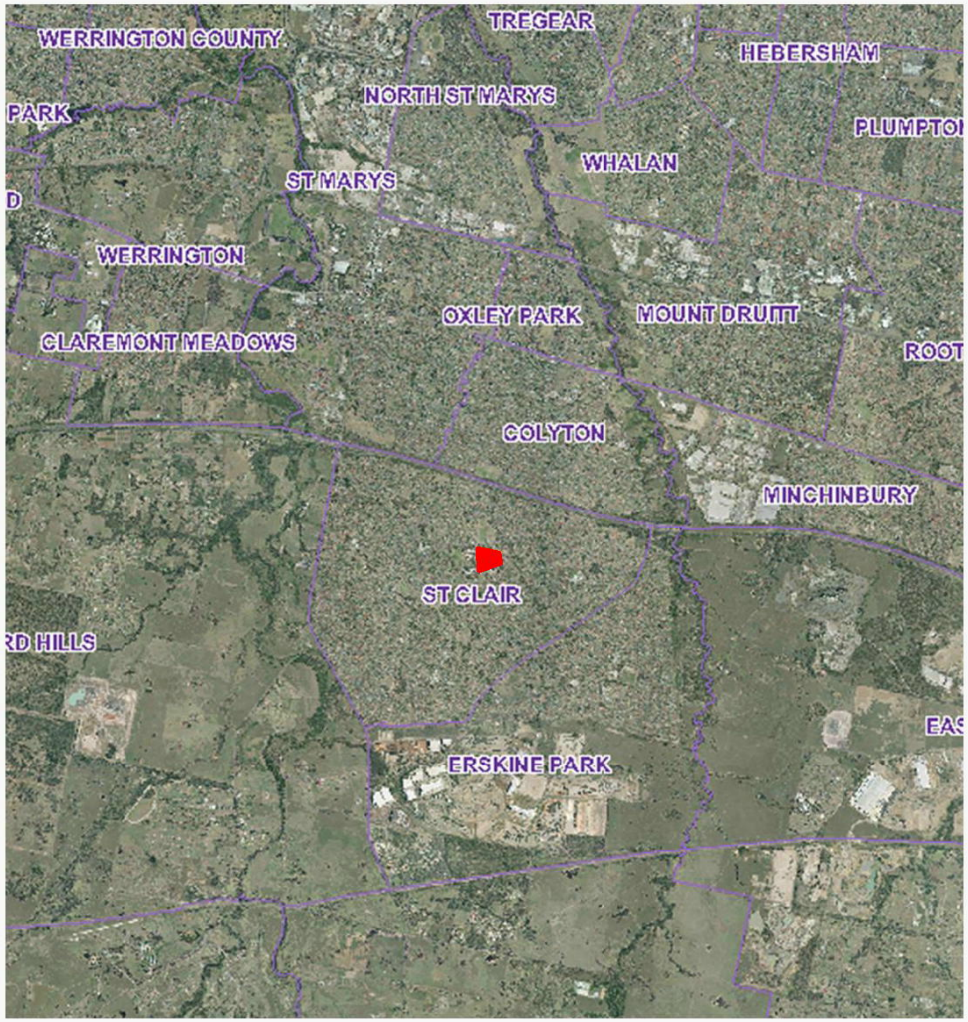
Andrew Hill
Senior Environmental Scientist
Parsons Brinckerhoff Australia Pty Limited

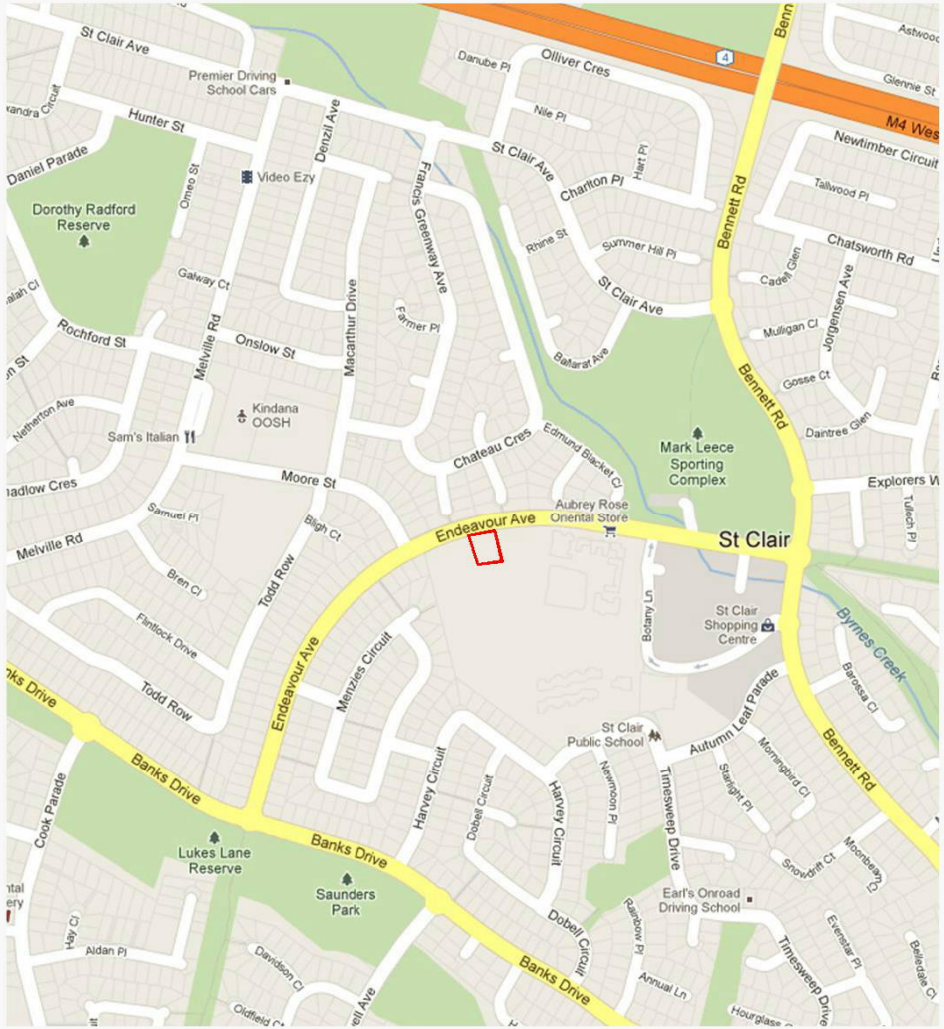
Attachments

Attachment A Figures
Attachment B Borelogs
Attachment C Groundwater gauging details and fieldnotes
Attachment D Tabulated Analytical Results
Attachment E Survey data
Attachment F Laboratory reports and chain of custody documentation
Attachment G Limitations

Attachment A

Figures





Base map source: Spatial information exchange (2012); Google© (2012)

LEGEND

Site boundary

0 1,000

metres

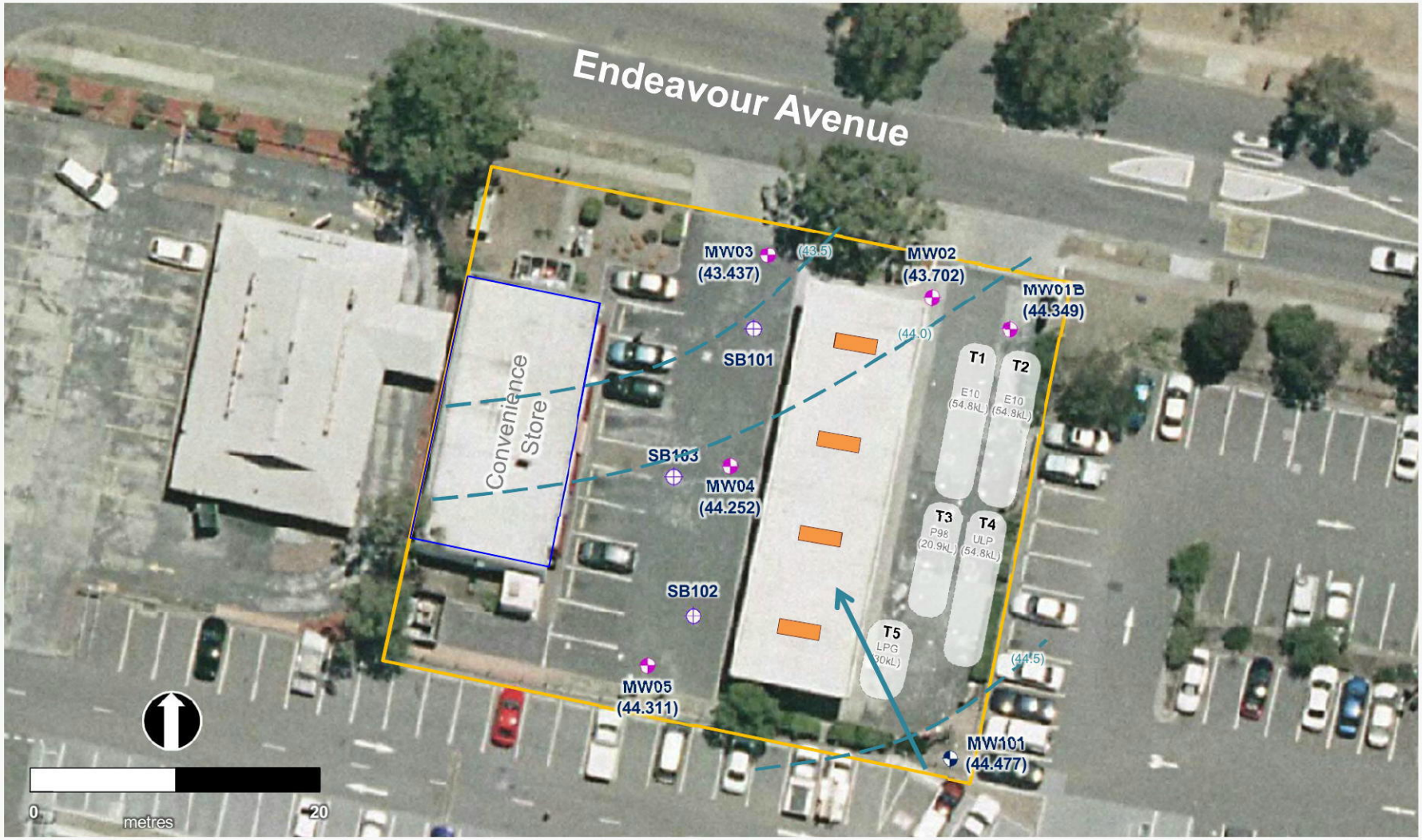
Figure 1 Site location plan
7-Eleven St Clair Service Station (2233)
4 Endeavour Road, St Clair, NSW 2759

Base map source: Spatial information exchange (2012)

LEGEND

- Site boundary
- Underground storage tanks
- Fuel bowsers
- Existing monitoring well
- Monitoring well – not located
- Deep (4 m) soil bores
- Shallow (2 m) soil bores

Figure 2 Detailed site layout
7-Eleven St Clair Service Station (2233)
4 Endeavour Road, St Clair, NSW 2759



Base map source: Spatial information exchange (2012)

LEGEND

- Site boundary
- Underground storage tanks
- Fuel bowsers
- Existing monitoring well
- Monitoring well – not located
- Inferred groundwater contour (mAHD)
- Anticipated groundwater flow direction

Figure 3 Groundwater contour plan
7-Eleven St Clair Service Station (2233)
4 Endeavour Road, St Clair, NSW 2759

Attachment B

Borelogs

BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

SB101

SHEET 1 OF 1

Client:	**7-Eleven**	Date Commenced:	**28/3/12**
Project:	**St. Clair ESA**	Date Completed:	**28/3/12**
Borehole Location:	**St. Clair NSW**	Recorded By:	**NR**
Project Number:	**2175684A**	Log Checked By:	**AH**

Drill Model/Mounting:	**Geoprobe**	Hole Angle:	**90°**	Surface RL:	
Borehole Diameter:	**90 mm**	Bearing:	**---**	Co-ords:	

Borehole Information | **Field Material Description**

1	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	HAND PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
CC			0.25					CONCRETE	D			
NDD		EGW 28/3/12		PID=4.1 ppm	J			FILL; Sandy Clay; medium plasticity, dark brown, medium grained sand, gravels and cobbles, soft to firm, dry				SB101_0.25-0.35
								Refusal on concrete slab END OF BOREHOLE AT 0.40 m				

1
2
3
4
5

This borehole log should be read in conjunction with Parsons Brinckerhoff's accompanying standard notes.

BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

SB102

SHEET 1 OF 1

Client:	**7-Eleven**	Date Commenced:	**28/3/12**
Project:	**St. Clair ESA**	Date Completed:	**28/3/12**
Borehole Location:	**St. Clair NSW**	Recorded By:	**NR**
Project Number:	**2175684A**	Log Checked By:	**AH**

Drill Model/Mounting:	**Geoprobe**	Hole Angle:	**90°**	Surface RL:	
Borehole Diameter:	**90 mm**	Bearing:	**---**	Co-ords:	

Borehole Information						Field Material Description						
1	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	HAND PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
CC			0.00					CONCRETE	D			
NDD			0.25	PID=0.6 ppm	J			FILL; Building rubble, bricks, tiles, cobbles, some dark brown silty sand, medium dense, dry				SB102_0.25-0.35
			0.45					FILL; Roadbase				
			0.50	PID=6.6 ppm	J			FILL; Silty Clay; low plasticity, grey mottled red, some coarse grained gravels, rootlets, soft, dry				SB102_0.5-0.6
			0.80				CL	Silty CLAY; medium plasticity, red mottled yellow, some gravels, firm, dry				
			1	PID=0.0 ppm	J							SB102_1.0-1.1
			1.30					SHALE; weathered, grey, hard, dry				
PT		28/3/12	1.50	PID=16.3 ppm	J			As above, but becoming wet	W			SB102_1.5-1.6
				PID=22.8 ppm	J							SB102_1.9-2.0
			2					END OF BOREHOLE AT 2.00 m				
			3									
			4									
			5									

This borehole log should be read in conjunction with Parsons Brinckerhoff's accompanying standard notes.

BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

SB103

SHEET 1 OF 1

Client:	**7-Eleven**	Date Commenced:	**28/3/12**
Project:	**St. Clair ESA**	Date Completed:	**28/3/12**
Borehole Location:	**St. Clair NSW**	Recorded By:	**NR**
Project Number:	**2175684A**	Log Checked By:	**AH**

Drill Model/Mounting:	**Geoprobe**	Hole Angle:	**90°**	Surface RL:	
Borehole Diameter:	**90 mm**	Bearing:	**---**	Co-ords:	

Borehole Information						Field Material Description						
1	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY / CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	HAND PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS
CC			0.00					CONCRETE	D			
NDD			0.40	PID=3.7 ppm	J			FILL; Silty Clay; high plasticity, grey mottled red, some coarse grained gravels and cobbles, firm, dry				SB103_0.4-0.5
			0.80				CL	Silty CLAY; low to medium plasticity, red mottled brown and grey, some medium to coarse grained gravels, soft, dry				SB103_1.0-1.1
			1	PID=9.3 ppm	J							
			1.30				CL	As above, but becoming yellow				
PT		28/3/12	1.50				CL	As above, but becoming grey mottled red and orange				
			1.80				CL	Gravelly CLAY; medium plasticity, red mottled yellow, medium grained gravels, soft to firm, dry				SB103_1.9-2.0
			2	PID=5.3 ppm	J			END OF BOREHOLE AT 2.00 m				
			3									
			4									
			5									

This borehole log should be read in conjunction with Parsons Brinckerhoff's accompanying standard notes.

BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

MW101

SHEET 1 OF 1

Client:	**7-Eleven**	Date Commenced:	**28/3/12**
Project:	**St. Clair ESA**	Date Completed:	**28/3/12**
Borehole Location:	**St. Clair NSW**	Recorded By:	**NR**
Project Number:	**2175684A**	Log Checked By:	**AH**

Drill Model/Mounting:	**Geoprobe**	Driller:	**NUMAC**	Surface RL:	
Borehole Diameter:	**90 mm**	Driller Lic No:		Co-ords:	

Borehole Information / Field Material Description

1 METHOD	2 SUPPORT	3 WATER	4 WELL CONSTRUCTION	5 RL(m) / DEPTH(m)	6 FIELD TEST	7 SAMPLE	8 GRAPHIC LOG	9 USC SYMBOL	10 SOIL/ROCK MATERIAL FIELD DESCRIPTION	11 MOISTURE	12 RELATIVE DENSITY /CONSISTENCY (VS S F ST H / FB VL L MD VST D VD)	13 STRUCTURE AND ADDITIONAL OBSERVATIONS
NDD			Flush gatic and lockable cap	0.00	PID=0.7 ppm	J			FILL; Sandy Clay; medium plasticity, dark brown, medium grained sand, some gravels and cobbles, soft to firm, dry	D		MW101_0.2
				0.40	PID=2.4 ppm	J			As above, but with some sandstone cobbles and stiff clay			MW101_0.5-0.6
				0.80				CL	Silty CLAY; low plasticity, red brown mottled grey, some coarse grained gravels, firm, dry			MW101_1.0-1.1
			Grout	1	PID=2.3 ppm	J						
				1.20				CL	As above, but becoming grey			Slight hydrocarbon odour
PT				1.90				CL	As above, but becoming dark grey mottled red			MW101_2.0-2.1
			Bentonite seal	2	PID=24.5 ppm	J						
				2.50				CL	As above, but becoming orange mottled red and grey			
		28/3/12		2.80				CL	Silty CLAY; medium plasticity, orange mottled red grey, soft to firm, moist	M		MW101_3.0-3.1
				3	PID=18.7 ppm	J						
				3.60					SHALE; weathered, grey, some medium plasticity clay, soft			MW101_3.8-3.9 (QA01)
SA			Sand	4	PID=29.2 ppm	J						
			50mm uPVC screen	4.90					As above, but becoming hard			
				5								
			End cap	5.50					END OF BOREHOLE AT 5.50 m			

This borehole log should be read in conjunction with Parsons Brinckerhoff's accompanying standard notes.

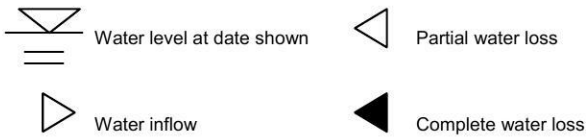
Explanatory Notes - Soil Description

In engineering terms soil includes every type of uncemented or partially cemented inorganic material found in the ground. In practice, if the material can be remoulded by hand in its field condition or in water it is described as a soil. The dominant soil constituent is given in capital letters, with secondary textures in lower case. The dominant feature is assessed from the Unified Soil Classification system and a soil symbol is used to define a soil layer .

METHOD

Method	Description
AS	Auger Screwing
BH	Backhoe
CT	Cable Tool Rig
EE	Existing Excavation/Cutting
EX	Excavator
HA	Hand Auger
HQ	Diamond Core-63mm
JET	Jetting
NMLC	Diamond Core –52mm
NQ	Diamond Core –47mm
PT	Push Tube
RAB	Rotary Air Blast
RB	Rotary Blade
RT	Rotary Tricone Bit
TC	Auger TC Bit
V	Auger V Bit
WB	Washbore
DT	Diatube

WATER



NFGWO: The observation of groundwater, whether present or not, was not possible due to drilling water, surface seepage or cave in of the borehole/test pit.

NFGWE: The borehole/test pit was dry soon after excavation. Inflow may have been observed had the borehole/test pit been left open for a longer period.

SAMPLING

Sample	Description
B	Bulk Disturbed Sample
D	Disturbed Sample
Jar	Jar Sample
SPT	Standard Penetration Test
U50	Undisturbed Sample –50mm
U75	Undisturbed Sample –75mm

UNIFIED SOIL CLASSIFICATION

The appropriate symbols are selected on the result of visual examination, field tests and available laboratory tests, such as, sieve analysis, liquid limit and plasticity index.

USC Symbol	Description
GW	Well graded gravel
GP	Poorly graded gravel
GM	Silty gravel
GC	Clayey gravel
SW	Well graded sand
SP	Poorly graded sand
SM	Silty sand
SC	Clayey sand
ML	Silt of low plasticity
CL	Clay of low plasticity
OL	Organic soil of low plasticity
MH	Silt of high plasticity
CH	Clay of high plasticity
OH	Organic soil of high plasticity
Pt	Peaty Soil

MOISTURE CONDITION

Dry - Cohesive soils are friable or powdery
Cohesionless soil grains are free-running

Moist - Soil feels cool, darkened in colour
Cohesive soils can be moulded
Cohesionless soil grains tend to adhere

Wet - Cohesive soils usually weakened
Free water forms on hands when handling

For cohesive soils the following codes may also be used:

MC>PL Moisture Content greater than the Plastic Limit.
MC~PL Moisture Content near the Plastic Limit.
MC<PL Moisture Content less than the Plastic Limit.

PLASTICITY

The potential for soil to undergo change in volume with moisture change is assessed from its degree of plasticity. The classification of the degree of plasticity in terms of the Liquid Limit (LL) is as follows:

Description of Plasticity	LL (%)
Low	<35
Medium	35 to 50
High	>50

COHESIVE SOILS - CONSISTENCY

The consistency of a cohesive soil is defined by descriptive terminology such as very soft, soft, firm, stiff, very stiff and hard. These terms are assessed by the shear strength of the soil as observed visually, by hand penetrometer values and by resistance to deformation to hand moulding.

A Hand Penetrometer may be used in the field or the laboratory to provide an approximate assessment of the unconfined compressive strength (UCS) of cohesive soils. The undrained shear strength of cohesive soils is approximately half the UCS. The values are recorded in kPa as follows:

Strength	Symbol	Undrained Shear Strength, C_u (kPa)
Very Soft	VS	< 12
Soft	S	12 to 25
Firm	F	25 to 50
Stiff	St	50 to 100
Very Stiff	VSt	100 to 200
Hard	H	> 200

COHESIONLESS SOILS - RELATIVE DENSITY

Relative density terms such as very loose, loose, medium, dense and very dense are used to describe silty and sandy material, and these are usually based on resistance to drilling penetration or the Standard Penetration Test (SPT) 'N' values. Other condition terms, such as friable, powdery or crumbly may also be used.

Term	Symbol	Density Index	N Value (blows/0.3 m)
Very Loose	VL	0 to 15	0 to 4
Loose	L	15 to 35	4 to 10
Medium Dense	MD	35 to 65	10 to 30
Dense	D	65 to 85	30 to 50
Very Dense	VD	>85	>50

COHESIONLESS SOILS PARTICLE SIZE DESCRIPTIVE TERMS

Name	Subdivision	Size
Boulders		>200 mm
Cobbles		63 mm to 200 mm
Gravel	coarse	20 mm to 63 mm
	medium	6 mm to 20 mm
	fine	2.36 mm to 6 mm
Sand	coarse	600 μm to 2.36 mm
	medium	200 μm to 600 μm
	fine	75 μm to 200 μm

Rock Description

The rock is described with strength and weathering symbols as shown below. Other features such as bedding and dip angle are given.

METHOD

Refer soil description sheet

WATER

Refer soil description sheet

ROCK QUALITY

The fracture spacing is shown where applicable and the Rock Quality Designation (RQD) or Total Core Recovery (TCR) is given where:

$$\text{TCR (\%)} = \frac{\text{length of core recovered}}{\text{length of core run}}$$

$$\text{RQD (\%)} = \frac{\text{Sum of Axial lengths of core > 100mm long}}{\text{length of core run}}$$

ROCK MATERIAL WEATHERING

Rock weathering is described using the abbreviations and definitions used in AS1726. AS1726 suggests the term "Distinctly Weathered" (DW) to cover the range of substance weathering conditions between (but not including) XW and SW. For projects where it is not practical to delineate between HW and MW or it is deemed that there is no advantage in making such a distinction, DW may be used with the definition given in AS1726.

Symbol		Term	Definition
RS		Residual Soil	Soil definition on extremely weathered rock; the mass structure and substance are no longer evident; there is a large change in volume but the soil has not been significantly transported
XW		Extremely Weathered	Rock is weathered to such an extent that it has 'soil' properties, ie. It either disintegrates or can be remoulded in water
HW	*DW*	Highly Weathered	The rock substance is affected by weathering to the extent that limonite staining or bleaching affects the whole rock substance and other signs of chemical or physical decomposition are evident. Porosity and strength is usually decreased compared to the fresh rock. The colour and strength of the fresh rock is no longer recognisable.
		Distinctly Weathered (see AS1726 Definition below)	
MW		Moderately Weathered	The whole of the rock substance is discoloured, usually by iron staining or bleaching, to the extent that the colour of the fresh rock is no longer recognisable
SW		Slightly Weathered	Rock is slightly discoloured but shows little or no change of strength from fresh rock
FR		Fresh	Rock shows no sign of decomposition or staining

"Distinctly Weathered: Rock strength usually changed by weathering. The rock may be highly discoloured, usually by iron staining. Porosity may be increased by leaching, or may be decreased due to the deposition of weathering products in pores." (AS1726)

ROCK STRENGTH

Rock strength is described using AS1726 and ISRM - Commission on Standardisation of Laboratory and Field Tests, "Suggested method of determining the Uniaxial Compressive Strength of Rock materials and the Point Load Index", as follows:

Term	Symbol	Point Load Index $Is_{(50)}$ (MPa)
Extremely Low	EL	<0.03
Very Low	VL	0.03 to 0.1
Low	L	0.1 to 0.3
Medium	M	0.3 to 1
High	H	1 to 3
Very High	VH	3 to 10
Extremely High	EH	>10

● Diametral Point Load Index test

■ Axial Point Load Index test

DEFECT SPACING/BEDDING THICKNESS

Measured at right angles to defects of same set or bedding.

Term	Defect Spacing	Bedding
Extremely closely spaced	<6 mm	Thinly Laminated
	6 to 20 mm	Laminated
Very closely spaced	20 to 60 mm	Very Thin
Closely spaced	0.06 to 0.2 m	Thin
Moderately widely spaced	0.2 to 0.6 m	Medium
Widely spaced	0.6 to 2 m	Thick
Very widely spaced	>2 m	Very Thick

DEFECT DESCRIPTION

Type:	Definition:
B	Bedding
BP	Bedding Parting
F	Fault
C	Cleavage
J	Joint
SZ	Shear Zone
CZ	Crushed Zone
DB	Drill Break

Planarity:	Roughness:
P – Planar	R – Rough
Ir – Irregular	S – Smooth
St – Stepped	Sl – Slickensides
U – Undulating	Po – Polished

Coating or Infill:	Description
Clean	No visible coating or infilling
Stain	No visible coating or infilling but surfaces are discoloured by mineral staining
Veneer	A visible coating or infilling of soil or mineral substance but usually unable to be measured (<1mm). If discontinuous over the plane, patchy veneer
Coating	A visible coating or infilling of soil or mineral substance, >1mm thick. Describe composition and thickness

The inclinations of defects are measured from perpendicular to the core axis.

Graphic Symbols for Soil and Rock

Graphic symbols used on borehole and test pit reports for soil and rock are as follows. Combinations of these symbols may be used to indicate mixed materials such as clayey sand.

Soil Symbols

Main Components


CLAY


SILT


SAND


GRAVEL


BOULDERS / COBBLES


PEAT (Organic)

Minor Components


Clayey


Silty


Sandy


Gravelly

Other Symbols


TOPSOIL


FILL


ASPHALT


CONCRETE


NO CORE

Rock Symbols

Sedimentary Rocks


SANDSTONE


SILTSTONE


CLAYSTONE, MUDSTONE


SHALE


LAMINITE


CONGLOMERATE


BRECCIA


TILL


COAL


LIMESTONE

Igneous Rocks


PLUTONIC IGNEOUS (eg: Granite)


VOLCANIC IGNEOUS (eg: Basalt)


PYROCLASTIC IGNEOUS (eg: Ignimbrite)

Metamorphic Rocks


SLATE, PHYLLITE, SCHIST


GNEISS


QUARTZITE

Attachment C

Groundwater gauging details and fieldnotes

Table C1 Groundwater gauging results

Phase 2 Environmental Site Assessment - March/April 2012

7-Eleven St.Clair service station (Site ID: 2277)

4 Endeavour Road and Bennett Road, St Clair, NSW

Well ID	Date gauged	T.O.C. elevation (mAHD)	Screen interval (m)	Total well depth (mBTOC)	Depth to product (mBTOC)	Depth to water (mBTOC)	Groundwater elevation (mAHD)
MW01B	4/04/2012	46.290	10.0 - 13.0	12.93	-	1.941	44.349
MW02	4/04/2012	46.220	10.0 - 13.0	12.93	-	2.518	43.702
MW03	4/04/2012	46.180	9.0 - 13.0	12.86	-	2.743	43.437
MW04	4/04/2012	46.470	9.0 - 12.0	11.94	-	2.218	44.252
MW05	4/04/2012	46.580	8.0 - 10.0	10.10	-	2.269	44.311
MW101	4/04/2012	47.230	3.0 - 5.5	5.70	-	2.753	44.477

Notes:

T.O.C. - top of casing

mBTOC - metres below top of casing

mAHD - metres Australian Height Datum

Table C2 Groundwater purging details

Phase 2 Environmental Site Assessment - March/April 2012

7-Eleven St.Clair service station (Site ID: 2277)

4 Endeavour Road and Bennett Road, St Clair, NSW

Well ID	Date purged	pH	Electrical conductivity (µS/cm)	Redox potential (mV)	Dissolved oxygen (ppm)	Temperature (°C)
MW01B	4/04/2012	7.16	19,620	10	4.60	23.1
MW02	4/04/2012	7.47	21,360	82	2.14	22.5
MW03	4/04/2012	7.23	22,530	80	1.82	22.6
MW04	4/04/2012	7.40	22,710	74	2.20	23.7
MW05	4/04/2012	7.08	22,780	91	2.50	24.2
MW101	4/04/2012	6.75	25,800	64	2.50	23.2

PARSONS BRINCKERHOFF

FORM FM-CLM 3.2-1
GROUNDWATER FIELD PARAMETERS

JOB NUMBER: 21756084A	**WELL NUMBER:** ~~MW101~~ MW01B
Client: 7-Eleven	**Purging Date:** 4/4/12
Site Location: St. Clair (2277)	**Sampling Date:** 4/4/12
Casing Diameter (mm): 50mm	Depth to Floating Product (mBTOC):
Casing Height Above Ground Level (mAGL): –	Depth to Groundwater (mBTOC): 1.941
Bore Locked / Covered?: yes, gatic cover	Product Thickness (mm):
Cap Type: gatic cover, well plug	Well Depth from TOC (m): 12.932
Well condition: good	Depth to be Purged (m): ~11

PURGING INFORMATION

Purge 5 casing volumes or until 'dry':

1 casing volume = 2 L/m for 50 mm ID wells. *1 casing volume = 8 L/m for 100 mm ID wells.*

Method/Pump Type: Bailer ☑ Waterra ☐ Whaler ☐ Micro-Purge ☐	Planned Purge Volume: 66 Litres (5 well vols)
Material: Teflon ☐ S/Steel ☐ HDPE ☑ PVC ☐ Other: _____	Actual Purge Volume: 32 Litres
Start Time (2400 hr): 11:15	Did well purge 'dry'? No ☐ Yes ☑ At?: Litre

FIELD RESULTS WHILE PURGING

# Purge Volume	Time	SWL	pH	EC (mS/cm)	Redox (mV)	DO units % ☐ ppm ☑	Turbidity	Temp. °C
22L 1	11:24		6.69	10.45	11	1.36	Med	23.1
32L 2	11:29		7.16	19.62	10	4.60	High	23.1
3	well purging dry, samples taken							
4								
5								
Additional Volume:								
Acceptable Variation:	n/a	+/- 0.05m	+/- 0.05	+/- 3%	+/- 10%	+/- 10%	n/a	+/- 10%

Are the field results acceptable?:

SAMPLING DETAILS

Method/Pump Type: Bailer ☑ Waterra ☐ Whaler ☐ Micro-Purge ☐

Material: Teflon ☐ S/Steel ☐ HDPE ☑ PVC ☐ Other: _____

Equipment: Dedicated ☑ Decontaminated ☐ Other: _____

Is there a hydrocarbon sheen?: Yes ☐ No ☑

Colour: Brown Odour: None

Turbidity: Low ☐ Medium ☑ High ☐

ANALYSIS DETAILS

TPH	☑	VOCs	☐
BTEX	☑	SVOCs	☐
PAHs	☑	pH	☑
Metals (Pb only)	☑	TDS	☑

Sample ID: MW101 Duplicate ID: –

Rinse Blank After: Yes / (No) Triplicate ID: –

WEATHER CONDITIONS

Cold - Cool - Mild - Warm - (Hot)	Clear - Medium - Cloudy	Dry - Medium - (Humid) - Rain	(Still) - Breeze - Windy	Dusty

Other comments and observations:

Sampler's Name: R. Aaby and D. Smith Sampler' signature: Rebecca Aaby

PARSONS BRINCKERHOFF

FORM FM-CLM 3.2-1
GROUNDWATER FIELD PARAMETERS

JOB NUMBER: 2175684A	**WELL NUMBER:** MW02
Client: 7-Eleven	**Purging Date:** 4/4/12
Site Location: St. Clair (2277)	**Sampling Date:** 4/4/12
Casing Diameter (mm): 50mm	Depth to Floating Product (mBTOC):
Casing Height Above Ground Level (mAGL): –	Depth to Groundwater (mBTOC): 2.518
Bore Locked / Covered?: yes, gatic	Product Thickness (mm):
Cap Type: gatic, well plug	Well Depth from TOC (m): 12.927
Well condition: good	Depth to be Purged (m): ~10

PURGING INFORMATION

Purge 5 casing volumes or until 'dry':

1 casing volume = 2 L/m for 50 mm ID wells. *1 casing volume = 8 L/m for 100 mm ID wells.*

Method/Pump Type: Bailer ☑ Waterra ☐ Whaler ☐ Micro-Purge ☐	Planned Purge Volume: 60 Litres (5 well vols)
Material: Teflon ☐ S/Steel ☐ HDPE ☑ PVC ☐ Other: _____	Actual Purge Volume: 36 Litres
Start Time (2400 hr): 12:20	Did well purge 'dry'? No ☐ Yes ☑ At?: Litre 36

FIELD RESULTS WHILE PURGING

# Purge Volume	Time	SWL	pH	EC (m S/cm)	Redox (mV)	DO units % ☐ ppm ☑	Turbidity	Temp. °C
12L 1	12:24		7.41	18.38	82	1.60	LOW	24.5
24L 2	12:26		7.28	18.85	79	2.01	LOW	23.3
36L 3	12:31		7.47	21.36	82	2.14	High	22.5
4								
5								
Additional Volume:								
Acceptable Variation:	n/a	+/- 0.05m	+/- 0.05	+/- 3%	+/- 10%	+/- 10%	n/a	+/- 10%

Are the field results acceptable?:

SAMPLING DETAILS

Method/Pump Type: Bailer ☑ Waterra ☐ Whaler ☐ Micro-Purge ☐

Material: Teflon ☐ S/Steel ☐ HDPE ☑ PVC ☐ Other: _____

Equipment: Dedicated ☑ Decontaminated ☐ Other: _____

Is there a hydrocarbon sheen?: Yes ☐ No ☒

Colour: Brown Odour: None

Turbidity: Low ☐ Medium ☐ High ☑

ANALYSIS DETAILS

TPH	☑	VOCs	☐
BTEX	☑	SVOCs	☐
PAHs	☑	pH	☑
Metals (Pb only)	☑	TDS	☑

Sample ID: MW02 Duplicate ID: DUP01

Rinse Blank After: Yes / (No) Triplicate ID: —

WEATHER CONDITIONS

Cold - Cool - Mild - (Warm) - Hot	Clear - (Medium) - Cloudy	Dry - Medium - ~~Humid~~ - Rain	Still - (Breeze) - Windy	Dusty

Other comments and observations: Reduced purge volume as wells not recharging

Sampler's Name: R. Aaby & D. Smith Sampler' signature: Rob Aaby

PARSONS BRINCKERHOFF

FORM FM-CLM 3.2-1
GROUNDWATER FIELD PARAMETERS

JOB NUMBER: 2175684A	**WELL NUMBER:** MW03
Client: 7 - Eleven	**Purging Date:** 4/4/12
Site Location: St. Clair (2277)	**Sampling Date:** 4/4/12
Casing Diameter (mm): 50 mm	Depth to Floating Product (mBTOC):
Casing Height Above Ground Level (mAGL): –	Depth to Groundwater (mBTOC): 2.743
Bore Locked / Covered?: yes, gatic cover	Product Thickness (mm):
Cap Type: gatic, well plug	Well Depth from TOC (m): 12.862
Well condition: good	Depth to be Purged (m): ~10

PURGING INFORMATION

Purge 5 casing volumes or until 'dry':

1 casing volume = 2 L/m for 50 mm ID wells. *1 casing volume = 8 L/m for 100 mm ID wells.*

Method/Pump Type: Bailer ☑ Waterra ☐ Whaler ☐ Micro-Purge ☐	Planned Purge Volume: 60 Litres (5 well vols)
Material: Teflon ☐ S/Steel ☐ HDPE ☑ PVC ☐ Other: _____	Actual Purge Volume: Litres
Start Time (2400 hr): 1240	Did well purge 'dry'? No ☐ Yes ☐ At?: Litre

FIELD RESULTS WHILE PURGING

# Purge Volume	Time	SWL	pH	EC (mS/cm)	Redox (mV)	DO units % ☐ ppm ☑	Turbidity	Temp. °C
12L 1	1245		7.49	22.53	80	2.84	Med	23.7
24L 2	1248		6.95	22.67	77	1.58	High	22.6
36L 3	1250		7.23	22.53	80	1.82	High	22.6
4								
5								
Additional Volume:								
Acceptable Variation:	n/a	+/- 0.05m	+/- 0.05	+/- 3%	+/- 10%	+/- 10%	n/a	+/- 10%

Are the field results acceptable?:

SAMPLING DETAILS

Method/Pump Type: Bailer ☑ Waterra ☐ Whaler ☐ Micro-Purge ☐

Material: Teflon ☐ S/Steel ☐ HDPE ☑ PVC ☐ Other: _____

Equipment: Dedicated ☑ Decontaminated ☐ Other: _____

Is there a hydrocarbon sheen?: Yes ☐ No ☑

Colour: Brown Odour: None

Turbidity: Low ☐ Medium ☐ High ☑

ANALYSIS DETAILS

TPH	☑	VOCs	☐
BTEX	☑	SVOCs	☐
PAHs	☑	pH	☑
Metals (Pb only)	☑	TDS	☑

Sample ID: MW03 Duplicate ID:

Rinse Blank After: Yes / (No) Triplicate ID:

WEATHER CONDITIONS

Cold - Cool - Mild - (Warm) - Hot	Clear - (Medium) - Cloudy	Dry - Medium - (Humid) - Rain	Still - (Breeze) - Windy	Dusty

Other comments and observations: Reduced purge volume, due to wells purging dry

Sampler's Name: R. Aaby and D. Smith Sampler' signature: Robert Aaby

PARSONS BRINCKERHOFF

FORM FM-CLM 3.2-1
GROUNDWATER FIELD PARAMETERS

JOB NUMBER: 2175684A	**WELL NUMBER:** MW04
Client: 7 - Eleven	**Purging Date:** 4|4|12
Site Location: St. Clair (2277)	**Sampling Date:** 4|4|12
Casing Diameter (mm): 50 mm	Depth to Floating Product (mBTOC):
Casing Height Above Ground Level (mAGL): –	Depth to Groundwater (mBTOC): 2.218
Bore Locked / Covered?: yes, gatic	Product Thickness (mm):
Cap Type: gatic cover, well plug	Well Depth from TOC (m): 11.940
Well condition: good	Depth to be Purged (m): ~ 9.7

PURGING INFORMATION

Purge 5 casing volumes or until 'dry':

1 casing volume = 2 L/m for 50 mm ID wells. *1 casing volume = 8 L/m for 100 mm ID wells.*

Method/Pump Type: Bailer ☑ Waterra ☐ Whaler ☐ Micro-Purge ☐	Planned Purge Volume: 60 Litres (5 well vols)
Material: Teflon ☐ S/Steel ☐ HDPE ☑ PVC ☐ Other: _____	Actual Purge Volume: 36 Litres
Start Time (2400 hr): 13:05	Did well purge 'dry'? No ☑ Yes ☐ At?: Litre

FIELD RESULTS WHILE PURGING

# Purge Volume	Time	SWL	pH	EC (m S/cm)	Redox (mV)	DO units % ☐ ppm ☑	Turbidity	Temp. °C
12L 1	13:07		7.21	23.06	61	1.33	Med	24.4
24L 2	13:10		7.29	23.11	50	1.31	High	24.1
36L 3	13:12		7.40	22.71	74	2.20	High	23.7
4								
5								
Additional Volume:								
Acceptable Variation:	n/a	+/- 0.05m	+/- 0.05	+/- 3%	+/- 10%	+/- 10%	n/a	+/- 10%

Are the field results acceptable?:

SAMPLING DETAILS

Method/Pump Type: Bailer ☑ Waterra ☐ Whaler ☐ Micro-Purge ☐

Material: Teflon ☐ S/Steel ☐ HDPE ☑ PVC ☐ Other: _____

Equipment: Dedicated ☑ Decontaminated ☐ Other: _____

Is there a hydrocarbon sheen?: Yes ☐ No ☑

Colour: Brown Odour: None

Turbidity: Low ☐ Medium ☐ High ☑

ANALYSIS DETAILS

TPH	☑	VOCs	☐
BTEX	☑	SVOCs	☐
PAHs	☑	pH	☑
Metals (Pb only)	☑	TDS	☑

Sample ID: MW04 Duplicate ID: —

Rinse Blank After: (Yes) No Triplicate ID: —

WEATHER CONDITIONS

Cold - Cool - Mild - (Warm) Hot	Clear - (Medium) - Cloudy	Dry - Medium - (Humid) - Rain	(Still) - Breeze - Windy	Dusty

Other comments and observations:

Sampler's Name: R. Aaby and D. Smith Sampler' signature: Rebecca Aaby

PARSONS BRINCKERHOFF

FORM FM-CLM 3.2-1
GROUNDWATER FIELD PARAMETERS

JOB NUMBER: 2175684A	**WELL NUMBER:** MW05
Client: 7 - Eleven	**Purging Date:** 4/4/12
Site Location: St. Clair (2277)	**Sampling Date:** 4/4/12
Casing Diameter (mm): 50	Depth to Floating Product (mBTOC):
Casing Height Above Ground Level (mAGL): —	Depth to Groundwater (mBTOC): 2.269
Bore Locked / Covered?: yes, gatic cover	Product Thickness (mm):
Cap Type: gatic cover, well cap	Well Depth from TOC (m): 10.097
Well condition: good	Depth to be Purged (m): ~8

PURGING INFORMATION

Purge 5 casing volumes or until 'dry':

1 casing volume = 2 L/m for 50 mm ID wells. *1 casing volume = 8 L/m for 100 mm ID wells.*

Method/Pump Type: Bailer ☑ Waterra ☐ Whaler ☐ Micro-Purge ☐	Planned Purge Volume: ~~43~~ 24 Litres (5 well vols)
Material: Teflon ☐ S/Steel ☐ HDPE ☑ PVC ☐ Other: _____	Actual Purge Volume: ~~32~~ Litres
Start Time (2400 hr): 12:00	Did well purge 'dry'? No ☑ Yes ☐ At?: Litre

FIELD RESULTS WHILE PURGING

# Purge Volume	Time	SWL	pH	EC (mS/cm)	Redox (mV)	DO units % ☐ ppm ☑	Turbidity	Temp. °C
8L 1	12:04		7.41	21.43	86	1.64	LOW	26.8
16L 2	12:06		7.30	22.32	97	1.12	Med	24.5
*24L 3	12:08		7.32	22.56	101	1.84	Med	23.7
32L 4	12:10		7.08	22.78	91	2.50	Med	24.2
5								
Additional Volume:								
Acceptable Variation:	n/a	+/- 0.05m	+/- 0.05	+/- 3%	+/- 10%	+/- 10%	n/a	+/- 10%

Are the field results acceptable?:

SAMPLING DETAILS

Method/Pump Type: Bailer ☑ Waterra ☐ Whaler ☐ Micro-Purge ☐

Material: Teflon ☐ S/Steel ☐ HDPE ☑ PVC ☐ Other: _____

Equipment: Dedicated ☑ Decontaminated ☐ Other: _____

Is there a hydrocarbon sheen?: Yes ☐ No ☑

Colour: Brown Odour: None

Turbidity: Low ☐ Medium ☑ High ☐

ANALYSIS DETAILS

TPH	☑	VOCs	☐
BTEX	☑	SVOCs	☐
PAHs	☑	pH	☑
Metals (Pb only)	☑	TDS	☑

Sample ID: MW05 Duplicate ID: —

Rinse Blank After: Yes / (No) Triplicate ID: —

WEATHER CONDITIONS

Cold - Cool - Mild - Warm - (Hot)	Clear - (Medium) Cloudy	Dry - Medium - (Humid) - Rain	Still - (Breeze) - Windy	Dusty

Other comments and observations: Reduced purging volume as previous well went dry

Sampler's Name: D. Smith and R. Aaby Sampler' signature:

PARSONS BRINCKERHOFF

FORM FM-CLM 3.2-1
GROUNDWATER FIELD PARAMETERS

JOB NUMBER: 2175684A	**WELL NUMBER:** MW101
Client: 7-Eleven	**Purging Date:** 04/04/12
Site Location: St. Clair (2277)	**Sampling Date:** 04/04/12
Casing Diameter (mm): 50	Depth to Floating Product (mBTOC):
Casing Height Above Ground Level (mAGL): 0.15	Depth to Groundwater (mBTOC): 2.753
Bore Locked / Covered?: yes, gatic cover	Product Thickness (mm): —
Cap Type: well cap, gatic cover	Well Depth from TOC (m): 5.699
Well condition: Good	Depth to be Purged (m): ~3

PURGING INFORMATION

Purge 5 casing volumes or until 'dry':

1 casing volume = 2 L/m for 50 mm ID wells. *1 casing volume = 8 L/m for 100 mm ID wells.*

Method/Pump Type: Bailer ☑ Waterra ☐ Whaler ☐ Micro-Purge ☐	Planned Purge Volume: 18 Litres (5 well vols)
Material: Teflon ☐ S/Steel ☐ HDPE ☑ PVC ☐ Other: _____	Actual Purge Volume: 18 Litres
Start Time (2400 hr): 11:40	Did well purge 'dry'? No ☑ Yes ☐ At?: Litre

FIELD RESULTS WHILE PURGING

# Purge Volume	Time	SWL	pH	EC (µS/cm)	Redox (mV)	DO units % ☐ ppm ☒	Turbidity	Temp. °C
6L 1	1144		6.80	25.8	47	1.91	med.	24.2
12L 2	1146		6.76	23.43	59	2.77	high	24.2
18L 3	1149		6.75	25.8	64	2.80	High	23.2
4								
5								
Additional Volume:								
Acceptable Variation:	n/a	+/- 0.05m	+/- 0.05	+/- 3%	+/- 10%	+/- 10%	n/a	+/- 10%

Are the field results acceptable?:

SAMPLING DETAILS			ANALYSIS DETAILS			
Method/Pump Type: Bailer ☑ Waterra ☐ Whaler ☐ Micro-Purge ☐			TPH	☑	VOCs	☐
Material: Teflon ☐ S/Steel ☐ HDPE ☑ PVC ☐ Other: _____			BTEX	☑	SVOCs	☐
Equipment: Dedicated ☑ Decontaminated ☐ Other: _____			PAHs	☑	pH	☑
Is there a hydrocarbon sheen?: Yes ☐ No ☑			Metals (Pb only)	☑	TDS	☑
Colour: Brown	Odour: None	Sample ID: MW101			Duplicate ID: —	
Turbidity: Low ☐ Medium ☐ High ☑		Rinse Blank After: Yes / (No)			Triplicate ID: —	

WEATHER CONDITIONS

Cold - Cool - Mild - Warm - (Hot)	Clear - (Medium) - Cloudy	Dry - Medium - (Humid) - Rain	(Still) - Breeze - Windy	Dusty

Other comments and observations:

Sampler's Name: R. Aaby & D. Smith Sampler' signature: Rob Aaby

Attachment D

Tabulated analytical results

Table D1 Groundwater analytical results - TPH, BTEX and lead
Phase 2 Environmental Site Assessment - March/April 2012
7-Eleven St.Clair service station (Site ID: 2277)
4 Endeavour Road and Bennett Road, St Clair, NSW

Well ID	Date sampled	Total petroleum hydrocarbon (TPH)					Benzene	Toluene	Ethylbenzene	m- & p-Xylene	o-Xylene	Total Xylenes	Lead
		C_6 - C_9	C_{10} - C_{14}	C_{15} - C_{28}	C_{29} - C_{36}	Total C_{10} - C_{36}							
MW01B	4/04/2012	<20	<50	790	660	1,450	2	<2	<2	<2	<2	<2	<10
MW02	4/04/2012	<20	<50	<100	<50	<50	<1	<2	<2	<2	<2	<2	<10
MW03	4/04/2012	<20	<50	<100	<50	<50	<1	<2	<2	<2	<2	<2	<10
MW04	4/04/2012	<20	<50	<100	<50	<50	<1	<2	<2	<2	<2	<2	<10
MW05	4/04/2012	<20	<50	<100	<50	<50	<1	<2	<2	<2	<2	<2	<10
MW101	4/04/2012	<20	<50	<100	<50	<50	<1	<2	<2	<2	<2	<2	<10
Adopted assessment criteria		-	-	-	-	-	**10**	**180**	**80**	-	-	-	**3.1**

Notes:

Concentrations expressed in µg/L, unless indicated

BOLD Groundwater concentration exceeded site assessment criteria

Table D2 Groundwater analytical results - PAHs

Phase 2 Environmental Site Assessment - March/April 2012

7-Eleven St.Clair service station (Site ID: 2277)

4 Endeavour Road and Bennett Road, St Clair, NSW

Bore ID	Date sampled	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benz(a)anthracene	Chrysene	Benzo(b+k)fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-c,d)pyrene	Dibenz(a,h)anthracene	Benzo(g,h,i)perylene	Total PAHs
MW01B	4/04/2012	1.1	<1	<1	<1	**2.5**	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1	3.6
MW02	4/04/2012	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1	<1
MW03	4/04/2012	<1	<1	<1	<1	1.1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1	1.1
MW04	4/04/2012	1.8	<1	<1	<1	1.5	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1	3.3
MW05	4/04/2012	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1	<1
MW101	4/04/2012	2.7	<1	<1	<1	1.3	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1	4
Adopted assessment criteria		**16**	**-**	**-**	**-**	**2**	**0.4**	**1.4**	**-**	**-**	**-**	**-**	**0.2**	**-**	**-**	**-**	**-**

Notes:

Concentrations expressed in µg/L

BOLD Groundwater concentration exceeded site assessment criteria

Table D3 Soil analytical results - TPH, BTEX and lead

Phase 2 Environmental Site Assessment - March/April 2012

7-Eleven St.Clair service station (Site ID: 2277)

4 Endeavour Road and Bennett Road, St Clair, NSW

Bore ID	Sample depth (mBGL)	Date sampled	Total petroleum hydrocarbon (TPH)					Benzene	Toluene	Ethylbenzene	m- & p-Xylene	o-Xylene	Total Xylenes	Lead
			C_6 - C_9	C_{10} - C_{14}	C_{15} - C_{28}	C_{29} - C_{36}	Total C_{10} - C_{36}							
SB101	0.25-0.35	28/03/2012	<10	<50	210	100	310	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	97
SB102	0.5-0.6	28/03/2012	<10	<50	<100	<50	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	18
SB102	1.9-2.0	28/03/2012	<10	<50	<100	<50	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	16
SB103	1.0-1.1	28/03/2012	<10	<50	<100	<50	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	16
SB103	1.9-2.0	28/03/2012	<10	<50	<100	<50	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	28
MW101	2.0-2.1	28/03/2012	<10	<50	<100	<50	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	23
MW101	3.8-3.9	28/03/2012	<10	<50	<100	<50	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	19
Adopted assessment criteria			**65**	**-**	**-**	**-**	**1,000**	**1**	**1.4**	**3.1**	**-**	**-**	**14**	**300**

Notes:

Concentrations expressed in mg/kg

BOLD Soil concentration exceeded site assessment criteria

Table D4 Soil analytical results - PAHs

Phase 2 Environmental Site Assessment - March/April 2012

7-Eleven St.Clair service station (Site ID: 2277)

4 Endeavour Road and Bennett Road, St Clair, NSW

Bore ID	Sample depth (mBGL)	Date sampled	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benz(a)anthracene	Chrysene	Benzo(b+k)fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-c,d)pyrene	Dibenz(a,h)anthracene	Benzo(g,h,i)perylene	Total PAHs
SB101	0.25-0.35	28/03/2012	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.1	1.4	0.6	0.6	0.7	0.7	<0.5	<0.5	0.5	5.6
SB102	0.5-0.6	28/03/2012	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SB102	1.9-2.0	28/03/2012	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SB103	1.0-1.1	28/03/2012	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SB103	1.9-2.0	28/03/2012	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW101	2.0-2.1	28/03/2012	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW101	3.8-3.9	28/03/2012	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Adopted assessment criteria			-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	20

Notes:

Concentrations expressed in mg/kg

BOLD Soil concentration exceeded site assessment criteria

Table D5 Quality assurance and quality control - field duplicates
Phase 2 Environmental Site Assessment - March/April 2012
7-Eleven St.Clair service station (Site ID: 2277)
4 Endeavour Road and Bennett Road, St Clair, NSW

Groundwater results

Sample ID	Total petroleum hydrocarbon (TPH)					Benzene	Toluene	Ethyl benzene	m- & p- Xylene	o- Xylene	Total Xylenes
	C_6 - C_9	C_{10} - C_{14}	C_{15} - C_{28}	C_{29} - C_{36}	Total C_{10} - C_{36}						
MW101	<20	<50	<100	<50	<50	<1	<2	<2	<2	<2	<2
DUP01	<10	<50	<100	<100	<50	<1	<1	<1	<2	<1	<1
RPD (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Soil results

Bore ID	Sample depth (mBGL)	Total petroleum hydrocarbon (TPH)					Benzene	Toluene	Ethyl benzene	m- & p- Xylene	o- Xylene	Total Xylenes
		C_6 - C_9	C_{10} - C_{14}	C_{15} - C_{28}	C_{29} - C_{36}	Total C_{10} - C_{36}						
MW101	3.8-3.9	<10	<50	<100	<50	<50	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
DUP01	3.8-3.9	<25	<50	<100	<100	<50	<0.5	<0.5	<1	<2	<1	<1
RPD (%)	-	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Notes:

Concentrations of groundwater results are expressed in µg/L and soil results are expressed as mg/kg

BOLD RPD values exceeded acceptable limit

Table D6 Quality assurance and quality control - Sample blanks

Phase 2 Environmental Site Assessment - March/April 2012

7-Eleven St.Clair service station (Site ID: 2277)

4 Endeavour Road and Bennett Road, St Clair, NSW

Sample ID	Date sampled	Total petroleum hydrocarbon (TPH)					Benzene	Toluene	Ethylbenzene	m- & p-Xylene	o-Xylene	Total Xylenes
		C_6 - C_9	C_{10} - C_{14}	C_{15} - C_{28}	C_{29} - C_{36}	Total C_{10} - C_{36}						
Equipment rinsate												
RB_280312	28/03/2012	<20	<50	<100	<50	<50	<1	<5	<2	<2	<2	<2
RB_040412	4/04/2012	<20	<50	<100	<50	<50	<1	<5	<2	<2	<2	<2
Trip blank												
TB_220312	28/03/2012	<20	-	-	-	-	<1	<5	<2	<2	<2	<2
TB_040412	4/04/2012	<20	<50	<100	<50	<50	<1	<5	<2	<2	<2	<2

Attachment E

Survey data

surveyplus
surveyors planners engineers

Incorporating
Barrie Green & Associates

P 02 9651 2921 | info@surveyplus.com.au | PO Box 3342 Dural NSW 2158
F 02 9651 2501 | www.surveyplus.com.au | ABN 88 142 006 077

Our Ref: 11548_SURVEY RESULTS_ST CLAIR
17 April 2012

Attn: Andrew Hill
Email: AHill@pb.com.au

Parsons Brinckerhoff
Level 27, Ernst & Young Centre
680 George Street
GPO Box 5394
SYDNEY NSW 2001

Re: SURVEY OF MONITORING WELL – 7-ELEVEN SITE, 4 ENDEAVOUR AVENUE, ST CLAIR

SurveyPlus has surveyed 1 monitoring well (known as MW101) in the south-east corner of this site. Results are as follows:

MW101

Easting: 295288.86

Northing: 6258433.85

Reduced Levels:

- Top of PVC pipe: 47.23 (AHD)
- Lid: 47.32 (AHD)

Origin of levels: SSM 101318 RL 56.016 AHD.

Origin of coordinates: SSM 101318 & SSM 21852 (SCIMS).

Date of fieldwork: 16.04.2012

Attachment F

Laboratory reports and chain of custody documentation

CHAIN OF CUSTODY FOR ANALYTICAL SERVICES

Company: (tick)
- [x] Convenience Properties P/L
- [ ] 7 Eleven Stores P/L
- [ ] Strasburger Enterprises P/L

Contract No: PO 5500190054
7-Eleven Site: St Clair
Date: 28/3/12
7-Eleven Store No: 2277
COC No: 1 of 2
7-Eleven PM: David Raymond
Laboratory: ALS Laboratory Group NSW Smithfield
Address: NSW 2164
Comments:
Quotation No: EN-053-10
Attention: Glenyss Weeks

LAB ID	Sample ID	Sample Date	Matrix Soild (S) Water (W)	HOLD	S-4 TPH(C6-C36)/BTEX	W-4 TPH(C6-C36)/BTEX	S-6 TPH(C6-C36)/BTEX plus Pb	W-6 TPH(C6-C36)/BTEX plus Pb	S-7 TPH(C6-C36)/BTEX plus PAH	W-7 TPH(C6-C36)/BTEX plus PAH	P-16 IWRG 621	CrVI IWRG 621 metals (As, Cd, CrVI, Cu, Pb, Hg, Mo, Ni, Sn, Se, Ag, Zn)	W-28 Natural Attenuation Indicators (nitrate, ferrous iron, sulphate, methane)	S-21 TPH (C6-C36), BTEX, PAH, Pb	W-21 TPH (C6-C36), BTEX, PAH, Pb	pH	TDS	
1	SB101_0.25-0.35	28/3/12	S											X				
(10)	SB102_0.25-0.35	↓	↓	X														
2	SB102_0.5-0.6													X				
(11)	SB102_1.0-1.1			X														
(12)	SB102_1.5-1.6			X														
3	SB102_1.9-2.0													X				
(13)	MW101-0.1-0.2			X														
(14)	MW101_0.5-0.6			X														
(15)	MW101-1.0-1.1			X														
4	MW101.2.0-2.1													X				
(16)	MW101-3.0-3.1	↓	↓	X														

Environmental Division Sydney
Work Order
ES1207505
Telephone : +61-2-8784 8555

Consultant contact name/company: Andrew Hill / Parsons Brinckerhoff
Phone: 9272 5195
Mobile: 0403 373 206
Forward Results to: ahill@pb.com.au
Turnaround: Standard (5 days)
Relinquished By: N. RYAN **Date / Time:** 29/3/12 - 11am
Received By: David **Date / Time:** 29/3 1100
Relinquished By: **Date / Time:**
Received By: **Date / Time:**

CHAIN OF CUSTODY FOR ANALYTICAL SERVICES

Company: (tick)
- [x] Convenience Properties P/L
- [ ] 7 Eleven Stores P/L
- [ ] Strasburger Enterprises P/L

Contract No: PO 5500190054 **7-Eleven Site:** St Clair

Date: 28/3/12 **7-Eleven Store No:** 2277

Laboratory: ALS Laboratory Group NSW Smithfield **COC No:** 1 of 2 **7-Eleven PM:** David Raymond

Address: NSW 2164 **Comments:** **Quotation No:** EN-053-10

Attention: Glenyss Weeks

LAB ID	Sample ID	Sample Date	Matrix Soild (S) Water (W)	Analysis Required: HOLD	S-4 TPH(C6-C36)/BTEX	W-4 TPH(C6-C36)/BTEX	S-6 TPH(C6-C36)/BTEX plus Pb	W-6 TPH(C6-C36)/BTEX plus Pb	S-7 TPH(C6-C36)/BTEX plus PAH	W-7 TPH(C6-C36)/BTEX plus PAH	P-16 IWRG 621	CrVI IWRG 621 metals (As, Cd, CrVI, Cu, Pb, Hg, Mo, Ni, Sn, Se, Ag, Zn)	W-28 Natural Attenuation Indicators (nitrate, ferrous iron, sulphate, methane)	S-21 TPH (C6-C36), BTEX, PAH, Pb	W-21 TPH (C6-C36), BTEX, PAH, Pb	pH	TDS	
5	MW101_3.8-3.9	28/3/12	S											X				
(17)	SB103_0.4-0.5	↓		X														
6	~~SB~~ SB103_1.0-1.1													X				
7	SB103_1.9-2.0													X				
	DUP01	↓		PLEASE FORWARD TO ENVIROLAB														
8	RB_280312	28/3/12	W			X												
9	TB_280312	↓	W			X												

Consultant contact name/company: Andrew Hill / Parsons Brinckerhoff **Phone:** 9272 5195 **Mobile:** 0403 373 206

Forward Results to: ahill@pb.com.au **Turnaround:** Standard (5 days)

Relinquished By: N RYAN **Date / Time:** 29/3/12 - 11am **Received By:** Dan! **Date / Time:** 29/3 11.05

Relinquished By: **Date / Time:** **Received By:** **Date / Time:**

ALS Group
Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: **ES1207505**	Page	: 1 of 8
Client	: **STRASBURGER ENTERPRISES PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: ANDREW HILL	Contact	: Glenyss Weeks
Address	:	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: ahill@pb.com.au	E-mail	: Glenyss.Weeks@alsglobal.com
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61 2 8784 8531
Project	: 2277	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: 5500190054		
C-O-C number	: ----	Date Samples Received	: 29-MAR-2012
Sampler	: SL	Issue Date	: 05-APR-2012
Site	: ST CLAIR		
		No. of samples received	: 17
Quote number	: EN/053/10 - Sydney	No. of samples analysed	: 9

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

WORLD RECOGNISED ACCREDITATION

Signatories

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

Signatories	*Position*	*Accreditation Category*
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Hoa Nguyen	Inorganic Chemist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics

General Comments

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

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

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

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

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

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

- **EG005T: Poor precision was obtained for Iron on sample ES1207520-2 due to sample heterogeneity. Results have been confirmed by re-extraction and reanalysis.**

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: SB101_0.25-0.35	SB102_0.5-0.6	SB102_1.9-2.0	MW101_2.0-2.1	MW101_3.8-3.9
				Client sampling date / time: 28-MAR-2012 15:00	28-MAR-2012 15:00	28-MAR-2012 15:00	28-MAR-2012 15:00	28-MAR-2012 15:00
				ES1207505-001	ES1207505-002	ES1207505-003	ES1207505-004	ES1207505-005
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	19.8	21.2	13.9	12.4	10.6
EG005T: Total Metals by ICP-AES								
Lead	7439-92-1	5	mg/kg	97	18	16	23	19
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	1.1	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	1.4	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	0.6	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	0.6	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	0.7	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	0.7	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	5.6	<0.5	<0.5	<0.5	<0.5
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	210	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	310	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft								
C6 - C10 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	----	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	270	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	270	<50	<50	<50	<50
EP080: BTEX								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2

Analytical Results

Sub-Matrix: SOIL				Client sample ID	SB101_0.25-0.35	SB102_0.5-0.6	SB102_1.9-2.0	MW101_2.0-2.1	MW101_3.8-3.9
				Client sampling date / time	28-MAR-2012 15:00	28-MAR-2012 15:00	28-MAR-2012 15:00	28-MAR-2012 15:00	28-MAR-2012 15:00
Compound	CAS Number	LOR	Unit		ES1207505-001	ES1207505-002	ES1207505-003	ES1207505-004	ES1207505-005
EP080: BTEX - Continued									
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<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	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP080: BTEXN									
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.1	%		109	110	111	105	96.9
2-Chlorophenol-D4	93951-73-6	0.1	%		98.2	99.8	100	96.8	90.3
2.4.6-Tribromophenol	118-79-6	0.1	%		51.8	76.3	78.0	73.5	69.0
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.1	%		97.2	96.9	98.2	98.1	96.0
Anthracene-d10	1719-06-8	0.1	%		102	102	101	102	97.6
4-Terphenyl-d14	1718-51-0	0.1	%		83.4	84.1	85.0	84.2	87.2
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		110	109	105	103	75.3
Toluene-D8	2037-26-5	0.1	%		106	96.0	77.7	92.0	99.3
4-Bromofluorobenzene	460-00-4	0.1	%		103	96.7	119	98.2	87.2

Analytical Results

Sub-Matrix: SOIL				Client sample ID	SB103_1.0-1.1	SB103_1.9-2.0	----	----	----
				Client sampling date / time	28-MAR-2012 15:00	28-MAR-2012 15:00	----	----	----
Compound	CAS Number	LOR	Unit		ES1207505-006	ES1207505-007	----	----	----
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1.0	%		22.0	10.9	----	----	----
EG005T: Total Metals by ICP-AES									
Lead	7439-92-1	5	mg/kg		16	28	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	----	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	----	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	----	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	----	----	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg		<0.5	<0.5	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	<100	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft									
C6 - C10 Fraction	----	10	mg/kg		<10	<10	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	----	10	mg/kg		<10	<10	----	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	----	----	----
EP080: BTEX									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	----	----	----

Analytical Results

Sub-Matrix: SOIL				Client sample ID	SB103_1.0-1.1	SB103_1.9-2.0	----	----	----
				Client sampling date / time	28-MAR-2012 15:00	28-MAR-2012 15:00	----	----	----
Compound	CAS Number	LOR	Unit		ES1207505-006	ES1207505-007	----	----	----
EP080: BTEX - Continued									
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	----	----	----
EP080: BTEXN									
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	----	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg		<0.5	<0.5	----	----	----
Naphthalene	91-20-3	1	mg/kg		<1	<1	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.1	%		93.9	101	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%		88.0	99.9	----	----	----
2.4.6-Tribromophenol	118-79-6	0.1	%		65.7	63.7	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.1	%		95.2	92.8	----	----	----
Anthracene-d10	1719-06-8	0.1	%		96.5	103	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%		83.5	81.4	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		74.1	91.3	----	----	----
Toluene-D8	2037-26-5	0.1	%		82.0	91.0	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%		81.6	81.8	----	----	----

Analytical Results

Sub-Matrix: WATER				Client sample ID	RB_280312	TB_280312	----	----	----
				Client sampling date / time	28-MAR-2012 15:00	28-MAR-2012 15:00	----	----	----
Compound	CAS Number	LOR	Unit		ES1207505-008	ES1207505-009	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	<20	----	----	----
C10 - C14 Fraction	----	50	µg/L		<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L		<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft									
C6 - C10 Fraction	----	20	µg/L		<20	<20	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	----	20	µg/L		<20	<20	----	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L		<100	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	----	----	----
Toluene	108-88-3	2	µg/L		<5	<5	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	<2	----	----	----
^ Total Xylenes	1330-20-7	2	µg/L		<2	<2	----	----	----
^ Sum of BTEX	----	1	µg/L		<1	<1	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	<5	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		**105**	**97.6**	----	----	----
Toluene-D8	2037-26-5	0.1	%		**116**	**93.7**	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%		**113**	**93.5**	----	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	56.3	133.3
2-Chlorophenol-D4	93951-73-6	53.8	133.8
2.4.6-Tribromophenol	118-79-6	23.1	134.9
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	58.9	132.7
Anthracene-d10	1719-06-8	55.0	137.6
4-Terphenyl-d14	1718-51-0	54.0	147.8
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

Sub-Matrix: **WATER**

Compound	CAS Number	Recovery Limits (%) Low	High
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

Environmental Division

QUALITY CONTROL REPORT

Work Order	: **ES1207505**	Page	: 1 of 9
Client	: **STRASBURGER ENTERPRISES PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: ANDREW HILL	Contact	: Glenyss Weeks
Address	:	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: ahill@pb.com.au	E-mail	: Glenyss.Weeks@alsglobal.com
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61 2 8784 8531
Project	: 2277	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: ST CLAIR		
C-O-C number	: ----	Date Samples Received	: 29-MAR-2012
Sampler	: SL	Issue Date	: 05-APR-2012
Order number	: 5500190054		
		No. of samples received	: 17
Quote number	: EN/053/10 - Sydney	No. of samples analysed	: 9

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

This Quality Control Report contains the following information:

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

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

Signatories

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

Signatories	*Position*	*Accreditation Category*
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Hoa Nguyen	Inorganic Chemist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics

General Comments

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

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

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

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

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA055: Moisture Content (QC Lot: 2239882)									
ES1207356-007	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	8.6	8.0	8.0	No Limit
ES1207562-005	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	35.3	38.1	7.7	0% - 20%
EG005T: Total Metals by ICP-AES (QC Lot: 2238985)									
ES1207454-001	Anonymous	EG005T: Lead	7439-92-1	5	mg/kg	7	9	17.1	No Limit
ES1207520-002	Anonymous	EG005T: Lead	7439-92-1	5	mg/kg	7	5	28.4	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2237898)									
ES1207350-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1207383-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	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)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2237898) - continued									
ES1207383-001	Anonymous	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2237886)									
ES1207317-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1207356-008	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2237897)									
ES1207350-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1207383-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QC Lot: 2237886)									
ES1207317-001	Anonymous	EP080: C6 - C10 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1207356-008	Anonymous	EP080: C6 - C10 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QC Lot: 2237897)									
ES1207350-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1207383-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080: BTEXN (QC Lot: 2237886)									
ES1207317-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES1207356-008	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	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: BTEXN (QC Lot: 2237886) - continued									
ES1207356-008	Anonymous	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2239432)									
ES1207504-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1207466-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QC Lot: 2239432)									
ES1207504-001	Anonymous	EP080: C6 - C10 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1207466-001	Anonymous	EP080: C6 - C10 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 2239432)									
ES1207504-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<5	<5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES1207466-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<5	<5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit

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

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (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**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 2238985)								
EG005T: Lead	7439-92-1	5	mg/kg	<5	54.76 mg/kg	95.0	85.2	111
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2237898)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	102	81.9	113
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	96.6	79.6	113
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	101	81.5	112
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	97.6	79.9	112
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	102	79.4	114
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	101	81.1	112
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	101	78.8	113
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	105	78.9	113
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	91.4	77.2	112
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	108	79.8	114
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	83.5	71.8	118
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	93.4	74.2	117
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	85.6	76.4	113
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	85.8	71	113
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	81.4	71.7	113
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	100	72.4	114
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2237886)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	72.1	68.4	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2237897)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	107	59	131
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	102	74	138
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	97.1	63	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2237886)								
EP080: C6 - C10 Fraction	----	10	mg/kg	<10	31 mg/kg	73.9	68.4	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2237897)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	250 mg/kg	103	59	131
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	93.7	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----
		50	mg/kg	----	150 mg/kg	97.3	63	131
EP080: BTEXN (QCLot: 2237886)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	83.9	62	120
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	82.4	62	128

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080: BTEXN (QCLot: 2237886) - continued								
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	78.4	58	118
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	84.3	60	120
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	78.9	60	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	81.8	62	138

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2237300)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	200 µg/L	91.9	58.9	131
EP071: C15 - C28 Fraction	----	100	µg/L	<100	250 µg/L	107	73.9	138
EP071: C29 - C36 Fraction	----	50	µg/L	<50	200 µg/L	83.7	62.7	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2239432)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	117	75	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2237300)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	250 µg/L	76.5	58.9	131
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	350 µg/L	84.6	73.9	138
EP071: >C34 - C40 Fraction	----	100 50	µg/L µg/L	<100 ----	---- 150 µg/L	---- 97.9	---- 62.7	---- 131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2239432)								
EP080: C6 - C10 Fraction	----	20	µg/L	<20	310 µg/L	117	75	127
EP080: BTEXN (QCLot: 2239432)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	99.3	70	124
EP080: Toluene	108-88-3	2 5	µg/L µg/L	---- <5	10 µg/L ----	94.8 ----	66 ----	132 ----
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	97.3	70	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	101	69	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	101	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	101	70	124

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	Spike Recovery (%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 2238985)							
ES1207454-001	Anonymous	EG005T: Lead	7439-92-1	250 mg/kg	91.3	70	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2237898)							
ES1207350-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	80.4	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	88.9	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2237886)							
ES1207317-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	117	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2237897)							
ES1207350-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	87.1	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	104	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	89.2	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2237886)							
ES1207317-001	Anonymous	EP080: C6 - C10 Fraction	----	37.5 mg/kg	109	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2237897)							
ES1207350-001	Anonymous	EP071: >C10 - C16 Fraction	----	850 mg/kg	104	73	137
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	95.5	53	131
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	72.4	52	132
EP080: BTEXN (QCLot: 2237886)							
ES1207317-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	82.3	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	72.6	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	80.5	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	89.6	70	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	81.4	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	73.7	70	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	Spike Recovery (%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2239432)							
ES1207504-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	110	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2239432)							
ES1207504-001	Anonymous	EP080: C6 - C10 Fraction	----	375 µg/L	110	70	130
EP080: BTEXN (QCLot: 2239432)							
ES1207504-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	73.7	70	130
		EP080: Toluene	108-88-3	25 µg/L	80.5	70	130

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: Spike Recovery (%) MS	Matrix Spike (MS) Report: Recovery Limits (%) Low	Matrix Spike (MS) Report: Recovery Limits (%) High
EP080: BTEXN (QCLot: 2239432) - continued							
ES1207504-001	Anonymous	EP080: Ethylbenzene	100-41-4	25 µg/L	91.2	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	87.4	70	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	90.8	70	130
		EP080: Naphthalene	91-20-3	25 µg/L	89.1	70	130

ALS Group
Environmental Division

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: **ES1207505**	Page	: 1 of 6
Client	: STRASBURGER ENTERPRISES PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: ANDREW HILL	Contact	: Glenyss Weeks
Address	:	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: ahill@pb.com.au	E-mail	: Glenyss.Weeks@alsglobal.com
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61 2 8784 8531
Project	: 2277	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: ST CLAIR		
C-O-C number	: ----	Date Samples Received	: 29-MAR-2012
Sampler	: SL	Issue Date	: 05-APR-2012
Order number	: 5500190054		
		No. of samples received	: 17
Quote number	: EN/053/10 - Sydney	No. of samples analysed	: 9

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

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers

Analysis Holding Time Compliance

The following report summarises extraction / preparation and analysis times and compares with recommended holding times. Dates reported represent first date of extraction or analysis and precludes subsequent dilutions and reruns. Information is also provided re the sample container (preservative) from which the analysis aliquot was taken. Elapsed period to analysis represents number of days from sampling where no extraction / digestion is involved or period from extraction / digestion where this is present. For composite samples, sampling date is assumed to be that of the oldest sample contributing to the composite. Sample date for laboratory produced leachates is assumed as the completion date of the leaching process. Outliers for holding time are based on USEPA SW 846, APHA, AS and NEPM (1999). A listing of breaches is provided in the Summary of Outliers.

Holding times for leachate methods (excluding elutriates) vary according to the analytes being determined on the resulting solution. For non-volatile analytes, the holding time compliance assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These soil holding times are: Organics (14 days); Mercury (28 days) & other metals (180 days). A recorded breach therefore does not guarantee a breach for all non-volatile parameters.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content							
Soil Glass Jar - Unpreserved (EA055-103)							
SB101_0.25-0.35, SB102_0.5-0.6, SB102_1.9-2.0, MW101_2.0-2.1, MW101_3.8-3.9, SB103_1.0-1.1, SB103_1.9-2.0	28-MAR-2012	----	----	----	02-APR-2012	11-APR-2012	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
SB101_0.25-0.35, SB102_0.5-0.6, SB102_1.9-2.0, MW101_2.0-2.1, MW101_3.8-3.9, SB103_1.0-1.1, SB103_1.9-2.0	28-MAR-2012	31-MAR-2012	24-SEP-2012	✓	02-APR-2012	24-SEP-2012	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft							
Soil Glass Jar - Unpreserved (EP071)							
SB101_0.25-0.35, SB102_0.5-0.6, SB102_1.9-2.0, MW101_2.0-2.1, MW101_3.8-3.9, SB103_1.0-1.1, SB103_1.9-2.0	28-MAR-2012	30-MAR-2012	11-APR-2012	✓	03-APR-2012	09-MAY-2012	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM))							
SB101_0.25-0.35, SB102_0.5-0.6, SB102_1.9-2.0, MW101_2.0-2.1, MW101_3.8-3.9, SB103_1.0-1.1, SB103_1.9-2.0	28-MAR-2012	30-MAR-2012	11-APR-2012	✓	03-APR-2012	09-MAY-2012	✓
EP080: BTEX							
Soil Glass Jar - Unpreserved (EP080)							
SB101_0.25-0.35, SB102_0.5-0.6, SB102_1.9-2.0, MW101_2.0-2.1, MW101_3.8-3.9, SB103_1.0-1.1, SB103_1.9-2.0	28-MAR-2012	30-MAR-2012	11-APR-2012	✓	03-APR-2012	11-APR-2012	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
SB101_0.25-0.35, SB102_0.5-0.6, SB102_1.9-2.0, MW101_2.0-2.1, MW101_3.8-3.9, SB103_1.0-1.1, SB103_1.9-2.0	28-MAR-2012	30-MAR-2012	11-APR-2012	✓	03-APR-2012	11-APR-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft							
Soil Glass Jar - Unpreserved (EP080)							
SB101_0.25-0.35, SB102_0.5-0.6, SB102_1.9-2.0, MW101_2.0-2.1, MW101_3.8-3.9, SB103_1.0-1.1, SB103_1.9-2.0	**28-MAR-2012**	**30-MAR-2012**	11-APR-2012	✓	**03-APR-2012**	11-APR-2012	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
RB_280312	**28-MAR-2012**	**02-APR-2012**	04-APR-2012	✓	**03-APR-2012**	12-MAY-2012	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
RB_280312, TB_280312	**28-MAR-2012**	**02-APR-2012**	11-APR-2012	✓	**02-APR-2012**	11-APR-2012	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft							
Amber VOC Vial - Sulfuric Acid (EP080)							
RB_280312, TB_280312	**28-MAR-2012**	**02-APR-2012**	11-APR-2012	✓	**02-APR-2012**	11-APR-2012	✓

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(where) 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)							
Moisture Content	EA055-103	2	20	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	19	10.5	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	17	11.8	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	20	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	19	5.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	17	5.9	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	19	5.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	17	5.9	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	19	5.3	5.0	✓	ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	17	5.9	5.0	✓	ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	ALS QCS3 requirement

Matrix: **WATER**

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)							
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
TPH - Semivolatile Fraction	EP071	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	ALS QCS3 requirement

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
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2010 Draft) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) 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 (1999) Schedule B(3)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (1999) Schedule B(3) (Method 506.1)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) 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 (1999) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(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. This method is compliant with NEPM (1999) Schedule B(3) (Method 501)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. 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 (1999) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(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 (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 500 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2). ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW 846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

- **For all matrices, no Method Blank value outliers occur.**
- **For all matrices, no Duplicate outliers occur.**
- **For all matrices, no Laboratory Control outliers occur.**
- **For all matrices, no Matrix Spike outliers occur.**

Regular Sample Surrogates

- **For all regular sample matrices, no surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- **No Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- **No Quality Control Sample Frequency Outliers exist.**

CHAIN OF CUSTODY FOR ANALYTICAL SERVICES

Company: (tick)
- [ ] Convenience Properties P/L
- [ ] 7 Eleven Stores P/L
- [x] Strasburger Enterprises P/L

Contract No: PO 550019005~~4~~

Date: 4/4/12

COC No: 1

Comments:

7-Eleven Site: St. Clair

7-Eleven Store No: 2277

7-Eleven PM: David Raymond

Quotation No: EN-053-10

Laboratory: ALS Laboratory Group NSW Smithfield

Address: NSW 2164

Attention: Glenyss Weeks

HT

~~Subcon / Forward Lab / Split WO~~
Lab / Analysis: forward Enviolab
Organised By / Date: (Dup01)
Relinquished By / Date:
Courier:
WO No: ES1208072
Attach By PO / Internal Sheet:

LAB ID	Sample ID	Sample Date	Matrix Soild (S) Water (W)	HOLD	S-4 TPH(C6-C36)/BTEX	W-4 TPH(C6-C36)/BTEX	S-6 TPH(C6-C36)/BTEX plus Pb	W-6	S-7 TPH(C6-C36)/BTEX plus PAH	W-7	P-16 IWRG 621	CrVI IWRG 621 metals (As, Cd, CrVI, Cu, Pb, Hg, Mo, Ni, Sn, Se, Ag, Zn)	W-28 Natural Attenuation Indicators (nitrate, ferrous iron, sulphate, methane)		S-21 TPH (C6-C36), BTEX, PAH, Pb	W-21	pH	TDS		
1	MW01B	4/4/12	W													X	X	X		
2	MW02	4/4/12	W													X	X	X		
3	MW03	4/4/12	W													X	X	X		
4	MW04	4/4/12	W													X	X	X		
5	MW05	4/4/12	W													X	X	X		
6	MW101	4/4/12	W													X	X	X		
7	RB	4/4/12	W			X														
~~8~~	~~TB <Emma~~																			
	DUP01 (please fwd to Envirolab)																			
8	TB.																			

Environmental Division Sydney
Work Order
ES1208072
Telephone : +61-2-8784 8555

Consultant contact name/company: Andrew Hill / Parsons Brinckerhoff

Phone: 9272 5195

Mobile: 0403 373 206

Forward Results to: ahill@pb.com.au

Turnaround: Standard (5 days)

Relinquished By: R. Aaby **Date / Time:** 1635

Received By: Frank **Date / Time:** 4-4-12 1420

Relinquished By: **Date / Time:**

Received By: **Date / Time:**

ALS Group
Environmental Division

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order	: **ES1208072**		
Client	: **STRASBURGER ENTERPRISES PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: ANDREW HILL	Contact	: Glenyss Weeks
Address	:	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: ahill@pb.com.au	E-mail	: Glenyss.Weeks@alsglobal.com
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61 2 8784 8531
Project	: 2277 ST CLAIR	Page	: 1 of 2
Order number	: 5500190054		
C-O-C number	: ----	Quote number	: ES2010STRENT0003 (EN/053/10 - Sydney)
Site	: ----		
Sampler	: ----	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement

Dates

Date Samples Received	: 04-APR-2012	Issue Date	: 04-APR-2012 21:50
Client Requested Due Date	: 13-APR-2012	Scheduled Reporting Date	: **13-APR-2012**

Delivery Details

Mode of Delivery	: Carrier	Temperature	: 4.9'C - Ice present
No. of coolers/boxes	: 1 HARD	No. of samples received	: 8
Security Seal	: Not intact.	No. of samples analysed	: 8

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Sample DUP01 will be forwarded to Envirolab as per COC.**
- **Received extra sample TB, lab will analyse for TPH and BTEX analysis.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.

Sample Container(s)/Preservation Non-Compliances

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

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

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process neccessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EA005P pH (PC)	WATER - EA015H Total Dissolved Solids - High Level	WATER - W-04 TPH/BTEX	WATER - W-21 TPH/BTEX/PAH/Filtered Pb
ES1208072-001	04-APR-2012 15:00	MW01B	✓	✓		✓
ES1208072-002	04-APR-2012 15:00	MW02	✓	✓		✓
ES1208072-003	04-APR-2012 15:00	MW03	✓	✓		✓
ES1208072-004	04-APR-2012 15:00	MW04	✓	✓		✓
ES1208072-005	04-APR-2012 15:00	MW05	✓	✓		✓
ES1208072-006	04-APR-2012 15:00	MW101	✓	✓		✓
ES1208072-007	04-APR-2012 15:00	RB			✓	
ES1208072-008	[04-APR-2012]	TB			✓	

Proactive Holding Time Report

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

Requested Deliverables

ANDREW HILL

- *AU Certificate of Analysis - NATA (COA)	Email	ahill@pb.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	ahill@pb.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	ahill@pb.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	ahill@pb.com.au
- Chain of Custody (CoC) (COC)	Email	ahill@pb.com.au
- EDI Format - ENMRG (ENMRG)	Email	ahill@pb.com.au
- EDI Format - ESDAT (ESDAT)	Email	ahill@pb.com.au

Mr David Raymond

- *AU Certificate of Analysis - NATA (COA)	Email	dxr@7eleven.com.au

Ms Kyla Horgan

- A4 - AU Tax Invoice (INV)	Email	kch@7eleven.com.au

ALS Group
Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: **ES1208072**	Page	: 1 of 7
Client	: **STRASBURGER ENTERPRISES PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: ANDREW HILL	Contact	: Glenyss Weeks
Address	:	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: ahill@pb.com.au	E-mail	: Glenyss.Weeks@alsglobal.com
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61 2 8784 8531
Project	: 2277 ST CLAIR	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: 5500190054		
C-O-C number	: ----	Date Samples Received	: 04-APR-2012
Sampler	: ----	Issue Date	: 16-APR-2012
Site	: ----		
		No. of samples received	: 8
Quote number	: EN/053/10 - Sydney	No. of samples analysed	: 8

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

NATA
WORLD RECOGNISED ACCREDITATION

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

Signatories

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

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Edwandy Fadjar	Organic Coordinator	Sydney Organics
Hoa Nguyen	Inorganic Chemist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics

General Comments

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

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

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

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

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

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

- **EA015 TDS may bias high for various samples due to the presence of fine particulate matter, which may pass through the prescribed GF/C paper.**
- **EG020A: LOR 's have been raised due to matrix interference (Internal standard suppression)**

Analytical Results

Sub-Matrix: **WATER**

Compound	CAS Number	LOR	Unit	Client sample ID: MW01B Client sampling date / time: 04-APR-2012 15:00 ES1208072-001	MW02 04-APR-2012 15:00 ES1208072-002	MW03 04-APR-2012 15:00 ES1208072-003	MW04 04-APR-2012 15:00 ES1208072-004	MW05 04-APR-2012 15:00 ES1208072-005
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**7.64**	**7.47**	**7.34**	**7.36**	**7.22**
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	**16800**	**13700**	**15500**	**16600**	**16200**
EG020F: Dissolved Metals by ICP-MS								
Lead	7439-92-1	0.001	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	**1.1**	<1.0	<1.0	**1.8**	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	**2.5**	<1.0	**1.1**	**1.5**	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	**3.6**	<0.5	**1.1**	**3.3**	<0.5
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	**790**	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	**660**	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	**1450**	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft								
C6 - C10 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	----	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	**1240**	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	**650**	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	**1890**	<100	<100	<100	<100

Analytical Results

Sub-Matrix: WATER				Client sample ID	MW01B	MW02	MW03	MW04	MW05
				Client sampling date / time	04-APR-2012 15:00	04-APR-2012 15:00	04-APR-2012 15:00	04-APR-2012 15:00	04-APR-2012 15:00
Compound	CAS Number	LOR	Unit		ES1208072-001	ES1208072-002	ES1208072-003	ES1208072-004	ES1208072-005
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		2	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L		<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L		<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L		<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L		<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L		2	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L		<5	<5	<5	<5	<5
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.1	%		23.6	23.4	25.4	32.5	26.6
2-Chlorophenol-D4	93951-73-6	0.1	%		42.8	51.3	57.6	69.3	57.3
2.4.6-Tribromophenol	118-79-6	0.1	%		45.4	49.2	60.5	68.8	63.0
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.1	%		39.8	46.4	51.8	63.7	50.8
Anthracene-d10	1719-06-8	0.1	%		58.9	72.4	79.4	99.8	82.8
4-Terphenyl-d14	1718-51-0	0.1	%		49.4	58.2	64.7	81.1	67.4
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		91.8	115	98.3	101	89.3
Toluene-D8	2037-26-5	0.1	%		102	122	98.0	99.8	89.3
4-Bromofluorobenzene	460-00-4	0.1	%		91.5	109	89.6	91.8	78.1

Analytical Results

Sub-Matrix: WATER				Client sample ID	MW101	RB	TB	----	----
				Client sampling date / time	04-APR-2012 15:00	04-APR-2012 15:00	[04-APR-2012]	----	----
Compound	CAS Number	LOR	Unit		ES1208072-006	ES1208072-007	ES1208072-008	----	----
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		7.30	----	----	----	----
EA015: Total Dissolved Solids									
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L		16400	----	----	----	----
EG020F: Dissolved Metals by ICP-MS									
Lead	7439-92-1	0.001	mg/L		<0.010	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		2.7	----	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	----	----	----	----
Acenaphthene	83-32-9	1.0	µg/L		<1.0	----	----	----	----
Fluorene	86-73-7	1.0	µg/L		<1.0	----	----	----	----
Phenanthrene	85-01-8	1.0	µg/L		1.3	----	----	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	----	----	----	----
Fluoranthene	206-44-0	1.0	µg/L		<1.0	----	----	----	----
Pyrene	129-00-0	1.0	µg/L		<1.0	----	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	----	----	----	----
Chrysene	218-01-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(b)fluoranthene	205-99-2	1.0	µg/L		<1.0	----	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L		4.0	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	<20	<20	----	----
C10 - C14 Fraction	----	50	µg/L		<50	<50	<50	----	----
C15 - C28 Fraction	----	100	µg/L		<100	<100	<100	----	----
C29 - C36 Fraction	----	50	µg/L		<50	<50	<50	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L		<50	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft									
C6 - C10 Fraction	----	20	µg/L		<20	<20	<20	----	----
^ C6 - C10 Fraction minus BTEX (F1)	----	20	µg/L		<20	<20	<20	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	<100	<100	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L		<100	<100	<100	----	----

Analytical Results

Sub-Matrix: **WATER**

Compound	CAS Number	LOR	Unit	Client sample ID: MW101	RB	TB	----	----
				Client sampling date / time: 04-APR-2012 15:00	04-APR-2012 15:00	[04-APR-2012]	----	----
				ES1208072-006	ES1208072-007	ES1208072-008	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	----	----
Toluene	108-88-3	2	µg/L	<2	<2	<2	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	----	----
^ **Total Xylenes**	1330-20-7	2	µg/L	<2	<2	<2	----	----
^ **Sum of BTEX**	----	1	µg/L	<1	<1	<1	----	----
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	**26.9**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	**56.4**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.1	%	**62.9**	----	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	**49.5**	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	**77.9**	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	**64.6**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	**104**	**99.1**	**103**	----	----
Toluene-D8	2037-26-5	0.1	%	**103**	**101**	**99.3**	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	**90.5**	**93.1**	**89.4**	----	----

Surrogate Control Limits

Sub-Matrix: **WATER**

Compound	CAS Number	Recovery Limits (%) Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10.0	64.1
2-Chlorophenol-D4	93951-73-6	11.3	122.9
2.4.6-Tribromophenol	118-79-6	11.7	144.0
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	19.9	122.8
Anthracene-d10	1719-06-8	23.3	125.8
4-Terphenyl-d14	1718-51-0	20.3	134.5
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

Environmental Division

QUALITY CONTROL REPORT

Work Order	: **ES1208072**	Page	: 1 of 6
Client	: **STRASBURGER ENTERPRISES PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: ANDREW HILL	Contact	: Glenyss Weeks
Address	:	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: ahill@pb.com.au	E-mail	: Glenyss.Weeks@alsglobal.com
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61 2 8784 8531
Project	: 2277 ST CLAIR	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
C-O-C number	: ----	Date Samples Received	: 04-APR-2012
Sampler	: ----	Issue Date	: 16-APR-2012
Order number	: 5500190054		
		No. of samples received	: 8
Quote number	: EN/053/10 - Sydney	No. of samples analysed	: 8

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

This Quality Control Report contains the following information:

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

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

Signatories

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

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Edwandy Fadjar	Organic Coordinator	Sydney Organics
Hoa Nguyen	Inorganic Chemist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics

General Comments

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

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

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

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

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA005P: pH by PC Titrator (QC Lot: 2245554)									
ES1208030-001	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	8.09	8.14	0.6	0% - 20%
ES1208062-001	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	5.86	5.35	9.1	0% - 20%
EA015: Total Dissolved Solids (QC Lot: 2250955)									
ES1208072-001	MW01B	EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	16800	14300	16.1	0% - 20%
ES1208073-004	Anonymous	EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	7700	8800	13.3	0% - 20%
EA015: Total Dissolved Solids (QC Lot: 2254119)									
ES1208442-001	Anonymous	EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	266	252	5.4	0% - 20%
ES1208531-006	Anonymous	EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	2500	2430	2.8	0% - 20%
EG020F: Dissolved Metals by ICP-MS (QC Lot: 2246084)									
ES1208016-007	Anonymous	EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.020	<0.020	0.0	No Limit
EW1201014-003	Anonymous	EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2251313)									
ES1208072-001	MW01B	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1208210-003	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QC Lot: 2251313)									
ES1208072-001	MW01B	EP080: C6 - C10 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1208210-003	Anonymous	EP080: C6 - C10 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 2251313)									
ES1208072-001	MW01B	EP080: Benzene	71-43-2	1	µg/L	2	3	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES1208210-003	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA015: Total Dissolved Solids (QCLot: 2250955)								
EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	<10	293 mg/L	84.6	70	130
EA015: Total Dissolved Solids (QCLot: 2254119)								
EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	<10	293 mg/L	91.5	70	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 2246084)								
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	102	90	110
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2246443)								
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	74.9	58.6	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	80.2	63.6	114
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	79.7	62.2	113
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	82.3	63.9	115
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	86.7	62.6	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	86.2	64.3	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	88.8	63.6	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	89.7	63.1	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	89.1	64.1	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	94.6	62.5	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	80.7	61.7	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	95.6	61.7	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	87.6	63.3	117
		0.5	µg/L	<0.5	----	----	----	----
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	86.9	59.9	118
		1	µg/L	<1.0	----	----	----	----

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2246443) - continued								
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	89.2	61.2	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	85.8	59.1	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2246442)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	200 µg/L	102	58.9	131
EP071: C15 - C28 Fraction	----	100	µg/L	<100	250 µg/L	114	73.9	138
EP071: C29 - C36 Fraction	----	50	µg/L	<50	200 µg/L	78.9	62.7	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2251313)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	94.2	75	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2246442)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	250 µg/L	80.6	58.9	131
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	350 µg/L	84.8	73.9	138
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----
		50	µg/L	----	150 µg/L	98.5	62.7	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2251313)								
EP080: C6 - C10 Fraction	----	20	µg/L	<20	310 µg/L	91.7	75	127
EP080: BTEXN (QCLot: 2251313)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	94.0	70	124
EP080: Toluene	108-88-3	2	µg/L	----	10 µg/L	100	66	132
		5	µg/L	<2	----	----	----	----
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	80.8	70	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	82.5	69	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	82.2	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	108	70	124

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	Spike Recovery (%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 2246084)							
ES1208016-007	Anonymous	EG020A-F: Lead	7439-92-1	0.2 mg/L	90.7	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2251313)							
ES1208072-001	MW01B	EP080: C6 - C9 Fraction	----	325 µg/L	100	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2251313)							
ES1208072-001	MW01B	EP080: C6 - C10 Fraction	----	375 µg/L	87.6	70	130
EP080: BTEXN (QCLot: 2251313)							
ES1208072-001	MW01B	EP080: Benzene	71-43-2	25 µg/L	84.7	70	130
		EP080: Toluene	108-88-3	25 µg/L	90.8	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	85.0	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	84.8	70	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	83.9	70	130
		EP080: Naphthalene	91-20-3	25 µg/L	80.4	70	130

ALS Group
Environmental Division

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: **ES1208072**	Page	: 1 of 6
Client	: STRASBURGER ENTERPRISES PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: ANDREW HILL	Contact	: Glenyss Weeks
Address	:	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: ahill@pb.com.au	E-mail	: Glenyss.Weeks@alsglobal.com
Telephone	: ----	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61 2 8784 8531
Project	: 2277 ST CLAIR	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
C-O-C number	: ----	Date Samples Received	: 04-APR-2012
Sampler	: ----	Issue Date	: 16-APR-2012
Order number	: 5500190054		
		No. of samples received	: 8
Quote number	: EN/053/10 - Sydney	No. of samples analysed	: 8

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

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers

Analysis Holding Time Compliance

The following report summarises extraction / preparation and analysis times and compares with recommended holding times. Dates reported represent first date of extraction or analysis and precludes subsequent dilutions and reruns. Information is also provided re the sample container (preservative) from which the analysis aliquot was taken. Elapsed period to analysis represents number of days from sampling where no extraction / digestion is involved or period from extraction / digestion where this is present. For composite samples, sampling date is assumed to be that of the oldest sample contributing to the composite. Sample date for laboratory produced leachates is assumed as the completion date of the leaching process. Outliers for holding time are based on USEPA SW 846, APHA, AS and NEPM (1999). A listing of breaches is provided in the Summary of Outliers.

Holding times for leachate methods (excluding elutriates) vary according to the analytes being determined on the resulting solution. For non -volatile analytes, the holding time compliance assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These soil holding times are: Organics (14 days); Mercury (28 days) & other metals (180 days). A recorded breach therefore does not guarantee a breach for all non-volatile parameters.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural (EA005-P)							
MW01B, MW02, MW03, MW04, MW05, MW101	**04-APR-2012**	---	04-APR-2012	----	**04-APR-2012**	04-APR-2012	✓
EA015: Total Dissolved Solids							
Clear Plastic Bottle - Natural (EA015H)							
MW01B, MW02, MW03, MW04, MW05, MW101	**04-APR-2012**	----	----	----	**11-APR-2012**	11-APR-2012	✓
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)							
MW01B, MW02, MW03, MW04, MW05, MW101	**04-APR-2012**	---	01-OCT-2012	----	**05-APR-2012**	01-OCT-2012	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft							
Amber Glass Bottle - Unpreserved (EP071)							
MW01B, MW02, MW03, MW04, MW05, MW101, RB, TB	**04-APR-2012**	**07-APR-2012**	11-APR-2012	✓	**10-APR-2012**	17-MAY-2012	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
MW01B, MW02, MW03, MW04, MW05, MW101	**04-APR-2012**	**07-APR-2012**	11-APR-2012	✓	**10-APR-2012**	17-MAY-2012	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
MW01B, MW02, MW03, MW04, MW05, MW101, RB, TB	**04-APR-2012**	**11-APR-2012**	18-APR-2012	✓	**11-APR-2012**	18-APR-2012	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft							
Amber VOC Vial - Sulfuric Acid (EP080)							
MW01B, MW02, MW03, MW04, MW05, MW101, RB, TB	**04-APR-2012**	**11-APR-2012**	18-APR-2012	✓	**11-APR-2012**	18-APR-2012	✓

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(where) 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: **WATER**

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)							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	16	**12.5**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
pH by PC Titrator	EA005-P	2	20	**10.0**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Dissolved Solids (High Level)	EA015H	4	36	**11.1**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	**10.0**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	16	**6.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	6	**16.7**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Dissolved Solids (High Level)	EA015H	2	36	**5.6**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	9	**11.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	**5.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	16	**6.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	6	**16.7**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Dissolved Solids (High Level)	EA015H	2	36	**5.6**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	9	**11.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	**5.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	16	**6.3**	**5.0**	✓	ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	**5.0**	**5.0**	✓	ALS QCS3 requirement

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 by PC Titrator	EA005-P	WATER	APHA 21st ed. 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Total Dissolved Solids (High Level)	EA015H	WATER	In-House, APHA 21st ed., 2540C A gravimetric procedure that determines the amount of `filterable` residue in an aqueous sample. A well-mixed sample is filtered through a glass fibre filter (1.2um). The filtrate is evaporated to dryness and dried to constant weight at 180+/-5C. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): Samples are 0.45 um filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

Preparation Methods	Method	Matrix	Method Descriptions
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 500 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2). ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW 846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

- **For all matrices, no Method Blank value outliers occur.**
- **For all matrices, no Duplicate outliers occur.**
- **For all matrices, no Laboratory Control outliers occur.**
- **For all matrices, no Matrix Spike outliers occur.**

Regular Sample Surrogates

- **For all regular sample matrices, no surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- **No Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- **No Quality Control Sample Frequency Outliers exist.**

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

SAMPLE RECEIPT ADVICE

Client:

Parsons Brinckerhoff Aust. Pty Ltd (7-11)
GPO Box 5394
Sydney NSW 2001

ph: 02 9272 5100
Fax: 02 9272 5101

Attention: Andrew Hill

Sample log in details:

Your reference:	**2277, St Clair**
Envirolab Reference:	**71192**
Date received:	30/03/12
Date results expected to be reported:	**10/04/12**

Samples received in appropriate condition for analysis:	YES
No. of samples provided	1 Soil
Turnaround time requested:	Standard
Temperature on receipt	Cool
Cooling Method:	Ice
Sampling Date Provided:	

Comments:

Samples will be held for 1 month for water samples and 2 months for soil samples from date of receipt of samples.

Contact details:

Please direct any queries to Aileen Hie or Jacinta Hurst
ph: 02 9910 6200 fax: 02 9910 6201
email: ahie@envirolabservices.com.au or jhurst@envirolabservices.com.au

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

SAMPLE RECEIPT ADVICE

Client:

Parsons Brinckerhoff Aust. Pty Ltd (7-11)
GPO Box 5394
Sydney NSW 2001

ph: 02 9272 5100
Fax: 02 9272 5101

Attention: Andrew Hill

Sample log in details:

Your reference:	**2277, St Clair**
Envirolab Reference:	**71192**
Date received:	30/03/12
Date results expected to be reported:	**10/04/12**

Samples received in appropriate condition for analysis:	YES
No. of samples provided	1 Soil
Turnaround time requested:	Standard
Temperature on receipt	Cool
Cooling Method:	Ice
Sampling Date Provided:	

Comments:

Samples will be held for 1 month for water samples and 2 months for soil samples from date of receipt of samples.

Contact details:

Please direct any queries to Aileen Hie or Jacinta Hurst
ph: 02 9910 6200 fax: 02 9910 6201
email: ahie@envirolabservices.com.au or jhurst@envirolabservices.com.au

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

CERTIFICATE OF ANALYSIS 71192

Client:
Parsons Brinckerhoff Aust. Pty Ltd (7-11)
GPO Box 5394
Sydney
NSW 2001

Attention: Andrew Hill

Sample log in details:

Your Reference:	**2277, St Clair**		
No. of samples:	1 Soil		
Date samples received / completed instructions received	30/03/12	/	30/03/12

Analysis Details:
Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date:	10/04/12	/	4/04/12
Date of Preliminary Report:	Not issued		

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Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:

Nancy Zhang
Chemist

Giovanni Agosti
Technical Manager

Jeremy Faircloth
Chemist

vTRH & BTEX in Soil		
Our Reference:	UNITS	71192-1
Your Reference	----------	DUP01
Date Sampled	----------	28/03/2012
Type of sample		Soil
Date extracted	-	02/04/2012
Date analysed	-	03/04/2012
vTRH C_6 - C_9	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	106

sTRH in Soil (C10-C36)		
Our Reference:	UNITS	71192-1
Your Reference	----------	DUP01
Date Sampled	----------	28/03/2012
Type of sample		Soil
Date extracted	-	02/04/2012
Date analysed	-	03/04/2012
TRH C_{10} - C_{14}	mg/kg	<50
TRH C_{15} - C_{28}	mg/kg	<100
TRH C_{29} - C_{36}	mg/kg	<100
Surrogate o-Terphenyl	%	100

PAHs in Soil		
Our Reference:	UNITS	71192-1
Your Reference	----------	DUP01
Date Sampled	----------	28/03/2012
Type of sample		Soil
Date extracted	-	02/04/2012
Date analysed	-	04/04/2012
Naphthalene	mg/kg	<0.1
Acenaphthylene	mg/kg	<0.1
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	<0.1
Phenanthrene	mg/kg	<0.1
Anthracene	mg/kg	<0.1
Fluoranthene	mg/kg	<0.1
Pyrene	mg/kg	<0.1
Benzo(a)anthracene	mg/kg	<0.1
Chrysene	mg/kg	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2
Benzo(a)pyrene	mg/kg	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1
Surrogate p-Terphenyl-d_{14}	%	135

Acid Extractable metals in soil		
Our Reference:	UNITS	71192-1
Your Reference	----------	DUP01
Date Sampled	----------	28/03/2012
Type of sample		Soil
Date digested	-	02/04/2012
Date analysed	-	02/04/2012
Lead	mg/kg	15

Moisture		
Our Reference:	UNITS	71192-1
Your Reference	----------	DUP01
Date Sampled	----------	28/03/2012
Type of sample		Soil
Date prepared	-	02/04/12
Date analysed	-	03/04/12
Moisture	%	10

Method ID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.
Org-012 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Inorg-008	Moisture content determined by heating at 105 deg C for a minimum of 4 hours.

QUALITY CONTROL vTRH & BTEX in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			02/04/2012	[NT]	[NT]	LCS-1	02/04/2012
Date analysed	-			03/04/2012	[NT]	[NT]	LCS-1	03/04/2012
vTRH C_6 - C_9	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-1	104%
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	LCS-1	95%
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	LCS-1	104%
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-1	105%
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	LCS-1	109%
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-1	108%
Surrogate aaa-Trifluorotoluene	%		Org-016	115	[NT]	[NT]	LCS-1	114%

QUALITY CONTROL sTRH in Soil (C10-C36)	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			02/04/2012	[NT]	[NT]	LCS-1	02/04/2012
Date analysed	-			03/04/2012	[NT]	[NT]	LCS-1	03/04/2012
TRH C_{10} - C_{14}	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-1	82%
TRH C_{15} - C_{28}	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-1	101%
TRH C_{29} - C_{36}	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-1	99%
Surrogate o-Terphenyl	%		Org-003	102	[NT]	[NT]	LCS-1	99%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			02/04/2012	[NT]	[NT]	LCS-1	02/04/2012
Date analysed	-			04/04/2012	[NT]	[NT]	LCS-1	04/04/2012
Naphthalene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	121%
Acenaphthylene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	118%
Phenanthrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	115%
Anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	110%
Pyrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	115%
Benzo(a)anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	107%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Benzo(b+k)fluoranthene	mg/kg	0.2	Org-012 subset	<0.2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	Org-012 subset	<0.05	[NT]	[NT]	LCS-1	101%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d_{14}	%		Org-012 subset	131	[NT]	[NT]	LCS-1	123%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date digested	-			02/04/2012	[NT]	[NT]	LCS-1	02/04/2012
Date analysed	-			02/04/2012	[NT]	[NT]	LCS-1	02/04/2012
Lead	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	100%

QUALITY CONTROL Moisture	UNITS	PQL	METHOD	Blank
Date prepared	-			[NT]
Date analysed	-			[NT]
Moisture	%	0.1	Inorg-008	[NT]

Report Comments:

Asbestos ID was analysed by Approved Identifier:	Not applicable for this job
Asbestos ID was authorised by Approved Signatory:	Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NA: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike : A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample) : This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batched of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes and LCS: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

CHAIN OF CUSTODY FOR SECONDARY ANALYTICAL SERVICES - ALS TO FORWARD SAMPLES TO ENVIROLAB

Company: (tick)	☐ Convenience Properties P/L ☐ 7 Eleven Stores P/L ☑ Strasburger Enterprises P/L	**Contract No:** PO 550019005**4**	**7-Eleven Site:** St. Clair
		COC No: 1	**7-Eleven Store No:** 2277
Laboratory:	**ENVIROLAB**	**Date:** 4/4/12	**7-Eleven PM:** David Raymond
Address:	12 Ashley Street Chatswood NSW 2067	**Report No:**	**Quotation No:** **1075**
Attention:	Aileen Hee	**Comments:**	

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 71458

Date Received: 5/4/12
Time Received: 14:00
Received by: AW
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

LAB ID	Sample ID	Sample Date	Matrix Soild (S) Water (W)	Analysis Required																		
				HOLD	S-4 TPH(C6-C36)/BTEX	W-4 TPH(C6-C36)/BTEX	S-6 TPH(C6-C36)/BTEX plus Pb	W-6 TPH(C6-C36)/BTEX plus Pb	S-7 TPH(C6-C36)/BTEX plus PAH	W-7 TPH(C6-C36)/BTEX plus PAH	P-16 IWRG 621	P-16/1 + CrVI IWRG 621 metals (As, Cd, CrVI, Cu, Pb, Hg, Mo, Ni, Sn, Se, Ag, Zn)		W-28 Natural Attenuation Indicators (nitrate, ferrous iron, sulphate, methane)		S-21 TPH (C6-C36), BTEX, PAH, Pb	W-21 TPH (C6-C36), BTEX, PAH, Pb	pH	TDS			
1	DUP01 (St Clair)	4/4/12	W			X																

Consultant contact name: Andrew Hill / Parsons Brinckerhoff **Phone:** 9272 5195 **Mobile:** 0403 373 206

Forward Results to: ahill@pb.com.au **Turnaround:** Standard (5 days)

Relinquished By: R. Aaby **Date / Time:** 13:35 **Received By:** Alex W. **Date / Time:** 5/4/12 14:00

Relinquished By: ..... **Date / Time:** ..... **Received By:** ..... **Date / Time:** .....

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

SAMPLE RECEIPT ADVICE

Client:

Parsons Brinckerhoff Aust. Pty Ltd (7-11)
GPO Box 5394
Sydney NSW 2001

ph: 02 9272 5100
Fax: 02 9272 5101

Attention: Andrew Hill

Sample log in details:

Your reference:	**2277, St Clair**
Envirolab Reference:	**71458**
Date received:	05/04/2012
Date results expected to be reported:	**16/04/12**

Samples received in appropriate condition for analysis:	YES
No. of samples provided	1 Water
Turnaround time requested:	Standard
Temperature on receipt	Cool
Cooling Method:	Ice
Sampling Date Provided:	

Comments:

Samples will be held for 1 month for water samples and 2 months for soil samples from date of receipt of samples.

Contact details:

Please direct any queries to Aileen Hie or Jacinta Hurst
ph: 02 9910 6200 fax: 02 9910 6201
email: ahie@envirolabservices.com.au or jhurst@envirolabservices.com.au

Envirolab Services Pty Ltd
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12 Ashley St Chatswood NSW 2067
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CERTIFICATE OF ANALYSIS 71458

Client:
Parsons Brinckerhoff Aust. Pty Ltd (7-11)
GPO Box 5394
Sydney
NSW 2001

Attention: Andrew Hill

Sample log in details:

Your Reference:	**2277, St Clair**		
No. of samples:	1 Water		
Date samples received / completed instructions received	05/04/2012	/	05/04/2012

Analysis Details:
Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date:	16/04/12	/	12/04/12
Date of Preliminary Report:	Not issued		

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Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:

Nancy Zhang
Chemist

vTRH & BTEX in Water		
Our Reference:	UNITS	71458-1
Your Reference	----------	Dup01 (St Clair)
Date Sampled	----------	4/04/2012
Type of sample		Water
Date extracted	-	05/04/2012
Date analysed	-	06/04/2012
TRH C_6 - C_9	µg/L	<10
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Surrogate Dibromofluoromethane	%	100
Surrogate toluene-d8	%	98
Surrogate 4-BFB	%	99

sTRH in Water (C10-C36)		
Our Reference:	UNITS	71458-1
Your Reference	----------	Dup01 (St Clair)
Date Sampled	----------	4/04/2012
Type of sample		Water
Date extracted	-	10/04/2012
Date analysed	-	11/04/2012
TRH C_{10} - C_{14}	µg/L	<50
TRH C_{15} - C_{28}	µg/L	<100
TRH C_{29} - C_{36}	µg/L	<100
Surrogate o-Terphenyl	%	91

Method ID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.

QUALITY CONTROL vTRH & BTEX in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			05/04/2012	[NT]	[NT]	LCS-W1	05/04/2012
Date analysed	-			06/04/2012	[NT]	[NT]	LCS-W1	06/04/2012
TRHC$_6$ - C$_9$	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W1	112%
Benzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	112%
Toluene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	112%
Ethylbenzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	111%
m+p-xylene	µg/L	2	Org-016	<2	[NT]	[NT]	LCS-W1	112%
o-xylene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	111%
Surrogate Dibromofluoromethane	%		Org-016	96	[NT]	[NT]	LCS-W1	98%
Surrogate toluene-d8	%		Org-016	100	[NT]	[NT]	LCS-W1	99%
Surrogate 4-BFB	%		Org-016	99	[NT]	[NT]	LCS-W1	99%

QUALITY CONTROL sTRH in Water (C10-C36)	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			10/04/2012	[NT]	[NT]	LCS-W2	10/04/2012
Date analysed	-			11/04/2012	[NT]	[NT]	LCS-W2	11/04/2012
TRHC$_{10}$ - C$_{14}$	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W2	79%
TRHC$_{15}$ - C$_{28}$	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W2	118%
TRHC$_{29}$ - C$_{36}$	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W2	109%
Surrogate o-Terphenyl	%		Org-003	100	[NT]	[NT]	LCS-W2	140%

Report Comments:

Asbestos ID was analysed by Approved Identifier:	Not applicable for this job
Asbestos ID was authorised by Approved Signatory:	Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NA: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike : A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample) : This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batched of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes and LCS: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

Attachment G

Limitations

G.1 Scope of services

This environmental site assessment report ('the report') has been prepared in accordance with this scope of services set out in the contract, or as otherwise agreed, between the Client and Parsons Brinckerhoff ('scope of services'). In some circumstances the scope of services may have been limited by a range of factors such as time, budget, access and/or site disturbance constraints.

G.2 Reliance on data

In preparing the report, Parsons Brinckerhoff has relied upon data, surveys, analyses, designs, plans and other information provided by the Client and other individuals and organisations, most of which are referred to in the report ('the data'). Except as otherwise stated in the report, Parsons Brinckerhoff has not verified the accuracy or completeness of the data. To the extent that the statements, opinion, facts, information, conclusions and/or recommendations in the report ('conclusions') are based in whole or part on the data, those conclusions are contingent upon the accuracy and completeness of the data. Parsons Brinckerhoff will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to Parsons Brinckerhoff.

G.3 Environmental conclusions

In accordance with the scope of services, Parsons Brinckerhoff has relied upon the data and has conducted environmental field monitoring and/or testing in the preparation of the report. The nature and extent of monitoring and/or testing conducted is described in the report.

On all sites, varying degrees of non-uniformity of the vertical and horizontal soil or groundwater conditions are encountered. Hence no monitoring, common testing or sampling technique can eliminate the possibility that monitoring or testing results/samples are not totally representative of soil and/or groundwater conditions encountered. The conclusions are based upon the data and the environmental field monitoring and/or testing and are therefore merely indicative of the environmental condition of the site at the time of preparing the report, including the presence or otherwise of contaminants or emissions.

Also, it should be recognised that site conditions, including the extent and concentration of contaminants, can change with time.

Within the limitations imposed by the scope of services, the monitoring, testing, sampling and preparation of this report have been undertaken and performed in a professional manner, in accordance with generally accepted practices and using a degree of skill and care ordinarily exercised by reputable environmental consultants under similar circumstances. No other warranty, expressed or implied, is made.

G.4 Report for benefit of client & other parties

The report has been prepared exclusively for the benefit of the client. Parsons Brinckerhoff will not be liable to any other person or organisation and assumes no responsibility to any other person or organisation for or in relation to any matter dealt with or conclusions expressed in the report, or for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusions expressed in the report (including without limitation matters arising from any negligent act or omission of Parsons Brinckerhoff or for any loss or damage suffered by any other party relying upon the matters dealt with or conclusions expressed in the report). No person or organisation other than the Client and a purchaser of the site from the Client is entitled to rely upon the report or the accuracy or completeness of any conclusions and such other parties should make their own enquiries and obtain independent advice in relation to such matters.

G.5 Other limitations

Parsons Brinckerhoff will not be liable to update or revise the report to take into account any events or emergent circumstances or facts occurring or becoming apparent after the date of the report.
The scope of services did not include any assessment of the title to or ownership of the properties, buildings and structure referred to in the report nor the application or interpretation of laws in the jurisdiction in which those properties, buildings and structures are located.