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Work Order : EB0914886
Client : SINCLAIR KNIGHT MERZ
Project : QE09537

13-054

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				Spike Concentration				Spike Recovery (%)				Recovery Limits (%)							
Result				Concentration				LCS				Low				High			
Method/Compound																			
EG020F: Dissolved Metals by ICP-MS (QCLot: 1111406)																			
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001		0.100 mg/L		106		80		124							
EG020A-F: Cadmium	7440-43-9	0.000	mg/L	<0.0001		0.100 mg/L		108		89		117							
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001		0.100 mg/L		116		85		127							
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001		0.200 mg/L		106		85		119							
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001		0.100 mg/L		105		88		116							
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001		0.100 mg/L		107		85		119							
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005		0.200 mg/L		112		86		130							
EG035F: Dissolved Mercury by FIMS (QCLot: 1111405)																			
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001		0.010 mg/L		98.9		81		115							
EP070: Total Petroleum Hydrocarbons - Speciation (QCLot: 1108610)																			
EP070: Aliphatic C10-C14	----	50	µg/L	<50		5400 µg/L		119		70		130							
EP070: Aliphatic C15-C28	----	100	µg/L	<100		17280 µg/L		86.1		70		130							
EP070: Aliphatic C29-C36	----	50	µg/L	<50		----		----		----		----							
EP070: Aromatic C10-C14	----	50	µg/L	<50		2310 µg/L		116		70		130							
EP070: Aromatic C15-C28	----	100	µg/L	<100		3750 µg/L		120		70		130							
EP070: Aromatic C29-C36	----	50	µg/L	<50		----		----		----		----							
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 1107866)																			
EP074: Benzene	71-43-2	1	µg/L	<2		10 µg/L		89.6		75		122							
EP074: Toluene	108-88-3	2	µg/L	<2		10 µg/L		101		71.2		124							
EP074: Ethylbenzene	100-41-4	2	µg/L	<2		10 µg/L		95.4		76		120							
EP074: meta- & para-Xylene	108-38-3	2	µg/L	<4		10 µg/L		84.6		68		132							
EP074: Styrene	106-42-3																		
EP074: ortho-Xylene	100-42-5	5	µg/L	<5		10 µg/L		102		68		127							
EP074: Isopropylbenzene	95-47-6	2	µg/L	<2		10 µg/L		99.7		76		122							
EP074: n-Propylbenzene	98-82-8	5	µg/L	<5		10 µg/L		97.7		74		123							
EP074: 1,3,5-Trimethylbenzene	103-65-1	5	µg/L	<5		10 µg/L		83.5		69		125							
EP074: sec-Butylbenzene	108-67-8	5	µg/L	<5		10 µg/L		87.6		74		121							
EP074: 1,2,4-Trimethylbenzene	135-98-8	5	µg/L	<5		10 µg/L		89.8		72		124							
EP074: tert-Butylbenzene	95-63-6	5	µg/L	<5		10 µg/L		88.4		73.5		124							
EP074: p-Isopropyltoluene	98-06-6	5	µg/L	<5		10 µg/L		89.0		71.6		128							
EP074: n-Butylbenzene	99-87-6	5	µg/L	<5		10 µg/L		90.2		68.3		130							
EP074: Vinyl Acetate	104-51-8	5	µg/L	<5		10 µg/L		89.3		67		126							
EP074B: Oxygenated Compounds (QCLot: 1107866)																			
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50		100 µg/L		91.1		65		147							



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Sub-Matrix: WATER

Method: Compound				CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
								Spike Concentration	Spike Recovery (%)	Low	High
EP074B: Oxygenated Compounds (QCLot: 1107866) - continued											
EP074: 2-Butanone (MEK)				78-93-3	50	µg/L	<50	100 µg/L	88.0	54	130
EP074: 4-Methyl-2-pentanone (MIBK)				108-10-6	50	µg/L	<50	100 µg/L	91.9	62	137
EP074: 2-Hexanone (MBK)				591-78-6	50	µg/L	<50	100 µg/L	103	62	135
EP074C: Sulfonated Compounds (QCLot: 1107866)											
EP074: Carbon disulfide				75-15-0	5	µg/L	<5	10 µg/L	89.6	68	135
EP074D: Fumigants (QCLot: 1107866)											
EP074: 2,2-Dichloropropane				594-20-7	5	µg/L	<5	10 µg/L	87.9	60.7	143
EP074: 1,2-Dichloropropane				78-87-5	5	µg/L	<5	10 µg/L	90.5	69.7	128
EP074: cis-1,3-Dichloropropylene				10061-01-5	5	µg/L	<5	20 µg/L	93.9	68	131
EP074: trans-1,3-Dichloropropylene				10061-02-6	5	µg/L	<5	20 µg/L	95.2	67	140
EP074: 1,2-Dibromoethane (EDB)				106-93-4	5	µg/L	<5	10 µg/L	103	68.1	132
EP074E: Halogenated Aliphatic Compounds (QCLot: 1107866)											
EP074: Dichlorodifluoromethane				75-71-8	50	µg/L	<50	100 µg/L	84.3	52	130
EP074: Chloromethane				74-87-3	50	µg/L	<50	100 µg/L	93.0	43.1	130
EP074: Vinyl chloride				75-01-4	50	µg/L	<50	100 µg/L	78.2	53	144
EP074: Bromomethane				74-83-9	50	µg/L	<50	100 µg/L	79.6	57.5	130
EP074: Chloroethane				75-00-3	50	µg/L	<50	100 µg/L	86.2	70	137
EP074: Trichlorofluoromethane				75-69-4	50	µg/L	<50	100 µg/L	89.8	64	135
EP074: 1,1-Dichloroethene				75-35-4	5	µg/L	<5	10 µg/L	85.8	63.9	135
EP074: Iodomethane				74-88-4	5	µg/L	<5	10 µg/L	78.7	57.2	130
EP074: trans-1,2-Dichloroethene				156-60-5	5	µg/L	<5	10 µg/L	87.7	69	128
EP074: 1,1-Dichloroethane				75-34-3	5	µg/L	<5	10 µg/L	88.6	64	136
EP074: cis-1,2-Dichloroethene				156-59-2	5	µg/L	<5	10 µg/L	79.7	71	128
EP074: 1,1,1-Trichloroethane				71-55-6	5	µg/L	<5	10 µg/L	91.7	68.4	135
EP074: 1,1-Dichloropropylene				563-58-6	5	µg/L	<5	10 µg/L	89.6	71.4	127
EP074: Carbon Tetrachloride				56-23-5	5	µg/L	<5	10 µg/L	91.9	64	134
EP074: 1,2-Dichloroethane				107-06-2	5	µg/L	<5	10 µg/L	88.8	68	134
EP074: Trichloroethene				79-01-6	5	µg/L	<5	10 µg/L	90.7	72	127
EP074: Dibromomethane				74-95-3	5	µg/L	<5	10 µg/L	91.6	63.9	136
EP074: 1,1,2-Trichloroethane				79-00-5	5	µg/L	<5	10 µg/L	114	69.2	133
EP074: 1,3-Dichloropropane				142-28-9	5	µg/L	<5	10 µg/L	102	73.7	130
EP074: Tetrachloroethene				127-18-4	5	µg/L	<5	10 µg/L	103	73.8	132
EP074: 1,1,1,2-Tetrachloroethane				630-20-6	5	µg/L	<5	10 µg/L	118	81	123
EP074: trans-1,4-Dichloro-2-butene				110-57-6	5	µg/L	<5	10 µg/L	97.4	26	130
EP074: cis-1,4-Dichloro-2-butene				1476-11-5	5	µg/L	<5	10 µg/L	92.3	51.1	130
EP074: 1,1,2,2-Tetrachloroethane				79-34-5	5	µg/L	<5	10 µg/L	106	72	133
EP074: 1,2,3-Trichloropropane				96-18-4	5	µg/L	<5	10 µg/L	95.8	59	148
EP074: Pentachloroethane				76-01-7	5	µg/L	<5	10 µg/L	97.7	68	138
EP074: 1,2-Dibromo-3-chloropropane				96-12-8	5	µg/L	<5	10 µg/L	83.0	52	150



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Sub-Matrix: WATER

Sub-Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) Report			
Method: Compound				Result	Spike Concentration	Spike Recovery (%)	Low	High	
EP074E: Halogenated Aliphatic Compounds (QCLot: 1107866) - continued									
EP074: Hexachlorobutadiene	CAS Number	LOR	Unit						
	87-68-3	5	µg/L	<5	10 µg/L	99.0	62	142	
EP074F: Halogenated Aromatic Compounds (QCLot: 1107866)									
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	101	77	120	
EP074: Bromobenzene	108-96-7	5	µg/L	<5	10 µg/L	88.3	76	122	
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	89.5	75.3	124	
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	91.6	75	120	
EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	89.9	75.2	120	
EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	89.9	76.1	119	
EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	92.2	77.7	118	
EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	92.2	68.3	128	
EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	98.9	75	125	
EP074G: Trihalomethanes (QCLot: 1107866)									
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	92.4	71.1	127	
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	91.6	68	132	
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	108	69	130	
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	101	62	137	
EP075(SIM)A: Phenolic Compounds (QCLot: 1108171)									
EP075(SIM): Phenol	108-95-2	1	µg/L	<1.0	5 µg/L	31.0	24	70	
EP075(SIM): 2-Chlorophenol	95-57-8	1	µg/L	<1.0	5 µg/L	66.5	57	105	
EP075(SIM): 2-Methylphenol	95-48-7	1	µg/L	<1.0	5 µg/L	60.6	51	98	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2.0	10 µg/L	48.9	45	97	
EP075(SIM): 2-Nitrophenol	88-75-5	1	µg/L	<1.0	5 µg/L	74.1	48	132	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	1	µg/L	<1.0	5 µg/L	69.6	44	112	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	1	µg/L	<1.0	5 µg/L	78.5	60	114	
EP075(SIM): 2,6-Dichlorophenol	87-65-0	1	µg/L	<1.0	5 µg/L	90.4	59	118	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	1	µg/L	<1.0	5 µg/L	92.6	60	120	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	1	µg/L	<1.0	5 µg/L	97.4	59	127	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	1	µg/L	<1.0	5 µg/L	91.8	59	123	
EP075(SIM): Pentachlorophenol	87-86-5	2	µg/L	<2.0	10 µg/L	66.6	22.1	130	
EP075(SIM): 2,3,4,6-Tetrachlorophenol	58-90-2	1	µg/L	<1.0	---	---	---	---	
EP075(SIM)A: Phenolic Compounds (QCLot: 1113033)									
EP075(SIM): Phenol	108-95-2	1	µg/L	<1.0	5 µg/L	36.5	12.4	60	
EP075(SIM): 2-Chlorophenol	95-57-8	1	µg/L	<1.0	5 µg/L	79.6	28.2	119	
EP075(SIM): 2-Methylphenol	95-48-7	1	µg/L	<1.0	5 µg/L	64.2	32.7	119	
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2.0	5 µg/L	93.4	27.1	119	
EP075(SIM): 2-Nitrophenol	88-75-5	1	µg/L	<1.0	5 µg/L	121	50.2	147	
EP075(SIM): 2,4-Dimethylphenol	105-67-9	1	µg/L	<1.0	5 µg/L	108	31.2	142	
EP075(SIM): 2,4-Dichlorophenol	120-83-2	1	µg/L	<1.0	5 µg/L	99.2	44	143	



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Sub-Matrix: WATER

Sub-Matrix: WATER			Method Blank (MB) Report		Laboratory Control Spike (LCS) Report			
Method: Compound			Result	Spike Concentration	Recovery Limits (%)			
CAS Number	LOR	Unit			Spike	Low	High	
EP075(SIM)A: Phenolic Compounds (QCLot: 1113033) - continued								
EP075(SIM): 2,6-Dichlorophenol	87-65-0	1	<1.0	5 µg/L	74.9	45.4	131	
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	1	<1.0	5 µg/L	88.8	45.2	133	
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	1	<1.0	5 µg/L	75.0	45.8	125	
EP075(SIM): 2,4,5-Trichlorophenol	95-95-5	1	<1.0	5 µg/L	85.0	45.7	126	
EP075(SIM): Pentachlorophenol	87-86-5	2	<2.0	5 µg/L	51.0	45.3	149	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1108171)								
EP075(SIM): Naphthalene	91-20-3	1	<1.0	5 µg/L	81.2	46	113	
EP075(SIM): 2-Methylnaphthalene	91-57-6	1	<1.0	5 µg/L	86.3	50	120	
EP075(SIM): Acenaphthylene	208-96-8	1	<1.0	5 µg/L	98.3	51	118	
EP075(SIM): Acenaphthene	83-32-9	1	<1.0	5 µg/L	76.0	50	114	
EP075(SIM): Fluorene	86-73-7	1	<1.0	5 µg/L	84.7	55	118	
EP075(SIM): Phenanthrene	85-01-8	1	<1.0	5 µg/L	93.5	54	110	
EP075(SIM): Anthracene	120-12-7	1	<1.0	5 µg/L	73.1	49	117	
EP075(SIM): Fluoranthene	206-44-0	1	<1.0	5 µg/L	80.5	51	117	
EP075(SIM): Pyrene	129-00-0	1	<1.0	5 µg/L	80.0	51	117	
EP075(SIM): Benz(a)anthracene	56-55-3	1	<1.0	5 µg/L	80.2	53	120	
EP075(SIM): Chrysene	218-01-9	1	<1.0	5 µg/L	76.0	48	114	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	1	<1.0	5 µg/L	92.3	48	130	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	<1.0	5 µg/L	72.9	43	126	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	<0.5	5 µg/L	82.4	44	120	
EP075(SIM): Indeno(1,2,3.cd)pyrene	193-39-5	1	<1.0	5 µg/L	80.0	45	129	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1	<1.0	5 µg/L	78.6	47	131	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1	<1.0	5 µg/L	79.1	42	126	
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	<1.0	---	---	---	---	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1113033)								
EP075(SIM): Naphthalene	91-20-3	1	<1.0	5 µg/L	108	50	131	
EP075(SIM): Acenaphthylene	208-96-8	1	<1.0	5 µg/L	96.7	49.3	121	
EP075(SIM): Acenaphthene	83-32-9	1	<1.0	5 µg/L	107	56.8	129	
EP075(SIM): Fluorene	86-73-7	1	<1.0	5 µg/L	112	58.4	127	
EP075(SIM): Phenanthrene	85-01-8	1	<1.0	5 µg/L	110	62.2	131	
EP075(SIM): Anthracene	120-12-7	1	<1.0	5 µg/L	110	61.1	128	
EP075(SIM): Fluoranthene	206-44-0	1	<1.0	5 µg/L	120	61.2	132	
EP075(SIM): Pyrene	129-00-0	1	<1.0	5 µg/L	123	64	133	
EP075(SIM): Benz(a)anthracene	56-55-3	1	<1.0	5 µg/L	123	64.3	138	
EP075(SIM): Chrysene	218-01-9	1	<1.0	5 µg/L	108	60.2	133	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	1	<1.0	5 µg/L	98.4	61.6	142	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	<1.0	5 µg/L	97.9	55.1	133	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	<0.5	5 µg/L	105	57.7	133	
EP075(SIM): Indeno(1,2,3.cd)pyrene	193-39-5	1	<1.0	5 µg/L	107	64.2	135	



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Sub-Matrix: WATER

Sub-Matrix: WATER			Method Blank (MB) Report		Laboratory Control Spike (LCS) Report			
					Spike		Recovery Limits (%)	
Method: Compound		CAS Number	LOR	Unit	Concentration	Spike Recovery (%)	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1113033) - continued								
EP075(SIM): Dibenzo(a,h)anthracene		53-70-3	1	µg/L	5 µg/L	105	63.2	136
EP075(SIM): Benzo(g,h,i)perylene		191-24-2	1	µg/L	5 µg/L	108	64.3	136
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1107865)								
EP080: C6 - C9 Fraction		----	20	µg/L	160 µg/L	100	73	135
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1108172)								
EP071: C10 - C14 Fraction		----	50	µg/L	600 µg/L	76.0	49	110
EP071: C15 - C28 Fraction		----	100	µg/L	1020 µg/L	89.2	58	130
EP071: C29 - C36 Fraction		----	50	µg/L	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1113059)								
EP071-HX: C10 - C14 Fraction		----	50	µg/L	798 µg/L	75.2	64	124
EP071-HX: C15 - C28 Fraction		----	100	µg/L	804 µg/L	77.1	70	130
EP071-HX: C29 - C36 Fraction		----	50	µg/L	800 µg/L	78.8	68	128
EP071-HX: C10 - C36 Fraction (sum)		----	50	µg/L	----	----	----	----
EP080: BTEX (QCLot: 1107865)								
EP080: Benzene		71-43-2	1	µg/L	10 µg/L	96.7	77.6	122
EP080: Toluene		108-88-3	2	µg/L	10 µg/L	104	74	122
EP080: Ethylbenzene		100-41-4	2	µg/L	10 µg/L	101	73	126
EP080: meta- & para-Xylene		108-38-3	2	µg/L	20 µg/L	101	70.4	129
		106-42-3						
EP080: ortho-Xylene		95-47-6	2	µg/L	10 µg/L	97.7	74.3	126



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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

Sub-Matrix: WATER			Matrix Spike (MS) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Recovery Limits (%)		
					Spike Recovery (%)	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 1111406)							
EB0914770-005	Anonymous	EG020A-F: Arsenic	7440-38-2	0.100 mg/L	125	70	130
		EG020A-F: Cadmium	7440-43-9	0.100 mg/L	107	70	130
		EG020A-F: Chromium	7440-47-3	0.100 mg/L	113	70	130
		EG020A-F: Copper	7440-50-8	0.2 mg/L	104	70	130
		EG020A-F: Lead	7439-92-1	0.100 mg/L	97.1	70	130
		EG020A-F: Nickel	7440-02-0	0.100 mg/L	103	70	130
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	127	70	130
EG035F: Dissolved Mercury by FIMS (QCLot: 1111405)							
EB0914770-005	Anonymous	EG035F: Mercury	7439-97-6	0.010 mg/L	77.6	70	130
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 1107866)							
EB0914886-004	MW04	EP074: Benzene	71-43-2	10 µg/L	88.4	70	130
		EP074: Toluene	108-88-3	10 µg/L	89.6	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 1107866)							
EB0914886-004	MW04	EP074: 1,1-Dichloroethene	75-35-4	10 µg/L	98.1	70	130
		EP074: Trichloroethene	79-12-6	10 µg/L	83.3	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 1107866)							
EB0914886-004	MW04	EP074: Chlorobenzene	108-90-7	10 µg/L	93.3	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1107865)							
EB0914886-002	MW02	EP080: C6 - C9 Fraction	----	140 µg/L	84.4	70	130
EP080: BTEX (QCLot: 1107865)							
EB0914886-002	MW02	EP080: Benzene	71-43-2	10 µg/L	91.2	70	130
		EP080: Toluene	108-88-3	10 µg/L	93.9	70	130



Environmental Division

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: EB0914886	Page	: 1 of 9
Client	: SINCLAIR KNIGHT MERZ	Laboratory	: Environmental Division Brisbane
Contact	: MS ONA KANAS	Contact	: Tim Klimister
Address	: EASTERN BUSWAY PROJECT PO BOX 3848 STH BRISBANE 4101	Address	: 32 Shand Street Stafford QLD Australia 4053
E-mail	: okanas@skm.com.au	E-mail	: Services.Brisbane@alsenviro.com
Telephone	: +61 07 3026 7286	Telephone	: +61-7-3243 7222
Facsimile	: +61 07 3026 7306	Facsimile	: +61-7-3243 7218
Project	: QE09537	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: Cronulla Park	Date Samples Received	: 18-SEP-2009
C-O-C number	: ---	Issue Date	: 01-OCT-2009
Sampler	: ---	No. of samples received	: 16
Order number	: ---	No. of samples analysed	: 15
Quote number	: EN/003/09		

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



Page : 2 of 9
Work Order : EB0914886
Client : SINCLAIR KNIGHT MERZ
Project : QE09537

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		Sample Date	Extraction / Preparation		Analysis		
Container / Client Sample ID(s)	Date extracted		Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered							
MW01, MW03, MW05, MW07, MW09, Dup01, CR13, CR15, Drain 1	MW02, MW04, MW06, MW08, Dup01, CR13, CR15,	17-SEP-2009	---	---	25-SEP-2009	16-MAR-2010	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered							
MW01, MW03, MW05, MW07, MW09, Dup02, CR14, Drain 1	MW02, MW04, MW06, MW08, Dup01, CR13, CR15,	17-SEP-2009	---	---	25-SEP-2009	15-OCT-2009	✓
EP070: Total Petroleum Hydrocarbons - Speciation							
Amber Glass Bottle - Unpreserved							
MW04, MW06,	MW05, MW07	17-SEP-2009	25-SEP-2009	24-SEP-2009	26-SEP-2009	01-NOV-2009	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Amber VOC Vial - HCl or NaHSO4							
MW03, MW05, MW07, CR13,	MW04, MW06, MW08, Drain 1	17-SEP-2009	---	---	27-SEP-2009	01-OCT-2009	✓



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Work Order : EB0914886
Client : SINCLAIR KNIGHT MERZ
Project : QE09537

Matrix: WATER Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method		Sample Date	Extraction / Preparation		Analysis	
Container / Client Sample ID(s)			Date extracted	Due for extraction	Date analysed	Due for analysis
EP074B: Oxygenated Compounds						
Amber VOC Vial - HCl or NaHSO4						
MW04, MW06, MW08, Drain 1 CR13.	17-SEP-2009	--	--	27-SEP-2009	01-OCT-2009	✓
EP074C: Sulfonated Compounds						
Amber VOC Vial - HCl or NaHSO4						
MW04, MW06, MW08, Drain 1 CR13.	17-SEP-2009	--	--	27-SEP-2009	01-OCT-2009	✓
EP074D: Fumigants						
Amber VOC Vial - HCl or NaHSO4						
MW04, MW06, MW08, Drain 1 CR13.	17-SEP-2009	--	--	27-SEP-2009	01-OCT-2009	✓
EP074E: Halogenated Aliphatic Compounds						
Amber VOC Vial - HCl or NaHSO4						
MW04, MW06, MW08, Drain 1 CR13.	17-SEP-2009	--	--	27-SEP-2009	01-OCT-2009	✓
EP074F: Halogenated Aromatic Compounds						
Amber VOC Vial - HCl or NaHSO4						
MW04, MW06, MW08, Drain 1 CR13.	17-SEP-2009	--	--	27-SEP-2009	01-OCT-2009	✓
EP074G: Trihalomethanes						
Amber VOC Vial - HCl or NaHSO4						
MW04, MW06, MW08, Drain 1 CR13.	17-SEP-2009	--	--	27-SEP-2009	01-OCT-2009	✓



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Work Order : EB0914886
Client : SINCLAIR KNIGHT MERZ
Project : QE09537

Matrix: WATER		Extraction / Preparation				Analysis	
Method	Sample Date	Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075(SIM)A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved MW08, Drain 1	CR13, 17-SEP-2009	22-SEP-2009	24-SEP-2009	✓	23-SEP-2009	01-NOV-2009	✓
Amber Glass Bottle - Unpreserved MW04, MW06,	MW05, MW07 17-SEP-2009	25-SEP-2009	24-SEP-2009	✗	25-SEP-2009	04-NOV-2009	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved MW03, CR13,	MW08, Drain 1 17-SEP-2009	22-SEP-2009	24-SEP-2009	✓	23-SEP-2009	01-NOV-2009	✓
Amber Glass Bottle - Unpreserved MW04, MW06,	MW05, MW07 17-SEP-2009	25-SEP-2009	24-SEP-2009	✗	25-SEP-2009	04-NOV-2009	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved MW01, MW03, MW09, Dup02, CR14, Drain 1	MW02, MW08, Dup01, CR13, CR15, 17-SEP-2009	22-SEP-2009	24-SEP-2009	✓	24-SEP-2009	01-NOV-2009	✓
Amber Glass Bottle - Unpreserved MW04, MW06,	MW05, MW07 17-SEP-2009	25-SEP-2009	24-SEP-2009	✗	30-SEP-2009	04-NOV-2009	✓
Amber VOC Vial - HCl or NaHSO4 MW01, MW03, MW05, MW07, MW09, Dup02, CR14, Drain 1	MW02, MW04, MW06, MW08, Dup01, CR13, CR15, 17-SEP-2009	25-SEP-2009	--	---	27-SEP-2009	01-OCT-2009	✓
EP080: BTEX							
Amber VOC Vial - HCl or NaHSO4 MW01, MW09, Dup02, CR15	MW02, Dup01, CR14, 17-SEP-2009	--	--	---	27-SEP-2009	01-OCT-2009	✓



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(when) 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		QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Dissolved Mercury by FIMS	EG035F	2	20	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
	EG020A-F	2	20	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
	EP080	2	15	13.3	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP074	1	8	12.5	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds							
Laboratory Control Samples (LCS)							
Dissolved Mercury by FIMS	EG035F	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
	EG020A-F	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
	EP075(SIM)	2	10	20.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	4	7.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071-HX	1	4	25.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Speciation	EP070	1	4	25.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	15	6.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	8	12.5	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Dissolved Mercury by FIMS	EG035F	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
	EG020A-F	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
	EP075(SIM)	2	10	20.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	14	7.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071-HX	1	4	25.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Speciation	EP070	1	4	25.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	15	6.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	8	12.5	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Dissolved Mercury by FIMS	EG035F	1	20	5.0	5.0	✓	ALS QCS3 requirement
	EG020A-F	1	20	5.0	5.0	✓	ALS QCS3 requirement
	EP080	1	15	6.7	5.0	✓	ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	8	12.5	5.0	✓	ALS QCS3 requirement



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Work Order : EB0914886
Client : SINCLAIR KNIGHT MERZ
Project : QE09537

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
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	(APHA 21st ed., 3125; USEPA SW846 - 8020, 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.
Dissolved Mercury by FIMS	EG035F	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
TPH - Speciation	EP070	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 - 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 - Semivolatile Fraction	EP071-HX	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)
Volatile Organic Compounds	EP074	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. 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. 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.



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Work Order : EB0914886
Client : SINCLAIR KNIGHT MERZ
Project : QE09537

Preparation Methods		Method	Matrix	Method Descriptions
Separatory Funnel Extraction of Liquids		ORG14-HX	WATER	Variation of USEPA SW 846 - 3510B: 500 mL to 0.5L of sample is transferred to a separatory funnel and serially extracted three times using 30mL DCM for each extract. The resultant extracts are combined, dehydrated, and exchanged into 5 mL of hexane for analysis. ALS default excludes sediment which may be resident in the container.

RTI DL RELEASE - EHP



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Work Order : EB0914886
Client : SINCLAIR KNIGHT MERZ
Project : QE09537

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 SW846 or ALS-QW/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

Sub-Matrix: WATER

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Samples Submitted							
EP075(SIM)S: Phenolic Compound Surrogates	EB0914886-005	MW05	Phenol-d6	13127-88-3	8.7 %	10-94 %	Recovery less than lower data quality objective
EP075(SIM)S: Phenolic Compound Surrogates	EB0914886-006	MW06	Phenol-d6	13127-88-3	8.5 %	10-94 %	Recovery less than lower data quality objective

Outliers : Analysis Holding Time Compliance

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

Matrix: WATER

Method		Extraction / Preparation		Analysis		
Container / Client Sample ID(s)		Date received	Due for extraction	Days overdue	Date analysed	Days overdue
EP070: Total Petroleum Hydrocarbons - Speciation						
Amber Glass Bottle - Unpreserved						
MW04,	MW05,	25-SEP-2009	24-SEP-2009	1	---	---
MW06,	MW07					
EP075(SIM)A: Phenolic Compounds						
Amber Glass Bottle - Unpreserved						
MW04,	MW05,	25-SEP-2009	24-SEP-2009	1	---	---
MW06,	MW07					
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons						
Amber Glass Bottle - Unpreserved						
MW04,	MW05,	25-SEP-2009	24-SEP-2009	1	---	---
MW06,	MW07					
EP080/071: Total Petroleum Hydrocarbons						



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Work Order : EB0914886
Client : SINCLAIR KNIGHT MERZ
Project : QE09537

Matrix: WATER

Method Container / Client Sample ID(s)	Extraction / Preparation		Analysis	
	Date extracted	Due for extraction	Date analysed	Due for analysis
EP080/071: Total Petroleum Hydrocarbons - Analysis Holding Time Compliance				
Amber Glass Bottle - Unpreserved				
MW04,				
MW06,				
MW05,	25-SEP-2009	24-SEP-2009	---	---
MW07				
		1		---

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.

RTI DL RELEASE - EHP



Environmental Division

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order : **EB0914886**

Client : **SINCLAIR KNIGHT MERZ**
Contact : **MS ONA KANAS**
Address : **EASTERN BUSWAY PROJECT**
PO BOX 3848
STH BRISBANE 4101

Laboratory : **Environmental Division Brisbane**
Contact : **Tim Kilmister**
Address : **32 Shand Street Stafford QLD Australia**
4053

E-mail : **okanas@skm.com.au**
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E-mail : **Services.Brisbane@alsenviro.com**
Telephone : **+61-7-3243 7222**
Facsimile : **+61-7-3243 7218**

Project : **QE09537**
Order number : **----**
C-O-C number : **----**
Site : **Cronulla Park**
Sampler : **----**

Page : **1 of 2**
Quote number : **ES2009SINKNI0322 (EN/003/09)**
QC Level : **NBPM 1999 Schedule B(3) and ALS**
QCS3 requirement

Dates

Date Samples Received : **18-SEP-2009**
Client Requested Due Date : **25-SEP-2009**

Issue Date : **21-SEP-2009 17:30**
Scheduled Reporting Date : **01-OCT-2009**

Delivery Details

Mode of Delivery : **Carrier**
No. of coolers/boxes : **1 LARGE, 1 MEDIUM**
Security Seal : **Intact.**

Temperature : **10.1, 7.3° C - Ice present**
No. of samples received : **16**
No. of samples analysed : **15**

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Requested Deliverables
- Samples received in appropriately pretreated and preserved containers.
- Sample(s) have been received within recommended holding times.
- Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Please direct any queries related to sample condition / numbering / breakages to Maggie Kahi.
- Analytical work for this work order will be conducted at ALS Brisbane.
- Sample Disposal - Aqueous (14 days), Solid (90 days) from date of completion of work order.

Issue Date : 21-SEP-2009 17:30
 Page : 2 of 2
 Work Order : EB0914886
 Client : SINCLAIR KNIGHT MERZ



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 necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client.

Matrix: WATER

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) WATER No analysis requested	WATER - EP070 (Water) TPH Speciation - Aliphatic & Aromatic Hydrocarbons C10-C35	WATER - EP075 K grp removed N/OCs with no miscellaneous compounds	WATER - EP075 SIM Phenols only SIM Phenols only	WATER - W-02 8 Metals	WATER - W-05 TPH/BTEX/8 Metals	WATER - W-10 TPH/OC/PAH
EB0914886-001	17-SEP-2009 15:00	MW01						✓	
EB0914886-002	17-SEP-2009 15:00	MW02						✓	
EB0914886-003	17-SEP-2009 15:00	MW03					✓		✓
EB0914886-004	17-SEP-2009 15:00	MW04				✓	✓		✓
EB0914886-005	17-SEP-2009 15:00	MW05				✓	✓		✓
EB0914886-006	17-SEP-2009 15:00	MW06		✓		✓	✓		✓
EB0914886-007	17-SEP-2009 15:00	MW07		✓		✓	✓		✓
EB0914886-008	17-SEP-2009 15:00	MW08			✓	✓	✓		✓
EB0914886-009	17-SEP-2009 15:00	MW09						✓	
EB0914886-010	17-SEP-2009 15:00	Dup01						✓	
EB0914886-011	17-SEP-2009 15:00	Dup02						✓	
EB0914886-012	17-SEP-2009 15:00	CR13				✓	✓		✓
EB0914886-013	17-SEP-2009 15:00	CR14						✓	
EB0914886-014	17-SEP-2009 15:00	CR15						✓	
EB0914886-015	17-SEP-2009 15:00	Drain 1				✓	✓		✓
EB0914886-016	17-SEP-2009 15:00	Trip Blank	✓						

Requested Deliverables

MR JEREMY WICKS

- *AU Certificate of Analysis - NATA (COA)
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)
- A4 - AU Sample Receipt Notification - Environmental (SRN)
- A4 - AU Tax Invoice (INV)
- Default - Chain of Custody (COC)
- EDI Format - ENMRG (ENMRG)
- EDI Format - ESDAT (ESDAT)
- EDI Format - XTab (XTab)

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Email	jwicks@skm.com.au
Email	jwicks@skm.com.au
Email	jwicks@skm.com.au

MS ONA KANAS

- *AU Certificate of Analysis - NATA (COA)
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)
- A4 - AU Sample Receipt Notification - Environmental (SRN)
- Default - Chain of Custody (COC)
- EDI Format - ENMRG (ENMRG)
- EDI Format - ESDAT (ESDAT)
- EDI Format - XTab (XTab)

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Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: EB0916017	Page	: 1 of 6
Client	: SINCLAIR KNIGHT MERZ	Laboratory	: Environmental Division Brisbane
Contact	: MR JEREMY WICKS	Contact	: Tim Kilmister
Address	: 32 CORDELIA STREET SOUTH BRISBANE QLD, AUSTRALIA 4101	Address	: 32 Shand Street Stafford QLD Australia 4053
E-mail	: jwicks@skm.com.au	E-mail	: Services.Brisbane@alsenviro.com
Telephone	: ----	Telephone	: +61-7-3243 7222
Facsimile	: ----	Facsimile	: +61-7-3243 7218
Project	: QE09537	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----	Date Samples Received	: 08-OCT-2009
C-O-C number	: ----	Issue Date	: 20-OCT-2009
Sampler	: ----	No. of samples received	: 15
Site	: Cronulla Park	No. of samples analysed	: 15
Quote number	: EN/003/09		

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

This document is issued in accordance with NATA accreditation requirements.

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
Matt Frost	Organic Instrument Chemist	Organics

WORLD RECOGNISED
ACCREDITATION

Environmental Division Brisbane
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Page : 2 of 6
Work Order : EB0916017
Client : SINCLAIR KNIGHT MERZ
Project : QE09537

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 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 date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client.

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

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Page : 3 of 6
Work Order : EB0916017
Client : SINCLAIR KNIGHT MERZ
Project : QE09537

Analytical Results

Sub-Matrix: WATER

Compound	CAS Number	LOR	Unit	Client sample ID				
				Client sampling date / time				
				MW01	MW02	MW03	MW04	MW05
				07-OCT-2009 15:00	07-OCT-2009 15:00	07-OCT-2009 15:00	07-OCT-2009 15:00	07-OCT-2009 15:00
				EB0916017-001	EB0916017-002	EB0916017-003	EB0916017-004	EB0916017-005
EP071 SC: Total Petroleum Hydrocarbons - Silica gel cleanup								
C10 - C14 Fraction	---	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	---	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	---	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	---	50	µg/L	<50	<50	<50	<50	<50
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	---	20	µg/L	<20	<20	<20	50	50
C10 - C14 Fraction	---	50	µg/L	60	<50	70	410	370
C15 - C28 Fraction	---	100	µg/L	130	<100	120	880	1190
C29 - C36 Fraction	---	50	µg/L	60	<50	60	290	410
^ C10 - C36 Fraction (sum)	---	50	µg/L	250	<50	240	1580	1960
EP080: BTEX								
Benzene	71-43-2	1	µg/L	<1	<1	<1	6	3
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	4	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	107	100	107	105	104
Toluene-D8	2037-26-5	0.1	%	108	110	97.1	106	104
4-Bromofluorobenzene	480-00-4	0.1	%	105	109	95.9	113	109



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Work Order : EB0916017
Client : SINCLAIR KNIGHT MERZ
Project : QE09537

Analytical Results

Sub-Matrix: WATER

Compound		Client sample ID		Client sampling date / time		Unit		LOR		CAS Number		MW06		MW07		MW08		MW09		Dup01	
		Sub-Matrix: WATER		07-OCT-2009 15:00		EB0916017-006		07-OCT-2009 15:00		EB0916017-007		07-OCT-2009 15:00		EB0916017-008		07-OCT-2009 15:00		EB0916017-009		07-OCT-2009 15:00	
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cleanup																					
C10 - C14 Fraction		---	50	µg/L	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
C15 - C28 Fraction		---	100	µg/L	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
C29 - C36 Fraction		---	50	µg/L	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
^ C10 - C36 Fraction (sum)		---	50	µg/L	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
EP080/071: Total Petroleum Hydrocarbons																					
C6 - C9 Fraction		---	20	µg/L	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
C10 - C14 Fraction		---	50	µg/L	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
C15 - C28 Fraction		---	100	µg/L	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
C29 - C36 Fraction		---	50	µg/L	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
^ C10 - C36 Fraction (sum)		---	50	µg/L	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
EP080: BTEX																					
Benzene		71-43-2	1	µg/L	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Toluene		108-88-3	2	µg/L	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Ethylbenzene		100-41-4	2	µg/L	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
meta- & para-Xylene		108-38-3	2	µg/L	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
ortho-Xylene		95-47-6	2	µg/L	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
EP080S: TPH(V)/BTEX Surrogates																					
1,2-Dichloroethane-D4		17060-07-0	0.1	%	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Toluene-D8		2037-26-5	0.1	%	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
4-Bromofluorobenzene		460-00-4	0.1	%	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---



Page : 5 of 6
Work Order : EB0916017
Client : SINCLAIR KNIGHT MERZ
Project : QE09537

Analytical Results

Sub-Matrix: WATER

Compound	CAS Number		Client sample ID		Client sampling date / time		Dup02		CR13		CR14		CR15		Creek	
	LOR	Unit					07-OCT-2009 15:00	EB0916017-011	07-OCT-2009 15:00	EB0916017-012	07-OCT-2009 15:00	EB0916017-013	07-OCT-2009 15:00	EB0916017-014	07-OCT-2009 15:00	EB0916017-015
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cleanup																
C10 - C14 Fraction	---	50	µg/L				<50		<50		<50		<50		<50	
C15 - C28 Fraction	---	100	µg/L				<100		<100		<100		<100		<100	
C29 - C36 Fraction	---	50	µg/L				<50		<50		<50		<50		<50	
^ C10 - C36 Fraction (sum)	---	50	µg/L				<50		<50		<50		<50		<50	
EP080/071: Total Petroleum Hydrocarbons																
C6 - C9 Fraction	---	20	µg/L				30		<20		<20		<20		<20	
C10 - C14 Fraction	---	50	µg/L				330		110		<50		<50		80	
C15 - C28 Fraction	---	100	µg/L				840		330		<100		160		350	
C29 - C36 Fraction	---	50	µg/L				150		80		<50		100		130	
^ C10 - C36 Fraction (sum)	---	50	µg/L				1300		520		<50		260		570	
EP080: BTEX																
Benzene	71-43-2	1	µg/L				<1		<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	
EP080S: TPH(V)/BTEX Surrogates																
1,2-Dichloroethane-D4	17060-07-0	0.1	%				112		112		106		108		104	
Toluene-D8	2037-26-5	0.1	%				98.3		105		106		105		102	
4-Bromofluorobenzene	460-00-4	0.1	%				102		106		104		105		94.4	



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Work Order : EB0916017
Client : SINCLAIR KNIGHT MERZ
Project : QE09537

Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP080S: TPH(V)/BTX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	80	120
Toluene-D8	2037-26-5	80	110
4-Bromofluorobenzene	460-00-4	86	115



Environmental Division

QUALITY CONTROL REPORT

Work Order	: EB0916017	Page	: 1 of 6
Client	: SINCLAIR KNIGHT MERZ	Laboratory	: Environmental Division Brisbane
Contact	: MR JEREMY WICKS	Contact	: Tim Klimister
Address	: 32 CORDELIA STREET SOUTH BRISBANE QLD, AUSTRALIA 4101	Address	: 32 Shand Street Stafford QLD Australia 4053
E-mail	: jwicks@skm.com.au	E-mail	: Services.Brisbane@alsenviro.com
Telephone	: ----	Telephone	: +61-7-3243 7222
Facsimile	: ----	Facsimile	: +61-7-3243 7218
Project	: QE09537	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: Cronulla Park	Date Samples Received	: 08-OCT-2009
C-O-C number	: ----	Issue Date	: 20-OCT-2009
Sampler	: ----	No. of samples received	: 15
Order number	: ----	No. of samples analysed	: 15
Quote number	: EN/003/09		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) 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

This document is issued in accordance with NATA accreditation requirements.

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
Matt Frost	Organic Instrument Chemist	Organics

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ACCREDITATION

Environmental Division Brisbane
Part of the ALS Laboratory Group

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Page : 2 of 6
Work Order : EB0916017
Client : SINCLAIR KNIGHT MERZ
Project : QE09537

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

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Page : 3 of 6
Work Order : EB0916017
Client : SINCLAIR KNIGHT MERZ
Project : QE09537

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

Sub-Matrix: WATER		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: 1129380)												
EB0916017-001		MW01			EP071: C15 - C28 Fraction	---	100	µg/L	130	<100	23.0	No Limit
					EP071: C10 - C14 Fraction	---	50	µg/L	60	<50	24.3	No Limit
					EP071: C29 - C38 Fraction	---	50	µg/L	60	<50	0.0	No Limit
EB0916017-012		CR13			EP071: C15 - C28 Fraction	---	100	µg/L	330	310	5.2	No Limit
					EP071: C10 - C14 Fraction	---	50	µg/L	110	80	30.3	No Limit
					EP071: C29 - C38 Fraction	---	50	µg/L	80	80	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1130329)												
EB0916017-001		MW01			EP080: C6 - C9 Fraction	---	20	µg/L	<20	<20	0.0	No Limit
EB0916017-011		Dup02			EP080: C6 - C9 Fraction	---	20	µg/L	20	20	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1130330)												
EB0916017-015		Creek			EP080: C6 - C9 Fraction	---	20	µg/L	<20	<20	0.0	No Limit
EB0916054-010		Anonymous			EP080: C6 - C9 Fraction	---	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEX (QC Lot: 1130329)												
EB0916017-001		MW01			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	2	µg/L	<2	<2	0.0	No Limit
					EP080: ortho-Xylene	106-42-3	2	µg/L	<2	<2	0.0	No Limit
EB0916017-011		Dup02			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	2	µg/L	<2	<2	0.0	No Limit
					EP080: ortho-Xylene	106-42-3	2	µg/L	<2	<2	0.0	No Limit
EP080: BTEX (QC Lot: 1130330)												
EB0916017-015		Creek			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	2	µg/L	<2	<2	0.0	No Limit
					EP080: ortho-Xylene	106-42-3	2	µg/L	<2	<2	0.0	No Limit
EB0916054-010		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



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Work Order : EB0916017
Client : SINCLAIR KNIGHT MERZ
Project : QE09537

Sub-Matrix: WATER

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				Recovery Limits (%)
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EP080: BTEX (QC Lot: 1130330) - continued EB0916054-010	Anonymous	EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0

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Page : 5 of 6
Work Order : EB0916017
Client : SINCLAIR KNIGHT MERZ
Project : QE09537

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

Sub-Matrix: WATER				Method Blank (MB) Report					Laboratory Control Spike (LCS) Report			
Method: Compound				Result	Spike Concentration	Spike Recovery (%)	Recovery Limits (%)					
CAS Number	LOR	Unit	Low				High					
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cleanup (QCLot: 1129373)												
EP071SG: C10 - C14 Fraction	50	µg/L	<50	576 µg/L	64.2	49	110					
EP071SG: C15 - C28 Fraction	100	µg/L	<100	1010 µg/L	67.9	58	130					
EP071SG: C29 - C36 Fraction	50	µg/L	<50	---	---	---	---					
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1129380)												
EP071: C10 - C14 Fraction	50	µg/L	<50	600 µg/L	77.3	49	110					
EP071: C15 - C28 Fraction	100	µg/L	<100	1020 µg/L	105	58	130					
EP071: C29 - C36 Fraction	50	µg/L	<50	---	---	---	---					
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1130329)												
EP080: C6 - C9 Fraction	20	µg/L	<20	160 µg/L	107	73	135					
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1130330)												
EP080: C6 - C9 Fraction	20	µg/L	<20	160 µg/L	109	73	135					
EP080: BTEX (QCLot: 1130329)												
EP080: Benzene	71-43-2	1	<1	10 µg/L	95.9	77.6	122					
EP080: Toluene	108-88-3	2	<2	10 µg/L	107	74	122					
EP080: Ethylbenzene	100-41-4	2	<2	10 µg/L	95.9	73	126					
EP080: meta- & para-Xylene	108-38-3	2	<2	20 µg/L	103	70.4	129					
	106-42-3											
EP080: ortho-Xylene	95-47-6	2	<2	10 µg/L	102	74.3	126					
EP080: BTEX (QCLot: 1130330)												
EP080: Benzene	71-43-2	1	<1	10 µg/L	106	77.6	122					
EP080: Toluene	108-88-3	2	<2	10 µg/L	105	74	122					
EP080: Ethylbenzene	100-41-4	2	<2	10 µg/L	103	73	126					
EP080: meta- & para-Xylene	108-38-3	2	<2	20 µg/L	103	70.4	129					
	106-42-3											
EP080: ortho-Xylene	95-47-6	2	<2	10 µg/L	104	74.3	126					



Page : 6 of 6
Work Order : EB0916017
Client : SINCLAIR KNIGHT MERZ
Project : QE09537

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 Concentration	Spike Recovery (%)	Low	High
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number			
EP080/074: Total Petroleum Hydrocarbons (QCLot: 1129380)						
EB0916017-002	MW02	EP071: C10 - C14 Fraction	----	600 µg/L	71.4	70 130
		EP071: C15 - C28 Fraction	----	1020 µg/L	85.4	70 130
EP080/074: Total Petroleum Hydrocarbons (QCLot: 1130329)						
EB0916017-002	MW02	EP080: C6 - C9 Fraction	----	140 µg/L	90.2	70 130
EP080/074: Total Petroleum Hydrocarbons (QCLot: 1130330)						
EB0916054-001	Anonymous	EP080: C6 - C9 Fraction	----	140 µg/L	93.4	70 130
EP080: BTEX (QCLot: 1130329)						
EB0916017-002	MW02	EP080: Benzene	71-43-2	10 µg/L	97.8	70 130
		EP080: Toluene	108-88-3	10 µg/L	103	70 130
EP080: BTEX (QCLot: 1130330)						
EB0916054-001	Anonymous	EP080: Benzene	71-43-2	10 µg/L	110	70 130
		EP080: Toluene	108-88-3	10 µg/L	103	70 130



Environmental Division

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: EB0916017	Page	: 1 of 6
Client	: SINCLAIR KNIGHT MERZ	Laboratory	: Environmental Division Brisbane
Contact	: MR JEREMY WICKS	Contact	: Tim Klimister
Address	: 32 CORDELIA STREET SOUTH BRISBANE QLD, AUSTRALIA 4101	Address	: 32 Shand Street Stafford QLD Australia 4053
E-mail	: jwicks@skm.com.au	E-mail	: Services.Brisbane@alsenviro.com
Telephone	: -----	Telephone	: +61-7-3243 7222
Facsimile	: -----	Facsimile	: +61-7-3243 7218
Project	: QE09537	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: Cronulla Park	Date Samples Received	: 08-OCT-2009
C-O-C number	: -----	Issue Date	: 20-OCT-2009
Sampler	: -----	No. of samples received	: 15
Order number	: -----	No. of samples analysed	: 15
Quote number	: EN/003/09		

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

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Part of the ALS Laboratory Group

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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)	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cleanup							
Amber Glass Bottle - Unpreserved							
MW02, MW03, MW04, MW05, MW06, MW07, Dup01, Dup02, CR13, CR14, CR15, Creek	07-OCT-2009	14-OCT-2009	14-OCT-2009	✓	16-OCT-2009	23-NOV-2009	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved							
MW02, MW03, MW04, MW05, MW06, MW07, Dup01, Dup02, CR13, CR14, CR15, Creek	07-OCT-2009	14-OCT-2009	14-OCT-2009	✓	16-OCT-2009	23-NOV-2009	✓
Amber VOC Vial - HCl							
Creek	07-OCT-2009	--	--	---	14-OCT-2009	21-OCT-2009	✓
Amber VOC Vial - HCl							
MW01, MW02, MW03, MW04, MW05, MW06, MW07, MW08, MW09, Dup01, Dup02, CR13, CR14, CR15	07-OCT-2009	--	--	---	15-OCT-2009	21-OCT-2009	✓



Page : 3 of 6
Work Order : EB0916017
Client : SINCLAIR KNIGHT MERZ
Project : QE09537

Matrix: WATER

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

Method		Sample Date	Extraction / Preparation		Analysis	
Container / Client Sample ID(s)			Date extracted	Due for extraction	Date analysed	Due for analysis
Evaluation						
EP080: BTEX						
Amber VOC Vial - HCl Creek		07-OCT-2009	---	---	----	✓
Amber VOC Vial - HCl MW01, MW03, MW05, MW07, MW09, Dup02, CR14, CR15		07-OCT-2009	---	---	----	✓
MW02, MW04, MW06, MW08, Dup01, CR13, CR15						
					14-OCT-2009	21-OCT-2009
					15-OCT-2009	21-OCT-2009

RTI DL RELEASE - EHP



Page : 4 of 6
Work Order : EB0916017
Client : SINCLAIR KNIGHT MERZ
Project : QE09537

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

Quality Control Sample Type		Method		Count		Rate (%)		Quality Control Specification	
Analytical Methods				QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)									
TPH - Semivolatile Fraction		EP071		2	14	14.3	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX		EP080		4	38	10.5	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)									
TPH - Semivolatile Fraction		EP071		1	14	7.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Total Petroleum Hydrocarbons - Silica Gel Clean Up		EP071SG		1	14	7.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX		EP080		2	38	5.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)									
TPH - Semivolatile Fraction		EP071		1	14	7.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Total Petroleum Hydrocarbons - Silica Gel Clean Up		EP071SG		1	14	7.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX		EP080		2	38	5.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)									
TPH - Semivolatile Fraction		EP071		1	14	7.1	5.0	✓	ALS QCS3 requirement
TPH Volatiles/BTEX		EP080		2	38	5.3	5.0	✓	ALS QCS3 requirement



Page : 5 of 6
Work Order : EB0918017
Client : SINCLAIR KNIGHT MERZ
Project : QEO9537

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
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 - Total Petroleum Hydrocarbons - Silica Gel Clean Up	EP071SG	WATER	(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)
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. 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.
Separatory Funnel Extraction of Liquids - Silica Gel Cleanup	ORG14-SG	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. ALS default excludes sediment which may be resident in the container. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)



Page : 6 of 6
Work Order : EB0916017
Client : SINCLAIR KNIGHT MERZ
Project : QE09537

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 SW846 or ALS-QW/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

Sub-Matrix: WATER

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Samples Submitted							
EP080S: TPH(V)/BTEX Surrogates	EB0916017-010	Dup01	Toluene-D8	2037-26-5	111 %	88-110 %	Recovery greater than upper data quality objective

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.



Environmental Division

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order : **EB0916017**

Client : **SINCLAIR KNIGHT MERZ**
Contact : **MS ONA KANAS**
Address : **EASTERN BUSWAY PROJECT**
PO BOX 3848
STH BRISBANE 4101

Laboratory : **Environmental Division Brisbane**
Contact : **Tim Kilmister**
Address : **32 Shand Street Stafford QLD Australia**
4053

E-mail : **okanas@skm.com.au**
Telephone : **+61 07 3026 7286**
Facsimile : **+61 07 3026 7306**

E-mail : **Services.Brisbane@alsenviro.com**
Telephone : **+61-7-3243 7222**
Facsimile : **+61-7-3243 7218**

Project : **QE09537**
Order number : **----**
C-O-C number : **----**
Site : **Cronulla Park**
Sampler : **----**

Page : **1 of 2**
Quote number : **ES2009SINKNI0322 (EN/003/09)**
QC Level : **NEPM 1999 Schedule B(3) and ALS**
QCS3 requirement

Dates

Date Samples Received : **08-OCT-2009**
Client Requested Due Date : **20-OCT-2009**

Issue Date : **13-OCT-2009 11:54**
Scheduled Reporting Date : **20-OCT-2009**

Delivery Details

Mode of Delivery : **Carrier**
No. of coolers/boxes : **2 MEDIUM**
Security Seal : **Intact.**

Temperature : **7.0, 3.3° C - Ice present**
No. of samples received : **15**
No. of samples analysed : **15**

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Requested Deliverables
- Samples received in appropriately pretreated and preserved containers.
- Sample(s) have been received within recommended holding times.
- Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).
- For sample MW08 we are only able to do analysis of C6-9/BTEX as only Vials and a Nitric Acid Filtered Clear Container were received. To do analysis for TPH C10-36 and TPH Silic Gel Clean up the preferred container is a Amber Glass Unpreserved.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Please direct any queries related to sample condition / numbering / breakages to Maggie Kahi.
- Analytical work for this work order will be conducted at ALS Brisbane.
- Sample Disposal - Aqueous (14 days), Solid (90 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 necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client.

Matrix: WATER

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EP071SG TPH Silica Gel Clean Up	WATER - W-04 TPH/BTEX	WATER - W-18 TPH(C6 - C9)/BTEX
EB0916017-001	07-OCT-2009 15:00	MW01	✓	✓	
EB0916017-002	07-OCT-2009 15:00	MW02	✓	✓	
EB0916017-003	07-OCT-2009 15:00	MW03	✓	✓	
EB0916017-004	07-OCT-2009 15:00	MW04	✓	✓	
EB0916017-005	07-OCT-2009 15:00	MW05	✓	✓	
EB0916017-006	07-OCT-2009 15:00	MW06		✓	
EB0916017-007	07-OCT-2009 15:00	MW07		✓	
EB0916017-008	07-OCT-2009 15:00	MW08			✓
EB0916017-009	07-OCT-2009 15:00	MW09	✓	✓	
EB0916017-010	07-OCT-2009 15:00	Dup01	✓	✓	
EB0916017-011	07-OCT-2009 15:00	Dup02	✓	✓	
EB0916017-012	07-OCT-2009 15:00	CR13	✓	✓	
EB0916017-013	07-OCT-2009 15:00	CR14	✓	✓	
EB0916017-014	07-OCT-2009 15:00	CR15	✓	✓	
EB0916017-015	07-OCT-2009 15:00	Creek	✓	✓	

Requested Deliverables

MR JEREMY WICKS

- *AU Certificate of Analysis - NATA (COA)	Email	jwicks@skm.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	jwicks@skm.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	jwicks@skm.com.au
- A4 - AU Sample Receipt Notification - Environmental (SRN)	Email	jwicks@skm.com.au
- A4 - AU Tax Invoice (INV)	Email	jwicks@skm.com.au
- Default - Chain of Custody (COC)	Email	jwicks@skm.com.au
- EDI Format - ENMRG (ENMRG)	Email	jwicks@skm.com.au
- EDI Format - ESDAT (ESDAT)	Email	jwicks@skm.com.au
- EDI Format - XTab (XTab)	Email	jwicks@skm.com.au

MS ONA KANAS

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



This document is issued in accordance with NATA's accreditation requirements.
Accredited for compliance with ISO/IEC 17025
Accreditation Number: 1645



ENVIRONMENTAL LABORATORIES

Certificate of Analysis

Sinclair Knight Merz
369 Anne Street
Brisbane QLD 4000
Australia

Attention: Jeremy Wicks

Project 09ENME0031585
Client Reference QE09537
Cronulla Park
Received Date 18/09/2009 12:10:00 PM

Customer Sample ID	Trip01	Trip02
Sample Matrix	WATER	WATER
Labmark Sample No.	1732403	1732404
Date Sampled	17/09/2009	17/09/2009

VOC

Test/Reference	PQL	Unit
----------------	-----	------

1100 BTEX & (C6-C9) in Water by P&T

4-Bromofluorobenzene - Surrogate	-	%	89	86
Benzene	0.5	µg/L	1.6	6.7
Toluene	1	µg/L	4.6	1.1
Ethylbenzene	1	µg/L	2.4	7.5
Meta- & Para- Xylene	2	µg/L	<2.0	7.3
Ortho-Xylene	1	µg/L	<1.0	4.1
Total Xylenes	3	µg/L	<3.0	11
C6-C9 Fraction	20	µg/L	<20.0	44

SVOC

Test/Reference	PQL	Unit
----------------	-----	------

2000 TPH (C10 - C36) in Water by GC

C10-C14 Fraction	40	µg/L	720	520
C15-C28 Fraction	100	µg/L	1230	1210
C29-C36 Fraction	100	µg/L	<100	<100

Metals

Test/Reference	PQL	Unit
----------------	-----	------

3100 Dissolved Metals in Water By ICP/MS

Arsenic	5	µg/L	20	12
Cadmium	5	µg/L	<5	<5
Chromium	5	µg/L	7.5	14
Copper	5	µg/L	<5	5.2
Lead	5	µg/L	<5	<5
Nickel	5	µg/L	9.0	44
Zinc	5	µg/L	21	12

3400 Dissolved Mercury in Water by FIMS

Mercury	0.1	µg/L	<0.1	<0.1
---------	-----	------	------	------

Sample History

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

Description	Testing Site	Extracted	Analysed
1100 BTEX & (C6-C9) in Water by P&T	Melbourne 1645	23/09/2009	25/09/2009
2000 TPH (C10 - C36) in Water by GC	Melbourne 1645	23/09/2009	25/09/2009
3100 Dissolved Metals in Water By ICP/MS	Melbourne 1645	22/09/2009	23/09/2009
3400 Dissolved Mercury in Water by FIMS	Melbourne 1645	22/09/2009	23/09/2009



Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: EB0903142	Page	: 1 of 7
Amendment	: 1	Laboratory	: Environmental Division Brisbane
Client	: SINCLAIR KNIGHT MIERZ	Contact	: Tim Kilmister
Contact	: MR JEREMY WICKS	Address	: 32 Shand Street Stafford QLD Australia 4053
Address	: 32 CORDELIA STREET BRISBANE QLD, AUSTRALIA 4101	E-mail	: Services.Brisbane@alsenviro.com
E-mail	: jwicks@skm.com.au	Telephone	: +61-7-3243 7222
Telephone	: 3026 7526	Facsimile	: +61-7-3243 7218
Facsimile	: ---	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Project	: QB10035	Date Samples Received	: 26-FEB-2009
Order number	: ---	Issue Date	: 02-MAR-2009
C-O-C number	: ---	No. of samples received	: 4
Sampler	: K.Chand	No. of samples analysed	: 4
Site	: Former Slacks creek Landfill		
Quote number	: EN/003/08		

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

This document is issued in accordance with NATA accreditation requirements.

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
Matthew Goodwin	Senior Organic Chemist	Organics
Stephen Hislop	Senior Inorganic Chemist	Inorganics
Stephen Hislop	Senior Inorganic Chemist	Organics

WORLD RECOGNISED
ACCREDITATION

RTI DL RELEASE - EHP

Environmental Division Brisbane
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Page : 3 of 7
Work Order : EB0903142 Amendment 1
Client : SINCLAIR KNIGHT MERZ
Project : QB10035

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 date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client.

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

- EG020F (Dissolved Metals) : Sample EB0903034-012 shows poor matrix spike recovery due to matrix interference. Confirmed by re-analysis.
- This report has been amended to allow the distribution of an Electronic Data Deliverable (EDD) not previously provided. All analysis results are as per the previous report.
- VOC: Samples show high falling surrogate recovery for 1,2-Dichloroethane-D4. This has been deemed acceptable as all associated sample results are less than LOR.



Page : 4 of 7
Work Order : EB0903142 Amendment 1
Client : SINCLAIR KNIGHT MERZ
Project : QB10035

Analytical Results

Sub-Matrix: WATER

Compound		Client sample ID		Client sampling date / time		LOR		Unit		CR13	CR14	CR15	CREEK	
		CAS Number								26-FEB-2009 11:40	26-FEB-2009 11:40	26-FEB-2009 11:40	26-FEB-2009 11:40	
										EB0903142-001	EB0903142-002	EB0903142-003	EB0903142-004	
EG020F: Dissolved Metals by ICP-MS														
Arsenic		7440-38-2	0.001					mg/L		0.016	0.002	<0.001	<0.001	---
Cadmium		7440-43-9	0.0001					mg/L		<0.0001	0.0001	0.0001	<0.0001	---
Chromium		7440-47-3	0.001					mg/L		<0.001	<0.001	<0.001	<0.001	---
Copper		7440-50-8	0.001					mg/L		<0.001	0.005	<0.001	0.002	---
Lead		7439-92-1	0.001					mg/L		<0.001	0.001	<0.001	<0.001	---
Nickel		7440-02-0	0.001					mg/L		0.001	0.004	<0.001	0.001	---
Zinc		7440-66-6	0.005					mg/L		0.042	0.105	0.046	0.098	---
EG035F: Dissolved Mercury by FILMS														
Mercury		7439-97-6	0.0001					mg/L		<0.0001	<0.0001	<0.0001	<0.0001	---
EP074A: Monocyclic Aromatic Hydrocarbons														
Benzene		71-43-2	5					µg/L		<5	<5	<5	<5	---
Toluene		108-88-3	5					µg/L		<5	<5	<5	<5	---
Ethylbenzene		100-41-4	5					µg/L		<5	<5	<5	<5	---
meta- & para-Xylene		108-38-3 106-42-3	5					µg/L		<5	<5	<5	<5	---
Styrene		100-42-5	5					µg/L		<5	<5	<5	<5	---
ortho-Xylene		95-47-6	5					µg/L		<5	<5	<5	<5	---
Isopropylbenzene		98-82-8	5					µg/L		<5	<5	<5	<5	---
n-Propylbenzene		103-65-1	5					µg/L		<5	<5	<5	<5	---
1,3,5-Trimethylbenzene		108-67-8	5					µg/L		<5	<5	<5	<5	---
sec-Butylbenzene		135-98-8	5					µg/L		<5	<5	<5	<5	---
1,2,4-Trimethylbenzene		95-63-6	5					µg/L		<5	<5	<5	<5	---
tert-Butylbenzene		98-06-6	5					µg/L		<5	<5	<5	<5	---
p-Isopropyltoluene		99-87-6	5					µg/L		<5	<5	<5	<5	---
n-Butylbenzene		104-51-8	5					µg/L		<5	<5	<5	<5	---
EP074B: Oxygenated Compounds														
Vinyl Acetate		108-05-4	50					µg/L		<50	<50	<50	<50	---
2-Butanone (MEK)		78-93-3	50					µg/L		<50	<50	<50	<50	---
4-Methyl-2-pentanone (MIBK)		108-10-1	50					µg/L		<50	<50	<50	<50	---
2-Hexanone (MBK)		591-78-6	50					µg/L		<50	<50	<50	<50	---
EP074C: Sulfonated Compounds														
Carbon disulfide		75-15-0	5					µg/L		<5	<5	<5	<5	---
EP074D: Fumigants														
2,2-Dichloropropane		594-20-7	5					µg/L		<5	<5	<5	<5	---
1,2-Dichloropropane		78-87-5	5					µg/L		<5	<5	<5	<5	---
cis-1,3-Dichloropropylene		10061-01-5	5					µg/L		<5	<5	<5	<5	---
trans-1,3-Dichloropropylene		10061-02-6	5					µg/L		<5	<5	<5	<5	---
1,2-Dibromoethane (EDB)		106-93-4	5					µg/L		<5	<5	<5	<5	---



Page : 5 of 7
Work Order : EB0903142 Amendment 1
Client : SINCLAIR KNIGHT MERZ
Project : QB10035

Analytical Results

Sub-Matrix: WATER

Sub-Matrix: WATER		Client sample ID		Client sampling date / time		CAS Number		LOR		Unit		CR13		CR14		CR15		CREEK			
												26-FEB-2009 11:40		26-FEB-2009 11:40		26-FEB-2009 11:40		26-FEB-2009 11:40			
												EB0903142-001		EB0903142-002		EB0903142-003		EB0903142-004			
Compound																					
EP074E: Halogenated Aliphatic Compounds																					
Dichlorodifluoromethane		75-71-8	50	µg/L	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Chloromethane		74-87-3	50	µg/L	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Vinyl chloride		75-01-4	50	µg/L	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Bromomethane		74-83-9	50	µg/L	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Chloroethane		75-00-3	50	µg/L	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Trichlorofluoromethane		75-69-4	50	µg/L	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
1,1-Dichloroethene		75-35-4	5	µg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Iodomethane		74-88-4	5	µg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
trans-1,2-Dichloroethene		156-60-5	5	µg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloroethane		75-34-3	5	µg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
cis-1,2-Dichloroethene		156-59-2	5	µg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1,1-Trichloroethane		71-55-6	5	µg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloropropylene		563-58-6	5	µg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Carbon Tetrachloride		56-23-5	5	µg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloroethane		107-06-2	5	µg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Trichloroethene		79-01-6	5	µg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Dibromomethane		74-95-3	5	µg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1,2-Trichloroethane		79-00-5	5	µg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,3-Dichloropropane		142-28-9	5	µg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Tetrachloroethene		127-18-4	5	µg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane		630-20-6	5	µg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
trans-1,4-Dichloro-2-butene		110-57-6	5	µg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
cis-1,4-Dichloro-2-butene		1476-11-5	5	µg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane		79-34-5	5	µg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,3-Trichloropropane		96-18-4	5	µg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Pentachloroethane		76-01-7	5	µg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dibromo-3-chloropropane		96-12-8	5	µg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Hexachlorobutadiene		87-68-3	5	µg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
EP074F: Halogenated Aromatic Compounds																					
Chlorobenzene		108-90-7	5	µg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Bromobenzene		108-86-1	5	µg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
2-Chlorotoluene		95-49-8	5	µg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
4-Chlorotoluene		106-43-4	5	µg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,3-Dichlorobenzene		541-73-1	5	µg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,4-Dichlorobenzene		106-46-7	5	µg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichlorobenzene		95-50-1	5	µg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,4-Trichlorobenzene		120-82-1	5	µg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,3-Trichlorobenzene		87-61-6	5	µg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5



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Work Order : EB0903142 Amendment 1
Client : SINCLAIR KNIGHT MERZ
Project : QB10035

Analytical Results

Sub-Matrix: WATER

Sub-Matrix: WATER				Client sample ID		Client sampling date / time		Client sampling date / time		Client sampling date / time		Client sampling date / time	
Compound	CAS Number	LOR	Unit	CR13	CR14	CR15	CREEK						
				26-FEB-2009 11:40	26-FEB-2009 11:40	26-FEB-2009 11:40	26-FEB-2009 11:40						
				EB0903142-001	EB0903142-002	EB0903142-003	EB0903142-004						
EP074G: Trihalomethanes													
Chloroform	67-66-3	5	µg/L	<5	<5	<5	<5						
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	<5						
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	<5						
Bromoform	75-25-2	5	µg/L	<5	<5	<5	<5						
EP074H: Naphthalene													
Naphthalene	91-20-3	7	µg/L	<7	<7	<7	<7						
EP080/071: Total Petroleum Hydrocarbons													
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20						
C10 - C14 Fraction	----	50	µg/L	86	50	<50	<50						
C15 - C28 Fraction	----	100	µg/L	390	400	<100	<100						
C29 - C36 Fraction	----	50	µg/L	60	240	<50	<50						
EP074S: VOC Surrogates													
1,2-Dichloroethane-D4	17060-07-0	0.1	%	169	160	163	160						
Toluene-D8	2037-26-5	0.1	%	89.6	92.2	91.6	90.8						
4-Bromofluorobenzene	460-00-4	0.1	%	102	94.1	94.3	92.2						
EP080S: TPH(V)/BTX Surrogates													
1,2-Dichloroethane-D4	17060-07-0	0.1	%	117	113	113	111						
Toluene-D8	2037-26-5	0.1	%	100	92.2	91.6	90.8						
4-Bromofluorobenzene	460-00-4	0.1	%	110	102	102	99.6						



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Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	80	120
Toluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	460-00-4	86	115
EP080S: TPH(V)/BTX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	80	120
Toluene-D8	2037-26-5	88	110
4-Bromofluorobenzene	460-00-4	86	115



Environmental Division

QUALITY CONTROL REPORT

Work Order	: EB0903142	Page	: 1 of 9
Amendment	: 1		
Client	: SINCLAIR KNIGHT MERZ	Laboratory	: Environmental Division Brisbane
Contact	: MR JEREMY WICKS	Contact	: Tim Kilmister
Address	: 32 CORDELIA STREET BRISBANE QLD, AUSTRALIA 4101	Address	: 32 Shand Street Stafford QLD Australia 4053
E-mail	: jwicks@skm.com.au	E-mail	: Services.Brisbane@alsenviro.com
Telephone	: 3026 7526	Telephone	: +61-7-3243 7222
Facsimile	: ---	Facsimile	: +61-7-3243 7218
Project	: QB10035	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: Former Slacks creek Landfill	Date Samples Received	: 26-FEB-2009
C-O-C number	: ---	Issue Date	: 02-MAR-2009
Sampler	: K.Chand	No. of samples received	: 4
Order number	: ---	No. of samples analysed	: 4
Quote number	: EN/003/08		

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



WORLD RECOGNISED
ACCREDITATION

NATA Accredited Laboratory 825

This document is issued in accordance with NATA accreditation requirements.

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
Matthew Goodwin	Senior Organic Chemist	Organics
Stephen Hislop	Senior Inorganic Chemist	Inorganics
Stephen Hislop	Senior Inorganic Chemist	Organics



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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

NOT FOR RELEASE - EHP



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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

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 (%)		
EG020F: Dissolved Metals by ICP-MS (QC Lot: 905995)											
EB0903142-001	CR13	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit		
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.016	0.015	0.0	0% - 50%		
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit		
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit		
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit		
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.001	0.001	0.0	No Limit		
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.042	0.042	0.0	No Limit		
EG035F: Dissolved Mercury by FIMS (QC Lot: 903748)											
EB0902389-045	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit		
EB0903130-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit		
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 903712)											
EB0903099-001	Anonymous	EP074: Benzene	71-43-2	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Toluene	108-88-3	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Ethylbenzene	100-41-4	5	µg/L	<5	<5	0.0	No Limit		
		EP074: meta- & para-Xylene	108-38-3	5	µg/L	<5	<5	0.0	No Limit		
			106-42-3								
		EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit		
		EP074: ortho-Xylene	95-47-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit		
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit		
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit		
		EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit		
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit		
EP074B: Oxygenated Compounds (QC Lot: 903712)											
EB0903099-001	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit		
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit		
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit		
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit		
EP074C: Sulfonated Compounds (QC Lot: 903712)											
EB0903099-001	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit		
EP074D: Fumigants (QC Lot: 903712)											
EB0903099-001	Anonymous	EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit		



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Client : SINCLAIR KNIGHT MERZ
Project : QB10035

13-054

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 (%)
EP074D: Fumigants (QC Lot: 903712) - continued									
EB0903099-001	Anonymous	EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromomethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 903712)									
EB0903099-001	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	78-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-35-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichloropropane	142-28-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 903712)									
EB0903099-001	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit



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Client : SINCLAIR KNIGHT MERZ
Project : QB10035

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 (%)
EP074F: Halogenated Aromatic Compounds (QC Lot: 903712) - continued									
EB0903099-001	Anonymous	EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 903712)									
EB0903099-001	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
EP074H: Naphthalene (QC Lot: 903712)									
EB0903099-001	Anonymous	EP074: Naphthalene	91-20-3	7	µg/L	<7	<7	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 903711)									
EB0903090-001	Anonymous	EP080: C6 - C9 Fraction	---	20	µg/L	<20	<20	0.0	No Limit



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Work Order : EB0903142 Amendment 1
Client : SINCLAIR KNIGHT MERZ
Project : QB10035

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/Compound		CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
						Spike Concentration	Spike Recovery (%)	Recovery Limits (%)
Sub-Matrix: WATER								
EG020F: Dissolved Metals by ICP-MS (QCLot: 905995)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.100 mg/L	107	75	125
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.100 mg/L	105	79	123
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.100 mg/L	109	84	128
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.200 mg/L	90.2	81	121
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.100 mg/L	103	83	123
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.100 mg/L	99.7	78	124
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.200 mg/L	115	81	130
EG035F: Dissolved Mercury by FIMS (QCLot: 903748)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	118	84	120
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 903712)								
EP074: Benzene	71-43-2	5	µg/L	<5	10 µg/L	88.9	75	122
EP074: Toluene	108-88-3	5	µg/L	<5	10 µg/L	74.2	71.2	124
EP074: Ethylbenzene	100-41-4	5	µg/L	<5	10 µg/L	86.7	76	120
EP074: meta- & para-Xylene	108-38-3	5	µg/L	<5	20 µg/L	88.1	68	132
EP074: Styrene	106-42-3	5	µg/L	<5	10 µg/L	108	68	127
EP074: ortho-Xylene	100-42-5	5	µg/L	<5	10 µg/L	92.3	76	122
EP074: Isopropylbenzene	98-47-6	5	µg/L	<5	10 µg/L	89.7	74	123
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	89.4	70	125
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	91.7	74	121
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	93.2	72	124
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	96.4	73.5	124
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	92.7	71.6	128
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	87.1	68.3	130
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	95.9	67	126
EP074B: Oxygenated Compounds (QCLot: 903712)								
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	88.5	65	147
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	# 159	54	130
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	111	63	137
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	98.6	62	135
EP074C: Sulfonated Compounds (QCLot: 903712)								
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	# 62.6	68	135
EP074D: Fumigants (QCLot: 903712)								
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	115	60.7	143



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Work Order : EB0903142 Amendment 1
Client : SINCLAIR KNIGHT MERZ
Project : QB10035

Sub-Matrix: WATER

Sub-Matrix: WATER				Method Blank (MB) Report				Laboratory Control Spike (LCS) Report			
Method: Compound				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)			
CAS Number	LOR	Unit	LCS			Low	High				
EP074D: Fumigants (QCLot: 903712) - continued											
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	93.8	69.7	128			
EP074: cis-1,3-Dichloropropylene	10061-01-9	5	µg/L	<5	20 µg/L	96.3	68	131			
EP074: trans-1,3-Dichloropropylene	10061-02-6	5	µg/L	<5	20 µg/L	108	67	140			
EP074: 1,2-Dibromoethane (EDB)	106-93-7	5	µg/L	<5	10 µg/L	88.6	68.1	132			
EP074E: Halogenated Aliphatic Compounds (QCLot: 903712)											
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	80.5	52	130			
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	66.7	43.1	130			
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	# 163	53	144			
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	92.4	57.5	130			
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	102	70	137			
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	# 135	64	135			
EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	118	63.9	135			
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	80.5	57.2	130			
EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	96.6	70	128			
EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	102	64	136			
EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	112	71	128			
EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	126	68.4	135			
EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	93.5	71.4	127			
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	113	64	134			
EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	# 156	68	134			
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	105	72	127			
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	118	63.9	136			
EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	91.4	69.2	133			
EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	90.7	73.7	130			
EP074: Tetracloroethene	127-18-4	5	µg/L	<5	10 µg/L	76.6	73.8	132			
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	85.2	81	123			
EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	116	26	130			
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	124	51.1	130			
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	102	72	133			
EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	# 157	59	148			
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	87.5	68	138			
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	135	52	150			
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	102	62	142			
EP074F: Halogenated Aromatic Compounds (QCLot: 903712)											
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	80.3	77	120			
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	88.7	76	122			
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	97.7	75.3	124			
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	97.7	76	120			
EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	93.9	75.2	120			



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Work Order : EB0903142 Amendment 1
Client : SINCLAIR KNIGHT MERZ
Project : QB10035

Sub-Matrix: WATER

Sub-Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) Report			
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EP074F: Halogenated Aromatic Compounds (QCLot: 903712) - continued									
EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	96.8		76.1	119
EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	99.3		77.7	118
EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	90.3		68.3	128
EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	95.7		75	125
EP074G: Trihalomethanes (QCLot: 903712)									
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	118		71.1	127
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	117		68	132
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	87.5		69	130
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	83.8		62	137
EP074H: Naphthalene (QCLot: 903712)									
EP074: Naphthalene	91-20-3	7	µg/L	<7	10 µg/L	104		83.1	119
EP080/071: Total Petroleum Hydrocarbons (QCLot: 903711)									
EP080: C6 - C9 Fraction	----	20	µg/L	<20	160 µg/L	98.0		73	135
EP080/071: Total Petroleum Hydrocarbons (QCLot: 903863)									
EP071: C10 - C14 Fraction	----	50	µg/L	<50	600 µg/L	72.7		49	110
EP071: C15 - C28 Fraction	----	100	µg/L	<100	1020 µg/L	81.9		58	130
EP071: C29 - C36 Fraction	----	50	µg/L	<50	----	----		----	----



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Work Order : EB0903142 Amendment 1
Client : SINCLAIR KNIGHT MERZ
Project : QB10035

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

Sub-Matrix: WATER		Matrix Spike (MS) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Recovery Limits (%)		
					MS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 905995)							
EB0903142-002	CR14	EG020A-F: Arsenic	7440-38-2	0.100 mg/L	103	70	130
		EG020A-F: Cadmium	7440-43-9	0.100 mg/L	98.9	70	130
		EG020A-F: Chromium	7440-47-3	0.100 mg/L	97.6	70	130
		EG020A-F: Copper	7440-50-8	0.2 mg/L	95.8	70	130
		EG020A-F: Lead	7439-92-1	0.100 mg/L	95.9	70	130
		EG020A-F: Nickel	7440-02-0	0.100 mg/L	92.4	70	130
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	105	70	130
EG035F: Dissolved Mercury by FIMS (QCLot: 903748)							
EB0902389-046	Anonymous	EG035F: Mercury	7439-97-6	0.010 mg/L	118	70	130
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 903712)							
EB0903141-003	Anonymous	EP074: Benzene	71-43-2	10 µg/L	75.1	70	130
		EP074: Toluene	108-88-3	10 µg/L	71.9	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 903712)							
EB0903141-003	Anonymous	EP074: 1,1-Dichloroethene	75-35-4	10 µg/L	105	70	130
		EP074: Trichloroethene	79-01-6	10 µg/L	78.5	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 903712)							
EB0903141-003	Anonymous	EP074: Chlorobenzene	108-90-7	10 µg/L	84.9	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 903711)							
EB0903141-003	Anonymous	EP080: C6 - C9 Fraction	----	140 µg/L	75.8	70	130



Environmental Division

SAMPLE RECEIPT NOTIFICATION (SRN)
Comprehensive Report

Work Order : **EB0903142**

Client : **SINCLAIR KNIGHT MERZ**
Contact : **MR JEREMY WICKS**
Address : **32 CORDELIA STREET**
BRISBANE QLD, AUSTRALIA 4101

Laboratory : **Environmental Division Brisbane**
Contact : **Tim Kilmister**
Address : **32 Shand Street Stafford QLD Australia**
4053

E-mail : **jwicks@skm.com.au**
Telephone : **3026 7526**
Facsimile : **----**

E-mail : **Services.Brisbane@alsenviro.com**
Telephone : **+61-7-3243 7222**
Facsimile : **+61-7-3243 7218**

Project : **QB10035**
Order number : **----**
C-O-C number : **----**
Site : **Former Slacks creek Landfill**
Sampler : **K.Chand**

Page : **1 of 2**
Quote number : **ES2008SINKNI0045 (EN/003/08)**
QC Level : **NEPM 1999 Schedule B(3) and ALS**
QCS3 requirement

Dates

Date Samples Received : **26-FEB-2009**
Client Requested Due Date : **02-MAR-2009**

Issue Date : **26-FEB-2009 13:24**
Scheduled Reporting Date : **02-MAR-2009**

Delivery Details

Mode of Delivery : **Client Drop off**
No. of coolers/boxes : **1 LARGE**
Security Seal : **Intact.**

Temperature : **4.6 C - Ice present**
No. of samples received : **4**
No. of samples analysed : **4**

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliance
 - Summary of Sample(s) and Requested Analysis
 - Requested Deliverables
- Samples received in appropriately pretreated and preserved containers.
- Sample(s) have been received within recommended holding times.
- Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Please direct any queries related to sample condition / numbering / breakages to Maggie Kahi.
- Analytical work for this work order will be conducted at ALS Brisbane.
- Sample Disposal - Aqueous (14 days), Solid (90 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 necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client.

Matrix: WATER

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-02 8 Metals	WATER - W-09 TPH/VOC
EB0903142-001	26-FEB-2009 11:40	CR13	✓	✓
EB0903142-002	26-FEB-2009 11:40	CR14	✓	✓
EB0903142-003	26-FEB-2009 11:40	CR15	✓	✓
EB0903142-004	26-FEB-2009 11:40	CREEK	✓	✓

Requested Deliverables

MR JEREMY WICKS

- *AU Certificate of Analysis - NATA (COA)
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)
- A4 - AU Sample Receipt Notification - Environmental (SRN)
- A4 - AU Tax Invoice (INV)
- Default - Chain of Custody (COC)
- EDI Format - ESDAT (ESDAT)

Email	jwicks@skm.com.au
Email	jwicks@skm.com.au
Email	jwicks@skm.com.au
Email	jwicks@skm.com.au
Email	jwicks@skm.com.au
Email	jwicks@skm.com.au
Email	jwicks@skm.com.au

Labmark Internal Quality Control Review

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. Matrix spike recoveries are calculated on an 'As Received' basis; the parent sample result is moisture corrected after the % recovery is determined.
3. Proficiency trial results are available on request.
4. Actual PQLs are matrix dependant. Quoted PQLs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spike or surrogate recoveries.
6. Test samples duplicated or spiked, are for this job only and are identified in the following QC report.
7. SVOC analyses on waters are performed on homogenized, unfiltered sample, unless noted otherwise.
8. When individual results are qualified in the body of a report, refer to the qualifier descriptions that follow.
9. Samples were analysed on an as received basis.
10. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sampling and Preservation Chart for Soils & Waters' for holding times. (LM-FOR-ADM-020)

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Acknowledgement.
If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitability qualified results may still be reported.

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

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

Quality Control Results

Laboratory: EN_METALS

Sample, Test, Result Reference	Units	Result	Acceptance Limits	Pass Limits	Qualifying Codes
1737175 [Method Blank]					
3400 Dissolved Mercury in Water by FIMS					
Mercury	µg/L	<0.1	< 0.1	Pass	
1737185 [Method Blank]					
3100 Dissolved Metals in Water By ICP/MS					
Antimony	µg/L	<5	< 5	Pass	
Arsenic	µg/L	<5	< 5	Pass	
Barium	µg/L	<5	< 5	Pass	
Beryllium	µg/L	<5	< 5	Pass	
Boron	µg/L	<5	< 5	Pass	
Cadmium	µg/L	<5	< 5	Pass	
Chromium	µg/L	<5	< 5	Pass	
Cobalt	µg/L	<5	< 5	Pass	
Copper	µg/L	<5	< 5	Pass	
Lead	µg/L	<5	< 5	Pass	
Manganese	µg/L	<5	< 5	Pass	
Molybdenum	µg/L	<5	< 5	Pass	
Nickel	µg/L	<5	< 5	Pass	
Selenium	µg/L	<5	< 5	Pass	
Tin	µg/L	<5	< 5	Pass	
Vanadium	µg/L	<5	< 5	Pass	
Zinc	µg/L	<5	< 5	Pass	
1737176 [Laboratory Control Sample]					
3400 Dissolved Mercury in Water by FIMS		Expected Value	Percent Recovery		
Mercury	µg/L	9.6	10.0	96	80-120 % Pass

Laboratory: EN_METALS

Sample, Test, Result Reference	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Codes
1737186 [Laboratory Control Sample]							
3100 Dissolved Metals in Water By ICP/MS			Expected Value	Percent Recovery			
Antimony	µg/L	97	100.0	97	80-120 %	Pass	
Arsenic	µg/L	97	100.0	97	80-120 %	Pass	
Barium	µg/L	100	100.0	100	80-120 %	Pass	
Beryllium	µg/L	93	100.0	93	80-120 %	Pass	
Boron	µg/L	110	100.0	107	80-120 %	Pass	
Cadmium	µg/L	100	100.0	105	80-120 %	Pass	
Chromium	µg/L	100	100.0	101	80-120 %	Pass	
Cobalt	µg/L	99	100.0	99	80-120 %	Pass	
Copper	µg/L	100	100.0	100	80-120 %	Pass	
Lead	µg/L	100	100.0	102	80-120 %	Pass	
Manganese	µg/L	98	100.0	98	80-120 %	Pass	
Molybdenum	µg/L	92	100.0	92	80-120 %	Pass	
Nickel	µg/L	98	100.0	98	80-120 %	Pass	
Selenium	µg/L	94	100.0	94	80-120 %	Pass	
Tin	µg/L	100	100.0	100	80-120 %	Pass	
Vanadium	µg/L	99	100.0	99	80-120 %	Pass	
Zinc	µg/L	100	100.0	100	80-120 %	Pass	

Laboratory: EN_SVOC

Sample, Test, Result Reference	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Codes
1736842 [Method Blank]							
2000 TPH (C10 - C36) in Water by GC							
C10-C14 Fraction	µg/L	<40			< 40	Pass	
C15-C28 Fraction	µg/L	<100			< 100	Pass	
C29-C36 Fraction	µg/L	<100			< 100	Pass	
1736843 [Laboratory Control Sample]							
2000 TPH (C10 - C36) in Water by GC			Expected Value	Percent Recovery			
C10-C14 Fraction	µg/L	2600	200.0	104	70-130 %	Pass	
C15-C28 Fraction	µg/L	2800	200.0	116	70-130 %	Pass	
C29-C36 Fraction	µg/L	2840	200.0	114	70-130 %	Pass	

Laboratory: EN_VOC

Sample, Test, Result Reference	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Codes
1736430 [Method Blank]							
1100 MAH(BTEX & C6-C9) in Water P&T							
Benzene	µg/L	<0.5			< 0.5	Pass	
C6-C9 Fraction	µg/L	<20.0			< 20	Pass	
Ethylbenzene	µg/L	<1.0			< 1	Pass	
Meta- & Para- Xylene	µg/L	<2.0			< 2	Pass	
Ortho-Xylene	µg/L	<1.0			< 1	Pass	
Toluene	µg/L	<1.0			< 1	Pass	
Total Xylenes	µg/L	<3.0			< 3	Pass	
4-Bromofluorobenzene - Surrogate	%	87			70-130 %	Pass	
1736432 [Laboratory Control Sample]							
1100 MAH(BTEX & C6-C9) in Water P&T			Expected Value	Percent Recovery			
Benzene	µg/L	12	10.0	117	70-130 %	Pass	
C6-C9 Fraction	µg/L	170	140.0	124	70-130 %	Pass	
Ethylbenzene	µg/L	11	10.0	114	70-130 %	Pass	
Meta- & Para- Xylene	µg/L	25	20.0	124	70-130 %	Pass	
Ortho-Xylene	µg/L	12	10.0	116	70-130 %	Pass	
Toluene	µg/L	12	10.0	117	70-130 %	Pass	
Total Xylenes	µg/L	36	30.0	122	70-130 %	Pass	
4-Bromofluorobenzene - Surrogate	%	101			70-130 %	Pass	

Sample Integrity

Custody Seals Intact (if used)	Yes
Attempt to Chill was evident	Yes
Samples correctly preserved	Yes
Organic samples had Teflon liners	Yes
Samples received with Zero Headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	Yes

Authorised By

Alex Petridis	Senior Analyst - SVOC	
Ruth Callander	Client Services Officer	
Mark Herbstreit	Senior Analyst - Metals	Accreditation Number: 1645
Khoa Pham	Analyst - VOC	Accreditation Number: 1645
Olga Alieva	Analyst - SVOC	Accreditation Number: 1645
Patricia Hua	Senior Analyst	Accreditation Number: 1645

Laboratory Manager

David Elliott	Laboratory Manager - Melbourne
---------------	--------------------------------

49-Sch4 - Signature

Final Report

- Indicates Not Requested

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

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

The samples were not collected by Laboratory staff.

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Appendix F Volatile Gas Sampling

RTI DL RELEASE - EHP



Simtars

Queensland Government

A business unit of the Department of
Mines and Energy

Report OE102073F1

2 Smith Street, REDBANK, QLD 4301, Australia
Postal Address: PO Box 467, GOODNA, QLD, 4300 Australia

Phone (07) 3810 6333 Fax (07) 3810 6363 International Fax (617) 3810 6363

Client Contact

Landfill monitoring for volatile organic compounds for Sinclair Knight Merz

Ona Kanas
Sinclair Knight Merz
32 Cordelia Street
South Brisbane Qld 4101

Client Reference

Order Number QF 9537

Investigation Period

29 October 2009

Simtars Investigator(s)

Rex Marshall (ph 3810 6348)

Reviewed

Joel Franklin

Approved Signatory

49-Sch4 - Signature

Report Date

2 December 2009

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1 Objectives

Ms Ona Kanas of SKM requested that Simtars undertake monitoring for volatile organic compounds at five borehole sites in Logan area. Rex Marshall of Simtars carried out the monitoring on 29 October 2009.

2 Scope of Work

The five bore hole sites on the corner of Compton and Kingston Roads at Logan were located in field area called Cronulla Park previously used as a landfill site. The bore holes were sleeved and capped with a valve and a padlocked cover.

Sampling of volatile organic compounds was carried out using SKC activated charcoal tubes as a trapping medium as per NIOSH method 1501. Approximately 20 litres of air from the bore holes was passed through the charcoal tubes which were then sent for analysis for 73 organic compounds by gas chromatography-mass spectrometry techniques.

Borehole MW08 showed higher levels of production of condensation during sampling so the condensate generated was collected for analysis of volatile organic compounds also.

3 Results

Results of the monitoring for volatile organic compounds are shown in the Appendix.

4 Weather

The weather conditions at Archerfield Airport on 29 October 2009 were a fine day with an average temperature of 23.9 degree Celcius, average Relative Humidity of 46 % and an average Mean Sea Level Pressure of 1022.5 hPa.

5 Discussion

The sample collected from borehole number MW08 showed the highest level of volatile organic compounds. (see Appendix). The condensate sample from this borehole was analysed for volatile organic compounds and was shown to contain less than detectable levels of volatile organic compounds.

The laboratory undertaking the analysis commented that the mixture of organic compounds present in four of the air samples collected was similar to that of mineral turps solvent mixture.

6 Acknowledgments

The cooperation and assistance of client staff members during the project was most appreciated.

7 References

- | | |
|--|--|
| Leeder Consulting Laboratories, Victoria | Method MA-15.WW.01 Volatile Organic Compounds |
| NIOSH Manual of Analytical Methods | Method 1500: 'Hydrocarbons 36-126 deg C BP' |
| | Method 1501: 'Hydrocarbons Aromatic' |
| Workcover, New South Wales | Method WCA.207 Analysis of VOCs in Workplace Air by GCMS |

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8 Appendix

Table 1: Volatile Organic Compounds (mg/m³) detected in Cronulla Park Boreholes

Compound	MW03	MW04	MW05	MW07	MW08
Aliphatic Hydrocarbons					
2-methylbutane	<0.2	1.1	0.2	0.6	2.1
n-pentane	<0.2	1.4	<0.2	0.6	1.3
2-methylpentane	<0.2	0.9	<0.2	0.5	1.9
3-methylpentane	<0.2	0.7	<0.2	0.3	1.3
methylcyclopentane	<0.2	0.3	<0.2	0.3	1.0
n-hexane	<0.2	1.1	0.2	0.6	2.3
3-methylhexane	<0.2	0.9	<0.2	0.4	1.6
cyclohexane	<0.2	0.6	<0.2	0.4	1.6
methylcyclohexane	<0.2	2.7	0.6	0.7	4.1
2,2,4-trimethylpentane	<0.2	0.6	<0.2	0.3	1.8
n-heptane	<0.2	0.7	<0.2	0.4	1.7
n-octane	<0.2	0.2		0.4	1.5
n-nonane	<0.2	<0.2	2.0	2.5	7.7
n-decane	<0.2	<0.2	5.1	1.7	14.7
n-undecane	<0.2	<0.2	1.8	<0.2	7.8
n-dodecane	<0.2	<0.2	<0.2	<0.2	0.3
alpha-pinene	<0.2	<0.2	<0.2	<0.2	2.4
D-limonene	<0.2	<0.2	<0.2	<0.2	1.2
Chlorinated Hydrocarbons					
chlorobenzene	<0.2	0.8	0.7	<0.2	<0.2
1,4-dichlorobenzene	<0.2	0.8	2.1	1.1	<0.2
Aromatic Hydrocarbons					
benzene	<0.2	0.6	0.3	0.7	0.6
ethylbenzene	<0.2	0.1	1.1	0.2	6.6
isopropylbenzene	<0.2	2.1	1.4	1.5	1.9
1,2,3-trimethylbenzene	<0.1	0.2	<0.1	0.4	<0.1
1,2,4-trimethylbenzene	3	0.5	3.5	0.6	6.2
1,3,5-trimethylbenzene	<0.2	<0.1	1.7	0.2	1.8
p/m-xylene	<0.2	<0.1	2.7	0.8	5.2
o-xylene	<0.2	0.1	0.7	<0.1	0.7
Ketones					
acetone	<0.2	<0.2	0.6	<0.2	<0.2
Alcohols					
2-ethyl hexanol	<1.0	<1.0	3.7	4.9	<1.0
Total VOC#	<2.0	374	342	481	666

total VOC result considered semi-qualitative due to mass spectra measurement technique



Appendix G QAQC Data Validation Assessment

RTI DL RELEASE - EHP



G.1 Project Data Quality Objectives

The following defines the data quality objectives for the investigation.

Documentation and data completeness	<ul style="list-style-type: none"> ■ Site conditions properly described. ■ Sampling locations properly described and located. ■ Completion of field records, chain of custody documentation, laboratory test certificates from NATA-registered laboratories.
	<ul style="list-style-type: none"> ■ Samples are collected from all areas of potential environmental concern. ■ Samples are tested for all potential contaminants of concern. ■ Sampling events cover worst case conditions on more than one occasion. ■ 95% completeness for the investigation.
Data comparability	<ul style="list-style-type: none"> ■ Use of appropriate techniques for the sampling, storage and transportation of samples. ■ Use of NATA certified laboratory using NEPM procedures. ■ Use of NATA certified check laboratory.
Data representativeness	<ul style="list-style-type: none"> ■ Collection of representative samples from each sampling location. ■ Collection of representative samples across the sub-site. ■ Use of appropriate techniques for the sampling, storage and transportation of samples.
Precision for sampling and analysis	<ul style="list-style-type: none"> ■ Use of properly trained and qualified field personnel. ■ Use of blind field duplicates to be collected at a minimum rate of 1 in 10. ■ Relative Percentage Differences (RPD) to be less than 30% for inorganic and 50% for organic analyses. ■ Acceptable quality of rinsate blanks.
Accuracy for sampling and analysis	<ul style="list-style-type: none"> ■ Achieve laboratory QC criteria. ■ Blanks returned with no contamination. ■ All matrix and surrogates returned acceptable results. ■ All laboratory duplicates within acceptable ranges. ■ All control results within acceptable ranges.

G.2 Quality Assurance

G.2.1 Field QA/QC Samples

The Quality Assurance and Quality Control (QA/QC) protocols used in the fieldwork conducted for this investigation is outlined in Table G-1.

■ Table G-1 Field QA/QC Assessment

Field Procedure	QA Procedure Description
Sampling Team	All fieldwork was undertaken by professionally qualified environmental scientists or engineers trained in conducting site contamination investigations.
Sample Location Logs	All test pit/ monitoring wells were recorded using a GPS unit with sub metre accuracy.
Preservation	<p>All samples were submitted to the laboratory in appropriately preserved containers consisting of eskies containing sample bottles and jars covered in crushed ice.</p> <p>Exceptions to this are included below:</p> <ul style="list-style-type: none"> - EB0907913 – Due to small volume of water achieved, sample MW08 did not have an appropriately preserved bottle for metals analysis. The analysis was continued based on the age of the sample (<6 hours) and the suitability of the unpreserved sample provided to ALS. - EB0908932 – Samples for MW07 have been annotated as being incorrectly preserved, however it is noted that the correct sample containers have been provided to ALS. Subsequently, the sample is considered to have been preserved appropriately for the analysis undertaken - EB0916017 – Due to the small volume of sample achieved from MW08, the requested analysis was unable to undertaken.
Rinsate Blanks	A total of three rinsate blanks were collected from equipment used to collect soil samples (one each day). One rinsate sample was collected from equipment used during the water sampling. No analytes were detected with the exception of zinc that was found at levels consistent with background zinc levels in the region's drinking water.
Blind Field Duplicates (for testing by Main Lab)	<p>Blind field duplicate samples were collected from the Landfill capping layer and sampled based on Australian Standard AS4482.1-2005. A duplicate sample ratio of 1 per 10 samples has been achieved for the investigation.</p> <p>Three field blind duplicates samples of soil were submitted for analysis.</p> <p>The RPDs were within the QA/QC Criteria (50% organics and 20% for inorganics).</p> <p>Four field duplicate samples of water were collected from monitoring wells, one during each sampling round. Three metal samples exceeded the QA/QC criteria of 20% and one sample did not meet the TPH QA/QC criteria of 50%.</p> <p>Exceedances of metals identified in groundwater samples are likely a result of low sample concentration exaggerating the % RPD, and are not expected to affect the integrity of the results.</p> <p>Where hydrocarbons have not met the % RPD criteria, it is likely that this can be contributed to the difficulty in sampling volatiles within the groundwater matrix. As a slight hydrocarbon sheen was identified on groundwater sampled from this location, it is plausible that this may have led to difficulty in achieving homogeneous samples during this sample event. It is noted that regardless, both samples are in exceedances of the Dutch Investigation Criteria.</p>



Field Procedure	QA Procedure Description
Split Samples (for Inter-Laboratory Testing)	Inter-laboratory duplicate samples were submitted for two sample events . Analysis of split samples was not undertaken for the majority of the testing. The absence of split sampling is not expected to affect the data validity, given the proven data replicability, the results of the limited split sampling and the use of a NATA accredited laboratory for all analytical testing.

G.2.2 Laboratory QA/QC Assessment

ALS was the primary laboratory used for this investigation. ALS is NATA-accredited for the specified tests. All tests have been undertaken with consideration to the requirements of NEPM (1999).

A data validation process was used to assess the effectiveness of the overall analytical process and to assess the use of data. **Table G-2** outlines the data validation criteria, qualifications to the data, overall QA/QC procedures used for the laboratory testing program and an assessment of laboratory's QA/QC performance.

■ **Table G-2 Laboratory QA/QC Assessment**

Protocol	Description
Holding Times	Holding times are the permissible elapsed time in days from the collection of the sample to its extraction and/or analysis. All samples taken as part of this investigation were extracted and analysed within the recommended holding times with the exception of 4 samples for water testing and 4 samples for soil testing which were not major exceedances.
Method / Laboratory Blanks	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. In total 37 method blanks for water and 8 method blanks for soil were analysed. The QC criterion is no detectable contamination and the QC criterion was met in all cases.
Laboratory Duplicates	Laboratory duplicates are field samples that are split in the laboratory and subsequently analysed a number of times in the same batch. These sub-samples are selected by the laboratory to assess the accuracy and precision of the analytical method. Intra-laboratory duplicates are performed on a frequency of 1 per 10 samples. ALS undertakes QA/QC procedures such as calibration standards, laboratory control samples, surrogates, reference materials, sample duplicates and matrix spikes. The QC criterion is 20% for metals and inorganic analytes, and 50% for organic analytes. The frequency of laboratory duplicates was met in all cases. In total 20 laboratory duplicates for soil and 50 laboratory duplicate for leachate (water) were analysed as part of the laboratory QA/QC. One laboratory duplicate sample exceeded RPD criteria of 50% for Ammonia as N, which returned an RPD of 156%. The recorded concentrations were above the acceptance criteria of five times the LOR. Two laboratory soil samples had missing or incorrect parent samples. Given the total number of samples analysed and the conformity of all other laboratory duplicates, this result is not considered to affect the interpretation of the laboratory data.
Laboratory	A laboratory control standard (LCS) is a standard reference material used in preparing primary



Protocol	Description
Control Samples	<p>standards. The concentration should be equivalent to a mid range standard to confirm the primary calibration. Laboratory control samples are performed on a frequency of 1 per 20 samples or at least one per analytical run. The QA/QC criterion is 70% to 130% recovery. In total 11 LCS for soil and 45 LCS for water were analysed.</p> <p>Five water sample and 2 soil sample LCS recoveries did not meet the nominated acceptance criteria.</p>
Matrix Spikes (MS)	<p>MSs are field samples to which a predetermined stock solution of known concentration has been added. The samples are then analysed for recovery of the known addition. Recoveries should be within the stated laboratory control limits of 70% to 130%, and duplicates should have RPDs of less than 50%. In total 9 matrix spikes for soil (from 87 analytes analysed) and 26 matrix spikes for water were analysed (from a total of 241 analytes analysed). This met the sampling frequency of 1 in 20 samples for water and soil samples.</p> <p>All MS met the nominated QA/QC acceptance criteria with the exception of one soil MS where recovery was less than lower data quality objective.</p>
Surrogate Spikes	<p>Surrogate spikes provide a means of checking, for every analysis that no gross errors have occurred at any stage of the procedure leading to significant analyte loss. Recoveries should be within the stated laboratory control limits of 70 to 130%.</p> <p>The majority of the surrogate recoveries fell within the nominated acceptance criteria. However, in 11 cases (4 for soil and 7 for water analytes) the surrogate recovery RPD Recovery less than lower data quality objective.</p>
QA/QC Conclusion	<p>The QA/QC indicators either all complied with the required QA/QC acceptance criteria or showed variations that were not considered to significantly affect the quality of the data. It is therefore concluded that, for the purposes of the investigation, the QA/QC results are adequate and the quality of the data is acceptable for use in this environmental assessment.</p>



G.3 QA/QC Data Tables

■ Table G-3 Soil RPD Values

Analyte	MW09 0.0-0.1	Dup 01	RPD%	TP2 0.2-0.3	Dup 02	RPD%	TP3 0.2-0.3	Dup 03	RPD%
Metals (mg/kg)									
Arsenic	<5	<5		<5	<5		<5	<5	
Cadmium	<1	<1		<1	<1		<1	<1	
Chromium	12	9	28.6	5	6	18.2	5	3	50.0
Copper	<5	<5		<5			<5	<5	
Lead	<5	<5		<5			<5	<5	
Nickel	<2	<2		<2			<2	<2	
Zinc	<5	<5		<5			<5	<5	
Mercury	<0.1	<0.1		<0.1	<0.1		<0.1	<0.1	
TPH (µg/L)									
C6 - C9		<10		<10	<10		<10	<10	
C10 - C14		<50		<50	<50		<50	<50	
C15 - C28				<100	<100		<100	<100	
C29 - C36		<100		<100	<100		<100	<100	
C10 - C136		<250		<250	<250		<250	<250	
BTEX (µg/L)									
Benzene		<0.2		<0.2	<0.2		<0.2	<0.2	
Toluene		<0.5		<0.5	<0.5		<0.5	<0.5	
Ethylbenzene		<0.5		<0.5	<0.5		<0.5	<0.5	
meta- & para-Xylene		<0.5		<0.5	<0.5		<0.5	<0.5	
ortho-Xylene		<0.5		<0.5	<0.5		<0.5	<0.5	

Logan Greyhound Facility, Cronulla Park
Contaminated Site Investigation



■ Table G-4 Groundwater RPD Values

Analyte	MW06	DUP04	RPD%	MW06	DUP05	RPD%	MW07	DUP02	RPD%	MW06	DUP02	RPD%
	18-May-09			02-Jun-09			17-Sep-09			07-Oct-09		
Metals (mg/L)												
Arsenic	0.008	0.009	12	0.025	0.026	4	0.008	0.007	13			
Cadmium	<0.0001	<0.0001		<0.0001	<0.0001		0.0006	0.0004	40			
Chromium ^A	0.001	<0.001		<0.001	<0.001		0.018	0.011	48			
Copper	<0.001	<0.001		<0.001	<0.001		0.009	0.015	50			
Lead	<0.001	<0.001		<0.001	<0.001		0.001	0.001	0			
Nickel	0.016	0.019	17	0.013	0.014	7	0.046	0.046	0			
Zinc	0.029	0.028	4	0.038	0.039	3	0.016	0.016	0			
Mercury	<0.0001	<0.0001		<0.0001	<0.0001		<0.0001	<0.0001				
TPH (ug/L)												
C6 - C9	50	40	22	40	40	0	50	60	18	30	30	0
C10 - C14	840	500	51		590		800	550	37	350	330	6
C15 - C28	2500	1200	70		1100		1480	1400	6	960	840	13
C29 - C36	710	210	109		120		170	280	49	220	180	20
Total C10 - C36	4050	1910	72		1810		2450	2280	7	1530	1360	12
TPH Silica Gel Clean Up (ug/L)												
C10 - C14										<50	<50	
C15 - C28										<100	<100	
C29 - C36										<50	<50	
C10 - C36										<50	<50	
BTEX (ug/L)												
Benzene	2	2	0		2.0					1.0	<1	
Toluene	10	8	22		7.0					3.0	2	40
Ethylbenzene	<2	<2			2.0					<2	<2	
meta&paraXylene	2	2	0		2.0					<2	<2	
ortho-Xylene	<2	<2			<2					<2	<2	



■ Table G-5 Soil Sampling Rinsate Samples

Analyte	Rinsate 1 during soil sampling	Rinsate 2 during soil sampling	Rinsate 3 during soil sampling
	11-May-09	12-May-09	13-May-09
Heavy Metals (mg/L)			
Arsenic	<0.001	<0.001	<0.001
Cadmium	<0.0001	<0.0001	<0.0001
Chromium ^A	<0.001	<0.001	<0.001
Copper	<0.001	<0.001	<0.001
Lead	<0.001	<0.001	<0.001
Nickel	<0.001	<0.001	<0.001
Zinc	0.005	0.008	<0.001
Mercury	<0.0001	<0.0001	<0.0001
OC Pesticides (µg/L)			
alpha-BHC	<20	<20	<20
Hexachlorobenzene (HCB)	<50	<50	<50
beta-BHC	<100	<100	<100
gamma-BHC	<50	<50	<50
delta-BHC	<200	<200	<200
Endrin aldehyde	<1	<1	<1
Endosulfan sulphate	<2	<2	<2
4,4'-DDT	<2	<2	<2
Endrin ketone	<2	<2	<2
Methoxychlor	<2	<2	<2

Logan Greyhound Facility, Cronulla Park
Contaminated Site Investigation



■ Table G-6 Groundwater Sampling Rinsate Samples

Analyte	Rinsate 4 during water sampling
	18-May-09
Heavy Metals (mg/L)	
Arsenic	<0.001
Cadmium	<0.0001
Chromium [^]	<0.001
Copper	<0.001
Lead	<0.001
Nickel	<0.001
Zinc	0.005
Mercury	<0.0001
TPH (µg/L)	
C6 - C9 Fraction	<20
C10 - C14 Fraction	<50
C15 - C28 Fraction	<100
C29 - C36 Fraction	<50
Total C10 - C36 Fraction*	<200
BTEX (µg/L)	
Benzene	<1
Toluene	<2
Ethylbenzene	<2
meta- & para-Xylene	<2
ortho-Xylene	<2

SINCLAIR KNIGHT MERZ



Appendix H Stage 1 Search Data

RTI DL RELEASE - EHP

SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

73(2)Irrelevant

Transaction ID: 1107775 EMR Site Id: 3350 02 February 2009
Client Reference: 11790159
Cheque Number:

This response relates to a search request received for the site:
Lot: 658 Plan: SL12298

EMR RESULT

The above site IS included on the Environmental Management Register.

Lot: 658 Plan: SL12298
Address: 146-178 KINGSTON RD
 SLACKS CREEK 4127

The site has been subject to the following Notifiable Activity pursuant to section 374 of the
Environmental Protection Act 1994.

LANDFILL - disposing of waste (excluding inert construction and demolition waste).

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

**Note: Searches maybe conducted online through the State Government Website
www.smartservice.qld.gov.au or Citec Confirm www.confirm.com.au.**

If you have any queries in relation to this search please phone (07) 3227 7370.

Lindi Bowen
Registrar, Contaminated Land Unit

CURRENT RESERVE SEARCH

NATURAL RESOURCES AND WATER, QUEENSLAND

Request No: 5806651
Search Date: 02/02/2009 11:49

Title Reference: 49019095
Date GAZETTED: 25/06/1988
PAGE: 2411

Opening Ref: RES 9012
Purpose: LOCAL GOVERNMENT
Sub-Purpose: ENTERTAINMENT AND RECREATION
Local Name: SLACKS CREEK ENTERTAINMENT CENTRE
Address: KINGSTON - BEENLEIGH RD, SLACKS CREEK
County (R) No: R4016 STANLEY
File Ref: RES 24916

TRUSTEES

LOGAN CITY COUNCIL GAZETTED ON 25/06/1988 PAGE 2421

LAND DESCRIPTION

LOT 658 CROWN PLAN SL12298 GAZETTED ON 25/06/1988 PAGE 2411
County of STANLEY Parish of YEERONGPILLY
Local Government: LOGAN

Area: 10.240000 Ha. (SURVEYED)

EASEMENTS AND ENCUMBRANCES

ADMINISTRATIVE ADVICES - NIL
UNREGISTERED DEALINGS - NIL

CERTIFICATE OF TITLE ISSUED - No

** End of Current Reserve Search **

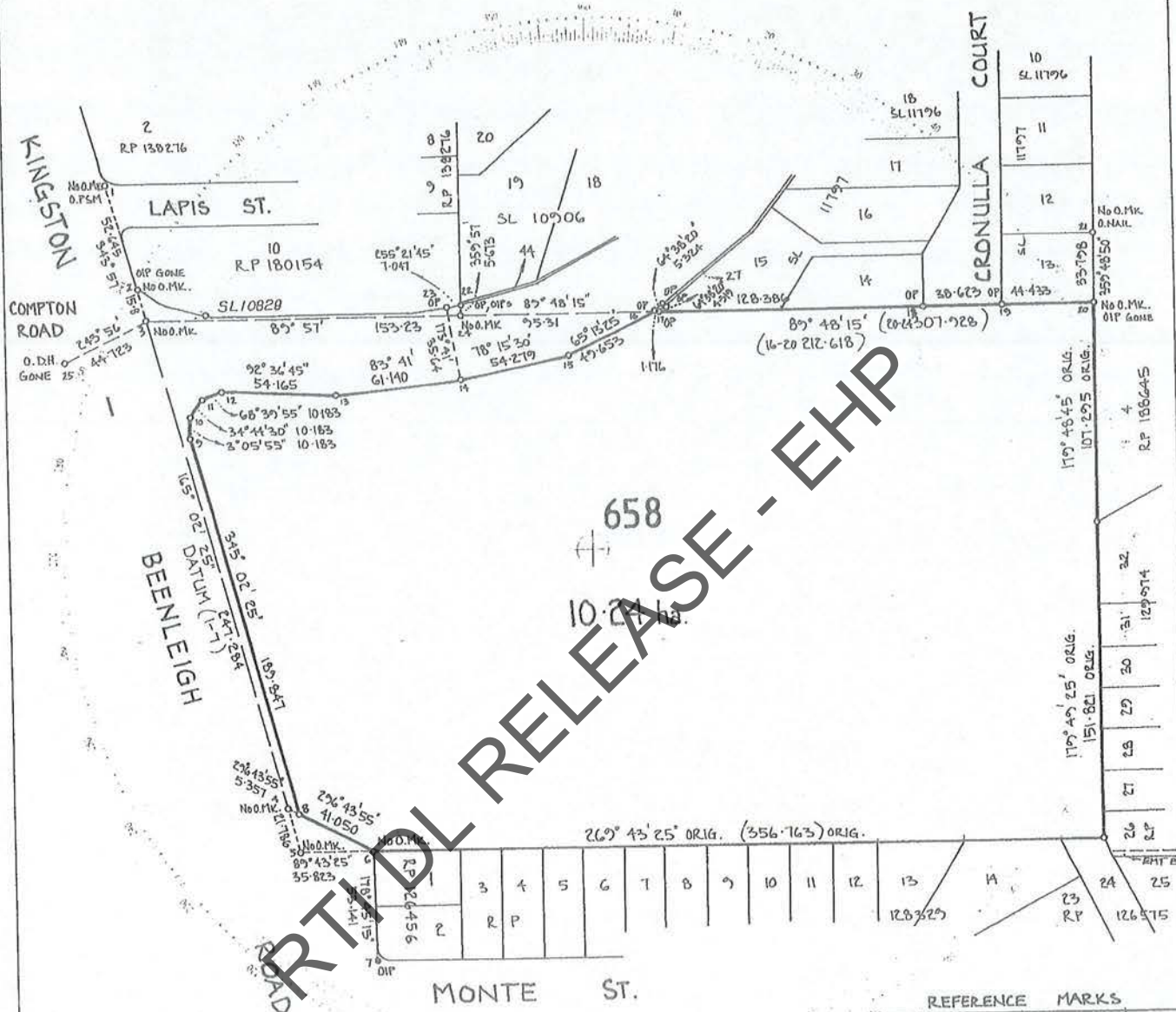
COPYRIGHT THE STATE OF QUEENSLAND (NATURAL RESOURCES AND WATER) [2009]
Requested By: CITEC CONFIRM

FOLDED OR MUTILATED PLANS WILL BE REJECTED - PLAN MAY BE ROLLED

D.M.S. FORM S.B.11

For Additional Plan &
Document Notings
Refer to CISP

ORIGINAL INFORMATION COPIED AND COMPILED
FROM SL 9781 AND SL 11797 IN THE
DEPARTMENT OF GEOGRAPHIC INFORMATION,
BRISBANE.



NEW ROAD

658 (3-4-8-7-10-11-12-13-14-15-16-24)8050m²

BRANDED PEG PLACED AT STATIONS 8,9,11-15.

PERMANENT MARKS

PM	BEARING	DIST.	No.
1-OPH	89° 51'	4.025	42500

REFERENCE MARKS

STN	TO	BEARING	DIST.
2	OIP GONE	215° 32' 35"	2.276
8	PIN	9° 32' 35"	0.174
9	SCREW IN KERB	215° 12' 20"	5.545
10	SCREW IN CONC.	AT STATION	
12	SCREW IN KERB	325° 58' 54"	3.307
16	SCREW IN KERB	315° 56' 40"	18.60
20	OIP GONE	298° 26' 05"	6.735
21	O.NAIL IN W/H	351° 56' 05"	11.131
22	OIP	75° 50'	1.173
22	OIP	265° 59'	1.017
25	O.SCREW GONE	0° 04'	3.213

ORIGINAL PLAN 658	PREVIOUS PLAN SL 9781	PROCLAIMED SURVEY AREA MINING FIELD	LAND AGENTS DISTRICT	LOCAL AUTHORITY LOGAN CITY COUNCIL
I, PHILLIP JOHN O'CALLAGHAN hereby certify that this company have surveyed the land comprised in this plan (either personally or by PERSONALITY) for whose work this company accept responsibility, that the plan is accurate, that the said survey was performed in accordance with the Surveyors Act 1977 and the Surveyors Regulations 1978 and that the said survey was completed on 12-2-88 49-Sch4 - Signature 16-2-88 Licensed Surveyor Date SURVEY RECORDS Not LODGED		MERIDIAN LINE PLAN BEARING A.M.G. BEARING MERIDIAN OF SL 10828 sunmap PLAN OF LOT 658 SCALE 1:2000 AUTHORITY Res. 9012 88K2/ 157 D.M.S. REF. P.S. 12-2-88 DRAWN R.1215/B REGISTERED 88-3-88 CHARTED A.A.F. 4.7.88 MAP REF. 9542- 44222 SUBURB TOWN SLACKS CREEK PARISH YEERONGPILLY County STANLEY PLAN SL12298		

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Beenleigh Project Aerial Photography Run 4 Q538-22 Flight Date: 27/07/1955 Scale 1:12500



Beenleigh Project Aerial Photography Run 4 Q2655-202 Flight Date: 12/08/1973 Scale 1:12500



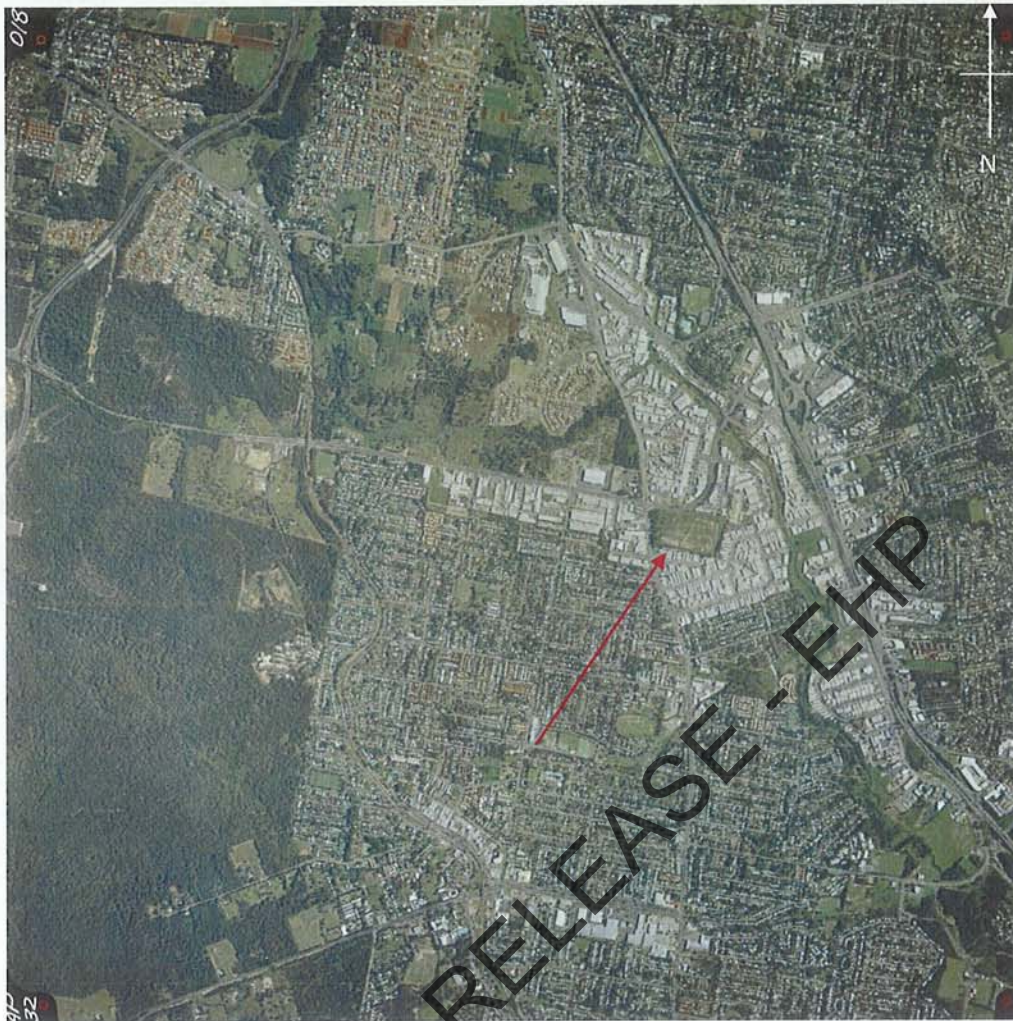
Beenleigh Project Aerial Photography Run 11 QP4286-19 Flight Date: 28/08/1983 Scale 1:25000



Beenleigh Project Aerial Photography Run 4 Q4658-121 Flight Date: 9/08/1993 Scale 1:25000



Beenleigh Project Aerial Photography Run 4W QE5665-012 Flight Date: 29/07/1997 Scale 1:25000



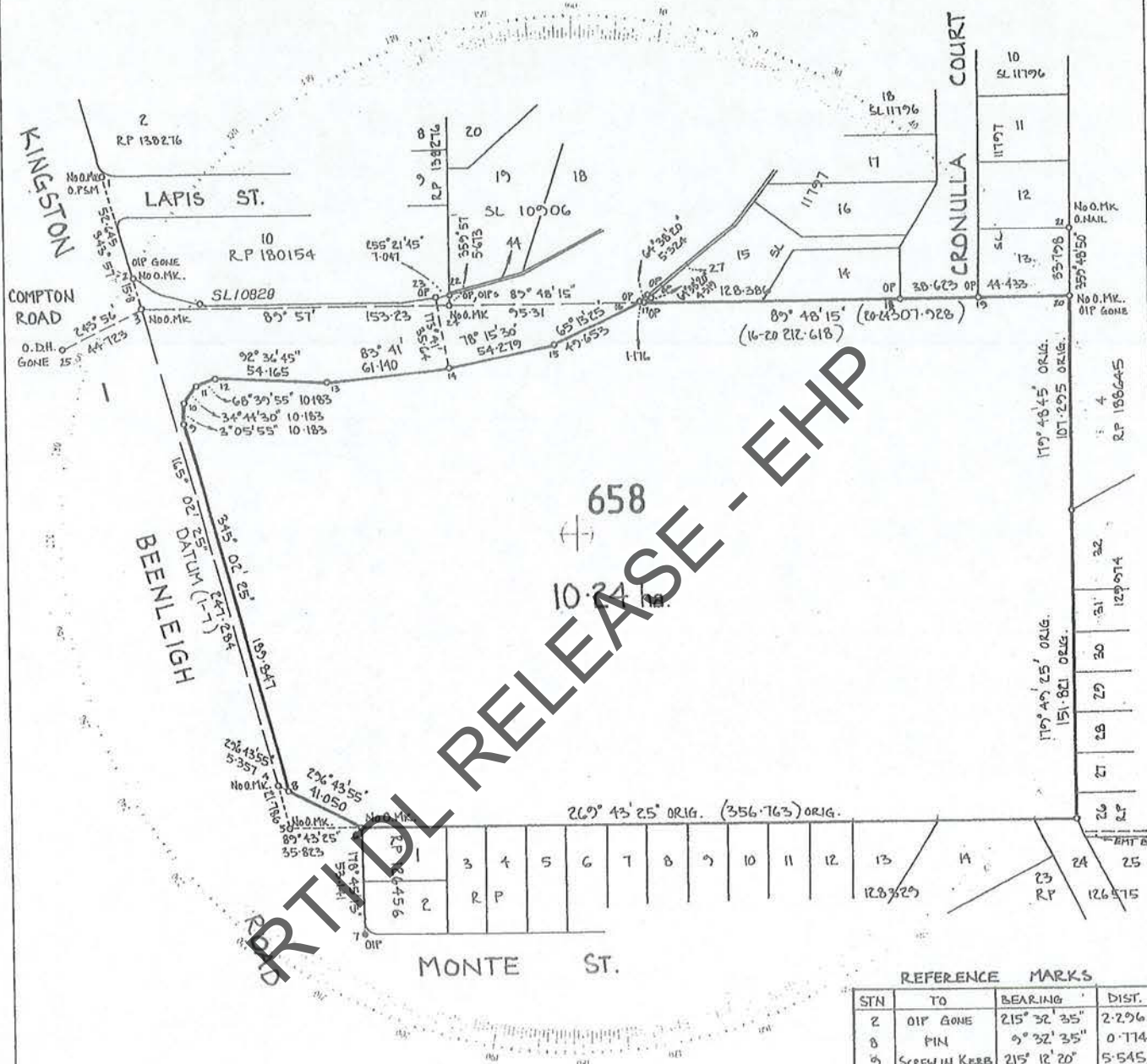
Beenleigh Project Aerial Photography Run 4 QAP5932-018 Flight Date: 11/03/2002 Scale 1:25000

FOLDED OR MUTILATED PLANS WILL BE REJECTED - PLAN MAY BE ROLLED

D.M.S. FORM S.B.11

For Additional Plan &
Document Notings
Refer to CISP

ORIGINAL INFORMATION COPIED AND COMPILED
FROM SL 9781 AND SL 11797 IN THE
DEPARTMENT OF GEOGRAPHIC INFORMATION,
BRISBANE.



NEW ROAD

658 (3-4-8-9-10-11-12-13-14-15-16-24) 8050m²

BRANDED PEG PLACED AT STATIONS 8, 9, 11-15.

PERMANENT MARKS

PM	BEARING	DIST.	No.
1-OPM	89° 51'	4.025	42580

REFERENCE MARKS

STN	TO	BEARING	DIST.
2	OIP GONE	215° 32' 35"	2.296
8	FIN	9° 32' 35"	0.114
9	SCREW IN KERB	215° 12' 20"	5.545
10	SCREW IN CONK	AT STATION	
12	SCREW IN KERB	325° 58' 54"	3.301
16	SCREW IN KERB	315° 56' 40"	18.60
20	OIP GONE	298° 26' 05"	6.735
21	O.NAIL IN M/H	351° 56' 05"	11.131
22	OIP	75° 50'	1.173
23	OIP	265° 59'	1.017
25	O.SCREW GONE	0° 04'	3.213

ORIGINAL FOR/EST 658	PREVIOUS PLAN SL 9781	PROCLAIMED SURVEY AREA	MINING FIELD	LAND AGENTS DISTRICT	LOCAL AUTHORITY LOGAN CITY COUNCIL
I, PHILLIP JOHN O'CALLAGHAN hereby certify that this company have surveyed the land comprised in this plan together personally or by PERSONALLY for whose work this company accept responsibility, that the plan is accurate, that the said survey was performed in accordance with the Surveyors Act 1977 and the Surveyors Regulations 1978 and that the said survey was completed on 17-2-88		MERIDIAN LINE PLAN BEARING A.M.G. BEARING MERIDIAN OF SL 10828		PLAN OF LOT 658  SCALE 1:2000	
49-Sch4 - Signature 16-2-88 Licensed Surveyor Date		AUTHORITY D.M.S. REF. DRAWN REGISTERED CHARTED MAP REF. Res. 9012 88K2/157 P.3.12-28 R1213/B 88K2-88 A.A.F. 3542-44222		SUBURB TOWN SLACKS CREEK PARISH YEERONGPILLY County STANLEY PLAN SL12298	
SURVEY RECORDS.....NOT.....LOGGED					

CROWN COPYRIGHT RESERVED. DEPARTMENT OF MAPPING AND SURVEYING, QUEENSLAND.



Appendix I Limitations of Investigation

1. This report has been prepared by Sinclair Knight Merz Pty Limited ("SKM") for the sole use of Greyhounds Queensland Limited ("the Client") and in accordance with the scope of services detailed in the SKM proposal dated 26 August 2009 and accepted by the Client on the 2 September 2009 ("the Agreement").

2. Undertaking an assessment or study of the on-site conditions may provide information regarding the potential for exposure to the presence of contaminated or inadequate bearing ground and/or groundwater. All reports and conclusions that deal with subsurface conditions are based on interpretation and judgement and as a result have uncertainty attached to them.

You should be aware that this report contains interpretations and conclusions which are uncertain, due to the nature of the investigations. No study can completely eliminate risk, and even a rigorous assessment and/or sampling programme may not detect all problem areas within a site. The following information sets out the limitations of this report.

3. This report should only be presented in full and should not be used to support any objective other than those detailed within the Agreement. In particular, this report does not contain sufficient information to enable it to be used for any use other than the Project specific requirements for which this report was created/prepared, which are detailed in the Agreement.

SKM accepts no liability to the Client for any loss and/or damage incurred as a result of changes to the usage, size, design, layout, location or any other material change to the intended purpose contemplated under the Agreement.

4. It is imperative to note that this report only considers the site conditions current at the time of investigation, and to be aware that conditions may have changed due to natural forces and/or operations on or near the site. Any decisions based on the findings of this report must take into account any subsequent changes in site conditions and/or developments in legislative and regulatory requirements. SKM accepts no liability to the Client for any loss and/or damage incurred as a result of a change in the site conditions and/or regulatory/legislative framework since the date of this report and/or the time at which the investigation took place.

5. This report is based on an interpretation of factual information available and the professional opinion and judgement of SKM. Unless stated to the contrary, SKM has not verified the accuracy or completeness of any information received from the Client or a third party during the performance of the services under the Agreement, and SKM accepts no liability to the Client for any loss and/or damage incurred as a result of any inaccurate or incomplete information.



6. This report provides information on-site conditions as revealed through selective sampling. The findings are the result of standard assessment techniques used in accordance with normal practices and standards, and (to the best of our knowledge) they represent a reasonable interpretation of the current conditions at the site. However, these findings, interpretations and assumptions cannot be substantiated for areas that remain untested. For these untested areas, this report should be regarded as preliminary advice only.

7. Any reliance on this report by a third party shall be entirely at such party's own risk. SKM provides no warranty or guarantee to any third party, express or implied, as to the information and/or professional advice indicated in this report, and accepts no liability for or in respect of any use or reliance upon this report by a third party.

8. This report makes no comment on the presence of hazards or hazardous materials, not specifically covered in its scope.

RTI DL RELEASE - EHP