

3 Kingston Town Close, Oakleigh, Victoria 3166, Australia
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Coffey Geotechnics Pty Ltd		Client Sample ID		TP119 0.0-0.1	TP121 0.15-0.3	TP122 0.3-0.4	TP127 0.0-0.1
Unit 1 18 Hurley Dve		Lab Number		06-Oct04321	06-Oct04322	06-Oct04323	06-Oct04324
Coffs Harbour		Matrix		Soil	Soil	Soil	Soil
NSW 2450		Sample Date		Oct 13, 2006	Oct 13, 2006	Oct 13, 2006	Oct 13, 2006
Analysis Type		LOR	Units				
Diazinon		0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorvos		0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Disulfoton		0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethion		0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethoprop		0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenitrothion		0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fensulfotlion		0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenthion		0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Merphos		0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Methyl azinphos		0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Methyl parathion		0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Mevinphos		0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Naled		0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Phorate		0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ronnol		0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tokuthion		0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Trichloronate		0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Triphenylphosphate (surr.)		1	%	86	110	120	92
Polychlorinated Biphenyls							
Aroclor-1016		0.1	mg/kg	< 0.1	-	< 0.1	-
Aroclor-1221		0.1	mg/kg	< 0.1	-	< 0.1	-
Aroclor-1232		0.1	mg/kg	< 0.1	-	< 0.1	-
Aroclor-1242		0.1	mg/kg	< 0.1	-	< 0.1	-
Aroclor-1248		0.1	mg/kg	< 0.1	-	< 0.1	-
Aroclor-1254		0.1	mg/kg	< 0.1	-	< 0.1	-
Aroclor-1260		0.1	mg/kg	< 0.1	-	< 0.1	-
Total PCB		1	mg/kg	< 1	-	< 1	-
Dibutylchlorendate (surr.)		1	%	130	-	110	-
Tetrachloro-m-xylene (surr.)		1	%	80	-	83	-

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Coffey Geotechnics Pty Ltd		Client Sample ID	TP119 0.0-0.1	TP121 0.15-0.3	TP122 0.3-0.4	TP127 0.0-0.1
Unit 1 18 Hurley Dve		Lab Number	06-Oct04321	06-Oct04322	06-Oct04323	06-Oct04324
Coffs Harbour		Matrix	Soil	Soil	Soil	Soil
NSW 2450		Sample Date	Oct 13, 2006	Oct 13, 2006	Oct 13, 2006	Oct 13, 2006
Analysis Type		LOR				
		Units				
% Moisture		0.1	36	40	27	7.1
Heavy Metals (7)						
Arsenic		2	4.5	5.5	4.7	6.9
Cadmium		0.5	< 0.5	< 0.5	1.0	< 0.5
Chromium		5	17	11	12	6.6
Copper		5	20	38	27	6.1
Lead		5	28	23	56	20
Nickel		5	11	11	7.1	< 5
Zinc		5	50	58	220	58
Heavy Metals						
Mercury		0.1	< 0.1	< 0.1	< 0.1	< 0.1

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Coffey Geotechnics Pty Ltd

Unit 1 18 Hurley Dve

Coffs Harbour

NSW 2450

Client Sample ID	TP129 0.7-0.8	TP129 1.2-1.25	TP129 1.75-1.85	TP131 1.1-1.2
Lab Number	06-Oc04325	06-Oc04326	06-Oc04327	06-Oc04328
Matrix	Soil	Soil	Soil	Soil
Sample Date	Oct 13, 2006	Oct 13, 2006	Oct 13, 2006	Oct 16, 2006
LOR				
Analysis Type	Units			
Total Recoverable Hydrocarbons				
TRH C6-C9 Fraction by GC	< 20	< 20	< 20	< 20
TRH C10-C14 Fraction by GC	< 50	350	82	210
TRH C15-C28 Fraction by GC	140	910	280	520
TRH C29-C36 Fraction by GC	< 100	< 100	< 100	< 100
Monocyclic Aromatic Hydrocarbons				
Benzene	< 0.05	< 0.05	< 0.05	< 0.05
Toluene	< 0.05	< 0.05	< 0.05	< 0.05
Ethylbenzene	< 0.05	< 0.05	< 0.05	0.06
Xylenes(ortho,meta and para)	< 0.05	< 0.05	< 0.05	< 0.05
Fluorobenzene (surr.)	1	79	98	110
Polycyclic Aromatic Hydrocarbons				
Acenaphthene	0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	0.1	< 0.1	< 0.1	< 0.1
Anthracene	0.1	< 0.1	< 0.1	< 0.1
Benz(a)anthracene	0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	0.1	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	0.1	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	0.1	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	0.1	< 0.1	< 0.1	< 0.1
Chrysene	0.1	< 0.1	< 0.1	< 0.1
Dibenz(a,h)anthracene	0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	0.1	< 0.1	< 0.1	< 0.1
Fluorene	0.1	< 0.1	0.3	0.4
Indeno(1,2,3-cd)pyrene	0.1	< 0.1	< 0.1	< 0.1
Naphthalene	0.1	< 0.1	0.4	< 0.1
Phenanthrene	0.1	0.6	0.3	0.3
Pyrene	0.1	< 0.1	< 0.1	< 0.1
Total PAH	1.6	< 1.6	2.3	2.1
Chrysene-d12 (surr.)	1	110	110	140
2-Fluorobiphenyl (surr.)	1	76	92	100

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Coffey Geotechnics Pty Ltd		Client Sample ID		TP129 0.7-0.8	TP129 1.2-1.25	TP129 1.75-1.85	TP131 1.1-1.2
Unit 1 18 Hurley Dve		Lab Number		06-Oct04325	06-Oct04326	06-Oct04327	06-Oct04328
Coffs Harbour		Matrix		Soil	Soil	Soil	Soil
NSW 2450		Sample Date		Oct 13, 2006	Oct 13, 2006	Oct 13, 2006	Oct 16, 2006
Analysis Type	LOR	Units					
Organochlorine Pesticides							
4,4'-DDD	0.05	mg/kg		< 0.05	< 0.05	< 0.05	< 0.05
4,4'-DDE	0.05	mg/kg		< 0.05	< 0.05	< 0.05	< 0.05
4,4'-DDT	0.05	mg/kg		< 0.05	< 0.05	< 0.05	< 0.05
a-BHC	0.05	mg/kg	/	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg		< 0.05	< 0.05	< 0.05	< 0.05
b-BHC	0.05	mg/kg		< 0.05	< 0.05	< 0.05	< 0.05
Chlordane	0.1	mg/kg		< 0.1	< 0.1	< 0.1	< 0.1
d-BHC	0.05	mg/kg		< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg		< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg		< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg		< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg		< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg		< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg		< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg		< 0.05	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg		< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg		< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg		< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg		< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg		< 0.05	< 0.05	< 0.05	< 0.05
Toxophene	0.1	mg/kg		< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchlorodate (surr.)	1	%		110	130	100	120
Tetrachloro-m-xylene (surr.)	1	%		88	110	80	100
Organophosphorous Pesticides							
Bolstar	0.2	mg/kg		< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg		< 0.2	< 0.2	< 0.2	< 0.2
Coumaphos	0.2	mg/kg		< 0.2	< 0.2	< 0.2	< 0.2
Demeton-O	0.2	mg/kg		< 0.2	< 0.2	< 0.2	< 0.2

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Unit 1 18 Hurley Dve		Lab Number	06-Oc04325	06-Oc04326	06-Oc04327	06-Oc04328
Coffs Harbour		Matrix	Soil	Soil	Soil	Soil
NSW 2450		Sample Date	Oct 13, 2006	Oct 13, 2006	Oct 13, 2006	Oct 16, 2006
Analysis Type	LOR	Units				
Diazinon	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Disulfoton	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Merphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Methyl azinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Naled	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Phorate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ronnel	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	120	120	100	99
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1221	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1232	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1242	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1248	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1254	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1260	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Total PCB	1	mg/kg	< 1	< 1	< 1	< 1
Dibutylchlorendate (surr.)	1	%	110	130	100	120
Tetrachloro-m-xylene (surr.)	1	%	88	110	80	100

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Coffey Geotechnics Pty Ltd		Client Sample ID	TP129 0.7-0.8	TP129 1.2-1.25	TP129 1.75-1.85	TP131 1.1-1.2
Unit 1 18 Hurley Dve		Lab Number	06-Occ04325	06-Occ04326	06-Occ04327	06-Occ04328
Coffs Harbour		Matrix	Soil	Soil	Soil	Soil
NSW 2450		Sample Date	Oct 13, 2006	Oct 13, 2006	Oct 13, 2006	Oct 16, 2006
Analysis Type		LOR	Units			
% Moisture		0.1	%	19	18	18
Heavy Metals (7)						
Arsenic		2	mg/kg	6.5	< 2	4.4
Cadmium		0.5	mg/kg	< 0.5	< 0.5	< 0.5
Chromium		5	mg/kg	10	7.5	6.3
Copper		5	mg/kg	< 5	< 5	< 5
Lead		5	mg/kg	26	10	11
Nickel		5	mg/kg	< 5	< 5	< 5
Zinc		5	mg/kg	3000	14	8.8
Heavy Metals						
Mercury		0.1	mg/kg	< 0.1	0.1	< 0.1

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Coffey Geotechnics Pty Ltd

Unit 118 Hurley Dve
 Coffs Harbour
 NSW 2450

Client Sample ID		TP131 1.9-2.0	TP132 0.0-0.1	TP135 1.1-1.2	TP135 1.4-1.5
Lab Number		06-Oct04329	06-Oct04330	06-Oct04331	06-Oct04332
Matrix		Soil	Soil	Soil	Soil
Sample Date		Oct 16, 2006	Oct 16, 2006	Oct 16, 2006	Oct 16, 2006
LOR					
Analysis Type	Units				
Total Recoverable Hydrocarbons					
TRH C6-C9 Fraction by GC	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14 Fraction by GC	mg/kg	< 50	< 50	< 50	< 50
TRH C15-C28 Fraction by GC	mg/kg	< 100	< 100	2200	120
TRH C29-C36 Fraction by GC	mg/kg	< 100	< 100	3200	230
Monocyclic Aromatic Hydrocarbons					
Benzene	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Toluene	mg/kg	< 0.05	< 0.05	0.70	< 0.05
Ethylbenzene	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Xylenes(ortho,meta and para)	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Fluorobenzene (surr.)	%	100	110	89	110
Polycyclic Aromatic Hydrocarbons					
Acenaphthene	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Anthracene	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Benz(a)anthracene	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Chrysene	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibenz(a,h)anthracene	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	mg/kg	0.1	< 0.5	< 0.1	< 0.1
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Naphthalene	mg/kg	0.3	< 0.1	< 0.1	< 0.1
Phenanthrene	mg/kg	0.2	< 0.1	< 0.1	< 0.1
Pyrene	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Total PAH	mg/kg	1.9	< 2	< 1.6	< 1.6
Chrysene-d12 (surr.)	%	120	120	120	110
2-Fluorobiphenyl (surr.)	%	94	100	97	87

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Coffey Geotechnics Pty Ltd		Client Sample ID		TP131 1.9-2.0	TP132 0.0-0.1	TP135 1.1-1.2	TP135 1.4-1.5
Unit 1 18 Hurley Dve		Lab Number		06-Oct04329	06-Oct04330	06-Oct04331	06-Oct04332
Coffs Harbour		Matrix		Soil	Soil	Soil	Soil
NSW 2450		Sample Date		Oct 16, 2006	Oct 16, 2006	Oct 16, 2006	Oct 16, 2006
Analysis Type		LOR	Units				
Organochlorine Pesticides							
4,4'-DDD		0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4,4'-DDE		0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4,4'-DDT		0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-BHC		0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin		0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-BHC		0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Chlordane		0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
d-BHC		0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin		0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I		0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II		0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate		0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin		0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde		0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone		0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)		0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor		0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide		0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene		0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor		0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Toxophene		0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchlorodate (sum.)		1	%	100	140	110	110
Tetrachloro-m-xylene (sum.)		1	%	85	91	93	95
Organophosphorous Pesticides							
Bolstar		0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos		0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Coumaphos		0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Demeton-O		0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2

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Unit 1 18 Hurley Dve		Lab Number		06-Oct04329	06-Oct04330	06-Oct04331	06-Oct04332
Coffs Harbour		Matrix		Soil	Soil	Soil	Soil
NSW 2450		Sample Date		Oct 16, 2006	Oct 16, 2006	Oct 16, 2006	Oct 16, 2006
Analysis Type		LOR	Units				
Diazinon		0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorvos		0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Disulfoton		0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethion		0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethoprop		0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenitrothion		0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fensulfothion		0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenthion		0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Merphos		0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Methyl azinphos		0.2	mg/kg	< 0.2	< 0.2	< 0.2	0.5
Methyl parathion		0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Mevinphos		0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Naled		0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Phorate		0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ronnol		0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tokuthion		0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Trichloronate		0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Triphenylphosphate (surr.)		1	%	110	100	99	95
Polychlorinated Biphenyls							
Aroclor-1016		0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1221		0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1232		0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1242		0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1248		0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1254		0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1260		0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Total PCB		1	mg/kg	< 1	< 1	< 1	< 1
Dibutylchlorendate (surr.)		1	%	100	140	110	110
Tetrachloro-m-xylene (surr.)		1	%	85	91	93	95

COMMENTS:



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Coffey Geotechnics Pty Ltd		Client Sample ID	TP131 1.9-2.0	TP132 0.0-0.1	TP135 1.1-1.2	TP135 1.4-1.5
Unit 1 18 Hurley Dve		Lab Number	06-Oct04329	06-Oct04330	06-Oct04331	06-Oct04332
Coffs Harbour		Matrix	Soil	Soil	Soil	Soil
NSW 2450		Sample Date	Oct 16, 2006	Oct 16, 2006	Oct 16, 2006	Oct 16, 2006
Analysis Type		LOR				
		Units				
% Moisture		0.1	19	19	27	20
Heavy Metals (7)						
Arsenic		2	< 2	6.4	2.6	4.0
Cadmium		0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chromium		5	9.1	8.3	8.5	7.9
Copper		5	< 5	14	< 5	< 5
Lead		5	12	48	12	11
Nickel		5	< 5	5.3	< 5	< 5
Zinc		5	12	47	100	14
Heavy Metals						
Mercury		0.1	< 0.1	< 0.1	< 0.1	< 0.1

COMMENTS:

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Coffey Geotechnics Pty Ltd

Client Sample ID		TP136 0.0-0.1	TP139 0.0-0.1	TP140 1.9-2.0	TP141 0.2-0.3
Lab Number		06-0c04333	06-0c04334	06-0c04335	06-0c04336
Matrix		Soil	Soil	Soil	Soil
Sample Date		Oct 16, 2006	Oct 16, 2006	Oct 16, 2006	Oct 16, 2006
Analysis Type	LOR				
Units					
Total Recoverable Hydrocarbons					
TRH C6-C9 Fraction by GC	20	< 20	< 20	-	< 20
TRH C10-C14 Fraction by GC	50	< 50	150	-	< 50
TRH C15-C28 Fraction by GC	100	< 100	110	-	< 100
TRH C29-C36 Fraction by GC	100	110	300	-	170
Monocyclic Aromatic Hydrocarbons					
Benzene	0.05	< 0.05	< 0.05	-	< 0.05
Toluene	0.05	< 0.05	< 0.05	-	< 0.05
Ethylbenzene	0.05	< 0.05	< 0.05	-	< 0.05
Xylenes(ortho,meta and para)	0.05	< 0.05	< 0.05	-	< 0.05
Fluorobenzene (surr.)	1	140	120	-	110
Polycyclic Aromatic Hydrocarbons					
Acenaphthene	0.1	mg/kg	0.1	< 0.2	< 0.1
Acenaphthylene	0.1	mg/kg	< 0.1	< 0.2	< 0.1
Anthracene	0.1	mg/kg	< 0.1	< 0.2	< 0.1
Benz(a)anthracene	0.1	mg/kg	< 0.1	< 0.2	< 0.1
Benzo(a)pyrene	0.1	mg/kg	< 0.1	< 0.2	< 0.1
Benzo(b)fluoranthene	0.1	mg/kg	< 0.1	< 0.2	< 0.1
Benzo(g,h,i)perylene	0.1	mg/kg	< 0.1	< 0.2	< 0.1
Benzo(k)fluoranthene	0.1	mg/kg	< 0.1	< 0.2	< 0.1
Chrysene	0.1	mg/kg	< 0.1	< 0.2	< 0.1
Dibenz(a,h)anthracene	0.1	mg/kg	< 0.1	< 0.2	< 0.1
Fluoranthene	0.1	mg/kg	< 0.1	< 0.2	< 0.1
Fluorene	0.1	mg/kg	< 0.1	< 0.2	< 0.1
Indeno(1,2,3-cd)pyrene	0.1	mg/kg	< 0.1	< 0.2	< 0.1
Naphthalene	0.1	mg/kg	< 0.1	< 0.2	< 0.1
Phenanthrene	0.1	mg/kg	< 0.1	< 0.2	< 0.1
Pyrene	0.1	mg/kg	< 0.1	< 0.2	< 0.1
Total PAH	1.6	mg/kg	1.6	< 3.2	< 1.6
Chrysene-d12 (surr.)	1	%	130	150	130
2-Fluorobiphenyl (surr.)	1	%	98	120	100

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Client Sample ID		TP136 0.0-0.1		TP139 0.0-0.1		TP140 1.9-2.0		TP141 0.2-0.3	
Coffey Geotechnics Pty Ltd Unit 1 18 Hurley Dve Coffs Harbour NSW 2450	Lab Number	06-Oc04333	06-Oc04334	06-Oc04335	06-Oc04336	06-Oc04337	06-Oc04338	06-Oc04339	06-Oc04340
	Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
	Sample Date	Oct 16, 2006	Oct 16, 2006	Oct 16, 2006	Oct 16, 2006	Oct 16, 2006	Oct 16, 2006	Oct 16, 2006	Oct 16, 2006
	LOR								
Analysis Type		Units							
Organochlorine Pesticides									
4,4'-DDD		0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4,4'-DDE		0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4,4'-DDT		0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
a-BHC		0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin		0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
b-BHC		0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Chlordane		0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
d-BHC		0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin		0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I		0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II		0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate		0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Endrin		0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde		0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone		0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)		0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor		0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide		0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene		0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor		0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Toxophene		0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchloride (surr.)		1	%	120	83	77	130	130	130
Tetrachloro-m-xylene (surr.)		1	%	81	94	85	78	78	78
Organophosphorous Pesticides									
Bolstar		0.2	mg/kg	< 0.2	< 0.5	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos		0.2	mg/kg	< 0.2	< 0.5	< 0.2	< 0.2	< 0.2	< 0.2
Coumaphos		0.2	mg/kg	< 0.2	< 0.5	< 0.2	< 0.2	< 0.2	< 0.2
Demeion-O		0.2	mg/kg	< 0.2	< 0.5	< 0.2	< 0.2	< 0.2	< 0.2

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Client Sample ID		TP136 0.0-0.1	TP139 0.0-0.1	TP140 1.9-2.0	TP141 0.2-0.3
Lab Number		06-Oct04333	06-Oct04334	06-Oct04335	06-Oct04336
Matrix		Soil	Soil	Soil	Soil
Sample Date		Oct 16, 2005	Oct 16, 2006	Oct 16, 2006	Oct 16, 2006
Analysis Type		Units			
Diazinon		mg/kg	< 0.2	< 0.5	< 0.2
Dichlorvos		mg/kg	< 0.2	< 0.5	< 0.2
Disulfoton		mg/kg	< 0.2	< 0.5	< 0.2
Ethion		mg/kg	< 0.2	< 0.5	< 0.2
Ethoprop		mg/kg	< 0.2	< 0.5	< 0.2
Fenitrothion		mg/kg	< 0.2	< 0.5	< 0.2
Fensulfotthion		mg/kg	< 0.2	< 0.5	< 0.2
Fenthion		mg/kg	< 0.2	< 0.5	< 0.2
Merphos		mg/kg	< 0.2	< 0.5	< 0.2
Methyl azinphos		mg/kg	< 0.2	< 0.5	< 0.2
Methyl parathion		mg/kg	< 0.2	< 0.5	< 0.2
Mevinphos		mg/kg	< 0.2	< 0.5	< 0.2
Naled		mg/kg	< 0.2	< 0.5	< 0.2
Phorate		mg/kg	< 0.2	< 0.5	< 0.2
Ronnol		mg/kg	< 0.2	< 0.5	< 0.2
Tokuthion		mg/kg	< 0.2	< 0.5	< 0.2
Trichloronate		mg/kg	< 0.2	< 0.5	< 0.2
Triphenylphosphate (surr.)		%	99	95	70
Polychlorinated Biphenyls					
Aroclor-1016		mg/kg	< 0.1	< 0.1	< 0.1
Aroclor-1221		mg/kg	< 0.1	< 0.1	< 0.1
Aroclor-1232		mg/kg	< 0.1	< 0.1	< 0.1
Aroclor-1242		mg/kg	< 0.1	< 0.1	< 0.1
Aroclor-1248		mg/kg	< 0.1	< 0.1	< 0.1
Aroclor-1254		mg/kg	< 0.1	< 0.1	< 0.1
Aroclor-1260		mg/kg	< 0.1	< 0.1	< 0.1
Total PCB		mg/kg	< 1	< 1	< 1
Dibutylchlorendate (surr.)		%	120	83	130
Tetrachloro-m-xylene (surr.)		%	81	94	78

COMMENTS:

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Coffey Geotechnics Pty Ltd		Client Sample ID		TP136 0.0-0.1	TP139 0.0-0.1	TP140 1.9-2.0	TP141 0.2-0.3
Unit 1 18 Hurley Dve		Lab Number		06-Oc04333	06-Oc04334	06-Oc04335	06-Oc04336
Coffs Harbour		Matrix		Soil	Soil	Soil	Soil
NSW 2450		Sample Date		Oct 16, 2006	Oct 16, 2006	Oct 16, 2006	Oct 16, 2006
Analysis Type		LOR	Units				
% Moisture		0.1	%	52	67	37	17
Heavy Metals (7)							
Arsenic		2	mg/kg	< 2	2.2	2.1	7.1
Cadmium		0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chromium		5	mg/kg	< 5	6.1	6.7	8.0
Copper		5	mg/kg	< 5	17	29	9.3
Lead		5	mg/kg	6.0	10	13	18
Nickel		5	mg/kg	< 5	< 5	< 5	5.1
Zinc		5	mg/kg	48	76	100	53
Heavy Metals							
Mercury		0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1

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Coffey Geotechnics Pty Ltd

Unit 1 18 Hurley Dve
 Coffs Harbour
 NSW 2450

Client Sample ID	TP142 0.0-0.1	TP144 0.0-0.2	TP145 0.0-0.1	TP146 0.8-1.0
Lab Number	06-0c04337	06-0c04338	06-0c04339	06-0c04340
Matrix	Soil	Soil	Soil	Soil
Sample Date	Oct 16, 2006	Oct 16, 2006	Oct 16, 2006	Oct 16, 2006
LOR				
Analysis Type	Units			
Total Recoverable Hydrocarbons				
TRH C6-C9 Fraction by GC	mg/kg	< 20	< 20	< 20
TRH C10-C14 Fraction by GC	mg/kg	< 50	< 50	< 50
TRH C15-C28 Fraction by GC	mg/kg	< 100	< 100	< 100
TRH C29-C36 Fraction by GC	mg/kg	< 100	< 100	< 100
Monocyclic Aromatic Hydrocarbons				
Benzene	mg/kg	< 0.05	< 0.05	< 0.05
Toluene	mg/kg	< 0.05	< 0.05	< 0.05
Ethylbenzene	mg/kg	< 0.05	< 0.05	< 0.05
Xylenes(ortho,meta and para)	mg/kg	< 0.05	< 0.05	< 0.05
Fluorobenzene (surr.)	%	110	100	91
Polycyclic Aromatic Hydrocarbons				
Acenaphthene	mg/kg	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	< 0.1	< 0.1	< 0.1
Anthracene	mg/kg	< 0.1	< 0.1	< 0.1
Benz(a)anthracene	mg/kg	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	mg/kg	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	mg/kg	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	mg/kg	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	mg/kg	< 0.1	< 0.1	< 0.1
Chrysene	mg/kg	< 0.1	< 0.1	< 0.1
Dibenz(a,h)anthracene	mg/kg	< 0.1	< 0.1	< 0.1
Fluoranthene	mg/kg	< 0.1	< 0.1	< 0.1
Fluorene	mg/kg	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	< 0.1	< 0.1
Naphthalene	mg/kg	< 0.1	< 0.1	< 0.1
Phenanthrene	mg/kg	< 0.1	< 0.1	< 0.1
Pyrene	mg/kg	< 0.1	< 0.1	< 0.1
Total PAH	mg/kg	< 1.6	< 1.6	< 1.6
Chrysene-d12 (surr.)	%	81	96	110
2-Fluorobiphenyl (surr.)	%	76	80	89

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Client Sample ID		TP142 0.0-0.1	TP144 0.0-0.2	TP145 0.0-0.1	TP146 0.8-1.0
Coffey Geotechnics Pty Ltd Unit 1 18 Hurley Dve Coffs Harbour NSW 2450	Lab Number	06-Oc04337	06-Oc04338	06-Oc04339	06-Oc04340
	Matrix	Soil	Soil	Soil	Soil
	Sample Date	Oct 16, 2006	Oct 16, 2006	Oct 16, 2006	Oct 16, 2006
	LOR				
Analysis Type		Units			
Organochlorine Pesticides					
4,4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05
4,4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05
4,4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05
a-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05
b-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Chlordane	0.1	mg/kg	< 0.1	< 0.1	< 0.1
d-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Toxophene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Dibutylchloridate (surr.)	1	%	54	110	120
Tetrachloro-m-xylene (surr.)	1	%	83	90	92
Organophosphorous Pesticides					
Bolstar	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Coumaphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Demeton-O	0.2	mg/kg	< 0.2	< 0.2	< 0.2

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Client Sample ID		TP142 0.0-0.1	TP144 0.0-0.2	TP145 0.0-0.1	TP146 0.8-1.0
Lab Number		06-Oct04337	06-Oct04338	06-Oct04339	06-Oct04340
Matrix		Soil	Soil	Soil	Soil
Sample Date		Oct 16, 2006	Oct 16, 2006	Oct 16, 2006	Oct 16, 2006
Analysis Type	LOR	Units			
Diazinon	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Disulfoton	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Ethion	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Fensulfotthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Fenthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Merphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Methyl azinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Naled	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Phorate	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Ronnel	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	77	120	110
Polychlorinated Biphenyls					
Aroclor-1016	0.1	mg/kg	-	< 0.1	< 0.1
Aroclor-1221	0.1	mg/kg	-	< 0.1	< 0.1
Aroclor-1232	0.1	mg/kg	-	< 0.1	< 0.1
Aroclor-1242	0.1	mg/kg	-	< 0.1	< 0.1
Aroclor-1248	0.1	mg/kg	-	< 0.1	< 0.1
Aroclor-1254	0.1	mg/kg	-	< 0.1	< 0.1
Aroclor-1260	0.1	mg/kg	-	< 0.1	< 0.1
Total PCB	1	mg/kg	-	< 1	< 1
Dibutylchlorendate (surr.)	1	%	-	110	120
Tetrachloro-m-xylene (surr.)	1	%	-	92	92

COMMENTS:



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Coffey Geotechnics Pty Ltd		Client Sample ID	TP142 0.0-0.1	TP144 0.0-0.2	TP145 0.0-0.1	TP146 0.8-1.0
Unit 1 18 Hurley Dve		Lab Number	06-Oc04337	06-Oc04338	06-Oc04339	06-Oc04340
Coffs Harbour		Matrix	Soil	Soil	Soil	Soil
NSW 2450		Sample Date	Oct 16, 2006	Oct 16, 2006	Oct 16, 2006	Oct 16, 2006
Analysis Type		LOR	Units			
% Moisture		0.1	%	10	19	10
Heavy Metals (7)						
Arsenic		2	mg/kg	5.8	6.4	9.6
Cadmium		0.5	mg/kg	< 0.5	< 0.5	< 0.5
Chromium		5	mg/kg	< 5	7.7	5.6
Copper		5	mg/kg	< 5	21	14
Lead		5	mg/kg	13	27	22
Nickel		5	mg/kg	< 5	< 5	< 5
Zinc		5	mg/kg	5.4	120	51
Heavy Metals						
Mercury		0.1	mg/kg	< 0.1	< 0.1	< 0.1

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Coffey Geotechnics Pty Ltd

Unit 1 18 Hurley Dve
 Coffs Harbour
 NSW 2450

Client Sample ID	TP147 1.5-1.6	TP148 0.5-0.6	TP149 1.7-1.8	TP150 0.0-0.1
Lab Number	06-0c04341	06-0c04342	06-0c04343	06-0c04344
Matrix	Soil	Soil	Soil	Soil
Sample Date	Oct 16, 2006	Oct 16, 2006	Oct 16, 2006	Oct 17, 2006
LOR				
Analysis Type	Units			
Total Recoverable Hydrocarbons				
TRH C6-C9 Fraction by GC	mg/kg	< 20	-	< 20
TRH C10-C14 Fraction by GC	mg/kg	< 50	-	< 50
TRH C15-C28 Fraction by GC	mg/kg	< 100	-	< 100
TRH C29-C36 Fraction by GC	mg/kg	< 100	-	< 100
Monocyclic Aromatic Hydrocarbons				
Benzene	mg/kg	< 0.05	-	< 0.05
Toluene	mg/kg	< 0.05	-	< 0.05
Ethylbenzene	mg/kg	< 0.05	-	< 0.05
Xylenes(ortho,meta and para)	mg/kg	< 0.05	-	< 0.05
Fluorobenzene (surr.)	%	85	-	90
Polycyclic Aromatic Hydrocarbons				
Acenaphthene	mg/kg	< 0.1	-	< 0.1
Acenaphthylene	mg/kg	< 0.1	-	< 0.1
Anthracene	mg/kg	< 0.1	-	< 0.1
Benz(a)anthracene	mg/kg	< 0.1	-	< 0.1
Benzo(a)pyrene	mg/kg	< 0.1	-	< 0.1
Benzo(b)fluoranthene	mg/kg	< 0.1	-	< 0.1
Benzo(g,h,i)perylene	mg/kg	< 0.1	-	< 0.1
Benzo(k)fluoranthene	mg/kg	< 0.1	-	< 0.1
Chrysene	mg/kg	< 0.1	-	< 0.1
Dibenz(a,h)anthracene	mg/kg	< 0.1	-	< 0.1
Fluoranthene	mg/kg	< 0.1	-	< 0.1
Fluorene	mg/kg	< 0.1	-	< 0.1
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	-	< 0.1
Naphthalene	mg/kg	< 0.1	-	< 0.1
Phenanthrene	mg/kg	< 0.1	-	< 0.1
Pyrene	mg/kg	< 0.1	-	< 0.1
Total PAH	mg/kg	< 1.6	-	< 1.6
Chrysene-d12 (surr.)	%	92	-	85
2-Fluorobiphenyl (surr.)	%	89	-	82

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Client Sample ID		TP147 1.5-1.6	TP148 0.5-0.6	TP149 1.7-1.8	TP150 0.0-0.1
Lab Number		06-Oc04341	06-Oc04342	06-Oc04343	06-Oc04344
Matrix		Soil	Soil	Soil	Soil
Sample Date		Oct 16, 2006	Oct 16, 2006	Oct 16, 2006	Oct 17, 2006
Analysis Type	LOR	Units			
Organochlorine Pesticides					
4,4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05
4,4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05
4,4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05
a-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05
b-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Chlordane	0.1	mg/kg	< 0.1	< 0.1	< 0.1
d-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Toxophene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Dibutylchloride (surr.)	1	%	150	120	72
Tetrachloro-m-xylene (surr.)	1	%	100	85	86
Organophosphorous Pesticides					
Bolstar	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Coumaphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Deneton-O	0.2	mg/kg	< 0.2	< 0.2	< 0.2

COMMENTS:

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Client Sample ID		TP147 1.5-1.6	TP148 0.5-0.6	TP149 1.7-1.8	TP150 0.0-0.1
Coffey Geotechnics Pty Ltd Unit 1 18 Hurley Dve Coffs Harbour NSW 2450	Lab Number	06-Oct04341	06-Oct04342	06-Oct04343	06-Oct04344
	Matrix	Soil	Soil	Soil	Soil
	Sample Date	Oct 16, 2006	Oct 16, 2006	Oct 16, 2006	Oct 17, 2006
	Analysis Type	LOR			
		Units			
Diazinon	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Disulfoton	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Ethion	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Fensulfotthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Fenthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Merphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Methyl azinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Naled	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Phorate	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Ronnel	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	82	98	110
Polychlorinated Biphenyls					
Aroclor-1016	0.1	mg/kg	-	< 0.1	< 0.1
Aroclor-1221	0.1	mg/kg	-	< 0.1	< 0.1
Aroclor-1232	0.1	mg/kg	-	< 0.1	< 0.1
Aroclor-1242	0.1	mg/kg	-	< 0.1	< 0.1
Aroclor-1248	0.1	mg/kg	-	< 0.1	< 0.1
Aroclor-1254	0.1	mg/kg	-	< 0.1	< 0.1
Aroclor-1260	0.1	mg/kg	-	< 0.1	< 0.1
Total PCB	1	mg/kg	-	< 1	< 1
Dibutylchlorendate (surr.)	1	%	-	100	72
Tetrachloro-m-xylene (surr.)	1	%	-	84	86

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Coffey Geotechnics Pty Ltd		Client Sample ID		TP147 1.5-1.6	TP148 0.5-0.6	TP149 1.7-1.8	TP150 0.0-0.1
Unit 1 18 Hurley Dve		Lab Number		06-Oc04341	06-Oc04342	06-Oc04343	06-Oc04344
Coffs Harbour		Matrix		Soil	Soil	Soil	Soil
NSW 2450		Sample Date		Oct 16, 2006	Oct 16, 2006	Oct 16, 2006	Oct 17, 2006
Analysis Type	LOR	Units					
% Moisture	0.1	%		34	10	33	8.9
Heavy Metals (7)							
Arsenic	2	mg/kg		5.0	7.7	3.3	< 2
Cadmium	0.5	mg/kg		< 0.5	< 0.5	< 0.5	< 0.5
Chromium	5	mg/kg		7.3	7.0	8.5	< 5
Copper	5	mg/kg		18	14	16	7.6
Lead	5	mg/kg		14	23	19	6.6
Nickel	5	mg/kg		< 5	< 5	5.7	< 5
Zinc	5	mg/kg		65	58	52	30
Heavy Metals							
Mercury	0.1	mg/kg		< 0.1	< 0.1	< 0.1	< 0.1

COMMENTS:

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Coffey Geotechnics Pty Ltd

Unit 1 18 Hurley Dve
 Coffs Harbour
 NSW 2450

Client Sample ID	TP152 0.0-0.1	TP156 0.4-0.5	TP158 0.7-0.8	TP159 0.5-0.6
Lab Number	06-0c04345	06-0c04346	06-0c04347	06-0c04348
Matrix	Soil	Soil	Soil	Soil
Sample Date	Oct 17, 2006	Oct 17, 2006	Oct 17, 2006	Oct 17, 2006
LOR				
Analysis Type	Units			
Total Recoverable Hydrocarbons				
TRH C6-C9 Fraction by GC	mg/kg	23	< 20	-
TRH C10-C14 Fraction by GC	mg/kg	1900	< 50	-
TRH C15-C28 Fraction by GC	mg/kg	5300	130	-
TRH C29-C36 Fraction by GC	mg/kg	1800	320	-
Monocyclic Aromatic Hydrocarbons				
Benzene	mg/kg	< 0.05	< 0.05	-
Toluene	mg/kg	0.17	< 0.05	-
Ethylbenzene	mg/kg	0.47	< 0.05	-
Xylenes(ortho,meta and para)	mg/kg	4.0	< 0.05	-
Fluorobenzene (surr.)	%	69	110	-
Polycyclic Aromatic Hydrocarbons				
Acenaphthene	mg/kg	< 0.5	< 0.1	-
Acenaphthylene	mg/kg	< 0.5	< 0.1	-
Anthracene	mg/kg	< 0.2	< 0.1	-
Benz(a)anthracene	mg/kg	< 0.1	< 0.1	-
Benzo(a)pyrene	mg/kg	< 0.1	< 0.1	-
Benzo(b)fluoranthene	mg/kg	< 0.1	< 0.1	-
Benzo(g,h,i)perylene	mg/kg	< 0.1	< 0.1	-
Benzo(k)fluoranthene	mg/kg	< 0.1	< 0.1	-
Chrysene	mg/kg	< 0.1	< 0.1	-
Dibenz(a,h)anthracene	mg/kg	< 0.1	< 0.1	-
Fluoranthene	mg/kg	< 0.1	< 0.1	-
Fluorene	mg/kg	1.7	< 0.1	-
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	< 0.1	-
Naphthalene	mg/kg	2.2	< 0.1	-
Phenanthrene	mg/kg	2.1	< 0.1	-
Pyrene	mg/kg	0.1	< 0.1	-
Total PAH	mg/kg	8.2	< 1.6	-
Chrysene-d12 (surr.)	%	120	130	-
2-Fluorobiphenyl (surr.)	%	84	90	-

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Coffey Geotechnics Pty Ltd		Client Sample ID		TP152 0.0-0.1	TP156 0.4-0.5	TP158 0.7-0.8	TP159 0.5-0.6
Unit 1 18 Hurley Dve		Lab Number		06-Oct04345	06-Oct04346	06-Oct04347	06-Oct04348
Coffs Harbour		Matrix		Soil	Soil	Soil	Soil
NSW 2450		Sample Date		Oct 17, 2006	Oct 17, 2006	Oct 17, 2006	Oct 17, 2006
Analysis Type	LOR	Units					
Organochlorine Pesticides							
4,4'-DDD	0.05	mg/kg		< 0.05	< 0.05	< 0.05	< 0.05
4,4'-DDE	0.05	mg/kg		< 0.05	< 0.05	< 0.05	< 0.05
4,4'-DDT	0.05	mg/kg		< 0.05	< 0.05	< 0.05	< 0.05
a-BHC	0.05	mg/kg		< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg		< 0.05	< 0.05	< 0.05	< 0.05
b-BHC	0.05	mg/kg		< 0.05	< 0.05	< 0.05	< 0.05
Chlordane	0.1	mg/kg		< 0.1	< 0.1	< 0.1	< 0.1
d-BHC	0.05	mg/kg		< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg		< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg		< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg		< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg		< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg		< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg		< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg		< 0.05	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg		< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg		< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg		< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg		< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg		< 0.05	< 0.05	< 0.05	< 0.05
Toxophene	0.1	mg/kg		< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchloride (surr.)	1	%		110	78	130	110
Tetrachloro-m-xylene (surr.)	1	%		97	64	120	91
Organophosphorous Pesticides							
Bolstar	0.2	mg/kg		< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg		< 0.2	< 0.2	< 0.2	< 0.2
Coumaphos	0.2	mg/kg		< 0.2	< 0.2	< 0.2	< 0.2
Demeton-O	0.2	mg/kg		< 0.2	< 0.2	< 0.2	< 0.2

COMMENTS:

mgt

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Coffey Geotechnics Pty Ltd		Client Sample ID	TP152 0.0-0.1	TP156 0.4-0.5	TP158 0.7-0.8	TP159 0.5-0.6
Unit 1 18 Hurley Dve		Lab Number	06-Oct04345	06-Oct04346	06-Oct04347	06-Oct04348
Coffs Harbour		Matrix	Soil	Soil	Soil	Soil
NSW 2450		Sample Date	Oct 17, 2006	Oct 17, 2006	Oct 17, 2006	Oct 17, 2006
Analysis Type	LOR	Units				
Diazinon	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Disulfoton	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fensulfotthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Merphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Methyl azinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Naled	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Phorate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ronnel	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	83	98	81	95
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	-	< 0.1	< 0.1	-
Aroclor-1221	0.1	mg/kg	-	< 0.1	< 0.1	-
Aroclor-1232	0.1	mg/kg	-	< 0.1	< 0.1	-
Aroclor-1242	0.1	mg/kg	-	< 0.1	< 0.1	-
Aroclor-1248	0.1	mg/kg	-	< 0.1	< 0.1	-
Aroclor-1254	0.1	mg/kg	-	< 0.1	< 0.1	-
Aroclor-1260	0.1	mg/kg	-	< 0.1	< 0.1	-
Total PCB	1	mg/kg	-	< 1	< 1	-
Dibutylchlorendate (surr.)	1	%	-	78	130	-
Tetrachloro-m-xylene (surr.)	1	%	-	64	120	-

COMMENTS:

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Coffey Geotechnics Pty Ltd		Client Sample ID	TP152 0.0-0.1	TP156 0.4-0.5	TP158 0.7-0.8	TP159 0.5-0.6
Unit 1 18 Hurley Dve		Lab Number	06-Oct04345	06-Oct04346	06-Oct04347	06-Oct04348
Coffs Harbour		Matrix	Soil	Soil	Soil	Soil
NSW 2450		Sample Date	Oct 17, 2006	Oct 17, 2006	Oct 17, 2006	Oct 17, 2006
Analysis Type		LOR				
		Units				
% Moisture		0.1	7.3	22	50	24
Heavy Metals (7)						
Arsenic		2	9.8	7.7	6.8	7.9
Cadmium		0.5	< 0.5	1.7	< 0.5	< 0.5
Chromium		5	5.6	27	6.6	12
Copper		5	9.6	58	22	17
Lead		5	23	150	28	29
Nickel		5	< 5	18	< 5	< 5
Zinc		5	69	780	100	120
Heavy Metals						
Mercury		0.1	< 0.1	< 0.1	< 0.1	< 0.1

COMMENTS:

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Coffey Geotechnics Pty Ltd

Client Sample ID		TP161 0.0-0.1	DUP 1	DUP 2	DUP 3
Unit 1 18 Hurley Dve		06-Oct04349	06-Oct04350	06-Oct04351	06-Oct04352
Coffs Harbour		Soil	Soil	Soil	Soil
NSW 2450		Oct 17, 2006	Oct 12, 2006	Oct 12, 2006	Oct 13, 2006
Analysis Type		Units			
Total Recoverable Hydrocarbons					
TRH C6-C9 Fraction by GC		-	-	< 20	-
TRH C10-C14 Fraction by GC		-	-	< 50	-
TRH C15-C28 Fraction by GC		-	-	< 100	-
TRH C29-C36 Fraction by GC		-	-	< 100	-
Monocyclic Aromatic Hydrocarbons					
Benzene		0.05	-	< 0.05	-
Toluene		0.05	-	< 0.05	-
Ethylbenzene		0.05	-	< 0.05	-
Xylenes(ortho,meta and para)		0.05	-	< 0.05	-
Fluorobenzene (surr.)		1	-	98	-
Polycyclic Aromatic Hydrocarbons					
Acenaphthene		0.1	-	< 0.1	-
Acenaphthylene		0.1	-	< 0.1	-
Anthracene		0.1	-	< 0.1	-
Benz(a)anthracene		0.1	-	< 0.1	-
Benzo(a)pyrene		0.1	-	0.1	-
Benzo(b)fluoranthene		0.1	-	< 0.1	-
Benzo(g,h,i)perylene		0.1	-	< 0.2	-
Benzo(k)fluoranthene		0.1	-	< 0.1	-
Chrysene		0.1	-	< 0.1	-
Dibenz(a,h)anthracene		0.1	-	< 0.1	-
Fluoranthene		0.1	-	< 0.1	-
Fluorene		0.1	-	< 0.1	-
Indeno(1,2,3-cd)pyrene		0.1	-	< 0.2	-
Naphthalene		0.1	-	< 0.1	-
Phenanthrene		0.1	-	< 0.1	-
Pyrene		0.1	-	< 0.1	-
Total PAH		1.6	-	1.8	-
Chrysene-d12 (surr.)		1	-	99	-
2-Fluorobiphenyl (surr.)		1	-	98	-

COMMENTS:

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Client Sample ID		TP161 0.0-0.1	DUP 1	DUP 2	DUP 3
Coffey Geotechnics Pty Ltd					
Unit 1 18 Hurley Dve					
Coffs Harbour					
NSW 2450					
Analysis Type		Units			
Organochlorine Pesticides					
4,4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05
4,4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05
4,4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05
a-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05
b-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Chlordane	0.1	mg/kg	< 0.1	< 0.1	< 0.1
d-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Toxophene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Dibutylchloride (surr.)	1	%	88	120	76
Tetrachloro-m-xylene (surr.)	1	%	79	87	76
Organophosphorous Pesticides					
Bolstar	0.2	mg/kg	< 0.5	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.5	< 0.2	< 0.2
Coumaphos	0.2	mg/kg	< 0.5	< 0.2	< 0.2
Demeton-O	0.2	mg/kg	< 0.5	< 0.2	< 0.2

COMMENTS:

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Coffey Geotechnics Pty Ltd		Client Sample ID	TP161 0.0-0.1	DUP 1	DUP 2	DUP 3
Unit 1 18 Hurley Dve		Lab Number	06-Oc04349	06-Oc04350	06-Oc04351	06-Oc04352
Coffs Harbour		Matrix	Soil	Soil	Soil	Soil
NSW 2450		Sample Date	Oct 17, 2006	Oct 12, 2006	Oct 12, 2006	Oct 13, 2006
Analysis Type	LOR	Units				
Diazinon	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Disulfoton	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Ethion	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Fensulfothion	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Fenthion	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Merphos	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Methyl azinphos	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Methyl parathion	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Naled	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Phorate	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Ronnel	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	< 0.5	< 0.2	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	100	100	77	110
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	-	-	< 0.1	-
Aroclor-1221	0.1	mg/kg	-	-	< 0.1	-
Aroclor-1232	0.1	mg/kg	-	-	< 0.1	-
Aroclor-1242	0.1	mg/kg	-	-	< 0.1	-
Aroclor-1248	0.1	mg/kg	-	-	< 0.1	-
Aroclor-1254	0.1	mg/kg	-	-	< 0.1	-
Aroclor-1260	0.1	mg/kg	-	-	< 0.1	-
Total PCB	1	mg/kg	-	-	< 1	-
Dibutylchloride (surr.)	1	%	-	-	120	-
Tetrachloro-m-xylene (surr.)	1	%	-	-	87	-

COMMENTS:

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Client Sample ID		TP161 0.0-0.1	DUP 1	DUP 2	DUP 3
Coffey Geotechnics Pty Ltd Unit 1 18 Hurley Dve Coffs Harbour NSW 2450	Lab Number	06-Oct04349	06-Oct04350	06-Oct04351	06-Oct04352
	Matrix	Soil	Soil	Soil	Soil
	Sample Date	Oct 17, 2006	Oct 12, 2006	Oct 12, 2006	Oct 13, 2006
	LOR				
	Units				
Analysis Type					
% Moisture					
0.1		19	18	18	2.8
Heavy Metals (7)					
Arsenic			2.1	3.0	3.3
Cadmium		5.2	< 0.5	< 0.5	< 0.5
Chromium		32	< 5	5.0	6.8
Copper		9.1	8.5	5.9	< 5
Lead		20	8.5	13	20
Nickel		1100	< 5	< 5	< 5
Zinc		< 5	38	28	33
Heavy Metals		250			
Mercury					
0.1		< 0.1	< 0.1	< 0.1	< 0.1

COMMENTS:

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Coffey Geotechnics Pty Ltd

Unit 1 18 Hurley Dve

Coffs Harbour

NSW 2450

Client Sample ID	DUP 5	DUP 7	DUP 8	DUP 9
Lab Number	06-0c04353	06-0c04354	06-0c04355	06-0c04356
Matrix	Soil	Soil	Soil	Soil
Sample Date	Oct 16, 2006	Oct 16, 2006	Oct 17, 2006	Oct 17, 2006
Analysis Type	LOR			
Units				
Total Recoverable Hydrocarbons				
TRH C6-C9 Fraction by GC	< 20	< 20	22	-
TRH C10-C14 Fraction by GC	< 50	< 50	1800	-
TRH C15-C28 Fraction by GC	< 100	< 100	4800	-
TRH C29-C36 Fraction by GC	160	< 100	2200	-
Monocyclic Aromatic Hydrocarbons				
Benzene	0.05	< 0.05	< 0.05	< 0.05
Toluene	0.05	< 0.05	< 0.05	0.16
Ethylbenzene	0.05	< 0.05	< 0.05	0.38
Xylenes(ortho,meta and para)	0.05	< 0.05	< 0.05	2.8
Fluorobenzene (surr.)	1	86	110	82
Polycyclic Aromatic Hydrocarbons				
Acenaphthene	0.1	< 0.2	< 0.1	< 1.0
Acenaphthylene	0.1	< 0.2	< 0.1	< 0.1
Anthracene	0.1	< 0.2	< 0.1	< 0.2
Benz(a)anthracene	0.1	< 0.2	< 0.1	< 0.1
Benzo(a)pyrene	0.1	< 0.2	< 0.1	< 0.1
Benzo(b)fluoranthene	0.1	< 0.2	< 0.1	< 0.1
Benzo(g,h,i)perylene	0.1	< 0.2	< 0.1	< 0.1
Benzo(k)fluoranthene	0.1	< 0.2	< 0.1	< 0.1
Chrysene	0.1	< 0.2	< 0.1	< 0.1
Dibenz(a,h)anthracene	0.1	< 0.2	< 0.1	< 0.1
Fluoranthene	0.1	< 0.2	< 0.1	< 0.1
Fluorene	0.1	< 0.2	< 0.1	2.0
Indeno(1,2,3-cd)pyrene	0.1	< 0.2	< 0.1	< 0.1
Naphthalene	0.1	< 0.2	< 0.1	4.3
Phenanthrene	0.1	< 0.2	< 0.1	2.7
Pyrene	0.1	< 0.2	< 0.1	0.3
Total PAH	1.6	< 3.2	< 1.6	12
Chrysene-d12 (surr.)	1	110	75	120
2-Fluorobiphenyl (surr.)	1	86	89	83

COMMENTS:



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Client Sample ID		DUP 5		DUP 7		DUP 8		DUP 9	
Coffey Geotechnics Pty Ltd Unit 1 18 Hurley Dve Coffs Harbour NSW 2450	Lab Number	06-Oc04353		06-Oc04354		06-Oc04355		06-Oc04356	
	Matrix	Soil		Soil		Soil		Soil	
	Sample Date	Oct 16, 2006		Oct 16, 2006		Oct 17, 2006		Oct 17, 2006	
	LOR	Units							
Analysis Type									
Organochlorine Pesticides									
4,4'-DDD	0.05	mg/kg		< 0.05		< 0.1		< 0.05	
4,4'-DDE	0.05	mg/kg		< 0.05		< 0.1		< 0.05	
4,4'-DDT	0.05	mg/kg		< 0.05		< 0.1		< 0.05	
a-BHC	0.05	mg/kg		< 0.05		< 0.1		< 0.05	
Aldrin	0.05	mg/kg		< 0.05		< 0.1		< 0.05	
b-BHC	0.05	mg/kg		< 0.05		< 0.1		< 0.05	
Chlordane	0.1	mg/kg		< 0.1		< 0.2		< 0.1	
d-BHC	0.05	mg/kg		< 0.05		< 0.1		< 0.05	
Dieldrin	0.05	mg/kg		< 0.05		< 0.1		< 0.05	
Endosulfan I	0.05	mg/kg		< 0.05		< 0.1		< 0.05	
Endosulfan II	0.05	mg/kg		< 0.05		< 0.1		< 0.05	
Endosulfan sulphate	0.05	mg/kg		< 0.05		< 0.1		< 0.05	
Endrin	0.05	mg/kg		< 0.05		< 0.1		< 0.05	
Endrin aldehyde	0.05	mg/kg		< 0.05		< 0.1		< 0.05	
Endrin ketone	0.05	mg/kg		< 0.05		< 0.1		< 0.05	
g-BHC (Lindane)	0.05	mg/kg		< 0.05		< 0.1		< 0.05	
Heptachlor	0.05	mg/kg		< 0.05		< 0.1		< 0.05	
Heptachlor epoxide	0.05	mg/kg		< 0.05		< 0.1		< 0.05	
Hexachlorobenzene	0.05	mg/kg		< 0.05		< 0.1		< 0.05	
Methoxychlor	0.05	mg/kg		< 0.05		< 0.1		< 0.05	
Toxophene	0.1	mg/kg		< 0.1		< 0.2		< 0.1	
Dibutylchloride (surr.)	1	%		91		100		94	
Tetrachloro-m-xylene (surr.)	1	%		81		110		90	
Organophosphorous Pesticides									
Bolstar	0.2	mg/kg		< 0.5		< 0.2		< 0.2	
Chlorpyrifos	0.2	mg/kg		< 0.5		< 0.2		< 0.2	
Coumaphos	0.2	mg/kg		< 0.5		< 0.2		< 0.2	
Demeton-O	0.2	mg/kg		< 0.5		< 0.2		< 0.2	

COMMENTS:

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Client Sample ID		DUP 5	DUP 7	DUP 8	DUP 9
Coffey Geotechnics Pty Ltd Unit 1 18 Hurley Dve Coffs Harbour NSW 2450	Lab Number	06-0c04353	06-0c04354	06-0c04355	06-0c04356
	Matrix	Soil	Soil	Soil	Soil
	Sample Date	Oct 16, 2006	Oct 16, 2006	Oct 17, 2006	Oct 17, 2006
	LOR				
Analysis Type		Units			
Diazinon		mg/kg	< 0.2	< 0.2	< 0.2
Dichlorvos		mg/kg	< 0.2	< 0.2	< 0.2
Disulfoton		mg/kg	< 0.2	< 0.2	< 0.2
Ethion		mg/kg	< 0.2	< 0.2	< 0.2
Ethoprop		mg/kg	< 0.2	< 0.2	< 0.2
Fenitrothion		mg/kg	< 0.2	< 0.2	< 0.2
Fensulfotthion		mg/kg	< 0.2	< 0.2	< 0.2
Fenthion		mg/kg	< 0.2	< 0.2	< 0.2
Merphos		mg/kg	< 0.2	< 0.2	< 0.2
Methyl azinphos		mg/kg	< 0.2	< 0.2	< 0.2
Methyl parathion		mg/kg	< 0.2	< 0.2	< 0.2
Mevinphos		mg/kg	< 0.2	< 0.2	< 0.2
Naled		mg/kg	< 0.2	< 0.2	< 0.2
Phorate		mg/kg	< 0.2	< 0.2	< 0.2
Ronnol		mg/kg	< 0.2	< 0.2	< 0.2
Tokuthion		mg/kg	< 0.2	< 0.2	< 0.2
Trichloronate		mg/kg	< 0.2	< 0.2	< 0.2
Triphenylphosphate (surr.)		%	90	110	86
Triphenylphosphate (surr.)		%	90	110	86
Polychlorinated Biphenyls					81
Aroclor-1016		mg/kg	< 0.1	< 0.1	< 0.2
Aroclor-1221		mg/kg	< 0.1	< 0.1	< 0.2
Aroclor-1232		mg/kg	< 0.1	< 0.1	< 0.2
Aroclor-1242		mg/kg	< 0.1	< 0.1	< 0.2
Aroclor-1248		mg/kg	< 0.1	< 0.1	< 0.2
Aroclor-1254		mg/kg	< 0.1	< 0.1	< 0.2
Aroclor-1260		mg/kg	< 0.1	< 0.1	< 0.2
Total PCB		mg/kg	< 1	< 1	< 2
Dibutylchloride (surr.)		%	130	91	100
Tetrachloro-m-xylene (surr.)		%	100	81	110

COMMENTS:

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Coffey Geotechnics Pty Ltd		Client Sample ID	DUP 5	DUP 7	DUP 8	DUP 9
Unit 1 18 Hurley Dve		Lab Number	06-Oc04353	06-Oc04354	06-Oc04355	06-Oc04356
Coffs Harbour		Matrix	Soil	Soil	Soil	Soil
NSW 2450		Sample Date	Oct 16, 2006	Oct 16, 2006	Oct 17, 2006	Oct 17, 2006
Analysis Type		LOR				
			Units			
% Moisture		0.1	%	7.1	21	16
Heavy Metals (7)						
Arsenic		2	mg/kg	5.8	6.5	< 2
Cadmium		0.5	mg/kg	< 0.5	1.6	7.4
Chromium		5	mg/kg	< 5	19	< 5
Copper		5	mg/kg	< 5	78	5.2
Lead		5	mg/kg	16	200	420
Nickel		5	mg/kg	< 5	28	< 5
Zinc		5	mg/kg	190	630	76
Heavy Metals						
Mercury		0.1	mg/kg	< 0.1	< 0.1	< 0.1

COMMENTS:



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Coffey Geotechnics Pty Ltd

Unit 1 18 Hurley Dve Coffs Harbour NSW 2450	Client Sample ID		SOIL SPK		SOIL BLANK	
	Lab Number		06-Oc04357		06-Oc04358	
	Matrix		Soil		Soil	
	Sample Date		Oct 12, 2006		Oct 12, 2006	
Analysis Type		LOR		Units		
Total Recoverable Hydrocarbons		20		mg/kg		< 20
Monocyclic Aromatic Hydrocarbons						
Benzene		0.05		mg/kg		< 0.05
Toluene		0.05		mg/kg		< 0.05
Ethylbenzene		0.05		mg/kg		< 0.05
Xylenes(ortho meta and para)		0.05		mg/kg		< 0.05
Fluorobenzene (surr.)		1		%		74

COMMENTS:

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Coffey Geotechnics Pty Ltd Unit 1 18 Hurley Dve Coffs Harbour NSW 2450	Client Sample ID	TP116 0.0-0.1	TP116 0.0-0.1	TP116 0.0-0.1	TP116 0.0-0.1
	Lab Number	06-Oc04319	06-Oc04319	06-Oc04319	06-Oc04319
	QA Description		Duplicate	Duplicate %	Spike % Recovery
	Matrix	Soil	Soil	Soil	Soil
	Sample Date	Oct 12, 2006	Oct 12, 2006	Oct 12, 2006	Oct 12, 2006
Analysis Type	Units			% RPD	% Recovery
Organochlorine Pesticides					
4,4'-DDD		< 0.05	< 0.05	<1	104
4,4'-DDE		< 0.05	< 0.05	<1	115
4,4'-DDT		< 0.05	< 0.05	<1	119
a-BHC		< 0.05	< 0.05	<1	103
Aldrin		< 0.05	< 0.05	<1	95
b-BHC		< 0.05	< 0.05	<1	93
Chlordane		< 0.1	< 0.1	<1	129
d-BHC		< 0.05	< 0.05	<1	111
Dieldrin		< 0.05	< 0.05	<1	115
Endosulfan I		< 0.05	< 0.05	<1	106
Endosulfan II		< 0.05	< 0.05	<1	105
Endosulfan sulphate		< 0.05	< 0.05	<1	96
Endrin		< 0.05	< 0.05	<1	114
Endrin aldehyde		< 0.05	< 0.05	<1	74
Endrin ketone		< 0.05	< 0.05	<1	70
g-BHC (Lindane)		< 0.05	< 0.05	<1	98
Heptachlor		< 0.05	< 0.05	<1	110
Heptachlor epoxide		< 0.05	< 0.05	<1	106
Hexachlorobenzene		< 0.05	< 0.05	<1	83
Methoxychlor		< 0.05	< 0.05	<1	115
Toxophene		< 0.1	< 0.1	<1	95
Dibutylchloride (surr.)		100	110	-	104
Tetrachloro-m-xylene (surr.)		81	90	-	113
Organophosphorous Pesticides					
Bolstar		< 0.2	< 0.2	<1	-
Chlorpyrifos		< 0.2	< 0.2	<1	-
Coumaphos		< 0.2	< 0.2	<1	110
Demeton-O		< 0.2	< 0.2	<1	-

COMMENTS:

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Coffey Geotechnics Pty Ltd Unit 1 18 Hurley Dve Coffs Harbour NSW 2450		Client Sample Lab Number	TP116 0.0-0.1 06-Oc04319	TP116 0.0-0.1 06-Oc04319	TP116 0.0-0.1 06-Oc04319	TP116 0.0-0.1 06-Oc04319
		QA Description		Duplicate	Duplicate % RPD	Spike % Recovery
		Matrix	Soil	Soil	Soil	Soil
		Sample Date	Oct 12, 2006	Oct 12, 2006	Oct 12, 2006	Oct 12, 2006
Analysis Type		Units			% RPD	% Recovery
Organophosphorous Pesticides						
Diazinon			< 0.2	< 0.2	< 1	85
Dichlorvos			< 0.2	< 0.2	< 1	-
Disulfoton			< 0.2	< 0.2	< 1	-
Ethion			< 0.2	< 0.2	< 1	92
Ethoprop			< 0.2	< 0.2	< 1	-
Fenitrothion			< 0.2	< 0.2	< 1	88
Fensulfothion			< 0.2	< 0.2	< 1	100
Fenthion			< 0.2	< 0.2	< 1	-
Merphos			< 0.2	< 0.2	< 1	-
Methyl azinphos			< 0.2	< 0.2	< 1	-
Methyl parathion			< 0.2	< 0.2	< 1	108
Mevinphos			< 0.2	< 0.2	< 1	88
Naled			< 0.2	< 0.2	< 1	-
Phorate			< 0.2	< 0.2	< 1	-
Ronnel			< 0.2	< 0.2	< 1	-
Tokuthion			< 0.2	< 0.2	< 1	-
Trichloronate			< 0.2	< 0.2	< 1	-
Triphenylphosphate (surr.)			94	92	-	88
Polychlorinated Biphenyls						
Aroclor-1016			-	-	< 1	-
Aroclor-1221			-	-	< 1	-
Aroclor-1232			-	-	< 1	-
Aroclor-1242			-	-	< 1	-
Aroclor-1248			-	-	< 1	-
Aroclor-1254			-	-	< 1	-
Aroclor-1260			-	-	< 1	-
Total PCB			-	-	< 1	105
Heavy Metals (7)						

COMMENTS:

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Coffey Geotechnics Pty Ltd Unit 1 18 Hurley Dve Coffs Harbour NSW 2450	Client Sample	TP116 0.0-0.1	TP116 0.0-0.1	TP116 0.0-0.1	TP116 0.0-0.1
	Lab Number	06-Oc04319	06-Oc04319	06-Oc04319	06-Oc04319
	QA Description		Duplicate	Duplicate % RPD	Spike % Recovery
	Matrix	Soil	Soil	Soil	Soil
	Sample Date	Oct 12, 2006	Oct 12, 2006	Oct 12, 2006	Oct 12, 2006
Analysis Type	Units			% RPD	% Recovery
Heavy Metals (7)					
Arsenic		5.8	5.3	9.0	86
Cadmium		< 0.5	< 0.5	< 1	87
Chromium		8.5	7.5	12	98
Copper		5.9	< 5	< 1	118
Lead		19	18	3.2	82
Nickel		< 5	< 5	< 1	85
Zinc		41	39	5.7	79
Heavy Metals					
Mercury		< 0.1	< 0.1	< 1	83

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Client Sample ID		TP129 1.2-1.25	TP129 1.2-1.25	TP129 1.2-1.25	TP129 1.2-1.25	Method blank
Coffey Geotechnics Pty Ltd Unit 1 18 Hurley Dve Coffs Harbour NSW 2450	Lab Number	06-0c04326	06-0c04326	06-0c04326	06-0c04326	Batch
	QA Description		Duplicate	Duplicate %	Spike % Recovery	
	Matrix	Soil	Soil	Soil	Soil	Soil
	Sample Date	Oct 13, 2006	Oct 13, 2006	Oct 13, 2006	Oct 13, 2006	Oct 13, 2006
	Units			% RPD	% Recovery	mg/L
Analysis Type						
Total Recoverable Hydrocarbons						
TRH C6-C9 Fraction by GC		-	-	<1	88	< 0.02
TRH C10-C14 Fraction by GC		350	270	26	97	-
TRH C15-C28 Fraction by GC		910	780	16	-	-
TRH C29-C36 Fraction by GC		< 100	< 100	<1	-	-
Monocyclic Aromatic Hydrocarbons						
Benzene		< 0.05	< 0.05	<1	114	-
Toluene		< 0.05	< 0.05	<1	89	-
Ethylbenzene		< 0.05	< 0.05	<1	87	-
Xylenes(ortho,meta and para)		< 0.05	< 0.05	<1	91	-
Fluorobenzene (surr.)		79	96	-	115	-
Polycyclic Aromatic Hydrocarbons						
Acenaphthene		< 0.2	< 0.2	<1	-	-
Acenaphthylene		< 0.2	< 0.2	<1	-	-
Anthracene		< 0.1	< 0.1	<1	-	-
Benz(a)anthracene		< 0.1	< 0.1	<1	-	-
Benzo(a)pyrene		< 0.1	< 0.1	<1	-	-
Benzo(b)fluoranthene		< 0.1	< 0.1	<1	-	-
Benzo(g,h,i)perylene		< 0.1	< 0.1	<1	-	-
Benzo(k)fluoranthene		< 0.1	< 0.1	<1	-	-
Chrysene		< 0.1	< 0.1	<1	-	-
Dibenz(a,h)anthracene		< 0.1	< 0.1	<1	-	-
Fluoranthene		< 0.1	< 0.1	<1	-	-
Fluorene		< 1.0	< 1.0	<1	-	-
Indeno(1,2,3-cd)pyrene		< 0.1	< 0.1	<1	-	-
Naphthalene		< 0.5	< 0.5	<1	-	-
Phenanthrene		0.6	0.8	28	-	-
Pyrene		< 0.1	< 0.1	<1	-	-
Chrysene-d12 (surr.)		130	100	-	-	-

COMMENTS:

Coffey Geotechnics Pty Ltd
Unit 1 18 Hurley Dve
Coffs Harbour
NSW 2450

Coffey Geotechnics Pty Ltd	Client Sample	RPD	TP129 1.2-1.25
Unit 1 18 Hurley Dve	Lab Number	BATCH	06-Oct04326
Coffs Harbour	QA Description		Spike % Recovery
NSW 2450	Matrix	Soil	Soil
	Sample Date	Oct 13, 2006	Oct 13, 2006
Analysis Type	Units		% Recovery
Polycyclic Aromatic Hydrocarbons			
2-Fluorobiphenyl (surr.)		-	-

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COMMENTS:



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Client Sample ID		TP131 1.9-2.0	TP131 1.9-2.0	TP131 1.9-2.0	TP131 1.9-2.0	Method blank
Coffey Geotechnics Pty Ltd Unit 1 18 Hurley Dve Coffs Harbour NSW 2450	Lab Number	06-Oc04329	06-Oc04329	06-Oc04329	06-Oc04329	Batch
	QA Description					
	Matrix	Soil	Soil	Soil	Soil	Soil
	Sample Date	Oct 16, 2006	Oct 16, 2006	Oct 16, 2006	Oct 16, 2006	Oct 16, 2006
	Units					mg/L
Analysis Type						
Organochlorine Pesticides						
4,4'-DDD		< 0.05	< 0.05	< 0.05	102	-
4,4'-DDE		< 0.05	< 0.05	< 0.05	109	-
4,4'-DDT		< 0.05	< 0.05	< 0.05	116	-
a-BHC		< 0.05	< 0.05	< 0.05	107	-
Aldrin		< 0.05	< 0.05	< 0.05	101	-
b-BHC		< 0.05	< 0.05	< 0.05	89	-
Chlordane		< 0.1	< 0.1	< 0.1	-	-
d-BHC		< 0.05	< 0.05	< 0.05	115	-
Dieldrin		< 0.05	< 0.05	< 0.05	126	-
Endosulfan I		< 0.05	< 0.05	< 0.05	107	-
Endosulfan II		< 0.05	< 0.05	< 0.05	104	-
Endosulfan sulphate		< 0.05	< 0.05	< 0.05	93	-
Endrin		< 0.05	< 0.05	< 0.05	114	-
Endrin aldehyde		< 0.05	< 0.05	< 0.05	88	-
Endrin ketone		< 0.05	< 0.05	< 0.05	71	-
g-BHC (Lindane)		< 0.05	< 0.05	< 0.05	100	-
Heptachlor		< 0.05	< 0.05	< 0.05	108	-
Heptachlor epoxide		< 0.05	< 0.05	< 0.05	109	-
Hexachlorobenzene		< 0.05	< 0.05	< 0.05	81	-
Methoxychlor		< 0.05	< 0.05	< 0.05	106	-
Toxophene		< 0.1	< 0.1	< 0.1	-	-
Polychlorinated Biphenyls						
Aroclor-1016		< 0.1	< 0.1	< 0.1	-	< 0.01
Aroclor-1221		< 0.1	< 0.1	< 0.1	-	< 0.01
Aroclor-1232		< 0.1	< 0.1	< 0.1	-	< 0.01
Aroclor-1242		< 0.1	< 0.1	< 0.1	-	< 0.01
Aroclor-1248		< 0.1	< 0.1	< 0.1	-	< 0.01
Aroclor-1254		< 0.1	< 0.1	< 0.1	-	< 0.01

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Coffey Geotechnics Pty Ltd Unit 1 18 Hurley Dve Coffs Harbour NSW 2450		Client Sample Lab Number	TP131 1.9-2.0 06-Oct04329	TP131 1.9-2.0 06-Oct04329	TP131 1.9-2.0 06-Oct04329	TP131 1.9-2.0 06-Oct04329	Method blank Batch
		QA Description		Duplicate	Duplicate % RPD	Spike % Recovery	
		Matrix	Soil	Soil	Soil	Soil	Soil
		Sample Date	Oct 16, 2006	Oct 16, 2006	Oct 16, 2006	Oct 16, 2006	Oct 16, 2006
Analysis Type		Units			% RPD	% Recovery	mg/L
Polychlorinated Biphenyls							
Aroclor-1260			< 0.1	< 0.1	<1	-	< 0.01
Total PCB			< 1	< 1	<1	-	< 0.1
Dibutylchlorodate (surr.)			100	120	-	-	-
Tetrachloro-m-xylene (surr.)			85	98	-	-	-
Heavy Metals (7)							
Arsenic			< 2	3.7	<1	88	-
Cadmium			< 0.5	< 0.5	<1	95	-
Chromium			9.1	8.1	12	99	-
Copper			< 5	< 5	<1	111	-
Lead			12	10	23	91	-
Nickel			< 5	< 5	<1	92	-
Zinc			12	9.1	25	90	-

COMMENTS:

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Client Sample ID		TP144 0.0-0.2	TP144 0.0-0.2	TP144 0.0-0.2	TP144 0.0-0.2	Method blank
Lab Number	QA Description	06-Oc04338	Duplicate	Duplicate %	Spike % Recovery	Batch
Matrix	Sample Date	Soil	Soil	% RPD	Soil	Soil
Units		Oct 16, 2006	Oct 16, 2006	Oct 16, 2006	% Recovery	Oct 16, 2006
Analysis Type						mg/L
Total Recoverable Hydrocarbons						
TRH C10-C14 Fraction by GC		< 50	< 50	< 1	94	< 0.05
TRH C15-C28 Fraction by GC		< 100	< 100	< 1	-	< 0.1
TRH C29-C36 Fraction by GC		< 100	< 100	< 1	-	< 0.1
Monocyclic Aromatic Hydrocarbons						
Benzene		< 0.05	< 0.05	< 1	101	-
Toluene		< 0.05	< 0.05	< 1	94	-
Ethylbenzene		< 0.05	< 0.05	< 1	82	-
Xylenes(ortho,meta and para)		< 0.05	< 0.05	< 1	91	-
Fluorobenzene (surr.)		110	120	-	99	-
Polycyclic Aromatic Hydrocarbons						
Acenaphthene		< 0.1	< 0.1	< 1	114	-
Acenaphthylene		< 0.1	< 0.1	< 1	102	-
Anthracene		< 0.1	< 0.1	< 1	100	-
Benz(a)anthracene		< 0.1	< 0.1	< 1	97	-
Benzo(a)pyrene		< 0.1	< 0.1	< 1	103	-
Benzo(b)fluoranthene		< 0.1	< 0.1	< 1	107	-
Benzo(g,h,i)perylene		< 0.1	< 0.1	< 1	107	-
Benzo(k)fluoranthene		< 0.1	< 0.1	< 1	100	-
Chrysene		< 0.1	< 0.1	< 1	98	-
Dibenz(a,h)anthracene		< 0.1	< 0.1	< 1	102	-
Fluoranthene		< 0.1	< 0.1	< 1	96	-
Fluorene		< 0.1	< 0.1	< 1	106	-
Indeno(1,2,3-cd)pyrene		< 0.1	< 0.1	< 1	104	-
Naphthalene		< 0.1	< 0.1	< 1	101	-
Phenanthrene		< 0.1	< 0.1	< 1	107	-
Pyrene		< 0.1	< 0.1	< 1	95	-
Total PAH		< 1.6	< 1.6	-	-	< 0.016
Chrysene-d12 (surr.)		81	96	-	123	-

COMMENTS:

Coffey Geotechnics Pty Ltd Unit 1 18 Hurley Dve Coffs Harbour NSW 2450	Analysis Type Polycyclic Aromatic Hydrocarbons 2-Fluorobiphenyl (surr.)
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Coffey Geotechnics Pty Ltd Unit 1 18 Hurley Dve Coffs Harbour NSW 2450	Client Sample ID	TP145 0.0-0.1	TP145 0.0-0.1	TP145 0.0-0.1	TP145 0.0-0.1	Method blank
	Lab Number	06-Oc04339	06-Oc04339	06-Oc04339	06-Oc04339	Batch
	QA Description		Duplicate	Duplicate % RPD	Spike % Recovery	
	Matrix	Soil	Soil	Soil	Soil	Soil
Analysis Type Heavy Metals (7)	Sample Date	Oct 16, 2006	Oct 16, 2006	Oct 16, 2006	Oct 16, 2006	Oct 16, 2006
	Units			% RPD	% Recovery	mg/L
	Arsenic	6.4	5.4	16	-	< 0.02
	Cadmium	< 0.5	< 0.5	< 1	-	< 0.02
	Chromium	7.7	6.5	17	-	< 0.05
	Copper	21	21	0.90	-	< 0.05
	Lead	27	23	14	-	< 0.05
	Nickel	< 5	< 5	< 1	-	< 0.05
	Zinc	120	99	19	-	< 0.05
	Heavy Metals					
	Mercury	< 0.1	< 0.1	< 1	-	-

COMMENTS:

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Client Sample ID		TP161 0.0-0.1	TP161 0.0-0.1	TP161 0.0-0.1	TP161 0.0-0.1	Method blank
Lab Number		06-Oc04349	06-Oc04349	06-Oc04349	06-Oc04349	Batch
QA Description				Duplicate % RPD	Spike % Recovery	
Matrix		Soil	Soil	Soil	Soil	Soil
Sample Date		Oct 17, 2006	Oct 17, 2006	Oct 17, 2006	Oct 17, 2006	Oct 17, 2006
Units				% RPD	% Recovery	mg/L
Analysis Type						
Aroclor-1016		-	-	<1	-	-
Aroclor-1221		-	-	<1	-	-
Aroclor-1232		-	-	<1	-	-
Aroclor-1242		-	-	<1	-	-
Aroclor-1248		-	-	<1	-	-
Aroclor-1254		-	-	<1	-	-
Aroclor-1260		-	-	<1	-	-
Total PCB		-	-	<1	-	-
Organochlorine Pesticides						
4,4'-DDD		<0.05	<0.05	<1	98	<0.005
4,4'-DDE		<0.05	<0.05	<1	98	<0.005
4,4'-DDT		<0.05	<0.05	<1	99	<0.005
a-BHC		<0.05	<0.05	<1	99	<0.005
Aldrin		<0.05	<0.05	<1	99	<0.005
b-BHC		<0.05	<0.05	<1	98	<0.005
Chlordane		<0.1	<0.1	<1	-	<0.01
d-BHC		<0.05	<0.05	<1	102	<0.005
Dieldrin		<0.05	<0.05	<1	97	<0.005
Endosulfan I		<0.05	<0.05	<1	94	<0.005
Endosulfan II		<0.05	<0.05	<1	100	<0.005
Endosulfan sulphate		<0.05	<0.05	<1	99	<0.005
Endrin		<0.05	<0.05	<1	99	<0.005
Endrin aldehyde		<0.05	<0.05	<1	93	<0.005
Endrin ketone		<0.05	<0.05	<1	95	<0.005
g-BHC (Lindane)		<0.05	<0.05	<1	102	<0.005
Heptachlor		<0.05	<0.05	<1	107	<0.005
Heptachlor epoxide		<0.05	<0.05	<1	99	<0.005
Hexachlorobenzene		<0.05	<0.05	<1	98	<0.005
Methoxychlor		<0.05	<0.05	<1	96	<0.005

COMMENTS:

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Coffey Geotechnics Pty Ltd
 Unit 1 18 Hurley Dve
 Coffs Harbour
 NSW 2450

Client Sample	TP161 0.0-0.1	TP161 0.0-0.1	TP161 0.0-0.1	TP161 0.0-0.1	Method blank
Lab Number	06-Oc04349	06-Oc04349	06-Oc04349	06-Oc04349	Batch
QA Description		Duplicate	Duplicate % RPD	Spike % Recovery	
Matrix	Soil	Soil	Soil	Soil	Soil
Sample Date	Oct 17, 2006	Oct 17, 2006	Oct 17, 2006	Oct 17, 2006	Oct 17, 2006
Units			% RPD	% Recovery	mg/L
Analysis Type					
Organochlorine Pesticides					
Toxophene	< 0.1	< 0.1	< 1	-	< 0.01
Dibutylchlorendate (surr.)	88	90	-	-	100
Tetrachloro-m-xylene (surr.)	79	90	-	-	89
Organophosphorous Pesticides					
Bolstar	< 0.5	< 0.5	< 1	-	< 0.002
Chlorpyrifos	< 0.5	< 0.5	< 1	-	< 0.002
Coumaphos	< 0.5	< 0.5	< 1	-	< 0.002
Demeton-O	< 0.5	< 0.5	< 1	-	< 0.002
Diazinon	< 0.5	< 0.5	< 1	101	< 0.002
Dichlorvos	< 0.5	< 0.5	< 1	-	< 0.002
Disulfoton	< 0.5	< 0.5	< 1	-	< 0.002
Ethion	< 0.5	< 0.5	< 1	105	< 0.002
Ethoprop	< 0.5	< 0.5	< 1	-	< 0.002
Fenitrothion	< 0.5	< 0.5	< 1	94	< 0.002
Fensulfothion	< 0.5	< 0.5	< 1	-	< 0.002
Fenthion	< 0.5	< 0.5	< 1	-	< 0.002
Merphos	< 0.5	< 0.5	< 1	-	< 0.002
Methyl azinphos	< 0.5	< 0.5	< 1	-	< 0.002
Methyl parathion	< 0.5	< 0.5	< 1	86	< 0.002
Mevinphos	< 0.5	< 0.5	< 1	92	< 0.002
Naled	< 0.5	< 0.5	< 1	-	< 0.002
Phorate	< 0.5	< 0.5	< 1	-	< 0.002
Ronnel	< 0.5	< 0.5	< 1	-	< 0.002
Tokuthion	< 0.5	< 0.5	< 1	-	< 0.002
Trichloronate	< 0.5	< 0.5	< 1	-	< 0.002
Triphenylphosphate (surr.)	100	110	-	-	110
Heavy Metals					
Mercury	-	-	-	-	< 0.005

COMMENTS:

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Client Sample ID		DUP 8	DUP 8	DUP 8	DUP 8	DUP 8	Method blank
Lab Number		06-Oc04355	06-Oc04355	06-Oc04355	06-Oc04355	06-Oc04355	Batch
QA Description			Duplicate	Duplicate	Duplicate % RPD	Spike % Recovery	
Matrix		Soil	Soil	Soil	Soil	Soil	Soil
Sample Date		Oct 17, 2006	Oct 17, 2006	Oct 17, 2006	Oct 17, 2006	Oct 17, 2006	Oct 17, 2006
Units					% RPD	% Recovery	mg/L
Analysis Type							
Monocyclic Aromatic Hydrocarbons							
Benzene		< 0.05	< 0.05	< 0.05	< 1	106	< 0.005
Toluene		0.16	0.16	0.16	< 1	87	< 0.005
Ethylbenzene		0.38	0.44	0.44	14	78	< 0.005
Xylenes(ortho.meta and para)		2.8	3.3	3.3	17	78	< 0.005
Fluorobenzene (surr.)		82	87	87	-	100	71
Polycyclic Aromatic Hydrocarbons							
Acenaphthene		< 1.0	< 1.0	< 1.0	< 1	101	< 0.001
Acenaphthylene		< 0.1	< 0.1	< 0.1	< 1	112	< 0.001
Anthracene		< 0.2	< 0.2	< 0.2	< 1	107	< 0.001
Benz(a)anthracene		< 0.1	< 0.1	< 0.1	< 1	106	< 0.001
Benzo(a)pyrene		< 0.1	< 0.1	< 0.1	< 1	114	< 0.001
Benzo(b)fluoranthene		< 0.1	< 0.1	< 0.1	< 1	100	< 0.001
Benzo(g,h,i)perylene		< 0.1	< 0.1	< 0.1	< 1	108	< 0.001
Benzo(k)fluoranthene		< 0.1	< 0.1	< 0.1	< 1	101	< 0.001
Chrysene		< 0.1	< 0.1	< 0.1	< 1	92	< 0.001
Dibenz(a,h)anthracene		< 0.1	< 0.1	< 0.1	< 1	114	< 0.001
Fluoranthene		< 0.1	< 0.1	< 0.1	< 1	108	< 0.001
Fluorene		2.0	1.9	1.9	2.8	97	< 0.001
Indeno(1,2,3-cd)pyrene		< 0.1	< 0.1	< 0.1	< 1	110	< 0.001
Naphthalene		4.3	4.2	4.2	3.7	97	< 0.001
Phenanthrene		2.7	2.5	2.5	2.7	105	< 0.001
Pyrene		0.3	0.2	0.2	18	100	< 0.001
Chrysene-d12 (surr.)		120	110	110	-	104	110
2-Fluorobiphenyl (surr.)		83	99	99	-	102	110

COMMENTS:



No: 32236

Job No: 0010294A Sheet 1 of 5

Laboratory Quotation / Order No:

Chain of Custody

Dispatch to:

 215
 215
 215

Sampled by:

E.L.C.

Consigning Officer: E.L.C.

Date Dispatched: 18/10/06

Attention:

Project Manager
(upload results to)

Courier Service: TNT

Consignment Note No: 1510975331

Relinquished by: E.L.C.

Date: 18/10/06

Received by:

Date: Time:

Comments	Sample Matrix	Container Type and Preservative	Sample No	Date Sampled	PAHs	TPHs	MAHs = BTEX	Metals:	Analyses Required	Sample Condition on Receipt
Collegiate Station 11700 Hwy D Cottonwood, AZ 85502	SOIL GLASS-BAE + VCE		TP101	01-01-01	12/10/06					
			TP102	01-01-01						
			TP103	01-01-01						
			TP104	01-01-01	05/06					
			TP105	01-01-01						
			TP106	01-01-01						
			TP107	01-01-01						
			TP108	01-01-01						
			TP109	01-01-01						
			TP110	01-01-01						
			TP111	01-01-01						
			TP112	01-01-01						
			TP113	01-01-01						
			TP114	01-01-01						
			TP115	01-01-01						
			TP116	01-01-01						
			TP117	01-01-01						
			TP118	01-01-01						
			TP119	01-01-01						
			TP120	01-01-01						
			TP121	01-01-01						
			TP122	01-01-01						
			TP123	01-01-01						
			TP124	01-01-01						
			TP125	01-01-01						
			TP126	01-01-01						
			TP127	01-01-01						
			TP128	01-01-01						
			TP129	01-01-01						
			TP130	01-01-01						
			TP131	01-01-01						
			TP132	01-01-01						
			TP133	01-01-01						
			TP134	01-01-01						
			TP135	01-01-01						
			TP136	01-01-01						
			TP137	01-01-01						
			TP138	01-01-01						
			TP139	01-01-01						
			TP140	01-01-01						
			TP141	01-01-01						
			TP142	01-01-01						
			TP143	01-01-01						
			TP144	01-01-01						
			TP145	01-01-01						
			TP146	01-01-01						
			TP147	01-01-01						
			TP148	01-01-01						
			TP149	01-01-01						
			TP150	01-01-01						
			TP151	01-01-01						
			TP152	01-01-01						
			TP153	01-01-01						
			TP154	01-01-01						
			TP155	01-01-01						
			TP156	01-01-01						
			TP157	01-01-01						
			TP158	01-01-01						
			TP159	01-01-01						
			TP160	01-01-01						
			TP161	01-01-01						
			TP162	01-01-01						
			TP163	01-01-01						
			TP164	01-01-01						
			TP165	01-01-01						
			TP166	01-01-01						
			TP167	01-01-01						
			TP168	01-01-01						
			TP169	01-01-01						
			TP170	01-01-01						
			TP171	01-01-01						
			TP172	01-01-01						
			TP173	01-01-01						
			TP174	01-01-01						
			TP175	01-01-01						
			TP176	01-01-01						
			TP177	01-01-01						
			TP178	01-01-01						
			TP179	01-01-01						
			TP180	01-01-01						
			TP181	01-01-01						
			TP182	01-01-01						
			TP183	01-01-01						
			TP184	01-01-01						
			TP185	01-01-01						
			TP186	01-01-01						
			TP187	01-01-01						
			TP188	01-01-01						
			TP189	01-01-01						
			TP190	01-01-01						
			TP191	01-01-01						
			TP192	01-01-01						
			TP193	01-01-01						
			TP194	01-01-01						
			TP195	01-01-01						
			TP196	01-01-01						
			TP197	01-01-01						
			TP198	01-01-01						
			TP199	01-01-01						
			TP200	01-01-01						
			TP201	01-01-01						
			TP202	01-01-01						
			TP203	01-01-01						
			TP204	01-01-01						
			TP205	01-01-01						
			TP206	01-01-01						
			TP207	01-01-01						
			TP208	01-01-01						
			TP209	01-01-01						
			TP210	01-01-01						
			TP211	01-01-01						
			TP212	01-01-01						
			TP213	01-01-01						
			TP214	01-01-01						
			TP215	01-01-01						
			TP216	01-01-01						
			TP217	01-01-01						
			TP218	01-01-01						
			TP219	01-01-01						
			TP220	01-01-01						
			TP221	01-01-01						
			TP222	01-01-01						
			TP223	01-01-01						
			TP224	01-01-01						
			TP225	01-01-01						
			TP226	01-01-01						
			TP227	01-01-01						
			TP228	01-01-01						
			TP229	01-01-01						
			TP230	01-01-01						
			TP231	01-01-01						
			TP232	01-01-01						
			TP233	01-01-01						
			TP234	01-01-01						
			TP235	01-01-01						
			TP236	01-01-01						
			TP237	01-01-01						
			TP238	01-01-01						
			TP239	01-01-01						
			TP240	01-01-01						
			TP241	01-01-01						
			TP242	01-01-01						
			TP243	01-01-01						
			TP244	01-01-01						
			TP245	01-01-01						
			TP246	01-01-01						
			TP247	01-01-01						
			TP248	01-01-01						
			TP249	01-01-01						
			TP250	01-01-01						
			TP251	01-01-01						
			TP252	01-01-01						
			TP253	01-01-01						
			TP254	01-01-01						
			TP255	01-01-01						
			TP256	01-01-01						
			TP257	01-01-01						
			TP258	01-01-01						
			TP259	01-01-01						
			TP260	01-01-01						
			TP261	01-01-01						
			TP262	01-01-01						
			TP263	01-01-01						
			TP264	01-01-01						
			TP265	01-01-01						
			TP266	01-01-01						
			TP267	01-01-01						
			TP268	01-01-01						
			TP269	01-01-01						
			TP270	01-01-01						
			TP271	01-01-01						
			TP272	01-01-01						
			TP273	01-01-01						

Chain of Custody

No: 32237

Laboratory Quotation: Order No:

Job No: 1074666A Sheet 5 of 5

Dispatch to:
(Address &
Phone No.)

Sampled by:

Consigning Officer:

Attention:

Date Dispatched:

Project Manager:

(report results to)

Courier Service:

Consignment Note No:

Relinquished by:

Date:

Time:

Received by:

Date:

Time:

Comments	Sample Matrix	Container Type and Preservative	Sample No.	Date Sampled	PAHs	TPHs	MAHs = BTEX	Metals	Analyses Required	Sample Condition on Receipt
	SOIL GLASS JAR + ICE	MISSING, - 12/17	00-01	13/10/06						
			TP120	00-01						
			TP121	00-01						
			TP122	00-01						
			TP123	00-01						
			TP124	00-01						
			TP125	00-01						
			TP126	00-01						
			TP127	00-01						
			TP128	00-01						
			TP129	07-04						
			TP129	12-125						
			TP129	12-125						
			TP131	11-12						

Special Laboratory Instructions:

Detection Limits:

NORMAL

Turnaround Required:

ASAP

JOB NUMBER MUST BE
REFERENCED ON ALL
SUBSEQUENT PAGES



Chain of Custody

Laboratory Quotation / Order No.

No: 32238

Job No: 06101246AB Sheet 23 of 5

Dispatch to:
(Address &
Phone No.)

Sampled by:

Consigning Officer:

Attention:

Date Dispatched:

Project Manager:

(report results to)

Counter Service:

Consignment Note No:

Relinquished by:

Date:

Time:

Received by:

Date:

Time:

Comments

Sample Matrix

Container Type
and Preservative

Sample No

Date Sampled

Analyses Required

Sample
Condition
on ReceiptMAHS - BTEX
TPHS
PAHS

Metals: 6

Special Laboratory Instructions

Detection Limits:

NORMAL

Turnaround Required:

ASAP

JOB NUMBER MUST BE
REFERENCED ON ALL
SUBSEQUENT PAGES

Coffey

Chain of Custody

Laboratory Quotation / Order No:

No: 32239

Job No: 012064A

Sheet 4 of 5

Dispatch to:

(Address &
Phone No)

Sampled by:

Consigning Officer:

Attention:

Project Manager:
(report results to)

Date Dispatched:

Courier Service:

Consignment Note No:

Reinquished by:

Date:

Time:

Received by:

Date:

Time:

Comments

Sample Matrix

Container Type
and Preservative

Sample No.

Date Sampled

PAHs

TPHs

MAHs & BTEX

Metals:

PCBs

CCP / COP

Analyses Required

Sample
Condition
on Receipt

SOIL GLASS 1 ICE 0046 0.0-1.0 11/10/06

TP 147 0.0-0.6

TP 148 0.0-0.6

TP 149 0.0-0.6

TP 150 0.0-0.6

TP 151 0.0-0.6

TP 152 0.0-0.6

TP 153 0.0-0.6

TP 154 0.0-0.6

TP 155 0.0-0.6

TP 156 0.0-0.6

TP 157 0.0-0.6

TP 158 0.0-0.6

TP 159 0.0-0.6

TP 160 0.0-0.6

TP 161 0.0-0.6

DUP 1

1998889

19-10-06

19-10-06

Special Laboratory Instructions:

Detection Limits:

NORMAL

Turnaround Required:

ASAP

JOB NUMBER MUST BE
REFERENCED ON ALL
SUBSEQUENT PAGES



No: 32240

Sheet 5 of 5

Job No: 0746 BULAN

Laboratory Quotation - Order No:

Chain of Custody

Sampled by:

 Dispatch to:
 (Address &
 Phone No.)

Date Dispatched:

Attention:

Project Manager
(report results to)

Courier Service:

Consignment Note No:

Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____

Comments	Sample Matrix	Container Type and Preservative	Sample No	Date Sampled	PAHs	TPHs	MAHs = BTEX	Metals	Analyses Required	Sample Condition on Receipt
				17/10/06	/	/	/	/	0.00100	
			DUP 2	17/10/06	/	/	/	/	0.00100	
			DUP 3	17/10/06	/	/	/	/	0.00100	
			DUP 5	17/10/06	/	/	/	/	0.00100	
			DUP 6	17/10/06	/	/	/	/	0.00100	
			DUP 7	17/10/06	/	/	/	/	0.00100	
			DUP 8	17/10/06	/	/	/	/	0.00100	
			DUP 9	17/10/06	/	/	/	/	0.00100	
			SOIL SPIKE	17/10	/	/	/	/	0.00100	
			SOIL BLANK	17/10	/	/	/	/	0.00100	

199889

Robert L

19-10-06

Special Laboratory Instructions

Detection Limits: NORMAL Turnaround Required: ASAP

 JOB NUMBER MUST BE
 REFERENCED ON ALL
 SUBSEQUENT PAGES



3 Kingston Town Close, Oakleigh, Victoria 3166, Australia
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 Telephone: (03) 9564 7055
 Fax: (03) 9564 7190
 Email: mgt@mgtenv.com.au

CERTIFICATE OF ANALYSIS

Coffey Geotechnics Pty Ltd
 Unit 1 18 Hurley Dve
 Coffs Harbour
 NSW 2450
 Site: COFH01296AA

Report Number: 200079 Page 1 of 22
 Order Number:
 Date Received: Oct 25, 2006
 Date Sampled: Oct 23, 2006
 Date Reported: Nov 7, 2006
 Contact: Emma Coleman

Methods

- USEPA 6010B Heavy Metals & USEPA7470/71 Mercury
- USEPA 6020 Heavy Metals
- USEPA 8141A Organophosphorus Pesticides
- USEPA 8081A Organochlorine Pesticides
- USEPA 8270C Polycyclic Aromatic Hydrocarbons
- USEPA 8260B - MGT 350A Monocyclic Aromatic Hydrocarbons
- MGT100A-GC Total Recoverable Hydrocarbons
- USEPA 6010B Heavy Metals & USEPA 7470/71 Mercury
- Method 102 - ANZECC - % Moisture

Comments

Notes

1. The results in this report supersede any previously corresponded results.
2. All Soil Results are reported on a dry basis.
3. Samples are analysed on an as received basis.

ABBREVIATIONS

mg/kg : milligrams per kilograms, mg/L : milligrams per litre, ppm : parts per million,
 LOR : Limit of Reporting
 RPD : Relative Percent Difference
 CRM : Certified Reference Material
 LCS : Laboratory Control Sample

Authorised

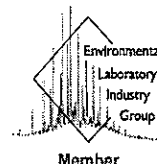
Michael Wright
 NATA Signatory
 Laboratory Manager

Report Number: 200079



NATA Accredited
 Laboratory Number 1261

The tests, calibrations or measurements covered by this document have been performed in accordance with NATA requirements which include the requirements of ISO/IEC 17025 and are traceable to national standards of measurement. This document shall not be reproduced, except in full.



Member

Environmental Consulting Pty. Ltd.

3 Kingston Town Close, Oakleigh, Victoria 3166, Australia
 Postal address: P. O. Box 276, Oakleigh, Victoria 3166, Australia
 Telephone: (03) 9564 7055
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 Email: mgt@mgtenv.com.au

Coffey Geotechnics Pty Ltd		Client Sample ID	H1 0.0-0.15	H2 0.0-0.15	H3 0.0-0.15	H4 0.0-0.15
Unit 1 18 Hurley Dve		Lab Number	06-0c06048	06-0c06049	06-0c06050	06-0c06051
Coffs Harbour		Matrix	Soil	Soil	Soil	Soil
NSW 2450		Sample Date	Oct 23, 2006	Oct 23, 2006	Oct 23, 2006	Oct 23, 2006
Analysis Type	LOR	Units				
Organochlorine Pesticides						
4,4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4,4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4,4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Chlordane	0.1	mg/kg	< 0.1	< 0.1	0.4	< 0.1
d-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.5	< 0.05	< 0.5	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Toxophene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchloride (surr.)	1	%	140	96	85	120
Tetrachloro-m-xylene (surr.)	1	%	110	82	88	100
Organophosphorous Pesticides						
Bolstar	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Coumaphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Demeton-O	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Diazinon	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2

COMMENTS:

MGT Report No. 200079
 Page 2 of 22

3 Kingston Town Close, Oakleigh, Victoria 3166, Australia
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Coffey Geotechnics Pty Ltd		Client Sample ID	H1 0.0-0.15	H2 0.0-0.15	H3 0.0-0.15	H4 0.0-0.15
Unit 1 18 Hurley Dve		Lab Number	06-Oc06048	06-Oc06049	06-Oc06050	06-Oc06051
Coffs Harbour		Matrix	Soil	Soil	Soil	Soil
NSW 2450		Sample Date	Oct 23, 2006	Oct 23, 2006	Oct 23, 2006	Oct 23, 2006
Analysis Type		LOR	Units			
Disulfoton	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Merphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Methyl azinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Naled	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Phorate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ronnel	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	84	100	86	93
% Moisture	0.1	%	18	21	30	23
Heavy Metals (7)						
Arsenic	2	mg/kg	5.7	5.8	7.3	6.5
Cadmium	0.5	mg/kg	0.5	< 0.5	< 0.5	< 0.5
Chromium	5	mg/kg	8.8	8.9	9.6	12
Copper	5	mg/kg	< 5	< 5	670	< 5
Lead	5	mg/kg	43	22	160	45
Nickel	5	mg/kg	< 5	< 5	< 5	< 5
Zinc	5	mg/kg	160	35	230	140
Heavy Metals						
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1

COMMENTS:

MGT Report No. 200079
Page 3 of 22

mgt

3 Kingston Town Close, Oakleigh, Victoria 3166, Australia
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 Telephone: (03) 9564 7055
 Fax: (03) 9564 7190
 Email: mgt@mglenv.com.au

Coffey Geotechnics Pty Ltd

Client Sample ID		H5 0.0-0.15	H6 0.0-0.15	H7 0.0-0.15	H8 0.0-0.15
Lab Number		06-Oc06052	06-Oc06053	06-Oc06054	06-Oc06055
Matrix		Soil	Soil	Soil	Soil
Sample Date		Oct 23, 2006	Oct 23, 2006	Oct 23, 2006	Oct 23, 2006
Units					
Analysis Type					
Organochlorine Pesticides					
4,4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05
4,4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05
4,4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05
a-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05
b-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Chlordane	0.1	mg/kg	< 0.1	< 0.1	< 0.1
d-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Toxophene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Dibutylchlorodate (surr.)	1	%	140	99	89
Tetrachloro-m-xylene (surr.)	1	%	110	84	87
Organophosphorous Pesticides					
Bolstar	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Coumaphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Demeton-O	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Diazinon	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2	< 0.2

COMMENTS:

MGT Report No. 200079
Page 4 of 22

mgt

3 Kingston Town Close, Oakleigh, Victoria 3166, Australia
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 Email: mgt@mgtenv.com.au

Coffey Geotechnics Pty Ltd		Client Sample ID		H5 0.0-0.15		H6 0.0-0.15		H7 0.0-0.15		H8 0.0-0.15	
Unit 1 18 Hurley Dve		Lab Number		06-Oc06052		06-Oc06053		06-Oc06054		06-Oc06055	
Coffs Harbour		Matrix		Soil		Soil		Soil		Soil	
NSW 2450		Sample Date		Oct 23, 2006		Oct 23, 2006		Oct 23, 2006		Oct 23, 2006	
Analysis Type		LOR		Units							
Disulfoton		0.2		mg/kg		< 0.2		< 0.2		< 0.2	
Ethion		0.2		mg/kg		< 0.2		< 0.2		< 0.2	
Ethoprop		0.2		mg/kg		< 0.2		< 0.2		< 0.2	
Fenitrothion		0.2		mg/kg		< 0.2		< 0.2		< 0.2	
Fensulfothion		0.2		mg/kg		< 0.2		< 0.2		< 0.2	
Fenthion		0.2		mg/kg		< 0.2		< 0.2		< 0.2	
Merphos		0.2		mg/kg		< 0.2		< 0.2		< 0.2	
Methyl azinphos		0.2		mg/kg		< 0.2		< 0.2		< 0.2	
Methyl parathion		0.2		mg/kg		< 0.2		< 0.2		< 0.2	
Mevinphos		0.2		mg/kg		< 0.2		< 0.2		< 0.2	
Naled		0.2		mg/kg		< 0.2		< 0.2		< 0.2	
Phorate		0.2		mg/kg		< 0.2		< 0.2		< 0.2	
Ronnell		0.2		mg/kg		< 0.2		< 0.2		< 0.2	
Tokuthion		0.2		mg/kg		< 0.2		< 0.2		< 0.2	
Trichloronate		0.2		mg/kg		< 0.2		< 0.2		< 0.2	
Triphenylphosphate (surr.)		1		%		86		83		120	
										95	
% Moisture		0.1		%		23		22		26	
Heavy Metals (7)										11	
Arsenic		2		mg/kg		6.8		5.8		5.9	
Cadmium		0.5		mg/kg		0.6		< 0.5		< 0.5	
Chromium		5		mg/kg		12		9.2		9.3	
Copper		5		mg/kg		1300		< 5		< 5	
Lead		5		mg/kg		3000		32		240	
Nickel		5		mg/kg		23		< 5		5.8	
Zinc		5		mg/kg		230		220		150	
Heavy Metals										12	
Mercury		0.1		mg/kg		< 0.1		< 0.1		< 0.1	

COMMENTS:

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Coffey Geotechnics Pty Ltd

Unit 1 18 Hurley Dve
Coffs Harbour
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Client Sample ID	H9 0.0-0.15	H10 0.0-0.15	H12 0.0-0.15	H13 0.0-0.15
Lab Number	06-0c06056	06-0c06057	06-0c06058	06-0c06059
Matrix	Soil	Soil	Soil	Soil
Sample Date	Oct 23, 2006	Oct 23, 2006	Oct 23, 2006	Oct 23, 2006
Analysis Type	Units			
Organochlorine Pesticides				
4,4'-DDD	mg/kg	< 0.05	< 0.05	< 0.05
4,4'-DDE	mg/kg	< 0.05	< 0.05	< 0.05
4,4'-DDT	mg/kg	< 0.05	< 0.05	< 0.05
a-BHC	mg/kg	< 0.05	< 0.05	< 0.05
Aldrin	mg/kg	< 0.05	< 0.05	< 0.05
b-BHC	mg/kg	< 0.05	< 0.05	< 0.05
Chlordane	mg/kg	< 0.1	< 0.1	< 0.1
d-BHC	mg/kg	< 0.05	< 0.05	< 0.05
Dieldrin	mg/kg	< 0.05	< 0.05	< 0.05
Endosulfan I	mg/kg	< 0.05	< 0.05	< 0.05
Endosulfan II	mg/kg	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	mg/kg	< 0.05	< 0.05	< 0.05
Endrin	mg/kg	< 0.05	< 0.05	< 0.05
Endrin aldehyde	mg/kg	< 0.05	< 0.05	< 0.05
Endrin ketone	mg/kg	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	mg/kg	< 0.05	< 0.05	< 0.05
Heptachlor	mg/kg	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	mg/kg	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	mg/kg	< 0.05	< 0.05	< 0.05
Methoxychlor	mg/kg	< 0.05	< 0.05	< 0.05
Toxophene	mg/kg	< 0.1	< 0.1	< 0.1
Dibutylchlorodrate (surr.)	%	87	110	89
Tetrachloro-m-xylene (surr.)	%	76	88	77
Organophosphorous Pesticides				
Bolstar	mg/kg	< 0.2	< 0.2	< 0.2
Chlorpyrifos	mg/kg	< 0.2	< 0.2	< 0.2
Coumaphos	mg/kg	< 0.2	< 0.2	< 0.2
Demeton-O	mg/kg	< 0.2	< 0.2	< 0.2
Diazinon	mg/kg	< 0.2	< 0.2	< 0.2
Dichlorvos	mg/kg	< 0.2	< 0.2	< 0.2

COMMENTS:

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Coffey Geotechnics Pty Ltd		Client Sample ID		H9 0.0-0.15		H10 0.0-0.15		H12 0.0-0.15		H13 0.0-0.15	
Unit 1 18 Hurley Dve		Lab Number		06-Oc06056		06-Oc06057		06-Oc06058		06-Oc06059	
Coffs Harbour		Matrix		Soil		Soil		Soil		Soil	
NSW 2450		Sample Date		Oct 23, 2006		Oct 23, 2006		Oct 23, 2006		Oct 23, 2006	
Analysis Type		LOR		Units							
Disulfoton		0.2		mg/kg		< 0.2		< 0.2		< 0.2	
Ethion		0.2		mg/kg		< 0.2		< 0.2		< 0.2	
Ethoprop		0.2		mg/kg		< 0.2		< 0.2		< 0.2	
Fenitrothion		0.2		mg/kg		< 0.2		< 0.2		< 0.2	
Fensulfothion		0.2		mg/kg		< 0.2		< 0.2		< 0.2	
Fenthion		0.2		mg/kg		< 0.2		< 0.2		< 0.2	
Merphos		0.2		mg/kg		< 0.2		< 0.2		< 0.2	
Methyl azinphos		0.2		mg/kg		< 0.2		< 0.2		< 0.2	
Methyl parathion		0.2		mg/kg		< 0.2		< 0.2		< 0.2	
Mevinphos		0.2		mg/kg		< 0.2		< 0.2		< 0.2	
Naled		0.2		mg/kg		< 0.2		< 0.2		< 0.2	
Phorate		0.2		mg/kg		< 0.2		< 0.2		< 0.2	
Ronnell		0.2		mg/kg		< 0.2		< 0.2		< 0.2	
Tokuthion		0.2		mg/kg		< 0.2		< 0.2		< 0.2	
Trichloronate		0.2		mg/kg		< 0.2		< 0.2		< 0.2	
Triphenylphosphate (surr.)		1		%		98		96		98	
% Moisture		0.1		%		13		22		24	
Heavy Metals (7)											
Arsenic		2		mg/kg		< 2		6.4		17	
Cadmium		0.5		mg/kg		< 0.5		< 0.5		< 0.5	
Chromium		5		mg/kg		< 5		8.8		< 5	
Copper		5		mg/kg		< 5		< 5		< 5	
Lead		5		mg/kg		14		96		18	
Nickel		5		mg/kg		< 5		< 5		< 5	
Zinc		5		mg/kg		82		170		18	
Heavy Metals											
Mercury		0.1		mg/kg		< 0.1		< 0.1		< 0.1	

COMMENTS:

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Coffey Geotechnics Pty Ltd

Unit 1 18 Hurley Dve
 Coffs Harbour
 NSW 2450

Client Sample ID	H14 0.0-0.15	DUP101	DUP102	BH1
Lab Number	06-0c06060	06-0c06061	06-0c06062	06-0c06063
Matrix	Soil	Soil	Soil	Groundwater
Sample Date	Oct 23, 2006	Oct 23, 2006	Oct 23, 2006	Oct 23, 2006
Analysis Type	Units			
Total Recoverable Hydrocarbons				
TRH C6-C9 Fraction by GC	mg/L	-	-	0.06
TRH C10-C14 Fraction by GC	mg/L	-	-	0.17
TRH C15-C28 Fraction by GC	mg/L	-	-	0.2
TRH C29-C36 Fraction by GC	mg/L	-	-	< 0.1
Monocyclic Aromatic Hydrocarbons				
Benzene	mg/L	-	-	< 0.001
Toluene	mg/L	-	-	0.061
Ethylbenzene	mg/L	-	-	< 0.001
Xylenes(ortho,meta and para)	mg/L	-	-	< 0.001
Fluorobenzene (surr.)	%	-	-	87
Polycyclic Aromatic Hydrocarbons				
Acenaphthene	mg/L	-	-	< 0.0002
Acenaphthylene	mg/L	-	-	< 0.0002
Anthracene	mg/L	-	-	< 0.0002
Benz(a)anthracene	mg/L	-	-	< 0.0002
Benzo(a)pyrene	mg/L	-	-	< 0.0002
Benzo(b)fluoranthene	mg/L	-	-	< 0.0002
Benzo(g,h,i)perylene	mg/L	-	-	< 0.0002
Benzo(k)fluoranthene	mg/L	-	-	< 0.0002
Chrysene	mg/L	-	-	< 0.0002
Dibenz(a,h)anthracene	mg/L	-	-	< 0.0002
Fluoranthene	mg/L	-	-	< 0.0002
Fluorene	mg/L	-	-	< 0.0002
Indeno(1,2,3-cd)pyrene	mg/L	-	-	< 0.0002
Naphthalene	mg/L	-	-	< 0.0002
Phenanthrene	mg/L	-	-	< 0.0002
Pyrene	mg/L	-	-	< 0.0002
Total PAH	mg/L	-	-	< 0.0032
Chrysene-d12 (surr.)	%	-	-	77
2-Fluorobiphenyl (surr.)	%	-	-	130

COMMENTS:

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Coffey Geotechnics Pty Ltd		Client Sample ID	Units	H14 0.0-0.15	DUP101	DUP102	BH1
Unit 1 18 Hurley Dve		Lab Number		06-Oc06060	06-Oc06061	06-Oc06062	06-Oc06063
Coffs Harbour		Matrix		Soil	Soil	Soil	Groundwater
NSW 2450		Sample Date		Oct 23, 2006	Oct 23, 2006	Oct 23, 2006	Oct 23, 2006
Analysis Type	LOR						
Organochlorine Pesticides							
4,4'-DDD	0.05		mg/kg	< 0.05	< 0.05	< 0.05	-
4,4'-DDE	0.05		mg/kg	< 0.05	< 0.05	< 0.05	-
4,4'-DDT	0.05		mg/kg	< 0.05	< 0.05	< 0.05	-
a-BHC	0.05		mg/kg	< 0.05	< 0.05	< 0.05	-
Aldrin	0.05		mg/kg	< 0.05	< 0.05	< 0.05	-
b-BHC	0.05		mg/kg	< 0.05	< 0.05	< 0.05	-
Chlordane	0.1		mg/kg	< 0.1	< 0.1	< 0.1	-
d-BHC	0.05		mg/kg	< 0.05	< 0.05	< 0.05	-
Dieldrin	0.05		mg/kg	< 0.05	< 0.05	< 0.05	-
Endosulfan I	0.05		mg/kg	< 0.05	< 0.05	< 0.05	-
Endosulfan II	0.05		mg/kg	< 0.05	< 0.05	< 0.05	-
Endosulfan sulphate	0.05		mg/kg	< 0.05	< 0.05	< 0.05	-
Endrin	0.05		mg/kg	< 0.05	< 0.05	< 0.05	-
Endrin aldehyde	0.05		mg/kg	< 0.05	< 0.05	< 0.05	-
Endrin ketone	0.05		mg/kg	< 0.05	< 0.05	< 0.05	-
g-BHC (Lindane)	0.05		mg/kg	< 0.05	< 0.05	< 0.05	-
Heptachlor	0.05		mg/kg	< 0.05	< 0.05	< 0.05	-
Heptachlor epoxide	0.05		mg/kg	< 0.05	< 0.05	< 0.05	-
Hexachlorobenzene	0.05		mg/kg	< 0.05	< 0.05	< 0.05	-
Methoxychlor	0.05		mg/kg	< 0.05	< 0.05	< 0.05	-
Toxophene	0.1		mg/kg	< 0.1	< 0.1	< 0.1	-
Dibutylchlorodate (sur.)	1		%	120	120	90	-
Tetrachloro-m-xylene (sur.)	1		%	79	96	83	-
Organophosphorous Pesticides							
Bolstar	0.2		mg/kg	< 0.2	< 0.2	< 0.2	-
Chlorpyrifos	0.2		mg/kg	< 0.2	< 0.2	< 0.2	-
Coumaphos	0.2		mg/kg	< 0.2	< 0.2	< 0.2	-
Demeton-O	0.2		mg/kg	< 0.2	< 0.2	< 0.2	-

COMMENTS:

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Coffey Geotechnics Pty Ltd Unit 1 18 Hurley Dve Coffs Harbour NSW 2450	Client Sample ID				H14 0.0-0.15		DUP101		DUP102	BH1
	Lab Number				06-Oct06060		06-Oct06061		06-Oct06062	06-Oct06063
	Matrix				Soil		Soil		Soil	Groundwater
	Sample Date				Oct 23, 2006		Oct 23, 2006		Oct 23, 2006	Oct 23, 2006
	Analysis Type	LOR	Units							
Diazinon	0.2	mg/kg			< 0.2		< 0.2		< 0.2	-
Dichlorvos	0.2	mg/kg			< 0.2		< 0.2		< 0.2	-
Disulfoton	0.2	mg/kg			< 0.2		< 0.2		< 0.2	-
Ethion	0.2	mg/kg			< 0.2		< 0.2		< 0.2	-
Ethoprop	0.2	mg/kg			< 0.2		< 0.2		< 0.2	-
Fenitrothion	0.2	mg/kg			< 0.2		< 0.2		< 0.2	-
Fensulfothion	0.2	mg/kg			< 0.2		< 0.2		< 0.2	-
Fenthion	0.2	mg/kg			< 0.2		< 0.2		< 0.2	-
Merphos	0.2	mg/kg			< 0.2		< 0.2		< 0.2	-
Methyl azinphos	0.2	mg/kg			< 0.2		< 0.2		< 0.2	-
Methyl parathion	0.2	mg/kg			< 0.2		< 0.2		< 0.2	-
Mevinphos	0.2	mg/kg			< 0.2		< 0.2		< 0.2	-
Naled	0.2	mg/kg			< 0.2		< 0.2		< 0.2	-
Phorate	0.2	mg/kg			< 0.2		< 0.2		< 0.2	-
Ronnel	0.2	mg/kg			< 0.2		< 0.2		< 0.2	-
Tokuthion	0.2	mg/kg			< 0.2		< 0.2		< 0.2	-
Trichloronate	0.2	mg/kg			< 0.2		< 0.2		< 0.2	-
Triphenylphosphate (surr.)	1	%			85		94		100	-
% Moisture	0.1	%			17		18		9.7	
Heavy Metals (7)										
Arsenic	2	mg/kg			200		6.6		< 2	0.001
Cadmium	0.5	mg/kg			< 0.5		0.7		< 0.5	< 0.0002
Chromium	5	mg/kg			9.9		8.7		< 5	0.008
Copper	5	mg/kg			< 5		< 5		< 5	0.001
Lead	5	mg/kg			75		50		< 5	0.004
Nickel	5	mg/kg			< 5		< 5		< 5	0.005
Zinc	5	mg/kg			98		150		13	0.050
Heavy Metals										

COMMENTS:

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Coffey Geotechnics Pty Ltd

Client Sample ID		BH2	BH3	BH4	BH5
Lab Number		06-0c06064	06-0c06065	06-0c06066	06-0c06067
Matrix		Groundwater	Groundwater	Groundwater	Groundwater
Sample Date		Oct 23, 2006	Oct 23, 2006	Oct 23, 2006	Oct 23, 2006
LOR					
Analysis Type	Units				
Total Recoverable Hydrocarbons					
TRH C6-C9 Fraction by GC	mg/L	< 0.02	< 0.02	0.22	0.06
TRH C10-C14 Fraction by GC	mg/L	< 0.05	< 0.05	0.07	< 0.05
TRH C15-C28 Fraction by GC	mg/L	0.2	0.1	0.2	< 0.1
TRH C29-C36 Fraction by GC	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Monocyclic Aromatic Hydrocarbons					
Benzene	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	mg/L	0.004	0.007	0.21	0.055
Ethylbenzene	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Xylenes(ortho,meta and para)	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorobenzene (surr.)	%	87	88	86	87
Polycyclic Aromatic Hydrocarbons					
Acenaphthene	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Acenaphthylene	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Anthracene	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Benz(a)anthracene	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Benzo(a)pyrene	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Benzo(b)fluoranthene	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Benzo(g,h,i)perylene	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Benzo(k)fluoranthene	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chrysene	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Dibenz(a,h)anthracene	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Fluoranthene	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Fluorene	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Indeno(1,2,3-cd)pyrene	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Naphthalene	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Phenanthrene	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Pyrene	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Total PAH	mg/L	< 0.0032	< 0.0032	< 0.0032	< 0.0032
Chrysene-d12 (surr.)	%	88	82	99	96
2-Fluorobiphenyl (surr.)	%	110	81	110	79

COMMENTS:

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Coffey Geotechnics Pty Ltd		Client Sample ID	BH2	BH3	BH4	BH5
Unit 1 18 Hurley Dve		Lab Number	06-Oc06064	06-Oc06065	06-Oc06066	06-Oc06067
Coffs Harbour		Matrix	Groundwater	Groundwater	Groundwater	Groundwater
NSW 2450		Sample Date	Oct 23, 2006	Oct 23, 2006	Oct 23, 2006	Oct 23, 2006
Analysis Type		LOR				
Heavy Metals (7)		Units				
Arsenic		0.001	mg/L	0.004	0.006	< 0.001
Cadmium		0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002
Chromium		0.001	mg/L	0.008	0.003	0.002
Copper		0.001	mg/L	< 0.001	0.002	< 0.001
Lead		0.001	mg/L	< 0.001	< 0.001	0.007
Nickel		0.001	mg/L	0.005	0.005	0.002
Zinc		0.001	mg/L	0.020	0.017	0.034
Heavy Metals						
Mercury		0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001

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Coffey Geotechnics Pty Ltd

Unit 1 18 Hurley Dve
 Coffs Harbour
 NSW 2450

Client Sample ID		BH6	
Lab Number		06-Oc06068	
Matrix		Groundwater	
Sample Date		Oct 23, 2006	
Analysis Type	LOR	Units	
Total Recoverable Hydrocarbons			
TRH C6-C9 Fraction by GC	0.02	mg/L	0.35
TRH C10-C14 Fraction by GC	0.05	mg/L	0.06
TRH C15-C28 Fraction by GC	0.1	mg/L	<0.1
TRH C29-C36 Fraction by GC	0.1	mg/L	<0.1
Monocyclic Aromatic Hydrocarbons			
Benzene	0.001	mg/L	< 0.001
Toluene	0.001	mg/L	0.35
Ethylbenzene	0.001	mg/L	< 0.001
Xylenes(ortho,meta and para)	0.001	mg/L	< 0.001
Fluorobenzene (surr.)	1	%	87
Polycyclic Aromatic Hydrocarbons			
Acenaphthene	0.0001	mg/L	< 0.0002
Acenaphthylene	0.0001	mg/L	< 0.0002
Anthracene	0.0001	mg/L	< 0.0002
Benz(a)anthracene	0.0001	mg/L	< 0.0002
Benzo(a)pyrene	0.0001	mg/L	< 0.0002
Benzo(b)fluoranthene	0.0001	mg/L	< 0.0002
Benzo(g,h,i)perylene	0.0001	mg/L	< 0.0002
Benzo(k)fluoranthene	0.0001	mg/L	< 0.0002
Chrysene	0.0001	mg/L	< 0.0002
Dibenz(a,h)anthracene	0.0001	mg/L	< 0.0002
Fluoranthene	0.0001	mg/L	< 0.0002
Fluorene	0.0001	mg/L	< 0.0002
Indeno(1,2,3-cd)pyrene	0.0001	mg/L	< 0.0002
Naphthalene	0.0001	mg/L	< 0.0002
Phenanthrene	0.0001	mg/L	< 0.0002
Pyrene	0.0001	mg/L	< 0.0002
Total PAH	0.0016	mg/L	< 0.0032
Chrysene-d12 (surr.)	1	%	64
2-Fluorobiphenyl (surr.)	1	%	89

COMMENTS:



3 Kingston Town Close, Oakleigh, Victoria 3166, Australia
 Postal address: P. O. Box 276, Oakleigh, Victoria 3166, Australia
 Telephone: (03) 9564 7055
 Fax: (03) 9564 7190
 Email: mgt@mgtenv.com.au

Coffey Geotechnics Pty Ltd		Client Sample ID	BH6
Unit 1 18 Hurley Dve		Lab Number	06-Oc06068
Coffs Harbour		Matrix	Groundwater
NSW 2450		Sample Date	Oct 23, 2006
Analysis Type		LOR	Units
Heavy Metals (7)			
Arsenic	0.001	mg/L	0.001
Cadmium	0.0002	mg/L	< 0.0002
Chromium	0.001	mg/L	0.003
Copper	0.001	mg/L	< 0.001
Lead	0.001	mg/L	0.006
Nickel	0.001	mg/L	0.002
Zinc	0.001	mg/L	0.032
Heavy Metals			
Mercury	0.0001	mg/L	< 0.0001

COMMENTS:



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Coffey Geotechnics Pty Ltd Unit 1 18 Hurley Dve Coffs Harbour NSW 2450	Client Sample ID	H1 0.0-0.15	H1 0.0-0.15	H1 0.0-0.15	H1 0.0-0.15
	Lab Number	06-Oc06048	06-Oc06048	06-Oc06048	06-Oc06048
	QA Description		Duplicate	Duplicate	Spike % Recovery
	Matrix	Soil	Soil	Soil	Soil
	Sample Date	Oct 23, 2006	Oct 23, 2006	Oct 23, 2006	Oct 23, 2006
	Units				% Recovery
Analysis Type					
Heavy Metals (7)					
Arsenic		5.7	6.8	17	86
Cadmium		0.5	0.6	17	89
Nickel		< 5	< 5	< 1	83
Heavy Metals					
Mercury		< 0.1	< 0.1	< 1	-

COMMENTS:

mgt

3 Kingston Town Close, Oakleigh, Victoria 3166, Australia
 Postal address: P. O. Box 276, Oakleigh, Victoria 3166, Australia
 Telephone: (03) 9564 7055
 Fax: (03) 9564 7190
 Email: mgt@mgtenv.com.au

Coffey Geotechnics Pty Ltd Unit 1 18 Hurley Dve Coffis Harbour NSW 2450	Client Sample ID	RPD	H10 0.0-0.15
	Lab Number	BATCH	06-Oct06057
	QA Description		Spike % Recovery
	Matrix	Soil	Soil
	Sample Date	Oct 23, 2006	Oct 23, 2006
	Units		% Recovery
Analysis Type			
Organochlorine Pesticides			
Dibutylchloride (surr.)		-	-
Tetrachloro-m-xylene (surr.)		-	-

COMMENTS:

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 Postal address: P. O. Box 276, Oakleigh, Victoria 3166, Australia
 Telephone: (03) 9564 7055
 Fax: (03) 9564 7190
 Email: mgt@mgtenv.com.au

Client Sample ID		H12 0.0-0.15	H12 0.0-0.15	H12 0.0-0.15	H12 0.0-0.15	Method blank
Lab Number	QA Description	06-Oc06058	Duplicate	Duplicate %	Spike % Recovery	Batch
Matrix	Sample Date	Soil	Soil	% RPD	% Recovery	Soil
Units		Oct 23, 2006	Oct 23, 2006	% RPD	% Recovery	mg/L
Analysis Type						
Organochlorine Pesticides						
4,4'-DDDD		< 0.05	< 0.05	< 1	127	< 0.005
4,4'-DDDE		< 0.05	< 0.05	< 1	105	< 0.005
4,4'-DDDT		< 0.05	< 0.05	< 1	115	< 0.005
a-BHC		< 0.05	< 0.05	< 1	83	< 0.005
Aldrin		< 0.05	< 0.05	< 1	85	< 0.005
b-BHC		< 0.05	< 0.05	< 1	97	< 0.005
Chlordane		< 0.1	< 0.1	< 1	97	< 0.01
d-BHC		< 0.05	< 0.05	< 1	107	< 0.005
Dieldrin		< 0.05	< 0.05	< 1	-	< 0.005
Endosulfan I		< 0.05	< 0.05	< 1	93	< 0.005
Endosulfan II		< 0.05	< 0.05	< 1	102	< 0.005
Endosulfan sulphate		< 0.05	< 0.05	< 1	106	< 0.005
Endrin		< 0.05	< 0.05	< 1	100	< 0.005
Endrin aldehyde		< 0.05	< 0.05	< 1	96	< 0.005
Endrin ketone		< 0.05	< 0.05	< 1	89	< 0.005
g-BHC (Lindane)		< 0.05	< 0.05	< 1	88	< 0.005
Heptachlor		< 0.05	< 0.05	< 1	97	< 0.005
Heptachlor epoxide		< 0.05	< 0.05	< 1	89	< 0.005
Hexachlorobenzene		< 0.05	< 0.05	< 1	101	< 0.005
Methoxychlor		< 0.05	< 0.05	< 1	127	< 0.005
Toxophene		< 0.1	< 0.1	< 1	-	< 0.01
Dibutylchloride (surr.)		110	100	-	72	72
Tetrachloro-m-xylene (surr.)		97	82	-	63	62
Organophosphorous Pesticides						
Bolstar		< 0.2	< 0.2	< 1	-	< 0.002
Chlorpyrifos		< 0.2	< 0.2	< 1	-	< 0.002
Coumaphos		< 0.2	< 0.2	< 1	100	< 0.002
Demeton-O		< 0.2	< 0.2	< 1	-	< 0.002

COMMENTS:

mgt

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 Postal address: P. O. Box 276, Oakleigh, Victoria 3166, Australia
 Telephone: (03) 9564 7055
 Fax: (03) 9564 7190
 Email: mgt@mgtenv.com.au

Coffey Geotechnics Pty Ltd Unit 1 18 Hurley Dve Coffs Harbour NSW 2450		Client Sample Lab Number QA Description Matrix Sample Date Units	H12.0.0-0.15 06-Oct06058 Soil Oct 23, 2006	H12.0.0-0.15 06-Oct06058 Duplicate Soil Oct 23, 2006	H12.0.0-0.15 06-Oct06058 Duplicate % RPD Soil Oct 23, 2006	H12.0.0-0.15 06-Oct06058 Spike % Recovery Soil Oct 23, 2006	Method blank Batch
Analysis Type		Units					
Organophosphorous Pesticides							
Diazinon			< 0.2	< 0.2	< 1	95	< 0.002
Dichlorvos			< 0.2	< 0.2	< 1	-	< 0.002
Disulfoton			< 0.2	< 0.2	< 1	-	< 0.002
Ethion			< 0.2	< 0.2	< 1	106	< 0.002
Ethoprop			< 0.2	< 0.2	< 1	-	< 0.002
Fenitrothion			< 0.2	< 0.2	< 1	102	< 0.002
Fensulfothion			< 0.2	< 0.2	< 1	114	< 0.002
Fenthion			< 0.2	< 0.2	< 1	-	< 0.002
Merphos			< 0.2	< 0.2	< 1	-	< 0.002
Methyl azinphos			< 0.2	< 0.2	< 1	-	< 0.002
Methyl parathion			< 0.2	< 0.2	< 1	97	< 0.002
Mevinphos			< 0.2	< 0.2	< 1	90	< 0.002
Naled			< 0.2	< 0.2	< 1	-	< 0.002
Phorate			< 0.2	< 0.2	< 1	-	< 0.002
Ronnol			< 0.2	< 0.2	< 1	-	< 0.002
Tokuthion			< 0.2	< 0.2	< 1	-	< 0.002
Trichloronate			< 0.2	< 0.2	< 1	-	< 0.002
Triphenylphosphate (surr.)			96	98	-	88	100
Heavy Metals (7)							
Arsenic			6.4	6.5	2.2	83	-
Cadmium			< 0.5	< 0.5	< 1	88	-
Chromium			8.8	11	18	77	-
Copper			< 5	< 5	< 1	78	-
Nickel			< 5	< 5	< 1	79	-
Heavy Metals							
Mercury			< 0.1	< 0.1	< 1	80	< 0.005

COMMENTS:

MGT Report No. 200079
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3 Kingsion Town Close, Oakleigh, Victoria 3166, Australia
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 Telephone: (03) 9564 7055
 Fax: (03) 9564 7190
 Email: mgt@mglenv.com.au

Client Sample ID		BH1	BH1	BH1	BH1	Method/blank
Lab Number		06-Oc06063	06-Oc06063	06-Oc06063	06-Oc06063	Batch
QA Description			Duplicate	Duplicate %	Spike % Recovery	
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Date		Oct 23, 2006	Oct 23, 2006	Oct 23, 2006	Oct 23, 2006	Oct 23, 2006
Units				% RPD	% Recovery	mg/L
Analysis Type						
Total Recoverable Hydrocarbons						
TRH C6-C9 Fraction by GC		-	-	-	76	-
TRH C10-C14 Fraction by GC		-	-	<1	129	< 0.05
TRH C15-C28 Fraction by GC		-	-	<1	-	< 0.1
TRH C29-C36 Fraction by GC		-	-	<1	-	< 0.1
Polycyclic Aromatic Hydrocarbons						
Acenaphthene		-	-	<1	96	< 0.0001
Acenaphthylene		-	-	<1	88	< 0.0001
Anthracene		-	-	<1	110	< 0.0001
Benz(a)anthracene		-	-	<1	93	< 0.0001
Benzo(a)pyrene		-	-	<1	90	< 0.0001
Benzo(b)fluoranthene		-	-	<1	98	< 0.0001
Benzo(g,h,i)perylene		-	-	<1	98	< 0.0001
Benzo(k)fluoranthene		-	-	<1	108	< 0.0001
Chrysene		-	-	<1	101	< 0.0001
Dibenz(a,h)anthracene		-	-	<1	95	< 0.0001
Fluoranthene		-	-	<1	101	< 0.0001
Fluorene		-	-	<1	90	< 0.0001
Indeno(1,2,3-cd)pyrene		-	-	<1	101	< 0.0001
Naphthalene		-	-	<1	102	< 0.0001
Phenanthrene		-	-	<1	92	< 0.0001
Pyrene		-	-	<1	94	< 0.0001
Total PAH		-	-	-	-	< 0.0016
Chrysene-d12 (surr.)		-	-	-	-	86
2-Fluorobiphenyl (surr.)		-	-	-	-	80
Heavy Metals (7)						
Arsenic		0.001	0.002	16	95	< 0.001
Cadmium		< 0.0002	< 0.0002	<1	84	< 0.0002
Chromium		0.008	0.008	5.8	82	< 0.001

COMMENTS:

MGT Report No. 200079
 Page 20 of 22

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 Postal address: P. O. Box 276, Oakleigh, Victoria 3166, Australia
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 Fax: (03) 9564 7190
 Email: mgt@mglenv.com.au

Coffey Geotechnics Pty Ltd Unit 1 18 Hurley Dve Coffs Harbour NSW 2450		Client Sample		BH1		BH1		BH1		BH1		Method blank	
		Lab Number		06-Oc06063		06-Oc06063		06-Oc06063		06-Oc06063		Batch	
		QA Description				Duplicate		Duplicate %		Spike %			
		Matrix		Groundwater		Groundwater		Groundwater		Groundwater		Groundwater	
		Sample Date		Oct 23, 2006		Oct 23, 2006		Oct 23, 2006		Oct 23, 2006		Oct 23, 2006	
		Units						% RPD		% Recovery		mg/L	
Analysis Type													
Heavy Metals (7)													
Copper				0.001		< 0.001		6.9		78		< 0.001	
Lead				0.004		0.004		4.8		87		< 0.001	
Nickel				0.005		0.004		6.7		78		< 0.001	
Zinc				0.050		0.048		4.1		78		< 0.001	

COMMENTS:

3 Kingston Town Close, Oakleigh, Victoria 3166, Australia
 Postal address: P. O. Box 276, Oakleigh, Victoria 3166, Australia
 Telephone: (03) 9564 7055
 Fax: (03) 9564 7190
 Email: mg@mgtenv.com.au

Caffey Geotechnics Pty Ltd Unit 1 18 Hurley Dve Coffs Harbour NSW 2450	Client Sample ID	RPD	BH4	Method blank
	Lab Number	BATCH	06-Oct06066	Batch
	QA Description		Spike % Recovery	
	Matrix	Groundwater	Groundwater	Groundwater
	Sample Date	Oct 23, 2006	Oct 23, 2006	Oct 23, 2006
	Units		% Recovery	mg/L
Analysis Type				
Total Recoverable Hydrocarbons				
TRH C6-C9 Fraction by GC		<1	-	< 0.02
Monocyclic Aromatic Hydrocarbons				
Benzene		<1	108	< 0.001
Toluene		<1	104	< 0.001
Ethylbenzene		<1	103	< 0.001
Xylenes(ortho,meta and para)		<1	99	< 0.001
Fluorobenzene (surr.)		-	93	75

COMMENTS:



Chain of Custody

Laboratory Quotation / Order No:

Job No: CCH01296AA

Sheet 1 of 5

Dispatch to:
(Address &
Phone No.)

mgt
3 Kingston Ct
DARLEIGH VIC 3166

Sampled by:

ELC

Attention:

Sample Receipt / Client Services

Project Manager:
(report results to)

emma_coleman@coffey.com.au

Consigning Officer: ELC

Date Dispatched: 18/10/06

Courier Service: TNT

Consignment Note No: 790978331

Relinquished by:	Date:	Time:	Received by:	Date:	Time:	
Coffey Heattechnics	18/10/06	4:00				
L18 Hurley Dr						
COFFE HARBOUR NSW 2450						
Comments	Sample Matrix	Container Type and Preservative	Sample No.	Date Sampled	Analyses Required	Sample Condition on Receipt
	SOIL GLASS JAR + ICE		TP101 0.0-0.1	12/10/06	PAHs TPHs MAHs = BTEX Metals: 2 PCBs Cd / Pb	
			TP102 0.0-0.1		HOLD	
			TP103 0.0-0.1			
			TP104 0.0-0.1			
			TP105 0.0-0.1		HOLD	
			TP106 0.0-0.1			
			TP107 0.0-0.1			
			TP108 0.3-0.4			
			TP109 0.5-0.6			
			TP108 0.0-0.1			
			TP109 0.0-0.1		HOLD	
			TP110 0.1-0.2		HOLD	
			TP111 0.2-0.9			
			TP112 0.0-0.1		HOLD	
			TP113 0.1-0.2			
			TP114 0.0-0.1		HOLD	
			TP115 0.0-0.1		HOLD	

Special Laboratory Instructions:

Q Metals = As, Cd, Cr, Cu, Pb, Ni, Zn, Hg

Detection Limits: NORMAL

Turnaround Required: ASAP

Copies: WHITE: Sign on release. YELLOW: If dispatched to Interstate Lab, Lab to sign on receipt and fax back to Coffey. BLUE: To be returned with results.

JOB NUMBER MUST BE
REFERENCED ON ALL
SUBSEQUENT PAGES

Chain of Custody

Laboratory Quotation / Order No.:

Job No: COFH01296AA Sheet 2 of 5

Dispatch to:
(Address &
Phone No.)

Sampled by:

Attention:

Project Manager:
{report results to}

Consigning Officer:

Date Dispatched:

Courier Service:

Consignment Note No:

Relinquished by:

Date:

Received by:

Date:

Time:

Comments	Sample Matrix	Container Type and Preservative	Sample No.	Date Sampled	PAHs	TPHs	MAHs = BTEX	Metals:	OCs	Analyses Required	Sample Condition on Receipt
	SOIL	GLASS JAR + ICE	TP116 0.0-0.1	12/10/06							
			TP117 0.0-0.1	"							
			TP118 0.0-0.1	13/10/06							
			TP119 0.0-0.1								
			TP120 0.0-0.1								
			TP121 0.15-0.2								
			TP122 0.3-0.4								
			TP123 0.0-0.1								
			TP124 0.0-0.1								
			TP125 0.0-0.1								
			TP126 0.0-0.1								
			TP127 0.0-0.1								
			TP128 0.0-0.1								
			TP129 0.7-0.8								
			TP129 1.2-1.25								
			TP129 1.75-1.85								
			TP131 1.1-1.2	16/10/06							

Special Laboratory Instructions:

Detection Limits:

NB2MA2

Turnaround Required:

1000

Copies: WHITE: Sign on release.

YELLOW: If dispatched to interstate Lab, Lab to sign on receipt and fax back to Coffey. **BLUE:** To be returned with results.

fey. **BLUE:** To be returned with results.

**JOB NUMBER MUST BE
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No: 32238

339

Chain of Custody

Laboratory Quotation / Order No:

Job No: 05101296 AA Sheet 3 of 5

Dispatch to:
(Address &
Phone No.)

Sampled by:

Consigning Officer:

Attention:

Project Manager:
(report results to)

Courier Service:

Consignment Note No:

Date Dispatched:

Relinquished by:

Date:

Received by:

Time:

Date:

Time:



Comments	Sample Matrix	Container Type and Preservative	Sample No.	Date Sampled	Analyses Required						Sample Condition on Receipt
					PAHs	TPHs	MAHs = BTEX	Metals:	PCBs	GC/MS	
	SOIL GLASS JAR + ICE		TP131 1.4-1.5	16/10/06	/	/	HOLD	/	/	/	
			TP131 1.9-2.0		/	/	/	/	/	/	
			TP132 0.0-0.1		/	/	/	/	/	/	
			TP133 0.0-0.1		/	/	HOLD	/	/	/	
			TP134 0.1-0.2		/	/	HOLD	/	/	/	
			TP135 1.1-1.2		/	/	/	/	/	/	
			TP135 1.4-1.5		/	/	/	/	/	/	
			TP136 0.0-0.1		/	/	/	/	/	/	
			TP137 0.0-0.1		/	/	HOLD	/	/	/	
			TP138 1.0-1.1		/	/	HOLD	/	/	/	
			TP139 0.0-0.1		/	/	/	/	/	/	
			TP140 1.9-2.0		/	/	/	/	/	/	
			TP141 0.2-0.3		/	/	/	/	/	/	
			TP142 0.0-0.1		/	/	/	/	/	/	
			TP143 0.0-0.1		/	/	HOLD	/	/	/	
			TP144 0.0-0.2		/	/	/	/	/	/	
			TP145 0.0-0.1		/	/	/	/	/	/	

Special Laboratory Instructions:

Detection Limits: NORMAL

Turnaround Required: ASAP

Copies: WHITE: Sign on release. YELLOW: If dispatched to Interstate Lab, Lab to sign on receipt and fax back to Colley. BLUE: To be returned with results.

JOB NUMBER MUST BE
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20053/11-01

Chain of Custody

Laboratory Quotation / Order No:

Job No: CDFH01296AR

Sheet 4 of 5

Dispatch to:
(Address &
Phone No.)

Sampled by:

Attention:

Project Manager:
(report results to)

Consigning Officer:

Date Dispatched:

Courier Service:

Consignment Note No:

Relinquished by:

Date:

Time:

Received by:

Date:

Time:

Comments

Sample Matrix

Container Type
and Preservative

Sample No.

Date Sampled

Analyses Required

PAHs

TPHs \ BTEX

MAHs = BTEX

Metals: 8

PCBs

OCF / OPP

Sample Condition on Receipt

Special Laboratory Instructions:

Detection Limits:

WORMAL

Turnaround Required: ASAP

Copies: WHITE: Sign on release. YELLOW: If dispatched to Interstate Lab, Lab to sign on receipt and fax back to Coffey. BLUE: To be returned with results.

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No: 32240

341



Colfeey

Chain of Custody

Laboratory Quotation / Order No:

Job No: 65H6 R96AA

Sheet 5 of 5

Dispatch to:
(Address &
Phone No.)

Sampled by:

Consigning Officer:

Date Dispatched:

Attention:

Project Manager:
(report results to)

Courier Service:

Consignment Note No:

Relinquished by:

Date:

Time:

Received by:

Date:

Time:

Comments

Sample Matrix

Container Type
and Preservative

Sample No.

Date Sampled

PAHs
TPHs
MAHs = BTEX

Metals: 8

PCBs

OCs / POPs

Analyses Required

Sample
Condition
on Receipt

Special Laboratory Instructions:

Detection Limits:

NORMAL

Turnaround Required:

ASAP

Copies: WHITE: Sign on release. YELLOW: If dispatched to interstate Lab, Lab to sign on receipt and fax back to Colfeey. BLUE: To be returned with results.

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20053/11-01



Chain of Custody

No: Z3UI

Laboratory Quotation / Order No:

Job No: COFH01296AA Sheet 1 of 2

Dispatch to:
(Address & Phone No.)
3 Kingston Ct
OAKLEIGH VIC 3166

Sampled by:
ELC

Consigning Officer: ELC
Date Dispatched: 24/10/06

Attention:

Project Manager:
(report results to)
emma.coleman@coffey.com.au

Courier Service: TNT
Consignment Note No: 796978184

Relinquished by:	Date:	Time:	Received by:	Date:	Time:	
Emma Coleman Coffey Geotechnics (1,18) Huckey Dr COFFEY HARBOUR NSW 2450	24/10/06	4:00pm				
Comments	Sample Matrix	Container Type and Preservative	Sample No.	Date Sampled	Analyses Required	Sample Condition on Receipt
	✓	✓	H1 010-015	23/10/06	PAHs	Metals: 8 MAHs = BTEX
			H2 0-015		TPHs	
			H3 0-015		Metals: 8	
			H4 0-015		MAHs = BTEX	
			H5 0-015		TPHs	
			H6 0-015		Metals: 8	
			H7 0-015		MAHs = BTEX	
			H8 0-015		TPHs	
			H9 0-015		Metals: 8	
			H10 0-015		MAHs = BTEX	
			H11 0-015		TPHs	
			H12 0-015		Metals: 8	
			H13 0-015		MAHs = BTEX	
			H14 0-015		TPHs	
			DUP101		Metals: 8	
	DUP102	MAHs = BTEX				

Special Laboratory Instructions: 8 Metals = As, Cd, Cr, Cu, Pb, Ni, Zn, Hg

Detection Limits: N820201

Turnaround Required: ASAP (3-5 days)

COPIES: WHITE: Sign on release. YELLOW: If dispatched to interstate Lab, Lab to sign on receipt and fax back to Coffey. BLUE: To be returned with results.

JOB NUMBER MUST BE REFERENCED ON ALL SUBSEQUENT PAGES

Dispatch to: **Mr J. Kingston CI**
(Address & Phone No) **OKLEIGH VIC 3166**

Attention:

Relinquished by: **Fiona Coleman**
coffey geotechnics
119 Hurley Dr
COFFS HARBOUR NSW 2450

Sampled by: **ELC**

Project Manager: (report results to) **fiona.coleman@coffey.com.au**

Consigning Officer: **ELC**

Date Dispatched: **24/10/06**

Courier Service: **TNT**

Consignment Note No: **796978184**

Comments	Sample Matrix	Container Type and Preservative	Sample No.	Date Sampled	PAHs	TPHs	MAHs = BTEX	Metals:	OCF / OCP	Analyses Required	Sample Condition on Receipt
			H1 0-0-0.15	23/10/06							
			H2 0-0-0.15								
			H3 0-0-0.15								
			H4 0-0-0.15								
			H5 0-0-0.15								
			H6 0-0-0.15								
			H7 0-0-0.15								
			H8 0-0-0.15								
			H9 0-0-0.15								
			H10 0-0-0.15								
			H11 0-0-0.15								
			H12 0-0-0.15								
			H13 0-0-0.15								
			H14 0-0-0.15								
			DUP101								
			DUP102								

Special Laboratory Instructions: **8 Metals = As, Cd, Cr, Cu, Pb, Ni, Zn, Hg**

Detection Limits: **NORMAL**

Copies: **WHITE:** Sign on release. **YELLOW:** If dispatched to interstate Lab, Lab to sign on receipt and fax back to Coffey. **BLUE:** To be returned with results.

Turnaround Required: **ASAP (3-5 days)**

JOB NUMBER MUST BE REFERENCED ON ALL SUBSEQUENT PAGES

[illegible]

Appendix C

QA/QC DATA VALIDATION REPORTS

QA/QC DATA VALIDATION REPORT

Job No: GEOTCOFH01296AA Batch: 199889

I. SAMPLE HANDLING

1. Were the sample **holding times** met?
2. Were the samples in **proper custody** between the field and reaching the laboratory?
3. Were the samples **properly and adequately** preserved?
This includes keeping the samples chilled, where applicable.
4. Were the samples received by the laboratory in good condition?

Yes	No
☒	☐
☒	☐
☒	☐
☒	☐

Sample Handling was:

☒ Satisfactory

☐ Unsatisfactory

☐ Partially Satisfactory

II PRECISION / ACCURACY ASSESSMENT

1. Was a NATA registered laboratory used?
2. Did the laboratory perform the requested tests?
3. Were the laboratory methods adopted NATA endorsed?
4. Were the appropriate test procedures followed?
5. Were the reporting limits satisfactory?
6. Was the NATA Seal on the reports?
7. Were the reports signed by an authorised person?

Yes	No (Comment below)
☒	☐
☒	☐
☒	☐
☒	☐
☒	☐
☒	☐
☒	☐

Precision/Accuracy of the Laboratory Report

☒ Satisfactory

☐ Unsatisfactory

☐ Partially Satisfactory

III. FIELD QA/QC

1. **Number of Samples Analysed** Soil: 41
 Duplicates: 7
 Water: 0

2. **Number of Days of Sampling** Soil: 5
 Water: N/A

3. **Number and Type of QA/QC Samples Collected:**

	SOIL	WATER
Field Duplicates	7	NA
Trip Blanks	1	NA
Wash Blanks	0	NA
Other (Field Blanks, Spiked Trip Blanks, etc.)	1	NA

4. **Field Duplicates**

A. Were an Adequate Number of field duplicates collected?

B. Were RPDs within Control Limits?

a. Organics (< 50 %)

b. Metals/Inorganics (< 50 %)

Yes	No
☒	☐
☐	☒
☐	☒

COMMENTS:

- Duplicate pair TP103 / DUP 1 recorded an RPD of 110% for zinc. An inconsistency was recorded for chromium. All other RPDs were within control limits. This is considered to be attributed to the heterogeneous nature of contaminant distribution throughout the fill matrix. This result may indicate that slight variations for zinc may be expected.
- Duplicate pair TP111 / DUP 2 recorded an inconsistency for TPH C15-C28 and C29-C36, and copper. All other RPDs were within control limits. This is considered to be attributed to the heterogeneous nature of contaminant distribution throughout the fill matrix. This result may indicate that slight variations for TPH and copper may be expected.

Continued...

- Duplicate pairs TP136 / DUP 3 and TP144 / DUP 7 recorded an inconsistency for PAH (acenaphthene and Total PAH). All other RPDs were within control limits. This is considered to be attributed to the heterogeneous nature of contaminant distribution throughout the fill matrix. This result may indicate that slight variations for acenaphthene and total PAH may be expected.
- Duplicate pair TP156 / DUP 8 recorded an RPD of 65% for naphthalene and 100% for pyrene. All other RPDs were within control limits. This is considered to be attributed to the heterogeneous nature of contaminant distribution throughout the fill matrix. This result may indicate that slight variations for naphthalene and pyrene may be expected.
- Duplicate pair TP161 / DUP 9 recorded RPDs of 125% for cadmium, 117% for copper, 89% for lead and 107% for zinc. An inconsistency was recorded for arsenic and copper. All other RPDs were within control limits. This is considered to be attributed to the heterogeneous nature of contaminant distribution throughout the fill matrix. This result may indicate that slight variations for cadmium, copper, lead and zinc may be expected.

5. TRIP BLANKS

A. Were an Adequate Number of trip blanks collected?

B. Were the Trip Blanks free of contaminants?

Yes	No
☒	☐
☒	☐

6. WASH BLANKS

A. Were an adequate number of Wash Blanks collected?

B. Were the Wash Blanks free of contaminants?

Yes	No
☒	☐
NA	

COMMENTS:

- A laboratory prepared trip spike sample (spiked with BTEX) was taken into the field and transported with the laboratory samples. The recoveries of the trip spike sample ranged between 74 and 91%, which are within the control limits of 60% and 110%. This result indicates that volatiles were not lost at significant quantities during transit or sample preparation.
- No wash blanks were taken as this phase of the fieldwork was predominantly test pitting and samples were collected from within the centre of the mini excavator bucket and therefore no decontamination was required other than the use of clean latex gloves for each sample.

Field QA/QC was:

☐ Satisfactory

☐ Unsatisfactory

☒ Partially Satisfactory

IV LABORATORY INTERNAL QUALITY CONTROL PROCEDURES

1. Types and Number of QA/QC Samples

	SOIL	WATER
Laboratory Blanks/Reagent Blanks	5	NA
Matrix Spikes/Matrix Spike Duplicates	7	NA
Laboratory Duplicates	7	NA
Surrogates	299	NA

	Yes	No
2. Were the laboratory blanks/reagents blanks free of contamination?	☒	☐
3. Were the spike recoveries within laboratory control limits?		
a. Organics (60% to 130%)	☒	☐
b. Metals/Inorganic (70% to 130%)	☒	☐
4. Were the RPDs of the laboratory duplicates within control limits?	☒	☐
5. Were the surrogate recoveries within control limits?	☒	☐

The laboratory internal QA/QC was: ☒ Satisfactory ☐ Unsatisfactory ☐ Partially Satisfactory

V. DATA USABILITY

- | | | |
|----|--|-------------------------------------|
| 1. | Data Directly Usable | ☐ |
| 2. | Data Usable with the following corrections/modifications (see comment below) | ☒ |
| 3. | Data Not Usable. | ☐ |

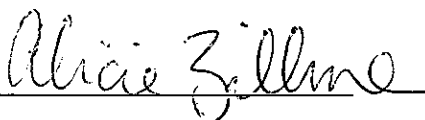
COMMENTS:

- In some soil samples, inconsistencies and RPDs above the control limit of 50% were recorded for TPH (C15-C36), PAH (acenaphthene, naphthalene, pyrene and total PAH) and heavy metals (As, Cd, Cr, Cu, Pb, Zn) between the primary and duplicate samples. This is considered to be attributed to the heterogeneous nature of contaminant distribution throughout the soil/fill matrix. Some variability in TPH, PAH and heavy metal concentrations can therefore be expected.

QA/QC Report Prepared by

Emma Coleman

QA/QC Report Reviewed by:


(Associate Environmental Engineer)

QA/QC DATA VALIDATION REPORT

Job No: GEOTCOFH01296AA Batch: 200079

I. SAMPLE HANDLING

1. Were the sample **holding times** met?
2. Were the samples in **proper custody** between the field and reaching the laboratory?
3. Were the samples **properly and adequately** preserved?
This includes keeping the samples chilled, where applicable.
4. Were the samples received by the laboratory in good condition?

Yes	No
☒	☐
☒	☐
☒	☐
☒	☐

Sample Handling was:

☒ Satisfactory

☐ Unsatisfactory

☐ Partially Satisfactory

II PRECISION / ACCURACY ASSESSMENT

1. Was a NATA registered laboratory used?
2. Did the laboratory perform the requested tests?
3. Were the laboratory methods adopted NATA endorsed?
4. Were the appropriate test procedures followed?
5. Were the reporting limits satisfactory?
6. Was the NATA Seal on the reports?
7. Were the reports signed by an authorised person?

Yes	No (Comment below)
☒	☐
☒	☐
☒	☐
☒	☐
☒	☐
☒	☐
☒	☐

Precision/Accuracy of the Laboratory Report

☒ Satisfactory

☐ Unsatisfactory

☐ Partially Satisfactory

III. FIELD QA/QC

1. **Number of Samples Analysed**

Soil:	14
Duplicates (Soil):	2
Water:	6
Duplicates (Water):	0

2. **Number of Days of Sampling**

Soil:	1
Water:	1

3. **Number and Type of QA/QC Samples Collected:**

	SOIL	WATER
Field Duplicates	2	NA
Trip Blanks	0	NA
Wash Blanks	0	NA
Other (Field Blanks, Spiked Trip Blanks, etc.)	0	NA

4. **Field Duplicates**

A. Were an Adequate Number of field duplicates collected?

B. Were RPDs within Control Limits?

a. Organics (< 50 %)

b. Metals/Inorganics (< 50 %)

Yes	No
☒	☐
☒	☐
☐	☒

COMMENTS:

- Duplicate pair H1 / DUP 101 recorded RPDs of 78% for lead and 124% for zinc. All other RPDs were within control limits. This is considered to be attributed to the heterogeneous nature of contaminant distribution throughout the fill matrix. This result may indicate that slight variations for lead and zinc may be expected.

5. TRIP BLANKSA. Were an Adequate Number of trip blanks collected?

B. Were the Trip Blanks free of contaminants?

Yes	No
☐	☒
NA	☐

6. WASH BLANKS

A. Were an adequate number of Wash Blanks collected?

B. Were the Wash Blanks free of contaminants?

Yes	No
☒	☐
NA	

COMMENTS:

Samples were collected using a pick to loosen the soils and samples were collected directly from the ground and therefore no decontamination was required other than a clean pair of latex gloves for each sample.

Field QA/QC was:☐ Satisfactory☐ Unsatisfactory☒ Partially Satisfactory

IV LABORATORY INTERNAL QUALITY CONTROL PROCEDURES

1. Types and Number of QA/QC Samples

	SOIL	WATER
Laboratory Blanks/Reagent Blanks	3	NA
Matrix Spikes/Matrix Spike Duplicates	5	NA
Laboratory Duplicates	4	NA
Surrogates	66	NA

2. Were the laboratory blanks/reagents blanks free of contamination?

3. Were the spike recoveries within laboratory control limits?

a. Organics (60% to 130%)

b. Metals/Inorganic (70% to 130%)

4. Were the RPDs of the laboratory duplicates within control limits?

5. Were the surrogate recoveries within control limits?

Yes	No
☒	☐
☒	☐
☒	☐
☒	☐
☒	☐

The laboratory internal QA/QC was:

☒ Satisfactory

☐ Unsatisfactory

☐ Partially Satisfactory

V. DATA USABILITY

- | | | |
|----|--|-------------------------------------|
| 1. | Data Directly Usable | ☐ |
| 2. | Data Usable with the following corrections/modifications (see comment below) | ☒ |
| 3. | Data Not Usable. | ☐ |

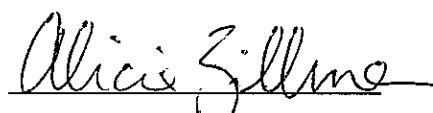
COMMENTS:

- In some soil samples, inconsistencies and RPDs above the control limit of 50% were recorded for TPH (C15-C36), PAH (acenaphthene, naphthalene, pyrene and total PAH) and heavy metals (As, Cd, Cr, Cu, Pb, Zn) between the primary and duplicate samples. This is considered to be attributed to the heterogeneous nature of contaminant distribution throughout the soil/fill matrix. Some variability in TPH, PAH and heavy metal concentrations can therefore be expected.

QA/QC Report Prepared by

Emma Coleman

QA/QC Report Reviewed by:


(Associate Environmental Engineer)

Appendix D

LABORATORY TESTING RESULT SHEETS (GEOTECHNICAL & ACID SULFATE SOIL)

Client:	Sandy Beach Mill	Job No:	GEOTCOFH01296AA	Lab:	Coffs Harbour
Address:	-	Test Date:	30-Oct-06	By:	DR
	-	Date Sampled:	18-Oct-06	By:	ELC
Project:	Proposed Subdivision	Test No:	29362	Page	1 of 2
Location:	Graham Drive	Lot No:	-		
Material:	Clay				

CALIFORNIA BEARING RATIO REPORT

Sample No.		A	B	C	D	E
Location		TP112	TP117	TP119	TP123	TP128
Depth (mm)		0.7 - 0.9	0.5 - 0.6	0.8 - 1.0	0.7 - 0.9	0.4 - 0.6
LABORATORY COMPACTION		LABORATORY REPORT				
Maximum Dry Density	t/m3	1.57	1.62	1.63	1.65	1.64
Optimum Moisture Content	%	20.3	21.9	20.7	21.1	19.8
Material Retained 19.0 mm sieve	%	0	0	0	0	0
Compaction Specified	%	100.0	100.0	100.0	100.0	100.0
Compaction Achieved	%	100.0	99.5	99.5	99.5	100.0
		SPECIMEN DRY DENSITY				
i At Compaction	t/m3	1.57	1.61	1.62	1.64	1.64
ii After Soaking	t/m3	1.58	1.61	1.62	1.64	1.65
		SPECIMEN MOISTURE CONTENT				
Field / Initial	%	19.0	21.5	21.7	21.3	17.0
i At Compaction	%	20.2	21.9	20.6	20.6	19.0
ii After Soaking	%	22.7	23.3	22.4	22.4	21.3
iii Top 30mm layer	%	23.3	24.3	23.7	23.5	21.6
iv Rest of Sample	%	22.4	22.9	22.1	22.0	21.2
		CBR TEST DETAILS				
Soaking Period	days	4	4	4	4	4
Swell	%	0.5	0.4	0.7	0.5	0.0
Penetration	mm	5.0	5.0	2.5	5.0	5.0
CALIFORNIA BEARING RATIO	%	13.0	7.0	6.0	6.0	7.0
Test Methods Used		FHIJ	FHIJ	FHI	FHIJ	FHIJ

Test Methods

- A. RTA T111 Dry Density/Moisture Relations of Road Materials (Standard Compaction).
 B. RTA T112 Dry Density/Moisture Relations of Road Materials (Modified Compaction).
 C. RTA T120 Determination of Moisture Content of Road Materials (Standard Method).
 D. RTA T117 Determination of the California Bearing Ratio of Remoulded Specimens of Road Materials (Standard Method).
 E. RTA T117A Determination of the California Bearing Ratio of Remoulded Specimens of Road Materials (Ten day soak period).
 F. AS 1289 5.1.1 Dry Density/Moisture Relationship (Standard Compaction).
 G. AS 1289 5.2.1 Dry Density/Moisture Relationship (Modified Compaction).
 H. AS 1289 2.1.1 Determination of Moisture Content (Standard Method).
 I. AS 1289 6.1.1 Determination of the California Bearing Ratio of A Soil -Standard Method For a Remoulded Specimens .
 J. 5.0 mm result reported, NO repeat test performed.
 K. Sampled according to AS 1141.3.1
 L. RTA T132 Determination of the California Bearing Ratio of Road Materials Modified or Stabilised. Compactive effort Std.



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NATA Accredited Laboratory No. 431-1912

Approved Signatory:

J.MORRISON

Date:

30/10/06

Client:	Sandy Beach Mill	Job No:	GEOTCOFH01296AA	Lab:	Coffs Harbour
Address:	-	Test Date:	30-Oct-06	By:	DR
	-	Date Sampled:	18-Oct-06	By:	ELC
Project:	Proposed Subdivision	Test No:	29362	Page	2 of 2
Location:	Graham Drive	Lot No:	-		
Material:	Clay				

CALIFORNIA BEARING RATIO REPORT

Sample No.		F	G	H	I	
Location		TP151	TP158	TP162	TP163	
Depth (mm)		0.3 - 0.5	1.3 - 1.5	0.2 - 0.5	0.4 - 0.6	
LABORATORY COMPACTION		LABORATORY REPORT				
Maximum Dry Density	t/m3	1.61	1.68	1.50	1.44	
Optimum Moisture Content	%	22.8	19.2	25.5	29.3	
Material Retained 19.0 mm sieve	%	0	0	0	0	
Compaction Specified	%	100.0	100.0	100.0	100.0	
Compaction Achieved	%	99.5	99.5	99.5	101.0	
		SPECIMEN DRY DENSITY				
i At Compaction	t/m3	1.60	1.67	1.49	1.46	
ii After Soaking	t/m3	1.61	1.68	1.50	1.45	
		SPECIMEN MOISTURE CONTENT				
Field / Initial	%	20.1	15.9	22.1	27.7	
i At Compaction	%	22.2	19.2	25.4	28.7	
ii After Soaking	%	23.6	20.6	28.0	30.6	
iii Top 30mm layer	%	24.5	21.7	29.8	31.9	
iv Rest of Sample	%	23.3	20.1	27.6	30.1	
		CBR TEST DETAILS				
Soaking Period	days	4	4	4	4	
Swell	%	0.4	0.6	0.0	0.9	
Penetration	mm	2.5	2.5	5.0	5.0	
CALIFORNIA BEARING RATIO	%	7.0	8.0	7.0	7.0	
Test Methods Used		FHI	FHI	FHIJ	FHIJ	

Test Methods

- A. RTA T111 Dry Density/Moisture Relations of Road Materials (Standard Compaction).
 B. RTA T112 Dry Density/Moisture Relations of Road Materials (Modified Compaction).
 C. RTA T120 Determination of Moisture Content of Road Materials (Standard Method).
 D. RTA T117 Determination of the California Bearing Ratio of Remoulded Specimens of Road Materials (Standard Method).
 E. RTA T117A Determination of the California Bearing Ratio of Remoulded Specimens of Road Materials (Ten day soak period).
 F. AS 1289 5.1.1 Dry Density/Moisture Relationship (Standard Compaction).
 G. AS 1289 5.2.1 Dry Density/Moisture Relationship (Modified Compaction).
 H. AS 1289 2.1.1 Determination of Moisture Content (Standard Method).
 I. AS 1289 6.1.1 Determination of the California Bearing Ratio of A Soil -Standard Method For a Remoulded Specimens .
 J. 5.0 mm result reported, NO repeat test performed.
 K. Sampled according to AS 1141.3.1
 L. RTA T132 Determination of the California Bearing Ratio of Road Materials Modified or Stabilised. Compactive effort Std.



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NATA Accredited Laboratory No. 431-1912

Approved Signatory:

Date:


J. MORRISON
 30/10/06

RESULTS OF ACID SULFATE SOIL ANALYSIS (Page 1 of 2)

38 samples supplied by Coffey Geosciences on 20th October 2006 - Lab. Job No. E6383
Analysis requested by Emma Coleman - Your Project: Cof01296AA

Sample Site	Depth (m)	EAL lab code	Texture (note 6)	Lab. Bulk Density (tonne DW/m ³)	FIELD LAB PEROXIDE SODIUM TECHNIQUE	TAA pH _u	Transmittance Actual Acidity (TAA) mode H ⁺ /tonne (to pH 6.5)	TPA pH _u	Transmittance Potential Acidity (TPA) mode H ⁺ /tonne (to pH 6.5)	Transmittance Sulphide Acidity (TSA) mode H ⁺ /tonne	Reduced Inorganic Sulfur (RIS) (note 2) (mg/kg)	Reduced Inorganic Sulfur (RIS) (note 2) (mg/kg)	NET ACIDITY Chromium Sulfate mode H ⁺ /tonne (based on 100%)	NET ACIDITY TPA Only mode H ⁺ /tonne (based on TPA) (note 5)	LINE CALCULATION Chromium Sulfate mode H ⁺ /tonne (includes 1.5 million Factor) (note 5)
TP101	0.5m	E6383/1	Fine	1.5	Initial pH water	234	50	5.11	25	-25	<0.005	0	50	25	5
TP101	1.0m	E6383/2	Fine	1.3	4.80	4.35	70	5.43	40	-30	<0.005	0	70	40	7
TP101	1.5m	E6383/3	Fine	1.4	4.57	4.16	85	5.28	40	-30	<0.005	0	85	70	9
TP101	2.0m	E6383/4	Fine	1.5	4.46	4.02	80	5.33	45	-35	<0.005	0	80	45	9
TP108	0.5m	E6383/5	Fine	1.3	4.44	4.07	25	5.35	5	-20	0.008	5	30	5	3
TP108	1.0m	E6383/6	Fine	1.4	5.13	4.69	30	6.78	5	-25	0.011	7	37	5	4
TP108	1.5m	E6383/7	Fine	1.4	4.56	4.34	70	6.24	30	-40	0.009	6	76	30	8
TP108	2.0m	E6383/8	Fine	1.3	4.26	3.95	85	5.95	65	-20	<0.005	0	85	65	9
TP109	1.5m	E6383/9	Fine	1.3	4.16	3.74	..	5.48	..	..	..	..	..	..	..
TP109	2.0m	E6383/10	Fine	1.4	4.78	..	..	..	..	..	..	..	..	..	..
TP110	0.5m	E6383/11	Fine	1.2	4.48	4.39	35	4.87	3	-33	<0.005	0	35	3	3
TP110	1.0m	E6383/12	Fine	1.4	4.63	4.05	70	4.83	80	10	0.005	3	73	80	7
TP110	1.5m	E6383/13	Fine	1.5	4.41	3.77	100	5.00	90	-10	<0.005	0	100	90	11
TP110	2.0m	E6383/14	Fine	1.5	4.14	3.74	95	4.89	95	0	<0.005	0	95	95	11
TP113	0.5m	E6383/15	Fine	1.1	4.18	..	..	..	..	..	..	..	..	..	..
TP113	1.0m	E6383/16	Fine	1.3	4.92	..	..	..	..	..	..	..	..	..	..
TP113	1.5m	E6383/17	Fine	1.5	4.61	..	..	..	..	..	..	..	..	..	..
TP113	2.0m	E6383/18	Fine	1.2	4.39	..	..	..	..	..	..	..	..	..	..

NOTE:

- All analysis is Dry Weight (DW) - samples dried and ground immediately upon arrival (unless supplied dried and ground)
- Samples analysed by SPOCAS method 23 (ie Suspension Peroxide Oxidation Combined Acidity & sulfate) and 'Chromium Reducible Sulfur' technique (Scr - Method 22B)
- Methods from Allen, CR, McEneaney, LA (2004), *Acid Sulfate Soil Laboratory Methods Guidebook*, QLD DNRME.
- Bulk density was determined immediately on arrival to laboratory (medium bulk density is preferred)
- AMA Equation: $\text{Net Acidity} = \text{Potential Sulfide Acidity (No. Srs or Srs)} + \text{Actual Acidity} + \text{Residual Acidity} - \text{measured ANC/FF}$
- For Texture: coarse = sands to loamy sands; medium = sandy loams to light clays; fine = medium to heavy clays and silty clays
- 7 - .. Denotes not requested or required
- 8 - CRS, TAA and ANC are NATA certified but other SPOCAS segments are currently not NATA certification
- 9 - Results at or below detection limits are replaced with '0' for calculation purposes.
- 10 - Projects that disturb >1000 tonnes of soil, the 34.02% S classification guideline would apply.

(Classification of potential acid sulfate material IF: coarse Srs20.03% or 19mo H⁺/t; medium Srs20.06% or 37mo H⁺/t; fine Srs20.1% or 62mo H⁺/t)



Lab. Accred. No. 14960

checked:

RESULTS OF ACID SULFATE SOIL ANALYSIS (Page 2 of 2)

38 samples supplied by Coffey Geosciences on 20th October 2006 - Lab. Job No. E6383
Analysis requested by Emma Coleman - Your Project: Coff01256AA

Sample Site	Depth (m)	EAL lab code	Texture (note 6)	Lab. Bulk Density tonnes DW/m ³	Field pH water	FELD/LAB PERMITS SCREENING TECHNIQUE	Lab. Bulk Density	TAA pH _{eq}	Titration Actual Acidity (TAA) meq/l ^a /tonne (to pH 6.5)	TPA pH _{eq}	TPA pH _{eq}	Thiobarbitol Potential Acidity (TPA) meq/l ^a /tonne (to pH 6.5)	Thiobarbitol Sulphide Acidity (TSA) meq/l ^a /tonne	Reduced Inorganic Sulfur (NIST) (note 2) % chromium reducible S	Reduced Inorganic Sulfur (NIST) (note 2) meq/l ^a /tonne	NET ACIDITY Chromium Sulfate meq/l ^a /tonne (based on TPA)	NET ACIDITY TPA Only meq/l ^a /tonne (based on TPA)	LIME CALCULATION Chromium Sulfate meq/l ^a /tonne (includes 1.5 safety factor)	
Method No.																			note 5
TP117	0.5m	E6383/19	Fine	1.3	4.65	3.90	-0.75	Low	4.22	60	4.92	4.51	50	-10	0.009	66	50	7	
TP117	1.0m	E6383/20	Fine	1.2	4.43	3.57	-0.86	Low	4.12	100	4.95	4.28	75	-25	0.006	104	75	9	
TP117	1.5m	E6383/21	Fine	1.3	4.11	3.10	-1.01	Low	3.83	125	4.64	4.07	120	-5	0.005	128	120	13	
TP117	2.0m	E6383/22	Fine	1.5	4.23	3.20	-1.03	Low	3.93	115	4.81	4.06	95	-20	<0.005	115	95	13	
TP119	0.5m	E6383/23	Fine	1.1	5.40	3.50	-1.90	Medium	..	..	..	..	..	..	..	..	..	..	
TP119	1.0m	E6383/24	Fine	1.3	4.79	3.78	-1.01	Low	..	..	..	..	..	..	..	..	..	..	
TP119	1.5m	E6383/25	Fine	1.3	4.43	3.34	-1.09	Low	..	..	..	..	..	..	..	..	..	..	
TP119	2.0m	E6383/26	Fine	1.1	4.55	3.38	-1.17	Low	..	..	..	..	..	..	..	..	..	..	
TP123	0.5m	E6383/27	Fine	1.0	5.27	3.59	-1.68	Medium	..	..	..	..	..	..	..	..	..	..	
TP123	1.0m	E6383/28	Fine	1.3	4.87	3.92	-0.95	Low	..	..	..	..	..	..	..	..	..	..	
TP123	1.5m	E6383/29	Fine	1.2	4.55	3.46	-1.09	Medium	..	..	..	..	..	..	..	..	..	..	
TP123	2.0m	E6383/30	Fine	1.6	4.64	3.54	-1.10	Medium	..	..	..	..	..	..	..	..	..	..	
TP128	0.5m	E6383/31	Fine	1.4	5.73	4.08	-1.65	Very High	..	..	..	..	..	..	..	..	..	..	
TP128	1.0m	E6383/32	Fine	1.5	4.86	5.24	0.38	Very High	..	..	..	..	..	..	..	..	..	..	
TP128	1.5m	E6383/33	Fine	1.3	4.50	3.15	-1.35	Medium	..	..	..	..	..	..	..	..	..	..	
TP128	2.0m	E6383/34	Fine	1.5	4.01	3.17	-0.84	Low	..	..	..	..	..	..	..	..	..	..	
TP144	1.0m	E6383/35	Fine	1.8	6.29	3.43	-2.86	High	5.92	5	7.33	6.57	0	-5	0.009	11	0	1	
TP144	1.5m	E6383/36	Fine	1.4	5.42	4.06	-1.36	Low	4.88	15	6.89	6.16	5	-10	0.009	21	5	2	
TP144	2.0m	E6383/37	Fine	1.6	4.87	3.42	-1.45	Low	4.38	35	6.48	6.11	5	-30	0.007	39	5	5	
TP145	0.5m	E6383/38	Fine	1.6	5.13	2.34	-2.79	Medium	4.73	30	5.98	6.57	0	-30	0.034	51	0	6	

NOTE

- 1 - All analysis is Dry Weight (DW) - samples dried and ground immediately upon arrival (unless supplied dried and ground)
- 2 - Samples analysed by SPOCAS method 23 (ie Suspension Peroxide Oxidation Combined Acidity & Sulfate) and "Chromium Reducible Sulfur" technique (Scr - Method 228)
- 3 - Methods from Aherm, CR, McElreath AE, Sullivan LA (2004), *Acid Sulfate Soil Laboratory Methods Guidelines*, QLD DNRME.
- 4 - Bulk density was determined immediately on arrival to laboratory (unless bulk density is preferred)
- 5 - **AMA Equation: Net Acidity = Potential Sulfide Acidity (No. Scr or Scr) + Actual Acidity + Reduced Acidity - measured ANC/FF**
- 6 - For Texture: coarse = sands to loamy sands; medium = sandy loams to light clays; fine = medium to heavy clays and silty clays
- 7 - .. Denotes not requested or required
- 8 - CIS, TAA and ANC are NATA certified but other SPOCAS segments are currently not NATA certification
- 9 - Results at or below detection limits are replaced with '0' for calculation purposes.
- 10 - Projects that generate >1000 tonnes of acid, the 50.03% is classification guideline would apply.

(Classification of potential acid sulfate material if: coarse Scr20.03% or 19meq H⁺/t; medium Scr20.06% or 37meq H⁺/t; fine Scr20.1% or 62meq H⁺/t)



Lab Accred. No. 16960

[Signature]

Appendix E

ACID SULFATE SOILS MANAGEMENT PLAN

Acid Sulfate Soils Management Plan

The ASSMP outlined below shall be adopted for all works associated with construction of the development works on the site.

On-Site Liaison

An on-site discussion will be conducted for all Contractor's staff involved in the excavation, transport or handling of soils or earthworks on the site. The discussion will be run by the ASS Consultant and shall be conducted prior to the excavation of any soils on the site. The discussion shall be designed to ensure that staff are aware of the ASS issues involved on the site, that they can recognise the PASS on the site and that they are familiar with their responsibilities in managing the PASS.

Testing Regime

This ASSMP is based on the ASS assessment presented in the Coffey report GEOTCOFH02087AA-AA, dated 27 November 2006. That report details the sampling and testing carried out at the site.

The report indicated liming rates for potential ASS soils within an area indicated as having a 'high probability' of acid sulphate soils within 1m of the ground surface, and potential liming rates for acidic soils, should treatment of those soils be required.

Treatment

Soils shall be treated according to their acidity classification as set out above.

- **Non acidic** soils may be handled and disposed of without specific treatment or management
- **Naturally Acidic:** two options were given in Section 0 for managing acidic soils. Should the option to treat the soils with lime be chosen, then the soils should be placed in a prepared treatment area. The soil shall be mixed with lime applied at the appropriate rate by discing or rotary hoeing. The rate of lime application shall be determined based on TAA. A minimum liming rate of 10 kilograms of lime per cubic metre shall be used for any soils assessed to be acidic.
- **AASS and PASS** shall be placed in a prepared treatment area. The soil shall be spread in layers not more than 300 mm thick and lime applied at the appropriate rate and mixed with the soil by discing or rotary hoeing. The rate of lime application shall be as determined as TAA plus the acidity equivalent of the measured Scr and residual acidity (Sras) with a factor of safety of 1.5. Validation testing of treated soils shall be undertaken as specified in this ASSMP. A minimum liming rate of 5 kilograms of lime per cubic metre shall be used for any soils assessed to be AASS or PASS.

Validation Testing

The treated PASS/AASS shall be subject to validation testing at the rate of 1 test per 250 cubic metres

of treated soil. The validation testing shall consist of the measurement of soil pH, the soil pH after peroxide oxidation (pHox), TAA, Sras and Scr and the measurement of acid neutralising capacity (ANC) to pH 6.5. A soil shall be deemed to be effectively treated when pH and pHox are greater than 6.5 and the ANC is greater than the sum of the acidity (TAA+Sras+Scr) by a factor not less than 1.5.

Treatment Area

The treatment area will likely be located on site. The treatment area shall be bunded to a height of 0.5 metres with soils that are not PASS or treated PASS. The base and bund batters shall be limed at the rate of 10 kilograms fine agricultural lime per square metre.

Treatment of Fill Areas

The base of all reclamation or fill areas where treated PASS/AASS are to be placed shall be treated with 5 kilograms of fine agricultural lime per square metre per metre depth of fill prior to the placement of any fill soils.

Water Quality Monitoring

Any waters collected in the excavation shall be tested for pH on a daily basis during construction. If the recorded pH of any sample is less than 6.5, it shall be immediately retested. If the pH is again below 6.5, the pH shall be adjusted by the application of hydrated lime until it is in the range 6.5 to 8.5.

Where the pH is less than 4.0, the ASS Consultant shall be engaged within 6 hours to review the site practices and monitoring results and to recommend remedial measures. An incident report shall be prepared by the Contractor for any incidents where pH of less than 4.0 is recorded. The incident report shall set out the nature of the incident and details of subsequent actions, tests and treatments. A copy of the report shall be provided to Council and the EPA if required.

Complete records of all monitoring results shall be maintained by the Contractor.

Control of Discharge

There shall be no uncontrolled discharge from the site. The excavation shall be bunded off. Any water collected in the excavation shall be checked for pH, oil and grease and suspended solids prior to any release. The pH of water to be released must be in the range 6.5 to 8.5, there must be no visible oil or grease and suspended solids must be less than 100 milligrams per litre.

Management Practices

At all times, current best management practices shall be adopted by the Contractor.

Complete records of all testing and treatment shall be maintained by the Contractor. Such records shall be available to EPA, DNR and Council for inspection. Any amendments proposed to the ASSMP shall be discussed with EPA and/or DNR and approved by Council prior to the implementation of such changes.

Access

Access to the site for EPA, DNRM and MSC staff on official business shall be provided. For safety reasons, prior notice shall be provided to the Contractor.

REMEDIAL ACTION PLAN FOR PROPOSED RESIDENTIAL DEVELOPMENT

Graham Drive, Sandy Beach NSW
Sandy Beach Mill Pty Ltd

GEOTCOFH01296AC-AE
20 March 2007

20 March 2007

Sandy Beach Mill Pty Ltd
9A Split Solitary Road
Sapphire Beach NSW 2450

Attention: Anthony Cougle

Dear Sir

RE: Remedial Action Plan for Proposed Residential Development at Sandy Beach NSW

Coffey Geotechnics Pty Ltd (Coffey) is pleased to provide our Remedial Action Plan (RAP) for the above site.

We draw your attention to the enclosed sheet entitled "Important Information About Your Coffey Environmental Site Assessment" which should be read in conjunction with the report.

We trust that this document meets with your requirements at this time. If you require any further information regarding this document, please do not hesitate to contact the undersigned.

For and on behalf of Coffey Geotechnics Pty Ltd



Alicia Zillman

Associate Environmental Engineer

Distribution:	Original	Coffey Geotechnics
	1 copy	Coffey Geotechnics Library
	3 copies	Sandy Beach Mill Pty Ltd

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Figure 2: Previous Sample Locations from Phase 1 ESA

Figure 3: Previous Sample Locations from Phase 2 ESA

1 INTRODUCTION

1.1 General

This document provides a Remedial Action Plan (RAP) prepared by Coffey Geotechnics Pty Ltd (Coffey) for the remediation of contaminated soils on Lot 1 DP726077 (Lot 1), Lot 260 DP752853 (Lot 260), Lot 1 DP726078 (Lot 1A), and Lot 2 DP354878 (Lot 2), Graham Drive, Sandy Beach NSW. The RAP covers remediation of Total Petroleum Hydrocarbon (TPH) contaminated soil and removal of an underground storage tank (UST) on Lot 1 and Lot 260, and remediation of heavy metal and Polycyclic Aromatic Hydrocarbon (PAH) hotspots identified on Lot 1 and Lot 2.

Six TPH hotspots are known to be present on the site. One is associated with a former shed, which is located in the north-east portion of Lot 1, two are associated with a former shed on Lot 260, which was located in roughly the centre of the northern area of the lot, one is associated with the UST located immediately west of the former office building on Lot 260, and a further two are located at the southern end of an existing shed located on Lot 260. The location of the known TPH contaminated soils and UST is shown on Figure 1.

Thirteen heavy metal hotspots and one PAH hotspot were identified to be present on the site. Many of these relate to zinc exceeding the phytotoxicity criteria. For the purposes of this RAP, a heavy metal hotspot is defined as a sample which has concentrations of heavy metals exceeding the phytotoxicity criteria by 2.5 times, except for lead where the human health criteria is lower than the phytotoxicity criteria. Each other contaminant type is a hotspot if it exceeds the human health criteria for residential sites. Six of the heavy metal hotspots were excavated and the soil stockpiled after discussions with the client, prior to the issuing of this RAP. The location of the heavy metal and PAH hotspots and the excavated soil stockpile locations are shown on Figure 1.

The RAP was commissioned by Mr Anthony Cogle of Sandy Beach Mill Pty Ltd (SBM) following receipt of our proposal GEOTCOFH01296AA-AD, dated 20 February 2007.

1.2 Proposed Development

The proposed development comprises divestment of Lot 1 (1.2ha), Lot 2 (0.7ha), and Lot 1A (1.0ha), and construction of a residential subdivision on Lot 260 (7.0ha).

1.3 Background

Coffey previously prepared a Phase 1 Environmental Site Assessment (Phase 1 ESA) for the whole of the site (Lot 1, Lot 2, Lot 1A and Lot 260) which was documented in report GEOTCOFH01296AA-AM, dated 16 March 2007. Subsequently Coffey undertook two Phase 2 ESAs for the site, one for the southern portion of Lot 260 (reference GEOTCOFH01296AA-AK, dated 11 August 2006), and one for the northern portion of Lot 260 plus Lot 1, Lot 2 and Lot 1A (reference GEOTCOFH01296AA-AO, dated 16 March 2007).

The Phase 1 ESA included a site walkover and site history review, and targeted sampling and analysis around areas of environmental concern (AECs) on Lot 1 and Lot 260.

The Phase 2 ESA for the southern portion of Lot 260 included sampling and analysis of soils in a 25m grid across the area.

The Phase 2 ESA for the northern portion of Lot 260 and Lot 1, Lot 2 and Lot 1A included sampling and analysis of soils in a 24m to 34m grid across Lot 1 and Lot 260, and targeted sampling around AECs on Lot 2 and Lot 1A. Groundwater samples were also analysed from six groundwater wells located along the creek edge.

The site history, conditions and results of the sampling and analysis for the site are summarised in the previous reports which should be read in conjunction with this RAP.

Based on the investigations undertaken to date, it was considered that for the site to be suitable with respect to contamination for the proposed residential developments, remediation, management and/or further assessment was required.

Since completion of the Phase 1 ESA, most of the buildings on the site, with the exception of one shed on Lot 260, and one residence on Lot 1, have been demolished or removed.

2 CONTAMINATION HOTSPOTS & REMEDIATION REQUIREMENTS

At the time of the Stage 2 ESA, one UST, six TPH hotspots, thirteen heavy metal hotspots, and one PAH hotspot were identified. Further information on the TPH hotspots and the heavy metal and PAH hotspots are provided below.

2.1 TPH Hotspots

The UST was located on Lot 260, immediately west of the former office building, and elevated concentrations of TPH were detected in test pits targeting this area (TP129, TP130, and TP131). The capacity (size) of the UST is not currently known. Based on discussions with the former site owner, the UST probably contained diesel, and may still contain some product.

Five other TPH hotspots (separate from the UST) were identified from the soil sampling on Lot 260 and Lot 1 (in TP8, TP12, TP107, TP135 and TP156), which were associated with former sheds. TPH was also detected in the three of the groundwater wells at concentrations exceeding the adopted criteria (in BH1, BH4 and BH6).

Given the relatively low levels of TPH contamination in the groundwater, it was considered that the need to remediate the groundwater would be assessed after the likely sources of the TPH contamination were removed (i.e. the TPH contaminated soil, and the UST). Should ongoing monitoring indicate that the TPH in the groundwater is not naturally attenuating, then remediation of the groundwater would need to be considered.

Figures 2 and 3 show the previous sampling.

Based on the previous assessments it is considered that the following remediation/management is required to address the TPH contaminated soil:

- Excavating trenches across the areas identified as TPH hotspots, to aid in assessing the extent of the contamination;
- Excavating the soil identified as being contaminated;
- Validation of the resulting excavations
- Stockpiling the excavated soil in an appropriate location;
- On-site remediation of the excavated and stockpiled TPH contaminated soil.

- Further assessment of the groundwater to assess the presence of TPH contamination after removal of the likely sources.

It is considered that the potential presence of groundwater contamination associated with the USTs will need to be assessed following removal of the USTs. Preliminary assessment will be based on observations of the presence of groundwater and visual / olfactory evidence of contamination within the excavations. Sampling and analytical testing of groundwater will be undertaken. If the potential for contaminated groundwater is identified then an addendum to the RAP would be prepared outlining remediation and validation procedures for the groundwater.

The TPH hotspots and UST locations are shown on Figure 1.

2.2 Heavy Metals and PAH Hotspots

Six of the heavy metals hotspots are associated with former residences on Lot 1A and Lot 2, and seven of the heavy metal hotspots are associated with former activities on Lot 1 and Lot 260. For the purposes of this RAP, a heavy metal hotspot is defined as a sample with a concentration exceeding 2.5 times the phytotoxicity criteria.

One PAH hotspot was identified on Lot 260, which is likely associated with former activities on the lot.

Figures 2 and 3 show the previous sampling locations.

Based on the previous assessments it was considered that the following remediation was required to address the heavy metal and PAH contaminated soil:

- Excavating the soil considered to be contaminated;
- Validation of the resulting excavations including sampling and analysis;
- Stockpiling the excavated soil in an appropriate location;
- Sampling and laboratory analysis of the stockpiled soils to assess the waste classification of the soils;
- Removal of the stockpiled soil to an appropriately licensed land fill facility;

It should be noted that six of the heavy metal hotspots have already been excavated and stockpiled, and validation samples collected. The locations of the heavy metal excavations were confirmed by Coffey personnel during the validation sampling. The laboratory results of the waste classification and validation samples were pending at the time of issue of this RAP. The heavy metal hotspots, the PAH hotspot, and the location of the stockpiled soils are shown on Figure 1.

3 OBJECTIVES AND SCOPE OF THE RAP

The objectives of this RAP are to:

- Identify remediation required to address human health and environmental risks from contamination associated with the TPH hotspots and USTs on Lot 1 and Lot 260, and the heavy metals hotspots on Lot 1A and Lot 2;
- Define the remediation goals; and
- Outline the procedures for remediation, validation, site control and health and safety.

The RAP addresses points listed on page 16 of the NSW EPA (1997) Guidelines for Consultants Reporting on Contaminated Sites for consideration in Remedial Action Plans including:

- Remediation Goals;
- Discussion of extent of remediation required;
- Discussion of possible remediation options;
- Rationale for selection of recommended remediation options
- Proposed testing to validate the site after remediation;
- Contingency plan if the selected remedial strategy fails;
- Interim site management plan (before remediation) including fencing, erection of signs, stormwater diversion;
- Site management plan (operation phase) including site stormwater management plan; soil management plan; noise control plan; dust control plan, including wheel wash; odour control plan; occupational health and safety plan;
- Remediation Schedule, and hours of operation;
- Contingency plans to respond to site incidents, to reduce potential effects on surrounding environment and community;
- Identification of regulatory compliance requirements such as licenses and approvals;
- Names and phone numbers of appropriate personnel to contact during remediation;

4 REMEDIATION GOALS

The broad management and remediation goals, with respect to contamination, are:

- i. To remediate the known heavy metal hotspots, by removing the contaminated soil to an appropriately licensed landfill and validate the excavations;
- ii. To remove the UST and associated pipework;
- iii. To remediate the known TPH hotspots, associated with the UST and former sheds, to a condition which does not pose a risk to current and future site users and/or the general public and are suitable for residential land use;

5 REMEDIATION CRITERIA

5.1 Soil Remediation Criteria

The threshold concentrations presented in the following references are generally the primary guidelines used in NSW when setting remediation (acceptance) criteria for chemical concentrations in soil:

- NSW DEC (2006) Guidelines for the NSW Auditor Scheme (2nd ed);
- NSW EPA (1994) Guidelines for Assessing Service Station Sites; and
- NEPC (1999) National Environmental Protection (Assessment of Site Contamination)

Measure (NEPM).

Other references have been used to supplement the above references where appropriate.

For assessing contamination levels in soil in urban settings, the NSW DEC (2006) Guidelines for the NSW Site Auditor Scheme present health based investigation levels for different landuses (e.g. industrial/commercial, residential, recreational etc.) as well as phytotoxicity based investigation levels.

As part of the site (Lot 1, Lot 2 and Lot 1A) is to be divested, and the remainder (Lot 260) is to be developed into a residential subdivision, the guidelines for residential use with accessible soil and the phytotoxicity criteria are considered the most applicable to this site.

For residential with gardens and accessible soil (home-grown produce contributing <10% fruit and vegetable intake; no poultry), including childrens daycare centres, preschools, primary schools, townhouses, villas (NEHF A)) sites the human health based threshold levels listed in Column 1, and for provisional phytotoxicity criteria the threshold levels listed on Column 5 of the table in the NSW DEC (2006) guidelines may be adopted as investigation and acceptance criteria for the respective contaminants of concern.

NSW DEC (2006) do not provide threshold levels for total petroleum hydrocarbons (TPH and BTEX). NSW EPA (1994) Guidelines for Assessing Service Station Sites, provide an indication of acceptable cleanup levels for petroleum hydrocarbons compounds at service station sites to be reused for sensitive land uses such as residential. The EPA has also advised that these should be used for less sensitive sites.

It is important to note that these criteria are presented as a guide only. Depending on the characteristics and the quantity of soil requiring remediation, further site specific risk based remediation criteria may need to be developed by undertaking human health and ecological risk assessments, during site remediation.

Table 1: Summary of Soil Remediation (Acceptance) Criteria

Contaminant	Remediation (Acceptance) Criteria (mg/kg)
Arsenic	50 ³
Cadmium	7.5 ³
Chromium	1,000 ³
Copper	250 ³
Nickel	150 ³
Lead	300 ¹
Zinc	500 ³
Mercury	2.5 ³
Benzo(a)pyrene	1 ¹
Total PAH	20 ¹

Table 1: Summary of Soil Remediation (Acceptance) Criteria (Cont'd)

Contaminant	Remediation (Acceptance) Criteria (mg/kg)
TPH C6-C9	65 ⁴
TPH C10-C36	1,000 ⁴
Benzene	1 ⁴
Toluene	1.4 ⁴
Ethylbenzene	3.1 ⁴
Total Xylenes	14 ⁴
DDT+DDE+DDD	200 ¹
Aldrin + Dieldrin	10 ¹
Heptachlor	10 ¹
Chlordane	50 ¹

1. Based on NSW DEC (2006) Column 1 HIL Residential with Accessible Soil
2. Based on NSW DEC (2006) Column 5 Provisional Phytotoxicity based investigation levels
3. Heavy metal hotspot criteria, based on 2.5 times the provisional phytotoxicity investigation levels
4. Based on NSW EPA (1994) Service Station Guidelines

5.2 Fill Used to Backfill Excavations

Fill used to backfill the excavations, whether from on site or imported, will also be required to meet the soil remediation criteria as discussed in the previous section.

However in addition, it is considered that if imported fill material is used, it should:

- Classify as Virgin Excavated Natural Material (VENM) in accordance with NSW EPA (1999) *Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-Liquid Wastes* unless otherwise agreed by Coffey; and
- Meet the criteria for residential with gardens and accessible soil (home-grown produce contributing <10% fruit and vegetable intake; no poultry), including childrens daycare centres, preschools, primary schools, townhouses, villas (NEHF A)) land use in Column 1 and the provisional phytotoxicity based threshold levels in Column 5 of the NSW EPA 1998), noting that VENM would not be expected to have concentrations of contaminants exceeding these criteria.

In addition, it is considered that concentrations of organochlorine pesticides (OCP) and poly chlorinated biphenols (PCB) should meet the inert waste criteria in Table A4 of NSW EPA (1999) noting that the residential criteria for these chemicals would classify the soil as solid waste which would not be allowed to be imported to the site.

The proposed validation criteria for imported fill soils are presented in Table 2.

Table 2: Proposed Validation Criteria for Imported Fill Soils

Contaminant	Validation Criteria (mg/kg)	Source*
Benzo(a)pyrene	1	1
Total PAH	20	1
Arsenic	20	2
Cadmium	3	2
Chromium	400	2
Copper	100	2
Lead	300	1
Nickel	60	2
Zinc	200	2
Mercury	1	2
TPH C ₆ -C ₉	65	3
TPH C ₁₀ -C ₃₆	1,000	3
Benzene	1	3
Toluene	1.4	3
Ethyl-benzene	3.1	3
Xylene	14	3
PCBs	2	4
Total OCP	1	4,5

- * Sources:
1. Based on the Health Based Soil Investigation Level in Column 1 of the NSW EPA (1998) Auditor Guidelines
 2. Based on the Provisional Phytotoxicity Soil Investigation Level in Column 5 of the NSW EPA (1998) Auditor Guidelines.
 3. Based on NSW EPA (1994).
 4. Based on Table A4, NSW EPA (1999) Waste Guidelines
 5. Inert waste criteria for scheduled waste (NSW EPA 1999).

In addition to meeting the above criteria, in order for the material to be classified as VENM, the material should show no visual or olfactory signs of contamination such as hydrocarbon odours or oil staining, and also be free of any anthropogenic material such as broken concrete, asphalt, bricks, tiles or timber.

It is also noted that any detections of organic compounds (i.e. TPH, BTEX, OCP, PCB, PAH etc) would cast doubt on the VENM classification of the material. Where organic compounds are detected in the validation samples (even below the validation criteria), further assessment of the source and extent of the contamination would be undertaken, and whether this would impact the VENM classification.

6 REMEDIATION OPTIONS

6.1 Remediation Hierarchy

The NEPC *National Environment Protection (Assessment of Site Contamination) Measure* (1999) provides a preferred hierarchy of options for site clean-up and/or management which is outlined as follows:

- If practicable, on-site treatment of the contamination so that it is destroyed and the associated risk is reduced to below the adopted site clean-up criteria; and
- Off site treatment of excavated soil, so that the contamination is destroyed or the associated risk is reduced to an acceptable level;

If the above is not practicable,

- Consolidation and isolation of the soil on site by containment with a properly designed barrier; or
- Removal of contaminated material to an approved facility, followed, where necessary, by replacement with appropriate material; or
- Where the assessment indicates remediation would have no net environmental benefit or would have a net adverse environmental effect, implementation of an appropriate management strategy.

6.2 Remediation Option Review

There are a range of remediation technologies that are available for remediation of contaminated sites. Some of these technologies are proven while others have not yet been successfully implemented, particularly in areas of Australia where there is limited local expertise for implementation.

Based on the available information and our experience, the following remediation methods could potentially be applicable to the contaminated soils:

- Excavation and landfilling;
- Bioremediation (land farming) for petroleum hydrocarbon (TPH and BTEX) contaminated soils only; and
- Other treatment/stabilisation technologies.

Excavation and landfilling entails excavating the contaminated soil and disposing the soil at an off-site licensed landfill. The advantage of this option is that the contaminated fill material would be removed from site and therefore, restrictions on site use, notifications on the land title due to the presence of such material and ongoing maintenance costs can be avoided. Another advantage is the relatively short time of implementation. A disadvantage is that landfill disposal for a large volume of soil is expensive. In addition, landfill disposal is viewed by the NSW DEC as one of the least preferable

methods of managing contaminated soil. Also hazardous waste (if present) would require pre-treatment prior to disposal.

Landfarming entails natural bio-degradation of the hydrocarbon (TPH and BTEX) contamination. The degradation rate can be enhanced by the periodic turning of the soil with appropriate plant and/or machinery to aerate soils and to enhance the natural attenuation. Degradation may also be enhanced through the addition of nutrients (fertiliser/manure), commercially available surfactants such as Biosolve, Oxygen Releasing Compounds (ORC) such as Interox IXPER 75C, and/or by optimising soil moisture conditions and improved air circulation to the landfarm. Landfarming typically becomes more cost effective than offsite disposal for volumes of hydrocarbons greater than around 300m³ of soil. The disadvantages are that landfarming requires space and time and the outcomes are not guaranteed.

For treatment and stabilisation of contamination, there are a number of other potential technologies available for a range of chemicals including heavy metals and petroleum hydrocarbons. However, unless the volume of the contamination is large and the level of the contamination is high, most of these technologies are likely to be considerably more expensive than the other alternatives discussed above.

6.3 Preferred Remedial Strategies

For the UST

The common industry practice for decommissioning USTs is to remove the UST and associated pipework to a licensed facility in accordance with Australian Institute of Petroleum (AIP) Code of Practice on "The Removal and Disposal of Underground Petroleum Storage Tanks" (Ref: AIP CP22-1994).

For TPH Contaminated Soil

Given the size of the site, the time allowed for remediation of the site, and the cost of disposing of soil to landfill, onsite bio-remediation (land farming) will be adopted as the preferred remedial option for TPH contaminated soil. Should this method not work, then disposal to land fill will be considered.

For Heavy Metal and PAH Contaminated Soil

Given the relatively small volumes of soil known to be contaminated with heavy metals and PAH, excavation and disposing the soil at an off-site licensed landfill will be adopted for remediation of heavy metal contaminated soil.

7 REMEDIATION AND VALIDATION ACTIVITIES

7.1 USTs and Associated Petroleum Hydrocarbon Contamination

The following sections outline the remediation work which will be required for the removal of the underground storage tank (UST) and soils contaminated with TPH on Lot 1 and Lot 260, and remediation of the heavy metal contaminated soils on Lot 1A and Lot 2. The normal environmental control and mitigation measures required for similar construction works would still need to be in place for the remediation work. Unless otherwise identified, the activities discussed below will be the responsibility of the Contractor or its representative.

UST removal work should be carried out in accordance with the relevant procedures outlined in the following documents:

- Australian Institute of Petroleum (AIP) Code of Practice on “The Removal and Disposal of Underground Petroleum Storage Tanks” (Ref: AIP CP22-1994)
- WorkCover Requirements for “Abandoning Underground Tanks” (Ref: DG 310)
- The Australian Standard for the “Storage and Handling of Flammable and Combustible Liquids” (Ref: AS 1940)

Excavation and remediation/management of contaminated soils and subsequent validation of the excavations should be carried out in accordance with:

- NSW EPA Guidelines for Assessing Service Station Sites (1994);
- NSW DEC Guidelines for the NSW Site Auditor Scheme (2006)

7.2 Site Preparation and Controls

Prior to the earthworks commencing, the Contractor will undertake appropriate site preparations, including preparation of a health and safety plan and environmental management plan as per the requirements of Section 9 and implementation of any required environmental and health and safety controls.

Licences, approvals or notifications required, including, but not necessarily limited to those discussed in Section 13, should be obtained.

Geotechnical advice should be obtained prior to undertaking excavations near existing structures such as the large shed on Lot 260.

Designated areas for temporarily stockpiling of contaminated soil will be prepared. TPH contaminated soil is proposed to be stockpiled inside the large shed on Lot 260, on the concrete slab, and protected from rain. Heavy metal contaminated soil is stockpiled on two existing concrete slabs from buildings previously removed on Lot 260. The soils contaminated with higher concentrations of heavy metals have been stockpiled separately from the soils contaminated with lower concentrations of heavy metals. The stockpiles will be controlled to prevent access by unauthorised personnel. Once the soils have been stockpiled, the stockpiles will be covered by weighted polythene sheets or tarpaulins to prevent erosion of stockpiled materials. Heavy objects not containing sharp edges will be placed on the sheets to prevent them from being blown by wind. Adequate straw bales and/or silt fences will be placed around the perimeter of the stockpile area to filter runoff from the stockpiles.

Material tracking will be carried out to track material from excavations to stockpiles to treatment/disposal.

7.3 WorkCover Notification

WorkCover require notification of UST removal prior to commencement of work. The form Notice of Intention to Commence Construction Work (available from any WorkCover office) will be filled out and sent to WorkCover by the Contractor prior to commencement of work. Workcover also require notification following completion of the UST removal.

7.4 Emptying and Vapour Freeing the UST

Prior to excavations around the UST, petroleum product (if any) will be removed from the UST by a licensed liquid waste contractor using an air operated pump or other equipment suitable for a hazardous area and a suction hose, or spear, reaching to the bottom of the tank. The product will be pumped into a tanker and disposed of to an appropriately licensed Hazardous Waste Treatment Plant for treatment and/or recycling. Dockets for liquid waste disposal must be supplied by the Contractor to Coffey.

Also prior to excavations around the UST, the UST will be vapour freed in accordance with the AIP Guidelines.

7.5 Removal of the USTs and Associated Pipework

Drain, disconnect and remove redundant pipework, withdraw UST mounted equipment, and plug openings including the vent. One plug should have a 3mm hole to act as a pressure equalising vent.

Complete the excavation to expose the total width and length of the UST, and remove concrete anchors, if present. Care should be taken to prevent the excavator striking the UST. On no account should the excavator be used to punch holes in the UST.

Once removed the condition of the UST will be observed by Coffey to check for rust and holes.

The work should be planned so that as soon as the UST is fully exposed, it is immediately removed from the excavation and transported offsite as soon as practicable. The UST should be disposed to an approved facility for destruction and destruction certificates must be provided to Coffey by the Contractor

Immediately after removal of the tank from the ground it should be permanently marked with warning labels as follows:

“NOT GAS FREE

NO SMOKING

NO NAKED LIGHTS

TANK HAS CONTAINED FLAMMABLE LIQUID

NOT SUITABLE FOR STORAGE OF FOOD OR LIQUIDS INTENDED FOR HUMAN OR ANIMAL CONSUMPTION”

7.6 Excavation of TPH Contaminated Soil

Six TPH contaminated soil hotspots are known. At this stage, the extent of TPH contaminated soil in these six locations is not known.

Initially liquids (such as ponded water or product) within the excavations will be pumped out by a liquid waste contractor and disposed of to an appropriately licensed Hazardous Waste Treatment Plant for treatment.

The excavations will then be extended until visual, olfactory and PID observations by on site Coffey personnel indicate that the contaminated soil is likely to have been removed to the extent practicable. Excavated soil will be temporarily stockpiled on the designated temporary stockpiling area.

Coffey environmental personnel will be present on site to guide the excavation activities.

The excavation will be left open until validation results have been obtained. The Contractor will need to maintain the excavation according to WorkCover regulations.

Depending on the extent of contamination and the quality of the surrounding soil, temporary shoring of the excavation may be required.

If the contamination is found to extend over a significant distance or under adjacent structures making excavation of all contaminated soil not practicable, then other remedial strategies may be considered for that portion of the contamination.

7.7 Validation of Excavations

The validation work at the site will entail collecting soil samples for laboratory testing when it is judged in the field that material requiring remediation has been removed from the known TPH and Heavy Metal contamination hotspots. Visual checks will also be made in the excavations of TPH contaminated soil for potential preferred migration pathways such as underground service trenches.

The validation work will be undertaken in accordance with the guidelines presented in NSW DEC (2006) Guidelines for the NSW Site Auditor Scheme, and NSW EPA (1994) Guidelines for Assessing Service Station Sites. Validation soil samples will be collected from each wall and floor of each excavation as well as from beneath the UST pipework to assess the extent of removal of contamination impacted soil. The number of validation samples will be decided based on the size of each excavation.

The validation sampling rate will be as follows:

- 1 sample per 25m² on the base of each excavation (minimum one per base);
- 1 sample per 10m length of each wall of each excavation (minimum one per wall);
- Potentially additional samples targeting preferred migration pathways on the walls or base of the excavation (if identified);
- 1 sample per 10m length of pipework (minimum one per pipe);

The soil samples from the TPH hotspots will be tested for TPH, BTEX and Heavy Metals (arsenic, cadmium, chromium, copper, lead, nickel, zinc and mercury), and in addition, 25% of samples will also be tested for PAHs and volatile organic compounds (VOCs).

The soil samples from the PAH/Heavy Metal hotspots would be tested for Heavy Metals (arsenic, cadmium, chromium, copper, lead, nickel, zinc and mercury) and PAH.

Based on the validation sampling results, one of the following actions will be made:

- i. If some of the validation samples fail the remediation (acceptance) criteria, the soil identified as failing the remediation criteria will be further excavated. Further validation of these areas will be required. Statistical interpretation of validation data may be used to assess whether the remediation goals have been met.
- ii. If some of the validation samples fail the remediation (acceptance) criteria and further excavation is not considered practicable, alternate remedial strategies and / or risk assessment to assess the significance of the remaining contamination may be considered.
- iii. If the validation samples meet the remediation criteria, no further excavating will be required.

7.8 Validation of Groundwater

A validation strategy for groundwater will be assessed once the likely contamination sources (i.e. the contaminated soil and the UST) have been removed and the extent of contamination in the soils has been better defined.

At a minimum, the groundwater validation strategy will involve collecting an additional round of samples from the existing groundwater wells and analysis of the samples for TPH, BTEX, PAHs, and Heavy Metals (arsenic, cadmium, chromium, copper, lead, nickel, zinc and mercury).

Other groundwater validation activities that may be required may include additional rounds of groundwater monitoring from the existing wells, installation of additional wells and /or groundwater modelling.

If the groundwater validation activities reveal that groundwater contamination does not appear to be attenuating after removal of the likely sources, then remedial options will be considered and an addendum to this RAP will be prepared outlining remediation and validation procedures for the groundwater.

7.9 Management of Excavated Stockpiled Materials

The Contractor will be responsible for temporary stockpiling of contaminated soil.

Soil samples will be collected from the stockpiles of the excavated heavy metals and PAH contaminated materials and submitted for laboratory analysis for:

- Broad Contaminant Screen (17 Heavy Metals, Cyanide, Fluoride, TPH, BTEX, PAH, OCP, OPP, PCBs, Phenols, VHCs and pH), and;
- Landfill TCLP Screen (TCLP of 17 Heavy Metals, Cyanide, Fluoride, Nitrite, Surfactants and BTEX).

The soil samples will be collected at a rate of 1 sample per 25m³ up to 100m³ of stockpiled soil, and one sample per 100m³ for additional volumes.

Following laboratory analysis of the heavy metals stockpiled soils a letter will be prepared discussing waste classification and appropriate offsite disposal sites. Procedures for waste classification and offsite disposal are presented in Section 7.9.1.

The stockpiled TPH contaminated soil will be landfarmed to lower the TPH concentrations to meet the site criteria. Note that this may take several months or longer to complete and would require enough space to spread and mix the soil out in a maximum 0.5m high layer. Procedures for landfarming are presented in Section 7.9.2.

Following the laboratory analysis, if the stockpiled TPH contaminated soil meets the site remediation (acceptance) criteria and does not contain significant visual or olfactory evidence of petroleum hydrocarbon contamination, the soil will be reused to backfill the excavations subject to geotechnical considerations.

If the stockpiled soil exceeds the site remediation (acceptance) criteria or contains significant visual or olfactory evidence of petroleum hydrocarbon contamination, a letter will be prepared discussing waste classification and appropriate offsite disposal sites. Procedures for waste classification and offsite disposal are presented in Section 7.9.1.

7.9.1 Waste Classification and Offsite Disposal Option

Soil required to be disposed offsite will be classified in accordance with the NSW EPA (1999) *Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-Liquid Wastes* and then disposed of to an appropriately licensed landfill after obtaining approval from the landfill. The procedures for classifying waste are detailed in NSW EPA (1999).

Non-virgin excavated material and material excavated from a contaminated area must be classified using the procedures in Technical Appendix 1 of the NSW EPA (1999) guidelines prior to offsite disposal.

Material is classified by comparing analytical results from the material to threshold criteria provided in the guidelines. The guidelines provide investigation levels for three different waste categories, namely; inert waste; solid waste; and industrial waste. The wastes that fail to meet the criteria for industrial waste classify as hazardous waste. The guidelines provide threshold values for total concentrations and leachable concentrations obtained from TCLP testing for a list of about 50 contaminants and groups of contaminants. For a waste to be classified under a given category, both total and leachable concentrations of the waste should meet the respective investigation levels. The waste may be classified solely based on total concentrations (i.e. without undertaking leachability testing), but the applicable investigation levels when leachability testing is not undertaken are significantly lower (i.e. more stringent) than would apply when leachability testing is undertaken.

If the material classifies as hazardous waste it will require disposal offsite to a licensed treatment plant.

7.9.2 Landfarming of Petroleum Contaminated Soil

Landfarming is an effective, low-tech option for remediating hydrocarbon (TPH, BTEX) contamination in soil. Landfarming can be successful for fuel, in particular petrol and other hydrocarbon contaminants, given that other primary factors are satisfactory. Therefore, this method is likely to be suitable for TPH contaminated soils.

Landfarming, when compared with landfilling becomes significantly more cost effective as the volume increases.

The landfarming could either be used to treat soils to be suitable for reuse on site or to treat soils to a lower waste classification.

Landfarming will be undertaken in accordance with the following procedures.

Preparation of a Landfarm Area

A landfarm area will be prepared. The landfarming is proposed to be undertaken inside the large shed on Lot 260, which has concrete floor. It is noted that there are two long mechanical pits in the shed that have been filled with sand. In order to protect the sand from TPH contaminated soil, it would be necessary to cover these two long pits with polythene or low-density polyethylene sheet (at least two layers of 0.25mm thickness).

Appropriate sediment and drainage control measures will be installed. The landfarming area will be enclosed by bunds (likely to be hay bales) to prevent soil from leaving the landfarm area. Periodic inspection of the landfarm containment systems will be completed and documented by the Contractor.

Landfarm Operations and Controls

The soils being landfarmed will be mixed with Oxygen Release Compound (ORC) and Di-Ammonia Phosphate (DAP), substances that release oxygen and aid in the breakdown of TPH.

The ORC recommended is Interox IXPER 75C. If DAP isn't readily available, then Nutrosol can be used as an alternative.

The ORC and DAP should be thoroughly mixed with the soil, and water added as the ORC and DAP is mixed. Water should be added to the soils water holding capacity.

The ORC and DAP rates shown below are for the highest TPH concentration (31,020mg/kg) detected in one soil sample during the investigation and a lower, more general TPH concentration detected in other soil samples across the site. The actual rate of ORC and DAP required to remediate the hydrocarbon impacted soils will be better assessed once the soils have been excavated and stockpiled for landfarming. Samples will be collected from the stockpiled soils and an average TPH concentration will be calculated to determine the ORC and DAP rates required.

For the soils on site we have assumed that 1m³ would be equivalent to about 1.6 tonnes.

Additive	For TPH concentration of 10,825mg/kg	For TPH concentration of 31,020mg/kg
ORC	14kg/tonne	40kg/tonne
DAP	5kg/tonne	12.4kg/tonne

Once the ORC, DAP and water are mixed in, the soil stockpile should be covered with HDPE sheeting to prevent evaporation of the water. The ORC and DAP will not work effectively if the soil dries out.

The soil in the landfarm area will be checked periodically (once every month) using PID field screening and laboratory testing until field screening suggests that contamination has potentially reached the remediation criteria.

The soil turning operations and maintenance of the landfarm containment systems will be completed by the Contractor and regularly observed by Coffey personnel. Typically, landfarming will take a period of around three to six months although the period could potentially be significantly longer.

Landfarm Soil Validation and Decommissioning

Once the monitoring results (PID screening) indicate that the petroleum concentrations are likely below the site remediation (acceptance) criteria, validation samples will be collected from the landfarm soil at the rate of 1 sample per 100m³ (or a minimum of five samples) and will be tested for the chemicals of concern.

Following the laboratory analysis, if the landfarm soil meets the site remediation (acceptance) criteria, the soil will be reused on site subject to geotechnical considerations.

If the landfarm soil still exceeds the site remediation (acceptance) criteria, further landfarming activities will be undertaken as per the above procedures. Alternatively, the landfarm soil can be disposed of to an appropriately licensed landfill following waste classification.

Following the satisfactory completion of the landfarming, with soils being validated and removed from the landfarm area, the landfarm facility will be decommissioned.

7.10 Backfilling of Excavations and Imported Backfill Validation Procedures

The excavations (where contaminated soil has been removed) could be backfilled with soil from other parts of the site or clean imported VENM. Backfill soil sourced from the site would need to be validated to assess if the contaminants are below the adopted criteria. If the soil excavated from the UST excavations is validated as suitable to reuse on site, this could also potentially be reused to partially backfill the excavations. Any onsite materials would require validation from a contamination perspective prior to use as backfill in the excavations.

The contractor will be responsible for backfilling of the excavation and for undertaking the backfilling in accordance with the appropriate geotechnical specifications.

If material is required to be imported to backfill the excavations it should classify as virgin excavated natural material (VENM) in accordance with the NSW EPA (1999) *Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-Liquid Wastes*.

The Contractor must advise Coffey of the proposed source site. Coffey will then assess each proposed source site to assess whether material sourced from that site is likely to classify as VENM. This would generally include a site visit, review of existing reports (if any) and potentially a site history review as well as limited sampling and analysis.

The rate of sampling and the analytical suite for the VENM will be decided based on the assessed risk associated with the proposed VENM source site. At this stage a sampling rate would be anticipated to be in the order of one sample per 100m³ of fill material to be imported from the site. Imported fill should meet the validation criteria presented in Table 2.

It is important to note that the validation process is likely to take a minimum of one to two weeks per source site for low risk sites and longer for higher risk sites depending on the level of information available.

The material will also be observed at the point of delivery to the site by Coffey to assess the presence of visual/olfactory evidence of contamination as well as the presence of anthropogenic materials (i.e. building demolition waste etc.). If the material is observed to contain either of these, the material will be rejected.

7.11 Managing Unexpected Occurrences

If during the remediation work, material is encountered which appears to be potentially contaminated and appears to be different from the soils described in our previous assessment reports, the following procedures should apply:

- i. Suspicious material/soil which has already been excavated should be banded and stockpiled on a minimum of two layers of polythene or low-density polyethylene sheet of at least 0.25mm thickness, protected from erosion and seepage retained.
- ii. Excavation works at that part of the site where the suspicious material (soil) was encountered should cease until inspection is carried out by Coffey.
- iii. Based on visual inspection, Coffey will provide interim advice on health and safety of remedial

works, soil storage and soil disposal to allow remediation to proceed if possible.

- iv. Based on sampling and analysis of the material, Coffey will provide advice as to remedial requirements for the material.

In the context of the above, “suspicious” material would include fibrous, oily or odorous material, drums, metal or plastic chemical containers or brightly coloured material etc.

7.12 Quality Control and Reporting

The scope of validation activities has been described in the previous sections. The following sub-sections describe quality control procedures, laboratory testing and data assessment and reporting methodologies for validation sampling.

7.12.1 Sampling Activities

Sampling activities will be carried out in accordance with industry accepted standard practice and relevant NSW DEC (and former EPA) Guidelines. Samples will be collected using a new pair of disposal latex gloves where applicable. Sampling equipment which has direct contact with samples will be decontaminated between samples by scrubbing with a Decon 90 solution and then with potable water.

During validation sampling, adequate quality control samples comprising field intra-laboratory duplicates (at a minimum rate of 10% for intra-laboratory duplicate samples), trip blanks and trip spikes for volatiles and equipment wash blanks will be collected, where appropriate. Samples will be kept in ice or in a cool room of approximately 4°C and sample handling will be carried out under chain of custody protocols and in accordance with industry’s accepted standard practice.

Data Quality Indicators (DQIs) for field and laboratory QA/QC samples will be as follows:

Table 3: Data Quality Indicators

Type of Quality Control Sample	Control Limit
Duplicate Samples	RPDs within 50% for soil
Spikes	Recoveries within the following ranges: • Phenols – 50% to 130% • SVOCs – 60% to 130% • Other organics – 60% to 130% • Inorganics – 70% to 130%
Blanks	Analytes not detected

7.12.2 Laboratory Testing

The chemical testing laboratories engaged to perform the laboratory testing will be independent and NATA registered. The laboratory will be instructed to perform and report results of internal quality

control tests, which will consist of performing reagent blanks and surrogate spike analysis for organics and standard reference matrix for inorganic analysis.

The laboratory quality control data will be checked as follows:

- Checking that the reporting limits and procedures are satisfactory;
- Checking that the samples are analysed within holding times;
- Checking that laboratory blanks / reagent blanks are less than the laboratory reporting limits;
- Checking the reproducibility of samples by calculating the Relative Percentage Differences (RPDs) between primary and duplicate laboratory samples using a control limit of 50%; and
- Checking that laboratory spikes, surrogate spikes, matrix spikes and duplicate matrix spike recoveries are within acceptable control limits.

7.12.3 Data Assessment and Reporting

The laboratory data will be reviewed by Coffey to assess data usability by applying the generally utilised data validation guidelines. Statistical interpretation of validation data may be used to assess whether the remediation goals have been met. Based on the assessment, areas that have been satisfactorily remediated will be identified and will be designated by Coffey as “No Further Action Required.” Where the remediation criteria have not been met, Coffey will discuss with the client areas requiring further remediation. Further remediation may include the excavation of additional material, sampling of the excavated material and further validation sampling.

Separate remediation and validation reports will be prepared by Coffey for each lot at the completion of remediation in accordance with the relevant sections of NSW EPA (1997) Guidelines for Consultants Reporting on Contaminated Sites, NSW DEC (2006) Guidelines for the Site Auditor Scheme (2nd ed), and NSW EPA (1994) Guidelines for Assessing Service Station Sites.

8 INTERIM SITE MANAGEMENT PLAN

Prior to commencement of remediation, the contractor will undertake interim management measures including:

- Install temporary fences or barricades and warning signs around the excavations and stockpile areas;
- Install appropriate controls to divert clean stormwater away from the excavations and stockpile areas;
- Install environmental controls as per site management plan.

9 SITE MANAGEMENT PLAN DURING REMEDIATION

The Contractor will prepare a Site Management Plan for the UST removal and excavation of the contamination hotspots prior to remediation work commencing.

The Plan will address:

- Site Access
- Stormwater and soil management;
- Noise control;
- Dust control;
- Odour control;
- Occupational health and safety; and
- Other issues required to be addressed.

Each of the issues to be addressed in the site management plan is briefly discussed below:

9.1 Site Access

The contractor will ensure that adequate fences or barriers have been placed around the excavations and stockpiles to prevent access of unauthorised personnel to areas where contaminated material is exposed, and also to prevent the public from the hazards of excavations. The contractor will also place adequate warning signs around the area.

9.2 Stormwater and Soil Management

The contractor will put in place adequate stormwater runoff, run-on and sediment control measures for the remedial works.

Soil stockpiles are to be managed as per the procedures in Section 7.9.

9.3 Noise

To mitigate noise impacts which may arise as a result of remedial works, the Contractor will undertake the works in accordance with state and local noise regulations applicable to the site.

9.4 Dust Control

Dust control is required to prevent airborne dust being inhaled by human receptors. Airborne dust may be generated by wind action during the excavating and on loose earth left on the ground. This could cause a nuisance for the surrounding area and must be controlled.

Therefore, the following dust control measures are proposed:

- Dust levels will be monitored visually during site work;
- If necessary, tarpaulins will be used to line the inside of the temporary securing fence, which will assist by providing a wind break; and
- Soil will be kept adequately moist to reduce the generation of dust.

The contractor will set up a wheel grate at the entry to the site to reduce the amount of soil leaving the site by adhering to vehicles. If this is not effective, a wheel wash may need to be set up.

9.5 Odour

There is potential that some odour may be emitted during remediation associated with the TPH contaminated soil.

Coffey personnel will be onsite during the removal of the UST and TPH contaminated soil. Coffey will monitor the air quality, using a PID and olfactory observations, in the vicinity of the excavation, around the stockpiled material and at the site boundary. If PID readings within the site exceed 5ppm then site personnel should wear half face respirators with organic vapour cartridges. If PID readings within the site exceed 50ppm then work should temporarily cease and workers should move upwind of the UST excavation until the PID readings decrease. If PID readings above 50ppm persist then odour/vapour control measures should be implemented.

If PID readings at the site boundary exceed 5ppm or significant odours are observed at the site boundary then work should cease and odour/vapour control measures should be implemented.

Odour control measures could include spraying of a surfactant such as Biosolve or covering of the excavation or contaminated material.

The Contractors will properly maintain machinery to reduce smoke emissions.

9.6 Occupational Health and Safety

The contractor will prepare a site specific health and safety plan (SSHSP) prior to commencement of work in accordance with relevant legislation. The SSHSP will identify hazards, assess the risks posed by the hazards and recommend measures to control the hazards. Coffey will provide assistance in assessment of risks posed by contamination at the site.

9.6.1 Summary of UST Associated Contamination and Exposure Pathways

TPH concentrations exceeding the adopted criteria was detected in previous investigations.

Exposure of site users to TPH (and other petroleum hydrocarbons) could occur through one or all of the following pathways:

- Inhalation of contaminated dust;
- Dermal contact with contaminated soil or groundwater;
- Accidental ingestion of contaminated soil or groundwater.
- Inhalation of vapours.

If significant vapours are present there could also be an explosion risk, although this is considered unlikely.

9.6.2 Health and Safety Control Measures for Contamination Hazards

The following section presents some control measures that could be adopted to manage health and safety hazards posed by contamination during the TPH contamination remediation including:

- Site Access;
- Personal Protective Equipment;
- Safe Work Practices.

It is important to note that this section only covers contamination issues associated with petroleum hydrocarbon, and heavy metal, and PAH contaminated soil. Other aspects of health and safety, including compliance with relevant legislation and hazards associated with removal of the UST are not covered within this plan.

It is also important to note that these procedures will need to be evaluated for effectiveness and where necessary revised and/or improved during site work.

Site Access

The area will be barricaded and only authorized personnel will be allowed entry to the excavations and UST removal areas.

Personal Protective Equipment (PPE)

To minimise short and long term health risks associated with the potential exposure to contaminants, the minimum level of PPE required for persons undertaking the excavations include:

- Long sleeved shirts and long pants or coveralls;
- Steel capped workers boots.
- Chemical resistant rubber gloves for persons coming in contact with the soil;

If significant petroleum hydrocarbon odours are observed during works on the site, monitoring should be undertaken using a photoionisation detector (PID). One of the following responses will occur based on the PID readings:

- If the PID readings in the breathing zone exceed 5ppm, then a half face respirator with organic vapour cartridge will be worn;
- If the PID readings in the breathing zone exceed 50ppm, work will cease and all workers will move upwind until such a time as the PID readings reduce to below 50ppm. If the elevated PID readings persist the odorous soil will be covered by plastic or by non-odorous soil from another part of the site. Coffey will then be contacted to provide advice on odour management measures that could be adopted.

Other personal protective equipment such as safety boots and hard hats etc. are required for protection against physical hazards and should be as per normal health and safety requirements for construction sites and as per legislation.

Safe Working Practices

Clothing that becomes soiled from the remediation site works should be washed separately from other clothing.

The contractor should ensure that adequate signage is present across the remediation area to warn unauthorised persons from entering the area.

Eating, drinking, chewing gum or tobacco, smoking or any practice that involves hand to mouth transfer increases the probability of ingestion of contaminated soil or dust into the body. With respect to remediation activities, hands must be thoroughly washed after coming into contact with soil or groundwater on the site before eating, drinking or smoking.

Smoking is prohibited in the remediation areas.

10 CONTINGENCY PLAN

A contingency plan is outlined in Table 4, listing potential events that may arise during the fieldwork and actions that will be undertaken if unexpected conditions occur.

Table 4: Contingency Plan

Unexpected Condition	Action
1. Contaminated soil extends beneath the large shed on Lot 260.	The contaminated material beneath the building would be temporarily left in place. Further environmental sampling of soils will be undertaken post demolition to delineate the extent of contamination within the building footprint and subsequently remediated.
2. Groundwater is encountered within the excavation pits and visual and olfactory observations suggest that significant groundwater contamination could be present.	Install monitoring wells to assess the significance of groundwater contamination. If remediation is considered necessary, prepare an addendum to the RAP detailing remediation and validation procedures.
3. Identification of unexpected contaminated materials during excavations.	Stop work in that area. Follow procedures in Section 7.11. Additional validation samples and analytes may be required to be collected and analysed for (depending on the nature of the material).
4. Validation samples fail criteria.	Excavate additional soil and revalidate the area.
5. Landfarming is not effective within a reasonable timeframe.	Assess whether the landfarming methodology can be modified to accelerate the process (e.g. additives to enhance biodegradation, additional turning etc). Alternatively dispose of the soil offsite to an appropriately licensed landfill.
6. Additional USTs or TPH hotspots are identified.	Follow same procedures as per the identified UST, and TPH hotspots.
7. Soil classifies as hazardous waste.	Either pre-treat by landfarming on site (hydrocarbon contamination) or transport to a licensed offsite treatment facility
8. Environmental and / or OHS Controls Fail.	Environmental and OHS contingencies would be presented in the Site Management Plan to be prepared by the Contractor.

Unexpected Condition	Action
9. Other	Other unexpected events which may effect the outcome of the investigation would be notified to the Project Manager. At that time potential actions to address the unexpected event will be assessed and presented.

11 REMEDIATION SCHEDULE AND HOURS OF OPERATION

The hours of operation will be consistent with the requirements imposed by Council's Development Consent for the remedial works, assuming that Development Consent is given by Coffs Harbour City Council.

The remediation works for six of the heavy metal locations commenced in February 2007. It is expected that the remainder of the remediation works will commence in March or April 2007. Excavation of the TPH hotspots and the UST should be completed within two to three days. The duration of the landfarming may take a number of months.

12 CONTACT DURING REMEDIATION

At this stage some of the key contacts during the remediation are likely to be as shown in Table 5. A complete list of remediation contacts including site personnel will be prepared prior to commencement of the remediation.

Table 5: Key Contacts During the Remediation

Name	Company	Role	Contact
Andrew Cogle	Sandy Beach Mill	Site Owner / Project Manager	6651 7100 or 0411 537 888
Greg Hackney	Coffey	Coffey Office Manager (Coffs Harbour)	6651 3213 or 0427 773 815
Alicia Zillman	Coffey	Coffey Project Manager	6651 3213 or 0428 104 881
Emma Coleman	Coffey	Coffey Scientist	6651 3213 or 0429 359 411

13 IDENTIFICATION OF REGULATORY COMPLIANCE REQUIREMENTS

It is understood that a Development Application is being prepared for the remedial activities to be carried out within the area zoned 7(a). For other areas of the site, a letter providing Council with 30 days notice of the planned remedial activities would be prepared by Coffey for submission by Sandy Beach Mill.

During the course of the project, Sandy Beach Mill Pty Ltd (the client), Coffey and the Contractor will comply with relevant applicable environmental regulatory and legislative requirements. The following list includes State legislative requirements that may be relevant to the remediation activities:

- Contaminated Land Management Act 1997 (DEC);
- Environmental Planning and Assessment Act 1979 (DIPNR);
- Protection of the Environment Operations Act 1997 (DEC);
- Waste Avoidance and Resource Recovery Act 2001 (DEC); and
- OHS Act 2000 and OHS Regs 2001.

The remedial work should therefore be carried out in accordance with SEPP55 and appropriate NSW DEC requirements.

Prior approval from a licensed disposal facility will be required prior to removal of contaminated soil or liquid from the site.

A licensed Contractor is required to pump liquids from the UST.

WorkCover require notification of UST removal prior to commencement of work. The form Notice of Intention to Commence Construction Work (available from any WorkCover office) must be filled out and sent to WorkCover before UST removal work begins.

14 LONG TERM SITE MANAGEMENT PLAN

Based on the current remediation and validation strategy, it is considered that a long term Site Management Plan is not required.

15 CONCLUSION

It is considered that the site will be suitable for the proposed residential land use subject to implementation of remedial action in accordance with this RAP.

16 REFERENCES

Coffey Geotechnics Pty Ltd (2007) 'Phase 1 Environmental Site Assessment for Stage 1 and 2 of Proposed Residential Subdivision' (Ref: GEOTCOFH01296AA-AM, dated 5 March 2007).

Coffey Geotechnics Pty Ltd (2007) 'Stage 1 Proposed Residential Subdivision – Environmental Site Assessment and Preliminary Geotechnical and Acid Sulfate Soil Assessments' (Ref: GEOTCOFH01296AA-AN, dated 11 August 2006)

Coffey Geotechnics Pty Ltd (2007) 'Stage 2 Proposed Residential Subdivision – Environmental Site Assessment and Preliminary Geotechnical and Acid Sulfate Soil Assessments' (Ref: GEOTCOFH01296AA-AO, dated 5 March 2007)

NEPC (1999) 'National Environmental Protection (Assessment of Site Contamination) Measure' (NEPM).

NSW EPA (1994) Contaminated Sites: 'Guidelines for Assessing Service Station Sites'

NSW EPA (1995) Contaminated Sites: 'Sampling Design Guidelines for Contaminated Sites'.

NSW EPA (1997) Contaminated Sites: 'Guidelines for Consultants Reporting on Contaminated Sites'.

NSW DEC (2006) Contaminated Sites: 'Guidelines for the NSW Site Auditor Scheme (2nd ed)'.

Remedial Action Plan for Sandy Beach Mill

NSW EPA (1999) Environmental Guidelines: 'Assessment, Classification and Management of Liquid and Non-Liquid Wastes'.

For and on behalf of Coffey Geotechnics

A handwritten signature in blue ink, reading "Alicia Zillman". The signature is cursive and fluid, with the first name "Alicia" and the last name "Zillman" clearly distinguishable.

Alicia Zillman

Associate Environmental Engineer

Important information about your **Coffey** Environmental Site Assessment

Uncertainties as to what lies below the ground on potentially contaminated sites can lead to remediation costs blow outs, reduction in the value of the land and to delays in the redevelopment of land. These uncertainties are an inherent part of dealing with land contamination. The following notes have been prepared by Coffey to help you interpret and understand the limitations of your environmental site assessment report.

Your report has been written for a specific purpose

Your report has been developed on the basis of a specific purpose as understood by Coffey and applies only to the site or area investigated. For example, the purpose of your report may be:

- To assess the environmental effects of an on-going operation.
- To provide due diligence on behalf of a property vendor.
- To provide due diligence on behalf of a property purchaser.
- To provide information related to redevelopment of the site due to a proposed change in use, for example, industrial use to a residential use.
- To assess the existing baseline environmental, and sometimes geological and hydrological conditions or constraints of a site prior to an activity which may alter the sites environmental, geological or hydrological condition.

For each purpose, a specific approach to the assessment of potential soil and groundwater contamination is required. In most cases, a key objective is to identify, and if possible, quantify risks that both recognised and unrecognised contamination pose to the proposed activity. Such risks may be both financial (for example, clean up costs or limitations to the site use) and physical (for example, potential health risks to users of the site or the general public).

Subsurface conditions can change

Subsurface conditions are created by natural processes and the activity of man and may change with time. For example, groundwater levels can vary with time, fill may be placed on a site and pollutants may migrate with time. Because a report is based on conditions which existed at the time of the subsurface exploration, decisions should not be based on a report whose adequacy may have been affected by time. Consult Coffey to be advised how time may have impacted on the project and/or on the property.

Interpretation of factual data

Environmental site assessments identify actual subsurface conditions only at those points where samples are taken and when they are taken. Data derived from indirect field measurements and sometimes other reports on the site are interpreted by geologists, engineers or scientists to provide an opinion about overall site conditions, their likely impact with respect to the report purpose and recommended actions. Actual conditions may differ from those inferred to exist, because no professional, no matter how well qualified, can reveal what is hidden by earth, rock and time. The actual interface between materials may be far more gradual or abrupt than assumed based on the facts obtained. Nothing can be done to change the actual site conditions which exist, but steps can be taken to reduce the impact of unexpected conditions. For this reason, parties involved with land acquisition, management and/or redevelopment should retain the services of Coffey through the development and use of the site to identify variances, conduct additional tests if required, and recommend solutions to unexpected conditions or other problems encountered on site.

Your report will only give preliminary recommendations

Your report is based on the assumption that the site conditions as revealed through selective point sampling are indicative of actual conditions throughout an area. This assumption cannot be substantiated until project implementation has commenced and therefore your report recommendations can only be regarded as preliminary. Only Coffey, who prepared the report, is fully familiar with the background information needed to assess whether or not the report's recommendations are valid and whether or not changes should be considered with redevelopment or on-going use of the site. If another party undertakes the implementation of the recommendations of this report there is a risk that the report will be misinterpreted and Coffey cannot be held responsible for such misinterpretation.

Important information about your **Coffey** Environmental Site Assessment

Your report is prepared for specific purposes and persons

To avoid misuse of the information contained in your report it is recommended that you confer with Coffey before passing your report on to another party who may not be familiar with the background and the purpose of the report. In particular, a due diligence report for a property vendor may not be suitable for satisfying the needs of a purchaser. Your report should not be applied for any purpose other than that originally specified at the time the report was issued.

Interpretation by other professionals

Costly problems can occur when other professionals develop their plans based on misinterpretations of a report. To help avoid misinterpretations, retain Coffey to work with other professionals who are affected by the report. Have Coffey explain the report implications to professionals affected by them and then review plans and specifications produced to see how they have incorporated the report findings.

Data should not be separated from the report

The report as a whole presents the findings of the site assessment and the report should not be copied in part or altered in any way. Logs, figures, laboratory data, drawings, etc. are customarily included in our reports and are developed by scientists, engineers or geologists based on their interpretation of field logs (assembled by field personnel), field testing and laboratory evaluation of field samples. This information should not under any circumstances be redrawn for inclusion in other documents or separated from the report in any way.

Contact Coffey for additional assistance

Coffey is familiar with a variety of techniques and approaches that can be used to help reduce risks for all parties to land development and land use. It is common that not all approaches will be necessarily dealt with in your environmental site assessment report due to concepts proposed at that time. As a project progresses through planning and design toward construction and/or maintenance, speak with Coffey to develop alternative approaches to problems that may be of genuine benefit both in time and cost.

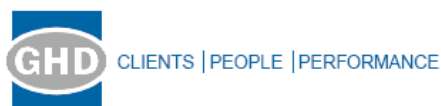
Responsibility

Environmental reporting relies on interpretation of factual information based on judgement and opinion and has a level of uncertainty attached to it, which is far less exact than other design disciplines. This has often resulted in claims being lodged against consultants, which are unfounded. To help prevent this problem, a number of clauses have been developed for use in contracts, reports and other documents. Responsibility clauses do not transfer appropriate liabilities from Coffey to other parties but are included to identify where Coffey's responsibilities begin and end. Their use is intended to help all parties involved to recognise their individual responsibilities. Read all documents from Coffey closely and do not hesitate to ask any questions you may have.

Figures



Drawing provided by client.
Drawn by:



2/115 West High St Coff Harbour NSW 2450 Australia
PO Box 1340 Coff Harbour NSW 2450
T 61 2 6650 5600 F 61 2 6652 6021
E ntlm@ghd.com.au W www.ghd.com.au

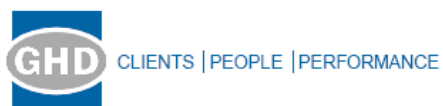
LEGEND:

-  Location of TPH contamination
-  TP107
-  TP156
-  Location of TPH & Heavy Metal contamination
-  TP101
-  Location of PAH & Heavy Metal contamination
-  H3
-  Location of Heavy Metal contamination

drawn	ELC		client:	Sandy Beach Mill Pty Ltd	
approved	AZ		project:	Remedial Action Plan Graham Drive, Sandy Beach NSW 2450	
date	19/3/2007		title:	Site Plan Showing Location of Contamination Hotspots	
scale	~1:2000		project no:	GEOTCOFH01296AC-AE	figure no: FIGURE 1
original size	A3				



Drawing provided by client.
Drawn by:



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T 61 2 6650 5600 F 61 2 6652 6021
E nllm@ghd.com.au W www.ghd.com.au

LEGEND:

- Area of Investigation
-  Approximate location of test pits

drawn	ELC		client:	Sandy Beach Mill Pty Ltd	
approved	AZ		project:	Remedial Action Plan Graham Drive, Sandy Beach NSW 2450	
date	14/3/2007		title:	Site Plan Showing Phase 1 ESA Investigation Locations	
scale	~1:2000		project no:	GEOTCOFH01296AC-AE	figure no: FIGURE 2
original size	A3				


LEGEND:

- Approximate location of groundwater wells
BH6
- Approximate location of test pits
TP117
- Approximate location of surface samples
H12

drawn	ELC
approved	AZ
date	14/3/2007
scale	~1:1500
original size	A3



client:	Sandy Beach Mill Pty Ltd	
project:	Proposed Subdivision Graham Drive, Sandy Beach NSW	
title:	Site Plan Showing Phase 2 ESA Investigation Locations	
project no:	GEOTCOFH01296AC-AE	figure no: FIGURE 3