

Certificate of Analysis

Laboratory Reference: 190311-172

Attention:	John Fell	Final Report:	316454-0
Client:	ECOCAST LTD	Report Issue Date:	07-May-2019
Address:	5 Seaview Lane, 3120	Received Date:	12-Mar-2019
Client Reference:	Vermicast 12/2018 - 2/2019	Quote Reference :	8536
Purchase Order:	Not Available		

Sample Details	SOLIDS	SOLIDS	SOLIDS	SOLIDS
Lab Sample ID:	190311-172-1	190311-172-2	190311-172-3	190311-172-4
Client Sample ID:				
Sample Date/Time:	10/12/2018 09:00	24/12/2018 10:00	12/01/2019 09:30	26/01/2019 08:00
Description:	Vermicast 10-12-18	Vermicast 24-12-18	Vermicast 12-1-19	Vermicast 26-1-19

General Testing					
Total Solids	%	61.7	66.3	63.1	57.1

Metals					
Recoverable Metals by ICP-MS—Trace					
Arsenic (Recoverable Dry Wt.)	mg/kg	14	15	12	7.9
Cadmium (Recoverable Dry Wt.)	mg/kg	<0.45	<0.45	<0.44	0.47
Chromium (Recoverable Dry Wt.)	mg/kg	48	57	46	61
Copper (Recoverable Dry Wt.)	mg/kg	37	37	33	110
Lead (Recoverable Dry Wt.)	mg/kg	10	11	9.2	13
Mercury (Recoverable Dry Wt.)	mg/kg	0.5	0.67	0.5	0.28
Nickel (Recoverable Dry Wt.)	mg/kg	5.0	6.0	4.3	6.8
Zinc (Recoverable Dry Wt.)	mg/kg	84	93	77	170

Sample Details	SOLIDS	SOLIDS	SOLIDS
Lab Sample ID:	190311-172-5	190311-172-6	190311-172-7
Client Sample ID:			
Sample Date/Time:	12/02/2019 10:00	25/02/2019 08:30	25/02/2019 08:30
Description:	Vermicast 12-2-19	Vermicast 25-2-19	Vermicast 25-2-19

Chemistry Detailed		
Phenols (PHN) (Dry Weight Basis) by Gas Chromatography-Mass Spectrometry(Trace level)		
2,3,4,6-tetrachlorophenol: Dry Weight Basis, Trace level	mg/kg	-
2,4,5-trichlorophenol: Dry Weight Basis, Trace level	mg/kg	-
2,4,6-trichlorophenol: Dry Weight Basis, Trace level	mg/kg	-
2,4-dichlorophenol: Dry Weight Basis, Trace level	mg/kg	-
2,4-dimethylphenol: Dry Weight Basis, Trace level	mg/kg	-
2,6-dichlorophenol: Dry Weight Basis, Trace level	mg/kg	-
2-chlorophenol: Dry Weight Basis, Trace level	mg/kg	-
2-methyl-4,6-dinitrophenol: Dry Weight Basis, Trace level	mg/kg	-
2-methylphenol: Dry Weight Basis, Trace level	mg/kg	-
2-nitrophenol: Dry Weight Basis, Trace level	mg/kg	-
4-Chloro-3-methylphenol: Dry Weight Basis, Trace level	mg/kg	-
4-methylphenol: Dry Weight Basis, Trace level	mg/kg	-
Pentachlorophenol: Dry Weight Basis, Trace level	mg/kg	-

Sample Details (continued)	SOLIDS	SOLIDS	SOLIDS
Lab Sample ID:	190311-172-5	190311-172-6	190311-172-7
Client Sample ID:			
Sample Date/Time:	12/02/2019 10:00	25/02/2019 08:30	25/02/2019 08:30
Description:	Vermicast 12-2-19	Vermicast 25-2-19	Vermicast 25-2-19

Chemistry Detailed

Phenols (PHN) (Dry Weight Basis) by Gas Chromatography-Mass Spectrometry(Trace level)

Phenol: Dry Weight Basis, Trace level	mg/kg	-	-	<0.1
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Polychlorinated Biphenyls Congeners (Dry Weight Basis) by Gas Chromatography-Mass Spectrometry

2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl PCB206	mg/kg	-	-	<0.002
2,2',3,3',4,4',5,5'-Octachlorobiphenyl PCB194	mg/kg	-	-	<0.002
2,2',3,3',4,4',5-Heptachlorobiphenyl PCB170	mg/kg	-	-	<0.002
2,2',3,3',4,4'-Hexachlorobiphenyl PCB128	mg/kg	-	-	<0.002
2,2',3,4,4',5,5'-Heptachlorobiphenyl PCB180	mg/kg	-	-	<0.002
2,2',3,4,4',5'-Hexachlorobiphenyl PCB138	mg/kg	-	-	<0.002
2,2',3,4,5,5'-Hexachlorobiphenyl PCB141	mg/kg	-	-	<0.002
2,2',3,4',5',6-Hexachlorobiphenyl PCB149	mg/kg	-	-	<0.002
2,2',3,4,5-Pentachlorobiphenyl PCB 86	mg/kg	-	-	<0.002
2,2',3,5,5',6-Hexachlorobiphenyl PCB151	mg/kg	-	-	<0.002
2,2',3,5'-Tetrachlorobiphenyl PCB44	mg/kg	-	-	<0.002
2,2',4,4',5,5'-Hexachlorobiphenyl PCB153	mg/kg	-	-	0.003
2,2',4,5,5'-Pentachlorobiphenyl PCB 101	mg/kg	-	-	<0.002
2,2',4,5'-Tetrachlorobiphenyl PCB49	mg/kg	-	-	<0.002
2,2',5,5'-Tetrachlorobiphenyl PCB52	mg/kg	-	-	<0.002
2,3,3',4,4',5,5'-Heptachlorobiphenyl PCB189	mg/kg	-	-	<0.002
2,3,3',4,4',5-Hexachlorobiphenyl PCB156	mg/kg	-	-	<0.002
2,3,3',4,4',5'-Hexachlorobiphenyl PCB157	mg/kg	-	-	<0.002
2,3,3',4,4'-Pentachlorobiphenyl PCB 105	mg/kg	-	-	<0.002
2,3,3',4,5,5'-Hexachlorobiphenyl PCB159	mg/kg	-	-	<0.002
2,3,3',4',6-Pentachlorobiphenyl PCB 110	mg/kg	-	-	<0.002
2,3',4,4',5,5'-Hexachlorobiphenyl PCB167	mg/kg	-	-	<0.002
2,3,4,4',5-Pentachlorobiphenyl PCB 114	mg/kg	-	-	<0.002
2,3',4,4',5-Pentachlorobiphenyl PCB 118	mg/kg	-	-	<0.002
2,3',4,4',5'-Pentachlorobiphenyl PCB123	mg/kg	-	-	<0.002
2,3,4,4'-Tetrachlorobiphenyl PCB60	mg/kg	-	-	<0.002
2,3',4,5',6-Pentachlorobiphenyl PCB 121	mg/kg	-	-	<0.002
2,4,4'-Trichlorobiphenyl PCB28	mg/kg	-	-	<0.002
2,4',5-Trichlorobiphenyl PCB31	mg/kg	-	-	<0.002
2,4,6-Trichlorobiphenyl PCB209	mg/kg	-	-	<0.002
3,3',4,4',5,5'-Hexachlorobiphenyl PCB169	mg/kg	-	-	<0.002
3,3',4,4',5-Pentachlorobiphenyl PCB 126	mg/kg	-	-	<0.002
3,3',4,4'-Tetrachlorobiphenyl PCB77	mg/kg	-	-	<0.002
3,4,4',5-Tetrachlorobiphenyl PCB81	mg/kg	-	-	<0.002

Polycyclic Aromatic Hydrocarbon Compounds (Dry Weight Basis) by Gas Chromatography-Mass Spectrometry(Trace level)

Sample Details (continued)		SOLIDS	SOLIDS	SOLIDS
Lab Sample ID:		190311-172-5	190311-172-6	190311-172-7
Client Sample ID:				
Sample Date/Time:		12/02/2019 10:00	25/02/2019 08:30	25/02/2019 08:30
Description:		Vermicast 12-2-19	Vermicast 25-2-19	Vermicast 25-2-19
Chemistry Detailed				
Polycyclic Aromatic Hydrocarbon Compounds (Dry Weight Basis) by Gas Chromatography-Mass Spectrometry(Trace level)				
Acenaphthene: Dry Weight Basis, Trace level	mg/kg	-	-	<0.001
acenaphthylene: Dry Weight Basis, Trace level	mg/kg	-	-	<0.001
Anthracene: Dry Weight Basis, Trace level	mg/kg	-	-	0.039
BAP Equivalent	mg/kg	-	-	<0.001
Benzo(a)anthracene: Dry Weight Basis, Trace level	mg/kg	-	-	<0.001
Benzo(a)pyrene: Dry Weight Basis, Trace level	mg/kg	-	-	<0.001
Benzo(b)fluoranthene: Dry Weight Basis, Trace level	mg/kg	-	-	<0.001
Benzo(ghi)perylene: Dry Weight Basis, Trace level	mg/kg	-	-	<0.001
Benzo(k)fluoranthene: Dry Weight Basis, Trace level	mg/kg	-	-	<0.001
Chrysene: Dry Weight Basis, Trace level	mg/kg	-	-	<0.001
Dibenzo(ah)anthracene: Dry Weight Basis, Trace level	mg/kg	-	-	<0.001
Fluoranthene: Dry Weight Basis, Trace level	mg/kg	-	-	0.052
Fluorene: Dry Weight Basis, Trace level	mg/kg	-	-	<0.001
Indeno(1,2,3,c,d)pyrene: Dry Weight Basis, Trace level	mg/kg	-	-	<0.001
Naphthalene: Dry Weight Basis, Trace level	mg/kg	-	-	0.058
Phenanthrene: Dry Weight Basis, Trace level	mg/kg	-	-	0.043
Pyrene: Dry Weight Basis, Trace level	mg/kg	-	-	0.024
General Testing				
Accelerated Solvent Extraction (ASE)		-	-	Completed *
Total Solids	%	57.8	59.6	62.5
Metals				
Recoverable Metals by ICP-MS—Trace				
Arsenic (Recoverable Dry Wt.)	mg/kg	6.8	8.8	-
Cadmium (Recoverable Dry Wt.)	mg/kg	0.47	0.55	-
Chromium (Recoverable Dry Wt.)	mg/kg	54	63	-
Copper (Recoverable Dry Wt.)	mg/kg	92	110	-
Lead (Recoverable Dry Wt.)	mg/kg	12	12	-
Mercury (Recoverable Dry Wt.)	mg/kg	0.38	0.48	-
Nickel (Recoverable Dry Wt.)	mg/kg	5.8	7.8	-
Zinc (Recoverable Dry Wt.)	mg/kg	160	170	-
Organics				
Organochlorine pesticides (OCP) (Dry Weight Basis) by Gas Chromatography-Mass Spectrometry(Trace level)				
2,4'-DDD: Dry Weight Basis, Trace level	mg/kg	-	-	<0.001
2,4'-DDE: Dry Weight Basis, Trace level	mg/kg	-	-	<0.001
2,4'-DDT: Dry Weight Basis, Trace level	mg/kg	-	-	<0.001
4,4'-DDD: Dry Weight Basis, Trace level	mg/kg	-	-	<0.001
4,4'-DDE: Dry Weight Basis, Trace level	mg/kg	-	-	<0.001
4,4'-DDT: Dry Weight Basis, Trace level	mg/kg	-	-	<0.001
Aldrin: Dry Weight Basis, Trace level	mg/kg	-	-	<0.001

Sample Details (continued)		SOLIDS	SOLIDS	SOLIDS
Lab Sample ID:		190311-172-5	190311-172-6	190311-172-7
Client Sample ID:				
Sample Date/Time:		12/02/2019 10:00	25/02/2019 08:30	25/02/2019 08:30
Description:		Vermicast 12-2-19	Vermicast 25-2-19	Vermicast 25-2-19
Organics				
Organochlorine pesticides (OCP) (Dry Weight Basis) by Gas Chromatography-Mass Spectrometry(Trace level)				
Alpha-Chlordane: Dry Weight Basis, Trace level	mg/kg	-	-	<0.001
BHC alpha: Dry Weight Basis, Trace level	mg/kg	-	-	<0.001
BHC beta: Dry Weight Basis, Trace level	mg/kg	-	-	<0.001
BHC delta: Dry Weight Basis, Trace level	mg/kg	-	-	<0.001
cis-permethrin: Dry Weight Basis, Trace level	mg/kg	-	-	<0.001
Dieldrin: Dry Weight Basis, Trace level	mg/kg	-	-	<0.001
Endosulfan I: Dry Weight Basis, Trace level	mg/kg	-	-	<0.001
Endosulfan II: Dry Weight Basis, Trace level	mg/kg	-	-	<0.001
Endosulfan sulfate: Dry Weight Basis, Trace level	mg/kg	-	-	<0.001
Endrin aldehyde: Dry Weight Basis, Trace level	mg/kg	-	-	<0.001
Endrin: Dry Weight Basis, Trace level	mg/kg	-	-	<0.001
Gamma-chlordane: Dry Weight Basis, Trace level	mg/kg	-	-	<0.001
Heptachlor epoxide: Dry Weight Basis, Trace level	mg/kg	-	-	<0.001
Heptachlor: Dry Weight Basis, Trace level	mg/kg	-	-	<0.001
Lindane (BHC gamma): Dry Weight Basis, Trace level	mg/kg	-	-	<0.001
Methoxychlor: Dry Weight Basis, Trace level	mg/kg	-	-	<0.001
trans-permethrin: Dry Weight Basis, Trace level	mg/kg	-	-	<0.001
Phthalates (PHL) (Dry Weight Basis) by Gas Chromatography-Mass Spectrometry(Trace level)				
Bis(2-ethylhexyl)adipate: Dry Weight Basis, Trace level	mg/kg	-	-	<0.1
bis(2-ethylhexyl)phthalate: Dry Weight Basis, Trace level	mg/kg	-	-	<0.1
Butylbenzyl phthalate: Dry Weight Basis, Trace level	mg/kg	-	-	<0.1
Diethyl phthalate: Dry Weight Basis, Trace level	mg/kg	-	-	<0.1
Dimethyl phthalate: Dry Weight Basis, Trace level	mg/kg	-	-	<0.1
Di-n-butyl phthalate: Dry Weight Basis, Trace level	mg/kg	-	-	<0.1
Di-n-octyl phthalate: Dry Weight Basis, Trace level	mg/kg	-	-	<0.1
Semi Volatile Organic Contaminants (Dry Weight Basis) by Gas Chromatography-Mass Spectrometry(Trace level)				
1,2,4-trichlorobenzene: Dry Weight Basis, Trace level	mg/kg	-	-	<0.1
1,2-dichlorobenzene: Dry Weight Basis, Trace level	mg/kg	-	-	<0.1
1,3-dichlorobenzene: Dry Weight Basis, Trace level	mg/kg	-	-	<0.1
1,4-dichlorobenzene: Dry Weight Basis, Trace level	mg/kg	-	-	<0.1
2,4-dinitrotoluene: Dry Weight Basis, Trace level	mg/kg	-	-	<0.1
2,6-dinitrotoluene: Dry Weight Basis, Trace level	mg/kg	-	-	<0.1
2-chloronaphthalene: Dry Weight Basis, Trace level	mg/kg	-	-	<0.1

Sample Details (continued)	SOLIDS	SOLIDS	SOLIDS
Lab Sample ID:	190311-172-5	190311-172-6	190311-172-7
Client Sample ID:			
Sample Date/Time:	12/02/2019 10:00	25/02/2019 08:30	25/02/2019 08:30
Description:	Vermicast 12-2-19	Vermicast 25-2-19	Vermicast 25-2-19
Organics			
Semi Volatile Organic Contaminants (Dry Weight Basis) by Gas Chromatography-Mass Spectrometry(Trace level)			
2-methylnaphthalene: Dry Weight Basis, Trace level	mg/kg	-	<0.1
4-bromophenylphenylether: Dry Weight Basis, Trace level	mg/kg	-	<0.1
4-chlorophenylphenyl ether: Dry Weight Basis, Trace level	mg/kg	-	<0.1
bis(2-chlorisopropyl)ether: Dry Weight Basis, Trace level	mg/kg	-	<0.1
bis(2-chloroethoxy)methane: Dry Weight Basis, Trace level	mg/kg	-	<0.1
bis(2-chloroethyl)ether: Dry Weight Basis, Trace level	mg/kg	-	<0.1
Carbazole: Dry Weight Basis, Trace level	mg/kg	-	<0.1
Dibenzofuran: Dry Weight Basis, Trace level	mg/kg	-	<0.1
Diphenylhydrazine: Dry Weight Basis, Trace level	mg/kg	-	<0.1
Hexachlorobenzene: Dry Weight Basis, Trace level	mg/kg	-	<0.1
Hexachlorobutadiene: Dry Weight Basis, Trace level	mg/kg	-	<0.1
Hexachlorocyclopentadiene: Dry Weight Basis, Trace level	mg/kg	-	<0.1
Hexachloroethane: Dry Weight Basis, Trace level	mg/kg	-	<0.1
Isophorone: Dry Weight Basis, Trace level	mg/kg	-	<0.1
Nitrobenzene: Dry Weight Basis, Trace level	mg/kg	-	<0.1
n-nitrosodi-n-propylamine: Dry Weight Basis, Trace level	mg/kg	-	<0.1
n-Nitrosodiphenylamine: Dry Weight Basis, Trace level	mg/kg	-	<0.1
Subcontracting			
COA	-	-	0000017221.pdf *

Results marked with * are not accredited to International Accreditation New Zealand

Where samples have been supplied by the client they are tested as received. A dash indicates no test performed.

Reference Methods					
The sample(s) referred to in this report were analysed by the following method(s)					
Analyte	Method Reference	MDL	Samples	Location	
Chemistry Detailed					
Phenols (PHN) (Dry Weight Basis) by Gas Chromatography-Mass Spectrometry(Trace level)					
2,3,4,6-tetrachlorophenol: Dry Weight Basis, Trace level	USEPA 8270	0.1 mg/kg	7	Auckland	
2,4,5-trichlorophenol: Dry Weight Basis, Trace level	USEPA 8270	0.1 mg/kg	7	Auckland	
2,4,6-trichlorophenol: Dry Weight Basis, Trace level	USEPA 8270	0.1 mg/kg	7	Auckland	
2,4-dichlorophenol: Dry Weight Basis, Trace level	USEPA 8270	0.1 mg/kg	7	Auckland	
2,4-dimethylphenol: Dry Weight Basis, Trace level	USEPA 8270	0.1 mg/kg	7	Auckland	
2,6-dichlorophenol: Dry Weight Basis, Trace level	USEPA 8270	0.1 mg/kg	7	Auckland	
2-chlorophenol: Dry Weight Basis, Trace level	USEPA 8270	0.1 mg/kg	7	Auckland	
2-methyl-4,6-dinitrophenol: Dry Weight Basis, Trace level	USEPA 8270	0.1 mg/kg	7	Auckland	
2-methylphenol: Dry Weight Basis, Trace level	USEPA 8270	0.1 mg/kg	7	Auckland	
2-nitrophenol: Dry Weight Basis, Trace level	USEPA 8270	0.1 mg/kg	7	Auckland	
4-Chloro-3-methylphenol: Dry Weight Basis, Trace level	USEPA 8270	0.1 mg/kg	7	Auckland	
4-methylphenol: Dry Weight Basis, Trace level	USEPA 8270	0.1 mg/kg	7	Auckland	
Pentachlorophenol: Dry Weight Basis, Trace level	USEPA 8270	0.1 mg/kg	7	Auckland	
Phenol: Dry Weight Basis, Trace level	USEPA 8270	0.1 mg/kg	7	Auckland	
Polychlorinated Biphenyls Congeners (Dry Weight Basis) by Gas Chromatography-Mass Spectrometry					
2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl PCB206	USEPA 1668, modified, GC-MS	0.002 mg/kg	7	Auckland	
2,2',3,3',4,4',5,5'-Octachlorobiphenyl PCB194	USEPA 1668, modified, GC-MS	0.002 mg/kg	7	Auckland	

Chemistry Detailed

Polychlorinated Biphenyls Congeners (Dry Weight Basis) by Gas Chromatography-Mass Spectrometry

2,2',3,3',4,4',5-Heptachlorobiphenyl PCB170	USEPA 1668, modified, GC-MS	0.002 mg/kg	7	Auckland
2,2',3,3',4,4'-Hexachlorobiphenyl PCB128	USEPA 1668, modified, GC-MS	0.002 mg/kg	7	Auckland
2,2',3,4,4',5,5'-Heptachlorobiphenyl PCB180	USEPA 1668, modified, GC-MS	0.002 mg/kg	7	Auckland
2,2',3,4,4',5'-Hexachlorobiphenyl PCB138	USEPA 1668, modified, GC-MS	0.002 mg/kg	7	Auckland
2,2',3,4,5,5'-Hexachlorobiphenyl PCB141	USEPA 1668, modified, GC-MS	0.002 mg/kg	7	Auckland
2,2',3,4',5',6-Hexachlorobiphenyl PCB149	USEPA 1668, modified, GC-MS	0.002 mg/kg	7	Auckland
2,2',3,4,5-Pentachlorobiphenyl PCB86	USEPA 1668, modified, GC-MS	0.002 mg/kg	7	Auckland
2,2',3,5,5',6-Hexachlorobiphenyl PCB151	USEPA 1668, modified, GC-MS	0.002 mg/kg	7	Auckland
2,2',3,5'-Tetrachlorobiphenyl PCB44	USEPA 1668, modified, GC-MS	0.002 mg/kg	7	Auckland
2,2',4,4',5,5'-Hexachlorobiphenyl PCB153	USEPA 1668, modified, GC-MS	0.002 mg/kg	7	Auckland
2,2',4,5,5'-Pentachlorobiphenyl PCB101	USEPA 1668, modified, GC-MS	0.002 mg/kg	7	Auckland
2,2',4,5'-Tetrachlorobiphenyl PCB49	USEPA 1668, modified, GC-MS	0.002 mg/kg	7	Auckland
2,2',5,5'-Tetrachlorobiphenyl PCB52	USEPA 1668, modified, GC-MS	0.002 mg/kg	7	Auckland
2,3,3',4,4',5,5'-Heptachlorobiphenyl PCB189	USEPA 1668, modified, GC-MS	0.002 mg/kg	7	Auckland
2,3,3',4,4',5-Hexachlorobiphenyl PCB156	USEPA 1668, modified, GC-MS	0.002 mg/kg	7	Auckland
2,3,3',4,4',5'-Hexachlorobiphenyl PCB157	USEPA 1668, modified, GC-MS	0.002 mg/kg	7	Auckland
2,3,3',4,4'-Pentachlorobiphenyl PCB105	USEPA 1668, modified, GC-MS	0.002 mg/kg	7	Auckland
2,3,3',4,5,5'-Hexachlorobiphenyl PCB159	USEPA 1668, modified, GC-MS	0.002 mg/kg	7	Auckland
2,3,3',4',6-Pentachlorobiphenyl PCB110	USEPA 1668, modified, GC-MS	0.002 mg/kg	7	Auckland
2,3',4,4',5,5'-Hexachlorobiphenyl PCB167	USEPA 1668, modified, GC-MS	0.002 mg/kg	7	Auckland
2,3,4,4',5-Pentachlorobiphenyl PCB114	USEPA 1668, modified, GC-MS	0.002 mg/kg	7	Auckland
2,3',4,4',5-Pentachlorobiphenyl PCB118	USEPA 1668, modified, GC-MS	0.002 mg/kg	7	Auckland
2,3',4,4',5'-Pentachlorobiphenyl PCB123	USEPA 1668, modified, GC-MS	0.002 mg/kg	7	Auckland
2,3,4,4'-Tetrachlorobiphenyl PCB60	USEPA 1668, modified, GC-MS	0.002 mg/kg	7	Auckland
2,3',4,5',6-Pentachlorobiphenyl PCB121	USEPA 1668, modified, GC-MS	0.002 mg/kg	7	Auckland
2,4,4'-Trichlorobiphenyl PCB28	USEPA 1668, modified, GC-MS	0.002 mg/kg	7	Auckland
2,4',5-Trichlorobiphenyl PCB31	USEPA 1668, modified, GC-MS	0.002 mg/kg	7	Auckland
2,4,6-Trichlorobiphenyl PCB209	USEPA 1668, modified, GC-MS	0.002 mg/kg	7	Auckland
3,3',4,4',5,5'-Hexachlorobiphenyl PCB169	USEPA 1668, modified, GC-MS	0.002 mg/kg	7	Auckland
3,3',4,4',5-Pentachlorobiphenyl PCB126	USEPA 1668, modified, GC-MS	0.002 mg/kg	7	Auckland
3,3',4,4'-Tetrachlorobiphenyl PCB77	USEPA 1668, modified, GC-MS	0.002 mg/kg	7	Auckland
3,4,4',5-Tetrachlorobiphenyl PCB81	USEPA 1668, modified, GC-MS	0.002 mg/kg	7	Auckland

Polycyclic Aromatic Hydrocarbon Compounds (Dry Weight Basis) by Gas Chromatography-Mass Spectrometry(Trace level)

Acenaphthene: Dry Weight Basis, Trace level	USEPA 8270	0.001 mg/kg	7	Auckland
acenaphthylene: Dry Weight Basis, Trace level	USEPA 8270	0.001 mg/kg	7	Auckland
Anthracene: Dry Weight Basis, Trace level	USEPA 8270	0.001 mg/kg	7	Auckland
BAP Equivalent	USEPA 8270	0.001 mg/kg	7	Auckland
Benzo(a)anthracene: Dry Weight Basis, Trace level	USEPA 8270	0.001 mg/kg	7	Auckland
Benzo(a)pyrene: Dry Weight Basis, Trace level	USEPA 8270	0.001 mg/kg	7	Auckland
Benzo(b)fluoranthene: Dry Weight Basis, Trace level	USEPA 8270	0.001 mg/kg	7	Auckland
Benzo(ghi)perylene: Dry Weight Basis, Trace level	USEPA 8270	0.001 mg/kg	7	Auckland
Benzo(k)fluoranthene: Dry Weight Basis, Trace level	USEPA 8270	0.001 mg/kg	7	Auckland
Chrysene: Dry Weight Basis, Trace level	USEPA 8270	0.001 mg/kg	7	Auckland
Dibenzo(ah)anthracene: Dry Weight Basis, Trace level	USEPA 8270	0.001 mg/kg	7	Auckland
Fluoranthene: Dry Weight Basis, Trace level	USEPA 8270	0.001 mg/kg	7	Auckland
Fluorene: Dry Weight Basis, Trace level	USEPA 8270	0.001 mg/kg	7	Auckland
Indeno(1,2,3,c,d)pyrene: Dry Weight Basis, Trace level	USEPA 8270	0.001 mg/kg	7	Auckland
Naphthalene: Dry Weight Basis, Trace level	USEPA 8270	0.001 mg/kg	7	Auckland
Phenanthrene: Dry Weight Basis, Trace level	USEPA 8270	0.001 mg/kg	7	Auckland
Pyrene: Dry Weight Basis, Trace level	USEPA 8270	0.001 mg/kg	7	Auckland

General Testing

Total Solids by Gravimetry	APHA (online edition) 2540 G		All	Auckland
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Metals

Recoverable Metals by ICP-MS—Trace

Arsenic (Recoverable Dry Wt.)	APHA (online edition) 3125 B by ICPMS	0.02 mg/kg	1, 2, 3, 4, 5, 6	Auckland
Cadmium (Recoverable Dry Wt.)	APHA (online edition) 3125 B by ICPMS	0.010 mg/kg	1, 2, 3, 4, 5, 6	Auckland
Chromium (Recoverable Dry Wt.)	APHA (online edition) 3125 B by ICPMS	0.05 mg/kg	1, 2, 3, 4, 5, 6	Auckland
Copper (Recoverable Dry Wt.)	APHA (online edition) 3125 B by ICPMS	0.05 mg/kg	1, 2, 3, 4, 5, 6	Auckland
Lead (Recoverable Dry Wt.)	APHA (online edition) 3125 B by ICPMS	0.03 mg/kg	1, 2, 3, 4, 5, 6	Auckland
Mercury (Recoverable Dry Wt.)	APHA (online edition) 3125 B by ICPMS	0.005 mg/kg	1, 2, 3, 4, 5, 6	Auckland
Nickel (Recoverable Dry Wt.)	APHA (online edition) 3125 B by ICPMS	0.05 mg/kg	1, 2, 3, 4, 5, 6	Auckland
Zinc (Recoverable Dry Wt.)	APHA (online edition) 3125 B by ICPMS	0.75 mg/kg	1, 2, 3, 4, 5, 6	Auckland

Organics

Organics

Organochlorine pesticides (OCP) (Dry Weight Basis) by Gas Chromatography-Mass Spectrometry(Trace level)

2,4'-DDD: Dry Weight Basis, Trace level	USEPA 8270	0.001 mg/kg	7	Auckland
2,4'-DDE: Dry Weight Basis, Trace level	USEPA 8270	0.001 mg/kg	7	Auckland
2,4'-DDT: Dry Weight Basis, Trace level	USEPA 8270	0.001 mg/kg	7	Auckland
4,4'-DDD: Dry Weight Basis, Trace level	USEPA 8270	0.001 mg/kg	7	Auckland
4,4'-DDE: Dry Weight Basis, Trace level	USEPA 8270	0.001 mg/kg	7	Auckland
4,4'-DDT: Dry Weight Basis, Trace level	USEPA 8270	0.001 mg/kg	7	Auckland
Aldrin: Dry Weight Basis, Trace level	USEPA 8270	0.001 mg/kg	7	Auckland
Alpha-Chlordane: Dry Weight Basis, Trace level	USEPA 8270	0.001 mg/kg	7	Auckland
BHC alpha: Dry Weight Basis, Trace level	USEPA 8270	0.001 mg/kg	7	Auckland
BHC beta: Dry Weight Basis, Trace level	USEPA 8270	0.001 mg/kg	7	Auckland
BHC delta: Dry Weight Basis, Trace level	USEPA 8270	0.001 mg/kg	7	Auckland
cis-permethrin: Dry Weight Basis, Trace level	USEPA 8270	0.001 mg/kg	7	Auckland
Dieldrin: Dry Weight Basis, Trace level	USEPA 8270	0.001 mg/kg	7	Auckland
Endosulfan I: Dry Weight Basis, Trace level	USEPA 8270	0.001 mg/kg	7	Auckland
Endosulfan II: Dry Weight Basis, Trace level	USEPA 8270	0.001 mg/kg	7	Auckland
Endosulfan sulfate: Dry Weight Basis, Trace level	USEPA 8270	0.001 mg/kg	7	Auckland
Endrin aldehyde: Dry Weight Basis, Trace level	USEPA 8270	0.001 mg/kg	7	Auckland
Endrin: Dry Weight Basis, Trace level	USEPA 8270	0.001 mg/kg	7	Auckland
Gamma-chlordane: Dry Weight Basis, Trace level	USEPA 8270	0.001 mg/kg	7	Auckland
Heptachlor epoxide: Dry Weight Basis, Trace level	USEPA 8270	0.001 mg/kg	7	Auckland
Heptachlor: Dry Weight Basis, Trace level	USEPA 8270	0.001 mg/kg	7	Auckland
Lindane (BHC gamma): Dry Weight Basis, Trace level	USEPA 8270	0.001 mg/kg	7	Auckland
Methoxychlor: Dry Weight Basis, Trace level	USEPA 8270	0.001 mg/kg	7	Auckland
trans-permethrin: Dry Weight Basis, Trace level	USEPA 8270	0.001 mg/kg	7	Auckland

Phthalates (PHL) (Dry Weight Basis) by Gas Chromatography-Mass Spectrometry(Trace level)

Bis(2-ethylhexyl)adipate: Dry Weight Basis, Trace level	USEPA 8270	0.1 mg/kg	7	Auckland
bis(2-ethylhexyl)phthalate: Dry Weight Basis, Trace level	USEPA 8270	0.1 mg/kg	7	Auckland
Butylbenzyl phthalate: Dry Weight Basis, Trace level	USEPA 8270	0.1 mg/kg	7	Auckland
Diethyl phthalate: Dry Weight Basis, Trace level	USEPA 8270	0.1 mg/kg	7	Auckland
Dimethyl phthalate: Dry Weight Basis, Trace level	USEPA 8270	0.1 mg/kg	7	Auckland
Di-n-butyl phthalate: Dry Weight Basis, Trace level	USEPA 8270	0.1 mg/kg	7	Auckland
Di-n-octyl phthalate: Dry Weight Basis, Trace level	USEPA 8270	0.1 mg/kg	7	Auckland

Semi Volatile Organic Contaminants (Dry Weight Basis) by Gas Chromatography-Mass Spectrometry(Trace level)

1,2,4-trichlorobenzene: Dry Weight Basis, Trace level	USEPA 8270	0.1 mg/kg	7	Auckland
1,2-dichlorobenzene: Dry Weight Basis, Trace level	USEPA 8270	0.1 mg/kg	7	Auckland
1,3-dichlorobenzene: Dry Weight Basis, Trace level	USEPA 8270	0.1 mg/kg	7	Auckland
1,4-dichlorobenzene: Dry Weight Basis, Trace level	USEPA 8270	0.1 mg/kg	7	Auckland
2,4-dinitrotoluene: Dry Weight Basis, Trace level	USEPA 8270	0.1 mg/kg	7	Auckland
2,6-dinitrotoluene: Dry Weight Basis, Trace level	USEPA 8270	0.1 mg/kg	7	Auckland
2-chloronaphthalene: Dry Weight Basis, Trace level	USEPA 8270	0.1 mg/kg	7	Auckland
2-methylnaphthalene: Dry Weight Basis, Trace level	USEPA 8270	0.1 mg/kg	7	Auckland
4-bromophenylphenylether: Dry Weight Basis, Trace level	USEPA 8270	0.1 mg/kg	7	Auckland
4-chlorophenylphenyl ether: Dry Weight Basis, Trace level	USEPA 8270	0.1 mg/kg	7	Auckland
bis(2-chlorisopropyl)ether: Dry Weight Basis, Trace level	USEPA 8270	0.1 mg/kg	7	Auckland
bis(2-chloroethoxy)methane: Dry Weight Basis, Trace level	USEPA 8270	0.1 mg/kg	7	Auckland
bis(2-chloroethyl)ether: Dry Weight Basis, Trace level	USEPA 8270	0.1 mg/kg	7	Auckland
Carbazole: Dry Weight Basis, Trace level	USEPA 8270	0.1 mg/kg	7	Auckland
Dibenzofuran: Dry Weight Basis, Trace level	USEPA 8270	0.1 mg/kg	7	Auckland
Diphenylhydrazine: Dry Weight Basis, Trace level	USEPA 8270	0.1 mg/kg	7	Auckland
Hexachlorobenzene: Dry Weight Basis, Trace level	USEPA 8270	0.1 mg/kg	7	Auckland
Hexachlorobutadiene: Dry Weight Basis, Trace level	USEPA 8270	0.1 mg/kg	7	Auckland
Hexachlorocyclopentadiene: Dry Weight Basis, Trace level	USEPA 8270	0.1 mg/kg	7	Auckland
Hexachloroethane: Dry Weight Basis, Trace level	USEPA 8270	0.1 mg/kg	7	Auckland
Isophorone: Dry Weight Basis, Trace level	USEPA 8270	0.1 mg/kg	7	Auckland
Nitrobenzene: Dry Weight Basis, Trace level	USEPA 8270	0.1 mg/kg	7	Auckland
n-nitrosodi-n-propylamine: Dry Weight Basis, Trace level	USEPA 8270	0.1 mg/kg	7	Auckland
n-Nitrosodiphenylamine: Dry Weight Basis, Trace level	USEPA 8270	0.1 mg/kg	7	Auckland

Subcontracting

COA	As per Subcontractor Method		7	SGS New Zealand
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Preparations

Accelerated Solvent Extraction (ASE)	USEPA 8270		7	Auckland
Accelerated Solvent Extraction (ASE)	USEPA 8270		7	Auckland
Digest for Recoverable Metals in Solids	US EPA 200.8 (1:1 Nitric:Hydrochloric Acid)		1, 2, 3, 4, 5, 6	Auckland

Preparations

Drying and Milling US EPA 200.8 1, 2, 3, 4, 5, 6 Auckland

*The method detection limit (MDL) listed is the limit attainable in a relatively clean matrix. If dilutions are required for analysis the detection limit may be higher.
For more information please contact the Operations Manager.*

Appendix 1 - Result Images

Lab Sample ID 190311-172-7

Client Sample ID 4566995

Sampling Point

Vermicast 25-2-19

Subcontracted to SGS

Samples, with suitable preservation and stability of analytes, will be held by the laboratory for a period of two weeks after results have been reported, unless otherwise advised by the submitter.

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Report Signatory 07/05/2019

A handwritten signature in blue ink, which appears to read 'Peter Boniface', is written over a light grey rectangular background.

Peter Boniface
KTP Signatory