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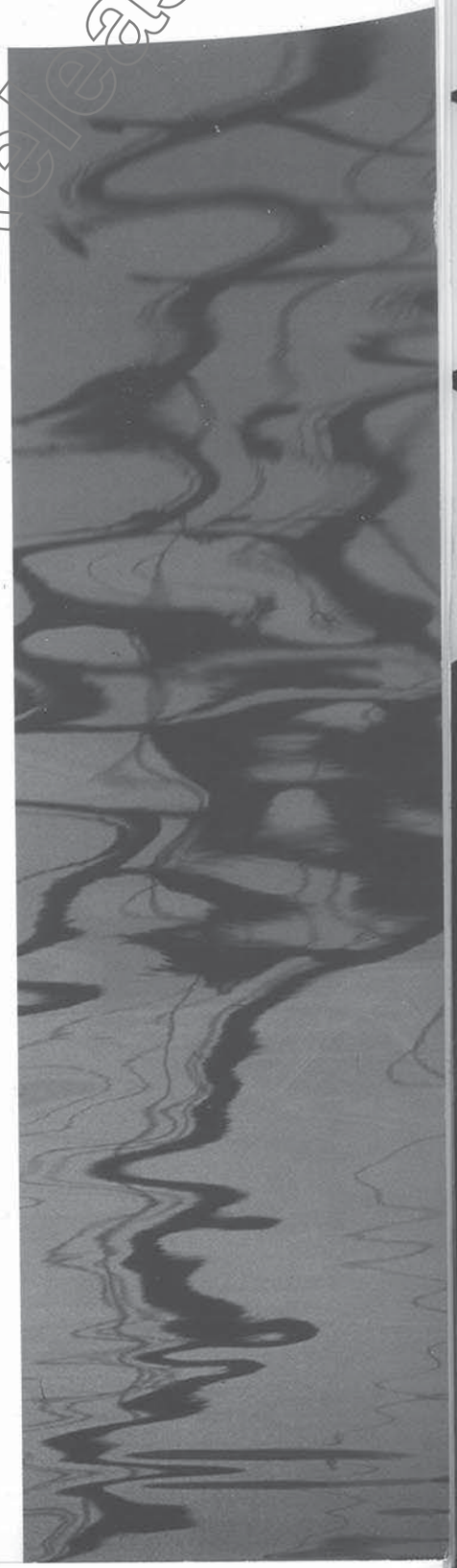
Groundwater Monitoring

Location:
Former Telstra Engineering Centre
Newstead, Queensland
(OTEK Job No: B2092)

Prepared for:
Property Solutions Australia Pty Ltd
Fortitude Valley, Queensland

Date Prepared:
2 August 2002



Environmental Professionals

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Groundwater Monitoring

Former Telstra Engineering Centre
650 Wickham Street
NEWSTEAD QLD 4006
(OTEK Job No: B2092)

Prepared for:

Property Solutions Australia Pty Ltd
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1 INTRODUCTION

Property Solutions Group Australia Pty Ltd (Property Solutions) requested OTEK Australia Pty Ltd (OTEK) perform groundwater sampling at the former Telstra Engineering Centre located on Wickham Street in Newstead, Queensland. Field activities were performed on 15 July 2002.

The purpose of the groundwater monitoring was to evaluate hydrocarbon, metal, organochlorine/organophosphorus (OC/OP) pesticides and phenol impact to the groundwater present on site.

2 BACKGROUND INFORMATION

Groundwater monitoring was previously conducted by OTEK at the site in March 2001 as detailed in the following report:

- Extent Assessment, Telstra Engineering Centre, Newstead, Queensland, prepared for Bovis Lend Lease by OTEK Australia Pty Ltd, 1 May 2001.

Analysis of water samples obtained in March 2001 indicated total Polycyclic Aromatic Hydrocarbon (PAH) concentrations above the National Environment Protection Measure (NEPM) Groundwater Investigation Level (GIL) for aquatic freshwater ecosystems in Monitor Well MW-2. Naphthalene was the primary contaminant and the concentration exceeded the Australian and New Zealand Environment and Conservation Council (ANZECC) National Quality Water Management Strategy (NQWMS) freshwater trigger value. PAH concentrations in all other monitor wells (MW-1 and MW-3 to MW-7) were below regulatory criteria (refer to Table 1).

Arsenic concentrations exceeded NEPM GILs and/or ANZECC NQWMS freshwater trigger values in Monitor Wells MW-1, MW-3 and MW-5. Nickel concentrations exceeded ANZECC NQWMS freshwater trigger values in Monitor Wells MW-1 to MW-5 and MW-7. Lead concentrations were above the NEPM GIL and ANZECC NQWMS freshwater trigger value in Monitor Wells MW-1, MW-4 and MW-7. Zinc concentrations exceeded the NEPM GIL and ANZECC NQWMS freshwater trigger value in Monitor Wells MW-1 to MW-5 and MW-7. The zinc concentration detected in Monitor Well MW-6 was above ANZECC NQWMS freshwater trigger value but below the NEPM GIL (refer to Table 2).

3 FIELD ACTIVITIES

OTEK's field activities at the site consisted of inspection of the condition of the monitor wells, measurement of depth to water, purging and sampling of the monitor wells. These activities were

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performed on 15 July 2002. The locations of the monitor wells and other pertinent site features are shown on Figure 1. Details of the methods utilised during the monitor well sampling program are contained within Appendix A.

Groundwater samples obtained were transferred to the laboratory for analytical testing under proper sample preservation and chain of custody procedures.

4 ANALYTICAL LABORATORY TESTING

Analytical testing was conducted by Amdel of Asquith, New South Wales (NATA approved). All samples were analysed for Benzene, Toluene, Ethylbenzene, total Xylenes (BTEX), Total Petroleum Hydrocarbons (TPH), PAHs, metals (arsenic, cadmium, chromium, copper, nickel, lead, zinc and mercury), OC/OP pesticides, phenols and a selection of volatile hydrocarbons (VHCs). The analytical data as presented by Amdel is contained within Appendix B.

5 EVALUATION OF DATA

Depth to groundwater measurements obtained on 15 July 2002 were used to calculate groundwater flow at the site. Groundwater was measured at depths ranging from 1.065 to 2.900 metres Below Ground Surface (mBGS). The depth to water value obtained for Monitor Well MW-1 was considered an anomaly as the depth to water measured following well purging and recharging was significantly greater (3.100 compared to 1.065mBGS). This may be due to siltation of the well packing material resulting in accumulation of surface water in the well rather than true groundwater. The data obtained for Monitor Well MW-1 was therefore not used in calculations of groundwater flow rate and direction. Groundwater was determined to be flowing to the south-west at a rate of 0.101 to 1.010 m/year. This groundwater flow rate and direction is consistent with that previously determined for this site. The groundwater elevations and contours are shown on Figure 2.

Field observations of the water from the monitor wells indicated no hydrocarbon sheens in any of the monitor wells sampled (Monitor Well MW-4 was not sampled as it could not be located). A strong tar-like smell was detected in Monitor Wells MW-2 and, to a lesser extent, MW-1. The water removed from these monitor wells was black in colour. No odours were detected in Monitor Wells MW-3 and MW-5 to MW-7 but the water was a cloudy brown colour.

Analytical testing indicated total PAH concentrations above the NEPM GIL in Monitor Wells MW-1 and MW-2. Naphthalene was the primary PAH constituent in both monitor well samples and concentrations exceeded the ANZECC NQWMS freshwater trigger

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value (refer to Table 1). In comparison to the March 2002 sampling round, the naphthalene concentration in Monitor Well MW-1 had increased from below laboratory PQL to above the ANZECC NQWMS freshwater trigger value (refer to Table 1). In contrast, the concentrations of naphthalene and other PAH constituents detected in Monitor Well MW-2 had decreased between March 2001 and July 2002. PAH concentrations in all other monitor wells sampled were below relevant criteria or laboratory PQL in both sampling rounds (refer to Table 1).

Analytical testing of monitor well samples indicated arsenic concentrations in excess of regulatory criteria in Monitor Wells MW-1, MW-5 and MW-7. In comparison to the March 2001 sampling round, arsenic concentrations increased in Monitor Wells MW-1, MW-2, MW-5 and MW-7, decreased in Monitor Well MW-3 and remained relatively stable in Monitor Well MW-6 (refer to Table 2).

Analytical testing indicated a chromium concentration above the ANZECC NQWMS freshwater trigger value and NEPM GIL in Monitor Well MW-5. Copper concentrations above the ANZECC NQWMS freshwater trigger value were detected in Monitor Wells MW-1 to MW-3 and MW-5 and above NEPM GIL in Monitor Well MW-7 (refer to Table 2). As the laboratory Practical Quantitation Limits (PQL) for chromium and copper in the March 2001 sampling round were above concentrations detected in the July 2002 sampling round (Monitor Well MW-5 chromium concentration excepted), an accurate comparison between the two sampling rounds cannot be made for these metals.

Analytical testing indicated nickel concentrations above the ANZECC NQWMS freshwater trigger value in Monitor Wells MW-1, MW-2, MW-5 and MW-7. Comparison with the March 2001 sampling round indicates a general decrease in nickel concentrations (refer to Table 2).

Analytical testing indicated a lead concentration above the ANZECC NQWMS freshwater trigger value in Monitor Well MW-7 and concentrations below regulatory criteria or laboratory PQL in all other monitor wells sampled (refer to Table 2). A decrease in lead concentration in comparison to the March 2001 sampling round is apparent in Monitor Wells MW-1 and MW-7. An accurate comparison between sampling rounds cannot be made for the other monitor wells due to differences in laboratory PQL (refer to Table 2).

Analytical testing indicated zinc concentrations above regulatory criteria in all monitor wells sampled. A decrease in zinc concentrations between the March 2001 and July 2002 sampling rounds is apparent in all monitor wells sampled (refer to Table 2).

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Analytical testing indicated cadmium concentrations below regulatory criteria or laboratory PQL in all monitor wells sampled. Mercury concentrations were measured in the July 2002 sampling round only and analytical testing indicated levels below regulatory criteria or laboratory PQL (refer to Table 2).

Analytical testing of monitor well samples for BTEX and TPH indicated ethylbenzene and TPH (C_{10}-C_{14}) concentrations above regulatory criteria in Monitor Well MW-2 (refer to Table 3). BTEX and TPH concentrations were below regulatory criteria or laboratory Practical Quantitation Limits (PQL) in all other monitor wells sampled (refer to Table 3).

The single selected water sample analysed (Monitor Well MW-2) contained OC/OP pesticide, phenol and VHC concentrations below laboratory PQL (refer to Tables 4 and 5).

6 CONCLUSIONS

Based on the groundwater monitoring results, the following conclusions can be derived:

- Groundwater was measured between 1.065 and 2.900 mBGS across the site and was calculated to be flowing towards the south-west at a rate of 0.1 to 1.0 m/year;
- No hydrocarbon sheens were observed in any of the monitor wells sampled. A strong tar-like smell was detected in Monitor Wells MW-2 and, to a lesser extent, MW-1. No odours were detected in Monitor Wells MW-3 and MW-5 to MW-7;
- Total PAH concentrations above the NEPM GIL were detected in Monitor Wells MW-1 and MW-2. Naphthalene was the primary PAH constituent in both monitor well samples and concentrations exceeded the ANZECC NQWMS freshwater trigger value;
- Analytical testing indicated arsenic concentrations in excess of regulatory criteria in Monitor Wells MW-1, MW-5 and MW-7;
- Analytical testing indicated copper concentrations above regulatory criteria in Monitor Wells MW-1 to MW-3, MW-5 and MW-7 and a chromium concentration above regulatory criteria in Monitor Well MW-5;
- Analytical testing indicated nickel concentrations above the ANZECC NQWMS freshwater trigger value in Monitor Wells MW-1, MW-2, MW-5 and MW-7;
- Analytical testing indicated a lead concentration above the ANZECC NQWMS freshwater trigger value in Monitor Well

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MW-7 and concentrations below regulatory criteria or laboratory PQL in all other monitor wells sampled;

- Analytical testing indicated zinc concentrations above regulatory criteria in all monitor wells sampled;
- Analytical testing indicated cadmium concentrations below regulatory criteria or laboratory PQL in all monitor wells sampled;
- Mercury concentrations were measured in the July 2002 sampling round only and analytical testing indicated levels below regulatory criteria or laboratory PQL;
- Analytical testing for BTEX and TPH indicated ethylbenzene and TPH (C_{10}-C_{14}) concentrations above regulatory criteria in Monitor Well MW-2. BTEX and TPH concentrations were below regulatory criteria or laboratory PQL in all other monitor wells sampled; and
- Monitor Well MW-2 contained OC/OP pesticide, phenol and VHC concentrations below laboratory PQL.

In summary, the recent groundwater monitoring results indicate TPH, ethylbenzene and PAH (primarily naphthalene) concentrations above relevant regulatory criteria in Monitor Well MW-2. Migration of the naphthalene impact, detected previously in Monitor Well MW-2, towards the south-west is indicated by the detection of naphthalene in the down-gradient Monitor Well, MW-1, in this recent sampling round. Heavy metals concentrations above regulatory criteria were detected in all monitor wells sampled, however, there is no discernable pattern of groundwater migration of dissolved metals across the site. Comparison of groundwater sampling data between the March 2001 and July 2002 sampling rounds shows a general increase in arsenic concentrations and a decline in nickel and zinc concentrations.

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7 LIMITATIONS

The conclusions presented in this report are relevant to the condition of the site and the state of legislation currently enacted as at the date of this report. OTEK does not make any representation or warranty that the conclusions in this report will be applicable in the future as there may be changes in the condition of the site, applicable legislation or other factors that would affect the conclusions contained in this report.

OTEK has used a degree of skill and care ordinarily exercised by reputable members of our profession practising in the same or similar locality. Conclusions are based on representative samples or locations at the site, the intensity of those samples being in accordance with the usual levels of testing carried out for this type of investigation. Due to the inherent variability in natural soils we cannot warrant that the whole overall condition of the site is identical or substantially similar to the representative samples.

This report has been prepared for Property Solutions Group Australia Pty Ltd for the specific purpose to which it refers. No responsibility is accepted to any third party and neither the whole of the report or any part or reference thereto may be published in any document, statement or circular nor in any communication with third parties without our prior written approval of the form and context in which it will appear.

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TABLES

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TABLE 1
ANALYTICAL SUMMARY – WATER SAMPLES (POLYCYCLIC AROMATIC HYDROCARBONS (PAH))
FORMER TELSTRA ENGINEERING CENTRE
650 WICKHAM STREET
NEWSTEAD, QUEENSLAND

Sample ID	Date Sample Obtained	Naphthalene (µg/L)	2-Methylnaphthalene (µg/L)	Acenaphthylene (µg/L)	Acenaphthene (µg/L)	Fluorene (µg/L)	Phenanthrene (µg/L)	Anthracene (µg/L)	Fluoranthene (µg/L)	Pyrene (µg/L)	Benzo[a]anthracene (µg/L)	Chrysene (µg/L)	Benzo[b,k]fluoranthene (µg/L)	Benzo[a]pyrene (µg/L)	Indeno[1,2,3-cd]pyrene (µg/L)	Dibenz[a,h]anthracene (µg/L)	Benzo[g,h,i]perylene (µg/L)	Total Polyaromatic Hydrocarbons (µg/L)
MW-1	15/03/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-1	15/07/02	18	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	18
MW-2	15/03/01	12200	845	ND	614	319	69	21	3	ND	ND	ND	ND	ND	ND	ND	ND	14071
MW-2	15/07/02	8000	--	2	540	190	49	9	2	1	ND	ND	ND	ND	ND	ND	ND	8793
MW-3	15/03/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-3	15/07/02	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-4	15/03/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ANZECC NQWMS Freshwater trigger values		16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEPM GILs Aquatic Ecosystems – Fresh Waters		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
PQL		2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1
Laboratory Methodology		EP-075B-WS/E0110																

Notes:

- Sample ID: MW-# denotes a water sample obtained from a monitor well;
- "ND" denotes concentrations not detected above the laboratory Practical Quantitation Limit (PQL);
- '-' denotes that no relevant criteria is available;
- '--' denotes analytical testing not requested;
- Australian and New Zealand Environment and Conservation Council (ANZECC) National Quality Water Management Strategy (NQWMS) trigger values for protection of freshwater (October, 2000). Level of protection used is 95% of species (slightly to moderately disturbed ecosystems);
- NEPM groundwater investigation levels (GILs) obtained from National Environmental Protection (Assessment of Site Contamination) Measure (NEPM), December 1999, Schedule B(1); and
- Light shading indicates concentration in excess of ANZECC NQWMS freshwater trigger value and darker shading indicates concentration in excess of NEPM GIL.

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TABLE 1 (CONT'D)
ANALYTICAL SUMMARY – WATER SAMPLES (POLYCYCLIC AROMATIC HYDROCARBONS (PAH))
FORMER TELSTRA ENGINEERING CENTRE
650 WICKHAM STREET
NEWSTEAD, QUEENSLAND

Sample ID	Date Sample Obtained	Naphthalene (µg/L)	2-Methylnaphthalene (µg/L)	Acenaphthylene (µg/L)	Acenaphthene (µg/L)	Fluorene (µg/L)	Phenanthrene (µg/L)	Anthracene (µg/L)	Fluoranthene (µg/L)	Pyrene (µg/L)	Benzo[a]anthracene (µg/L)	Chrysene (µg/L)	Benzo[b,k]fluoranthene (µg/L)	Benzo[a]pyrene (µg/L)	Indeno[1,2,3-cd]pyrene (µg/L)	Dibenz[a,h]anthracene (µg/L)	Benzo[g,h,i]perylene (µg/L)	Total Polyaromatic Hydrocarbons (µg/L)
MW-5	15/03/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-5	15/07/02	1	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1
MW-6	15/03/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-6	15/07/02	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-7	15/03/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-7	15/07/02	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ANZECC NQWMS Freshwater trigger values		16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEPM GILs Aquatic Ecosystems – Fresh Waters		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
PQL		2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1
Laboratory Methodology		EP-075B-WS/E0110																

Notes:

- Sample ID: MW-# denotes a water sample obtained from a monitor well;
- "ND" denotes concentrations not detected above the laboratory Practical Quantitation Limit (PQL);
- '-' denotes that no relevant criteria is available;
- '--' denotes analytical testing not requested;
- Australian and New Zealand Environment and Conservation Council (ANZECC) National Quality Water Management Strategy (NQWMS) trigger values for protection of freshwater (October, 2000). Level of protection used is 95% of species (slightly to moderately disturbed ecosystems);
- NEPM groundwater investigation levels (GILs) obtained from National Environmental Protection (Assessment of Site Contamination) Measure (NEPM), December 1999, Schedule B(1); and
- Light shading indicates concentration in excess of ANZECC NQWMS freshwater trigger value and darker shading indicates concentration in excess of NEPM GIL.

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TABLE 2
ANALYTICAL SUMMARY - WATER SAMPLES (METALS)
FORMER TELSTRA ENGINEERING CENTRE
650 WICKHAM STREET
NEWSTEAD, QUEENSLAND

Sample ID	Date Sample Obtained	As Arsenic (µg/L)	Cd Cadmium (µg/L)	Cr Chromium (µg/L)	Cu Copper (µg/L)	Ni Nickel (µg/L)	Pb Lead (µg/L)	Zn Zinc (µg/L)	Hg Mercury (µg/L)
MW-1	15/03/01	60	ND	ND	ND	60	20	280	-
MW-1	15/07/02	96	ND	10	5	31	2	211	0.05
MW-2	15/03/01	ND	ND	ND	ND	20	ND	100	-
MW-2	15/07/02	12	ND	10	3	12	ND	21	ND
MW-3	15/03/01	40	ND	ND	ND	30	ND	150	-
MW-3	15/07/02	10	ND	9	2	4	ND	14	ND
MW-4	15/03/01	ND	ND	ND	ND	140	20	580	-
MW-5	15/03/01	100	ND	ND	ND	110	ND	430	-
MW-5	15/07/02	142	ND	12	4	88	2	284	ND
MW-6	15/03/01	20	ND	ND	ND	ND	ND	20	-
MW-6	15/07/02	17	ND	4	1	2	ND	10	ND
MW-7	15/03/01	ND	ND	ND	ND	80	10	280	-
MW-7	15/07/02	26	ND	5	6	68	4	445	ND
ANZECC NQWMS Freshwater trigger values		18-24	0.2	--*	1.4	11	3.4	8.0	0.6**
NEPM GILs Aquatic Ecosystems – Fresh Water		50	0.2-2.0	10	2-5	15-150	1-5	5-50	0.1
PQL		10/1	5/0.1	10/1	10/1	10/1	10/1	10/2	0.05
Laboratory Methodology		EG-005F/E4870							E48501

Notes:

- Sample ID: MW-# denotes a water sample obtained from a monitor well;
- "ND" denotes concentrations not detected above the laboratory Practical Quantitation Limit (PQL);
- '-' denotes analytical testing not requested;
- '--' denotes that no relevant criteria is available;
- Australian and New Zealand Environment and Conservation Council (ANZECC) National Quality Water Management Strategy (NQWMS) trigger values for protection of freshwater (October, 2000). Level of protection used is 95% of species (slightly to moderately disturbed ecosystems). * denotes trigger value for chromium not available, however the trigger value for hexavalent chromium is 1 µg/L, ** denotes trigger value for inorganic mercury;
- NEPM Groundwater Investigation Levels (GILs) obtained from National Environmental Protection (Assessment of Site Contamination) Measure (NEPM), December 1999, Schedule B(1); and
- Lighter shading denotes a concentration in excess of ANZECC NQWMS trigger value and darker shading indicates concentration also in excess of NEPM GIL.

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TABLE 3
ANALYTICAL SUMMARY - MONITOR WELL SAMPLES (BTEX & TPH)
FORMER TELSTRA ENGINEERING CENTRE
650 WICKHAM STREET
NEWSTEAD, QUEENSLAND

Sample ID	Date Sample Obtained	BTEX					TPH				
		Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Xylenes (µg/L)	Total BTEX (µg/L)	C_6-C_9 (µg/L)	C_{10}-C_{14} (µg/L)	C_{15}-C_{28} (µg/L)	C_{29}-C_{36} (µg/L)	Total TPH (µg/L)
MW-1	15/07/02	ND	ND	ND	1	1	ND	240	ND	ND	240
MW-2	15/07/02	20	9	160	105	294	300	23000	3180	ND	26480
MW-3	15/07/02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-5	15/07/02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-6	15/07/02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-7	15/07/02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ANZECC NQWMS Freshwater trigger values		950	300*	140***	550#	-	10,000**				
NEPM GILs Aquatic Ecosystems – Fresh Waters		300	300	-	-	-	-	-	-	-	-
PQL		0.5	1	1	3	^	20	20	100	100	^
Laboratory Methodology		E0010					E0230	E0221			

Notes:

- Sample ID: MW-# denotes a water sample obtained from a monitor well;
- "ND" denotes concentrations not detected above the laboratory Practical Quantitation Limit (PQL);
- "-" denotes relevant guidelines not available;
- "^" denotes that the total is the sum of individual results;
- "*" denotes Guidelines for Aquatic Ecosystems in Fresh Waters from Australian and New Zealand Environment and Conservation Council (ANZECC), 1992, Australian Water Quality Guidelines for Fresh and Marine Waters;
- "**" denotes NSW EPA Guidelines for Assessing Service Station Sites (1994), adopted from NSW Clean Waters Act (1970) and Clean Waters Regulations (1972);
- "***" denotes NSW EPA Guidelines for the Protection of Aquatic Ecosystems in fresh water (in NSW EPA Guidelines for Assessing Service Station sites (December 1994));
- ANZECC National Quality Water Management Strategy (NQWMS) trigger values for protection of freshwater (October 2000). Level of protection used is 95% of species (slightly to moderately disturbed ecosystems). # denotes sum of trigger values for *o*-xylene and *p*-xylene;
- NEPM groundwater investigation levels (GILs) obtained from National Environmental Protection (Assessment of Site Contamination) Measure (NEPM), December 1999, Schedule B(1); and
- Shading denotes a concentration in excess of ANZECC NQWMS trigger value.

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TABLE 4
ANALYTICAL SUMMARY – MONITOR WELL SAMPLES
(TOTAL OC/OP PESTICIDES)
FORMER TELSTRA ENGINEERING CENTRE
650 WICKHAM STREET
NEWSTEAD, QUEENSLAND

Sample ID	Date Sample Obtained	Total Organochlorine (OC) Pesticides (µg/L)	Total Organophosphorus (OP) Pesticides (µg/L)
MW-2	15/07/02	ND	ND
NEPM GILs Aquatic Ecosystems – Fresh Waters*		-	-
PQL		1	2
Laboratory Methodology		E0080	E0090

Notes:

- Sample ID: MW-# denotes a water sample obtained from a monitor well;
- "ND" denotes not detected above the laboratory Practical Quantitation Limit (PQL);
- NEPM groundwater investigation levels (GILs) obtained from National Environmental Protection (Assessment of Site Contamination) Measure (NEPM), December 1999, Schedule B(1); and
- * Australian and New Zealand Environment and Conservation Council (ANZECC) National Quality Water Management Strategy (NQWMS) trigger values for protection of freshwater are below the PQL attainable by any Australian laboratory.

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TABLE 5
ANALYTICAL SUMMARY – MONITOR WELL SAMPLES (PHENOLS AND VOLATILE HYDROCARBONS)
FORMER TELSTRA ENGINEERING CENTRE
650 WICKHAM STREET
NEWSTEAD, QUEENSLAND

Sample ID	Date Sample Obtained	Phenols (µg/L)								Volatile Hydrocarbons (µg/L)	
		Phenol	2-chlorophenol	2,4 dichlorophenol	2,4,6-trichlorophenol	2,3,4,6 tetrachlorophenol	Pentachlorophenol	2,4 dinitrophenol	Other Phenols	trichloroenhane	Other VHCs
MW-2	15/07/02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ANZECC NQWMS Freshwater trigger values		-	490	160	20	20	10	45	-	6500	-
NEPM GILs Aquatic Ecosystems – Fresh Waters		50	-	-	-	-	-	-	-	-	-
Practical Quantitation Limit		50	50	50	50	100	100	200	50-200	10	10
Laboratory Methodology		E0140								E0270	

Notes:

- Sample ID: MW-# denotes a water sample obtained from a monitor well;
- "ND" denotes not detected above the laboratory Practical Quantitation Limit (PQL);
- Australian and New Zealand Environment and Conservation Council (ANZECC) National Quality Water Management Strategy (NQWMS) trigger values for protection of freshwater – level of protection used is 95% of species (slightly to moderately disturbed ecosystems); and
- NEPM groundwater investigation levels (GILs) obtained from National Environmental Protection (Assessment of Site Contamination) Measure (NEPM), December 1999, Schedule B(1).

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FIGURES

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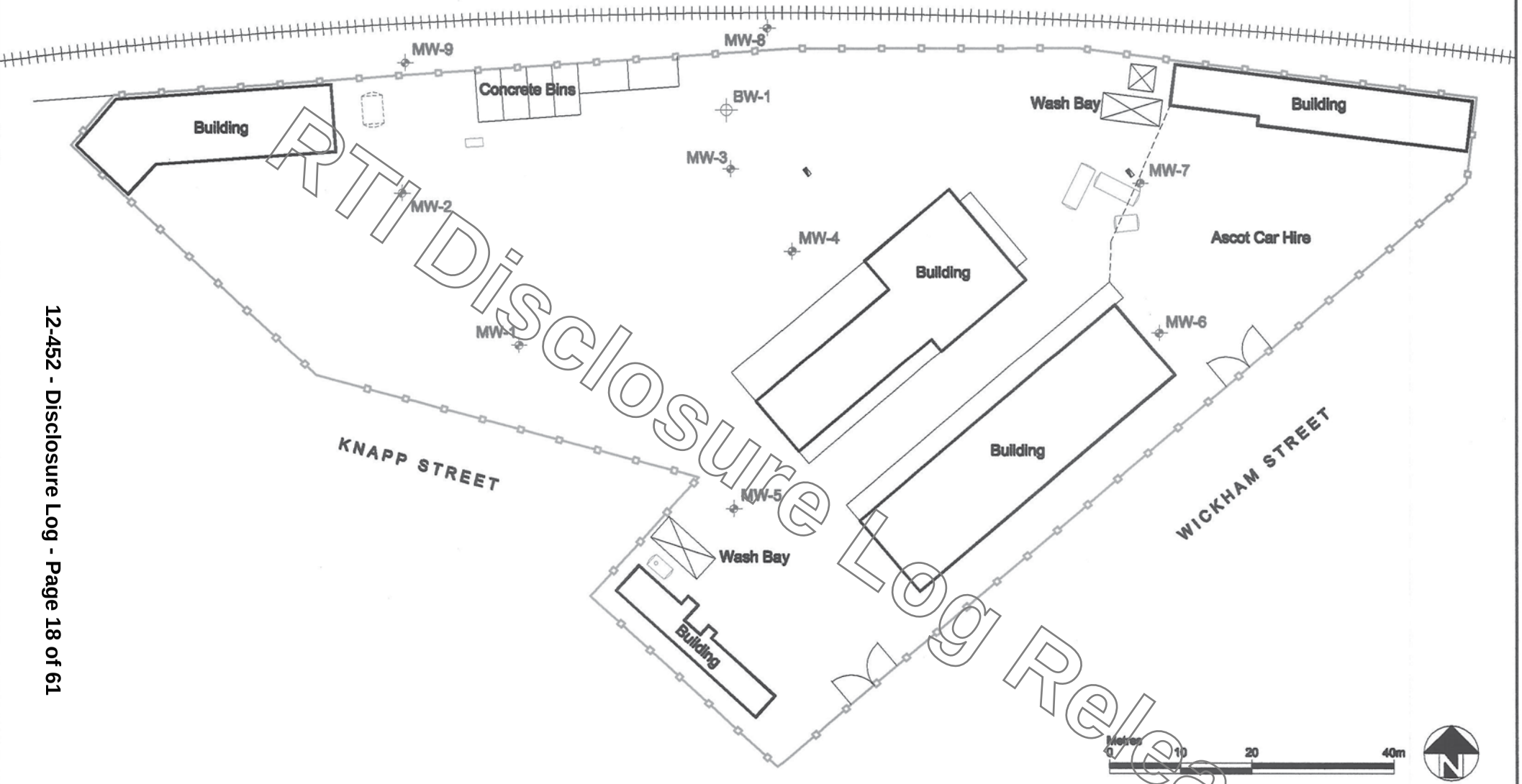

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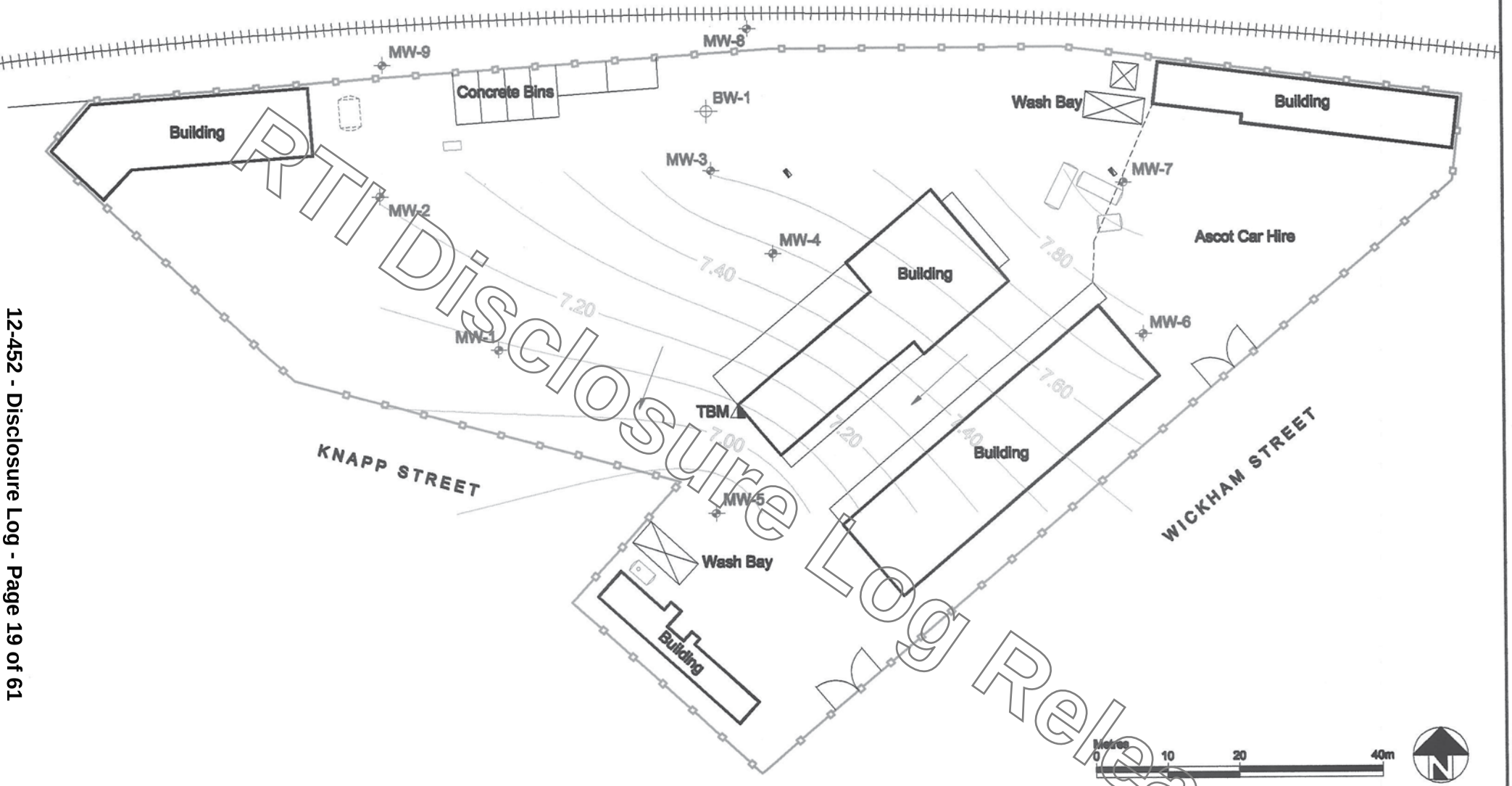
Legend

- BW-1 Bore Water Sample
- MW-# Monitor Well Location
- Bowser Location
- Fence
- Former Railway Line
- UST Location
- Former AST Location

REPORT REFERENCE	GROUNDWATER MONITORING Property Solutions Group Australia Pty Ltd Newstead, QLD
APPROXIMATE SCALE	1:750
DRAWN / DATE	GSD 30/06/02
CHECKED / DATE	2.8.02
JOB #	B2092
TITLE	SOIL BORING AND MONITOR WELL LOCATIONS
FIG. #	1



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Legend

- MW-# Monitor Well Location
- Bowser Location
- Fence
- Former Railway Line
- Hydrocarbon Staining
- Groundwater Contour
- UST Location
- Former AST Location

AECOM AUSTRALIA PTY LTD	REPORT REFERENCE: GROUNDWATER MONITORING
APPROXIMATE SCALE: 1:750	Property Solutions Group Australia Pty Ltd Newstead, QLD
DRAWN: GSD DATE: 30/06/02	CHECKED: DATE: 2-8-02 JOB #: B2092
TITLE: GROUNDWATER ELEVATIONS	FIG. #: 2

APPENDIX A

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APPENDIX A
MONITOR WELL SAMPLING PROGRAM

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The following paragraphs describe the field procedures used during the monitor well sampling program.

1. MONITOR WELL SAMPLING PROGRAM

Groundwater monitor wells provide a continual source of information on physical and chemical groundwater conditions at a site. Monitor wells permit the sampling of groundwater from the static geographic point over time. As groundwater is constantly moving, sampling and gauging monitor wells can provide information on water table (potentiometric surface) fluctuations and migration of contaminants as dissolved or phase-separated components of the groundwater system.

2. WELL DEVELOPMENT AND SAMPLING

Well development was achieved by vigorously bailing and purging the well by removing groundwater in a teflon bailer. All wells were developed on the day of sampling. The procedure used to sample monitor wells included:

i. Measure the standing water level in the well from the top of the casing;

ii. Lower a new disposable teflon bailer into the well to check for the presence of Phase-Separated Hydrocarbons (PSH);

iii. The bailer is then used to fill the sample containers (typically these containers include one 40mL vial for BTEX analysis, one litre amber glass bottle for TPH and PAH analysis, and one 250mL plastic bottle pre-treated with nitric acid for metal analysis) with groundwater from the well. The sample containers for BTEX, TPH and PAH analyses are filled so that no head space remains; and

iv. All sample containers are placed on ice immediately after sampling and transported to an analytical laboratory using Chain-of-Custody documentation and procedures for testing.

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OTEK AUSTRALIA PTY LTD

OTEK Australia Pty Ltd
29 Enterprise Street
RICHLANDS QLD 4077
Phone: (07) 3717 5100 Fax (07) 3717 5155

LEVEL SURVEY DATA SHEET

CALCULATION SHEET FOR GROUNDWATER ELEVATION

PROJECT NAME:	Property Solutions Group Australia - Newstead
PROJECT NUMBER:	B2092
PROJECT LOCATION:	650 Wickham Street, Newstead
CLIENT:	Property Solutions Group Australia
SURVEYOR:	Rob Sowerby
SURVEY DATE:	15-Jul-02
DATA ENTRY:	RBG

Survey Station	BS (Centre X)	IS (Centre X)	FS (Centre X)	HPC (RL + BS)	RL	Adj	Adj RL	Remarks	Distance (m) Top X	Bottom X	Distance	Bearing
1												
2												
3												

Sum (BS)	Sum (IS)	Sum (FS)	Sum (HPC)	Sum (RL) - RL TBM

No. of survey stations (n) =
No. survey points per station not including back sight (Station 1) =
No. survey points per station not including back sight (Station 2) =
No. survey points per station not including back sight (Station 3) =
RL first Back Sight =
RL last Fore Sight =

Data Quality Check:

Acceptable Misclosure (m) = +/-6(n)^0.5 =
=
Actual Misclosure (m) = Sum (BS) - Sum (FS) =
RL last FS - RL first BS
=
Data Correction Factor (m) = Cumulative with each survey station
= Actual Misclosure(-) / n
=

Additional Data Quality Check:

sum (IS) + sum (FS) + sum (RLs - first RL) =
sum (each HPC * number of survey points per survey station) =

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OTEK Australia Pty Ltd
29 Enterprise Street
RICHLANDS QLD 4077
Phone: **(07) 3717 5100** Fax (07) 3717 5155

GROUNDWATER LEVEL DATA

CALCULATION FOR GROUNDWATER ELEVATION

PROJECT NAME: Property Solutions Group Australia - Newstead
PROJECT NUMBER: B2092
PROJECT LOCATION: 650 Wickham Street, Newstead
CLIENT: Property Solutions Group Australia
SURVEYOR: Rob Sowerby
DATE: 15-Jul-02

STATION	ELEVATION	DEPTH TO PRODUCT	DEPTH TO WATER	PRODUCT THICKNESS	GROUNDWATER ELEVATION
TBM					
MW-1	9.748		1.065		8.683
MW-2	9.736		2.530		7.206
MW-3	9.760		2.150		7.610
MW-4					
MW-5	9.699		2.900		6.799
MW-6	9.692		1.915		7.777
MW-7	9.672		1.710		7.962
MW-8					
MW-9					
MW-10					
MW-11					
MW-12					
MW-13					

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OTEK Australia Pty Ltd
29 Enterprise Street
RICHLANDS QLD 4077
Phone: **(07) 3717 5100** Fax: (07) 3717 5155

DARCY'S LAW

CALCULATION FOR GROUNDWATER FLOW RATE

RTI Disclosure Log Release

PROJECT NAME:	Property Solutions Group Australia - Newstead
PROJECT NUMBER:	B2092
PROJECT LOCATION:	650 Wickham Street, Newstead
CLIENT:	Property Solutions Group Australia
SURVEYOR:	Rob Sowerby
DATE:	15-Jul-02

DARCY'S LAW FLOW CALCULATIONS

	CALCULATION 1	CALCULATION 2	
Elevation 1 (metres) =	7.777	7.777	INPUT
Elevation 2 (metres) =	6.799	6.799	INPUT
Distance between Elevations (metres) =	63.375	63.375	INPUT
Hydraulic Gradient (I) =	0.015	0.015	CALCULATED
Hydraulic Conductivity (K) =	1.00E-07	1.00E-06	INPUT
Effective Porosity (ne) =	0.480	0.480	INPUT
Flow (metres/year) =	0.101	1.014	CALCULATED

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APPENDIX B

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APPENDIX B
ANALYTICAL DATA

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This Laboratory is accredited by the National Association of Testing Authorities, Australia. The test(s) reported herein have been performed in accordance with its terms of accreditation. This document shall not be reproduced except in full.
NATA Accredited Laboratory Number: 1464

INDUSTRIAL SERVICES DIVISION

ABN 30 008 127 802

Correspondence to:
PO Box 514
HORNSBY NSW 1630

5 Kelray Place
ASQUITH NSW 2077
Telephone: (02) 9482 1922
Facsimile: (02) 9482 1734

CERTIFICATE OF ANALYSIS

Contents :
1. Cover Pages (2)
2. Analysis Report Pages
3. QA/QC Appendix
4. Additional Reports - External (if applicable)
5. Chain of Custody (if applicable)

Report No.	:	2E2371
Attention	:	Mr Shane Minty
Client	:	OTEK Australia : 29 Enterprise Street : RICHLANDS : QLD 4077
Samples	:	6
Reference/Order	:	B2092/20347
Project	:	BOVIS NEWSTEAD
Received Samples	:	16/07/02
Instructions	:	16/07/02
Date Reported	:	23/07/02

PLEASE SEE FOLLOWING PAGE FOR METHOD LISTING

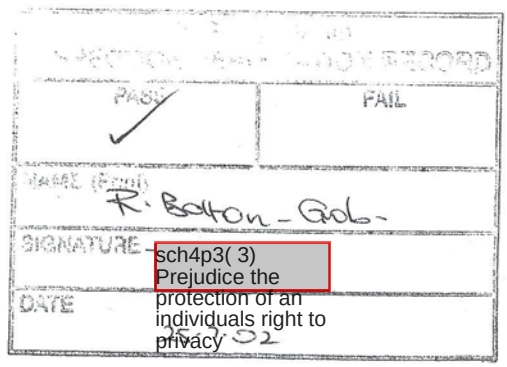
RESULTS

All samples were analysed as received. This report relates specifically to the samples as received. Results relate to the source material only to the extent that the samples as supplied are truly representative of the sample source. This report replaces any preliminary results issued. Note that for methods indicated with "*", NATA accreditation does not cover the performance of this service. Three significant figures (or 2 for <10PQL) are reported for statistical purposes only. Where "Total" concentrations are reported for organic suites of compounds this is the summation of the individual compounds and the PQL is noted for reporting purposes only. This report has been auto-authorized by NATA signatories for PDF format. Refer to the method descriptions for further information.

PLEASE SEE ATTACHED PAGES FOR RESULTS

sch4p3(3) Prejudice the protection of an individuals right to privacy

R. Mooney B.Sc.(Hons)Dip. FDA
Technical Services Manager Sydney



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Report No. : 2E2371

Please note: Where samples are collected/submitted over several days, the date on which the last samples were analysed or extracted is reported.
Unless Ferrous Iron is determined on site, the possibility of a ferrous-ferric ratio change may occur.

Method	Description	Extracted	Analysed	Authorised	
E0230	TPH C6-C9 by purge & trap	18/07/02	18/07/02	DUM	094
E0221	TPH (C10-C36)	16/07/02	17/07/02	DUM	094
E0010	Benzene,Toluene,Ethylbenzene & Xylene	18/07/02	18/07/02	DUM	094
E4870	Dissolved Metals by ICP-MS	19/07/02	19/07/02	RMO	093
E48501	Mercury low level	18/07/02	19/07/02	RMO	093
E0080	Organochlorine Pesticides	16/07/02	17/07/02	BLO	095
E00901	Organophosphorus Pesticides	18/07/02	19/07/02	BLO	095
E0110	Polycyclic Aromatic Hydrocarbons	16/07/02	18/07/02	BLO	095
E01401	Phenols by GC/MS	17/07/02	22/07/02	MNG	095
E0270	Volatile Halogenated Compounds (P&T)	17/07/02	17/07/02	DUM	094

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Job Number : 2E2371
Client : OTEK Australia
Reference : B2092/20347
Project : BOVIS NEWSTEAD

Analyte	Lab No	E78190	E78191	E78192	E78193	E78194
	Sample Id	MW-1	MW-2	MW-3	MW-5	MW-6
	PQL					
E0230 TPH in Water by P&T/GC-MS (ug/L)						
C6-C9 Fraction	20	nd	300	nd	nd	nd
E0221 TPH in Water (ug/L)						
C10-C14 Fraction	20	240	23000	nd	nd	nd
C15-C28 Fraction	100	nd	3180	nd	nd	nd
C29-C36 Fraction	100	nd	nd	nd	nd	nd
E0010 BTEX (P&T) in Water (ug/L)						
Benzene	0.5	nd	20	nd	nd	nd
Toluene	1	nd	9	nd	nd	nd
Ethylbenzene	1	nd	160	nd	nd	nd
m&p-Xylene	2	nd	39	nd	nd	nd
o-Xylene	1	1	66	nd	nd	nd
4-Bromofluorobenzene-SURROGATE	1	106%	101%	104%	101%	102%

PQL = Practical Quantitation Limit
LNR = Samples Listed not Received
nd = <PQL
-- = Not Applicable
Refer to Amdel standard laboratory qualifier codes for comments.

Soils : mg/kg (ppm) dry weight unless otherwise specified
Waters : mg/L (ppm) unless otherwise specified in Method Header
Leachates : mg/L (ppm) in leachate unless otherwise specified in Method Header

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Job Number : 2E2371
Client : OTEK Australia
Reference : B2092/20347
Project : BOVIS NEWSTEAD

Analyte	Lab No / Sample Id / PQL	E78195 / MW-7 /
E0230 TPH in Water by P&T/GC-MS (ug/L)		
C6-C9 Fraction	20	nd
E0221 TPH in Water (ug/L)		
C10-C14 Fraction	20	nd
C15-C28 Fraction	100	nd
C29-C36 Fraction	100	nd
E0010 BTEX (P&T) in Water (ug/L)		
Benzene	0.5	nd
Toluene	1	nd
Ethylbenzene	1	nd
m&p-Xylene	2	nd
o-Xylene	1	nd
4-Bromofluorobenzene-SURROGATE	1	103%

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PQL = Practical Quantitation Limit
LNR = Samples Listed not Received
nd = <PQL
-- = Not Applicable
Refer to Amdel standard laboratory qualifier codes for comments.

Soils : mg/kg (ppm) dry weight unless otherwise specified
Waters : mg/L (ppm) unless otherwise specified in Method Header
Leachates : mg/L (ppm) in leachate unless otherwise specified in Method Header

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Job Number : 2E2371
Client : OTEK Australia
Reference : B2092/20347
Project : BOVIS NEWSTEAD

Analyte	Lab No	E78190	E78191	E78192	E78193	E78194
	Sample Id	MW-1	MW-2	MW-3	MW-5	MW-6
	PQL					
E4870 Dissolved Metals in Waters						
Arsenic	0.001	0.096	0.012	0.010	0.142	0.017
Cadmium	0.0001	nd	nd	nd	nd	nd
Chromium	0.001	0.010	0.010	0.009	0.012	0.004
Copper	0.001	0.005	0.003	0.002	0.004	0.001
Nickel	0.001	0.031	0.012	0.004	0.088	0.002
Lead	0.001	0.002	nd	nd	0.002	nd
Zinc	0.002	0.211	0.021	0.014	0.284	0.010
E48501 Dissolved Mercury in Waters						
Mercury	0.00005	0.00005	nd	nd	nd	nd

PQL = Practical Quantitation Limit
LNR = Samples Listed not Received
nd = <PQL
-- = Not Applicable
Refer to Amdel standard laboratory qualifier codes for comments.

Soils : mg/kg (ppm) dry weight unless otherwise specified
Waters : mg/L (ppm) unless otherwise specified in Method Header
Leachates : mg/L (ppm) in leachate unless otherwise specified in Method Header

RTI Disclosure Log Release

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Job Number : 2E2371
Client : OTEK Australia
Reference : B2092/20347
Project : BOVIS NEWSTEAD

Analyte	Lab No / Sample Id / PQL	E78195 / MW-7 /
E4870 Dissolved Metals in Waters		
Arsenic	0.001	0.026
Cadmium	0.0001	nd
Chromium	0.001	0.005
Copper	0.001	0.006
Nickel	0.001	0.068
Lead	0.001	0.004
Zinc	0.002	0.445
E48501 Dissolved Mercury in Waters		
Mercury	0.00005	nd

PQL = Practical Quantitation Limit
LNR = Samples Listed not Received
nd = <PQL
-- = Not Applicable
Refer to Amdel standard laboratory qualifier codes for comments.

Soils : mg/kg (ppm) dry weight unless otherwise specified
Waters : mg/L (ppm) unless otherwise specified in Method Header
Leachates : mg/L (ppm) in leachate unless otherwise specified in Method Header

RTI Disclosure Log Release

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Job Number : 2E2371
Client : OTEK Australia
Reference : B2092/20347
Project : BOVIS NEWSTEAD

Analyte	Lab No	E78191				
	Sample Id	MW-2				
	PQL					
E0080 OC Pesticides in Water (ug/L)						
HCB	1	nd				
a-BHC	1	nd				
g-BHC	1	nd				
Heptachlor	1	nd				
Aldrin	1	nd				
b-BHC	1	nd				
d-BHC	1	nd				
Oxychlordane	1	nd				
Heptachlor epoxide	1	nd				
Endosulfan 1	1	nd				
Chlordane-Trans	1	nd				
Chlordane-Cis	1	nd				
trans-Nonachlor	1	nd				
DDE	1	nd				
Dieldrin	1	nd				
Endrin	1	nd				
DDD	1	nd				
Endosulfan 2	1	nd				
DDT	1	nd				
Endosulfan sulfate	1	nd				
Methoxychlor	1	nd				
2.4.5.6-TCMX-SURROGATE	1	96%				

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PQL = Practical Quantitation Limit
LNR = Samples Listed not Received
nd = <PQL
-- = Not Applicable

Soils : mg/kg (ppm) dry weight unless otherwise specified
Waters : mg/L (ppm) unless otherwise specified in Method Header
Leachates : mg/L (ppm) in leachate unless otherwise specified in Method Header

Refer to Amdel standard laboratory qualifier codes for comments.

amdel

Job Number : 2E2371
Client : OTEK Australia
Reference : B2092/20347
Project : BOVIS NEWSTEAD

Analyte	Lab No / Sample Id / PQL	E78191 / MW-2				
E0090 OP Pesticides in Water (ug/L)						
Dichlorvos	2	nd				
Mevinphos	2	nd				
Ethoprop	2	nd				
Phorate	2	nd				
Demeton-s-methyl	2	nd				
Diazinon	2	nd				
Disulfoton	2	nd				
Ronnel	2	nd				
Chlorpyrifos methyl	2	nd				
Chlorpyrifos	2	nd				
Merphos	2	nd				
Parathion methyl	2	nd				
Fenthion	2	nd				
Malathion	2	nd				
Fenitrothion	2	nd				
Prothiofos	2	nd				
Stirophos	2	nd				
Ethion	2	nd				
Bolstar	2	nd				
Fensulfothion	2	nd				
Azinphos methyl	2	nd				
Coumaphos	2	nd				
2-nitro-m-xylene-SURROGATE	1	105%				

PQL = Practical Quantitation Limit
LNR = Samples Listed not Received
nd = <PQL
-- = Not Applicable
Refer to Amdel standard laboratory qualifier codes for comments.

Soils : mg/kg (ppm) dry weight unless otherwise specified
Waters : mg/L (ppm) unless otherwise specified in Method Header
Leachates : mg/L (ppm) in leachate unless otherwise specified in Method Header

RTI Disclosure Log Release

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Job Number : 2E2371
Client : OTEK Australia
Reference : B2092/20347
Project : BOVIS NEWSTEAD

Analyte	Lab No	E78190	E78191	E78192	E78193	E78194
	Sample Id	MW-1	MW-2	MW-3	MW-5	MW-6
	PQL					
E0110 Priority PAH's in Water (ug/L)						
Naphthalene	1	18	8000	nd	1	nd
Acenaphthylene	1	nd	2	nd	nd	nd
Acenaphthene	1	nd	540	nd	nd	nd
Fluorene	1	nd	190	nd	nd	nd
Phenanthrene	1	nd	49	nd	nd	nd
Anthracene	1	nd	9	nd	nd	nd
Fluoranthene	1	nd	2	nd	nd	nd
Pyrene	1	nd	1	nd	nd	nd
Benz(a)anthracene	1	nd	nd	nd	nd	nd
Chrysene	1	nd	nd	nd	nd	nd
Benzo(b) & (k)fluoranthene	2	nd	nd	nd	nd	nd
Benzo(a)pyrene	1	nd	nd	nd	nd	nd
Indeno(1.2.3-cd)pyrene	1	nd	nd	nd	nd	nd
Dibenz(a.h)anthracene	1	nd	nd	nd	nd	nd
Benzo(g.h.i)perylene	1	nd	nd	nd	nd	nd
Total USEPA Priority PAHs	1	18	8800	nd	1	nd
2-Fluorobiphenyl-SURROGATE	1	82%	106%	119%	100%	118%
Anthracene-D10-SURROGATE	1	94%	105%	128%	110%	125%
p-Terphenyl-D14-SURROGATE	1	97%	111%	129%	116%	126%

PQL = Practical Quantitation Limit
LNR = Samples Listed not Received
nd = <PQL
-- = Not Applicable
Refer to Amdel standard laboratory qualifier codes for comments.

Soils : mg/kg (ppm) dry weight unless otherwise specified
Waters : mg/L (ppm) unless otherwise specified in Method Header
Leachates : mg/L (ppm) in leachate unless otherwise specified in Method Header

PTI Disclosure Log Release

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Job Number : 2E2371
Client : OTEK Australia
Reference : B2092/20347
Project : BOVIS NEWSTEAD

Analyte	Lab No / Sample Id / PQL	E78195 / MW-7 /
E0110 Priority PAH's in Water (ug/L)		
Naphthalene	1	nd
Acenaphthylene	1	nd
Acenaphthene	1	nd
Fluorene	1	nd
Phenanthrene	1	nd
Anthracene	1	nd
Fluoranthene	1	nd
Pyrene	1	nd
Benz(a)anthracene	1	nd
Chrysene	1	nd
Benzo(b) & (k)fluoranthene	2	nd
Benzo(a)pyrene	1	nd
Indeno(1.2.3-cd)pyrene	1	nd
Dibenz(a.h)anthracene	1	nd
Benzo(g.h.i)perylene	1	nd
Total USEPA Priority PAHs	1	nd
2-Fluorobiphenyl-SURROGATE	1	111%
Anthracene-D10-SURROGATE	1	121%
p-Terphenyl-D14-SURROGATE	1	126%

PQL = Practical Quantitation Limit
LNR = Samples Listed not Received
nd = <PQL
-- = Not Applicable
Refer to Amdel standard laboratory qualifier codes for comments.

Soils : mg/kg (ppm) dry weight unless otherwise specified
Waters : mg/L (ppm) unless otherwise specified in Method Header
Leachates : mg/L (ppm) in leachate unless otherwise specified in Method Header

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Job Number : 2E2371
Client : OTEK Australia
Reference : B2092/20347
Project : BOVIS NEWSTEAD

Analyte	Lab No / Sample Id / PQL	E78191 / MW-2				
E0140 Phenols By GC/MS In Water (ug/L)						
Phenol	1	* <50				
2-Chlorophenol	1	* <50				
2-Methylphenol	1	* <50				
3-Methylphenol & 4-Methylpheno	1	* <50				
2-Nitrophenol	1	* <50				
2.4-Dimethylphenol	1	* <50				
2.4-Dichlorophenol	1	* <50				
2.6-Dichlorophenol	1	* <50				
4-Chloro-3-methylphenol	1	* <50				
2.4.5-Trichlorophenol	1	* <50				
2.4.6-Trichlorophenol	1	* <50				
2.4-Dinitrophenol	5	* <200				
4-Nitrophenol	2	* <100				
2.3.4.6-Tetrachlorophenol	2	* <100				
4.6-Dinitro-2-methylphenol	5	* <200				
Pentachlorophenol	2	* <100				
4.6-Dinitro-2-sec-butylphenol	5	* <200				
2-Fluorophenol-SURROGATE	1	102%				
Phenol-D6-SURROGATE	1	106%				
2.4.6-Tribromophenol-SURROGATE	1	71%				

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PQL = Practical Quantitation Limit
LNR = Samples Listed not Received
nd = <PQL
-- = Not Applicable

Soils : mg/kg (ppm) dry weight unless otherwise specified
Waters : mg/L (ppm) unless otherwise specified in Method Header
Leachates : mg/L (ppm) in leachate unless otherwise specified in Method Header

Refer to Amdel standard laboratory qualifier codes for comments.

amdel

Job Number : 2E2371
Client : OTEK Australia
Reference : B2092/20347
Project : BOVIS NEWSTEAD

Analyte	Lab No	E78191				
	Sample Id	MW-2				
	PQL					
E0270 VHCs in Water (ug/L)						
Vinyl chloride	1	*<10				
Chloroethane	1	*<10				
Trichlorofluoromethane	1	*<10				
1.1-Dichloroethene	1	*<10				
Methylene chloride	1	*<10				
trans-1.2-Dichloroethene	1	*<10				
1.1-Dichloroethane	1	*<10				
cis-1.2-Dichloroethene	1	*<10				
Chloroform	1	*<10				
1.1.1-Trichloroethane	1	*<10				
Carbon tetrachloride	1	*<10				
1.2-Dichloroethane	1	*<10				
Trichloroethene	1	*<10				
1.2-Dichloropropane	1	*<10				
Bromodichloromethane	1	*<10				
trans-1.3-Dichloropropylene	1	*<10				
cis-1.3-Dichloropropylene	1	*<10				
1.1.2-Trichloroethane	1	*<10				
Tetrachloroethene	1	*<10				
Dibromochloromethane	1	*<10				
Bromoform	1	*<10				
1.1.2.2-Tetrachloroethane	1	*<10				
Pentafluorobenzene-SURROGATE	1	95%				

PQL = Practical Quantitation Limit
LNR = Samples Listed not Received
nd = <PQL
-- = Not Applicable
Refer to Amdel standard laboratory qualifier codes for comments.

Soils : mg/kg (ppm) dry weight unless otherwise specified
Waters : mg/L (ppm) unless otherwise specified in Method Header
Leachates : mg/L (ppm) in leachate unless otherwise specified in Method Header

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AMDEL INTERNAL QUALITY ASSURANCE REVIEW.

Job No. 2E2371

General

1. Laboratory QA/QC including Method Blanks, Duplicates, Matrix Spikes, Laboratory Control Samples or CRM's are included in this QA/QC appendix. (Where applicable)
2. Inter-Laboratory proficiency trial results are available upon request.
3. PQLs are matrix dependent and are increased accordingly where sample extracts are diluted due to interferences.
4. Results are uncorrected for matrix spike or surrogate recoveries.
5. Where 3 and 2 significant figures are reported for >10x PQL and <10x PQL respectively, the last figure is uncertain and is provided for statistical purposes only.
6. Samples duplicated or spiked are from this job only and are identified in the following QA/QC report.
7. SVOC analyses on waters are performed on homogenized, unfiltered samples, unless noted otherwise.

Maximum Holding Times for Soils, Sediments and Waters

Parameter	Holding Times
Soils	
Volatile and Semi-Volatile Organic Analysis.	Extracted in 14 days, analysed within 40 days.
Metals	Extracted and analysed within 28 days-6 months.
Inorganics*	Extracted and analysed within 7-28 days.
TCLPs*	Extracted and analysed within 14 days, (Zero Headspace-TCLP 7 days).
Waters	
Volatile Organic Analysis	Analysed within 7 days (USEPA requires 14 days).
Semi-Volatile Organic Analysis	Extracted in 7 days, analysed within 40 days.
Inorganics*	Analysed within 24 hrs-28 days.
Metals (dissolved metals should be supplied field filtered)	Prepared and analysed within 28 days.

* Please refer to 'Preservation Information Chart for Soils, Sediments & Waters' for further information. (ISFORM.098). Holding times may be extended with the use of preservation bottles and/or freezing samples. Holding times can be calculated from dates reported in the body of the report. Tests clearly exceeding holding times will be noted when sufficient information is provided.
Reference: USEPA SW846 and AMDEL SPM-01 (incorporating NEPM Guidelines).

Chain of Custody and Sample Integrity

	Yes/No/NA
Chain of Custody / instructions received with samples	Yes
Custody seals were received intact, if used	NA
Samples were received chilled and in good condition	Yes
Samples received appropriately preserved for all tests	Yes
VOC/SVOC samples were received in teflon lined containers	Yes
Samples received with Zero Headspace	Yes
Chain of Custody completed and attached (if applicable)	Yes

Chromatography Calibration/Acceptence Criteria (if applicable)

Retention time window meets acceptance criteria (+/-2%)	Yes
Reference standard meets acceptance criteria (+/-10%)	Yes
Recalibration standard meets acceptance criteria (+/-15%)	Yes
Internal standard recovery acceptable.	Yes

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AMDEL STANDARD LABORATORY QUALIFIER CODES.

Job NO. 2E2371

General

Qualifier Codes	Description
*	PQLs are raised due to matrix interference.
@	PQLs are raised due to the insufficient sample.
$	The mass imbalance indicates the presence of other ions not measured as part of this procedure.
&	Surrogate recoveries could not be determined due to the dilution required to quantify the analyte.
IS	Insufficient sample was supplied to conduct this analysis.
nd	<PQL
--	Not applicable
LNR	Sample listed on the COC, but not received.
J	The analyte was positively identified; the associated numerial value is the approximate concentration of the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a 'tentative' identification.
NJ	The analysis indicates the presences of an analyte that has been 'tentatively' identified, and the associated numerical value represents it's approximate concentration.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
R	The presence or absence of the analye cannot be verified.
#	The matrix spike concentration is significantly less than the sample analyte concentration, thus spike recovery can not be accurately determined.
**	The surrogate recovery is outside of the recommended acceptance criteria, due to matrix interference.
***	The surrogate recovery is outside of the recommended acceptance criteria. Insufficent sample to perform confirmation.
A	The spike recovery is outside of the recommended acceptance criteria. An acceptable recovery was obtained for the laboratory control sample indicating a sample matrix interference.
B	The duplicate %RPD is outside the recommended acceptance criteria. Further analysis indicates sample heterogeneity.
C	The sample was not received in a suitable timeframe to allow completion within the recommended holding time.
O	The results reported are 'recoverable organics' for this fraction, as the chromatogram and peak shape indicates the presence of a significant concentration of polar compounds.
P	The concentration reported is mainly due to a single peak.
ISM	Insufficient sample was supplied to conduct matrix spike analysis.
ISD	Insufficient sample was supplied to conduct duplicate analysis.
M	The sample was received with the incorrect preservation for this analysis.
S	The sample contained significant amounts of sediment. Sample aliquots have been taken via decanting in an attempt to avoid including sediment in the analysis portion.
K	The raw data indicates the absence of 0.055g of Copper Sulphate in the sample.
L	Theoretically the TKN result should be greater or equal to ammonia concentration. However the difference reported is within the uncertainty of the individual tests.
D	Theoretically the total result should be greater or equal to the dissolved concentration. However the difference reported is within the uncertainty of the individual tests.
I	During Kjeldahl digestion, nitrate (>10mg/L) can oxidise ammonia resulting in a negative TKN interference.
E	The mass imbalance was equal to or less than 0.2 milli-equivalents.
F	Samples results are reported on an 'as received' basis.
H	This sample was received with headspace (see first analyte notation).
T	This test was performed outside the recommended holding time
G	Samples contain volatile halogenated oxygenated or other compounds that are not quantitated as part of C6-9.
J	Results expressed in mg/L (ppm) due to the high concentration of the analyte.

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Job Number : 2E2371

QAQC : Laboratory Control Sample(s)

Analyte	Level	Level Detected			Recovery Details		
		Result1	Result2	Result3	Rec 1 (%)	Rec 2 (%)	Rec 3 (%)
E0230 TPH in Water by P&T/GC-MS (ug/L)							
C6-C9 Fraction	200	240			116%		
E0221 TPH in Water (ug/L)							
C10-C14 Fraction		--					
C15-C28 Fraction	5500	4000			73%		
C29-C36 Fraction		--					
E0010 BTEX (P&T) in Water (ug/L)							
Benzene	10	11			114%		
Toluene	10	12			123%		
Ethylbenzene	10	11			115%		
m&p-Xylene	20	24			122%		
o-Xylene	10	12			122%		

PQL = Practical Quantitation Limit
-- = Not Applicable
nd = <PQL

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

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AMDEL INTERNAL QUALITY ASSURANCE REVIEW Cont..

Amdel QA/QC Compliance Assessment

	Compliance
Surrogates performed on all appropriate GC analyses and meet acceptance limits (70% - 130% recovery*).	Please see body of report
Matrix Spikes performed once per process batch and at least 1 in 20 samples (Results meet acceptance limits - 70% - 130% recovery* or 80% - 120% recovery* for inorganics in water.)	Please see body of report
Laboratory Control samples performed once per process batch and at least 1 in 20 samples (Results meet acceptance limits - 70% - 130% recovery* in soil or 70%-130%/90-110% recovery* for waters.)	Yes
Laboratory Duplicate samples performed once per process batch and at least 1 in 10 samples	Yes
Laboratory duplicates meet acceptance criteria <4 PQL - +/- 2 PQL 4-10 PQL - 25-50 or 50% RPD >10 PQL - 10-30 or 30% RPD	Please see body of report
Method Blanks performed once per process batch and at least 1 in 20 samples (Results not detected at the PQL).	Yes

N/A=Not Applicable.

* Phenols 50% - 130% recovery
* SVOCs 60% - 130% recovery
* Phenoxy Acid Herbicides 60% - 140% recovery

QA/QC Appendix

Please refer to the following pages for the QA/QC data.
For further information on samples or non-conformance in QC protocols please see notations in the body of the report plus comments on the following page.

Additional Comments

sch4p3(3) Prejudice the protection of an individuals right to privacy

R. Mooney B.Sc.(Hons) Dip. FDA
Technical Services Manager Sydney

RTI Disclosure Log Release

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Job Number : 2E2371

QAQC : Laboratory Duplicate(s)

Analyte	Dupl A	Dupl B	Average	RPD (%)	Dupl A	Dupl B	Average	RPD (%)
E0230 TPH in Water by P&T/GC-MS (ug/L) (E78190)								
C6-C9 Fraction	ISD	nd						
E0221 TPH in Water (ug/L) (E78190)								
C10-C14 Fraction	240	240	240	0%				
C15-C28 Fraction	nd	nd						
C29-C36 Fraction	nd	nd						
E0010 BTEX (P&T) in Water (ug/L) (E78190)								
Benzene	ISD	nd						
Toluene	ISD	nd						
Ethylbenzene	ISD	nd						
m&p-Xylene	ISD	nd						
o-Xylene	ISD	1	1					

PQL = Practical Quantitation Limit
nd = <PQL
-- = Not Applicable

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

The number in brackets after the method header identifies the sample tested.

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QAQC : Method Blank(s)

ANALYTE	Sample ID PQL	Blank1	Blank2	Blank3	Blank4	Blank5
E0230 TPH in Water by P&T/GC-MS (ug/L)						
C6-C9 Fraction	20	nd				
E0221 TPH in Water (ug/L)						
C10-C14 Fraction	20	nd				
C15-C28 Fraction	100	nd				
C29-C36 Fraction	100	nd				
E0010 BTEX (P&T) in Water (ug/L)						
Benzene	0.5	nd				
Toluene	1	nd				
Ethylbenzene	1	nd				
m&p-Xylene	2	nd				
o-Xylene	1	nd				

PQL = Practical Quantitation Limit
nd = < PQL
-- = Not Applicable

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

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Job Number : 2E2371

QAQC : Laboratory Control Sample(s)

Analyte	Level	Level Detected			Recovery Details		
		Result1	Result2	Result3	Rec 1 (%)	Rec 2 (%)	Rec 3 (%)
E4870 Dissolved Metals in Waters							
Arsenic	0.100	0.095			95%		
Cadmium	0.1000	0.093			93%		
Chromium	0.100	0.098			98%		
Copper	0.100	0.097			97%		
Nickel	0.100	0.092			92%		
Lead	0.100	0.096			96%		
Zinc	0.100	0.095			95%		
E48501 Dissolved Mercury in Waters							
Mercury	0.001	0.00100			100%		

PQL = Practical Quantitation Limit
-- = Not Applicable
nd = <PQL

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

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Job Number : 2E2371

QAQC : Laboratory Duplicate(s)

Analyte	Dupl A	Dupl B	Average	RPD (%)	Dupl A	Dupl B	Average	RPD (%)
E4870 Dissolved Metals in Waters (E78190)								
Arsenic	0.093	0.096	0.095	3%				
Cadmium	nd	nd						
Chromium	0.008	0.010	0.009	22%				
Copper	0.005	0.005	0.005	0%				
Nickel	0.031	0.031	0.031	0%				
Lead	0.002	0.002	0.002	0%				
Zinc	0.210	0.211	0.211	0%				
E48501 Dissolved Mercury in Waters (E78190)								
Mercury		nd 0.00005	0.00005					

PQL = Practical Quantitation Limit
nd = <PQL
-- = Not Applicable

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

The number in brackets after the method header identifies the sample tested.

RTI Disclosure Log Release

QAQC : Method Blank(s)

ANALYTE	Sample ID PQL	Blank1	Blank2	Blank3	Blank4	Blank5
E4870 Dissolved Metals in Waters						
Arsenic	0.001	nd				
Cadmium	0.0001	nd				
Chromium	0.001	nd				
Copper	0.001	nd				
Nickel	0.001	nd				
Lead	0.001	nd				
Zinc	0.002	nd				
E48501 Dissolved Mercury in Waters						
Mercury	0.00005	nd				

PQL = Practical Quantitation Limit
nd = < PQL
-- = Not Applicable

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

PTI Disclosure Log Release

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Job Number : 2E2371

QAQC : Laboratory Control Sample(s)

Analyte	Level	Level Detected			Recovery Details		
		Result1	Result2	Result3	Rec 1 (%)	Rec 2 (%)	Rec 3 (%)
E0080 OC Pesticides in Water (ug/L)							
HCB	10	10			100%		
a-BHC	10	11			110%		
g-BHC	10	11			110%		
Heptachlor	10	10			100%		
Aldrin	10	10			100%		
b-BHC	10	10			100%		
d-BHC	10	11			110%		
Oxychlordane	10	10			100%		
Heptachlor epoxide	10	11			110%		
Endosulfan 1	10	11			110%		
Chlordane-Trans	10	11			110%		
Chlordane-Cis	10	11			110%		
trans-Nonachlor	10	11			110%		
DDE	20	21			105%		
Dieldrin	10	11			110%		
Endrin	10	11			110%		
DDD	20	23			115%		
Endosulfan 2	10	11			110%		
DDT	20	21			105%		
Endosulfan sulfate	10	10			100%		
Methoxychlor	10	11			110%		

PQL = Practical Quantitation Limit
-- = Not Applicable
nd = <PQL

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

RTI Disclosure Log Release

QAQC : Method Blank(s)

ANALYTE	Sample ID PQL	Blank1	Blank2	Blank3	Blank4	Blank5
E0080 OC Pesticides in Water (ug/L)						
HCB	1	nd				
a-BHC	1	nd				
g-BHC	1	nd				
Heptachlor	1	nd				
Aldrin	1	nd				
b-BHC	1	nd				
d-BHC	1	nd				
Oxychlordane	1	nd				
Heptachlor epoxide	1	nd				
Endosulfan 1	1	nd				
Chlordane-Trans	1	nd				
Chlordane-Cis	1	nd				
trans-Nonachlor	1	nd				
DDE	1	nd				
Dieldrin	1	nd				
Endrin	1	nd				
DDD	1	nd				
Endosulfan 2	1	nd				
DDT	1	nd				
Endosulfan sulfate	1	nd				
Methoxychlor	1	nd				

PQL = Practical Quantitation Limit
nd = <PQL
-- = Not Applicable

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

PTI Disclosure Log Release

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Job Number : 2E2371

QAQC : Laboratory Control Sample(s)

Analyte	Level	Level Detected			Recovery Details		
		Result1	Result2	Result3	Rec 1 (%)	Rec 2 (%)	Rec 3 (%)
E0090 OP Pesticides in Water (ug/L)							
Dichlorvos	10	10			96%		
Mevinphos	10	10			98%		
Ethoprop	10	10			100%		
Phorate	10	10			98%		
Demeton-s-methyl	10	10			100%		
Diazinon	10	10			98%		
Disulfoton	10	10			100%		
Ronnel	10	10			100%		
Chlorpyrifos methyl	10	10			100%		
Chlorpyrifos	10	10			100%		
Parathion methyl	10	10			98%		
Fenthion	10	10			100%		
Malathion	10	7			70%		
Fenitrothion	10	10			100%		
Prothiofos	10	11			110%		
Stirophos	10	12			120%		
Ethion	10	10			100%		
Bolstar	10	10			100%		
Fensulfothion	10	10			100%		
Azinphos methyl	10	10			95%		
Coumaphos	10	10			96%		

PQL = Practical Quantitation Limit
-- = Not Applicable
nd = < PQL

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

RTI Disclosure Log Release

QAQC : Method Blank(s)

ANALYTE	Sample ID PQL	Blank1	Blank2	Blank3	Blank4	Blank5
E0090 OP Pesticides in Water (ug/L)						
Dichlorvos	2	nd				
Mevinphos	2	nd				
Ethoprop	2	nd				
Phorate	2	nd				
Demeton-s-methyl	2	nd				
Diazinon	2	nd				
Disulfoton	2	nd				
Ronnel	2	nd				
Chlorpyrifos methyl	2	nd				
Chlorpyrifos	2	nd				
Parathion methyl	2	nd				
Fenthion	2	nd				
Malathion	2	nd				
Fenitrothion	2	nd				
Prothiofos	2	nd				
Stirophos	2	nd				
Ethion	2	nd				
Bolstar	2	nd				
Fensulfothion	2	nd				
Azinphos methyl	2	nd				
Coumaphos	2	nd				

PQL = Practical Quantitation Limit
nd = <PQL
-- = Not Applicable

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

PTI Disclosure Log Release

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Job Number : 2E2371

QAQC : Laboratory Control Sample(s)

Analyte	Level	Level Detected			Recovery Details		
		Result1	Result2	Result3	Rec 1 (%)	Rec 2 (%)	Rec 3 (%)
E0110 Priority PAH's in Water (ug/L)							
Naphthalene	10	10			98%		
Acenaphthylene	10	10			96%		
Acenaphthene	10	10			96%		
Fluorene	10	10			97%		
Phenanthrene	10	10			100%		
Anthracene	10	10			100%		
Fluoranthene	10	10			100%		
Pyrene	10	10			100%		
Benz(a)anthracene	10	11			110%		
Chrysene	10	11			110%		
Benzo(b) & (k)fluoranthene	20	21			105%		
Benzo(a)pyrene	10	10			100%		
Indeno(1.2.3-cd)pyrene	10	10			96%		
Dibenz(a.h)anthracene	10	10			99%		
Benzo(g.h.i)perylene	10	10			100%		

PQL = Practical Quantitation Limit
-- = Not Applicable
nd = <PQL

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

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Job Number : 2E2371

QAQC : Laboratory Duplicate(s)

Analyte	Dupl A	Dupl B	Average	RPD (%)	Dupl A	Dupl B	Average	RPD (%)
E0110 Priority PAH's in Water (ug/L) (E78190)								
Naphthalene	17	18	18	5%				
Acenaphthylene	nd	nd						
Acenaphthene	nd	nd						
Fluorene	nd	nd						
Phenanthrene	nd	nd						
Anthracene	nd	nd						
Fluoranthene	nd	nd						
Pyrene	nd	nd						
Benz(a)anthracene	nd	nd						
Chrysene	nd	nd						
Benzo(b) & (k)fluoranthene	nd	nd						
Benzo(a)pyrene	nd	nd						
Indeno(1.2.3-cd)pyrene	nd	nd						
Dibenz(a.h)anthracene	nd	nd						
Benzo(g.h.i)perylene	nd	nd						

PQL = Practical Quantitation Limit
nd = <PQL
-- = Not Applicable

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

The number in brackets after the method header identifies the sample tested.

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QAQC : Method Blank(s)

ANALYTE	Sample ID PQL	Blank1	Blank2	Blank3	Blank4	Blank5
E0110 Priority PAH's in Water (ug/L)						
Naphthalene	1	nd				
Acenaphthylene	1	nd				
Acenaphthene	1	nd				
Fluorene	1	nd				
Phenanthrene	1	nd				
Anthracene	1	nd				
Fluoranthene	1	nd				
Pyrene	1	nd				
Benz(a)anthracene	1	nd				
Chrysene	1	nd				
Benzo(b) & (k)fluoranthene	2	nd				
Benzo(a)pyrene	1	nd				
Indeno(1.2.3-cd)pyrene	1	nd				
Dibenz(a.h)anthracene	1	nd				
Benzo(g.h.i)perylene	1	nd				

PQL = Practical Quantitation Limit
nd = < PQL
-- = Not Applicable

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

PTI Disclosure Log Release

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Job Number : 2E2371

QAQC : Laboratory Control Sample(s)

Analyte	Level	Level Detected			Recovery Details		
		Result1	Result2	Result3	Rec 1 (%)	Rec 2 (%)	Rec 3 (%)
E0140 Phenols By GC/MS In Water (ug/L)							
Phenol	50	49			98%		
2-Chlorophenol	50	48			96%		
2-Methylphenol							
3-Methylphenol & 4-Methylpheno							
2-Nitrophenol							
2.4-Dimethylphenol							
2.4-Dichlorophenol							
2.6-Dichlorophenol							
4-Chloro-3-methylphenol	50	48			96%		
2.4.5-Trichlorophenol							
2.4.6-Trichlorophenol							
2.4-Dinitrophenol							
4-Nitrophenol	50	46			92%		
2.3.4.6-Tetrachlorophenol							
4.6-Dinitro-2-methylphenol							
Pentachlorophenol	50	50			100%		
4.6-Dinitro-2-sec-butylphenol							

PQL = Practical Quantitation Limit
-- = Not Applicable
nd = <PQL

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

RTI Disclosure Log Release

QAQC : Method Blank(s)

ANALYTE	Sample ID PQL	Blank1	Blank2	Blank3	Blank4	Blank5
E0140 Phenols By GC/MS In Water (ug/L)						
Phenol	1	nd				
2-Chlorophenol	1	nd				
2-Methylphenol	1	nd				
3-Methylphenol & 4-Methylpheno	1	nd				
2-Nitrophenol	1	nd				
2.4-Dimethylphenol	1	nd				
2.4-Dichlorophenol	1	nd				
2.6-Dichlorophenol	1	nd				
4-Chloro-3-methylphenol	1	nd				
2.4.5-Trichlorophenol	1	nd				
2.4.6-Trichlorophenol	1	nd				
2.4-Dinitrophenol	5	nd				
4-Nitrophenol	2	nd				
2.3.4.6-Tetrachlorophenol	2	nd				
4.6-Dinitro-2-methylphenol	5	nd				
Pentachlorophenol	2	nd				
4.6-Dinitro-2-sec-butylphenol	5	nd				

PQL = Practical Quantitation Limit
nd = < PQL
-- = Not Applicable

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

PTI Disclosure Log Release

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Job Number : 2E2371

QAQC : Laboratory Control Sample(s)

Analyte	Level	Level Detected			Recovery Details		
		Result1	Result2	Result3	Rec 1 (%)	Rec 2 (%)	Rec 3 (%)
E0270 VHCs in Water (ug/L)							
Vinyl chloride	10	9			91%		
Chloroethane	10	9			89%		
Trichlorofluoromethane	10	9			95%		
1.1-Dichloroethene	10	9			91%		
Methylene chloride	10	9			91%		
trans-1.2-Dichloroethene	10	9			94%		
1.1-Dichloroethane	10	10			97%		
cis-1.2-Dichloroethene	10	10			95%		
Chloroform	10	10			101%		
1.1.1-Trichloroethane	10	10			98%		
Carbon tetrachloride	10	10			95%		
1.2-Dichloroethane	10	10			102%		
Trichloroethene	10	10			99%		
1.2-Dichloropropane	10	10			96%		
Bromodichloromethane	10	10			98%		
trans-1.3-Dichloropropylene	10	9			86%		
cis-1.3-Dichloropropylene	10	9			93%		
1.1.2-Trichloroethane	10	10			98%		
Tetrachloroethene	10	10			95%		
Dibromochloromethane	10	9			92%		
Bromoform	10	10			96%		
1.1.2.2-Tetrachloroethane	10	10			104%		

PQL = Practical Quantitation Limit
-- = Not Applicable
nd = <PQL

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

RTI Disclosure Log Release

QAQC : Method Blank(s)

ANALYTE	Sample ID PQL	Blank1	Blank2	Blank3	Blank4	Blank5
E0270 VHCs in Water (ug/L)						
Vinyl chloride	1	nd				
Chloroethane	1	nd				
Trichlorofluoromethane	1	nd				
1.1-Dichloroethene	1	nd				
Methylene chloride	1	nd				
trans-1.2-Dichloroethene	1	nd				
1.1-Dichloroethane	1	nd				
cis-1.2-Dichloroethene	1	nd				
Chloroform	1	nd				
1.1.1-Trichloroethane	1	nd				
Carbon tetrachloride	1	nd				
1.2-Dichloroethane	1	nd				
Trichloroethene	1	nd				
1.2-Dichloropropane	1	nd				
Bromodichloromethane	1	nd				
trans-1.3-Dichloropropylene	1	nd				
cis-1.3-Dichloropropylene	1	nd				
1.1.2-Trichloroethane	1	nd				
Tetrachloroethene	1	nd				
Dibromochloromethane	1	nd				
Bromoform	1	nd				
1.1.2.2-Tetrachloroethane	1	nd				

PQL = Practical Quantitation Limit
nd = <PQL
-- = Not Applicable

(S) Soils : mg/kg (ppm) dry weight
(W) Waters : mg/L (ppm) unless otherwise specified

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OTEK AUSTRALIA PTY LTD
OTEK Australia Pty Ltd
29 Enterprise Street (P.O Box 107)
RICHLANDS QLD 4077
Tel (07) 3717 5100 Fax (07) 3717 5155

CHAIN OF CUSTODY & ANALYSIS REQUEST

Public Disclosure Log Release

PROJECT # 32092	PROJECT NAME Boonah Newstead	PROJECT MANAGER Shane Hinton	COLLECTOR Rob Sowerby
LAB Ausdel	PRELIMINARY RESULTS BY: (FAX) 20/7/02.		
ADDRESS 5 Kelvin Grove PL Asquith NSW	FINAL RESULTS BY: 27/7/02		
LAB CONTACT David Spranger			

SAMPLE ID	LABORATORY NUMBER	SAMPLE DATE	# CONTAINERS	MATRIX: SOIL	MATRIX: WATER	MATRIX: PRODUCT	ANALYSIS REQUIRED: BTEX	TPH	LEAD	As, Cr, Cd, Ni, Pb, Zn, Cu, Hg	OC/OP	PAH	Specific for Phenols	Halo aliphatics	HOLD	PRESERVATION METHOD: ACIDIFIED	OTHER	ICE	REMARKS
MW-1	E75190	15-7-2	5		✓		✓	✓		✓									
MW-2	91	↓	7		✓		✓	✓		✓	✓	✓	✓	✓					
MW-3	92		5		✓		✓	✓		✓		✓							
~~MW-4~~																			
MW-5	93		5		✓		✓	✓		✓		✓							
MW-6	94		5		✓		✓	✓		✓		✓							
MW-7	95	↓			✓		✓	✓		✓		✓							

RECEIVED 16 JUL 02 2391

Relinquished By: [redacted]	Date: 13/7/02 Time: 4:00 PM.	Couriered By:	Date: Time:	Received By: [redacted]	Date: 16/7/02 Time: 8:30am	Page __ of __	

sch4p3(3) Personal information of individuals and right to privacy protection prejudice the public interest

AMDEL LTD

INDUSTRIAL AND ENVIRONMENTAL SERVICES DIVISION

Amdel Limited ABN 38 0081 27 802
5 Kelray Place
Correspondence to: ASQUITH NSW 2077
PO BOX 514 Telephone: (02) 9482 1922
HORNSBY NSW 1630 Facsimile: (02) 9482 1734

SAMPLE RECEIPT ACKNOWLEDGMENT

TO: OTEK Australia

ATTN: Mr Shane Minty FAX NO: 07 3717 5155

FROM: David Springer

DATE: 16/07/02 PAGES: 1 of 2

We have received the samples referenced below and they are now being processed in our laboratory. If you have any queries or wish to make any adjustments please do not hesitate to contact David Springer.

Reference/Order:	B2092/20347
Project:	BOVIS NEWSTEAD
Our Reference Number :	2E2371
Date Received by Amdel :	16/07/02

ANALYSIS REQUESTED	AMDEL METHOD CODE	NUMBER OF SAMPLES	ESTIMATED REPORT DATE (CO
TPH C6-C9 by purge & trap	E0230	6	
TPH (C10-C36)	E0221	6	22/07/02
Benzene,Toluene,Ethylbenzene & Xylene	E0010	6	
Dissolved Metals by ICP-MS	E4870	6	
Mercury low level	E48501	6	
Organochlorine Pesticides	E0080	1	
Organophosphorus Pesticides	E0090	1	
Polycyclic Aromatic Hydrocarbons	E0110	6	
Phenols by GC/MS	E0140	1	
Volatile Halogenated Compounds (P&T)	E0270	1	
Australian GST	GST		

Sample integrity upon receipt

Samples were received chilled and in good condition	Yes / No / N/A
Samples received appropriately preserved for all tests	Yes / No / N/A
VOC/SVOC samples were received in teflon lined containers	Yes / No / N/A
Volatiles samples received with Zero Headspace	Yes / No / N/A
Samples received within recommended holding times	Yes / No / N/A

* Surcharges for urgent turn-around requests apply to complete or partial results reported within the specified times. Surcharges are calculated and invoiced on discounted price.

THE CONTACT FOR THIS JOB WILL BE DAVID SPRINGER

EPA Disclosure Log Release