



Sub-Matrix: **SOIL**

Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 1654319) - continued									
EB1101638-001	BH1 0.0-0.15	EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EB1101638-027	BH14 0.0-0.15	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068B: Organophosphorus Pesticides (OP) (QC Lot: 1654321)							
EB1101638-049	BH30 0.0-0.15	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 1654321) - continued									
EB1101638-049	BH30 0.0-0.15	EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
	EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
EP075(SIM)A: Phenolic Compounds (QC Lot: 1654318)									
EB1101638-003	BH2 0.0-0.15	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1.0	<1.0	0.0	No Limit
	EP075(SIM): Pentachlorophenol	87-86-5	2.0	mg/kg	<2.0	<2.0	0.0	No Limit	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1654318)									
EB1101638-003	BH2 0.0-0.15	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1654318) - continued									
EB1101638-003	BH2 0.0-0.15	EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1654314)									
EB1101638-003	BH2 0.0-0.15	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1654317)									
EB1101638-003	BH2 0.0-0.15	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080: BTEX (QC Lot: 1654314)									
EB1101638-003	BH2 0.0-0.15	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020T: Total Metals by ICP-MS (QC Lot: 1659946)									
EB1101600-017	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
EB1101677-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.002	0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.006	0.006	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.007	0.007	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.004	0.003	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.007	0.008	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.019	0.020	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1655874)									
EB1101603-003	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1658780)									
EB1101549-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EB1101624-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit



Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080: BTEX (QC Lot: 1658780)									
EB1101549-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit
			106-42-3						
EB1101624-001	Anonymous	EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		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
			106-42-3						
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit



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

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

Sub-Matrix: **SOIL**

Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EG005T: Total Metals by ICP-AES (QCLot: 1657116)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	13.11 mg/kg	127	90	130
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	2.76 mg/kg	102	82	124
EG005T: Chromium	7440-47-3	2	mg/kg	<2	60.93 mg/kg	117	89	129
EG005T: Copper	7440-50-8	5	mg/kg	<5	54.68 mg/kg	116	89	125
EG005T: Lead	7439-92-1	5	mg/kg	<5	54.76 mg/kg	110	83	123
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.23 mg/kg	116	86	124
EG005T: Zinc	7440-66-6	5	mg/kg	<5	103.88 mg/kg	110	86	124
EG005T: Total Metals by ICP-AES (QCLot: 1657119)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	13.11 mg/kg	116	90	130
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	2.76 mg/kg	97.9	82	124
EG005T: Chromium	7440-47-3	2	mg/kg	<2	60.93 mg/kg	116	89	129
EG005T: Copper	7440-50-8	5	mg/kg	<5	54.68 mg/kg	113	89	125
EG005T: Lead	7439-92-1	5	mg/kg	<5	54.76 mg/kg	107	83	123
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.23 mg/kg	114	86	124
EG005T: Zinc	7440-66-6	5	mg/kg	<5	103.88 mg/kg	106	86	124
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1657117)								
EG035T: Mercury	7439-97-6	0.10	mg/kg	<0.1	1.34 mg/kg	93.8	73	127
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1657120)								
EG035T: Mercury	7439-97-6	0.10	mg/kg	<0.1	1.34 mg/kg	99.6	73	127
EP068A: Organochlorine Pesticides (OC) (QCLot: 1654319)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	74.1	58.4	116
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	77.8	57.7	107
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	77.9	59.3	116
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	77.4	59.1	118
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	80.8	51	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	85.2	57.3	119
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	82.0	58.2	113
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	85.0	60.4	113
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	83.0	60.3	114
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	82.3	56	120
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	85.6	60.8	113
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	84.8	58.8	115
EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	89.3	61.2	116
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	89.7	47	133



Sub-Matrix: **SOIL**

Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EP068A: Organochlorine Pesticides (OC) (QCLot: 1654319) - continued								
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	82.9	58.5	117
EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	82.4	58.4	118
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	81.5	42	115
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	85.5	53.6	120
EP068: 4,4'-DDT	50-29-3	0.05	mg/kg	----	0.5 mg/kg	91.5	52.6	129
		0.2	mg/kg	<0.2	----	----	----	----
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	85.1	51.6	124
EP068: Methoxychlor	72-43-5	0.05	mg/kg	----	0.5 mg/kg	83.6	52.4	129
		0.2	mg/kg	<0.2	----	----	----	----
EP068A: Organochlorine Pesticides (OC) (QCLot: 1654321)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	81.7	58.4	116
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	85.4	57.7	107
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	90.2	59.3	116
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	84.3	59.1	118
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	83.8	51	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	88.0	57.3	119
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	85.7	58.2	113
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	87.8	60.4	113
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	87.6	60.3	114
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	86.4	56	120
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	88.2	60.8	113
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	88.1	58.8	115
EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	92.4	61.2	116
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	95.5	47	133
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	89.6	58.5	117
EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	85.4	58.4	118
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	92.0	42	115
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	90.7	53.6	120
EP068: 4,4'-DDT	50-29-3	0.05	mg/kg	----	0.5 mg/kg	91.2	52.6	129
		0.2	mg/kg	<0.2	----	----	----	----
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	84.8	51.6	124
EP068: Methoxychlor	72-43-5	0.05	mg/kg	----	0.5 mg/kg	93.6	52.4	129
		0.2	mg/kg	<0.2	----	----	----	----
EP068B: Organophosphorus Pesticides (OP) (QCLot: 1654319)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	76.3	43.9	113
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	# Not Determined	31.2	112
EP068: Monocrotophos	6923-22-4	0.05	mg/kg	----	0.5 mg/kg	71.6	33	130
		0.2	mg/kg	<0.2	----	----	----	----
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	79.6	40	129



Sub-Matrix: **SOIL**

Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
Method: Compound	CAS Number	LOR	Unit	Result				
EP068B: Organophosphorus Pesticides (OP) (QCLot: 1654319) - continued								
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	79.3	57.1	114
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	83.6	58.9	113
EP068: Parathion-methyl	298-00-0	0.05	mg/kg	----	0.5 mg/kg	81.6	54.8	112
		0.2	mg/kg	<0.2	----	----	----	----
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	87.3	57.8	119
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	# 60.3	68	109
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	83.6	62.2	115
EP068: Parathion	56-38-2	0.05	mg/kg	----	0.5 mg/kg	83.0	54.7	113
		0.2	mg/kg	<0.2	----	----	----	----
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	82.9	51.9	121
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	103	58	118
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	83.6	59.8	115
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	53.8	32.5	101
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	84.8	59.6	116
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	83.9	58.4	118
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	79.7	56.9	117
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	88.8	42	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 1654321)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	89.1	43.9	113
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	# 4.1	31.2	112
EP068: Monocrotophos	6923-22-4	0.05	mg/kg	----	0.5 mg/kg	68.0	33	130
		0.2	mg/kg	<0.2	----	----	----	----
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	92.1	40	129
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	92.5	57.1	114
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	86.9	58.9	113
EP068: Parathion-methyl	298-00-0	0.05	mg/kg	----	0.5 mg/kg	91.6	54.8	112
		0.2	mg/kg	<0.2	----	----	----	----
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	91.0	57.8	119
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	74.0	68	109
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	85.5	62.2	115
EP068: Parathion	56-38-2	0.05	mg/kg	----	0.5 mg/kg	89.9	54.7	113
		0.2	mg/kg	<0.2	----	----	----	----
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	94.1	51.9	121
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	100	58	118
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	87.8	59.8	115
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	71.0	32.5	101
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	90.4	59.6	116
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	89.7	58.4	118
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	88.1	56.9	117



Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result			Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 1654321) - continued								
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	98.2	42	130
EP075(SIM)A: Phenolic Compounds (QCLot: 1654318)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	5.0 mg/kg	92.7	61	119
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	5.0 mg/kg	93.3	62	117
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	5.0 mg/kg	89.8	62	119
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1.0	10 mg/kg	86.9	57	120
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	5.0 mg/kg	105	44	125
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	5.0 mg/kg	76.5	58	116
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	5.0 mg/kg	83.1	58	116
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	5.0 mg/kg	93.5	59	119
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	5.0 mg/kg	76.8	61	121
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	5.0 mg/kg	82.9	55	116
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	5.0 mg/kg	92.1	53	116
EP075(SIM): Pentachlorophenol	87-86-5	2.0	mg/kg	<2.0	10 mg/kg	79.2	41	137
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1654318)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	5.0 mg/kg	96.6	66	114
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	5.0 mg/kg	99.9	58	113
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	5.0 mg/kg	85.8	65	114
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	5.0 mg/kg	85.2	63	111
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	5.0 mg/kg	96.1	60	112
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	5.0 mg/kg	100	65	110
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	5.0 mg/kg	102	64	111
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	5.0 mg/kg	103	64	136
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	5.0 mg/kg	89.2	60	115
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	5.0 mg/kg	109	57	114
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	5.0 mg/kg	94.8	44	124
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	5.0 mg/kg	102	48	124
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	5.0 mg/kg	108	50	116
EP075(SIM): Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	5.0 mg/kg	97.3	47	130
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	5.0 mg/kg	94.0	54	129
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	5.0 mg/kg	108	48	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1654314)								
EP080: C6 - C9 Fraction	----	10	mg/kg	---- <10	16 mg/kg ----	112 ----	71 ----	123 ----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1654317)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	259 mg/kg	106	65	112
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	524 mg/kg	87.7	76.2	122
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	----	----	----	----



Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EP080: BTEX (QCLot: 1654314)								
EP080: Benzene	71-43-2	0.2	mg/kg	----	1 mg/kg	92.7	78	121
				<0.2	----	----	----	----
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	----	----	----	----
				----	1 mg/kg	98.3	78	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	----	----	----
				----	1 mg/kg	94.3	72	119
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	----	2 mg/kg	95.4	66	121
	106-42-3			<0.5	----	----	----	----
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	----	----	----
				----	1 mg/kg	98.7	70	118

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EG020T: Total Metals by ICP-MS (QCLot: 1659946)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.100 mg/L	101	76	120
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.100 mg/L	95.0	84	115
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.100 mg/L	109	82	124
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.200 mg/L	105	82	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.100 mg/L	101	85	115
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.100 mg/L	109	81	121
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.200 mg/L	106	81	123
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1655874)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.0100 mg/L	101	80	116
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1658780)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	160 µg/L	84.5	73	135
EP080: BTEX (QCLot: 1658780)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	98.1	77.6	122
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	96.0	71	122
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	97.7	73	125
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	20 µg/L	98.6	70.4	129
	106-42-3							
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	99.8	72	124



Matrix Spike (MS) Report

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

Sub-Matrix: **SOIL**

Sub-Matrix: SOIL				Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
					MS	Low	High
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number				
EG005T: Total Metals by ICP-AES (QCLot: 1657116)							
EB1101445-002	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	110	70	130
		EG005T: Cadmium	7440-43-9	25 mg/kg	116	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	116	70	130
		EG005T: Copper	7440-50-8	50 mg/kg	112	70	130
		EG005T: Lead	7439-92-1	50 mg/kg	116	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	114	70	130
		EG005T: Zinc	7440-66-6	50 mg/kg	130	70	130
EG005T: Total Metals by ICP-AES (QCLot: 1657119)							
EB1101638-017	BH9 0.0-0.15	EG005T: Arsenic	7440-38-2	50 mg/kg	106	70	130
		EG005T: Cadmium	7440-43-9	25 mg/kg	114	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	116	70	130
		EG005T: Copper	7440-50-8	50 mg/kg	126	70	130
		EG005T: Lead	7439-92-1	50 mg/kg	111	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	119	70	130
		EG005T: Zinc	7440-66-6	50 mg/kg	113	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1657117)							
EB1101445-002	Anonymous	EG035T: Mercury	7439-97-6	5.0 mg/kg	82.6	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1657120)							
EB1101638-017	BH9 0.0-0.15	EG035T: Mercury	7439-97-6	5.0 mg/kg	91.6	70	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 1654319)							
EB1101638-003	BH2 0.0-0.15	EP068: gamma-BHC	58-89-9	0.25 mg/kg	# 64.4	70	130
		EP068: Heptachlor	76-44-8	0.25 mg/kg	# 46.4	70	130
		EP068: Aldrin	309-00-2	0.25 mg/kg	72.4	70	130
		EP068: Dieldrin	60-57-1	0.25 mg/kg	73.5	70	130
		EP068: Endrin	72-20-8	0.25 mg/kg	# 49.1	70	130
		EP068: 4,4'-DDT	50-29-3	0.25 mg/kg	# Not Determined	70	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 1654321)							
EB1101638-051	BH31 0.0-0.15	EP068: gamma-BHC	58-89-9	0.25 mg/kg	71.4	70	130
		EP068: Heptachlor	76-44-8	0.25 mg/kg	74.0	70	130
		EP068: Aldrin	309-00-2	0.25 mg/kg	74.8	70	130
		EP068: Dieldrin	60-57-1	0.25 mg/kg	81.3	70	130
		EP068: Endrin	72-20-8	0.25 mg/kg	74.9	70	130
		EP068: 4,4'-DDT	50-29-3	0.25 mg/kg	# 43.0	70	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 1654319)							

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 Work Order : EB1101638
 Client : GILBERT & SUTHERLAND PTY LTD
 Project : 10468



Sub-Matrix: **SOIL**

Sub-Matrix: SOIL				Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
					MS	Low	High
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number				
EP068B: Organophosphorus Pesticides (OP) (QCLot: 1654319) - continued							
EB1101638-003	BH2 0.0-0.15	EP068: Diazinon	333-41-5	0.25 mg/kg	# 69.5	70	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.25 mg/kg	76.7	70	130
		EP068: Pirimphos-ethyl	23505-41-1	0.25 mg/kg	75.9	70	130
		EP068: Bromophos-ethyl	4824-78-6	0.25 mg/kg	76.1	70	130
		EP068: Prothiofos	34643-46-4	0.25 mg/kg	72.9	70	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 1654321)							
EB1101638-051	BH31 0.0-0.15	EP068: Diazinon	333-41-5	0.25 mg/kg	82.1	70	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.25 mg/kg	82.7	70	130
		EP068: Pirimphos-ethyl	23505-41-1	0.25 mg/kg	88.7	70	130
		EP068: Bromophos-ethyl	4824-78-6	0.25 mg/kg	82.6	70	130
		EP068: Prothiofos	34643-46-4	0.25 mg/kg	82.8	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 1654318)							
EB1101638-004	BH2 0.2-0.3	EP075(SIM): Phenol	108-95-2	2.5 mg/kg	80.9	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	2.5 mg/kg	86.9	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	2.5 mg/kg	112	70	130
		EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	2.5 mg/kg	78.0	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	2.5 mg/kg	117	70	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1654318)							
EB1101638-004	BH2 0.2-0.3	EP075(SIM): Acenaphthene	83-32-9	2.5 mg/kg	83.8	70	130
		EP075(SIM): Pyrene	129-00-0	2.5 mg/kg	112	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1654314)							
EB1101638-004	BH2 0.2-0.3	EP080: C6 - C9 Fraction	----	10 mg/kg	82.8	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1654317)							
EB1101638-004	BH2 0.2-0.3	EP071: C10 - C14 Fraction	----	259 mg/kg	114	70	130
		EP071: C15 - C28 Fraction	----	524 mg/kg	82.4	70	130
EP080: BTEX (QCLot: 1654314)							
EB1101638-004	BH2 0.2-0.3	EP080: Benzene	71-43-2	2 mg/kg	90.7	70	130
		EP080: Toluene	108-88-3	2 mg/kg	91.8	70	130

Sub-Matrix: **WATER**

Sub-Matrix: WATER				Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
					MS	Low	High
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	EG020T: Total Metals by ICP-MS (QCLot: 1659946)			
EB1101600-019	Anonymous	EG020A-T: Arsenic	7440-38-2	1.000 mg/L	98.8	70	130
		EG020A-T: Cadmium	7440-43-9	0.500 mg/L	95.1	70	130
		EG020A-T: Chromium	7440-47-3	1.000 mg/L	96.8	70	130
		EG020A-T: Copper	7440-50-8	1.000 mg/L	102	70	130



Sub-Matrix: WATER

Sub-Matrix: WATER				Matrix Spike (MS) Report			
				Spike	Spike Recovery (%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 1659946) - continued							
EB1101600-019	Anonymous	EG020A-T: Lead	7439-92-1	1.000 mg/L	94.4	70	130
		EG020A-T: Nickel	7440-02-0	1.000 mg/L	99.7	70	130
		EG020A-T: Zinc	7440-66-6	1.000 mg/L	96.8	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1655874)							
EB1101603-004	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	86.5	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1658780)							
EB1101549-002	Anonymous	EP080: C6 - C9 Fraction	----	50 µg/L	90.2	70	130
EP080: BTEX (QCLot: 1658780)							
EB1101549-002	Anonymous	EP080: Benzene	71-43-2	10 µg/L	100	70	130
		EP080: Toluene	108-88-3	10 µg/L	96.5	70	130



Environmental Division

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: EB1101638	Page	: 1 of 11
Client	: GILBERT & SUTHERLAND PTY LTD	Laboratory	: Environmental Division Brisbane
Contact	: MR JACK WORCESTER	Contact	: Milan Pavasovic
Address	: P O BOX 4115 ROBINA QLD, AUSTRALIA 4230	Address	: 32 Shand Street Stafford QLD Australia 4053
E-mail	: worcester.jw@access.gs	E-mail	: milan.pavasovic@alsglobal.com
Telephone	: +61 07 55789944	Telephone	: +61 7 3243 7129
Facsimile	: +61 07 55789945	Facsimile	: +61 7 3243 7218
Project	: 10468	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: KINGS FOREST		
C-O-C number	: ----	Date Samples Received	: 31-JAN-2011
Sampler	: Jack Worcester	Issue Date	: 10-FEB-2011
Order number	: ----		
Quote number	: BN/220/10	No. of samples received	: 55
		No. of samples analysed	: 34

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

Environmental Division Brisbane

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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: **SOIL**

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

Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content								
Soil Glass Jar - Unpreserved								
BH5 - 0.0-0.15, BH6 - 0.0-0.15, BH7 - 0.0-0.15, BH9 - 0.0-0.15,	BH5 - 0.2-0.3, BH6 - 0.2-0.3, BH8 - 0.0-0.15, BH10 - 0.0-0.15	24-JAN-2011	----	----	----	02-FEB-2011	07-FEB-2011	✓
Soil Glass Jar - Unpreserved								
BH1 - 0.0-0.15, BH2 - 0.2-0.3, BH3 - 0.2-0.3, BH4 - 0.2-0.3, BH12 - 0.0-0.15, BH14 - 0.0-0.15, BH17 - 0.0-0.15, BH19 - 0.0-0.15, BH20 - 0.0-0.15, BH21 - 0.0-0.15, BH28 - 0.0-0.15, BH30 - 0.0-0.15, BH32 - 0.0-0.15	BH2 - 0.0-0.15, BH3 - 0.0-0.15, BH4 - 0.0-0.15, BH11 - 0.0-0.15, BH13 - 0.0-0.15, BH15 - 0.0-0.15, BH18 - 0.0-0.15, QC1, BH22 - 0.0-0.15, BH29 - 0.0-0.15, BH31 - 0.0-0.15,	27-JAN-2011	----	----	----	02-FEB-2011	10-FEB-2011	✓



Matrix: **SOIL**

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

Method	Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EG005T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved BH5 - 0.0-0.15, BH6 - 0.0-0.15, BH7 - 0.0-0.15, BH9 - 0.0-0.15,	BH5 - 0.2-0.3, BH6 - 0.2-0.3, BH8 - 0.0-0.15, BH10 - 0.0-0.15	24-JAN-2011	04-FEB-2011	23-JUL-2011	✓	08-FEB-2011	23-JUL-2011	✓
Soil Glass Jar - Unpreserved BH1 - 0.0-0.15, BH2 - 0.2-0.3, BH3 - 0.2-0.3, BH4 - 0.2-0.3, BH12 - 0.0-0.15, BH14 - 0.0-0.15, BH17 - 0.0-0.15, BH19 - 0.0-0.15, BH20 - 0.0-0.15, BH21 - 0.0-0.15, BH28 - 0.0-0.15, BH30 - 0.0-0.15, BH32 - 0.0-0.15	BH2 - 0.0-0.15, BH3 - 0.0-0.15, BH4 - 0.0-0.15, BH11 - 0.0-0.15, BH13 - 0.0-0.15, BH15 - 0.0-0.15, BH18 - 0.0-0.15, QC1, BH22 - 0.0-0.15, BH29 - 0.0-0.15, BH31 - 0.0-0.15,	27-JAN-2011	04-FEB-2011	26-JUL-2011	✓	08-FEB-2011	26-JUL-2011	✓
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved BH7 - 0.0-0.15, BH9 - 0.0-0.15,	BH8 - 0.0-0.15, BH10 - 0.0-0.15	24-JAN-2011	04-FEB-2011	21-FEB-2011	✓	09-FEB-2011	21-FEB-2011	✓
Soil Glass Jar - Unpreserved BH1 - 0.0-0.15, BH2 - 0.2-0.3, BH12 - 0.0-0.15, BH14 - 0.0-0.15, BH17 - 0.0-0.15, BH19 - 0.0-0.15, BH21 - 0.0-0.15, BH28 - 0.0-0.15, BH30 - 0.0-0.15, BH32 - 0.0-0.15,	BH2 - 0.0-0.15, BH11 - 0.0-0.15, BH13 - 0.0-0.15, BH15 - 0.0-0.15, BH18 - 0.0-0.15, BH20 - 0.0-0.15, BH22 - 0.0-0.15, BH29 - 0.0-0.15, BH31 - 0.0-0.15, QC1	27-JAN-2011	04-FEB-2011	24-FEB-2011	✓	09-FEB-2011	24-FEB-2011	✓



Matrix: **SOIL**

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

Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP068A: Organochlorine Pesticides (OC)								
Soil Glass Jar - Unpreserved BH7 - 0.0-0.15, BH9 - 0.0-0.15,	BH8 - 0.0-0.15, BH10 - 0.0-0.15	24-JAN-2011	02-FEB-2011	07-FEB-2011	✔	07-FEB-2011	14-MAR-2011	✔
Soil Glass Jar - Unpreserved BH30 - 0.0-0.15, BH32 - 0.0-0.15,	BH31 - 0.0-0.15, QC1	27-JAN-2011	02-FEB-2011	10-FEB-2011	✔	06-FEB-2011	14-MAR-2011	✔
Soil Glass Jar - Unpreserved BH1 - 0.0-0.15, BH2 - 0.2-0.3, BH12 - 0.0-0.15, BH14 - 0.0-0.15, BH17 - 0.0-0.15, BH19 - 0.0-0.15, BH21 - 0.0-0.15, BH28 - 0.0-0.15,	BH2 - 0.0-0.15, BH11 - 0.0-0.15, BH13 - 0.0-0.15, BH15 - 0.0-0.15, BH18 - 0.0-0.15, BH20 - 0.0-0.15, BH22 - 0.0-0.15, BH29 - 0.0-0.15	27-JAN-2011	02-FEB-2011	10-FEB-2011	✔	07-FEB-2011	14-MAR-2011	✔
EP068B: Organophosphorus Pesticides (OP)								
Soil Glass Jar - Unpreserved BH7 - 0.0-0.15, BH9 - 0.0-0.15,	BH8 - 0.0-0.15, BH10 - 0.0-0.15	24-JAN-2011	02-FEB-2011	07-FEB-2011	✔	07-FEB-2011	14-MAR-2011	✔
Soil Glass Jar - Unpreserved BH30 - 0.0-0.15, BH32 - 0.0-0.15,	BH31 - 0.0-0.15, QC1	27-JAN-2011	02-FEB-2011	10-FEB-2011	✔	06-FEB-2011	14-MAR-2011	✔
Soil Glass Jar - Unpreserved BH1 - 0.0-0.15, BH2 - 0.2-0.3, BH12 - 0.0-0.15, BH14 - 0.0-0.15, BH17 - 0.0-0.15, BH19 - 0.0-0.15, BH21 - 0.0-0.15, BH28 - 0.0-0.15,	BH2 - 0.0-0.15, BH11 - 0.0-0.15, BH13 - 0.0-0.15, BH15 - 0.0-0.15, BH18 - 0.0-0.15, BH20 - 0.0-0.15, BH22 - 0.0-0.15, BH29 - 0.0-0.15	27-JAN-2011	02-FEB-2011	10-FEB-2011	✔	07-FEB-2011	14-MAR-2011	✔
EP075(SIM)A: Phenolic Compounds								
Soil Glass Jar - Unpreserved BH5 - 0.0-0.15, BH6 - 0.0-0.15,	BH5 - 0.2-0.3, BH6 - 0.2-0.3	24-JAN-2011	02-FEB-2011	07-FEB-2011	✔	09-FEB-2011	14-MAR-2011	✔
Soil Glass Jar - Unpreserved BH2 - 0.0-0.15, BH3 - 0.0-0.15, BH4 - 0.0-0.15,	BH2 - 0.2-0.3, BH3 - 0.2-0.3, BH4 - 0.2-0.3	27-JAN-2011	02-FEB-2011	10-FEB-2011	✔	09-FEB-2011	14-MAR-2011	✔



Matrix: **SOIL**

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

Method	Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved BH5 - 0.0-0.15, BH6 - 0.0-0.15,	BH5 - 0.2-0.3, BH6 - 0.2-0.3	24-JAN-2011	02-FEB-2011	07-FEB-2011	✓	09-FEB-2011	14-MAR-2011	✓
Soil Glass Jar - Unpreserved BH2 - 0.0-0.15, BH3 - 0.0-0.15, BH4 - 0.0-0.15,	BH2 - 0.2-0.3, BH3 - 0.2-0.3, BH4 - 0.2-0.3	27-JAN-2011	02-FEB-2011	10-FEB-2011	✓	09-FEB-2011	14-MAR-2011	✓
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved BH5 - 0.0-0.15, BH6 - 0.0-0.15,	BH5 - 0.2-0.3, BH6 - 0.2-0.3	24-JAN-2011	02-FEB-2011	07-FEB-2011	✓	03-FEB-2011	14-MAR-2011	✓
Soil Glass Jar - Unpreserved BH5 - 0.0-0.15, BH6 - 0.0-0.15,	BH5 - 0.2-0.3, BH6 - 0.2-0.3	24-JAN-2011	02-FEB-2011	07-FEB-2011	✓	07-FEB-2011	07-FEB-2011	✓
Soil Glass Jar - Unpreserved BH2 - 0.0-0.15, BH3 - 0.0-0.15, BH4 - 0.0-0.15,	BH2 - 0.2-0.3, BH3 - 0.2-0.3, BH4 - 0.2-0.3	27-JAN-2011	02-FEB-2011	10-FEB-2011	✓	03-FEB-2011	14-MAR-2011	✓
Soil Glass Jar - Unpreserved BH2 - 0.0-0.15, BH3 - 0.0-0.15, BH4 - 0.0-0.15,	BH2 - 0.2-0.3, BH3 - 0.2-0.3, BH4 - 0.2-0.3	27-JAN-2011	02-FEB-2011	10-FEB-2011	✓	07-FEB-2011	10-FEB-2011	✓
EP080: BTEX								
Soil Glass Jar - Unpreserved BH5 - 0.0-0.15, BH6 - 0.0-0.15,	BH5 - 0.2-0.3, BH6 - 0.2-0.3	24-JAN-2011	02-FEB-2011	07-FEB-2011	✓	07-FEB-2011	07-FEB-2011	✓
Soil Glass Jar - Unpreserved BH2 - 0.0-0.15, BH3 - 0.0-0.15, BH4 - 0.0-0.15,	BH2 - 0.2-0.3, BH3 - 0.2-0.3, BH4 - 0.2-0.3	27-JAN-2011	02-FEB-2011	10-FEB-2011	✓	07-FEB-2011	10-FEB-2011	✓

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
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unspecified Rinsate 1	27-JAN-2011	08-FEB-2011	26-JUL-2011	✓	08-FEB-2011	26-JUL-2011	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unspecified Rinsate 1	27-JAN-2011	---	----	----	04-FEB-2011	24-FEB-2011	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber VOC Vial - HCl Trip Blank 1	27-JAN-2011	08-FEB-2011	10-FEB-2011	✓	08-FEB-2011	10-FEB-2011	✓



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
EP080: BTEX							
Amber VOC Vial - HCl Trip Blank 1	27-JAN-2011	08-FEB-2011	10-FEB-2011	✔	08-FEB-2011	10-FEB-2011	✔



Quality Control Parameter Frequency Compliance

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

Matrix: **SOIL**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Moisture Content	EA055-103	4	33	12.1	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	10	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	3	23	13.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	4	32	12.5	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	4	40	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	10	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	8	12.5	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	10	10.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	2	23	8.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	32	6.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	40	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	10	10.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	8	12.5	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	10	10.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	2	23	8.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	32	6.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	40	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	10	10.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	8	12.5	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	10	10.0	5.0	✓	ALS QCS3 requirement
Pesticides by GCMS	EP068	2	23	8.7	5.0	✓	ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	32	6.3	5.0	✓	ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	40	5.0	5.0	✓	ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	10	10.0	5.0	✓	ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	8	12.5	5.0	✓	ALS QCS3 requirement

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Total Mercury by FIMS	EG035T	1	6	16.7	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	20	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	20	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Total Mercury by FIMS	EG035T	1	6	16.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement

Page : 8 of 11
 Work Order : EB1101638
 Client : GILBERT & SUTHERLAND PTY LTD
 Project : 10468



Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Control Samples (LCS) - Continued							
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Total Mercury by FIMS	EG035T	1	6	16.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	1	6	16.7	5.0	✓	ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.0	5.0	✓	ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	ALS QCS3 requirement



Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2010 Draft) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (1999) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (1999) Schedule B(3)
Pesticides by GCMS	EP068	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (1999) Schedule B(3) (Method 504,505)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (1999) Schedule B(3) (Method 506.1)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Method 501)
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): 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.
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered 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 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
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (1999) Schedule B(3) (Method 202)



Preparation Methods	Method	Matrix	Method Descriptions
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option A - Concentrating)	ORG17A	SOIL	In-house, Mechanical agitation (tumbler). 20g of sample, Na ₂ SO ₄ and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na ₂ SO ₄ and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.



Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EP068B: Organophosphorus Pesticides (OP)	1942571-002	----	Demeton-S-methyl	919-86-8	Not Determined	----	Standard recovery not determined, result less than LOR
EP068B: Organophosphorus Pesticides (OP)	1942573-002	----	Demeton-S-methyl	919-86-8	4.1 %	31.2-112%	Recovery less than lower control limit
EP068B: Organophosphorus Pesticides (OP)	1942571-002	----	Fenthion	55-38-9	60.3 %	68-109%	Recovery less than lower control limit
Matrix Spike (MS) Recoveries							
EP068A: Organochlorine Pesticides (OC)	EB1101638-003	BH2 0.0-0.15	gamma-BHC	58-89-9	64.4 %	70-130%	Recovery less than lower data quality objective
EP068A: Organochlorine Pesticides (OC)	EB1101638-003	BH2 0.0-0.15	Heptachlor	76-44-8	46.4 %	70-130%	Recovery less than lower data quality objective
EP068A: Organochlorine Pesticides (OC)	EB1101638-003	BH2 0.0-0.15	Endrin	72-20-8	49.1 %	70-130%	Recovery less than lower data quality objective
EP068A: Organochlorine Pesticides (OC)	EB1101638-003	BH2 0.0-0.15	4,4'-DDT	50-29-3	Not Determined	----	Matrix spike recovery not determined due to sample matrix interference.
EP068A: Organochlorine Pesticides (OC)	EB1101638-051	BH31 0.0-0.15	4,4'-DDT	50-29-3	43.0 %	70-130%	Recovery less than lower data quality objective
EP068B: Organophosphorus Pesticides (OP)	EB1101638-003	BH2 0.0-0.15	Diazinon	333-41-5	69.5 %	70-130%	Recovery less than lower data quality objective

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.

Regular Sample Surrogates

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

Outliers : Analysis Holding Time Compliance

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

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

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

- No Quality Control Sample Frequency Outliers exist.

CHAIN OF CUSTODY DOCUMENTATION						
CLIENT: Gilbert & Sutherland				SAMPLER: Jack Worcester		
ADDRESS / OFFICE: 5/232 Robina Town Centre Drive, Robina				MOBILE:		
PROJECT MANAGER (PM): Jack Worcester				PHONE: 07 5578 9944		
PROJECT ID: 10468				EMAIL REPORT TO: worcester.jw@access.gs gifford.nj@access.gs		
SITE: Kings Forest P.O. No.:				EMAIL INVOICE TO: Debra Endres (endres.dj@groupgs.com)		
RESULTS REQUIRED (Date): QUOTE NO.:				ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)		
FOR LABORATORY USE ONLY COOLER SEAL (if applicable) Intact Yes No SAMPLE TEMPERATURE CHILLED Yes No				COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL: 		
				Notes:		
SAMPLE INFORMATION (note: S = Soil, W=Water)				CONTAINER INFORMATION		
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles
	BH34 0.0-0.15 13	Soil	01.02.11	PM	Ice/chill	1
	BH34 0.2-0.3 14	Soil	01.02.11	PM	Ice/chill	1
	BH35 0.0-0.15 15	Soil	01.02.11	PM	Ice/chill	1
	BH35 0.2-0.3 16	Soil	01.02.11	PM	Ice/chill	1
	BH36 0.0-0.15 17	Soil	01.02.11	PM	Ice/chill	1
	BH36 0.2-0.3 18	Soil	01.02.11	PM	Ice/chill	1
	BH37 0.0-0.15 19	Soil	01.02.11	PM	Ice/chill	1
	BH37 0.2-0.3 20	Soil	01.02.11	PM	Ice/chill	1
	BH38 0.0-0.15 21	Soil	01.02.11	PM	Ice/chill	1
	BH38 0.2-0.3 22	Soil	01.02.11	PM	Ice/chill	1
	BH39 0.0-0.15 23	Soil	01.02.11	PM	Ice/chill	1
	BH39 0.2-0.3 24	Soil	01.02.11	PM	Ice/chill	1
RELINQUISHED BY:						
Name: Jack Worcester			Date: 02.02.11		RECEIVED BY	
Of: Gilbert & Sutherland			Time: 10:30am		Name: [Signature] ALS	
Name:			Date:		Date: 02/02/11	
Of:			Time:		Time: 15:50	
					Con' Note No:	
					Transport Co:	
Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved;						
V = VOA Vial HCl Preserved; VS = VOA Vial Sulphuric Preserved; SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;						
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.						

CHAIN OF CUSTODY DOCUMENTATION																					
CLIENT: Gilbert & Sutherland						SAMPLER: Jack Worcester															
ADDRESS / OFFICE: 5/232 Robina Town Centre Drive, Robina						MOBILE:															
PROJECT MANAGER (PM): Jack Worcester						PHONE: 07 5578 9944															
PROJECT ID: 10468						EMAIL REPORT TO: worcester.jw@access.gs gifford.nj@access.gs															
SITE: Kings Forest P.O. No.:						EMAIL INVOICE TO: Debra Endres (endres.dj@groupgs.com)															
RESULTS REQUIRED (Date): QUOTE NO.:						ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)															
						Notes:															
SAMPLE INFORMATION (note: S = Soil, W=Water) CONTAINER INFORMATION																					
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles	NEPM 8 Suite metals	OC/OP pesticides	As, Pb												
BH40	0.0-0.15	Soil	01.02.11	PM	Ice/chill	1	X	X													
BH40	0.2-0.3	Soil	01.02.11	PM	Ice/chill	1	HOLD SAMPLE														
BH41	0.0-0.15	Soil	01.02.11	PM	Ice/chill	1	X	X													
BH41	0.2-0.3	Soil	01.02.11	PM	Ice/chill	1	HOLD SAMPLE														
BH42	0.0-0.15	Soil	01.02.11	PM	Ice/chill	1	X	X													
BH42	0.2-0.3	Soil	01.02.11	PM	Ice/chill	1	HOLD SAMPLE														
BH43	0.0-0.15	Soil	01.02.11	PM	Ice/chill	1	X	X													
BH43	0.2-0.3	Soil	01.02.11	PM	Ice/chill	1	HOLD SAMPLE														
QC2		Soil	01.02.11	PM	Ice/chill	1	X	X													
QC2A		Soil	01.02.11	PM	Ice/chill	1	X	X													Please forward to SGS
QC3		Soil	01.02.11	PM	Ice/chill	1	X	X													
QC3A		Soil	01.02.11	PM	Ice/chill	1	X	X													Please forward to SGS
RELINQUISHED BY:						RECEIVED BY						METHOD OF SHIPMENT									
Name: Jack Worcester	Date: 02.02.11	Name:	Date:																		
Of: Gilbert & Sutherland	Time: 10:30am	Of:	Time:																		
Name:	Date:	Name:	Date:																		
Of:	Time:	Of:	Time:																		
Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved;																					
V = VOA Vial HCl Preserved; VS = VOA Vial Sulphuric Preserved; SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;																					
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.																					

ENFM (204/5)



Environmental Division

SAMPLE RECEIPT NOTIFICATION (SRN)
Comprehensive Report

Work Order : EB1101858

Client : GILBERT & SUTHERLAND PTY LTD
Contact : MR NICK GIFFORD
Address : P O BOX 4115
ROBINA QLD, AUSTRALIA 4230

E-mail : gifford.nj@access.gs
Telephone : +61 07 55789944
Facsimile : +61 07 55789945

Project : 10468

Order number : ----

C-O-C number : ----

Site : Kings Forest

Sampler : Jack Worcester

Laboratory : Environmental Division Brisbane
Contact : Milan Pavasovic
Address : 32 Shand Street Stafford QLD Australia
4053

E-mail : milan.pavasovic@alsglobal.com
Telephone : +61 7 3243 7129
Facsimile : +61 7 3243 7218

Page : 1 of 3

Quote number : EB2010GILSUT0312 (BN/220/10)

QC Level : NEPM 1999 Schedule B(3) and ALS
QCS3 requirement

Dates

Date Samples Received : 02-FEB-2011
Client Requested Due Date : 10-FEB-2011

Issue Date : 04-FEB-2011 16:04
Scheduled Reporting Date : 10-FEB-2011

Delivery Details

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

Temperature : 19 7°C - Ice bricks present
No. of samples received : 37
No. of samples analysed : 19

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.**
- **Please note that OC/OP Pesticide analysis could not be performed on sample 'QC4' as the lab only received 1 x 60mL Nitric Red bottle.**
- **Please be advised that the lab received 2 x extra soil samples. The jars were labelled 'BH16 0.0-0.15' & 'BH16 0.2-0.3' both were dated the 27/01/11.**
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Please direct any queries related to sample condition / numbering / breakages to Matt Goodwin.
- 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 sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Matrix: SOIL

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) SOIL No analysis requested	SOIL - EG005T (solids) Total Metals by ICP-AES	SOIL - S-02 & Metals (incl. Digestion)	SOIL - S-12 OC/OP Pesticides
EB1101858-001	01-FEB-2011 15:00	BH23 0.0-0.15			✓	✓
EB1101858-002	01-FEB-2011 15:00	BH23 0.2-0.3	✓			
EB1101858-003	01-FEB-2011 15:00	BH24 0.0-0.15			✓	✓
EB1101858-004	01-FEB-2011 15:00	BH24 0.2-0.3	✓			
EB1101858-005	01-FEB-2011 15:00	BH25 0.0-0.15			✓	✓
EB1101858-006	01-FEB-2011 15:00	BH25 0.2-0.3	✓			
EB1101858-007	01-FEB-2011 15:00	BH26 0.0-0.15			✓	✓
EB1101858-008	01-FEB-2011 15:00	BH26 0.2-0.3	✓			
EB1101858-009	01-FEB-2011 15:00	BH27 0.0-0.15			✓	✓
EB1101858-010	01-FEB-2011 15:00	BH27 0.2-0.3	✓			
EB1101858-011	01-FEB-2011 15:00	BH33 0.0-0.15			✓	✓
EB1101858-012	01-FEB-2011 15:00	BH33 0.2-0.3	✓			
EB1101858-013	01-FEB-2011 15:00	BH34 0.0-0.15		✓		✓
EB1101858-014	01-FEB-2011 15:00	BH34 0.2-0.3	✓			
EB1101858-015	01-FEB-2011 15:00	BH35 0.0-0.15		✓		✓
EB1101858-016	01-FEB-2011 15:00	BH35 0.2-0.3	✓			
EB1101858-017	01-FEB-2011 15:00	BH36 0.0-0.15		✓		✓
EB1101858-018	01-FEB-2011 15:00	BH36 0.2-0.3	✓			
EB1101858-019	01-FEB-2011 15:00	BH37 0.0-0.15		✓		✓
EB1101858-020	01-FEB-2011 15:00	BH37 0.2-0.3	✓			
EB1101858-021	01-FEB-2011 15:00	BH38 0.0-0.15		✓		✓
EB1101858-022	01-FEB-2011 15:00	BH38 0.2-0.3	✓			
EB1101858-023	01-FEB-2011 15:00	BH39 0.0-0.15		✓		✓
EB1101858-024	01-FEB-2011 15:00	BH39 0.2-0.3	✓			
EB1101858-025	01-FEB-2011 15:00	BH40 0.0-0.15		✓		✓
EB1101858-026	01-FEB-2011 15:00	BH40 0.2-0.3	✓			
EB1101858-027	01-FEB-2011 15:00	BH41 0.0-0.15		✓		✓
EB1101858-028	01-FEB-2011 15:00	BH41 0.2-0.3	✓			
EB1101858-029	01-FEB-2011 15:00	BH42 0.0-0.15		✓		✓
EB1101858-030	01-FEB-2011 15:00	BH42 0.2-0.3	✓			
EB1101858-031	01-FEB-2011 15:00	BH43 0.0-0.15		✓		✓
EB1101858-032	01-FEB-2011 15:00	BH43 0.2-0.3	✓			
EB1101858-033	01-FEB-2011 15:00	QC2		✓		✓
EB1101858-034	01-FEB-2011 15:00	QC3		✓		✓
EB1101858-036	27-JAN-2011 15:00	BH16 0.0-0.15	✓			



			(On Hold) SOIL No analysis requested	SOIL - EG005T (solids) Total Metals by ICP-AES	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-12 OC/OP Pesticides
EB1101858-037	27-JAN-2011 15:00	BH16 0.2-0.3	✓			

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG020F Dissolved Metals by ICPMS
EB1101858-035	01-FEB-2011 15:00	QC4	✓

Requested Deliverables

MR JACK WORCESTER

- *AU Certificate of Analysis - NATA (COA)	Email	worcester.jw@access.gs
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	worcester.jw@access.gs
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	worcester.jw@access.gs
- A4 - AU Sample Receipt Notification - Environmental (SRN)	Email	worcester.jw@access.gs
- Chain of Custody (CoC) (COC)	Email	worcester.jw@access.gs
- EDI Format - ENMRG (ENMRG)	Email	worcester.jw@access.gs
- EDI Format - XTab (XTAB)	Email	worcester.jw@access.gs

MR NICK GIFFORD

- *AU Certificate of Analysis - NATA (COA)	Email	gifford.nj@access.gs
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	gifford.nj@access.gs
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	gifford.nj@access.gs
- A4 - AU Sample Receipt Notification - Environmental (SRN)	Email	gifford.nj@access.gs
- Chain of Custody (CoC) (COC)	Email	gifford.nj@access.gs
- EDI Format - ENMRG (ENMRG)	Email	gifford.nj@access.gs
- EDI Format - XTab (XTAB)	Email	gifford.nj@access.gs

MS DEBBIE ENDRES

- A4 - AU Tax Invoice (INV)	Email	endres.dj@access.gs
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