Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-BHC	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.2			0.2	Pass	
Toxaphene	mg/kg	< 1			1	Pass	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/kg	< 0.2			0.2	Pass	
Bolstar	mg/kg	< 0.2			0.2	Pass	
Chlorfenvinphos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos-methyl	mg/kg	< 0.2			0.2	Pass	
Coumaphos	mg/kg	< 2			2	Pass	
Demeton-S	mg/kg	< 0.2			0.2	Pass	
Demeton-O	mg/kg	< 0.2			0.2	Pass	
Diazinon	mg/kg	< 0.2			0.2	Pass	
Dichlorvos	mg/kg	< 0.2			0.2	Pass	
Dimethoate	mg/kg	< 0.2			0.2	Pass	
Disulfoton	mg/kg	< 0.2			0.2	Pass	
EPN	mg/kg	< 0.2			0.2	Pass	
Ethion	mg/kg	< 0.2			0.2	Pass	
Ethoprop	mg/kg	< 0.2			0.2	Pass	
Ethyl parathion	mg/kg	< 0.2			0.2	Pass	
Fenitrothion	mg/kg	< 0.2			0.2	Pass	
Fensulfothion	mg/kg	< 0.2			0.2	Pass	
Fenthion	mg/kg	< 0.2			0.2	Pass	
Malathion	mg/kg	< 0.2			0.2	Pass	
Merphos	mg/kg	< 0.2			0.2	Pass	
Methyl parathion	mg/kg	< 0.2			0.2	Pass	
Mevinphos	mg/kg	< 0.2			0.2	Pass	
Monocrotophos	mg/kg	< 2			2	Pass	
Naled	mg/kg	< 0.2			0.2	Pass	
Omethoate	mg/kg	< 2			2	Pass	
Phorate	mg/kg	< 0.2			0.2	Pass	
Pirimiphos-methyl	mg/kg	< 0.2			0.2	Pass	
Pyrazophos	mg/kg	< 0.2			0.2	Pass	
Ronnel	mg/kg	< 0.2			0.2	Pass	
Terbufos	mg/kg	< 0.2			0.2	Pass	
Tetrachlorvinphos	mg/kg	< 0.2			0.2	Pass	
Tokuthion	mg/kg	< 0.2			0.2	Pass	
Trichloronate	mg/kg	< 0.2			0.2	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/kg	< 0.5			0.5	Pass	
Aroclor-1221	mg/kg	< 0.1			0.1	Pass	
Aroclor-1232	mg/kg	< 0.5			0.5	Pass	
Aroclor-1242	mg/kg	< 0.5			0.5	Pass	
Aroclor-1248	mg/kg	< 0.5			0.5	Pass	
Aroclor-1254	mg/kg	< 0.5			0.5	Pass	
Aroclor-1260	mg/kg	< 0.5			0.5	Pass	
Total PCB*	mg/kg	< 0.5			0.5	Pass	
Method Blank							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	130			70-130	Pass	
TRH C10-C14	%	107			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	117			70-130	Pass	
Toluene	%	124			70-130	Pass	
Ethylbenzene	%	128			70-130	Pass	
m&p-Xylenes	%	130			70-130	Pass	
o-Xylene	%	114			70-130	Pass	
Xylenes - Total*	%	124			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	121			70-130	Pass	
TRH C6-C10	%	129			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	83			70-130	Pass	
Acenaphthylene	%	83			70-130	Pass	
Anthracene	%	91			70-130	Pass	
Benz(a)anthracene	%	85			70-130	Pass	
Benzo(a)pyrene	%	92			70-130	Pass	
Benzo(b&j)fluoranthene	%	79			70-130	Pass	
Benzo(g.h.i)perylene	%	81			70-130	Pass	
Benzo(k)fluoranthene	%	92			70-130	Pass	
Chrysene	%	88			70-130	Pass	
Dibenz(a.h)anthracene	%	78			70-130	Pass	
Fluoranthene	%	79			70-130	Pass	
Fluorene	%	89			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	75			70-130	Pass	
Naphthalene	%	88			70-130	Pass	
Phenanthrene	%	84			70-130	Pass	
Pyrene	%	76			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	102			70-130	Pass	
4.4'-DDD	%	106			70-130	Pass	
4.4'-DDE	%	102			70-130	Pass	
4.4'-DDT	%	79			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
a-BHC	%	101			70-130	Pass	
Aldrin	%	97			70-130	Pass	
b-BHC	%	94			70-130	Pass	
d-BHC	%	92			70-130	Pass	
Dieldrin	%	102			70-130	Pass	
Endosulfan I	%	99			70-130	Pass	
Endosulfan II	%	87			70-130	Pass	
Endosulfan sulphate	%	91			70-130	Pass	
Endrin	%	95			70-130	Pass	
Endrin aldehyde	%	97			70-130	Pass	
Endrin ketone	%	92			70-130	Pass	
g-BHC (Lindane)	%	99			70-130	Pass	
Heptachlor	%	103			70-130	Pass	
Heptachlor epoxide	%	109			70-130	Pass	
Hexachlorobenzene	%	101			70-130	Pass	
Methoxychlor	%	99			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	104			70-130	Pass	
Dimethoate	%	114			70-130	Pass	
Ethion	%	117			70-130	Pass	
Fenitrothion	%	112			70-130	Pass	
Methyl parathion	%	124			70-130	Pass	
Mevinphos	%	89			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							
Aroclor-1016	%	123			70-130	Pass	
Aroclor-1260	%	126			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	%	105			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	99			80-120	Pass	
Cadmium	%	95			80-120	Pass	
Chromium	%	106			80-120	Pass	
Copper	%	107			80-120	Pass	
Lead	%	103			80-120	Pass	
Mercury	%	103			80-120	Pass	
Nickel	%	106			80-120	Pass	
Zinc	%	105			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S20-Se17485	NCP	%	111			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	N20-Se24643	CP	%	103			70-130	Pass	
TRH C10-C14	N20-Se24643	CP	%	96			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	N20-Se24643	CP	%	113			70-130	Pass	
Toluene	N20-Se24643	CP	%	115			70-130	Pass	
Ethylbenzene	N20-Se24643	CP	%	99			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
m&p-Xylenes	N20-Se24643	CP	%	99			70-130	Pass	
o-Xylene	N20-Se24643	CP	%	109			70-130	Pass	
Xylenes - Total*	N20-Se24643	CP	%	102			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH C6-C10	N20-Se24643	CP	%	106			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	N20-Se24643	CP	%	95			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	N20-Se24643	CP	%	91			75-125	Pass	
Cadmium	N20-Se24643	CP	%	97			75-125	Pass	
Chromium	N20-Se24643	CP	%	100			75-125	Pass	
Copper	N20-Se24643	CP	%	106			75-125	Pass	
Lead	N20-Se24643	CP	%	106			75-125	Pass	
Mercury	N20-Se24643	CP	%	121			75-125	Pass	
Nickel	N20-Se24643	CP	%	103			75-125	Pass	
Zinc	N20-Se24643	CP	%	102			75-125	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S20-Se19434	NCP	%	106			70-130	Pass	
Acenaphthylene	S20-Se19434	NCP	%	110			70-130	Pass	
Anthracene	S20-Se19434	NCP	%	116			70-130	Pass	
Benz(a)anthracene	S20-Se19434	NCP	%	110			70-130	Pass	
Benzo(a)pyrene	S20-Se19434	NCP	%	117			70-130	Pass	
Benzo(b&j)fluoranthene	S20-Se19434	NCP	%	130			70-130	Pass	
Benzo(k)fluoranthene	S20-Se19758	NCP	%	92			70-130	Pass	
Chrysene	S20-Se19434	NCP	%	114			70-130	Pass	
Dibenz(a.h)anthracene	S20-Se19758	NCP	%	77			70-130	Pass	
Fluoranthene	S20-Se19434	NCP	%	106			70-130	Pass	
Fluorene	S20-Se19434	NCP	%	115			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S20-Se19758	NCP	%	75			70-130	Pass	
Naphthalene	S20-Se19434	NCP	%	114			70-130	Pass	
Phenanthrene	S20-Se19434	NCP	%	111			70-130	Pass	
Pyrene	S20-Se19434	NCP	%	104			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	S20-Se17485	NCP	%	106			70-130	Pass	
4.4'-DDD	S20-Se17485	NCP	%	114			70-130	Pass	
4.4'-DDE	S20-Se17485	NCP	%	109			70-130	Pass	
4.4'-DDT	S20-Se17485	NCP	%	95			70-130	Pass	
a-BHC	S20-Se17485	NCP	%	106			70-130	Pass	
Aldrin	S20-Se17485	NCP	%	97			70-130	Pass	
b-BHC	S20-Se17485	NCP	%	102			70-130	Pass	
d-BHC	S20-Se17485	NCP	%	106			70-130	Pass	
Dieldrin	S20-Se17485	NCP	%	104			70-130	Pass	
Endosulfan I	S20-Se17485	NCP	%	114			70-130	Pass	
Endosulfan II	S20-Se17485	NCP	%	108			70-130	Pass	
Endosulfan sulphate	S20-Se17485	NCP	%	105			70-130	Pass	
Endrin	S20-Se17485	NCP	%	114			70-130	Pass	
Endrin ketone	S20-Se17485	NCP	%	98			70-130	Pass	
g-BHC (Lindane)	S20-Se17485	NCP	%	104			70-130	Pass	
Heptachlor	S20-Se17485	NCP	%	101			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Heptachlor epoxide	S20-Se17485	NCP	%	109			70-130	Pass	
Hexachlorobenzene	S20-Se17485	NCP	%	107			70-130	Pass	
Methoxychlor	S20-Se17485	NCP	%	118			70-130	Pass	
Spike - % Recovery									
Organophosphorus Pesticides				Result 1					
Diazinon	S20-Se19434	NCP	%	105			70-130	Pass	
Dimethoate	S20-Se19339	NCP	%	126			70-130	Pass	
Ethion	S20-Se17485	NCP	%	107			70-130	Pass	
Fenitrothion	S20-Se17485	NCP	%	103			70-130	Pass	
Methyl parathion	S20-Se17485	NCP	%	114			70-130	Pass	
Mevinphos	S20-Se19434	NCP	%	88			70-130	Pass	
Spike - % Recovery									
Polychlorinated Biphenyls				Result 1					
Aroclor-1260	S20-Se17485	NCP	%	85			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	N20-Se24642	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	N20-Se24642	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	N20-Se24642	CP	mg/kg	130	130	2.0	30%	Pass	
TRH C29-C36	N20-Se24642	CP	mg/kg	110	110	7.0	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	N20-Se24642	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	N20-Se24642	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	N20-Se24642	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	N20-Se24642	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	N20-Se24642	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	N20-Se24642	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	N20-Se24642	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	N20-Se24642	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	N20-Se24642	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	N20-Se24642	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	N20-Se24642	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	N20-Se24642	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	N20-Se24642	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	N20-Se24642	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	N20-Se24642	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	N20-Se24642	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	N20-Se24642	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	N20-Se24642	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	N20-Se24642	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	N20-Se24642	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	N20-Se24642	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	N20-Se24642	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	N20-Se24642	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	N20-Se24642	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	N20-Se24642	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	N20-Se24642	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	N20-Se24642	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	N20-Se24642	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	N20-Se24642	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	N20-Se24642	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-BHC	N20-Se24642	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	N20-Se24642	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	N20-Se24642	CP	mg/kg	< 0.05	0.06	58	30%	Fail	Q15
Endosulfan I	N20-Se24642	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	N20-Se24642	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	N20-Se24642	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	N20-Se24642	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	N20-Se24642	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	N20-Se24642	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-BHC (Lindane)	N20-Se24642	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	N20-Se24642	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	N20-Se24642	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	N20-Se24642	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	N20-Se24642	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	N20-Se24642	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Bolstar	N20-Se24642	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorfenvinphos	N20-Se24642	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos	N20-Se24642	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos-methyl	N20-Se24642	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Coumaphos	N20-Se24642	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Demeton-S	N20-Se24642	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Demeton-O	N20-Se24642	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Diazinon	N20-Se24642	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dichlorvos	N20-Se24642	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dimethoate	N20-Se24642	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Disulfoton	N20-Se24642	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
EPN	N20-Se24642	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethion	N20-Se24642	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethoprop	N20-Se24642	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethyl parathion	N20-Se24642	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenitrothion	N20-Se24642	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fensulfothion	N20-Se24642	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenthion	N20-Se24642	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Malathion	N20-Se24642	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Merphos	N20-Se24642	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Methyl parathion	N20-Se24642	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Mevinphos	N20-Se24642	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Monocrotophos	N20-Se24642	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Naled	N20-Se24642	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Omethoate	N20-Se24642	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Phorate	N20-Se24642	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pirimiphos-methyl	N20-Se24642	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pyrazophos	N20-Se24642	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ronnel	N20-Se24642	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Terbufos	N20-Se24642	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tetrachlorvinphos	N20-Se24642	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	

Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Tokuthion	N20-Se24642	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Trichloronate	N20-Se24642	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Duplicate									
Polychlorinated Biphenyls				Result 1	Result 2	RPD			
Aroclor-1016	S20-Se20511	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1221	S20-Se20511	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1232	S20-Se20511	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1242	S20-Se20511	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1248	S20-Se20511	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1254	S20-Se20511	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1260	S20-Se20511	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Total PCB*	S20-Se20511	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	N20-Se24642	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	N20-Se24642	CP	mg/kg	120	130	10	30%	Pass	
TRH >C34-C40	N20-Se24642	CP	mg/kg	< 100	100	14	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	N20-Se24642	CP	mg/kg	7.8	6.7	15	30%	Pass	
Cadmium	N20-Se24642	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	N20-Se24642	CP	mg/kg	18	17	4.0	30%	Pass	
Copper	N20-Se24642	CP	mg/kg	25	28	9.0	30%	Pass	
Lead	N20-Se24642	CP	mg/kg	71	100	34	30%	Fail	Q15
Mercury	N20-Se24642	CP	mg/kg	< 0.1	0.1	29	30%	Pass	
Nickel	N20-Se24642	CP	mg/kg	16	16	1.0	30%	Pass	
Zinc	N20-Se24642	CP	mg/kg	130	150	13	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	N20-Se24642	CP	%	27	26	2.0	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	N20-Se24655	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	N20-Se24655	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	N20-Se24655	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	N20-Se24655	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	N20-Se24655	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	N20-Se24655	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	N20-Se24655	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	N20-Se24655	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	N20-Se24655	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	N20-Se24659	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	N20-Se24659	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	N20-Se24659	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	N20-Se24659	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	N20-Se24659	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	N20-Se24659	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	N20-Se24659	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Benzo(k)fluoranthene	N20-Se24659	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	N20-Se24659	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	N20-Se24659	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	N20-Se24659	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	N20-Se24659	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	N20-Se24659	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	N20-Se24659	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	N20-Se24659	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	N20-Se24659	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	N20-Se24659	CP	mg/kg	10	12	14	30%	Pass	
Cadmium	N20-Se24659	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	N20-Se24659	CP	mg/kg	17	21	19	30%	Pass	
Copper	N20-Se24659	CP	mg/kg	17	19	11	30%	Pass	
Lead	N20-Se24659	CP	mg/kg	27	17	46	30%	Fail	Q15
Mercury	N20-Se24659	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	N20-Se24659	CP	mg/kg	7.0	7.6	8.0	30%	Pass	
Zinc	N20-Se24659	CP	mg/kg	26	30	14	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	N20-Se24659	CP	%	24	21	10	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	N/A
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised By

Andrew Black	Analytical Services Manager
Andrew Sullivan	Senior Analyst-Organic (NSW)
Gabriele Cordero	Senior Analyst-Metal (NSW)
Nibha Vaidya	Senior Analyst-Asbestos (NSW)

Glenn Jackson
General Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

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

Measurement uncertainty of test data is available on request or please click here.

Certificate of Analysis

WSP Australia P/L Newcastle
PO Box 1162
Newcastle
NSW 2300

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025–Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention:	Hamish Donovan
Report	744055-AID
Project Name	WWPS BLOCK H_OSDNORTH
Project ID	PS119057
Received Date	Sep 15, 2020
Date Reported	Sep 16, 2020

Methodology:

Asbestos Fibre Identification	Conducted in accordance with the Australian Standard AS 4964 – 2004: Method for the Qualitative Identification of Asbestos in Bulk Samples and in-house Method LTM-ASB-8020 by polarised light microscopy (PLM) and dispersion staining (DS) techniques. *NOTE: Positive Trace Analysis results indicate the sample contains detectable respirable fibres.*
Unknown Mineral Fibres	Mineral fibres of unknown type, as determined by PLM with DS, may require another analytical technique, such as Electron Microscopy, to confirm unequivocal identity. *NOTE: While Actinolite, Anthophyllite and Tremolite asbestos may be detected by PLM with DS, due to variability in the optical properties of these materials, AS4964 requires that these are reported as UMF unless confirmed by an independent technique.*
Subsampling Soil Samples	The whole sample submitted is first dried and then passed through a 10mm sieve followed by a 2mm sieve. All fibrous matter greater than 10mm, greater than 2mm as well as the material passing through the 2mm sieve are retained and analysed for the presence of asbestos. If the sub 2mm fraction is greater than approximately 30 to 60g then a sub-sampling routine based on ISO 3082:2009(E) is employed. *NOTE: Depending on the nature and size of the soil sample, the sub-2 mm residue material may need to be sub-sampled for trace analysis, in accordance with AS 4964-2004.*
Bonded asbestos-containing material (ACM)	The material is first examined and any fibres isolated for identification by PLM and DS. Where required, interfering matrices may be removed by disintegration using a range of heat, chemical or physical treatments, possibly in combination.The resultant material is then further examined in accordance with AS 4964 - 2004. *NOTE: Even after disintegration it may be difficult to detect the presence of asbestos in some asbestos-containing bulk materials using PLM and DS. This is due to the low grade or small length or diameter of the asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials. Vinyl/asbestos floor tiles, some asbestos-containing sealants and mastics, asbestos-containing epoxy resins and some ore samples are examples of these types of material, which are difficult to analyse.*
Limit of Reporting	The performance limitation of the AS 4964 (2004) method for non-homogeneous samples is around 0.1 g/kg (equivalent to 0.01% (w/w)). Where no asbestos is found by PLM and DS, including Trace Analysis, this is considered to be at the nominal reporting limit of 0.01% (w/w). The NEPM screening level of 0.001% (w/w) is intended as an on-site determination, not a laboratory Limit of Reporting (LOR), per se. Examination of a large sample size (e.g. 500 mL) may improve the likelihood of detecting asbestos, particularly AF, to aid assessment against the NEPM criteria. Gravimetric determinations to this level of accuracy are outside of AS 4964 and hence NATA Accreditation does not cover the performance of this service (non-NATA results shown with an asterisk). *NOTE: NATA News March 2014, p.7, states in relation to AS 4964: "This is a qualitative method with a nominal reporting limit of 0.01 % " and that currently in Australia "there is no validated method available for the quantification of asbestos".This report is consistent with the analytical procedures and reporting recommendations in the NEPM and the WA DoH.*

Project Name WWPS BLOCK H_OSDNORTH
Project ID PS119057
Date Sampled Sep 13, 2020
Report 744055-AID

Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
TP01_0.1-0.2	20-Se24642	Sep 13, 2020	Approximate Sample 638g Sample consisted of: Brown fine-grained clayey soil, bitumen, cement and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
TP02_0.1-0.2	20-Se24644	Sep 13, 2020	Approximate Sample 691g Sample consisted of: Brown fine-grained clayey soil, bitumen and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
TP03_0.1-0.2	20-Se24645	Sep 13, 2020	Approximate Sample 620g Sample consisted of: Brown fine-grained clayey soil, bitumen and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
TP04_0.1-0.2	20-Se24647	Sep 13, 2020	Approximate Sample 464g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
TP06_0.2-0.3	20-Se24653	Sep 13, 2020	Approximate Sample 888g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
TP07_0.2-0.3	20-Se24654	Sep 13, 2020	Approximate Sample 762g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported. A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8020	Sydney	Sep 15, 2020	Indefinite

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Company Name: WSP Australia P/L Newcastle
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NSW 2300

Project Name: WWPS BLOCK H_OSDNORTH
Project ID: PS119057

Order No.:
Report #: 744055
Phone: 02 4929 8300
Fax: 02 4929 7299

Received: Sep 15, 2020 8:00 AM
Due: Sep 16, 2020
Priority: 1 Day
Contact Name: Hamish Donovan

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - WA guidelines	CANCELLED	HOLD	Moisture Set	Eurofins Suite B7	Eurofins Suite B7 (filtered metals)	BTEXN and Volatile TRH	BTEXN and Volatile TRH	Suite B10E:TRH/BTEXN/PAH/OCP/OPP/PCB/M8
Melbourne Laboratory - NATA Site # 1254 & 14271														
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794														
Perth Laboratory - NATA Site # 23736														
Newcastle Laboratory														
External Laboratory														
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**									
1	TP01_0.1-0.2	Sep 13, 2020		Soil	N20-Se24642	X			X					X
2	TP01_0.3-0.4	Sep 13, 2020		Soil	N20-Se24643				X	X				
3	TP02_0.1-0.2	Sep 13, 2020		Soil	N20-Se24644	X			X	X				
4	TP03_0.1-0.2	Sep 13, 2020		Soil	N20-Se24645	X			X					X
5	TP03_0.3-0.4	Sep 13, 2020		Soil	N20-Se24646				X	X				
6	TP04_0.1-0.2	Sep 13, 2020		Soil	N20-Se24647	X			X	X				
7	TP05_0.3-0.4	Sep 13, 2020		Soil	N20-Se24648				X	X				
8	Trip spike Soil	Sep 13, 2020		Trip Spike (solid)	N20-Se24649								X	

eurofins | Environment Testing

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Company Name: WSP Australia P/L Newcastle
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Project Name: WWPS BLOCK H_OSDNORTH
Project ID: PS119057

Order No.:
Report #: 744055
Phone: 02 4929 8300
Fax: 02 4929 7299

Received: Sep 15, 2020 8:00 AM
Due: Sep 16, 2020
Priority: 1 Day
Contact Name: Hamish Donovan

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - WA guidelines	CANCELLED	HOLD	Moisture Set	Eurofins Suite B7	Eurofins Suite B7 (filtered metals)	BTEXN and Volatile TRH	BTEXN and Volatile TRH	Suite B10E:TRH/BTEXN/PAH/OCP/OPP/PCB/M8
Melbourne Laboratory - NATA Site # 1254 & 14271														
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794														
Perth Laboratory - NATA Site # 23736														
9	Trip spike Blank	Sep 13, 2020		Trip Blank (solid)	N20-Se24650							X		
10	RB130920	Sep 13, 2020		Water	N20-Se24652						X			
11	TP06_0.2-0.3	Sep 13, 2020		Soil	N20-Se24653	X			X	X				
12	TP07_0.2-0.3	Sep 13, 2020		Soil	N20-Se24654	X			X					X
13	TP07_0.4-0.5	Sep 13, 2020		Soil	N20-Se24655				X	X				
14	TP02_0.3-0.4	Sep 13, 2020		Soil	N20-Se24656			X						
15	TP04_0.3-0.4	Sep 13, 2020		Soil	N20-Se24657			X						
16	TP06_0.4-0.5	Sep 13, 2020		Soil	N20-Se24658			X						
17	QA1	Sep 13, 2020		Soil	N20-Se24659				X	X				
18		Sep 13, 2020		Soil	N20-Se24660		X							
Test Counts						6	1	3	11	8	1	1	1	3

Internal Quality Control Review and Glossary

General

1. QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Samples were analysed on an 'as received' basis.
4. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
5. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

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

Units

% w/w: weight for weight basis	grams per kilogram
Filter loading:	fibres/100 graticule areas
Reported Concentration:	fibres/mL
Flowrate:	L/min

Terms

Dry	Sample is dried by heating prior to analysis
LOR	Limit of Reporting
COC	Chain of Custody
SRA	Sample Receipt Advice
ISO	International Standards Organisation
AS	Australian Standards
WA DOH	Reference document for the NEPM. Government of Western Australia, Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia (2009), including supporting document Recommended Procedures for Laboratory Analysis of Asbestos in Soil (2011)
NEPM	National Environment Protection (Assessment of Site Contamination) Measure, 2013 (as amended)
ACM	Asbestos Containing Materials. Asbestos contained within a non-asbestos matrix, typically presented in bonded and/or sound condition. For the purposes of the NEPM, ACM is generally restricted to those materials that do not pass a 7mm x 7mm sieve.
AF	Asbestos Fines. Asbestos containing materials, including friable, weathered and bonded materials, able to pass a 7mm x 7mm sieve. Considered under the NEPM as equivalent to “non-bonded / friable”.
FA	Fibrous Asbestos. Asbestos containing materials in a friable and/or severely weathered condition. For the purposes of the NEPM, FA is generally restricted to those materials that do not pass a 7mm x 7mm sieve.
Friable	Asbestos-containing materials of any size that may be broken or crumbled by hand pressure. For the purposes of the NEPM, this includes both AF and FA. It is outside of the laboratory’s remit to assess degree of friability.
Trace Analysis	Analytical procedure used to detect the presence of respirable fibres in the matrix.

Comments

N20-Se24647: Sample received were less than the nominal 500mL as recommended in Section 4.10 of the NEPM Schedule B1 - Guideline on Investigation Levels for Soil and Groundwater.

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	N/A
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N/A	Not applicable

Asbestos Counter/Identifier:

Laxman Dias	Senior Analyst-Asbestos (NSW)

Authorised by:

Sayeed Abu	Senior Analyst-Asbestos (NSW)

Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

Measurement uncertainty of test data is available on request or please click here.

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Certificate of Analysis

WSP Australia P/L Newcastle
PO Box 1162
Newcastle
NSW 2300

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **Hamish Donovan**

Report **744055-W**
Project name WWPS BLOCK H_OSDNORTH
Project ID PS119057
Received Date Sep 15, 2020

Client Sample ID			**RB130920**
Sample Matrix			**Water**
Eurofins Sample No.			**N20-Se24652**
Date Sampled			**Sep 13, 2020**
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons - 1999 NEPM Fractions			
TRH C6-C9	0.02	mg/L	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	< 0.1
BTEX			
Benzene	0.001	mg/L	< 0.001
Toluene	0.001	mg/L	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002
o-Xylene	0.001	mg/L	< 0.001
Xylenes - Total*	0.003	mg/L	< 0.003
4-Bromofluorobenzene (surr.)	1	%	99
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene[N02]	0.01	mg/L	< 0.01
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05
TRH C6-C10	0.02	mg/L	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02
Polycyclic Aromatic Hydrocarbons			
Acenaphthene	0.001	mg/L	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001
Anthracene	0.001	mg/L	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001
Chrysene	0.001	mg/L	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001
Fluoranthene	0.001	mg/L	< 0.001
Fluorene	0.001	mg/L	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001
Naphthalene	0.001	mg/L	< 0.001
Phenanthrene	0.001	mg/L	< 0.001
Pyrene	0.001	mg/L	< 0.001

Client Sample ID			RB130920
Sample Matrix			**Water**
Eurofins Sample No.			**N20-Se24652**
Date Sampled			**Sep 13, 2020**
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
Total PAH*	0.001	mg/L	< 0.001
2-Fluorobiphenyl (surr.)	1	%	INT
p-Terphenyl-d14 (surr.)	1	%	115
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
TRH >C10-C16	0.05	mg/L	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1
Heavy Metals			
Arsenic (filtered)	0.001	mg/L	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001
Copper (filtered)	0.001	mg/L	< 0.001
Lead (filtered)	0.001	mg/L	< 0.001
Mercury (filtered)	0.0001	mg/L	< 0.0001
Nickel (filtered)	0.001	mg/L	< 0.001
Zinc (filtered)	0.005	mg/L	< 0.005

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Sep 16, 2020	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	Sep 16, 2020	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Sep 16, 2020	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Sydney	Sep 16, 2020	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Sep 16, 2020	
- Method: LTM-ORG-2010 TRH C6-C40			
Metals M8 filtered	Sydney	Sep 16, 2020	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			

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IANZ # 1290

Company Name: WSP Australia P/L Newcastle
Address: PO Box 1162
Newcastle
NSW 2300

Project Name: WWPS BLOCK H_OSDNORTH
Project ID: PS119057

Order No.:
Report #: 744055
Phone: 02 4929 8300
Fax: 02 4929 7299

Received: Sep 15, 2020 8:00 AM
Due: Sep 16, 2020
Priority: 1 Day
Contact Name: Hamish Donovan

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - WA guidelines	CANCELLED	HOLD	Moisture Set	Eurofins Suite B7	Eurofins Suite B7 (filtered metals)	BTEXN and Volatile TRH	BTEXN and Volatile TRH	Suite B10E:TRH/BTEXN/PAH/OCP/OPP/PCB/M8
Melbourne Laboratory - NATA Site # 1254 & 14271														
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794														
Perth Laboratory - NATA Site # 23736														
Newcastle Laboratory														
External Laboratory														
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**									
1	TP01_0.1-0.2	Sep 13, 2020		Soil	N20-Se24642	X			X					X
2	TP01_0.3-0.4	Sep 13, 2020		Soil	N20-Se24643				X	X				
3	TP02_0.1-0.2	Sep 13, 2020		Soil	N20-Se24644	X			X	X				
4	TP03_0.1-0.2	Sep 13, 2020		Soil	N20-Se24645	X			X					X
5	TP03_0.3-0.4	Sep 13, 2020		Soil	N20-Se24646				X	X				
6	TP04_0.1-0.2	Sep 13, 2020		Soil	N20-Se24647	X			X	X				
7	TP05_0.3-0.4	Sep 13, 2020		Soil	N20-Se24648				X	X				
8	Trip spike Soil	Sep 13, 2020		Trip Spike (solid)	N20-Se24649								X	

Date Reported:Sep 16, 2020

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Melbourne Laboratory - NATA Site # 1254 & 14271														
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794														
Perth Laboratory - NATA Site # 23736														
9	Trip spike Blank	Sep 13, 2020		Trip Blank (solid)	N20-Se24650							X		
10	LAB Trip spike	Sep 13, 2020		Trip Spike (solid)	N20-Se24651								X	
11	RB130920	Sep 13, 2020		Water	N20-Se24652						X			
12	TP06_0.2-0.3	Sep 13, 2020		Soil	N20-Se24653	X			X	X				
13	TP07_0.2-0.3	Sep 13, 2020		Soil	N20-Se24654	X			X					X
14	TP07_0.4-0.5	Sep 13, 2020		Soil	N20-Se24655				X	X				
15	TP02_0.3-0.4	Sep 13, 2020		Soil	N20-Se24656			X						
16	TP04_0.3-0.4	Sep 13, 2020		Soil	N20-Se24657			X						
17	TP06_0.4-0.5	Sep 13, 2020		Soil	N20-Se24658			X						
18	QA1	Sep 13, 2020		Soil	N20-Se24659				X	X				
19		Sep 13, 2020		Soil	N20-Se24660		X							

Date Reported:Sep 16, 2020

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Sample Detail	Asbestos - WA guidelines	CANCELLED	HOLD	Moisture Set	Eurofins Suite B7	Eurofins Suite B7 (filtered metals)	BTEXN and Volatile TRH	BTEXN and Volatile TRH	Suite B10E:TRH/BTEXN/PAH/OCP/OPP/PCB/M8
Melbourne Laboratory - NATA Site # 1254 & 14271									
Sydney Laboratory - NATA Site # 18217	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794									
Perth Laboratory - NATA Site # 23736									
Test Counts	6	1	3	11	8	1	1	2	3

Date Reported:Sep 16, 2020

Date Reported:Sep 16, 2020

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

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

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

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

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.3
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 20-130% Phenols & 50-150% PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.3 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total*	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/L	< 0.001			0.001	Pass	
Acenaphthylene	mg/L	< 0.001			0.001	Pass	
Anthracene	mg/L	< 0.001			0.001	Pass	
Benz(a)anthracene	mg/L	< 0.001			0.001	Pass	
Benzo(a)pyrene	mg/L	< 0.001			0.001	Pass	
Benzo(b&j)fluoranthene	mg/L	< 0.001			0.001	Pass	
Benzo(g.h.i)perylene	mg/L	< 0.001			0.001	Pass	
Benzo(k)fluoranthene	mg/L	< 0.001			0.001	Pass	
Chrysene	mg/L	< 0.001			0.001	Pass	
Dibenz(a.h)anthracene	mg/L	< 0.001			0.001	Pass	
Fluoranthene	mg/L	< 0.001			0.001	Pass	
Fluorene	mg/L	< 0.001			0.001	Pass	
Indeno(1.2.3-cd)pyrene	mg/L	< 0.001			0.001	Pass	
Naphthalene	mg/L	< 0.001			0.001	Pass	
Phenanthrene	mg/L	< 0.001			0.001	Pass	
Pyrene	mg/L	< 0.001			0.001	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
Heavy Metals							
Arsenic (filtered)	mg/L	< 0.001			0.001	Pass	
Cadmium (filtered)	mg/L	< 0.0002			0.0002	Pass	
Chromium (filtered)	mg/L	< 0.001			0.001	Pass	
Copper (filtered)	mg/L	< 0.001			0.001	Pass	
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
Mercury (filtered)	mg/L	< 0.0001			0.0001	Pass	
Nickel (filtered)	mg/L	< 0.001			0.001	Pass	
Zinc (filtered)	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	89			70-130	Pass	
TRH C10-C14	%	100			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	95			70-130	Pass	
Toluene	%	100			70-130	Pass	
Ethylbenzene	%	100			70-130	Pass	
m&p-Xylenes	%	101			70-130	Pass	
o-Xylene	%	97			70-130	Pass	
Xylenes - Total*	%	99			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	110			70-130	Pass	
TRH C6-C10	%	88			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	94			70-130	Pass	
Acenaphthylene	%	130			70-130	Pass	
Anthracene	%	112			70-130	Pass	
Benzo(g.h.i)perylene	%	120			70-130	Pass	
Benzo(k)fluoranthene	%	113			70-130	Pass	
Chrysene	%	100			70-130	Pass	
Fluoranthene	%	95			70-130	Pass	
Fluorene	%	109			70-130	Pass	
Naphthalene	%	82			70-130	Pass	
Phenanthrene	%	114			70-130	Pass	
Pyrene	%	101			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	%	94			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic (filtered)	%	102			80-120	Pass	
Cadmium (filtered)	%	100			80-120	Pass	
Chromium (filtered)	%	99			80-120	Pass	
Copper (filtered)	%	99			80-120	Pass	
Lead (filtered)	%	99			80-120	Pass	
Mercury (filtered)	%	115			80-120	Pass	
Nickel (filtered)	%	101			80-120	Pass	
Zinc (filtered)	%	100			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S20-Se16765	NCP	%	84			70-130	Pass	
TRH C10-C14	S20-Se17671	NCP	%	85			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S20-Se16765	NCP	%	93			70-130	Pass	
Toluene	S20-Se16765	NCP	%	98			70-130	Pass	
Ethylbenzene	S20-Se16765	NCP	%	97			70-130	Pass	
m&p-Xylenes	S20-Se16765	NCP	%	97			70-130	Pass	
o-Xylene	S20-Se16765	NCP	%	96			70-130	Pass	
Xylenes - Total*	S20-Se16765	NCP	%	97			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S20-Se16765	NCP	%	124			70-130	Pass	
TRH C6-C10	S20-Se16765	NCP	%	83			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S20-Se16917	NCP	%	115			70-130	Pass	
Chrysene	S20-Se16917	NCP	%	115			70-130	Pass	
Fluoranthene	S20-Se16917	NCP	%	117			70-130	Pass	
Pyrene	S20-Se16917	NCP	%	125			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	S20-Se17671	NCP	%	78			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	S20-Se26746	NCP	%	125			75-125	Pass	
Cadmium (filtered)	S20-Se26746	NCP	%	111			75-125	Pass	
Chromium (filtered)	S20-Se26746	NCP	%	113			75-125	Pass	
Copper (filtered)	S20-Se26746	NCP	%	107			75-125	Pass	
Lead (filtered)	S20-Se26746	NCP	%	110			75-125	Pass	
Mercury (filtered)	S20-Se26746	NCP	%	114			75-125	Pass	
Nickel (filtered)	S20-Se26746	NCP	%	109			75-125	Pass	
Zinc (filtered)	S20-Se26746	NCP	%	111			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S20-Se16447	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH C10-C14	S20-Se17602	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	S20-Se17602	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	S20-Se17602	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S20-Se16447	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	S20-Se16447	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	S20-Se16447	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	S20-Se16447	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	S20-Se16447	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total*	S20-Se16447	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S20-Se16447	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
TRH C6-C10	S20-Se16447	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S20-Se16900	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Acenaphthylene	S20-Se16900	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Anthracene	S20-Se16900	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benz(a)anthracene	S20-Se16900	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(a)pyrene	S20-Se16900	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(b&j)fluoranthene	S20-Se16900	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(g.h.i)perylene	S20-Se16900	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(k)fluoranthene	S20-Se16900	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chrysene	S20-Se16900	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibenz(a.h)anthracene	S20-Se16900	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	

Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Fluoranthene	S20-Se16900	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluorene	S20-Se16900	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S20-Se16900	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Naphthalene	S20-Se16900	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Phenanthrene	S20-Se16900	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Pyrene	S20-Se16900	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	S20-Se17602	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C16-C34	S20-Se17602	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40	S20-Se17602	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	S20-Se26085	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium (filtered)	S20-Se26085	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium (filtered)	S20-Se26085	NCP	mg/L	0.001	0.001	2.0	30%	Pass	
Copper (filtered)	S20-Se26085	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Lead (filtered)	S20-Se26085	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Mercury (filtered)	S20-Se26085	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel (filtered)	S20-Se26085	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Zinc (filtered)	S20-Se26085	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	N/A
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised By

Andrew Black	Analytical Services Manager
Andrew Sullivan	Senior Analyst-Organic (NSW)
Gabriele Cordero	Senior Analyst-Metal (NSW)

Glenn Jackson
General Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

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

Measurement uncertainty of test data is available on request or please click here.

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Hamish Donovan
Client	WSP AUSTRALIA PTY LIMITED
Address	Level 27, Ernst & Young Centre 680 George St NSW 2000
Telephone	0400 359 547
Facsimile	02 9272 5101
Email	Hamish.Donovan@wsp.com
Project	**PS119057 WWPS Block H OSDNorth**
Order Number	**PS119057**
Samples	1

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
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Email	au.environmental.sydney@sgs.com
SGS Reference	**SE211210 R0**
Date Received	16/9/2020
Date Reported	23/9/2020

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

SIGNATORIES

Bennet LO
Senior Organic Chemist/Metals Chemist

Dong LIANG
Metals/Inorganics Team Leader

Kamrul AHSAN
Senior Chemist

Ly Kim HA
Organic Section Head

VOC's in Soil [AN433] Tested: 16/9/2020

PARAMETER	UOM	LOR	QA1A SOIL - 13/9/2020 SE211210.001
Benzene	mg/kg	0.1	<0.1
Toluene	mg/kg	0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2
o-xylene	mg/kg	0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 16/9/2020

PARAMETER	UOM	LOR	QA1A SOIL - 13/9/2020 SE211210.001
TRH C6-C9	mg/kg	20	<20
Benzene (F0)	mg/kg	0.1	<0.1
TRH C6-C10	mg/kg	25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 16/9/2020

PARAMETER	UOM	LOR	QA1A SOIL - 13/9/2020 SE211210.001
TRH C10-C14	mg/kg	20	<20
TRH C15-C28	mg/kg	45	<45
TRH C29-C36	mg/kg	45	<45
TRH C37-C40	mg/kg	100	<100
TRH >C10-C16	mg/kg	25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120
TRH C10-C36 Total	mg/kg	110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 16/9/2020

PARAMETER	UOM	LOR	QA1A SOIL - 13/9/2020 SE211210.001
Naphthalene	mg/kg	0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1
Fluorene	mg/kg	0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1
Anthracene	mg/kg	0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1
Pyrene	mg/kg	0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1
Chrysene	mg/kg	0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 16/9/2020

PARAMETER	UOM	LOR	QA1A SOIL - 13/9/2020 SE211210.001
Arsenic, As	mg/kg	1	**9**
Cadmium, Cd	mg/kg	0.3	<0.3
Chromium, Cr	mg/kg	0.5	**11**
Copper, Cu	mg/kg	0.5	**11**
Lead, Pb	mg/kg	1	**14**
Nickel, Ni	mg/kg	0.5	**2.7**
Zinc, Zn	mg/kg	2	**13**

Mercury in Soil [AN312] Tested: 16/9/2020

PARAMETER	UOM	LOR	QA1A SOIL - 13/9/2020 SE211210.001
Mercury	mg/kg	0.05	<0.05

Moisture Content [AN002] Tested: 17/9/2020

PARAMETER	UOM	LOR	QA1A SOIL - 13/9/2020 SE211210.001
% Moisture	%w/w	1	**20.1**

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid , mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser . Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Recoverable Hydrocarbons - Silica (TRH-Si) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents .
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken . This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup /fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	Carcinogenic PAHs may be expressed as Benzo(a)pyrene equivalents by applying the BaP toxicity equivalence factor (NEPM 1999, June 2013, B7). These can be reported as the individual PAHs and as a sum of carcinogenic PAHs. The sum is reported three ways, the first assuming all <LOR results are zero, the second assuming all < LOR results are half the LOR and the third assuming all <LOR results are the LOR.
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
		NVL	Not validated.	LOR	Limit of Reporting.
**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
***	Indicates that both * and ** apply.	LNR	Sample listed, but not received.		

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

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ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES2032601**	Page	: 1 of 8
Client	: **WSP Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: MS WENDY CADELAGO	Contact	: Grace White
Address	: PO BOX 1162 NEWCASTLE NSW, AUSTRALIA 2300	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: PS119057 WWPS Block H_OSDNorth	Date Samples Received	: 16-Sep-2020 12:15
Order number	: ----	Date Analysis Commenced	: 18-Sep-2020
C-O-C number	: ----	Issue Date	: 24-Sep-2020 09:52
Sampler	: WENDY CADELAGO		
Site	: ----		
Quote number	: EN/008/20		
No. of samples received	: 1		
No. of samples analysed	: 1		

ilac-MRA NATA
Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Alana Smylie	Asbestos Identifier	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EA200N: Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.
  Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present)
  The Asbestos (Fines and Fibrous) weight is calculated from the extracted Fibrous Asbestos and Asbestos Fines as an equivalent weight of 100% Asbestos
  Percentages for Asbestos content in ACM are based on the 2013 NEPM default values.
  All calculations of percentage Asbestos under this method are approximate and should be used as a guide only.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200N: ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP05_0.1-0.2	----	----	----	----
				Client sampling date / time	13-Sep-2020 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2032601-001	--------	--------	--------	--------	--------
				Result	----	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%	**13.1**	----	----	----	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg	**No**	----	----	----	----	----
Asbestos Type	1332-21-4	-	--	**-**	----	----	----	----	----
Asbestos (Trace)	1332-21-4	5	Fibres	**No**	----	----	----	----	----
Sample weight (dry)	----	0.01	g	**713**	----	----	----	----	----
Synthetic Mineral Fibre	----	0.1	g/kg	**No**	----	----	----	----	----
Organic Fibre	----	0.1	g/kg	**No**	----	----	----	----	----
APPROVED IDENTIFIER:	----	-	--	**A. SMYLIE**	----	----	----	----	----
EA200N: Asbestos Quantification (non-NATA)									
ø Asbestos (Fines and Fibrous <7mm)	1332-21-4	0.0004	g	<0.0004	----	----	----	----	----
ø Asbestos (Fines and Fibrous FA+AF)	----	0.001	% (w/w)	<0.001	----	----	----	----	----
ø Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	----	----	----	----
ø Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	% (w/w)	<0.01	----	----	----	----	----
ø Weight Used for % Calculation	----	0.0001	kg	**0.713**	----	----	----	----	----
ø Fibrous Asbestos >7mm	----	0.0004	g	<0.0004	----	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg	**12**	----	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----	----
Chromium	7440-47-3	2	mg/kg	**17**	----	----	----	----	----
Copper	7440-50-8	5	mg/kg	**10**	----	----	----	----	----
Lead	7439-92-1	5	mg/kg	**24**	----	----	----	----	----
Nickel	7440-02-0	2	mg/kg	**5**	----	----	----	----	----
Zinc	7440-66-6	5	mg/kg	**17**	----	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	----	----	----	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	----	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	----	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	----	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP05_0.1-0.2	----	----	----	----
				Client sampling date / time	13-Sep-2020 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2032601-001	--------	--------	--------	--------
					Result	----	----	----	----
EP068A: Organochlorine Pesticides (OC) - Continued									
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg		<0.05	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg		<0.05	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg		<0.05	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	----	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	----	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	----	----	----	----
Endrin	72-20-8	0.05	mg/kg		<0.05	----	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	----	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	----	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	----	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	----	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	----	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	----	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	----	----	----	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	----	----	----	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	----	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	----	----	----	----
Malathion	121-75-5	0.05	mg/kg		<0.05	----	----	----	----
Fenthion	55-38-9	0.05	mg/kg		<0.05	----	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	----	----	----	----
Parathion	56-38-2	0.2	mg/kg		<0.2	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP05_0.1-0.2	----	----	----	----
				Client sampling date / time	13-Sep-2020 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2032601-001	--------	--------	--------	--------
					Result	----	----	----	----
EP068B: Organophosphorus Pesticides (OP) - Continued									
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	----	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	----	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	----	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	----	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	----	----	----	----
Ethion	563-12-2	0.05	mg/kg		<0.05	----	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	----	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	----	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP05_0.1-0.2	----	----	----	----
				Client sampling date / time	13-Sep-2020 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2032601-001	--------	--------	--------	--------
					Result	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons - Continued									
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	----	----	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	----	----	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	----	----	----	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	----	----	----	----
Naphthalene	91-20-3	1	mg/kg		<1	----	----	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**91.9**	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**105**	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**53.0**	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**105**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		**99.3**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		**73.0**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**107**	----	----	----	----
Anthracene-d10	1719-06-8	0.5	%		**102**	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		**102**	----	----	----	----

Analytical Results

Sub-Matrix: **SOIL** (Matrix: **SOIL**)				Client sample ID	**TP05_0.1-0.2**	----	----	----	----
				Client sampling date / time	13-Sep-2020 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		**ES2032601-001**	--------	--------	--------	--------
					Result	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**74.2**	----	----	----	----
Toluene-D8	2037-26-5	0.2	%		**79.9**	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		**81.6**	----	----	----	----

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	TP05_0.1-0.2 - 13-Sep-2020 00:00	Mid brown soil.

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	133
Toluene-D8	2037-26-5	74	132
4-Bromofluorobenzene	460-00-4	72	130

Attachment E
SOIL LOGS

TEST PIT NO.

TEST PIT ENVIRONMENTAL LOG

TP01

SHEET 1 OF 1

Client:	**Grindley Constructions Pty Ltd**	Date Commenced:	**13/9/20**
Project:	**Wentworthville Public School**	Date Completed:	**13/9/20**
Test Pit Location:	**70-100 Fullagar Road, South Wentworthville NSW**	Recorded By:	**WC**
Project Number:	**PS119057**	Log Checked By:	**SR**

Excavation Method: **Hand Auger**

Surface RL:

Co-ords:

Test Pit Information						Field Material Description				
1	2	3	4	5	6	7	8	9	10	11
WATER	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION (SOIL NAME; plasticity/grain size, colour, particle shape, secondary components, minor constituents, moisture, relative density/consistency) (ROCK NAME; grain size, colour, weathering, strength, minor constituents)	MOISTURE	RELATIVE DENSITY /CONSISTENCY VS S F ST VST H / FB VL L MD D VD	HAND PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS (Defects - depth, type, orientation, spacing, planarity, roughness, thickness, coating)
						TOPSOIL: SILT; brown, moist				
	0.10		J+B			FILL: reworked CLAY; orange with grey mottles, firm, moist, with cobbles.	M			TP01_0.1-0.2
	0.30		J			CLAY; orange with grey mottles, firm, moist.				TP01_0.3-0.4
						END OF TEST PIT AT 0.40 m				

TEST PIT NO.

TEST PIT ENVIRONMENTAL LOG

TP02

SHEET 1 OF 1

Client:	**Grindley Constructions Pty Ltd**	Date Commenced:	**13/9/20**
Project:	**Wentworthville Public School**	Date Completed:	**13/9/20**
Test Pit Location:	**70-100 Fullagar Road, South Wentworthville NSW**	Recorded By:	**WC**
Project Number:	**PS119057**	Log Checked By:	**SR**

Excavation Method: **Hand Auger**

Surface RL:

Co-ords:

Test Pit Information				Field Material Description						
1	2	3	4	5	6	7	8	9	10	11
WATER	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION (SOIL NAME; plasticity/grain size, colour, particle shape, secondary components, minor constituents, moisture, relative density/consistency) (ROCK NAME; grain size, colour, weathering, strength, minor constituents)	MOISTURE	RELATIVE DENSITY /CONSISTENCY VS S F ST VST H / FB VL L MD D VD	HAND PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS (Defects - depth, type, orientation, spacing, planarity, roughness, thickness, coating)
						ASPHALT				
	0.10		J+B			FILL: CLAY; orange with grey mottles, firm, moist.	M			TP02_0.1-0.2
			J							TP02_0.3-0.4
						END OF TEST PIT AT 0.40 m				

TEST PIT NO.

TEST PIT ENVIRONMENTAL LOG

TP03

SHEET 1 OF 1

Client:	**Grindley Constructions Pty Ltd**	Date Commenced:	**13/9/20**
Project:	**Wentworthville Public School**	Date Completed:	**13/9/20**
Test Pit Location:	**70-100 Fullagar Road, South Wentworthville NSW**	Recorded By:	**WC**
Project Number:	**PS119057**	Log Checked By:	**SR**

Excavation Method: **Hand Auger**

Surface RL:

Co-ords:

Test Pit Information				Field Material Description						
1	2	3	4	5	6	7	8	9	10	11
WATER	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION (SOIL NAME; plasticity/grain size, colour, particle shape, secondary components, minor constituents, moisture, relative density/consistency) (ROCK NAME; grain size, colour, weathering, strength, minor constituents)	MOISTURE	RELATIVE DENSITY /CONSISTENCY VS S F ST VST / FB VL L MD D VD H	HAND PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS (Defects - depth, type, orientation, spacing, planarity, roughness, thickness, coating)
						ASPHALT				
	0.10		J+B			FILL: CLAY; orange with grey mottles, firm, moist.	M			TP03_0.1-0.2
			J							TP03_0.3-0.4
						END OF TEST PIT AT 0.40 m				

TEST PIT NO.

TEST PIT ENVIRONMENTAL LOG

TP04

SHEET 1 OF 1

Client:	**Grindley Constructions Pty Ltd**	Date Commenced:	**13/9/20**
Project:	**Wentworthville Public School**	Date Completed:	**13/9/20**
Test Pit Location:	**70-100 Fullagar Road, South Wentworthville NSW**	Recorded By:	**WC**
Project Number:	**PS119057**	Log Checked By:	**SR**

Excavation Method: **Hand Auger**

Surface RL:

Co-ords:

Test Pit Information				Field Material Description						
1	2	3	4	5	6	7	8	9	10	11
WATER	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION (SOIL NAME; plasticity/grain size, colour, particle shape, secondary components, minor constituents, moisture, relative density/consistency) (ROCK NAME; grain size, colour, weathering, strength, minor constituents)	MOISTURE	RELATIVE DENSITY /CONSISTENCY VS S F ST VST H / FB VL L MD D VD	HAND PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS (Defects - depth, type, orientation, spacing, planarity, roughness, thickness, coating)
						ASPHALT				
	0.10		J+B			FILL: CLAY; orange with grey mottles, firm, moist.	M			TP04_0.1-0.2
			J							TP04_0.3-0.4
						END OF TEST PIT AT 0.40 m				

TEST PIT NO.

TEST PIT ENVIRONMENTAL LOG

TP05

SHEET 1 OF 1

Client:	**Grindley Constructions Pty Ltd**	Date Commenced:	**13/9/20**
Project:	**Wentworthville Public School**	Date Completed:	**13/9/20**
Test Pit Location:	**70-100 Fullagar Road, South Wentworthville NSW**	Recorded By:	**WC**
Project Number:	**PS119057**	Log Checked By:	**SR**

Excavation Method: **Hand Auger**

Surface RL:

Co-ords:

Test Pit Information						Field Material Description				
1	2	3	4	5	6	7	8	9	10	11
WATER	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION (SOIL NAME; plasticity/grain size, colour, particle shape, secondary components, minor constituents, moisture, relative density/consistency) (ROCK NAME; grain size, colour, weathering, strength, minor constituents)	MOISTURE	RELATIVE DENSITY /CONSISTENCY VS S F ST VST H / FB VL L MD D VD	HAND PENETROMETER (kPa)	STRUCTURE AND ADDITIONAL OBSERVATIONS (Defects - depth, type, orientation, spacing, planarity, roughness, thickness, coating)
						ASPHALT				
	0.10		J+B			FILL: CLAY; red, firm, moderate plasticity, moist, with gravels.	M			TP05_0.1-0.2
	0.30		J			CLAY; red, firm, moderate plasticity, moist.				TP05_0.3-0.4
						END OF TEST PIT AT 0.40 m				

APPENDIX C

PHOTOLOG

Photographs	
Report Name:	Block H Validation Report
Project Reference:	PS119057
Site Details:	Western Stage 1, Wentworthville Publi c School

Photo 1: Post fill removal works

Photo 2: Placement and pinning of geotextile material at the entrance and exit gate

Photo 3: Stockpile covered with geofab

Photo 4 : Sieving taking place around OSD tank

Photographs	
Report Name:	Block H Validation Report
Project Reference:	PS119057
Site Details:	Western Stage 1, Wentworthville Publi c School

Photo 5: Example of COLA before excavation

Photo 6 : Example of material separation

Photographs	
Report Name:	Block H Validation Report
Project Reference:	PS119057
Site Details:	Western Stage 1, Wentworthville Publi c School

Photo 7 :	OSD tank removal

Photo 8 :	Example of OSD tank validation

Photo 9:	One of the air monitoring pumps placed south of the site

Photo 10 :	Excavated material placed on geotextile material facing northeast

Photographs	
Report Name:	Block H Validation Report
Project Reference:	PS119057
Site Details:	Western Stage 1, Wentworthville Publi c School

Photo 11:	Entrance and exit gate covered with geofabric layer and imported certified material

Photo 12:	Post fill removal works

Photo 13:	Example of sieving throughout the site

Photo 14:	Post fill removal works

Photographs	
Report Name:	Block H Validation Report
Project Reference:	PS119057
Site Details:	Western Stage 1, Wentworthville Publi c School

Photo 15: Post fill removal works

Photo 16: Post fill removal works

Photo 17: Post OSD tank clay validation

Photo 18: Tree exclusion zone- fill not removed

Photographs	
Report Name:	Block H Validation Report
Project Reference:	PS119057
Site Details:	Western Stage 1, Wentworthville Publi c School

Photo 19:	Example of excavted material stockpiled

Photo 20:	Example of material sample collected at VS14

Photo 21:	WSP inspection dated on 15/05/2020 - placement and pinning of geotextile material around OSD wall

Photo 22:	WSP inspection dated on 15/05/2020 - placement and pinning of geotextile material around the exposed walls through site

Photographs	
Report Name:	Block H Validation Report
Project Reference:	PS119057
Site Details:	Western Stage 1, Wentworthville Publi c School

Photo 23: WSP inspection dated on 15/05/2020 - placement and pinning of geotextile material around OSD wall

Photo 24: WSP inspection dated on 19/09/2020 - Placement and pinning of geotextile material around OSD wall

Photo 25: Block H area following completion

Photo 26: Block H area following completion

Photographs	
Report Name:	Block H Validation Report
Project Reference:	PS119057
Site Details:	Western Stage 1, Wentworthville Publi c School

Photo 27: ACM contaminated fill material being transferred directly to the dump truck

Photo 28: Example of regular air monitoring undertaken at Ramp 9 during excavation work

Photo 29: Removal of ACM containing fill material

Photo 30: Exposed clay layer of Ramp 9 area

Photographs	
Report Name:	Block H Validation Report
Project Reference:	PS119057
Site Details:	Western Stage 1, Wentworthville Publi c School

Photo 31: Example of exposed wall covered with geofabric material at Ramp 9

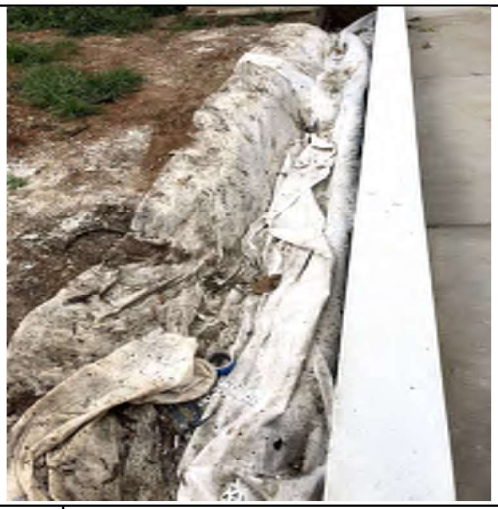


Photo 32: Example of exposed wall covered with geofabric material at Ramp 9

Photo 33: Example of exposed wall covered with geofabric material at Ramp 9

Photo 34: Ramp 9 following completion

Photographs	
Report Name:	Block H Validation Report
Project Reference:	PS119057
Site Details:	Western Stage 1, Wentworthville Publi c School

Photo 35: TP01 - TP05 detailed exavation area in natural clay

Photo 36: Natural clay excavated and exposed under COLA on eastern edge of site

Photo 37: Geotextile placement under concrete (placed on natural clay) near TP06 and TP07 sampling area

Photo 38 Photo showing 150mm U shape pin used to hold geofabric material

End of photolog

APPENDIX D

DISPOSAL DOCUMENTATION

Waste Disposoal register
Wentworthville Public School

Waste disposal register							
Date	15-04-20	16-04-20	17-04-20	18-04-20	20-04-20	21-04-20	22-04-20
	14.02	12.34	14.04	11.64	13.3	15.72	10.82
	12.42	12.84	11.3	12.26	12.12	14.54	11.36
	12.26	15.3	14.56	12.42	14.1	14.18	10.94
	19.72	11.82	12.48	12.8	12.78	13.58	
	13.6	12.58	11.58	13.28	14.3	12.52	
	11.94	11.2	13.26	11.98	14.3	12.7	
	12.44	11.66	11.82	12.16	14.72	11.86	
	12.28	12.14	11.62	12.7	12.12	11.74	
	16.94	14.34	11.68	12.46	14.08		
	12.2	12.3	11.84	13.02	12.62		
	14.58	12.42	11.6	12.42	13.5		
	12.08	13.62	14.14	12.14	12.9		
	14.52	9.1	11.16	13.92	13.56		
		11.92	11.86	11.92	13.08		
		13.94	14.36	12.52			
		12.58	11.04	12.64			
		11.5	12.16	12.42			
		13.5	14.6	13.74			
		11.54	11.3	12.52			
		10.98	11.56				
		11.3					
		11.26					
		11.92					
		12.04					
Tonnes /day	179	294.14	247.96	238.96	187.48	106.84	33.12

SI/VDRCT:

Site Specific Location: "Block H"

walan

TRUCK REGISTER

Import/(Export)
Site Address: 70-100 Fullagar Road, Wentworthville – Wentworthville P.S
Material Classification Report/Supplier:
Date: 15-4-20

B=BOGIE/T&D=TRUCK&DOG/S=SEMI

LOAD NO.	TRUCK PLATE NO.	TRUCK TYPE	TIME IN	TIME OUT	MATERIAL TYPE	Source/Tipping Facility
1	CN26MF	B	7.20	7.25	S.W.A	Bingo.
2	XN841C	B/H-T	7.50	7.55	S.W.A	Bingo.
3	CN26MF	B	8.32	8.38	SWA	Bingo
4	XN841C	H-T	8.57	9.04	SWA	Bingo
5	CN26MF	B	9.48	9.52	S.W.A	Bingo
6	XN841C	H-T	10.19	10.22	S.W.A	Bingo
7	CN26MF	B	10.50	10.55	SWA	Bingo
8	XN841C	H-T	11.29	11.35	SWA	Bingo
9	CN26MF	B	11.57	12.03	SWA	Bingo
10	XN841C	H-T	12.46	12.50	SWA	Bingo
11	CN26MF	B	1.01	1.05	SWA	Bingo
12	XN841C	H-T	1.58	2.04	SWA	Bingo
13	CN26MF	B	2.07	2.12	SWA	Bingo
		-END OF LOADS-				

15/4/20

Eastern Creek Ecology Park

Bingo Waste Services Pty Ltd

A.B.N 43162988623

1 Kangaroo Avenue

EASTERN CREEK NSW 2766

Phone: 1300 424 646

Docket GEN1092446-1

Date: 15/04/20

Time In: 11:53:54 AM | Time Out: 12:22:59 PM

Customer

Walan Construction Services Pty Ltd

100 Fullagar Rd

WENTWORTHVILLE

PO: WENTWORTHVILLE

Vehicle: XN84IC

Type	UOM	Qty.
Gross:	Tonne	27.97
Tare:	Tonne	13.90
Net: Incoming: Asbestos Soils	Tonne	14.07
	Bin Size: 10 m3	

Printed: 15/04/2020 12:23:16 PM

Signature: Don

Statement of Compliance

You are under the instruction of site personnel
All machinery has right of way at all times
No hazardous materials are accepted
All Drivers must check axle weights and GVM
All loads must be adequately restrained
You agree to take all reasonable steps to prevent breaches of heavy vehicle national laws
Any breaches of the above may be subject to extra charges

Quote Contract Reference No. A636 for faster service.

WENTY

Eastern Creek Ecology Park

Bingo Waste Services Pty Ltd

A.B.N 43162988623

1 Kangaroo Avenue

EASTERN CREEK NSW 2766

Phone: 1300 424 646

Docket GEN1092473-1

Date: 15/04/20

Time In: 12:19:01 PM | Time Out: 12:41:00 PM

Customer

Walan Construction Services Pty Ltd

100 Fullagar Rd

WENTWORTHVILLE

PO: WENTWORTHVILLE

Vehicle: CN26MF

Type	UOM	Qty.
Gross:	Tonne	23.24
Tare:	Tonne	10.82
Net: Incoming: Asbestos Soils	Tonne	12.42

Printed: 15/04/2020 12:41:11 PM

Signature: Smiley

Statement of Compliance

You are under the instruction of site personnel
All machinery has right of way at all times
No hazardous materials are accepted
All Drivers must check axle weights and GVM
All loads must be adequately restrained
You agree to take all reasonable steps to prevent breaches of heavy vehicle national laws
Any breaches of the above may be subject to extra charges

Quote Contract Reference No. A636 for faster service.

Eastern Creek Ecology Park

Bingo Waste Services Pty Ltd

A.B.N 43162988623

1 Kangaroo Avenue

EASTERN CREEK NSW 2766

Phone: 1300 424 646

Docket GEN1092533-1

Date: 15/04/20

Time In: 1:12:02 PM | Time Out: 1:36:56 PM

Customer

Walan Construction Services Pty Ltd

100 Fullagar Rd

WENTWORTHVILLE

PO: WENTWORTHVILLE

Vehicle: XN84IC

Type	UOM	Qty.
Gross:	Tonne	26.14
Tare:	Tonne	13.88
Net: Incoming: Asbestos Soils	Tonne	12.26
	Bin Size: 10 m3	

Printed: 15/04/2020 1:37:10 PM

Signature: Don

Statement of Compliance

You are under the instruction of site personnel
All machinery has right of way at all times
No hazardous materials are accepted
All Drivers must check axle weights and GVM
All loads must be adequately restrained
You agree to take all reasonable steps to prevent breaches of heavy vehicle national laws
Any breaches of the above may be subject to extra charges

Quote Contract Reference No. A636 for faster service.

WLNTY

Eastern Creek Ecology Park

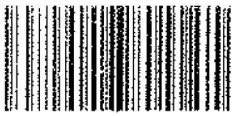
Bingo Waste Services Pty Ltd

A.B.N 43162988623

1 Kangaroo Avenue

EASTERN CREEK NSW 2766

Phone: 1300 424 646



Docket GEN1092555-1

Date: 15/04/20

Time In: 1:26:42 PM | Time Out: 1:45:25 PM

Customer

Walan Construction Services Pty Ltd

100 Fullagar Rd

WENTWORTHVILLE

PO: WENTWORTHVILLE

Vehicle: CN26MF

Type	UOM	Qty.
Gross:	Tonne	22.82
Tare:	Tonne	3.10
Net: Incoming: Asbestos Soils	Tonne	19.72

Printed: 15/04/2020 1:45:35 PM

Signature: Darren

Statement of Compliance

You are under the instruction of site personnel
All machinery has right of way at all times
No hazardous materials are accepted
All Drivers must check axle weights and GVM
All loads must be adequately restrained
You agree to take all reasonable steps to prevent breaches of heavy vehicle national laws
Any breaches of the above may be subject to extra charges

Quote Contract Reference No. A636 for faster service

Eastern Creek Ecology Park

Bingo Waste Services Pty Ltd

A.B.N 43162988623

1 Kangaroo Avenue

EASTERN CREEK NSW 2766

Phone: 1300 424 646

Docket GEN1092644-1

Date: 15/04/20

Time In: 2:50:21 PM | Time Out: 3:11:33 PM

Customer

Walan Construction Services Pty Ltd

100 Fullagar Rd

WENTWORTHVILLE

PO: WENTWORTHVILLE

Vehicle: XN84IC

Type	UOM	Qty.
Gross:	Tonne	27.48
Tare:	Tonne	13.88
Net: Incoming: Asbestos Soils	Tonne	13.60
	Bin Size: 10 m3	

Printed: 15/04/2020 3:11:43 PM

Signature: Dean

Statement of Compliance

You are under the instruction of site personnel
All machinery has right of way at all times
No hazardous materials are accepted
All Drivers must check axle weights and GVM
All loads must be adequately restrained
You agree to take all reasonable steps to prevent breaches of heavy vehicle national laws
Any breaches of the above may be subject to extra charges

Quote Contract Reference No. A636 for faster service.

WLNTY

Eastern Creek Ecology Park

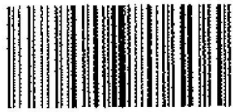
Bingo Waste Services Pty Ltd

A.B.N 43162988623

1 Kangaroo Avenue

EASTERN CREEK NSW 2766

Phone: 1300 424 646



Docket GEN1092643-1

Date: 15/04/20

Time In: 2:49:32 PM | Time Out: 3:09:40 PM

Customer

Walan Construction Services Pty Ltd

100 Fullagar Rd

WENTWORTHVILLE

PO: WENTWORTHVILLE

Vehicle: CN26MF

Type	UOM	Qty.
Gross:	Tonne	22.76
Tare:	Tonne	10.82
Net: Incoming: Asbestos Soils	Tonne	11.94

Printed: 15/04/2020 3:09:53 PM

Signature: Darren

Statement of Compliance

You are under the instruction of site personnel
All machinery has right of way at all times
No hazardous materials are accepted
All Drivers must check axle weights and GVM
All loads must be adequately restrained
You agree to take all reasonable steps to prevent breaches of heavy vehicle national laws
Any breaches of the above may be subject to extra charges

Quote Contract Reference No. A636 for faster service.

WENT1

Eastern Creek Ecology Park

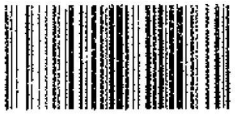
Bingo Waste Services Pty Ltd

A.B.N 43162988623

1 Kangaroo Avenue

EASTERN CREEK NSW 2766

Phone: 1300 424 646



Docket GEN1092399-1

Date: 15/04/20

Time In: 11:13:39 AM | Time Out: 11:36:02 AM

Customer

Walan Construction Services Pty Ltd

100 Fullagar Rd

WENTWORTHVILLE

PO: WENTWORTHVILLE

Vehicle: CN26MF

Type	UOM	Qty.
Gross:	Tonne	23.28
Tare:	Tonne	10.84
Net: Incoming: Asbestos Soils	Tonne	12.44

Printed: 15/04/2020 11:36:20 AM

Signature: Darren

Statement of Compliance

You are under the instruction of site personnel
All machinery has right of way at all times
No hazardous materials are accepted
All Drivers must check axle weights and GVM
All loads must be adequately restrained
You agree to take all reasonable steps to prevent breaches of heavy vehicle national laws
Any breaches of the above may be subject to extra charges

Quote Contract Reference No. A636 for faster service.

WENT2

Eastern Creek Ecology Park

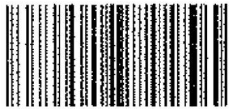
Bingo Waste Services Pty Ltd

A.B.N 43162988623

1 Kangaroo Avenue

EASTERN CREEK NSW 2766

Phone: 1300 424 646



Docket GEN1092151-1

Date: 15/04/20

Time In: 7:49:36 AM | Time Out: 8:09:13 AM

Customer

Walan Construction Services Pty Ltd

100 Fullagar Rd

WENTWORTHVILLE

PO: WENTWORTHVILLE

Vehicle: CN26MF

Type	UOM	Qty.
Gross:	Tonne	23.38
Tare:	Tonne	10.90
Net: Incoming: Asbestos Soils	Tonne	12.48

Printed: 15/04/2020 8:09:22 AM

Signature: Darren

Statement of Compliance

You are under the instruction of site personnel
All machinery has right of way at all times
No hazardous materials are accepted
All Drivers must check axle weights and GVM
All loads must be adequately restrained
You agree to take all reasonable steps to prevent breaches of heavy vehicle national laws
Any breaches of the above may be subject to extra charges

Quote Contract Reference No. A636 for faster service.

Eastern Creek Ecology Park

Bingo Waste Services Pty Ltd

A.B.N 43162988623

1 Kangaroo Avenue

EASTERN CREEK NSW 2766

Phone: 1300 424 646

Docket GEN1092174-1

Date: 15/04/20

Time In: 8:19:23 AM | Time Out: 8:37:05 AM

Customer

Walan Construction Services Pty Ltd

100 Fullagar Rd

WENTWORTHVILLE

PO: WENTWORTHVILLE

Vehicle: XN84IC

Type	UOM	Qty.
Gross:	Tonne	30.88
Tare:	Tonne	13.94
Net: Incoming: Asbestos Soils	Tonne	16.94
	Bin Size: 30 m3	

Printed: 15/04/2020 8:37:20 AM

Signature: Dan

Statement of Compliance

You are under the instruction of site personnel
All machinery has right of way at all times
No hazardous materials are accepted
All Drivers must check axle weights and GVM
All loads must be adequately restrained
You agree to take all reasonable steps to prevent breaches of heavy vehicle national laws
Any breaches of the above may be subject to extra charges

Quote Contract Reference No. A636 for faster service.

WC017

Eastern Creek Ecology Park

Bingo Waste Services Pty Ltd

A.B.N 43162988623

1 Kangaroo Avenue

EASTERN CREEK NSW 2766

Phone: 1300 424 646

Docket GEN1092233-1

Date: 15/04/20

Time In: 8:59:36 AM | Time Out: 9:22:00 AM

Customer

Walan Construction Services Pty Ltd

100 Fullagar Rd

WENTWORTHVILLE

PO: WENTWORTHVILLE

Vehicle: CN26MF

Type	UOM	Qty.
Gross:	Tonne	23.08
Tare:	Tonne	10.88
Net: Incoming: Asbestos Soils	Tonne	12.20

Printed: 15/04/2020 9:22:13 AM

Signature:

Statement of Compliance

You are under the instruction of site personnel
All machinery has right of way at all times
No hazardous materials are accepted
All Drivers must check axle weights and GVM
All loads must be adequately restrained
You agree to take all reasonable steps to prevent breaches of heavy vehicle national laws
Any breaches of the above may be subject to extra charges

Quote Contract Reference No. A636 for faster service.

Eastern Creek Ecology Park

Bingo Waste Services Pty Ltd

A.B.N 43162988623

1 Kangaroo Avenue

EASTERN CREEK NSW 2766

Phone: 1300 424 646

Docket GEN1092270-1

Date: 15/04/20

Time In: 9:24:56 AM | Time Out: 10:00:00 AM

Customer

Walan Construction Services Pty Ltd

100 Fullagar Rd

WENTWORTHVILLE

PO: WENTWORTHVILLE

Vehicle: XN84IC

Type	UOM	Qty.
Gross:	Tonne	28.50
Tare:	Tonne	13.92
Net: Incoming: Asbestos Soils	Tonne	14.58
	Bin Size: 10 m3	

Printed: 15/04/2020 10:00:13 AM

Signature:

Statement of Compliance

You are under the instruction of site personnel
All machinery has right of way at all times
No hazardous materials are accepted
All Drivers must check axle weights and GVM
All loads must be adequately restrained
You agree to take all reasonable steps to prevent breaches of heavy vehicle national laws
Any breaches of the above may be subject to extra charges

Quote Contract Reference No. A636 for faster service.

WBTM

Eastern Creek Ecology Park

Bingo Waste Services Pty Ltd

A.B.N 43162988623

1 Kangaroo Avenue

EASTERN CREEK NSW 2766

Phone: 1300 424 646

Docket GEN1092310-1

Date: 15/04/20

Time In: 10:10:35 AM | Time Out: 10:30:48 AM

Customer

Walan Construction Services Pty Ltd

100 Fullagar Rd

WENTWORTHVILLE

PO: WENTWORTHVILLE

Vehicle: CN26MF

Type	UOM	Qty.
Gross:	Tonne	22.96
Tare:	Tonne	10.88
Net: Incoming: Asbestos Soils	Tonne	12.08

Printed: 15/04/2020 10:31:00 AM

Signature: Sm. Ley

Statement of Compliance

You are under the instruction of site personnel
All machinery has right of way at all times
No hazardous materials are accepted
All Drivers must check axle weights and GVM
All loads must be adequately restrained
You agree to take all reasonable steps to prevent breaches of heavy vehicle national laws
Any breaches of the above may be subject to extra charges

Quote Contract Reference No. A636 for faster service.

Eastern Creek Ecology Park

Bingo Waste Services Pty Ltd

A.B.N 43162988623

1 Kangaroo Avenue

EASTERN CREEK NSW 2766

Phone: 1300 424 646

Docket GEN1092365-1

Date: 15/04/20

Time In: 10:45:43 AM | Time Out: 11:10:16 AM

Customer

Walan Construction Services Pty Ltd

100 Fullagar Rd

WENTWORTHVILLE

PO: WENTWORTHVILLE

Vehicle: XN84IC

Type	UOM	Qty.
Gross:	Tonne	28.40
Tare:	Tonne	13.88
Net: Incoming: Asbestos Soils	Tonne	14.52

Printed: 15/04/2020 11:10:28 AM

Signature: Dion

Statement of Compliance

You are under the instruction of site personnel
All machinery has right of way at all times
No hazardous materials are accepted
All Drivers must check axle weights and GVM
All loads must be adequately restrained
You agree to take all reasonable steps to prevent breaches of heavy vehicle national laws
Any breaches of the above may be subject to extra charges

Quote Contract Reference No. A636 for faster service.

SI/VDRCT:

Site Specific Location: "Block 14"

walan

TRUCK REGISTER

Import/Export
Site Address: 70-100 Fullagar Road, Wentworthville – Wentworthville P.S
Material Classification Report/Supplier:
Date: 16-4-20

B=BOGIE/T&D=TRUCK&DOG/S=SEMI

LOAD NO.	TRUCK PLATE NO.	TRUCK TYPE	TIME IN	TIME OUT	MATERIAL TYPE	Source/Tipping Facility
1	CN26MF	B	7.00	7.05	SWA	Bingo
2	C14020	B	7.05	7.10	SWA	Bingo
3	XN841C	H-T	7.10	7.15	SWA	Bingo
4	CN26MF	B	8.04	8.09	SWA	Bingo
5	C14020	B	8.10	8.13	SWA	Bingo
6	XN841C	H-T	8.18	8.20	SWA	Bingo
7	CN26MF	B	9.05	9.08	SWA	Bingo
8	C14020	B	9.12	9.16	SWA	Bingo
9	XN841C	HT	9.36	9.41	SWA	Bingo
10	CN26MF	B	10.10	10.15	SWA	Bingo
11	C14020	B	10.16	10.20	SWA	Bingo
12	XN841C	HT	10.48	11.52	SWA	Bingo
13	CN26MF	B	11.08	11.13	SWA	Bingo
14	C14020	B	11.15	11.20	SWA	Bingo
15	XN841C	H-T	12.05	12.09	SWA	Bingo
16	CN26MF	B	12.20	12.25	SWA	Bingo
17	C14020	B	12.30	12.34	SWA	Bingo
18	XN841C	H-T	1.14	1.18	SWA	Bingo
19	CN26MF	B	1.26	1.30	SWA	Bingo
20	C14020	B	1.42	1.46	SWA	Bingo
21	CJ584CD	B	2.09	2.13	SWA	Bingo
22	CM37UP	B	2.14	2.18	SWA	Bingo
23	CN26MF	B	2.27	2.32	SWA	Bingo
24	C14020	B	3.04	3.08	SWA	Bingo
	—	END	OF	LOADS	—	

16/4/20

WENTY

Eastern Creek Ecology Park

Bingo Waste Services Pty Ltd

A.B.N 43 116 298 862 3

1 Kangaroo Avenue

EASTERN CREEK NSW 2766

Phone: 1300 424 646

Docket GEN1092829-1

Date: 16/04/20

Time In: 7:40:48 AM | Time Out: 7:41:07 AM

Customer

Walan Construction Services Pty Ltd

100 Fullagar Rd

WENTWORTHVILLE

PO: WENTWORTHVILLE

Vehicle: CN26MF

Type	UOM	Qty.
Gross	Tonne	23.24
Tare	Tonne	10.90
Net Incoming Asbestos Soils	Tonne	12.34

Printed: 16/04/2020 7:41:17 AM

Signature:

Statement of Compliance

You are under the instruction of site personnel
All use hinery has right of way at all times
No hazardous materials are accepted
All Drivers must check scale weights and GVM
All loads must be adequately restrained
You agree to take all reasonable steps to prevent breaches of heavy vehicle national laws
Any breaches of the above may be subject to extra charges

Quote Contract Reference No. A036 for faster service.

Eastern Creek Ecology Park

Bingo Waste Services Pty Ltd

A.B.N 43 116 298 862 3

1 Kangaroo Avenue

EASTERN CREEK NSW 2766

Phone: 1300 424 646

Docket GEN1092830-1

Date: 16/04/20

Time In: 7:30:33 AM | Time Out: 7:41:56 AM

Customer

Walan Construction Services Pty Ltd

100 Fullagar Rd

WENTWORTHVILLE

PO: WENTWORTHVILLE

Vehicle: CI40ZO

Type	UOM	Qty.
Gross	Tonne	23.92
Tare	Tonne	11.08
Net Incoming Asbestos Soils	Tonne	12.84

Printed: 16/04/2020 7:42:07 AM

Signature:

Statement of Compliance

You are under the instruction of site personnel
All use hinery has right of way at all times
No hazardous materials are accepted
All Drivers must check scale weights and GVM
All loads must be adequately restrained
You agree to take all reasonable steps to prevent breaches of heavy vehicle national laws
Any breaches of the above may be subject to extra charges

Quote Contract Reference No. A036 for faster service.

Eastern Creek Ecology Park

Bingo Waste Services Pty Ltd

A.B.N 43 116 298 862 3

1 Kangaroo Avenue

EASTERN CREEK NSW 2766

Phone: 1300 424 646

Docket GEN1092836-1

Date: 16/04/20

Time In: 7:35:40 AM | Time Out: 7:50:47 AM

Customer

Walan Construction Services Pty Ltd

100 Fullagar Rd

WENTWORTHVILLE

PO: WENTWORTHVILLE

Vehicle: XN84IC

Type	UOM	Qty.
Gross	Tonne	29.24
Tare	Tonne	13.94
Net Incoming Asbestos Soils	Tonne	15.30

Printed: 16/04/2020 7:50:56 AM

Signature:

Statement of Compliance

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