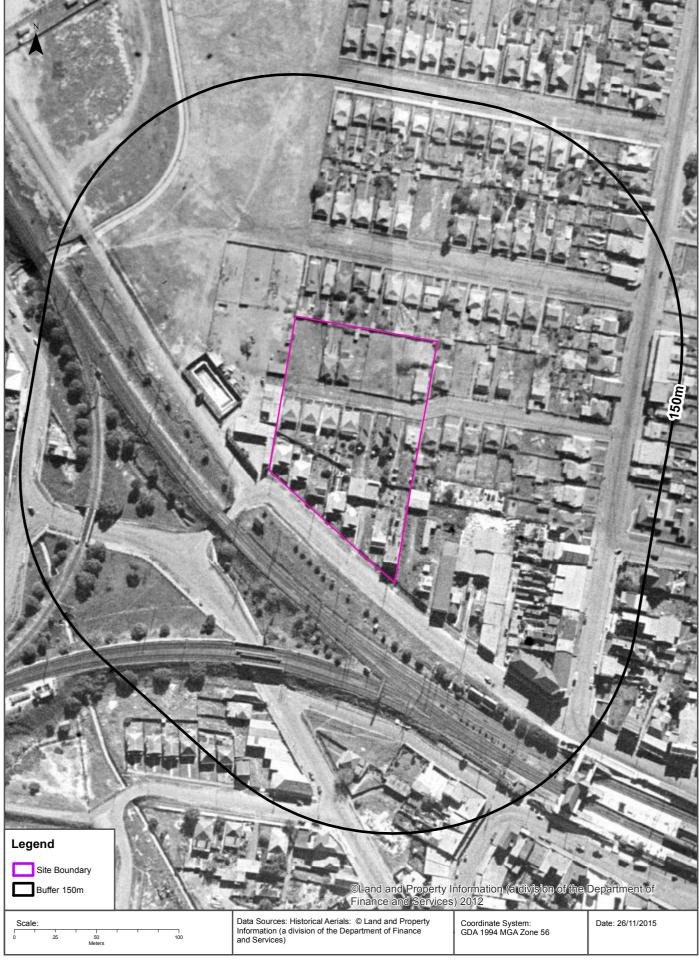
Aerial Imagery 1943

Corner Olympic Drive & Church Street, Lidcombe, NSW 2141





Appendix C Borehole Logs



client: Bouygues Construction Australia project no. GEOTLCOV25554AA

Borehole ID.

sheet:

BH011 of 4

principal: Dooleys Lidcombe Catholic Club date completed: 24 Nov 2015

project: Dooleys Lidcombe Club & Hotel Development logged by: TO
location: 24-28 John St, Lidcombe NSW 2141 checked by: AH

position: E: 309956; N: 6270732 (Datum Not Specified) surface elevation: 14.66 m (AHD) angle from horizontal: 90° DCP id.: drill model: GEO205, Track mounted hole diameter: 100 mm drilling information material substance DCP material description hand structure and classification samples & penetro $\widehat{\Xi}$ moisture condition method 8 support penetra **SOIL TYPE**: plasticity or particle characteristic, colour, secondary and minor components field tests graphic $\widehat{\mathbf{E}}$ depth (water (kPa) 牊 00 00 00 Е FILL: ASPHALT: 40mm thickness. D ASPHALT FILL: Gravelly Clayey SAND: fine to PID(0.05-0.2m) =3.7ppm, no medium grained, brown, fine to medium sub-angular to angular gravel. odours or staining observed <Wp VSt 14 $\Box\Box\Box\Box$ Silty CLAY: high plasticity, red brown mottled RESIDUAL SOIL PID(0.5-0.6m) =4.6ppm 1.0 sБт 11111 1.3 m: becoming with some sandstone/ Not Observable silstone, brown 13 CASING AD/T 2.0 +1111119, 14, 25/130mm **SILTSTONE**: brown and grey, extremely to highly weathered, estimated very low to low strength. HB N*=R WEATHERED BEDROCK 3.0 $\Box\Box\Box$ 11 Borehole BH01 continued as cored hole 4.0 10 5.0 -a 6.0 $\Box\Box\Box$ $\Box\Box\Box\Box$ 7.0 $\Box\Box\Box\Box$ classification symbol & method AD auger drilling* support samples & field tests consistency / relative density soil description bulk disturbed sample very soft auger screwing based on Unified C casing D disturbed sample S soft НΑ hand auger Classification System environmental sample F St penetration W washbore SS split spoon sample stiff НА hand auge no resistance ranging to
 refusal undisturbed sample ##mm diameter VSt very stiff dry moist wet H Fb HP hand penetrometer (kPa) hard standard penetration test (SPT) friable SPT - sample recovered SPT with solid cone very loose loose bit shown by suffix N* VL plastic limit Nc e.g. B level on date showr AD/T liquid limit MD VS vane shear; peak/remouded (kPa) medium dense blank bit vater inflow TC bit dense water outflow hammer bouncing very dense



principal:

project:

Engineering Log - Cored Borehole

Dooleys Lidcombe Club & Hotel Development

Bouygues Construction Australia

Dooleys Lidcombe Catholic Club

Borehole ID. **BH01**

sheet: 2 of 4

date started: 23 Nov 2015

project no.

date started. 23 NOV 2013

GEOTLCOV25554AA

date completed: 24 Nov 2015

logged by: **TO**

location: 24-28 John St, Lidcombe NSW 2141 checked by: AH

position: E: 309956; N: 6270732 (Datum Not Specified) surface elevation: 14.66 m (AHD) angle from horizontal: 90° drill model: GEO205, Track mounted drilling fluid: hole diameter: 100 mm drilling information material substance rock mass defects material description estimated defect additional observations and strength & Is50 defect descriptions
(type, inclination, planarity, roughness, coating, thickness, other) field tests ROCK TYPE: grain characterisics, & ls(50) (MPa) core run & RQD support colour, structure, minor components $\widehat{\mathbf{E}}$ graphic depth (water 30 300 300 300 3000 R particular STSI I + I + I + I14 I + I + I + I1.0 13 2.0 I I I I I I12 3.0 11 start coring at 3.80m INTERBEDDED SILTSTONE AND SW - PT. 0 - 5°. IR. RO. Fe SN 4.0 **SANDSTONE**: siltstone (40%) and sandstone (60%), sandstone is fine grained, pale grey, 100% siltstone is dark grey. a=2.88 d=1.82 10 Observabl01/12/15 07:30 I FR 5.0 a=1.50 d=1.48 - Q PT, 5 - 15°, CU, RO, CN S °, PL, RO, (described 98% Not 6.0 Defects are:PT, 0 - 10°, unless otherwise d a=1.42 d=1.24 7.0 PT, 5 - 15°, IR, RO, CN 99% a=1.58 d=1.05 planarity
PL planar
CU curved
UN undulating weathering & alteration defect type method & support graphic log / core recovery parting joint shear zone residual soil auger screwing auger drilling claw or blade bit extremely weathered highly weathered 10/10/12, water level on date shown core recovered n Inghly weathered
distinctly weathered
moderately weathered
slightly weathered
fresh
eplaced with A for alteration
nigth
very low
low
medium
high shear surface stepped washbore water inflow crushed seam Irregular WASHOOFE
NMLC NMLC core (51.9 mm)
NQ wireline core (47.6mm)
HQ wireline core (63.5mm)
PQ wireline core (85.0mm) seam drilling break complete drilling fluid loss no core recovered DB partial drilling fluid loss coating CN clean SN stain VN venee core run & RQD roughness VL slickensided POL SO polished smooth barrel withdrawn test hand auger water pressure test result (lugeons) for depth veneer RQD = Rock Quality Designation (%) RO rough very rough hiah CO coating interval shown very high



principal:

project:

Engineering Log - Cored Borehole

Dooleys Lidcombe Club & Hotel Development

Bouygues Construction Australia

Dooleys Lidcombe Catholic Club

sheet: 3 of 4

project no. **GEOTLCOV25554AA**

BH01

date started: 23 Nov 2015

date completed: 24 Nov 2015

logged by: **TO**

Borehole ID.

location: 24-28 John St, Lidcombe NSW 2141 checked by: AH

position: E: 309956; N: 6270732 (Datum Not Specified) surface elevation: 14.66 m (AHD) angle from horizontal: 90° drill model: GEO205, Track mounted drilling fluid: hole diameter: 100 mm drilling information material substance rock mass defects material description estimated defect additional observations and strength & Is50 defect descriptions
(type, inclination, planarity, roughness, coating, thickness, other) field tests ROCK TYPE: grain characterisics, & ls(50) (MPa) core run & RQD support colour, structure, minor components Ξ graphic depth water 300 300 300 300 300 R particular . > T 5 H INTERBEDDED SILTSTONE AND SANDSTONE: siltstone (40%) and sandstone (60%), sandstone is fine grained, pale grey, siltstone is dark grey. (continued) a=2.91 d=1.11 6 9.0 99% - PT. 0 - 5°. UN. RO. CN a=1.06 d=0.94 - PT. 0°. IR. RO. CN -5 10.0 **LAMINITE**: siltstone (50%) and sandstone (50%), distinctly laminated at 0-5°, sandstone is fine grained, pale grey, siltstone is dark grey. Φ a=1.15 d=0.90 11.0 S a=2.31 Defects are:PT, 0 - 10°, PL, RO, unless otherwise described - PT, 0 - 5°, IR, RO, CN Observable -3 99% NMLC 12.0 Not PT. 0 - 5°. UN. RO. CN ф a=1.92 d=0.89 13 0 a=0.62 d=0.56 14.0 -.IT 55 - 65° IR RO CN a=0.96 d=0.57 -0 JT. 70 - 80°. UN. RO. CN 92% 14.66 to 14.82 m: fine grained sandstone band – PT, 0 - 5°, IR, RO, CN ~ JT, 0 - 90°, IR, RO, CN 15.0 PT, 0°, PL, RO, Silty clay VN weathering & alteration defect type planarity
PL planar
CU curved
UN undulating method & support graphic log / core recovery parting joint shear zone screwing residual soil auger screwing auger drilling claw or blade bit extremely weathered highly weathered 10/10/12, water level on date shown core recovered n Inghly weathered
distinctly weathered
moderately weathered
slightly weathered
fresh
eplaced with A for alteration
nigth
very low
low
medium
high shear surface stepped washbore water inflow crushed seam IR Irregular WASHOOFE
NMLC NMLC core (51.9 mm)
NQ wireline core (47.6mm)
HQ wireline core (63.5mm)
PQ wireline core (85.0mm) SM seam
DB drilling break complete drilling fluid loss no core recovered partial drilling fluid loss coating CN clean SN stain VN venee core run & RQD roughness slickensided VL POL SO polished smooth barrel withdrawn test hand auger water pressure test result (lugeons) for depth veneer RQD = Rock Quality Designation (%) RO rough very rough hiah CO coating interval shown very high



principal:

project:

Engineering Log - Cored Borehole

Dooleys Lidcombe Club & Hotel Development

Bouygues Construction Australia

Dooleys Lidcombe Catholic Club

sheet: 4 of 4
project no. **GEOTLCOV25554AA**

Borehole ID.

project no. **GEOTLCOV25**date started: **23 Nov 2015**

date started: **23 NOV 2013**

BH01

date completed: 24 Nov 2015

logged by: **TO**

location: 24-28 John St, Lidcombe NSW 2141 checked by: AH

position: E: 309956; N: 6270732 (Datum Not Specified) surface elevation: 14.66 m (AHD) angle from horizontal: 90° drill model: GEO205, Track mounted drilling fluid: hole diameter: 100 mm drilling information material substance rock mass defects defect material description estimated additional observations and strength & Is50 defect descriptions
(type, inclination, planarity, roughness, coating, thickness, other) field tests ROCK TYPE: grain characterisics, & ls(50) (MPa) core run & RQD support colour, structure, minor components Ξ graphic depth water 30 300 300 300 3000 R . > T 5 III LAMINITE: siltstone (50%) and sandstone (50%), distinctly laminated at 0-5°, sandstone is fine grained, pale grey, siltstone is dark grey. 92% - CS, 0°, Silty clay, 120 mm PT, 0 - 5°, IR, RO, CN
multiple defects, Jts at 65-80° -2 a=5.66 d=2.67 S 17.0 Defects are:PT, 0 - 10°, PL, RO, unless otherwise described Not Observable -3 a=0.98 d=0.74 96% 18.0 a=2.00 d=0.78 19.0 Borehole BH01 terminated at 19.40 m Target depth -5 20.0 $I \cup I \cup I$ \Box -6 21 0 -7 22.0 -8 23.0 -9 weathering & alteration defect type planarity method & support graphic log / core recovery residual soil extremely weathered highly weathered parting joint shear zone PL planar CU curved UN undulating auger screwing auger drilling claw or blade bit 10/10/12, water level on date shown core recovered n Inghly weathered
distinctly weathered
moderately weathered
slightly weathered
fresh
eplaced with A for alteration
nigth
very low
low
medium
high shear surface stepped washbore water inflow crushed seam Irregular WASHOOFE
NMLC NMLC core (51.9 mm)
NQ wireline core (47.6mm)
HQ wireline core (63.5mm)
PQ wireline core (85.0mm) SM seam
DB drilling break complete drilling fluid loss no core recovered partial drilling fluid loss coating CN clean SN stain VN venee core run & RQD roughness VL slickensided POL SO polished smooth barrel withdrawn test hand auger water pressure test result (lugeons) for depth veneer RQD = Rock Quality Designation (%) RO rough very rough hiah CO coating interval shown very high



project:

Piezometer Installation Log

Dooleys Lidcombe Club & Hotel Development

client: Bouygues Construction Australia project no. GEOTLCOV25554AA

date started: 23 Nov 2015

Hole ID.

logged by:

sheet:

BH011 of 1

TO

principal: Dooleys Lidcombe Catholic Club date completed: 24 Nov 2015

location: 24-28 John St, Lidcombe NSW 2141 checked by: AH

position: E: 309956; N: 6270732 (Datum Not Specified) surface elevation: 14.66 m (AHD) angle from horizontal: 90° equipment type: GEO205, Track mounted hole diameter: 100 mm drilling information material substance piezometer construction details bore construction license: material name drilling company: $\widehat{\Xi}$ method 8 support Ξ depth (water driller's permit no .: R FILL: ASPHALT FILL: Gravelly Clayey SAND Silty CLAY CASING ğ Bentonite -12 SILTSTONE 3.00 m INTERBEDDED SILTSTONE AND Sand LAMINITE 12 -0 14.90 m Bentonite 16 Cuttings Borehole BH01 terminated at 19.40 m install. date method & support stick up & RL tip depth & RL water level graphic log / core recovery type see engineering log for details 14.90 m -0.24 m AHD standpipe core recovered 10-Oct-12, water level on date shown water inflow no core recovered complete drilling fluid loss partial drilling fluid loss water pressure test result (lugeons) for depth interval shown



client: Bouygues Construction Australia project no. GEOTLCOV25554AA

20 Nov 2015

Borehole ID.

sheet:

BH02 1 of 4

principal: Dooleys Lidcombe Catholic Club date completed: 23 Nov 2015

project: Dooleys Lidcombe Club & Hotel Development logged by: TO

loca	ition:	on: 24-28 John St, Lidcombe NSW 2141 on: E: 318949; N: 6251435 (Datum Not Specified) surface elevation: 13.69 m (AHD)					SW 2141		c	hecked by:	AH	
l .				,		Not Spe	ecified)	surface elevation: 13.69 m (AHD)		•	m horizontal: 90)° DCP id.:
	nodel: Gi)5, Track n	nounte	ed	mate	rial cub	ostance	ľ	nole diar	meter : 100 mm	
un	T	mau	OII			mate		material description		\$	hand DCF	structure and
method & support	2 penetration	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture	consistency / relative density	penetro- meter (blow (kPa)	s/ additional observations m)
•			SPT	-13	- - - 1.0—			FILL: ASPHALT: 20mm thickness. FILL: Sandy Clayey GRAVEL: fine to medium grained, sub-rounded to angular, brown, sand is fine to medium grained. CLAY: high plasticity, brown mottled red brown.	D <wp< td=""><td>St / VSt</td><td></td><td>no odours or staining</td></wp<>	St / VSt		no odours or staining
AD/T		Observable	14, 20, 23 N*=43	-12	2.0			1.2 m: with some extremely weathered silstone, brown		VSt / Fb		
AD/T		Not O	SPT \24/110mm HB N*=R	_ _ _11	3.0			SILTSTONE: brown grey, extremely to highly weathered, estimated very low strength				WEATHERED BEDROCK
			SPT \ 15/90mm	-10	- - - 4.0							
			HB N*=R	-9	5.0			Borehole BH02 continued as cored hole				
				-8	6.0							
				-7	- - - 7.0							
				-6	- - -				-1	ificat'-		
met AD AS HA W HA	hod auger d auger s hand au washbo hand au	crewir uger re		pen	mud casing etration	ı	nil istance g to	samples & field tests B bulk disturbed sample D disturbed sample E environmental sample SS split spoon sample U## undisturbed sample ##mm diameter HP hand penetrometer (kPa) N standard penetration test (SPT)	Cla moistu D dr M m	soil desc pased on assificatio re y oist		consistency / relative density VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable
* e.g. B T V	bit show AD/T blank bi TC bit V bit	•	suffix	wate	10-	Oct-12 wa el on date er inflow er outflow	shown	N* SPT - sample recovered Nc SPT with solid cone VS vane shear; peak/remouded (kPa) R refusal HB hammer bouncing	W we			\text{VL very loose} \text{L loose} \text{MD medium dense} \text{D dense} \text{VD very dense}



principal:

project:

Engineering Log - Cored Borehole

Dooleys Lidcombe Club & Hotel Development

Bouygues Construction Australia

Dooleys Lidcombe Catholic Club

BH02 2 of 4 sheet:

Borehole ID.

GEOTLCOV25554AA project no.

20 Nov 2015 date started:

23 Nov 2015 date completed:

TO logged by:

24-28 John St. Lidcombe NSW 2141 AΗ location: checked by:

position: E: 318949; N: 6251435 (Datum Not Specified) surface elevation: 13.69 m (AHD) angle from horizontal: 90° drill model: GEO205, Track mounted drilling fluid: hole diameter: 100 mm drilling information material substance rock mass defects material description estimated defect additional observations and strength & Is50 defect descriptions
(type, inclination, planarity, roughness, coating, thickness, other) field tests ROCK TYPE: grain characterisics, & ls(50) (MPa) core run & RQD support colour, structure, minor components Ξ graphic depth water 30 300 300 300 3000 R particular STSI I + I + I + II + I + I + I13 1.0 -12 2.0 I I I I I I-11 3.0 10 4.0 I + I + I + Istart coring at 4.20m — JT, 70°, partially annealed └ PT, 5°, IR, RO, CN INTERBEDDED SILTSTONE AND MW IIII**SANDSTONE**: siltstone (50%) and sandstone (50%), distinctly laminated at 0-10°, sandstone is fine grained, pale grey, siltstone is dark grey. 4.2 to 4.25 m: sandstone, fine to medium SW a=1.09 d=0.91 grained, pale grey — PT, 0°, IR, RO, Fe SN → JT, 85 - 90°, IR, RO, Clay VN 5.0 89% 5.28 to 5.46 m: interbedded siltstone and FR sandstone band a=0.96 d=0.56 -8 LAMINITE: siltstone (70%) and sandstone Not Observable (30%), distinctly laminated at 0-5°, sandstone is fine grained, pale grey, siltstone is dark grey. 6.0 NMLC - JT, 30 - 45°, IR, RO, CN - JT, 50 - 90°, CU, RO, CN 6.3 to 6.4 m; grev fine grained sandstone band a=0.64 d=0.18 77% 7.0 multiple partings a = 0.60d=0.77 77% weathering & alteration defect type planarity method & support graphic log / core recovery parting joint shear zone PL planar CU curved UN undulating residual soil auger screwing auger drilling claw or blade bit extremely weathered highly weathered 10/10/12, water level on date shown core recovered distinctly weathered shear surface stepped distinctly weathered
/ moderately weathered
slightly weathered
fresh
eplaced with A for alteration
ngth
very low
low
medium
high washbore water inflow crushed seam IR Irregular WASHOOFE
NMLC NMLC core (51.9 mm)
NQ wireline core (47.6mm)
HQ wireline core (63.5mm)
PQ wireline core (85.0mm) SM seam
DB drilling break complete drilling fluid loss no core recovered partial drilling fluid loss coating CN clean SN stain VN venee core run & RQD roughness VL slickensided POL SO polished smooth barrel withdrawn test hand auger water pressure test result (lugeons) for depth veneer RQD = Rock Quality Designation (%) rough very rough hiah RO CO coating interval shown very high



Engineering Log - Cored Borehole

sheet: 3 of 4

BH02

project no. **GEOTLCOV25554AA**

Borehole ID.

Bouygues Construction Australia date started: 20 Nov 2015

principal: Dooleys Lidcombe Catholic Club date completed: 23 Nov 2015

project: Dooleys Lidcombe Club & Hotel Development logged by: TO

ocat	cation: 24-28 John St, Lidcombe NSW 2141										checked	d by: AH	
					, ,	ace elevation: 13.	69 m (Al	HD)		•	e from horiz		
						ng fluid:				_	diameter : 1		
drillin	ng i	nforn	nation	mate	rial substance material description		Ι	aatimata	d	rock	mass defe		ervations and
support	water	RL (m)	depth (m)	graphic log	ROCK TYPE: grain chara colour, structure, minor col	cterisics,	weathering & alteration	estimate strength & Is50 X = axial; O = diametra	field tests & Is(50) (MPa)	core run & RQD	defect spacing (mm)	defect de (type, inclination, planar thicknes)	scriptions ity, roughness, coat
		-5	9.0 —		LAMINITE : siltstone (70%) and s (30%), distinctly laminated at 0-5 fine grained, pale grey, siltstone (continued)	5°, sandstone is	FR			77%		— JT, 45°, IR, RO, CN — PT, 0 - 5°, UN, RO, C - — JT, 40 - 60°, IR, RO, C - — SM, 5 - 10°, Silty clay,	N
		-4 -	10.0 —					**************************************	d=0.55			JT, 85 - 90°, PL, RO, 1	
	o.	-3 -	11.0 —						a=0.63 d=0.69			CS, 0°, 10 mm	S S S S S S S S S S S S S S S S S S S
	Not Observable	-2 - -1	12.0 —						a=0.54	98%			Defects are:PT 0 - 10°. PL - IR. RO. CN.
		-0	13.0 —						a=0.58			<u>=</u> JT, 70 - 90°, IR, RO, (
		- 1 -	15.0 —						a=2.99 d=0.99	97%			
		2	-			,		8 	a=0.90 d=0.53	0 6144		defeat tun-	plonovite -
method & support AS auger screwing AD auger drilling CB claw or blade bit W washbore NMLC NMLC core (51.9 mm NQ wireline core (47.6mn PQ wireline core (85.0mn SPT testing the standard penetration test than auger				9 mm) 7.6mm) 3.5mm) 5.0mm)	water 10/10/12, water level on date shown water inflow complete drilling fluid loss partial drilling fluid loss water pressure test result (lugeons) for depth interval shown	no core	covered mbols indicate recovere	material)	HW highly DW distin MW mode	ual soil mely weathe ctly weatherately we wather weather with A for a low	athered red thered eathered ered	defect type PT parting JT joint SZ shear zone SS shear surface CS crushed seam SM seam DB drilling break roughness SL slickensided POL polished SO smooth	planarity PL planar CU curved UN undulating ST stepped IR Irregular coating CN clean SN stain VN veneer



Engineering Log - Cored Borehole

sheet: 4 of 4

BH02

GEOTLCOV25554AA

Borehole ID.

project no.

Bouygues Construction Australia date started: 20 Nov 2015

principal: Dooleys Lidcombe Catholic Club date completed: 23 Nov 2015

project: Dooleys Lidcombe Club & Hotel Development logged by: TO
location: 24-28 John St. Lidcombe NSW 2141 checked by: AH

AΗ location: checked by: position: E: 318949; N: 6251435 (Datum Not Specified) surface elevation: 13.69 m (AHD) angle from horizontal: 90° drill model: GEO205, Track mounted drilling fluid: hole diameter: 100 mm drilling information material substance rock mass defects defect material description estimated additional observations and strength & Is50 defect descriptions
(type, inclination, planarity, roughness, coating, thickness, other) field tests ROCK TYPE: grain characterisics, & ls(50) (MPa) core run & RQD support colour, structure, minor components Ξ graphic water depth 300 300 300 300 300 R . > T 5 III LAMINITE: siltstone (70%) and sandstone 97% (30%), distinctly laminated at 0-5°, sandstone is fine grained, pale grey, siltstone is dark grey. a=0.53 d=0.44 -3 -CS, 0 - 5°, 10 mm S PL - IR, RO, C described 17.0 Not Observable a=0.37 d=0.27 s are:PT, 0 - 10°, unless otherwise 90% 18.0 multiple defects a=0.66 d=0.56 CS, 0 - 10°, IR, 30 mm -JT, 35 - 50°, CU, RO, CN 19.0 SM, 0 - 5°, CU, 50 mm Borehole BH02 terminated at 19.40 m Target depth -6 20.0 $I \cup I \cup I$ \perp \Box 21 0 -8 22.0 -9 23.0 -10 weathering & alteration defect type planarity method & support graphic log / core recovery residual soil extremely weathered highly weathered parting joint shear zone PL planar CU curved UN undulating auger screwing auger drilling claw or blade bit 10/10/12, water level on date shown core recovered n Inghly weathered
distinctly weathered
moderately weathered
slightly weathered
fresh
eplaced with A for alteration
nigth
very low
low
medium
high shear surface stepped washbore water inflow crushed seam Irregular WASHOOFE
NMLC NMLC core (51.9 mm)
NQ wireline core (47.6mm)
HQ wireline core (63.5mm)
PQ wireline core (85.0mm) SM seam
DB drilling break complete drilling fluid loss no core recovered partial drilling fluid loss coating CN clean SN stain VN venee core run & RQD roughness VL slickensided POL SO polished smooth barrel withdrawn test hand auger water pressure test result (lugeons) for depth veneer RQD = Rock Quality Designation (%) RO rough very rough hiah CO coating interval shown very high



client: Bouygues Construction Australia project no. GEOTLCOV25554AA

Borehole ID.

sheet:

BH031 of 4

principal: Dooleys Lidcombe Catholic Club date completed: 19 Nov 2015

project: Dooleys Lidcombe Club & Hotel Development logged by: TO
location: 24-28 John St, Lidcombe NSW 2141 checked by: AH

position: E: 318929; N: 6251470 (Datum Not Specified) surface elevation: 13.20 m (AHD) angle from horizontal: 90° DCP id.: drill model: GEO205, Track mounted hole diameter: 100 mm drilling information material substance DCP material description hand structure and classification samples & penetro $\widehat{\Xi}$ method & support moisture condition penetra **SOIL TYPE**: plasticity or particle characteristic, colour, secondary and minor components (blows/ 100 mm) field tests graphic $\widehat{\mathbf{E}}$ depth (water (kPa) R 00 00 00 Е FILL: ASPHALT: 30mm thickness ASPHALT 13 FILL FILL: Gravelly SAND: fine to medium grained, PID(0.05-0.2m) = 0.0ppm, no fine to medium sub-angular to angular gravel. odours or staining observed PID(0.5-0.6m) =0.0ppm $\Pi\Pi\Pi\Pi$ Ė Silty CLAY: high plasticity, brown mottled red <Wp VSt/H RESIDUAL SOIL brown and pale grey. 111111.0 sБт 1 to 1.3 m: remoulds to silty clay WEATHERED BEDROCK 12 SILTSTONE: brown and pale grey, extremely weathered, estimated very low strength 2.0 $I \cup I \cup I$ 11 PΡ SPT 20, 8, 13 N*=21 +111113.0 10 $\Box\Box\Box$ 4.0 25 HB N*=R Borehole BH03 continued as cored hole +111+111115.0 8 6.0 $\Box\Box\Box$ $\Box\Box\Box\Box$ 7.0 -6 $\Box\Box\Box\Box$ classification symbol & method AD auger drilling* support samples & field tests consistency / relative density soil description bulk disturbed sample very soft auger screwing based on Unified C casing D disturbed sample S soft hand auger НА Classification System environmental sample F St firm W penetration washbore SS split spoon sample stiff НА hand auge no resistance ranging to
 refusal undisturbed sample ##mm diameter VSt very stiff dry moist wet H Fb HP hand penetrometer (kPa) hard standard penetration test (SPT) friable bit shown by suffix SPT - sample recovered SPT with solid cone very loose loose N* VL plastic limit Nc e.g. B level on date showr AD/T liquid limit MD blank bit VS vane shear; peak/remouded (kPa) medium dense vater inflow TC bit dense water outflow hammer bouncing very dense



Engineering Log - Cored Borehole

BH03 2 of 4 sheet:

Borehole ID.

GEOTLCOV25554AA project no.

TO

Bouygues Construction Australia date started: 19 Nov 2015

principal: Dooleys Lidcombe Catholic Club date completed: 19 Nov 2015

project: Dooleys Lidcombe Club & Hotel Development logged by: 24-28 John St, Lidcombe NSW 2141 checked by: ΑH location:

posit					470 (Datum Not Specified) surfa	ace elevation: 13.2	HD)		angl	e from horiz			
Ι'			,		, ,	ng fluid:	20 III (AI	10)		•	diameter:		
drill	ing	inform	ation	mate	rial substance					rock	mass defe	cts	
method & support	water	RL (m)	depth (m)	graphic log	material description ROCK TYPE: grain charact colour, structure, minor com	terisics,	weathering & alteration	estimated strength & Is50 ×= axial; O= diametral	samples, field tests & Is(50) (MPa) a = axial; d = diametral	core run & RQD	defect spacing (mm)	additional observations ar defect descriptions (type, inclination, planarity, roughne thickness, other) particular	
NMILC	Not Observable 01/12/15 07:25 <	-8	1.0 — 1.0 — 2.0 — 3.0 — 4.0 — 5.0 — 7.0 —		start coring at 4.15m INTERBEDDED SILTSTONE ANI SANDSTONE: fine grained, pale grey, siltstone (70%) and sandsto distinctly bedded at 0-10°, sandst grained, pale grey, siltstone is da LAMINITE: fine grained, pale gre (70%) and sandstone (30%), dist at 0-5°, sandstone is fine grained siltstone is dark grey.	grey to dark one (30%), tone is fine rk grey. y, siltstone inctly laminated	HW MW		a=1.03 d=0.33 a=1.11 d=0.37 a=0.73 d=0.40	96%		— SM, 5°, IR, Clay filled, 20 mm — PT, 0 - 5°, IR, RO, CN — JT, 70 - 85°, IR, RO, CN — CS, 0 - 15°, RO, Fe SN —	
AS AD CB W	AD auger drilling claw or blade bit W washbore WMLC NMLC core (51.9 mm) wireline core (47.6mm) du wireline core (63.5mm) exandard penetration test			9 mm) (.6mm) (.5mm)	water 10/10/12, water level on date shown water inflow complete drilling fluid loss partial drilling fluid loss water pressure test result (lugeons) for depth interval shown	no core	covered mbols indicate recovere vithdrawn	material)	weathering RS residu XW extrer HW highly DW distind MW mode SW slightt FR fresh "W replaced w strength VL very lo M mediur H high VH very hi EH extrem	ial soil nely weathe weathe trately weat rately we y weathe with A for a w	athered red hered eathered ered	defect type planarity PT parting PL plar JT joint CU cun SZ shear zone ST step CS crushed seam SM seam DB drilling break roughness coating SL slickensided CN clee POL polished SN stal SO smooth VN ven RO rough CO coa	nar ved ulating oped gular an eer



principal:

project:

Engineering Log - Cored Borehole

Dooleys Lidcombe Club & Hotel Development

Bouygues Construction Australia

Dooleys Lidcombe Catholic Club

3 of 4 sheet:

Borehole ID.

GEOTLCOV25554AA project no. 19 Nov 2015 date started:

BH03

19 Nov 2015 date completed:

TO logged by:

24-28 John St. Lidcombe NSW 2141 AΗ location: checked by:

position: E: 318929; N: 6251470 (Datum Not Specified) surface elevation: 13.20 m (AHD) angle from horizontal: 90° drill model: GEO205, Track mounted drilling fluid: hole diameter: 100 mm drilling information material substance rock mass defects material description estimated defect additional observations and strength & Is50 defect descriptions
(type, inclination, planarity, roughness, coating, thickness, other) field tests ROCK TYPE: grain characterisics, & ls(50) (MPa) core run & RQD support colour, structure, minor components Ξ graphic water depth 30 300 300 300 3000 R . > T 5 H **LAMINITE**: fine grained, pale grey, siltstone (70%) and sandstone (30%), distinctly laminated at 0-5°, sandstone is fine grained, pale grey, siltstone is dark grey. *(continued)* -5 SM, 0 - 10°, Clay filled, 20 mm - SM, 0°, Clay filled, 20 mm d=0.56 - JT, 10°, UN, SO, Pyrite VN 9.0 100% a=0.72 d=0.46 10.0 a=0.79 d=0.48 11.0 S a=0.72 d=0.46 Defects are:PT, 0 - 10°, PL, RO, unless otherwise described CS. 0°. PL Observable NMLC 12.0 100% Š a=0.46 13 0 -0 a=0.69 d=0.56 PT, 0°, PL, RO, Clay VN PT, 0°, PL, RO, Clay VN 14.0 -1 a=1.26 d=0.47 97% 04BB.GLB 15.0 -2 a=0.52 d=0.25 JT, 75°, UN, SO, CN JT, 75°, UN, SO, CN weathering & alteration defect type planarity
PL planar
CU curved
UN undulating method & support graphic log / core recovery parting joint shear zone residual soil auger screwing auger drilling claw or blade bit extremely weathered highly weathered 10/10/12, water level on date shown core recovered n Inghly weathered
distinctly weathered
moderately weathered
slightly weathered
fresh
eplaced with A for alteration
nigth
very low
low
medium
high shear surface stepped washbore water inflow crushed seam IR Irregular WASHOOFE
NMLC NMLC core (51.9 mm)
NQ wireline core (47.6mm)
HQ wireline core (63.5mm)
PQ wireline core (85.0mm) SM seam
DB drilling break complete drilling fluid loss no core recovered partial drilling fluid loss coating CN clean SN stain VN venee core run & RQD roughness SL slicker VL slickensided POL SO polished smooth barrel withdrawn test hand auger water pressure test result (lugeons) for depth interval shown veneer RQD = Rock Quality Designation (%) RO rough very rough hiah CO coating very high



principal:

project:

Engineering Log - Cored Borehole

Dooleys Lidcombe Club & Hotel Development

Bouygues Construction Australia

Dooleys Lidcombe Catholic Club

4 of 4 sheet:

Borehole ID.

project no. GEOTLCOV25554AA

BH03

19 Nov 2015 date started:

19 Nov 2015 date completed:

logged by: TO

24-28 John St. Lidcombe NSW 2141 AΗ location: checked by:

position: E: 318929; N: 6251470 (Datum Not Specified) surface elevation: 13.20 m (AHD) angle from horizontal: 90° drill model: GEO205, Track mounted drilling fluid: hole diameter: 100 mm drilling information material substance rock mass defects defect material description estimated additional observations and weathering & alteration strength & Is50 defect descriptions
(type, inclination, planarity, roughness, coating, thickness, other) field tests ROCK TYPE: grain characterisics, & Is(50) (MPa) core run & RQD support graphic colour, structure, minor components Ξ water depth 30 300 300 300 3000 R particula . > T 5 III NMLC--3 a=0.87 d=0.36 Borehole BH03 terminated at 16.50 m 17.0 18.0 $I \cup I \cup I$ -5 $I \cup I \cup I$ \Box 19.0 -6 20.0 $I \cup I \cup I$ \perp -7 \Box 21 0 -8 22.0 I I I I I I-9 \Box 23.0 -10 weathering & alteration defect type planarity method & support graphic log / core recovery residual soil extremely weathered highly weathered parting joint shear zone PL planar CU curved UN undulating auger screwing auger drilling claw or blade bit 10/10/12, water level on date shown core recovered / highly weathered
/ distinctly weathered
/ distinctly weathered
/ slightly weathered
/ slightly weathered
/ fresh
replaced with A for alteration
angth
very low
low
medium
high shear surface stepped washbore water inflow crushed seam Irregular WASHOOFE
NMLC NMLC core (51.9 mm)
NQ wireline core (47.6mm)
HQ wireline core (63.5mm)
PQ wireline core (85.0mm) SM seam
DB drilling break complete drilling fluid loss no core recovered partial drilling fluid loss coating CN clean SN stain VN venee core run & RQD roughness VL slickensided POL SO polished smooth barrel withdrawn test hand auger water pressure test result (lugeons) for depth interval shown veneer RQD = Rock Quality Designation (%) RO rough very rough hiah CO coating very high



Piezometer Installation Log

ent: Bouygues Construction Australia project no. GEOTLCOV25554AA

Hole ID.

sheet:

BH031 of 1

principal: Dooleys Lidcombe Catholic Club date completed: 19 Nov 2015

project: Dooleys Lidcombe Club & Hotel Development logged by: TO location: 24-28 John St, Lidcombe NSW 2141 checked by: AH

position: E: 318929; N: 6251470 (Datum Not Specified) surface elevation: 13.20 m (AHD) angle from horizontal: 90° equipment type: GEO205, Track mounted hole diameter: 100 mm drilling information material substance piezometer construction details bore construction license: material name drilling company: $\widehat{\Xi}$ method 8 support driller: Ξ water depth (driller's permit no .: 씸 FILL: ASPHALT FILL: Gravelly SAND Silty CLAY /able 12 SILTSTONE CASING Bentonite AD/ 3.00 m INTERBEDDED SILTSTONE AND SANDSTONE -8 Sand LAMINITE 8.00 m Bentonite 12 Cuttings 16 Borehole BH03 terminated at 16.50 m Target depth method & support stick up & RL tip depth & RL install. date water level graphic log / core recovery type see engineering log for details 8.00 m 5.20 m AHD standpipe water core recovered 10-Oct-12, water level on date shown water inflow no core recovered complete drilling fluid loss partial drilling fluid loss water pressure test result (lugeons) for depth interval shown



client: Bouygues Construction Australia project no. GEOTLCOV25554AA

date started: 26 Nov 2015

Borehole ID.

sheet:

BH041 of 4

principal: Dooleys Lidcombe Catholic Club date completed: 26 Nov 2015

project: Dooleys Lidcombe Club & Hotel Development logged by: NM

location: 24-28 John St, Lidcombe NSW 2141 checked by: AH

position: E: 318954; N: 6251461 (Datum Not Specified) surface elevation: 14.00 m (AHD) angle from horizontal: 90° DCP id.:

position: E: 318954; N: 6251461 (Datum Not Specified) surface elevation: 14.00 m (AHD) drill model: DRILLTECH 550, Truck mounted						surface elevation: 14.00 m (AHD)		-	m horizor neter : 10			° DCP id.:		
	ing infor					_	rial sub	stance						
method & support	2 penetration	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	hand penetro- meter (kPa)	(b 10	DCP blows 0 mn	n)
1 1			-	14				FILL: ASPHALT	D to M			П	П	ASPHALT
	 		E E	_	- - -			FILL: Gravelly SAND: fine to medium grained, brown, gravel is fine to medium grained, sub-rounded. becoming dark brown, gravel is , medium to coarse grained, sub-rounded to sub-angular	<wp< td=""><td>_</td><td></td><td></td><td> </td><td> PID(0.2m) = 0.0ppm, no odours or staining observed PID(0.4m) = 5.2ppm</td></wp<>	_				PID(0.2m) = 0.0ppm, no odours or staining observed PID(0.4m) = 5.2ppm
			E	-13	1.0 —		СН	CLAY : high plasticity, brown mottled pale grey.	_	VSt to H	. 			RESIDUAL SOIL
- AD/T CASING		Not Observable	SPT 2, 7, 21 N*=28	-12	2.0-			becoming pale grey						
CA		Ž		_	- - -									
				-11	3.0			INTERBEDDED SANDSTONE AND SILTSTONE: pale grey to dark grey, extremely weathered, very low strength.	_					WEATHERED BEDROCK
				-10	4.0—			Davidada DUGA aratifarrad arangad hala	_					i I
				-9	5.0			Borehole BH04 continued as cored hole						
				-8	6.0—									
				-7	7.0—									
meth	od	rillin a*		supp			-:	samples & field tests		sification	symbol &			consistency / relative density
AD AS HA W HA	D auger di S auger si A hand au / washbo	crewin iger re		pene	etration		nil istance g to	B bulk disturbed sample D disturbed sample E environmental sample SS split spoon sample U## undisturbed sample ##mm diameter HP hand penetrometer (kPa)	Cla moistu D dr	pased on assificatio				VS very soft S soft F firm St stiff VSt very stiff H hard Fibral Stiff S
* e.g. B T V	bit show AD/T blank bi TC bit V bit	•	suffix	wate	10-	Oct-12 wa el on date er inflow er outflow	shown	N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone VS vane shear; peak/remouded (kPa) R refusal HB hammer bouncing	W we					Fb friable VL very loose L loose MD medium dense D dense VD very dense



Engineering Log - Cored Borehole

Bouygues Construction Australia

principal: Dooleys Lidcombe Catholic Club

Borehole ID. **BH04**

2 of 4 sheet:

GEOTLCOV25554AA project no.

date started: 26 Nov 2015

date completed: 26 Nov 2015

logged by: NM

Dooleys Lidcombe Club & Hotel Development project: 24-28 John St, Lidcombe NSW 2141 checked by: ΑH location:

IIIII IIIOGE	el: DRII	LLTECH	H 550,	Truck mounted drilling fluid:				hole	diameter : 1	00 mm	
drilling i	inform	ation	mater	ial substance				rock	mass defe	cts	
support water	RL (m)	depth (m)	graphic log	material description ROCK TYPE: grain characterisics, colour, structure, minor components	weathering & alteration	estimated strength & Is50 × = axial; O = diametral > □ Σ ፲ 등 표	samples, field tests & Is(50) (MPa) a = axial; d = diametral	core run & RQD	defect spacing (mm)	additional observations and defect descriptions (type, inclination, planarity, roughness, conthickness, other) particular g	atino
HQ————————————————————————————————————	-13 -12 -11 -10 -9 -8 -7	1.0 —		start coring at 4.10m INTERLAMINATED SILTSTONE AND SANDSTONE: siltstone (50%) and sandstone (50%), distinctly bedded at 0-5°, sandstone is fine grained, pale grey, siltstone is dark grey. iron staining on the joints and partings	HW SW		a=0.57 d=0.09 a=0.98 d=0.40 a=5.71 d=3.99	71%		— JT, 0°, ST, RO, Fe SN — SM, CL Clay, 8 mm — PT, 0°, PL, SO, Pyrite VN — PT, 0°, PL, SO, CN — PT, 0°, PL, RO, Fe SN — PT, 0°, PL, SO, Pyrite VN PT, 0°, PL, SO, Pyrite VN PT, 0°, PL, SO, Pyrite VN PT, 0°, PL, SO, CN — TT, 0°, PL, SO, CN — JT, 80°, UN, RO, CN — JT, 80°, UN, RO, CN — JT, 80°, ST, RO, CN — JT, 90°, IR, RO, CN	Defects are:PT, 0°, PL, SO, Fe SN, unless otherwise described
AD a CB CB W W W NMLC N NQ W HQ W PQ W SPT s	auger so auger dr claw or b washbor NMLC o wireline o wireline o wireline o	rewing illing blade bit e ore (51.9 core (47. core (63. core (85. I penetra	5mm) 0mm)	level on date snown water inflow complete drilling fluid loss partial drilling fluid loss core run & RC	ecovered symbols indicate re recovere	e material)	HW highly DW distinct MW moder	ial soil nely wea weathe tily weal rately w y weath ith A for a	athered red thered eathered ered	defect type planarity PT parting PL planar JT joint CU curved SZ shear zone ST stepped SS shear surface ST stepped SM seam DB drilling break roughness coating SL slickensided CN clean POL polished SN stain SO smooth VN veneer	g



Engineering Log - Cored Borehole

3 of 4 sheet: GEOTLCOV25554AA

BH04

Borehole ID.

project no.

client: **Bouygues Construction Australia** 26 Nov 2015 date started:

Dooleys Lidcombe Catholic Club 26 Nov 2015 principal: date completed:

Dooleys Lidcombe Club & Hotel Development NM logged by: project: 24-28 John St. Lidcombe NSW 2141 AΗ

location: checked by: position: E: 318954; N: 6251461 (Datum Not Specified) surface elevation: 14.00 m (AHD) angle from horizontal: 90° drill model: DRILLTECH 550, Truck mounted drilling fluid: hole diameter: 100 mm drilling information material substance rock mass defects material description estimated defect additional observations and strength & Is50 defect descriptions
(type, inclination, planarity, roughness, coating, thickness, other) field tests ROCK TYPE: grain characterisics, & ls(50) (MPa) core run & RQD support colour, structure, minor components Ξ graphic depth water 300 300 300 300 300 R particular . > T 5 III LAMINITE: siltstone (70%) and sandstone (30%), distinctly laminated at 0-5°, sandstone is fine grained, pale grey, siltstone is dark grey. a=0.89 d=0.14 91% - PT, 0°, PL, SO, Pyrite VN -5 9.0 a=0.66 d=0.33 98% 10.0 -JT, 80 - 85°, PL, SO, CN 11.0 S Defects are:PT, 0 - 10°, PL, SO, unless otherwise described a=0.55 d=0.12 Not Observable 94% ġ 12.0 13 0 JT, 40°, UN, RO, CN a=0.54 d=0.32 -0 14.0 - JT, 80 - 85°, UN, RO, CN 92% a=2.57 --1 15.0 a=0.95 d=0.47 98% weathering & alteration planarity
PL planar
CU curved
UN undulating defect type method & support graphic log / core recovery parting joint shear zone residual soil auger screwing auger drilling claw or blade bit extremely weathered highly weathered 10/10/12, water level on date shown core recovered n Inghly weathered
distinctly weathered
moderately weathered
slightly weathered
fresh
eplaced with A for alteration
nigth
very low
low
medium
high shear surface stepped washbore water inflow crushed seam IR Irregular WASHOOFE
NMLC NMLC core (51.9 mm)
NQ wireline core (47.6mm)
HQ wireline core (63.5mm)
PQ wireline core (85.0mm) seam drilling break complete drilling fluid loss no core recovered DB partial drilling fluid loss coating CN clean SN stain VN venee core run & RQD roughness SL slicke VL slickensided POL SO polished smooth barrel withdrawn test hand auger water pressure test result (lugeons) for depth interval shown veneer RQD = Rock Quality Designation (%) RO rough very rough hiah CO coating very high



principal:

project:

Engineering Log - Cored Borehole

Dooleys Lidcombe Club & Hotel Development

Bouygues Construction Australia

Dooleys Lidcombe Catholic Club

BH04 4 of 4 sheet:

Borehole ID.

GEOTLCOV25554AA project no.

26 Nov 2015 date started:

26 Nov 2015 date completed:

NM logged by:

24-28 John St. Lidcombe NSW 2141 AΗ location: checked by:

position: E: 318954; N: 6251461 (Datum Not Specified) surface elevation: 14.00 m (AHD) angle from horizontal: 90° drill model: DRILLTECH 550, Truck mounted drilling fluid: hole diameter: 100 mm drilling information material substance rock mass defects defect material description estimated additional observations and strength & Is50 defect descriptions
(type, inclination, planarity, roughness, coating, thickness, other) field tests ROCK TYPE: grain characterisics, & ls(50) (MPa) $\widehat{\Xi}$ core run & RQD support colour, structure, minor components Ξ graphic water depth 30 300 300 300 3000 R particula . > T F H LAMINITE: siltstone (70%) and sandstone (30%), distinctly laminated at 0-5°, sandstone is fine grained, pale grey, siltstone is dark grey. a=2.34 d=0.71 17.0 -3 98% S, Defects are:PT, 0 - 10°, PL, SO, unless otherwise described Not Observable 옆 18.0 a=0.84 d=0.43 JT, 90°, IR, RO, CN 19.0 JT, 80°, UN, RO, CN 92% d=0.38 – JT, 70°, UN, RO, CN – JT. 80°. UN. RO. CN 20.0 Borehole BH04 terminated at 20.00 m Target depth \Box --7 21 0 -8 22.0 I I I I I I \Box -9 23.0 weathering & alteration defect type planarity method & support graphic log / core recovery residual soil extremely weathered highly weathered parting joint shear zone PL planar CU curved UN undulating auger screwing auger drilling claw or blade bit 10/10/12, water level on date shown core recovered / highly weathered
/ distinctly weathered
/ distinctly weathered
/ slightly weathered
/ slightly weathered
/ fresh
replaced with A for alteration
angth
very low
low
medium
high shear surface stepped washbore water inflow Irregular crushed seam WASHOOFE
NMLC NMLC core (51.9 mm)
NQ wireline core (47.6mm)
HQ wireline core (63.5mm)
PQ wireline core (85.0mm) SM seam
DB drilling break complete drilling fluid loss no core recovered partial drilling fluid loss coating CN clean SN stain VN venee core run & RQD roughness VL slickensided POL polished SO smooth barrel withdrawn test hand auger water pressure test result (lugeons) for depth interval shown veneer RQD = Rock Quality Designation (%) RO rough very rough hiah CO coating very high



client: Bouygues Construction Australia project no. GEOTLCOV25554AA

Borehole ID.

sheet:

BH05 1 of 4

principal: Dooleys Lidcombe Catholic Club date completed: 25 Nov 2015

project: Dooleys Lidcombe Club & Hotel Development logged by: TO location: 24-28 John St, Lidcombe NSW 2141 checked by: MF

locat	ation: 24-28 John St, Lidcombe NSW 2141 ition: E: 318977; N: 6251499 (Datum Not Specified) surface elevation: 15.60 m (AHD)						SW 2141		cl	necked b	y:	MF	
positi	on: E: 3	1897	7; N: 6251	499 (C	atum N	Not Spe	cified)	surface elevation: 15.60 m (AHD)	а	ngle fro	m horizon	tal: 90°	DCP id.:
			5, Track n	nounte	ed				h	ole diar	neter : 100) mm	
drilli	ing info	mati	on			mate	rial sub	stance					
method & support	2 penetration	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	hand penetro- meter (kPa)	100 mm	n)
— AD/T — CASING — CASING —		Not Observable	E SPT 5, 5, 6 N*=11 E	-15 -	1.0 —		СН	FILL: ASPHALT FILL: Gravelly SAND: fine to medium grained, gravel is fine to medium grained, sub angular to angular. Silty CLAY: high plasticity, pale grey mottled red brown.	D to M	St to VSt			ASPHALT FILL RESIDUAL SOIL
A CAR		NG	SPT 10, 20/100mm HB	-14 - -13	2.0			SILTSTONE: brown, extremely weathered, very low strength. becoming brown-grey, extremely to highly weathered, estimated very low to low strength		H			WEATHERED BEDROCK
meth			\\ N*=R	-12 -11 -10 -9 -8	4.0 —			Borehole BH05 continued as cored hole	clases	ification	symbol &		
AD AS HA W HA * e.g. B T	auger d auger s hand au washbo hand au bit show AD/T blank bi TC bit V bit	crewir iger re iger	ng*	M r C c pen	etration or of the control of the c		ater shown	B bulk disturbed sample D disturbed sample E environmental sample SS split spoon sample U## undisturbed sample ##mm diameter HP hand penetrometer (kPa) N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone VS vane shear; peak/remouded (kPa) R refusal HB hammer bouncing	moistur D dry M mo W we Wp pla	r e v			VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense



principal:

project:

Engineering Log - Cored Borehole

Dooleys Lidcombe Club & Hotel Development

Bouygues Construction Australia

Dooleys Lidcombe Catholic Club

BH05 2 of 4 sheet:

Borehole ID.

GEOTLCOV25554AA project no.

25 Nov 2015 date started:

25 Nov 2015 date completed:

TO logged by:

24-28 John St. Lidcombe NSW 2141 MF location: checked by:

position: E: 318977; N: 6251499 (Datum Not Specified) surface elevation: 15.60 m (AHD) angle from horizontal: 90° drill model: GEO205, Track mounted drilling fluid: hole diameter: 100 mm drilling information material substance rock mass defects material description estimated defect additional observations and strength & Is50 defect descriptions
(type, inclination, planarity, roughness, coating, thickness, other) field tests ROCK TYPE: grain characterisics, & ls(50) (MPa) core run & RQD support colour, structure, minor components Ξ graphic depth water 30 300 300 300 3000 R particular STSI I + I + I + I15 I + I + I + I1.0 14 2.0 I + I + I + I13 start coring at 3.00m SM, 0°, PL, CL Clay, 20 mm SANDSTONE: fine to medium grained, pale MW grey to orange brown, indistinctly laminated. -PT, 5°, CU, RO, CN a=2 27 12 INTERBEDDED SANDSTONE AND PT. 0 - 5°, UN. RO, CN **SILTSTONE**: siltstone (50%) and sandstone (50%), distinctly laminated at 0-10°, sandstone is 99% fine grained, pale grey, siltstone is dark grey. 4.0 SW a=0.32 d=0.21 SM, 0 - 5°, IR, Clay 11 1 $\frac{8}{2}$ Pe , PL, RO, Fe described MW 5.0 Observable s are:PT, 0 - 10°, unless otherwise a=2.36 d=0.54 χo 10 PT. 0 - 5°. IR. RO. Fe SN CS, 0°, 30 mm
SZ, Fe SN, 30 mm
JT, 90°, PL, RO, Fe SN
PT, 0 - 15°, IR, RO, Fe SN 01/12/15 07:35 MW to 6.0 Defects SW ø a=1.06 d=0.26 _q 04BB.GLB 7.0 a=1 58 d=0.43 - JT. 80 - 90°. IR. RO. Pvrite SN FR - JT, 60 - 85°, IR, RO, CN 92% weathering & alteration planarity
PL planar
CU curved
UN undulating defect type method & support graphic log / core recovery parting joint shear zone residual soil auger screwing auger drilling claw or blade bit extremely weathered highly weathered 10/10/12, water level on date shown core recovered n Inghly weathered
distinctly weathered
moderately weathered
slightly weathered
fresh
eplaced with A for alteration
nigth
very low
low
medium
high shear surface stepped washbore water inflow crushed seam IR Irregular WASHOOFE
NMLC NMLC core (51.9 mm)
NQ wireline core (47.6mm)
HQ wireline core (63.5mm)
PQ wireline core (85.0mm) SM seam
DB drilling break complete drilling fluid loss no core recovered partial drilling fluid loss coating CN clean SN stain VN venee core run & RQD roughness VL slickensided POL SO polished smooth barrel withdrawn test hand auger water pressure test result (lugeons) for depth veneer RQD = Rock Quality Designation (%) RO rough very rough hiah CO coating interval shown very high



Engineering Log - Cored Borehole

3 of 4 sheet: GEOTLCOV25554AA

BH05

Borehole ID.

project no.

Bouygues Construction Australia client: date started: 25 Nov 2015

principal: Dooleys Lidcombe Catholic Club date completed: 25 Nov 2015

project: Dooleys Lidcombe Club & Hotel Development logged by: TO location: 24-28 John St. Lidcombe NSW 2141 MF checked by

oca	tio	n: 2	24-28	Joh	n St, Lidcombe NSW 2	2141			checked	d by: MF			
ositi	ion:	: E: 31	8977; N	N: 6251	499 (Datum Not Specified) surfa	ace elevation: 15.6	60 m (Al	HD)		angle	e from horiz	ontal: 90°	
						ng fluid:					diameter : 1		
drilli	ing	inforn	nation	mate	rial substance			1		rock	mass defe		
support	water	RL (m)	depth (m)	graphic log	material description ROCK TYPE: grain characteristics colour, structure, minor cor	cterisics,	weathering & alteration	estimated strength & Is50 ×= axial; O= diametral	samples, field tests & Is(50) (MPa) a = axial; d = diametral	core run & RQD	defect spacing (mm)	additional obse defect des (type, inclination, planari thickness	criptions ty, roughness, coati
38	W	_	- de	ıб	INTERBEDDED SANDSTONE A SILTSTONE: siltstone (50%) and (50%), distinctly laminated at 0-1	l sandstone 0°, sandstone is	FR		d = diametral	8 %		particular _	ger
		-7 -	9.0		fine grained, pale grey, siltstone (continued) LAMINITE : siltstone (60%) and s (40%), distinctly laminated at 0-5 fine grained, pale grey, siltstone	andstone °, sandstone is	_		a=1.70 d=0.56	92%		⇒— PT, 0°, RO, CN, 30 mn partings	n, multiple
		-6 -	10.0 —					 	a=1.02 d=0.64			→ PT, 0°, RO, CN, 30 mn partings → PT, 0 - 5°, IR, RO, CN	n, multiple
		-5 -	11.0 —						a=0.70 d=0.73			Ξ— PT, 0 - 5°, IR, RO, CN	, NO
	Not Observable	-4	12.0 —						a=0.96 d=0.67	98%			Defects are:PT, 0 - 10°, PL, RO, Fe SN,
		-3 -	13.0						a=0.90 d=0.89	96%		-	Defects are:PT,
		-2	14.0		sandstone band, fine grained, gr	ey			a=1.42 d=1.03				
		-1	15.0 —						a=0.77 d=0.58	97%			
		-0	-						a=0.81 d=0.67			Ē—PT, IR, multiple parting	s
AS AD CB W NML NQ HQ PQ SPT	D auger drilling Claw or blade bit W washbore IMLC NMLC core (51.9 mm wireline core (47.6mm Wireline core (85.5mm standard penetration test				water 10/10/12, water level on date shown water inflow complete drilling fluid loss partial drilling fluid loss	no core	covered mbols indicate	material)	HW highly DW distinct MW model SW slightly FR fresh *W replaced w strength VL very low L low	al soil nely wea weather ctly weat rately we y weathe with A for a	thered red nered eathered ered	defect type PT parting JT joint SZ shear zone SS shear surface CS crushed seam SM seam DB drilling break roughness SL slickensided POL polished	Planarity PL planar CU curved UN undulating ST stepped IR Irregular coating CN clean SN stain
HA	test HA hand auger				water pressure test result (lugeons) for depth interval shown	RQD = Rock Qu		ignation (%)	M mediur H high VH very hig EH extrem	gh		SO smooth RO rough VR very rough	VN veneer CO coating



Engineering Log - Cored Borehole

4 of 4 sheet:

BH05

GEOTLCOV25554AA

Borehole ID.

project no.

Bouygues Construction Australia date started: 25 Nov 2015

principal: Dooleys Lidcombe Catholic Club date completed: 25 Nov 2015

project: Dooleys Lidcombe Club & Hotel Development logged by: TO 24-28 John St. Lidcombo NSW 2141 shooked by ...

ocati	on:	2	4-28	Joh	n St, Lidcombe NSW 2141						checked	d by: MF	
ositio	n: E	E: 31	3977; N	N: 6251	499 (Datum Not Specified) surface eleve	ation: 15.60 m ((AHD)			angle	e from horiz	ontal: 90°	
Irill mo	odel:	GE	0205,	Track r	nounted drilling fluid:					hole	diameter :	100 mm	
drillin	g in	form	ation	mate	rial substance					rock	mass defe	cts	
support	water	RL (m)	depth (m)	graphic log	material description ROCK TYPE: grain characterisics, colour, structure, minor components	weathering &	est str & X	mated ength Is50 = axial; diametral	samples, field tests & Is(50) (MPa) a = axial;	core run & RQD	defect spacing (mm)	defect de (type, inclination, plana thicknes	ss, other)
	>	œ	ð	ъ	LABRIANTE: -: Note: - (COO/) and a solution			= ∓ -	d = diametral	8 ∞	3000 3000	particular	gen
D N V		-	-		LAMINITE : siltstone (60%) and sandston (40%), distinctly laminated at 0-5°, sands fine grained, pale grey, siltstone is dark g (continued)	stone is) 	a=1.08 d=0.49	97%			
		1	- - 17.0 —		Borehole BH05 terminated at 16.45 m Target depth		1 1 1						
		-	-					111					
		2	- - 18.0 —										
		-	-										
		3	- 19.0 —										
		-	-										
		4	- 20.0 —					 					
		-	-										
		5	- 21.0 —										
		-	-					 					
		6	- - 22.0 —										
		-	-				11						
		7	- - 23.0 —				11						
		-	-				i i	 					
		8	-						woodbardir	0 614-		defeat time	nlor suite :
AS AD CB W NMLC NQ	S auger screwing auger drilling B claw or blade bit washbore UC NMLC core (51.9 mm) C wireline core (47.6mm) UC wireline core (47.6mm)				core recoverer (graphic symbols indic	d cate material)	HW highly DW distinc MW moder SW slightly FR fresh	al soil nely wea weather tly weat ately we weather	athered red hered eathered ered	defect type PT parting JT joint SZ shear zone SS shear surface CS crushed seam SM seam DB drilling break	planarity PL planar CU curved UN undulating ST stepped IR Irregular	
HQ PQ SPT HA	IQ wireline core (63.5mm) wireline core (85.0mm) SPT standard penetration test					run & RQD barrel withdrav = Rock Quality D		on (%)	*W replaced wi strength VL very lov L low M medium H high	v	lteration	DB drilling break roughness SL slickensided POL polished SO smooth RO rough VR very rough	coating CN clean SN stain VN veneer CO coating



Piezometer Installation Log

GEOTLCOV25554AA project no. **Bouygues Construction Australia** 25 Nov 2015 date started:

Hole ID.

sheet:

BH05 1 of 1

TO

Dooleys Lidcombe Catholic Club 25 Nov 2015 date completed: principal:

Dooleys Lidcombe Club & Hotel Development project: logged by: 24-28 John St, Lidcombe NSW 2141 MF location: checked by:

position: E: 318977; N: 6251499 (Datum Not Specified) surface elevation: 15.60 m (AHD) angle from horizontal: 90° equipment type: GEO205, Track mounted hole diameter: 100 mm drilling information material substance piezometer construction details bore construction license: material name drilling company: $\widehat{\Xi}$ method 8 support Ξ depth (water driller's permit no .: R FILL: ASPHALT FILL: Gravelly SAND Cuttinas Silty CLAY Obser CASINGby Bentonite SILTSTONE 2.50 m SANDSTONE 12 INTERBEDDED SANDSTONE AND SILTSTONE Sand -8 8.00 m LAMINITE 12 Cuttings -0 16 Borehole BH05 terminated at 16.45 m method & support see engineering log for details stick up & RL tip depth & RL install. date water level graphic log / core recovery type standpipe piezo. 8.00 m 7.60 m AHD core recovered 10-Oct-12, water level on date shown water inflow no core recovered complete drilling fluid loss partial drilling fluid loss water pressure test result (lugeons) for depth interval shown



client: Bouygues Construction Australia project no. GEOTLCOV25554AA

Borehole ID.

sheet:

BH061 of 4

principal: **Dooleys Lidcombe Catholic Club** date completed: **25 Nov 2015**

project: Dooleys Lidcombe Club & Hotel Development logged by: NM location: 24-28 John St. Lidcombe NSW 2141 checked by: MF

location: checked by: position: E: 318931; N: 6251513 (Datum Not Specified) surface elevation: 12.00 m (AHD) angle from horizontal: 90° DCP id.: drill model: DRILLTECH 550, Truck mounted hole diameter: 100 mm drilling information material substance DCP material description hand structure and classification penetro samples & $\widehat{\Xi}$ moisture condition method 8 support **SOIL TYPE**: plasticity or particle characteristic, colour, secondary and minor components field tests graphic $\widehat{\mathbf{E}}$ depth (water (kPa) 牊 00 00 00 D to M FILL FILL: Gravelly SAND: fine grained, dark СН brown, gravel is medium to coarse grained, with a trace of clay. RESIDUAL SOIL PID(0.2m) = 0.2ppm, no odours or staining observed CLAY: high plasticity, brown mottled grey. <Wp St to I + I + IPID(0.5m) = 0.4ppm1.0 PID(1.0m) = 0.5ppmSPT 9, 30, HB N*=30 VSt to H 11111 CASING AD/T 10 2.0 I I I I IINTERBEDDED SILTSTONE AND WEATHERED BEDROCK SANDSTONE: extremely weathered, very low +11111with fragments of siltstone and sandstone -9 3.0 Borehole BH06 continued as cored hole 5.0 -6 6.0 $\Box\Box\Box$ $\Box\Box\Box\Box$ -5 7.0 $\Box\Box\Box\Box$ classification symbol & method AD auger drilling* support samples & field tests consistency / relative density soil description bulk disturbed sample very soft auger screwing based on Unified C casing D disturbed sample S soft HA W hand auger Classification System environmental sample F St penetration washbore SS split spoon sample stiff НА hand auge no resistance ranging to
 refusal undisturbed sample ##mm diameter VSt very stiff dry moist wet H Fb HP hand penetrometer (kPa) hard standard penetration test (SPT) friable SPT - sample recovered SPT with solid cone very loose loose bit shown by suffix N* VL plastic limit Nc e.g. B level on date showr AD/T liquid limit MD VS vane shear; peak/remouded (kPa) medium dense blank bit vater inflow TC bit dense water outflow hammer bouncing very dense



principal:

Engineering Log - Cored Borehole

Bouygues Construction Australia

Dooleys Lidcombe Catholic Club

BH06 2 of 4 sheet:

Borehole ID.

GEOTLCOV25554AA project no.

25 Nov 2015 date started:

25 Nov 2015 date completed:

NM

Dooleys Lidcombe Club & Hotel Development logged by: project: 24-28 John St. Lidcombe NSW 2141 MF location: checked by:

position: E: 318931; N: 6251513 (Datum Not Specified) surface elevation: 12.00 m (AHD) angle from horizontal: 90° drill model: DRILLTECH 550, Truck mounted drilling fluid: hole diameter: 100 mm drilling information material substance rock mass defects material description estimated defect additional observations and strength & Is50 defect descriptions
(type, inclination, planarity, roughness, coating, thickness, other) field tests ROCK TYPE: grain characterisics, & ls(50) (MPa) core run & RQD support colour, structure, minor components Ξ graphic depth water 30 300 300 300 3000 R particular STSI I + I + I + II + I + I + I \square 11 1.0 10 2.0 I I I I I I3.0 1111 start coring at 4.00m PT, 0°, UN, SO, Fe SN JT, 85 - 90°, UN, SO, Fe SN SM, Clay, 10 mm JT, 30°, UN, RO, Fe SN INTERBEDDED SILTSTONE AND HW **SANDSTONE**: siltstone (50%) and sandstone (50%), distinctly laminated at 0-10°, sandstone is a=0.47 d=0.11 Defects are:PT, 0°, PL, SO, Fe SN, unless otherwise described fine grained, pale grey, siltstone is dark grey. iron staining in the joints and partings CS, Fe SN, 6 mm
SM, CL Clay, 5 mm
CS, Fe SN, 5 mm 76% 5.0 -PT, 0°, PL, SO, Pyrite VN FR -PT, 0°, PL, SO, Pyrite VN a=0.59 d=0.20 Observable − PT, 0°, PL, SO, Pyrite VN ∽ JT, 20°, UN, SO, Pyrite VN sandstone band g -6 6.0 86% Not - PT, 0°, PL, SO, Pyrite VN PT, 0°, PL, SO, CN a=0.69 d=0.33 -5 7.0 95% **LAMINITE**: siltstone (70%) and sandstone (30%), distinctly laminated at 0-10°, sandstone is fine grained, pale grey, siltstone is dark grey weathering & alteration planarity defect type method & support graphic log / core recovery parting joint shear zone PL planar CU curved UN undulating residual soil auger screwing auger drilling claw or blade bit extremely weathered highly weathered 10/10/12, water level on date shown core recovered n Inghly weathered
distinctly weathered
moderately weathered
slightly weathered
fresh
eplaced with A for alteration
nigth
very low
low
medium
high shear surface stepped washbore water inflow crushed seam IR Irregular WASHOOFE
NMLC NMLC core (51.9 mm)
NQ wireline core (47.6mm)
HQ wireline core (63.5mm)
PQ wireline core (85.0mm) seam drilling break complete drilling fluid loss no core recovered DB partial drilling fluid loss coating CN clean SN stain VN venee core run & RQD roughness VL slickensided POL SO polished smooth barrel withdrawn test hand auger water pressure test result (lugeons) for depth veneer RQD = Rock Quality Designation (%) RO rough very rough hiah CO coating interval shown very high



Engineering Log - Cored Borehole

sheet: 3 of 4

BH06

GEOTLCOV25554AA

Borehole ID.

project no.

client: Bouygues Construction Australia date started: 25 Nov 2015

principal: Dooleys Lidcombe Catholic Club date completed: 25 Nov 2015

project: Dooleys Lidcombe Club & Hotel Development logged by: NM location: 24-28 John St. Lidcombe NSW 2141 checked by: MF

location: checked by: position: E: 318931; N: 6251513 (Datum Not Specified) surface elevation: 12.00 m (AHD) angle from horizontal: 90° drill model: DRILLTECH 550, Truck mounted drilling fluid: hole diameter: 100 mm drilling information material substance rock mass defects material description estimated defect additional observations and strength & Is50 defect descriptions
(type, inclination, planarity, roughness, coating, thickness, other) field tests ROCK TYPE: grain characterisics, & ls(50) (MPa) core run & RQD support colour, structure, minor components Ξ graphic depth water 300 300 300 300 300 R particular . > T F H LAMINITE: siltstone (70%) and sandstone (30%), distinctly laminated at 0-10°, sandstone is fine grained, pale grey, siltstone is dark grey. a=0.43 d=0.30 9.0 100% a=0.98 d=0.36 100% 10.0 a=0.91 d=0.32 11.0 S 97% Defects are:PT, 0 - 10°, PL, SO, unless otherwise described a=0.53 d=0.30 Not Observable ġ 0 12.0 a=0.56 d=0.15 13 0 --1 a=0.56 d=0.11 98% SM, Clay, 2 mm -2 14.0 a=1.07 d=0.40 -3 15.0 100% a=0.90 weathering & alteration defect type planarity
PL planar
CU curved
UN undulating method & support graphic log / core recovery residual soil extremely weathered highly weathered parting joint shear zone auger screwing auger drilling claw or blade bit 10/10/12, water level on date shown core recovered n Inghly weathered
distinctly weathered
moderately weathered
slightly weathered
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eplaced with A for alteration
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very low
low
medium
high shear surface stepped washbore water inflow Irregular crushed seam WASHOOFE
NMLC NMLC core (51.9 mm)
NQ wireline core (47.6mm)
HQ wireline core (63.5mm)
PQ wireline core (85.0mm) SM seam
DB drilling break complete drilling fluid loss no core recovered partial drilling fluid loss coating CN clean SN stain VN venee core run & RQD roughness SL slicker VL slickensided POL SO polished smooth barrel withdrawn test hand auger water pressure test result (lugeons) for depth interval shown veneer RQD = Rock Quality Designation (%) RO rough very rough hiah CO coating very high



principal:

Engineering Log - Cored Borehole

Bouygues Construction Australia

Dooleys Lidcombe Catholic Club

BH06 4 of 4 sheet:

Borehole ID.

GEOTLCOV25554AA project no.

25 Nov 2015 date started:

25 Nov 2015 date completed:

NM logged by:

Dooleys Lidcombe Club & Hotel Development project: 24-28 John St. Lidcombe NSW 2141 MF location: checked by:

position: E: 318931; N: 6251513 (Datum Not Specified) surface elevation: 12.00 m (AHD) angle from horizontal: 90° drill model: DRILLTECH 550, Truck mounted drilling fluid: hole diameter: 100 mm drilling information material substance rock mass defects defect material description estimated additional observations and strength & Is50 defect descriptions
(type, inclination, planarity, roughness, coating, thickness, other) field tests ROCK TYPE: grain characterisics, & ls(50) (MPa) core run & RQD support colour, structure, minor components Ξ graphic depth water 30 300 300 300 3000 R particular . > T F H LAMINITE: siltstone (70%) and sandstone (30%), distinctly laminated at 0-10°, sandstone is fine grained, pale grey, siltstone is dark grey. a=0.79 d=0.40 17.0 -5 100% S, Defects are:PT, 0 - 10°, PL, SO, unless otherwise described Not Observable a=0.61 d=0.28 옆 -6 18.0 a=1.23 d=0.31 19.0 97% a=0.94 d=0.35 SM, Clay, 5 mm 20.0 Borehole BH06 terminated at 20.00 m Target depth -9 21 0 -10 22.0 --11 23.0 weathering & alteration defect type planarity method & support graphic log / core recovery residual soil extremely weathered highly weathered parting joint shear zone PL planar CU curved UN undulating auger screwing auger drilling claw or blade bit 10/10/12, water level on date shown core recovered n Inghly weathered
distinctly weathered
moderately weathered
slightly weathered
fresh
eplaced with A for alteration
nigth
very low
low
medium
high shear surface stepped washbore water inflow crushed seam Irregular Washore
NMLC NMLC core (51.9 mm)
NQ wireline core (47.6mm)
HQ wireline core (63.5mm)
PQ wireline core (85.0mm) SM seam
DB drilling break complete drilling fluid loss no core recovered partial drilling fluid loss coating CN clean SN stain VN venee core run & RQD roughness VL slickensided POL SO polished smooth barrel withdrawn test hand auger water pressure test result (lugeons) for depth interval shown veneer RQD = Rock Quality Designation (%) RO rough very rough hiah CO coating very high



sheet: 1 of 4
project no. **GEOTLCOV25554AA**

BH07

Borehole ID.

client: Bouygues Construction Australia date started: 24 Nov 2015

principal: Dooleys Lidcombe Catholic Club date completed: 24 Nov 2015

project: Dooleys Lidcombe Club & Hotel Development logged by: NM location: 24-28 John St. Lidcombe NSW 2141 checked by: MF

locat	tion:	24-	28 Joh	n St	, Lid	comi	be N	SW 2141		cl	necked by	/ :	MF
positi	on: E:3	1893	35; N: 6251	535 (C	atum I	Not Spe	cified)	surface elevation: 12.30 m (AHD)		angle fro	m horizonta	al: 90°	DCP id.:
drill m	nodel: DI	RILL	ΓECH 550,	Track	c moun	ted				hole diar	neter : 100	mm	
drilli	ing info	rmati	on			mate	rial sul	estance					
method & support	2 penetration	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	(kPa)	DCP (blows/ 100 mm)	structure and additional observations
			<u>E</u>		-		CH	FILL: Gravelly SAND: fine to medium grained, dark brown, gravel is medium to coarse grained, with a trace of silt. CLAY: high plasticity, brown mottled grey.	D to M	_	1 1 1 1 2		FILL RESIDUAL SOIL PID(0.2m) = 0.0ppm, no odours or staining observed
		Φ.	E SPT	-11	1.0					VSt to H			PID(1.0m) = 0.0ppm PID(1.5m) = 0.0ppm
CASING —		Not Observable	4, 11, 30 HB N*=41	-10	2.0-			becoming pale grey					
				- -9	3.0			INTERBEDDED SILTSTONE AND SANDSTONE: extremely weathered, very low strength.					WEATHERED BEDROCK
•				-8	- 4.0			Borehole BH07 continued as cored hole					
				- 7	5.0								
				-6 -	6.0						 		
				-5 -	7.0								
meth AD AS HA V HA	auger d auger s hand au washbo hand au	crewir uger ore		M in C of	etration	1	nil istance g to	samples & field tests B bulk disturbed sample D disturbed sample E environmental sample SS split spoon sample U## undisturbed sample ##mm diameter HP hand penetrometer (kPa) N standard penetration test (SPT)	moistu D di M m	soil desci based on assification ure ry noist	Unified	V S F S V H	firm St stiff //St very stiff
* e.g. B T V	bit show AD/T blank bi TC bit V bit	•	suffix	wat	10- leve	Oct-12 wa el on date er inflow er outflow	shown	N* SPT - sample recovered Nc SPT with solid cone VS vane shear; peak/remouded (kPa) R refusal HB hammer bouncing	W w	et lastic limit quid limit		V L N	/L very loose loose /ID medium dense



principal:

Engineering Log - Cored Borehole

Bouygues Construction Australia

Dooleys Lidcombe Catholic Club

Borehole ID. **BH07**

2 of 4 sheet:

GEOTLCOV25554AA project no.

24 Nov 2015 date started:

> 24 Nov 2015 date completed:

logged by: NM

Dooleys Lidcombe Club & Hotel Development project: 24-28 John St. Lidcombe NSW 2141 MF location: checked by:

position: E: 318935; N: 6251535 (Datum Not Specified) surface elevation: 12.30 m (AHD) angle from horizontal: 90° drill model: DRILLTECH 550, Track mounted drilling fluid: hole diameter: 100 mm drilling information material substance rock mass defects material description estimated defect additional observations and strength & Is50 defect descriptions
(type, inclination, planarity, roughness, coating, thickness, other) field tests ROCK TYPE: grain characterisics, & ls(50) (MPa) core run & RQD support colour, structure, minor components Ξ graphic water depth 30 300 300 300 3000 R particular STSI 12 I + I + I + II + I + I + I1.0 11 2.0 I I I I I I10 3.0 start coring at 4.00m JT, 85 - 90°, UN, RO, Fe SN PT, 0°, UN, SO, Fe SN PT, 0°, UN, SO, Fe SN SM, Clay, 3 mm INTERBEDDED SILTSTONE AND cts are:PT, 0°, PL, SO, Fe unless otherwise described **SANDSTONE**: siltstone (50%) and sandstone (50%), distinctly laminated at 0-10°, sandstone is 8 fine grained, pale grey, siltstone is dark grey. iron staining in the joints and partings MW a=0.60 d=0.00 – SM, CL Clay, 5 mm ~ JT, 80°, PL, SO, Fe SN 5.0 SW 81% – PT, 0°, PL, SO, Fe SN – PT, 0°, PL, SO, Fe SN FR Observable sandstone band, pale grev a=1.71 d=1.19 -PT. 0°. PL. SO. Fe SN 옆 6.0 Not 6 a=1.60 d=0.13 sandstone band, pale grey JT, 45°, UN, SO, CN 7.0 95% LAMINITE: siltstone (70%) and sandstone -5 (30%), distinctly laminated at 0-10°, sandstone is a=0.98 d=0.23 fine grained, pale grey, siltstone is dark grey. weathering & alteration planarity defect type method & support water graphic log / core recovery residual soil extremely weathered highly weathered parting joint shear zone PL planar CU curved UN undulating auger screwing auger drilling claw or blade bit 10/10/12, water level on date shown core recovered n Inghly weathered
distinctly weathered
moderately weathered
slightly weathered
fresh
eplaced with A for alteration
nigth
very low
low
medium
high shear surface stepped washbore water inflow crushed seam IR Irregular Washore
NMLC NMLC core (51.9 mm)
NQ wireline core (47.6mm)
HQ wireline core (63.5mm)
PQ wireline core (85.0mm) seam drilling break complete drilling fluid loss no core recovered DB partial drilling fluid loss coating CN clean SN stain VN venee core run & RQD roughness VL slickensided POL SO polished smooth barrel withdrawn test hand auger water pressure test result (lugeons) for depth veneer RQD = Rock Quality Designation (%) RO rough very rough hiah CO coating interval shown very high



principal:

project:

Engineering Log - Cored Borehole

Dooleys Lidcombe Club & Hotel Development

Bouygues Construction Australia

Dooleys Lidcombe Catholic Club

Borehole ID. **BH07**

sheet: 3 of 4

project no. **GEOTLCOV25554AA**

date started: **24 Nov 2015**

date completed: 24 Nov 2015

logged by: NM

location: 24-28 John St, Lidcombe NSW 2141 checked by: MF

position: E: 318935; N: 6251535 (Datum Not Specified) surface elevation: 12.30 m (AHD) angle from horizontal: 90° drill model: DRILLTECH 550, Track mounted drilling fluid: hole diameter: 100 mm drilling information material substance rock mass defects material description estimated defect additional observations and strength & Is50 defect descriptions
(type, inclination, planarity, roughness, coating, thickness, other) field tests ROCK TYPE: grain characterisics, & ls(50) (MPa) core run & RQD support colour, structure, minor components Ξ graphic water depth 300 300 300 300 300 R particular . > T 5 H LAMINITE: siltstone (70%) and sandstone (30%), distinctly laminated at 0-10°, sandstone is fine grained, pale grey, siltstone is dark grey. a=0.58 d=0.33 95% 9.0 d=0.40 10.0 a=0.87 d=0.51 97% 11.0 S Defects are:PT, 0 - 10°, PL, SO, unless otherwise described a=1.47 d=0.56 Not Observable 12.0 ġ 0 a=0.67 d=0.21 13 0 -1 a=0.73 d=0.11 100% 14.0 SM, Clay, 10 mm -2 a=1.91 d=0.51 04BB.GLB 15.0 -3 a=0.86 100% d=0.19 weathering & alteration defect type planarity
PL planar
CU curved
UN undulating method & support graphic log / core recovery residual soil extremely weathered highly weathered parting joint shear zone auger screwing auger drilling claw or blade bit 10/10/12, water level on date shown core recovered n Inghly weathered
distinctly weathered
moderately weathered
slightly weathered
fresh
eplaced with A for alteration
nigth
very low
low
medium
high shear surface stepped washbore water inflow Irregular crushed seam Washore
NMLC NMLC core (51.9 mm)
NQ wireline core (47.6mm)
HQ wireline core (63.5mm)
PQ wireline core (85.0mm) seam drilling break complete drilling fluid loss no core recovered DB partial drilling fluid loss coating CN clean SN stain VN venee core run & RQD roughness SL slicker VL slickensided POL SO polished smooth barrel withdrawn test hand auger water pressure test result (lugeons) for depth interval shown veneer RQD = Rock Quality Designation (%) RO rough very rough hiah CO coating very high



principal:

Engineering Log - Cored Borehole

Bouygues Construction Australia

Dooleys Lidcombe Catholic Club

4 of 4 sheet:

Borehole ID.

GEOTLCOV25554AA project no.

BH07

24 Nov 2015 date started:

24 Nov 2015 date completed:

NM logged by:

Dooleys Lidcombe Club & Hotel Development project: 24-28 John St. Lidcombe NSW 2141 MF location: checked by:

position: E: 318935; N: 6251535 (Datum Not Specified) surface elevation: 12.30 m (AHD) angle from horizontal: 90° drill model: DRILLTECH 550, Track mounted drilling fluid: hole diameter: 100 mm drilling information material substance rock mass defects defect material description estimated additional observations and strength & Is50 defect descriptions
(type, inclination, planarity, roughness, coating, thickness, other) field tests ROCK TYPE: grain characterisics, & ls(50) (MPa) core run & RQD support colour, structure, minor components Ξ graphic water depth 30 300 300 300 3000 R . > T F H LAMINITE: siltstone (70%) and sandstone (30%), distinctly laminated at 0-10°, sandstone is fine grained, pale grey, siltstone is dark grey. a=0.97 d=0.30 17 N 100% S, -5 Defects are:PT, 0 - 10°, PL, SO, unless otherwise described a=1 00 Not Observable d=0.59 옆 18.0 -6 JT, 40°, IR, RO, CN a=1.15 d=0.65 JT, 70°, IR, SO, CN 19.0 **LAMINITE**: siltstone (30%) and sandstone (70%), distinctly laminated at 0-10°, sandstone is fine grained, pale grey, siltstone is dark grey. 95% JT, 80°, IR, SO, CN a=1.83 d=0.30 20.0 Borehole BH07 terminated at 20.00 m Target depth -8 21 0 -9 22.0 -10 23.0 --11 weathering & alteration defect type planarity method & support graphic log / core recovery residual soil extremely weathered highly weathered parting joint shear zone PL planar CU curved UN undulating auger screwing auger drilling claw or blade bit 10/10/12, water level on date shown core recovered / highly weathered
/ distinctly weathered
/ distinctly weathered
/ slightly weathered
/ slightly weathered
/ fresh
replaced with A for alteration
angth
very low
low
medium
high shear surface stepped washbore water inflow crushed seam Irregular Washore
NMLC NMLC core (51.9 mm)
NQ wireline core (47.6mm)
HQ wireline core (63.5mm)
PQ wireline core (85.0mm) seam drilling break complete drilling fluid loss no core recovered DB partial drilling fluid loss coating CN clean SN stain VN venee core run & RQD roughness VL slickensided POL SO polished smooth barrel withdrawn test hand auger water pressure test result (lugeons) for depth veneer RQD = Rock Quality Designation (%) RO rough very rough hiah CO coating interval shown very high



client: Bouygues Construction Australia project no. GEOTLCOV25554AA

Borehole ID.

sheet:

BH081 of 4

principal: Dooleys Lidcombe Catholic Club date completed: 26 Nov 2015

project: Dooleys Lidcombe Club & Hotel Development logged by: TO
location: 24-28 John St, Lidcombe NSW 2141 checked by: MF

	cation: 24-28 John St, Lidcombe NSW 2141 sition: E: 319010; N: 6251500 (Datum Not Specified) surface elevation: 15.60 m (AHD)						OVV 2141		C	hecked by	•	MF	
positi	on: E: 3	1901	0; N: 6251	500 (D	atum N	Not Spe	ecified)	surface elevation: 15.60 m (AHD)	á	angle fro	om horizonta	l: 90°	DCP id.:
			5, Track n	nounte	ed				ŀ	nole dia	meter : 100 r	mm	
drilli	ing info	matio	on	I		mate	rial sub	estance					
method & support	penetration	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture	consistency / relative density	meter 1	DCP (blows/ 00 mm)	structure and additional observations
▲ — — AD/T — — — HA — — — — — — — — — — — — — — —		Not Observable	E E SFT 3,4,5 N*=9	-15 -14 -13 -11 -11 -10 -9	1.0 —		CH	FILL: Gravelly CLAY: fine to medium grained, high plasticity, brown to dark brown, smell of fertiliser. CLAY: high plasticity, pale grey mottled red brown. with ironstone gravel SILTSTONE: grey and brown, extremely weathered, estimated very low strength. Borehole BH08 continued as cored hole	~Wp	St to VSt VSt to H			FILL PID(0.2m) = 4.5ppm, no odours or staining observed PID(0.05-0.7m) = 4.7ppm RESIDUAL SOIL PID(1.0-1.1m) = 4.4ppm
AD AS HA W HA * e.g. B	AS auger screwing* HA hand auger W washbore HA hand auger * bit shown by suffix e.g. AD/T B blank bit			etration or of the control of the c	ı	ater shown	samples & field tests B bulk disturbed sample D disturbed sample E environmental sample SS split spoon sample U## undisturbed sample ##mm diameter HP hand penetrometer (kPa) N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone VS vane shear; peak/remouded (kPa) R refusal HB hammer bouncing	moistu D dr M mo W we Wp pla	soil desc pased on assification re y poist	ription Unified n System	\ S N H F N L	consistency / relative density //S very soft S soft firm St stiff //St very stiff H hard b friable very loose L loose MD medium dense MD dense //D very dense	



principal:

project:

Engineering Log - Cored Borehole

Dooleys Lidcombe Club & Hotel Development

Bouygues Construction Australia

Dooleys Lidcombe Catholic Club

Borehole ID. **BH08**

sheet: 2 of 4

project no. **GEOTLCOV25554AA**

date started: 26 Nov 2015

date completed: 26 Nov 2015

logged by: **TO**

location: 24-28 John St, Lidcombe NSW 2141 checked by: MF

position: E: 319010; N: 6251500 (Datum Not Specified) surface elevation: 15.60 m (AHD) angle from horizontal: 90° drill model: GEO205, Track mounted drilling fluid: hole diameter: 100 mm drilling information material substance rock mass defects material description estimated defect additional observations and strength & Is50 defect descriptions
(type, inclination, planarity, roughness, coating, thickness, other) field tests ROCK TYPE: grain characterisics, & ls(50) (MPa) core run & RQD support colour, structure, minor components Ξ graphic water depth 30 300 300 300 3000 R particular STSI $I \cup I \cup I$ 15 I + I + I \square 1.0 14 2.0 I I I I I II I I I I I13 3.0 start coring at 3.61m INTERBEDDED SILTSTONE AND MW **SANDSTONE**: Siltstone (60%) dark grey and Sandstone (40%), distinctly distinctly bedded at Ο× d=0.59 4.0 90% 0-10, sandstone is fine grained, pale grey, siltstone is dark grey. ¢ a=0.79 -11 d=0.10 5.0 - JT, 80 - 90°, PL, RO, Fe SN -CS, 0 - 5°, IR, RO, CN Observable 10 PT, 0°, IR, RO, Fe SN NMLC-PT, 0 - 5°, IR, RO, CN CS, 0°, IR, RO, Fe SN, 35 mm ğ a=1.22 59% 6.0 d=0.57 becoming grey and dark grey - CS, 0°, IR, RO, Fe SN, 10 mm SW a=1.34 d=0.79 T, 0°, IR, RO, Fe SN PT, 0°, IR, RO, Fe SN -9 04BB.GLB 7.0 -JT, 90°, IR, RO, Fe SN - PT, 5°, IR, RO, Clay CO k a=2.56 d=0.34 PT, 0°, IR, RO, Fe SN PT, 0°, IR, RO, CN FR 92% weathering & alteration defect type planarity
PL planar
CU curved
UN undulating method & support graphic log / core recovery parting joint shear zone residual soil auger screwing auger drilling claw or blade bit extremely weathered highly weathered 10/10/12, water level on date shown core recovered n Inghly weathered
distinctly weathered
moderately weathered
slightly weathered
fresh
eplaced with A for alteration
nigth
very low
low
medium
high shear surface stepped washbore water inflow crushed seam IR Irregular NMLC NMLC core (51.9 mm)
NQ wireline core (47.6mm)
HQ wireline core (63.5mm) SM seam
DB drilling break complete drilling fluid loss no core recovered partial drilling fluid loss coating CN clean SN stain VN venee core run & RQD wireline core (85.0mm) roughness VL slickensided POL polished SO smooth barrel withdrawn test hand auger water pressure test result (lugeons) for depth veneer RQD = Rock Quality Designation (%) RO rough very rough hiah CO coating interval shown very high



Engineering Log - Cored Borehole

sheet: 3 of 4
project no. **GEOTLCOV25554AA**

BH08

Borehole ID.

client: Bouygues Construction Australia date started: 26 Nov 2015

principal: Dooleys Lidcombe Catholic Club date completed: 26 Nov 2015

project: Dooleys Lidcombe Club & Hotel Development logged by: TO location: 24-28 John St, Lidcombe NSW 2141 checked by: MF

_	loca	tion	: 4	24-28	Jon	n St, Lidcombe NSW 2141						checked	d by: MF
- 1						500 (Datum Not Specified) surface elevation: 15.6	60 m (A	HD))		ang	e from horiz	rontal: 90°
ŀ					_	mounted drilling fluid:					_	diameter : '	
ŀ	arilli	ng i	ntorn	nation	mate	erial substance material description	oŏ	-	estimated	samples,	rocl	defect	additional observations and
:	metnod & support	water	RL (m)	depth (m)	graphic log	ROCK TYPE: grain characterisics, colour, structure, minor components	weathering 8 alteration		strength & Is50 × = axial; O = diametral	field tests & Is(50) (MPa)	core run & RQD	spacing (mm)	defect descriptions (type, inclination, planarity, roughness, coating, thickness, other)
╌	S	š	₩.	β	ъ	INTERBEDDED SILTSTONE AND	≶ lo	∀	ı≥±≩	± d = diametral	8 ∞	8 0 8 0 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	particular general
				9.0 —		SANDSTONE: Siltstone (60%) dark grey and Sandstone (40%), distinctly distinctly bedded at 0-10, sandstone is fine grained, pale grey, siltstone is dark grey. (continued) LAMINITE: Siltstone (60%) dark grey and Sandstone (40%), distinctly laminated at 0-5°, sandstone is fine grained, pale grey, siltstone is dark grey. fine grained sandstone band, 150 mm, pale grey	_		**************************************		92%		PT, 5°, IR, RO, CN JT, 85 - 90°, UN, RO, CN PT, 10°, CU, RO, CN PT, 0°, IR, RO, CN PT, 0°, IR, RO, CN
			-5						X	a=0.61 d=0.27			-
gFile>> 11/12/2015 10:48	NMLC	Not Observable	-4	12.0 —					3	a=0.70 d=0.45	100%		Defects are:PT 0 - 10° PL, RO, CN, unless otherwise described
/25554AA.GPJ < <drawingfile>></drawingfile>		2	-3	13.0					6 × 1	a=1.32 d=0.33			Defects are:PT.
REHOLE: CORED GEOTLCOV25554AA.GPJ			-2	14.0					X	. i a=∪.64			
COF BO			-1 -	15.0 —					X	a=0.60 d=0.28	94%		JT, 70°, IR, RO, CN PT, 0 - 5°, CU, RO, CN — JT, 75 - 85°, IR, RO, CN
CDF_0_9_04BB.GLB Log			-0	-					8	a=0.67 d=0.54			
	method & support AS auger screwing AD auger drilling CB claw or blade bit W washbore NMLC NMLC core (51.9 mm NQ wireline core (47.6mm PQ wireline core (85.5mm PQ wireline core (85.0mm SPT standard penetration test HA hand auger				t .9 mm) 7.6mm) 3.5mm) 5.0mm)	water inflow Complete drilling fluid loss partial drilling fluid loss core run & RQD	covered mbols indicate recovered	ed		XW extre HW high! DW distir MW mode SW sligh! FR fresh *W replaced strength VL very le L low M mediu	ual soil mely we y weathe ctly wea erately w ly weath with A for ow im	athered red thered eathered ered	defect type PT parting PT parting PL planar PL planar CU curved UN undulating SS shear surface ST stepped CS crushed seam SM seam DB drilling break roughness SL slickensided POL polished SO smooth VN veneer RO rough VR very rough



client:

Engineering Log - Cored Borehole

Bouygues Construction Australia

principal: Dooleys Lidcombe Catholic Club

4 of 4 sheet:

GEOTLCOV25554AA project no.

BH08

date started: 26 Nov 2015

date completed: 26 Nov 2015

logged by: TO

Borehole ID.

project: Dooleys Lidcombe Club & Hotel Development 24-28 John St. Lidcombo NSW 2141 shooked by ...

	locat	tion:	2	4-28	Joh	n St, Lidcombe NSW 2	2141					checked	l by: MF	
ſ	positi	on: E	: 319	9010; N	N: 6251	500 (Datum Not Specified) surfa	ace elevation: 15.6	60 m (Al	HD)		angle	e from horiz	ontal: 90°	
	drill m	nodel:	GEO)205,	Track r	mounted drillin	ng fluid:				hole	diameter : 1	00 mm	
[drilli	ng inf	orm	ation	mate	erial substance					rock	mass defe	cts	
	method & support	water	RL (m)	depth (m)	graphic log	material description ROCK TYPE: grain charact colour, structure, minor cor	cterisics,	weathering & alteration	estimated strength & Is50 ×= axial; O = diametral	samples, field tests & Is(50) (MPa) a = axial;	core run & RQD	defect spacing (mm)	defect de (type, inclination, plana thicknes	servations and secriptions rity, roughness, coating, ss, other)
ŀ	E B	š	교	de	Б					d = diametral	8 ∞	3000	particular	general
	- NMLC			-				FR		a=0.83	94%			- -
Ī			1	-		Borehole BH08 terminated at 16 Target depth	.50 m			d=0.49				-
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ŀ	meti AS	hod & s	supp er so	ort rewing	<u> </u>	water	graphic log / core	e recove		weathering RS residua	al soil	ation*	defect type PT parting	planarity PL planar CU curved
	AD CB W NML	aug clav was .C NM	er dr v or b shbor LC c	illing plade bit e ore (51.	9 mm)	10/10/12, water level on date shown water inflow complete drilling fluid loss	I 17	overed hbols indicate		HW highly DW distinct MW moder	tly weatl	red hered eathered	JT joint SZ shear zone SS shear surface CS crushed seam SM seam	CU curved UN undulating ST stepped IR Irregular
	NQ HQ PQ SPT	wire wire star	eline eline ndarc	core (47 core (63 core (85 l penetr	3.5mm) 5.0mm)	partial drilling fluid loss	core run & RQD		=	FR fresh *W replaced wi strength VL very lov	ith A for a		DB drilling break roughness SL slickensided	coating CN clean
	НА	test han	d au	ger		water pressure test result (lugeons) for depth interval shown	RQD = Rock Qu		gnation (%)	L low M medium H high VH very hig EH extreme	gh		POL polished SO smooth RO rough VR very rough	SN stain VN veneer CO coating

Appendix D Field Notes & Equipment Calibration Certificates

RENTALS

Equipment Report - MINIRAE 2000 PID

Lamp	Compound	Concentration	Zero	Span	Traceability Lot #	Pass?
10.6 eV	Isobutylene	[00 ppm	0.0 ppm	99,9 _{ppm}	180579269	ď
arm Limits		Ві	ımp Test			
High	100 ppm		Date	Target Gas	Reading	Pass?
Low	<i>50</i> ppm	Property and the second	18/11/2015	100 ppm	99-3 ppm	V
Battery Status _ 10 minutes test Spare battery st Electrical Safety	complete atus (Min 5.5 volts Tag attached (AS/N	(5-5V) izs 3760)	, ,	☐ Performar ☐ Data clear ☐ Filters che		o, sensor
Tag No: _	00030					
Valid to: _	21/0//	2015				
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gned:	Mile	125				
led for at the full				3	ed items. Items not ret	unieu w
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	returned Iter	iran iran iran iran iran iran iran iran	erational Check bound Set to: (5) r boot PID) OmA od foam on the lind foam	Dattery Status BUTHEWE d of case " id of case " h batteries ied ALB / 3	SSV Factor:	
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Sent R	eturned	iran iran iran iran iran iran iran iran	erational Check bound Set to: (5) r boot PID) OmA nd foam on the lind foam on the licompartment with gr Guide Laminal subing (optional) e CD (optional) cal safety (tag m	d of case "id of case "h batteries led ALL (3	SSV Factor:	amed w
Sent R	eturned Iter Min	iran iran iran iran iran iran iran iran	erational Check bound Set to: (5) r boot PID) OmA nd foam on the lind foam	d of case "id of case "h batteries red AT& (3)	SSV Factor:	

	"We do more that	n give you great equipment We give	e you great so	olutions!"
Phone: (Fre	ee Call) 1300 735 295	Fax: (Free Call) 1800 675 123		Email: RentalsAU@Thermofisher.com
Melbourne Branch 5 Canibbean Drive, Scoresby 3179	Sydney Branch Level 1, 4 Talavera Road, North Ryde 2113	Adelaide Branch 27 Beulah Road, Norwood, South Australia 5067	Brisbane Branch Unit 2/5 Ross St Newstead 4006	Perth Branch 121 Beringarra Ave Malaga WA 6090
Issue 7		Nov 12		G0553



FIELD QUALITY CONTROL LOG

Project No.	GL ?	15554 AM	
Date:		19/11/15	•
Page		of	

Project Name:	700	CEYS.	
Field Personnel (Initials):	AR	Project Manager (Initials):	MC

Field QC Sample ID	Sampling Date/ Time	QC Type	Sample Matrix	Details of labor supplied UHP wate	
				Batch No.	Grade
(example) QC7	8/04/2006; 0900	Duplicate of SB1/4.0	soil	batch #	
TB/TS	19/11/5	Trip blank + spiu Rinsak off HA. Pupltrip of HA4_0.1.07 Pup of HA6_0.1-0.7	water		
RBI	11 11	RIJSAK Oll HA.	Wate.		
D 5001/01A	11 11	Dupling of HA4-0.1-0-3	Soil		
DUPO1/01A	(/ / /	Pup of 14A6_0.1-0.2	5 07 1		
				-	

UHP grades: V- VOC, S-SVOC, M, metals and inorganics.

→ for a environments

Well Gauging Form

		' ,℃	1. The second se	हर ¹	well Gauging Form	Ing Point	PAGE/_ OF _/
PROJECT NAME:		2)00(c)>		PROJECT NUMBER:	K	Motison issseat
FIELD PERSONNEL:		Ar				DATE:	1/12/15.
PROJECT MANAGER:		7	1		'		
FIELD EQUIPMENT:	metes	•	IP Serial Number:	-22170S	7	REFER TO SOF	REFER TO SOPs WHEN GAUGING WELLS: SOP - Monitoring Well Gauging and SOP - Decontamination of Sampling Equipment
Time of Day Well ID	Well	Total Well Depth	Depth to PSH (NAPL)	Depth to Groundwater	PSH Thickness	Height of Well Stick-Up	COMMENTS (note 2)
		note 1	A	[B]	[B-A]		ODOUR, COLOUR, SHEEN, NAPL (and its colour), REMEDIATION SYSTEM, etc
	mm	m	mBTOC	mBTOC	mm	æ	
725 8403	50.nm	7.900	1	4.312	•	SER	No observed odow or sheen
730 BHOI		12.400	1	4,812	1		11
735. BHOS	Ł	7.160	1	5.950	•	<-	
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			37.7				
			en e				
Noton distinct in formation	, 201, 200 16 20			From Inc. 270 pot 0#	ompt to spiff the m		toot any odours, only note any apparent odour when the well can is proposit
Notes: 1 Indicate in 'Comments'	' column if m	easured Total \	Vell Depth differs f	from log. 2 Do not att	empt to sniff the m	onitoring well to d	Notes: 1 Indicate in 'Comments' column if measured Total Well Depth differs from log. 2 Do not attempt to sniff the monitoring well to detect any odours, only note any apparent odour when the well cap is opened

Gauging Form Well Issue Date: 05/02/2008
UNCONTROLLED WHEN PRINTED

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READING CHANGE" READING	OXYGEN C	CYCLE/ DEPTH TO DISSOLVED ELECTRICAL	12.400 m - 4.812 = 1.6 m well (enter this	<u>z</u> 	WELL GAUGING AND PURGE VOLUME CALCULATIONS	EQUIPMENT USED: BAILER WATERRA OTHER	WELL ID: BHO] METER ID: Lenter	PROJECT MANAGER: ML	FIELD PERSONNEL:	PROJECT NAME: DOOLOS	offey Penvironments	
CHANGE READING CHANGE READING CHANGE	(pH units) POTENTIAL (°C)	, [well (enter this value in the field to the right)	Use water column calculation together with the procedures in 'SOP- Groundwater Sampling - Ballers' The determine the correct volume to be purged from the land of the correct volume to be purged from the land of the land o		WELL DIAMETER: W	TOTAL WELL DEPTH: 12.4(00		DATE:	PROJECT NUMBER: ()	<u>a</u>	
Sli Cl Cl	ightly oudy loudy loudy loudy ODOUR, COLOUR, SEDIMENTS, PSH	CLARITY - tick one COMMENTS	PPM:	PID READING	WELL HEADSPACE PID READING	WELL STICK-UP:	SCREEN INTERVAL:		(/ 17 //)	() C C C C C C C C C C C C C C C C C C C	PAGE OF	

							METALS' BO	TAINER (IE. 'N	ERVED CON	UNFILTERED SAMPLES MUST NOT BE PUT INTO A PRESERVED CONTAINER (IE. 'METALS' BOTTLE)	JST NOT BE P	ED SAMPLES MI	UNFILTER	z [RED? Y	TELD FILTE	WERE METALS FIELD FILTERED? Y N	WEI
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					ń	± 0.2°C	Ž	± 10mV	i i	± 0.7 unit		± 3%	0%	± 10%		CRITERIA wing ranges)	STABILISATION CRITERIA (3 readings within following ranges)	STA (3 read
				-													**********	
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	COLLECTED, etc	Vei Clou Turl	Ve	ligh	Cle			1							77		(ml/min)	

MET EC TIME DA STABILISATION CRITERIA
(3 readings within following ranges) WERE METALS FIELD FILTERED? DUPLICATE COLLECTED: ¥ [\] \] \] Y N DUPLICATE ID: _ 1.53

Darpico

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becom, No echou

Coffey → environments	Groundwater Sampling Form (A) - General
PROJECT NAME:	OCIES PROJECT NUMBER: WESTES U 25354
FIELD PERSONNEL:	PATE: 1/12/13-
PROJECT MANAGER:	MC
WELL ID: 81703 METER ID:	Rental TOTAL WELL DEPTH: 7.900 SCREEN INTERVAL:
EQUIPMENT USED: BAILER WATERRA	OTHER WELL DIAMETER: 50 m WELL STICK-UP:
WELL GAUGING AND PURGE VOLUME CALCULATIONS	Use water column calculation together with the
7.900 m - 4.312 = 4.5 m	to determine the correct volume to be purged from the well (enter this value in the field to the right)
1	REDOX
TIME OF PUMP VOLUME WATER OXYGEN DAY RATE (L) (m) (mg/l)	pH POTENTIAL TEMPERATURE (PC) (pH units) (mV) (PC) Clear ightly loudy Velou in ODOUR, CO
READING CHANGE	READING CHANGE READING CHANGE READING CHANGE CHANGE CHANGE CHANGE
1235 NA 1 2.35	3180 7.05 102 257 / It bown, no c-
3 (.35)	3490 6.98 36 25.5 / bown no odor
W W	N 0 102.

UNFILTERED SAMPLES MUST NOT BE PUT INTO A PRESERVED CONTAINER (IE. 'METALS' BOTTLE)

TRIPLICATE COLLECTED:

Z Z

TRIPLICATE ID:

± 10%

± 3%

± 0.7 unit

± 10mV

± 0.2°C

coffey Penvironments TIME (To:

PROJECT NAME: FIELD PERSONNEL: FIELD PERSONNEL: PROJECT MANAGER: PROJECT MANAGER: PROJECT MANAGER: SAUGING AND PURGE VO WELL DEPTH TO \ NA CYCLE/ PUMP RATE (m)/min) NA		Groundwater Samp TOTAL WE OTHER Use water column calculation together with the procedures in 'SOP- Groundwater Sampling - Ballers' to determine the correct volume to be purged from the well (enter this value in the field to the right) ELECTRICAL CONDUCTIVITY (mS or 150 m) ELECTRICAL CONDUCTIVITY (mS or 150 m) ETHEORY (mS or 150 m) CHANGE READING CHANGE	Groundwater Sampling Form (A) - General PROJECT NUMBER: PROJECT NUMBER: DATE: DATE: PROJECT NUMBER: PROJECT NUMBER: DATE: DATE: PROJECT NUMBER: PROTECT NUMBER: PROTECT NUMBER: PROJECT NUMBER: PROTECT NUMBER: PROTECT NUMBER: PROTECT NUMBER: PROTECT NUMBER: PROJECT NUMBER: PROJE	Sampling Form (A) - General PROJECT NUMBER: C DATE: TOTAL WELL DEPTH: 7,160 WELL DIAMETER: 50 m m WELL DIAMETER: 50 m m WELL DIAMETER: 50 m m WELL DIAMETER: 60 m WELL VOLUME READING 04ANGE: READING 0 CHANGE: READING 04ANGE: READING 0	CLEAT CHANGE CHANGE	SCREEN INTERVAL: WELL STICK-UP: WELL HEADSPACE PID READING PID READING PPM: Cloudy Very Cloudy	PAGE OF COMMENTS COMMENTS ODOUR, COLLECTED, etc COLLECTED, etc
OAUGING AND PURGE VOLUMI		Use water column calculation procedures in 'SOP- Ground to determine the correct volumel (enter this value in the figure).		LITRES PER 1 WELL χ 3. δ $\frac{3.6}{3.6}$	_r r volume	PID READING PPM:	
CYCLE/ PUMP VOLUME RATE (L) (ml/min)	DISSOLV OXYGE (mg/l)		PH CHANGE	DOX ENTIAL mV) CHANGE	CHANGE Clear	,	COMMENTS ODOUR, COLOUR, SEDIMENTS, PSH COLLECTED, etc
05 NA	2,29	4410		2016 (1) 2016 (1) 2016 (1)	18		promo , ma
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		Pamila	7 12	0 \			
		1101 e	rayh	2	1 Bcome	3	
STABILISATION CRITERIA 3 readings within following ranges)	± 10%	± 3%	± 0.1 unit	± 10mV	± 0.2°C		
DUPLICATE COLLECTED:	Y N DUPLICATE ID:	TE ID:	TRIP	TRIPLICATE COLLECTED:	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	TRIPLICATE ID:	
WERE METALS FIELD FILTERED?	Y N UNFILTE	RED SAMPLES MUST NOT BE	UNFILTERED SAMPLES MUST NOT BE PUT INTO A PRESERVED CONTAINER (IE. 'METALS' BOTTLE)	NTAINER (IE. 'METALS' BOT			

Coffey Geotechnics Pty Ltd ABN 93 056 929 483



		Borehole/Piezome	eter: 13/401
Slug Test Logging Field Sheet (using data logge	r)	Sheet: /	of /
Client: Doden B (A, Job No.:	CHEST LLOW	125554AA	
Principal: Date:		/12/15	
Project: Dooley 5 Tested b	y: A	A.	
Location: BHOI (clep) Checked	by:		
200dilonii Dilionii Dilionii			
For borehole data please see attached Groundwa	ter Data Logging Field Shee	t	
FIELD OPERATIONS:			
(please tick (✓) boxes when action is completed)			
▶ 1) Synchronise personal timing device to logger, up to 5	second accuracy may be	required 15e	' c
► 2) Launch logger (usually at a 1 or 2 second interval)	logging interva		
➤ 3) Has logger been correctly launched (on computer)?	(Y) N		
▶ 4) Place logger in hole ☑			
► 5) IMPORTANT: Dip to top of casing (to record initial w	ater level)	Dip: 4.796	Time: 752
▶ 6) Place slug in hole		4.450	Time: 753
➤ 7) Dip to top of casing (immediately after slug placed in	hole)		# Time: 754
▶ 8) Dip occasionaly if required to understand how fast w		Dip: 4.635	Time: 800.
 ▶ 9) Remove slug from hole (once water level appears to 		4.774	Time: \$770
 ▶ 10) Dip occasionaly if required to understand how fast 		Dip: 5,145	Time: 82 /
► 11) IMPORTANT: Dip to top of casing (just before logg			Time: 930
► 12) Remove logger from hole	Sotor GW 1054 CIL	N 5, 40	,
▶ 13) Connect to computer and download			
► 14) Plot results			
► 15) Return to Groundwater Data Logging Field Shee	t (if logging data at this bor	rehole)	
► 15) Return to Groundwater Data Logging Field Siles	t (II logging data at this bor	,	
► PLEASE CHECK THAT <u>ALL</u> OF THE ABOVE STEPS HAV	E BEEN COMPLETED		
NOTES:			

Additional measurements only.

coffey
ENVIRONMENTS SPECIALISTS IN ENVIRONMENTAL SOCIAL AND SAFETY PERFORMANCE

P	TEST TYPE Slug Type:	Datalogger Depth Below SWL: 47,589 Datalogger Recording Interval: 1 sec Time Datalogger Removed from Well: 1000	LOGGER DETAILS Datalogger Serial Number:	Water Level Meter ID: D Water Quality Meter ID: 11 Other: D
•	mm INITIAL SWL: 4,7812m Prc - 10384	ר:tomBTOC STICK-UP:	_mm WELL DEPTH: \\Z._m SCREEN INTERVAL:	WELL ID: BHO! DIAMETER: 50
	Fire.	WEATHER:	3.	PROJECT MANAGER:
	111/15		3,	FIELD PERSONNEL:
	CHEDT LOURSSILAA	PROJECT NUMBER: Cu	1)0014	PROJECT NAME:
	PAGE OF	Aquifer Rising-Head/Falling-Head Test Data Sheet	Aquifer Rising-Head/l	COffey wenvironments SPECIALISTS IN ENVIRONMENTAL SOCIAL AND SUFERV PERFORMANCE

			1	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	
	Datalogger Serial Number:	Datalogger Depth Below SWL:	relow SWI: PCCAY m	Slug Type: SCSQ TIES VIOL	
	Time Datalogger Placed in Well: 757	Datalogger Recording Interval:	1 1	Slug Volume:	1000
	Datalogger Depth in Well:1し、3 & Ś	mBTOC Time Datalogger Removed from Well:	moved from Well: 10 0	Time Slug Added/Removed From Well: 135 / 18/20 Fa	well: 135 /8/20 f
TIME (hh:mm:ss) DEPTH TO WATER (mBTOC)	COMMENTS TIME (hh:mm:ss)	DEPTH TO WATER COM	COMMENTS TIME (hh:mm:ss)	DEPTH TO WATER (mBTOC)	COMMENTS
802 4.671					
812 4743					
	Slug renoval				
821 5.145					
A (5 S,050					
836 4.907					
845 4.871					
855 4.8.3					
903 4.835					
٩٢١ ١١,٩٢١					
	Tre- Ducy (GN Man)	(teris).			
945 11.400	, c	,			
950 8.000					
959 6.390					
100% S 5916					
1010 S.400 D	Julled gut 10585.				

Coffey Geotechnics Pty Ltd ABN 93 056 929 483



Client: Date: Principal: Project: Doctor S Tested by: Checked by: For borehole data please see attached Groundwater Data Logging Field Sheet FIELD OPERATIONS: (please tick (*) boxes when action is completed) 1) Synchronise personal timing device to logger, up to 5 second accuracy may be required 2) Launch logger (usually at a 1 or 2 second interval) 3) Has logger been correctly launched (on computer)? 4) Place logger in hole 5) IMPORTANT: Dip to top of casing (to record initial water level) Dip: 4.273 Time: / 0 35-	Slug Test Logging Field Sheet (using data logger)		Sheet:	of /
Principal: Date:	$\bigcap_{i=1}^{n} \bigcap_{j=1}^{n} \bigcap_{i=1}^{n} \bigcap_{j=1}^{n} \bigcap_{j=1}^{n} \bigcap_{i=1}^{n} \bigcap_{j=1}^{n} \bigcap_{j=1}^{n} \bigcap_{i=1}^{n} \bigcap_{j=1}^{n} \bigcap_{j=1}^{n} \bigcap_{j=1}^{n} \bigcap_{i=1}^{n} \bigcap_{j=1}^{n} \bigcap_{j$	97(DUZ	5554A1	プ
For borehole data please see attached Groundwater Data Logging Field Sheet Field Operations: (please tick (*) boxes when action is completed) 1) Synchronise personal timing device to logger, up to 5 second accuracy may be required 2) Launch logger (usually at a 1 or 2 second interval) logging interval: 5		1/12/10		
For borehole data please see attached Groundwater Data Logging Field Sheet FIELD OPERATIONS: (please tick (*) boxes when action is completed) 1) Synchronise personal timing device to logger, up to 5 second accuracy may be required 2) Launch logger (usually at a 1 or 2 second interval) logging interval: 5 < C 3) Has logger been correctly laupchied (on computer)? (Y) N 4) Place logger in hole Dip: 4.273 Time: 03 - Time:		A		
Field OPERATIONS: (please tick (*/) boxes when action is completed) 1) Synchronise personal timing device to logger, up to 5 second accuracy may be required 2) Launch logger (usually at a 1 or 2 second interval) logging interval: 5 < (3) Has logger been correctly launched (on computer)? Y N 4) Place logger in hole Dip: 4.273 Time: 03	011			
FIELD OPERATIONS: (please tick (✓) boxes when action is completed) 1) Synchronise personal timing device to logger, up to 5 second accuracy may be required 2) Launch logger (usually at a 1 or 2 second interval)	VIIV			
FIELD OPERATIONS: (please tick (✓) boxes when action is completed) ▶ 1) Synchronise personal timing device to logger, up to 5 second accuracy may be required ▶ 2) Launch logger (usually at a 1 or 2 second interval) □ logging interval:				
(please tick (✓) boxes when action is completed) 1) Synchronise personal timing device to logger, up to 5 second accuracy may be required 2) Launch logger (usually at a 1 or 2 second interval) □ logging interval:	For borehole data please see attached Groundwater Data Lo	gging Field Sheet		
(please tick (✓) boxes when action is completed) 1) Synchronise personal timing device to logger, up to 5 second accuracy may be required 2) Launch logger (usually at a 1 or 2 second interval) □ logging interval: 5				
(please tick (✓) boxes when action is completed) 1) Synchronise personal timing device to logger, up to 5 second accuracy may be required 2) Launch logger (usually at a 1 or 2 second interval) □ logging interval: 5				
(please tick (✓) boxes when action is completed) 1) Synchronise personal timing device to logger, up to 5 second accuracy may be required 2) Launch logger (usually at a 1 or 2 second interval)	·			
1) Synchronise personal timing device to logger, up to 5 second accuracy may be required 2) Launch logger (usually at a 1 or 2 second interval)	FIELD OPERATIONS:			
▶ 2) Launch logger (usually at a 1 or 2 second interval) □ logging interval:				
> 3) Has logger been correctly launched (on computer)? Y N > 4) Place logger in hole □ > 5) IMPORTANT: Dip to top of casing (to record initial water level) Dip: 4.273 Time: /037 > 6) Place slug in hole □ > 7) Dip to top of casing (immediately after slug placed in hole) Dip: 4.005 Time: /039 > 8) Dip occasionally if required to understand how fast water level is changing Dip: 4,73 Time: /058 > 9) Remove slug from hole (once water level appears to be at 90% recovery) 4.273 Time: //5/ > 10) Dip occasionally if required to understand how fast water level is changing Dip: 4,765 Time: //5/ > 10) Dip occasionally if required to understand how fast water level is changing Dip: 4,765 Time: //5/ > 11) IMPORTANT: Dip to top of casing (just before logger is removed from hole) Dip: 5.343 Time: //32 > 12) Remove logger from hole □	▶ 1) Synchronise personal timing device to logger, up to 5 second ac		1	
► 4) Place logger in hole □ ► 5) IMPORTANT: Dip to top of casing (to record initial water level) ► 6) Place slug in hole □ ► 7) Dip to top of casing (immediately after slug placed in hole) ► 8) Dip occasionaly if required to understand how fast water level is changing ► 9) Remove slug from hole (once water level appears to be at 90% recovery) ► 10) Dip occasionaly if required to understand how fast water level is changing ► 11) IMPORTANT: Dip to top of casing (just before logger is removed from hole) ► 12) Remove logger from hole □ ► 13) Connect to computer and download □ ► 14) Plot results □ ► 15) Return to Groundwater Data Logging Field Sheet (if logging data at this borehole) ► PLEASE CHECK THAT ALL OF THE ABOVE STEPS HAVE BEEN COMPLETED	▶ 2) Launch logger (usually at a 1 or 2 second interval)	logging interval	: 150	(
► 5) IMPORTANT: Dip to top of casing (to record initial water level) ► 6) Place slug in hole □ ► 7) Dip to top of casing (immediately after slug placed in hole) ► 8) Dip occasionaly if required to understand how fast water level is changing ► 9) Remove slug from hole (once water level appears to be at 90% recovery) ► 10) Dip occasionaly if required to understand how fast water level is changing ► 11) IMPORTANT: Dip to top of casing (just before logger is removed from hole) ► 12) Remove logger from hole □ ► 13) Connect to computer and download □ ► 14) Plot results □ ► 15) Return to Groundwater Data Logging Field Sheet (if logging data at this borehole) ► PLEASE CHECK THAT ALL OF THE ABOVE STEPS HAVE BEEN COMPLETED	▶ 3) Has logger been correctly launched (on computer)? (Y) N			
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► 7) Dip to top of casing (immediately after slug placed in hole) ► 8) Dip occasionally if required to understand how fast water level is changing ► 9) Remove slug from hole (once water level appears to be at 90% recovery) ► 10) Dip occasionally if required to understand how fast water level is changing ► 11) IMPORTANT: Dip to top of casing (just before logger is removed from hole) ► 12) Remove logger from hole ► 13) Connect to computer and download ► 14) Plot results ► 15) Return to Groundwater Data Logging Field Sheet (if logging data at this borehole) ► PLEASE CHECK THAT ALL OF THE ABOVE STEPS HAVE BEEN COMPLETED	▶ 5) IMPORTANT: Dip to top of casing (to record initial water level)		Dip: 4.2	1 - 20
 ▶ 8) Dip occasionally if required to understand how fast water level is changing ▶ 9) Remove slug from hole (once water level appears to be at 90% recovery) ▶ 10) Dip occasionally if required to understand how fast water level is changing ▶ 11) IMPORTANT: Dip to top of casing (just before logger is removed from hole) ▶ 12) Remove logger from hole ▶ 13) Connect to computer and download ▶ 14) Plot results ▶ 15) Return to Groundwater Data Logging Field Sheet (if logging data at this borehole) ▶ PLEASE CHECK THAT ALL OF THE ABOVE STEPS HAVE BEEN COMPLETED 	▶ 6) Place slug in hole			
 ▶ 9) Remove slug from hole (once water level appears to be at 90% recovery) ▶ 10) Dip occasionally if required to understand how fast water level is changing Dip: 4,465 Time: /290 ▶ 11) IMPORTANT: Dip to top of casing (just before logger is removed from hole) Dip: 9,345 Time: /232 ▶ 12) Remove logger from hole Dipost Computer and download Dipost Computer and Dipost Computer and Dipost Computer and Dipost Computer Dipost	▶ 7) Dip to top of casing (immediately after slug placed in hole)		Dip: 4,00	
 ▶ 10) Dip occasionally if required to understand how fast water level is changing Dip: 4,465 Time: /290 ▶ 11) IMPORTANT: Dip to top of casing (just before logger is removed from hole) Dip: 4,365 Time: /232 ▶ 12) Remove logger from hole Dipost Grow 130 Connect to computer and download Dipost Grow 130 Connect to Computer and download Dipost Grow 130 Connect to Groundwater Data Logging Field Sheet (if logging data at this borehole) ▶ 15) Return to Groundwater Data Logging Field Sheet (if logging data at this borehole) ▶ PLEASE CHECK THAT ALL OF THE ABOVE STEPS HAVE BEEN COMPLETED 	▶ 8) Dip occasionaly if required to understand how fast water level is	changing	-	. .
 ▶ 11) IMPORTANT: Dip to top of casing (just before logger is removed from hole). Dip: 5.345 Time: /232 ▶ 12) Remove logger from hole □	▶ 9) Remove slug from hole (once water level appears to be at 90%	recovery)	4.27	1,
 ▶ 11) IMPORTANT: Dip to top of casing (just before logger is removed from hole). Dip: 9.345 Time: /232 ▶ 12) Remove logger from hole □	▶ 10) Dip occasionaly if required to understand how fast water level i	s changing	Dip: 4,46	
 ▶ 13) Connect to computer and download ▶ 14) Plot results ▶ 15) Return to Groundwater Data Logging Field Sheet (if logging data at this borehole) ▶ PLEASE CHECK THAT ALL OF THE ABOVE STEPS HAVE BEEN COMPLETED 	▶ 11) IMPORTANT: Dip to top of casing (just before logger is remov	ed from hole)	Dip: タック	, 0
 ▶ 14) Plot results □ ▶ 15) Return to Groundwater Data Logging Field Sheet (if logging data at this borehole) ▶ PLEASE CHECK THAT ALL OF THE ABOVE STEPS HAVE BEEN COMPLETED 	▶ 12) Remove logger from hole □	post C	in - 4.8	16 time: 1305
➤ 15) Return to Groundwater Data Logging Field Sheet (if logging data at this borehole) ► PLEASE CHECK THAT <u>ALL</u> OF THE ABOVE STEPS HAVE BEEN COMPLETED	▶ 13) Connect to computer and download □			
▶ PLEASE CHECK THAT <u>ALL</u> OF THE ABOVE STEPS HAVE BEEN COMPLETED	▶ 14) Plot results □			
	▶ 15) Return to Groundwater Data Logging Field Sheet (if logging	data at this bore	hole)	
	THE REPORT OF THE PROPERTY OF	MADIETED		
		WIPLETED		
, ·				

Additional Measurements

		1305 4.816 -	253 5.320	(luo 7.350 -	1232 4.340 -	1218 17.38r	1200 4.465	1152 4.605	1151 4.273 -	1150 4.272	1128 4,258	LY1.7 - 9111	1058 4,702	10cs P.117	TIME (hh:mm:ss) DEPTH TO WATER (mBTOC)	T NAME: T NAME: SONNEL: ANAGER: DIAMETER:	coffey environments
		- top out losses		- for my forse.	begin an propri				reached edviloum						COMMENTS TIME (hh:mm:ss)	WELL DEPTH: R DETAILS Ber Serial Number: ger Serial Number: ttalogger Placed in W ger Depth in Well:	^ anifor Dicino
 :	1, 2	1 persis QU Se			itorias				tomout slug.						DEPTH TO WATER COMMENTS	PROJECT NUMBE	Lord/Falling-Hoad Toet Data
															TIME (hh:mm:ss) DEPTH TO WATER (mBTOC)	RE: CFECTUSO 25554Ms RE: 1/12/15 RE: 1/12/15 RE: 1/12/15 RESTICKUP: 1/2/15 Slug Type: 500 4 Slug Volume: 500 4 Slug Added/Remo	
						Actual Control of Cont									COMMENTS	STICK-UP: (47) (5/2 (1/3) 2 (1	1



FIELD QUALITY CONTROL LOG

Project No.	CEOTL	12075	SSCAA
Date:	1/12	11	
Page		of	_/

Project Name:	DOOKEYS		
Field Personnel (Initials)	: Al	Project Manager (Initials):	MC

Field QC Sample ID	Sampling Date/ Time	QC Type	Sample Matrix	Details of labor supplied UHP wate	r (if used)
				Batch No.	Grade
(example) QC7	8/04/2006; 0900	Duplicate of SB1/4.0	soil	batch#	
Rinsak	1/12/15	Rinsute	war		
TRITS	11 11	Trin blanktone spice.			
TBITS DUPOI	11 1/	Rinsute Trip blanktony spice. Dop of BHOI	1		
	`				

UHP grades: V- VOC, S-SVOC, M, metals and inorganics.



RENTALS

Equipment Report - Solinst Model 122 Interface Meter

This Meter has been po	erformance checked / c	calibrated* as follows:
Cleaned/Tested	Pass? dYe	es □No
Probe		
Tape/Reel		
☐ Performance Test &	Battery Voltage Check	κ ($ extcolor{6}$ v) 8.0v minimum
Date: 30/1	157	Checked by: 1/1/10
Please check that the f	cleaning / service / rep	eived and that all items are cleaned and decontaminated before epair charge may be applied to any unclean or damaged items. replacement cost.
Sen⊁ Received	Returned Item	
	□ Plastic Bo	ns check OK ox / Bag / Battery Qty I
		eaning Brush
X /	□ Decon	
	Instruction	on leaflet
	□ Tape Gui	ide
	0	<u></u>
Processors Signature	e/ Initials	
Quote Reference	C5003406	Condition on return
Customer Ref		
Equipment ID	50L172-7	
Equipment serial no.	224694	
Return Date	1 1	
Return Time		

Phone: (Free Call) 1300 735 295
anch
Jrive, Sydney Branch
Level 1, 4 Talavera Road,
North Ryde 2113 Melbourne Branch 5 Caribbean Drive, Scoresby 3179



RENTALS

Equipment Certification Report - TPS 90FLMV Water Quality Meter

Sensor	Concentration	Span 1	Span 2		Traceability Lot #	Pass?
рН	7.00H / pH 4.00	7.00 pH	4.00	рН	1	
Conductivity	12.88 mS/cm	O OO mS/cm	12. X m	S/cm		
TDS	36 ppk	NA ppk	MA	ppk	Check only	
Dissolved Oxygen	Sodium Sulphite / Air	ppm in Sodium Sulphite	Saturation	ppm in Air		
Check only	•					
Redox (ORP) *	Electrode operability test	240mV +/- 10%	235	mV		ď
* This meter u mV reading.		electrode. To convert readin	gs to SHE (Standa	ard Hyd	rogen Electrode), add 199m	nV to the
☑ Battery Sta ☑ Electrical S	tus afety Tag attached	(min 7.2V) (AS/NZS 3760)	☐ Temper☐ Electrod	ature _ des Cle	<u>21 · 7</u> ·c eaned and checked	
Tag N	No: 000250					
Valid	to: 04/12/20	· S				
Date: <u>271</u>	WLOIS					
Signed:	bel					
Please check minimum \$30	that the following ite cleaning / service / i e full replacement co	ms are received and that repair charge may be app st.	all items are cle lied to any uncle	aned a	and decontaminated befo damaged items. Items n	ore return. ot returne
Sent	Returned Item		0	0		
	90FLN	//V Unit. Ops check/Batte	ry status: <u> </u>	<u> </u>	_	
	Condu	uctivity/TDS/Temperature	K=10 sensor, 5			
		ved oxygen YSI5739 ser (ORP) sensor with wetti		cap, 5	m	
		supply 240V to 12V DC etion Manual	200mA			
	Quick	Guide			_	
	☐ Plastic	container with storage : Case	solution for pH a	nd OR	P sensors	
ă		to confirm electrical safe	ety (tag must be	valid)		

Signed:		_				
TFS Reference	CS003806	Return Date:	/	/		
Customer Reference		Return Time:				
Equipment ID	90FLMV - 4	Condition on return:				
Equipment Serial No.	W448					

	"We do more than give you great equipment We give you great solutions!"								
Phone: (Free Ca	all) 1300 735 295	Fax: (Free Call) 1800 675 123		Email: RentalsAU@Thermofisher.com					
Melbourne Branch	Sydney Branch	Adelaide Branch	Brisbane Branch	Perth Branch					
5 Caribbean Drive.	Level 1, 4 Talavera Road,	27 Beulah Road, Norwood,	Unit 2/5 Ross St	121 Beringarra Ave					
Scoreshy 3179	North Byde 2113	South Australia 5067	Newstead 4006	Malaga WA 6090					

Appendix E Data Validation Assessment



Coffey Environments Australia Pty Ltd A.B.N. 65 140 765 902

DATA VALIDATION REPORT

Job No: GEOTLCOV25554AA

Soil Analysis - Lab Batch References: 48050, 480882, 480934, 481308, 481681, 482920,

and ES1537023

I. SAMPLE HANDLING

Groundwater Analysis - Lab Batch References - 481647 and ES1537701

	Yes	No
		(Comment
		below)
1. Were the sample holding times met?	\boxtimes	
2. Were the samples in proper custody between the field and	\boxtimes	

- reaching the laboratory?
- 3. Were the samples properly and adequately preserved? This includes keeping the samples chilled, where applicable.
- 4. Were the samples received by the laboratory in good condition?

\boxtimes	

COMMENTS:			
Sample Handling was:	☑ Satisfactory☐ Partially Satisfactory	☐ Unsatisfacto	ry



Coffey Environments Australia Pty Ltd

A.B.N. 65 140 765 902

DATA VALIDATION REPORT

Job No: GEOTLCOV25554AA

Soil Analysis - Lab Batch References: 48050, 480882, 480934, 481308, 481681, 482920,

and ES1537023

Groundwater Analysis - Lab Batch References - 481647 and ES1537701

II PRECISION/ACCURACY ASSESSMENT

1.	Was a	NATA	registered	laboratory	used?

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

Yes	No
	(Comment below)
\boxtimes	
\boxtimes	
\boxtimes	
	\boxtimes
\square	

COMMENTS:

The limits of reporting (LOR) for certain PAH compounds in groundwater were above the adopted assessment criteria. The increased LOR is reportedly associated with the method adopted by the laboratory to conduct the analysis. The LOR was adopted as the alternate assessment criteria, which is consistent with the guidance provided in ANZECC (2000).



Coffey Environments Australia Pty Ltd A.B.N. 65 140 765 902

DATA VALIDATION REPORT

Job No: GEOTLCOV25554AA

Soil Analysis - Lab Batch References: 48050, 480882, 480934, 481308, 481681, 482920,

and ES1537023

Groundwater Analysis - Lab Batch References - 481647 and ES1537701

III. FIELD QA/QC

Number of Samples Analysed Soil 25 1.

Groundwater: 3

2. Number of Days of Sampling: 5

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

Quality Control Sample Type	No.	% Total No. Samples
Intra-lab Duplicates (Soil)	2	8%
Inter-lab Duplicates (Soil)	1	4.0%
Intra-lab Duplicates (Groundwater)	1	33.33%
Inter-lab Duplicates (Groundwater)	0	0%
Trip Blanks	2	-
Trip Spike	2	-
Equipment Rinsate	2	-

4. FIELD DUPLICATES

	Yes	No (Comment below)
A. Were an <u>Adequate Number</u> of field duplicates analysed for each chemical?		
B. Were RPDs within Control Limits?a. Organics (No limit (<10 x LOR); 50% (10-20 x LOR); 30% (>20 x LOR))		\boxtimes
b. Metals/Inorganics (No limit (<10 x LOR); 50% (10-20 x LOR); 30% (>20 x LOR))		\boxtimes
c. Volatile & semi volatile organics (No limit (<10 x LOR); 50% (10-20 x LOR); 30% (>20 x LOR))		



Coffey Environments Australia Pty Ltd

A.B.N. 65 140 765 902

DATA VALIDATION REPORT

Job No: GEOTLCOV25554AA

Soil Analysis - Lab Batch References: 48050, 480882, 480934, 481308, 481681, 482920,

and ES1537023

Groundwater Analysis - Lab Batch References - 481647 and ES1537701

COMMENTS:

The number of inter-lab duplicate samples was slightly less than the 5% recommended within AS4482.1 (2005). This is not expected to directly influence the usability of the data.

Calculated RPDs have been presented in Tables 5 and 6 in Appendix F. In general the comparison of primary and duplicate samples demonstrated good reproducibility, when the LOR was considered. The observed variability reported between the primary and duplicate samples is assessed to be attributable to the heterogeneity of the fill material within the site. It is further noted that in order to minimise the loss of volatiles, soil samples are not mixed prior to splitting.



Coffey Environments Australia Pty Ltd A.B.N. 65 140 765 902

DATA VALIDATION REPORT

Job No: GEOTLCOV25554AA

Soil Analysis - Lab Batch References: 48050, 480882, 480934, 481308, 481681, 482920,

IV. TRIP BLANKS (TB) AND TRIP SPIKES (TS)		
	Yes	No (Comment below)
A. Were an Adequate Number of trip blanks and spikes analysed?		
B. Were the trip blanks free of contaminants and trip spike were with acceptance limit?	nin 🗵	
C. Were the trip spikes reported within acceptable recoveries?		
·····		
COMMENTS:		
COMMENTS:		
	Yes	No (Comment below
COMMENTS:	Yes	No (Comment below
COMMENTS: 6. EQUIPMENT RINSATE SAMPLES A. Were an adequate number of Equipment Rinsate Sample collected?	Yes	
COMMENTS: 6. EQUIPMENT RINSATE SAMPLES A. Were an adequate number of Equipment Rinsate Sampl	Yes 🖂	
COMMENTS: 6. EQUIPMENT RINSATE SAMPLES A. Were an adequate number of Equipment Rinsate Sample collected?	es 🖂	



Coffey Environments Australia Pty Ltd

A.B.N. 65 140 765 902

DATA VALIDATION REPORT

Job No: GEOTLCOV25554AA

Soil Analysis - Lab Batch References: 48050, 480882, 480934, 481308, 481681, 482920,

and ES1537023

Groundwater Analysis - Lab Batch References - 481647 and ES1537701

V LABORATORY INTERNAL QUALITY CONTROL PROCEDURES

1. Type of QA/QC Samples

	Yes	No
Laboratory Blanks/Reagent Blanks		
Laboratory Duplicates		
Matrix Spikes/Matrix Spike Duplicates		
Laboratory Control Spike	\boxtimes	
Surrogate (where appropriate)*		

2	Were the	laboratory	blanks/reag	ents blanks	s free c	of contain	nination?
---	----------	------------	-------------	-------------	----------	------------	-----------

- 3. Were the spike recoveries within control limits?
 - a. Organics (70% to 130%)
 - b. Metals/Inorganic (70% to 130%)
- 4. Were the RPDs of the laboratory duplicates within control limits?
- 5. Were the surrogate recoveries within control limits?

Yes	No
	(Comment
	below)
$\boxtimes \Box$	
\boxtimes	

COMMENTS:

Lab RPDs between primary and duplicate samples were within the control limits when consideration of
the reported concentrations and the laboratory limit of reporting with the exception of arsenic and lead in
reports 480822 and 480934, and arsenic, copper, chromium and zinc in report 481308. The variability
reported in samples of fill provided to the laboratory is considered attributable to the variability within the
soil matrix. Eurofins MGT report the RPD passes their internal QA acceptance criteria.

5. The laboratory internal QA/QC was:		Unsatisfactory
•	☐ Partially Satisfactory	



Coffey Environments Australia Pty Ltd A.B.N. 65 140 765 902

DATA VALIDATION REPORT

Job No: GEOTLCOV25554AA

Soil Analysis - Lab Batch References: 48050, 480882, 480934, 481308, 481681, 482920,

and ES1537023

VI	DATA USABILITY	
1.	Data Directly Usable	
2.	Data Usable with the following considerations	
3.	Data Not Usable.	
COM	IMENTS:	

Appendix F

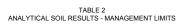
Laboratory Results: Summary Tables



					Field_ID Sampled_Date-Time	BH01_0.5-0.6 23/11/2015	BH01_1.0-1.45 23/11/2015	BH03_0.5-0.6 19/11/2015	BH03_1.0-1.1 19/11/2015	BH05_0.05-0.2 25/11/2015	BH05_1.0-1.45 25/11/2015	BH4A (0.2m) 26/11/2015	BH4B (0.4m) 26/11/2015	BH4C (1.5m) 26/11/2015	HA1_0.1-0.2 19/11/2015
	Te		l	NEPM 1999 HILs Residential A Soil (Existing Residential Dwellings North of Board St)	NEPM 1999 HILs Commercial/ Industrial D Soil										
Chem_Group BTEX	ChemName Benzene	Units mg/kg	EQL 0.1	0.5	3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		1 .	<0.1
BIEN	Ethylbenzene	mg/kg	0.1	55	2700	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	+ -	<0.1
	Toluene	mg/kg	0.1	160	99,000	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	<0.1
	Xylene (m & p)	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	-	<0.2
	Xylene (o)	mg/kg	0.1			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	<0.1
	Xylene Total	mg/kg	0.3	40	230	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	-	-	<0.3
la a sera si sa	C6-C10 less BTEX (F1)	mg/kg	20	45	260	<20	<20	<20	<20	<20	<20	<20	-	-	<20
Inorganics Metals	Moisture Content (dried @ 103°C) Arsenic	mg/kg	0.1	100	3000	9.1	6.6	7.8	4.6	2.3	16 <2	26 4.9	2.9	4.6	27
ivietais	Cadmium	mg/kg	0.4	20	900	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	0.5
	Chromium	mg/kg	5	100	3600	15	<5	16	<5	12	<5	22	14	<5	24
	Copper	mg/kg	5	6000	240000	20	24	330	6.9	26	16	28	21	27	44
	Lead	mg/kg	5	300	1500	15	9	82	<5	20	6.7	19	20	6.9	140
	Mercury	mg/kg	0.05	40	730	<0.05	<0.05	0.07	<0.05	0.06	<0.05	0.05	<0.05	<0.05	0.1
	Nickel	mg/kg	5	400	6000	<5	<5	23	<5	10	<5	16	12	<5	11
ОСР	Zinc 4,4-DDE	mg/kg mg/kg	0.05	7400	400000	<0.05	23	290	12	41 <0.05	24	48 <0.05	47 <0.05	33 <0.05	100 <0.05
Joer Joer	a-BHC	mg/kg	0.05			<0.05	-	-	-	<0.05	-	<0.05	<0.05	<0.05	<0.05
	Aldrin	mg/kg	0.05			<0.05	-	-	-	<0.05	-	<0.05	<0.05	<0.05	<0.05
	Aldrin + Dieldrin	mg/kg	1	6	45	<0.1	-	-	-	<0.1	-	<0.1	<0.1	<0.1	<0.1
	b-BHC	mg/kg	0.05			<0.05	-	-	-	<0.05	-	<0.05	<0.05	<0.05	<0.05
	Chlordane	mg/kg	0.1	50	530	<0.1	-	-	-	<0.1	-	<0.1	<0.1	<0.1	<0.2
	d-BHC	mg/kg	0.05			<0.05	-	-	-	<0.05	-	<0.05	<0.05	<0.05	<0.05
	DDD	mg/kg	0.05			<0.05	-	-	-	<0.05	-	<0.05	<0.05	<0.05	<0.05
	DDT+DDE+DDD	mg/kg mg/kg	0.05	240	3600	<0.05 <0.15		-	-	<0.05 <0.15	-	<0.05 <0.15	<0.05 <0.15	<0.05 <0.15	<0.05 <0.15
	Dieldrin	mg/kg	0.05	240	3000	<0.15	-	-	+	<0.05	+ -	<0.05	<0.05	<0.05	<0.05
	Endosulfan I	mg/kg	0.05	270	2000	<0.05		-	-	<0.05	-	<0.05	<0.05	<0.05	<0.05
	Endosulfan II	mg/kg	0.05			<0.05	-	-	-	<0.05	-	<0.05	<0.05	<0.05	<0.05
	Endosulfan sulphate	mg/kg	0.05			<0.05	-	-	-	<0.05	-	<0.05	<0.05	<0.05	<0.05
	Endrin	mg/kg	0.05	10	100	<0.05	-	-	-	<0.05	-	<0.05	<0.05	<0.05	<0.05
	Endrin aldehyde	mg/kg	0.05			<0.05	-	-	-	<0.05	-	<0.05	<0.05	<0.05	<0.05
	Endrin ketone	mg/kg	0.05			<0.05 <0.05	-	-	-	<0.05	-	<0.05 <0.05	<0.05 <0.05	<0.05 <0.05	<0.05 <0.05
	g-BHC (Lindane) Heptachlor	mg/kg mg/kg	0.05	6	50	<0.05	-	-	-	<0.05 <0.05	-	<0.05	<0.05	<0.05	<0.05
	Heptachlor epoxide	mg/kg	0.05	Ü	30	<0.05	-	-	-	<0.05	-	<0.05	<0.05	<0.05	<0.05
	Hexachlorobenzene	mg/kg	0.05	10	80	<0.05	-	-	-	<0.05	-	<0.05	<0.05	<0.05	<0.05
	Methoxychlor	mg/kg	0.2	300	2500	<0.2	-	-	-	<0.2	-	<0.2	<0.2	<0.2	<0.2
	Toxaphene	mg/kg	1	20	160	<1	-	-	-	<1	-	<1	<1	<1	<1
PAH	Acenaphthene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<0.5
	Acenaphthylene Anthracene	mg/kg mg/kg	0.5			<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	-	+ -	<0.5 <0.5
	Benzo(a)anthracene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	1	<0.5	<0.5	-	-	<0.5
	Benzo(a)pyrene	mg/kg	0.5			<0.5	<0.5	0.7	<0.5	1	<0.5	<0.5	-	-	<0.5
	Benzo(a)pyrene TEQ (lower bound) *	mg/kg	0.5			<0.5	<0.5	0.9	<0.5	1.3	<0.5	<0.5	-	-	<0.5
	Benzo(a)pyrene TEQ (medium bound) *	mg/kg	0.5			0.6	0.6	1.2	0.6	1.6	0.6	0.6	-	-	0.6
	Benzo(a)pyrene TEQ (upper bound) *	mg/kg	0.5	3	40	1.2	1.2	1.5	1.2	1.9	1.2	1.2	-	-	1.2
	Benzo(g,h,i)perylene Benzo(k)fluoranthene	mg/kg mg/kg	0.5			<0.5 <0.5	<0.5 <0.5	1.1 0.6	<0.5 <0.5	<0.5 1	<0.5 <0.5	<0.5 <0.5	-	-	<0.5 <0.5
	Chrysene	mg/kg	0.5			<0.5	<0.5	0.6	<0.5	1	<0.5	<0.5	-	-	<0.5
	Benzo[b+j]fluoranthene	mg/kg	0.5			<0.5	<0.5	0.6	<0.5	1	<0.5	<0.5	-	-	<0.5
	Dibenz(a,h)anthracene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-		<0.5
	Fluoranthene	mg/kg	0.5			<0.5	<0.5	0.9	<0.5	2.4	<0.5	0.9	-	-	<0.5
	Fluorene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<0.5
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5		11.000	<0.5	<0.5	0.7	<0.5	<0.5	<0.5	<0.5	-	-	<0.5
	Naphthalene Phenanthrene	mg/kg mg/kg	0.5	3	11,000	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 1.5	<0.5 <0.5	<0.5 <0.5	-	-	<0.5 <0.5
	Pyrene	mg/kg	0.5			<0.5	<0.5	1	<0.5	2.5	<0.5	0.9	-	-	<0.5
	Total PAHs	mg/kg	0.5	300	4000	<0.5	<0.5	6.2	<0.5	11	<0.5	1.8	-	-	<0.5
ТРН	F2-NAPHTHALENE	mg/kg	50	110	20,000	<50	<50	<50	<50	<50	<50	<50	-	-	<50
	C6 - C9	mg/kg	20			<20	<20	<20	<20	<20	<20	<20	-	-	<20
	C10 - C14	mg/kg	20			<20	<20	<20	<20	<20	<20	<20	-	-	<20
	C15 - C28	mg/kg	50			<50	<50	<50	<50	84	<50	<50	-	-	140
	C29 - C36 C10 - C36 (Sum of total)	mg/kg mg/kg	50 50			<50 <50	<50 <50	130 130	<50 <50	290 370	<50 <50	140 140	-	-	<50 140
	C10 - C36 (Sum of total)	mg/kg	50			<20	<20	<50	<50	<50	<50	<50	-	-	<50
	C16-C34 (F3)	mg/kg	100	4500	27,000	<100	<100	110	<100	250	<100	110	-	-	160
	C34-C40 (F4)	mg/kg	100	6300	38,000	<100	<100	<100	<100	240	<100	250	-	-	<100
	C6 - C10	mg/kg	20			<20	<20	<20	<20	<20	<20	<20	-	-	<20
Asbestos	Asbestos	D/ND		Detection	Detection	-	-	-	-	ND	-	ND	ND	ND	ND

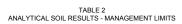


			F	Field_ID Sampled_Date-Time	HA1_0.9-1.0 19/11/2015	HA2_0.1-0.2 19/11/2015	HA2_0.9-1.0	HA3_0.1-0.2 19/11/2015	HA3_0.9-1.0 19/11/2015	HA4_0.1-0.2 19/11/2015	HA4_0.9-1.0 19/11/2015	HA5_0.1-0.2 19/11/2015	HA5_0.9-1.0 19/11/2015	HA6_0.1-0.2 19/11/2015	HA6_0.9-1.0 19/11/2015	HA7_0.1-0.2 19/11/2015	HA7_0.9-1.0 19/11/2015	HA8_0.1-0.2 19/11/2015	HA8_0.9-1.0 19/11/2015
	In a	lu ii Iroi	NEPM 1999 HILs Residential A Soil (Existing Residential Dwellings North of Board St)	NEPM 1999 HILs Commercial/ Industrial D Soil															
Chem_Group BTEX	ChemName Benzene	Units EQL mg/kg 0.1	0.5	3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Ethylbenzene	mg/kg 0.1	55	2700	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Toluene	mg/kg 0.1	160	99,000	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Xylene (m & p)	mg/kg 0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Xylene (o) Xylene Total	mg/kg 0.1 mg/kg 0.3	40	230	<0.1 <0.3	<0.1	<0.1 <0.3	<0.1 <0.3	<0.1 <0.3	<0.1	<0.1	<0.1 <0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 <0.3	<0.1 <0.3
	C6-C10 less BTEX (F1)	mg/kg 0.3	45	260	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Inorganics	Moisture Content (dried @ 103°C)	% 0.1			21	23	25	24	19	16	22	20	23	17	22	18	22	20	26
Metals	Arsenic	mg/kg 2	100	3000	11	17	18	4.8	12	31	7.3	25	12	36	17	52	11	5.2	15
	Cadmium	mg/kg 0.4	20	900	<0.4	0.5	<0.4	<0.4	<0.4	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	1.4	<0.4	<0.4	<0.4
	Copper	mg/kg 5 mg/kg 5	100 6000	3600 240000	25 12	27 38	29 13	29	25 10	9.8	13	17 32	20 15	13	21 16	71	22	12	25
	Copper Lead	mg/kg 5	300	1500	18	170	19	170	21	210	16	130	20	56	16	1300	83	30	17
	Mercury	mg/kg 0.05	40	730	<0.05	0.09	<0.05	0.12	<0.05	0.06	<0.05	0.06	<0.05	0.09	<0.05	0.43	<0.05	0.07	<0.05
	Nickel	mg/kg 5	400	6000	<5	7.9	<5	<5	<5	<5	<5	8.3	<5	6.8	<5	11	<5	9.5	<5
ocn	Zinc	mg/kg 5	7400	400000	9.4	280	7.9	140	13	82	8.6	140	11	140	31	1600	32	75	45
ОСР	4,4-DDE a-BHC	mg/kg 0.05 mg/kg 0.05			-	<0.05 <0.05	-	<0.05 <0.05		<0.05 <0.05	-								
	Aldrin	mg/kg 0.05			-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
	Aldrin + Dieldrin	mg/kg	6	45	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-
	b-BHC	mg/kg 0.05			-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
	Chlordane	mg/kg 0.1	50	530	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-
	d-BHC DDD	mg/kg 0.05 mg/kg 0.05			-	<0.05 <0.05	-	<0.05 <0.05	-	<0.05 <0.05	-	<0.05 <0.05	-	<0.05 <0.05	-	<0.05 <0.05	-	<0.05 <0.05	-
	DDT	mg/kg 0.05			-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
	DDT+DDE+DDD	mg/kg	240	3600	-	<0.15	-	<0.15	-	<0.15	-	<0.15	-	<0.15	-	<0.15	-	<0.15	-
	Dieldrin	mg/kg 0.05			-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
	Endosulfan I	mg/kg 0.05	270	2000	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
	Endosulfan II Endosulfan sulphate	mg/kg 0.05 mg/kg 0.05			-	<0.05 <0.05	-	<0.05 <0.05	-	<0.05 <0.05	-	<0.05 <0.05	-	<0.05 <0.05	-	<0.05 <0.05	-	<0.05 <0.05	-
	Endrin	mg/kg 0.05	10	100	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
	Endrin aldehyde	mg/kg 0.05			-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
	Endrin ketone	mg/kg 0.05			-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
	g-BHC (Lindane)	mg/kg 0.05			-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
	Heptachlor Heptachlor epoxide	mg/kg 0.05 mg/kg 0.05	6	50	-	<0.05 <0.05	-	<0.05 <0.05	-	<0.05 <0.05	-	<0.05 <0.05	-	<0.05 <0.05	-	<0.05 <0.05	-	<0.05 <0.05	-
	Hexachlorobenzene	mg/kg 0.05	10	80	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
	Methoxychlor	mg/kg 0.2	300	2500	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-
	Toxaphene	mg/kg 1	20	160	-	<1	-	<1	-	<1	-	<1	-	<1	-	<1	-	<1	-
PAH	Acenaphthulana	mg/kg 0.5			<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5
	Acenaphthylene Anthracene	mg/kg 0.5 mg/kg 0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(a)anthracene	mg/kg 0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(a)pyrene	mg/kg 0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(a)pyrene TEQ (lower bound) *	mg/kg 0.5			<0.5	<0.5	<0.5	<0.5 0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5 0.6	<0.5 0.6	<0.5	<0.5 0.6	<0.5
	Benzo(a)pyrene TEQ (medium bound) * Benzo(a)pyrene TEQ (upper bound) *	mg/kg 0.5 mg/kg 0.5	3	40	0.6 1.2	0.6 1.2	0.6	1.2	0.6	0.6 1.2	0.6 1.2	0.6	0.6	1.2	1.2	1.2	0.6	1.2	0.6
	Benzo(g,h,i)perylene	mg/kg 0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(k)fluoranthene	mg/kg 0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Chrysene	mg/kg 0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo[b+j]fluoranthene Dibenz(a,h)anthracene	mg/kg 0.5 mg/kg 0.5			<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5
	Fluoranthene	mg/kg 0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Fluorene	mg/kg 0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Indeno(1,2,3-c,d)pyrene	mg/kg 0.5		44.000	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Naphthalene Phenanthrene	mg/kg 0.5 mg/kg 0.5	3	11,000	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5
	Pyrene	mg/kg 0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Total PAHs	mg/kg 0.5	300	4000	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ТРН	F2-NAPHTHALENE	mg/kg 50	110	20,000	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	C6 - C9	mg/kg 20			<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	C10 - C14 C15 - C28	mg/kg 20 mg/kg 50			<20 <50	<20 <50	<20 <50	<20 <50	<20 <50	<20 <50	<20 <50	<20 <50	<20 <50	<20 <50	<20 <50	<20 <50	<20 <50	<20 <50	<20 <50
	C29 - C36	mg/kg 50			<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	C10 - C36 (Sum of total)	mg/kg 50			<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	C10-C16	mg/kg 50			<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	C16-C34 (F3) C34-C40 (F4)	mg/kg 100	4500 6300	27,000 38,000	<100 <100	<100 <100	<100	<100 <100	<100	<100 <100	<100	<100 <100	<100	<100	<100 <100	<100	<100	<100	<100
	C34-C40 (F4) C6 - C10	mg/kg 100 mg/kg 20	6300	38,000	<100 <20	<100 <20	<100 <20	<100 <20	<100 <20	<100 <20	<100 <20	<100 <20	<100 <20	<100 <20	<100 <20	<100 <20	<100 <20	<100 <20	<100 <20
Asbestos	Asbestos	D/ND	Detection	Detection	-	ND ND	-	ND	-	ND	-	ND	-	ND ND	-	ND	-	ND	-
		-,	20.5000.							,			-			,			





				Field_ID	BH01_0.5-0.6	BH01_1.0-1.45	BH03_0.5-0.6	BH03_1.0-1.1	BH05_0.05-0.2	BH05_1.0-1.45	BH4A	BH4B	BH4C	HA1_0.1-0.2	HA1_0.9-1.0	HA2_0.1-0.2	HA2_0.9-1.0
				Sampled_Date-Time	23/11/2015	23/11/2015	19/11/2015	19/11/2015	25/11/2015	25/11/2015	26/11/2015	26/11/2015	26/11/2015	19/11/2015	19/11/2015	19/11/2015	19/11/2015
				NEPM 2013 Mgmt Limits													
				Commercial and industrial,													
				Coarse Soil													
Chem_Group	ChemName	Units	EQL	 													
TPH	C6-C10 less BTEX (F1)	mg/kg	20	700	<20	<20	<20	<20	<20	<20	<20	-	-	<20	<20	<20	<20
	F2-NAPHTHALENE	mg/kg	50	1000	<50	<50	<50	<50	<50	<50	<50	-	-	<50	<50	<50	<50
	C16-C34 (F3)	mg/kg	100	3500	<100	<100	110	<100	250	<100	110	-	-	160	<100	<100	<100
	C34-C40 (F4)	mg/kg	100	10000	<100	<100	<100	<100	240	<100	250	-	-	<100	<100	<100	<100



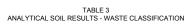


HA3_0.1-0.2	HA3_0.9-1.0	HA4_0.1-0.2	HA4_0.9-1.0	HA5_0.1-0.2	HA5_0.9-1.0	HA6_0.1-0.2	HA6_0.9-1.0	HA7_0.1-0.2	HA7_0.9-1.0	HA8_0.1-0.2	HA8_0.9-1.0
19/11/2015	19/11/2015	19/11/2015	19/11/2015	19/11/2015	19/11/2015	19/11/2015	19/11/2015	19/11/2015	19/11/2015	19/11/2015	19/11/2015

Chem_Group	ChemName	Units	EQL	•											
TPH	C6-C10 less BTEX (F1)	mg/kg	20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	F2-NAPHTHALENE	mg/kg	50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	C16-C34 (F3)	mg/kg	100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
	C34-C40 (F4)	mg/kg	100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100



							Field_ID	BH01_0.5-0.	6 BH01_1.0-1.4	5 BH03_0.5-0.6	BH03_1.0-1.1	BH05_0.05-0.2	BH05_1.0-1.45	BH4A (0.2m)	BH4B (0.4m)	BH4C (1.5m)	HA1_0.1-0.2	HA1_0.9-1.0
							Sampled_Date-Time	23/11/201		5 19/11/2015	19/11/2015	25/11/2015	25/11/2015	26/11/2015	26/11/2015	26/11/2015	19/11/2015	19/11/2015
		CT1 NSW 2014 General Solid		Solid SCC1 NSW 2014 General Solid			TCLP2 NSW 2014 Restricted	Fill	Residual Soil	Fill	Residual Soil	Fill	Residual Soil	Fill	Fill	Residual Soil	Fill	Residual Soil
		Waste (No Leaching)	Waste (No Leaching)	Waste Specific Contaminant	Waste Leachable	Solid Waste Specific	Solid Waste Leachable											
				Concentration	Concentration	Contaminant Concentration	Concentration											
ChemName	Units EQL																	
Benzene	mg/kg 0.1	10	40	18		72		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	<0.1	<0.1
Ethylbenzene	mg/kg 0.1	600	2400	1080		4320		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	<0.1	<0.1
Toluene	mg/kg 0.1	288	1152	518		2073		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	<0.1	<0.1
Xylene (m & p)	mg/kg 0.2							<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	-	<0.2	<0.2
Xylene (o)	mg/kg 0.1	1000	4000	1000		7200		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	<0.1	<0.1
Xylene Total C6-C10 less BTEX (F1)	mg/kg 0.3 mg/kg 20	1000	4000	1800		7200		<0.3 <20	<0.3 <20	<0.3 <20	<0.3 <20	<0.3 <20	<0.3 <20	<0.3 <20	-	-	<0.3 <20	<0.3 <20
Moisture Content (dried @ 103°C)	mg/kg 20 % 0.1							13	14	15	14	11	16	26	+ -	-	27	21
Arsenic	mg/kg 2	100	400	500		2000		9.1	6.6	7.8	4.6	2.3	<2	4.9	2.9	4.6	11	11
Cadmium	mg/kg 0.4	20	80	100		400		<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	0.5	<0.4
Chromium	mg/kg 5	100		1900		7600		15	<5	16	<5	12	<5	22	14	<5	24	25
Copper	mg/kg 5							20	24	330	6.9	26	16	28	21	27	44	12
Lead	mg/kg 5	100	400	1500		6000		15	9	82	<5	20	6.7	19	20	6.9	140	18
Lead TCLP	mg/L				5		20										0.01	
Mercury	mg/kg 0.05	4	16	50		200		<0.05	<0.05	0.07	<0.05	0.06	<0.05	0.05	<0.05	<0.05	0.1	<0.05
Nickel	mg/kg 5	40	160	1050		4200		<5	<5	23	<5	10	<5	16	12	<5	11	<5
Zinc	mg/kg 5							22	23	290	12	41	24	48	47	33	100	9.4
4,4-DDE a-BHC	mg/kg 0.05							<0.05 <0.05	-	-	-	<0.05 <0.05	-	<0.05 <0.05	<0.05 <0.05	<0.05 <0.05	<0.05 <0.05	-
Aldrin	mg/kg 0.05 mg/kg 0.05							<0.05	-	-	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	-
Aldrin + Dieldrin	mg/kg 0.05							<0.05	-	-	-	<0.1	-	<0.05	<0.05	<0.05	<0.05	-
b-BHC	mg/kg 0.05							<0.05	-	-	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	-
Chlordane	mg/kg 0.05							<0.1	-	-	-	<0.1	-	<0.1	<0.1	<0.1	<0.2	-
d-BHC	mg/kg 0.05							<0.05	-	-	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	-
DDD	mg/kg 0.05							<0.05	-	-	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	-
DDT	mg/kg 0.05							<0.05	-	-	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	-
DDT+DDE+DDD	mg/kg							<0.15	-	-	-	<0.15	-	<0.15	<0.15	<0.15	<0.15	-
Dieldrin	mg/kg 0.05							<0.05	-	-	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	-
Endosulfan I	mg/kg 0.05							<0.05	-	-	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	-
Endosulfan II	mg/kg 0.05							<0.05	-	-	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	-
Endosulfan sulphate	mg/kg 0.05							<0.05	-	-	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	-
Endrin Endrin aldehyde	mg/kg 0.05 mg/kg 0.05							<0.05 <0.05	-	-	-	<0.05 <0.05	-	<0.05 <0.05	<0.05 <0.05	<0.05 <0.05	<0.05 <0.05	-
Endrin ketone	mg/kg 0.05							<0.05	1 -	1 -	+	<0.05	-	<0.05	<0.05	<0.05	<0.05	-
g-BHC (Lindane)	mg/kg 0.05							<0.05	 	-	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	-
Heptachlor	mg/kg 0.05							<0.05	-	-	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	-
Heptachlor epoxide	mg/kg 0.05							<0.05	-	-	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	-
Hexachlorobenzene	mg/kg 0.05							<0.05	-	-	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	-
Methoxychlor	mg/kg 0.2							<0.2	-	-	-	<0.2	-	<0.2	<0.2	<0.2	<0.2	-
Toxaphene	mg/kg 1							<1	-	-	-	<1	-	<1	<1	<1	<1	-
Acenaphthene	mg/kg 0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<0.5	<0.5
Acenaphthylene	mg/kg 0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<0.5	<0.5
Anthracene Benzo(a)anthracene	mg/kg 0.5 mg/kg 0.5							<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5	<0.5 <0.5	<0.5 <0.5	-	-	<0.5 <0.5	<0.5 <0.5
Benzo(a)pyrene	mg/kg 0.5 mg/kg 0.5	0.8	3.2	10		23		<0.5	<0.5	0.7	<0.5	1	<0.5	<0.5	-	-	<0.5	<0.5
Benzo(a)pyrene TCLP	mg/L 0.001	0.0	J.2	10	0.04		0.16	-0.5	10.5	0.7	10.5	<0.001	10.5	10.5			10.5	13.3
Benzo(g,h,i)perylene	mg/kg 0.5							<0.5	<0.5	1.1	<0.5	<0.5	<0.5	<0.5	-	-	<0.5	<0.5
Benzo(k)fluoranthene	mg/kg 0.5							<0.5	<0.5	0.6	<0.5	1	<0.5	<0.5	-	-	<0.5	<0.5
Chrysene	mg/kg 0.5							<0.5	<0.5	0.6	<0.5	1	<0.5	<0.5	-	-	<0.5	<0.5
Benzo[b+j]fluoranthene	mg/kg 0.5							<0.5	<0.5	0.6	<0.5	1	<0.5	<0.5	-	-	<0.5	<0.5
Dibenz(a,h)anthracene	mg/kg 0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<0.5	<0.5
Fluoranthene	mg/kg 0.5							<0.5	<0.5	0.9	<0.5	2.4	<0.5	0.9	-	-	<0.5	<0.5
Fluorene	mg/kg 0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<0.5	<0.5
Indeno(1,2,3-c,d)pyrene	mg/kg 0.5							<0.5 <0.5	<0.5 <0.5	0.7 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	-	-	<0.5 <0.5	<0.5 <0.5
Naphthalene Phenanthrene	mg/kg 0.5 mg/kg 0.5							<0.5	<0.5	<0.5	<0.5	1.5	<0.5	<0.5	-	-	<0.5	<0.5
Pyrene	mg/kg 0.5							<0.5	<0.5	1	<0.5	2.5	<0.5	0.9	-	-	<0.5	<0.5
Total PAHs	mg/kg 0.5	200	800	200		800		<0.5	<0.5	6.2	<0.5	11	<0.5	1.8	-	-	<0.5	<0.5
F2-NAPHTHALENE	mg/kg 50							<50	<50	<50	<50	<50	<50	<50	-	-	<50	<50
C6 - C9	mg/kg 20	650	2600	650		2600		<20	<20	<20	<20	<20	<20	<20	-	-	<20	<20
C10 - C14	mg/kg 20							<20	<20	<20	<20	<20	<20	<20	-	-	<20	<20
C15 - C28	mg/kg 50							<50	<50	<50	<50	84	<50	<50	-	-	140	<50
C29 - C36	mg/kg 50							<50	<50	130	<50	290	<50	140	-	-	<50	<50
C10 - C36 (Sum of total)	mg/kg 50	10000	40000	10000		40000		<50	<50	130	<50	370	<50	140	-	-	140	<50
C10-C16	mg/kg 50							<20	<20	<50	<50	<50	<50	<50	-	-	<50	<50
C16-C34	mg/kg 100							<100	<100	110	<100	250	<100	110	-	-	160	<100
C34-C40 C6 - C10	mg/kg 100							<100 <20	<100 <20	<100	<100 <20	240	<100	250 <20	-	-	<100	<100 <20
CO - C10	mg/kg 20							\20	1 <20	<20	1 (20	<20	<20	1 \20	-		<20	

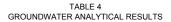




								Field_ID Sampled_Date-Time		HA2_0.9-1.0	HA3_0.1-0.2	HA3_0.9-1.0 19/11/2015	HA4_0.1-0.2 19/11/2015	HA4_0.9-1.0 19/11/2015	HA5_0.1-0.2 19/11/2015	HA5_0.9-1.0	HA6_0.1-0.2 19/11/2015	HA6_0.9-1.0 19/11/2015	HA7_0.1-0.2 19/11/2015	HA7_0.9-1.0 19/11/2015
			CT1 NSW 2014 General Solid Waste (No Leaching)	CT2 NSW 2014 Restricted Soli Waste (No Leaching)	id SCC1 NSW 2014 General Solid Waste Specific Contaminant Concentration		d SCC2 NSW 2014 Restricted Solid Waste Specific Contaminant Concentration	TCLP2 NSW 2014 Restricted Solid Waste Leachable Concentration	Fill	Residual Soil	Fill	Fill	Fill	Residual Soil	Fill	Residual Soil	Fill	Residual Soil	Fill	Residual Soil
ChemName	Units	EQL																		
Benzene	mg/kg		10	40	18		72		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg		600	2400	1080		4320		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Foluene Kylene (m & p)	mg/kg mg/kg		288	1152	518		2073		<0.1 <0.2	<0.1 <0.2	<0.1 <0.2	<0.1	<0.1	<0.1	<0.1 <0.2	<0.1 <0.2	<0.1 <0.2	<0.1 <0.2	<0.1 <0.2	<0.1 <0.2
Xylene (o)		0.1							<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Kylene Total	mg/kg	0.3	1000	4000	1800		7200		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
C6-C10 less BTEX (F1)	mg/kg								<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Moisture Content (dried @ 103°C)		0.1	400	400	500		2000		23	25	24	19	16	22	20	23	17	22	18	22
Arsenic Cadmium	mg/kg mg/kg	0.4	100 20	400 80	500 100		2000 400		17 0.5	18 <0.4	4.8 <0.4	<0.4	0.4	7.3	25 <0.4	12 <0.4	36 <0.4	17 <0.4	52 1.4	<0.4
Chromium	mg/kg	5	100	- 55	1900		7600		27	29	11	25	9.8	13	17	20	13	21	33	22
Copper	mg/kg	5							38	13	29	10	20	11	32	15	34	16	71	14
Lead	mg/kg	5	100	400	1500		6000		170	19	170	21	210	16	130	20	56	16	1300	83
Lead TCLP	mg/L				-	5		20	<0.01		<0.01		0.06		0.01				0.71	
Mercury Nickel	mg/kg	0.05	40	16 160	50 1050		200 4200		0.09 7.9	<0.05 <5	0.12 <5	<0.05 <5	0.06 <5	<0.05 <5	0.06	<0.05 <5	6.8	<0.05 <5	0.43	<0.05 <5
vickei Zinc	mg/kg mg/kg	5	40	100	1050		+200		280	7.9	140	13	82	8.6	140	11	140	31	1600	32
4,4-DDE	mg/kg	0.05							<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05		<0.05	-
a-BHC	mg/kg	0.05							<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Aldrin	mg/kg	0.05							<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Aldrin + Dieldrin	mg/kg	0.05							<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-
b-BHC Chlordane	mg/kg mg/kg	0.05							<0.05 <0.1	-	<0.05 <0.1		<0.05 <0.1	-	<0.05 <0.1	-	<0.05 <0.1	-	<0.05 <0.1	-
d-BHC	mg/kg								<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
DDD	mg/kg								<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
DDT	mg/kg								<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
DDT+DDE+DDD	mg/kg								<0.15	-	<0.15	-	<0.15	-	<0.15	-	<0.15	-	<0.15	-
Dieldrin	mg/kg								<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Endosulfan I Endosulfan II	mg/kg mg/kg								<0.05 <0.05	-	<0.05 <0.05	-	<0.05 <0.05	-	<0.05 <0.05	-	<0.05 <0.05	-	<0.05 <0.05	-
Endosulfan sulphate	mg/kg								<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Endrin	mg/kg								<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Endrin aldehyde	mg/kg	0.05							<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Endrin ketone	mg/kg								<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
g-BHC (Lindane)	mg/kg								<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Heptachlor Heptachlor epoxide	mg/kg mg/kg								<0.05 <0.05	-	<0.05 <0.05	-	<0.05 <0.05	-	<0.05 <0.05	-	<0.05 <0.05	-	<0.05 <0.05	-
Hexachlorobenzene	mg/kg								<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-	<0.05	-
Methoxychlor		0.2							<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-	<0.2	-
Toxaphene	mg/kg	1							<1	-	<1	-	<1	-	<1	-	<1	-	<1	-
Acenaphthene	mg/kg								<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene Anthracene	mg/kg mg/kg								<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5
Benzo(a)anthracene	mg/kg								<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	mg/kg		0.8	3.2	10		23		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TCLP	mg/L	0.001				0.04		0.16												
Benzo(g,h,i)perylene	mg/kg								<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene Chrysene	mg/kg mg/kg	0.5							<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5
Benzo[b+j]fluoranthene		0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	mg/kg								<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	mg/kg								<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	mg/kg								<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1,2,3-c,d)pyrene	mg/kg								<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene Phenanthrene	mg/kg mg/kg								<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5
Pyrene	mg/kg	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total PAHs	mg/kg		200	800	200		800		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
F2-NAPHTHALENE	mg/kg	50							<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
C6 - C9	mg/kg		650	2600	650		2600		<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
C10 - C14	mg/kg								<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
C15 - C28 C29 - C36	mg/kg mg/kg								<50 <50	<50 <50	<50 <50	<50 <50	<50 <50	<50 <50	<50 <50	<50 <50	<50 <50	<50 <50	<50 <50	<50 <50
C10 - C36 (Sum of total)	mg/kg		10000	40000	10000		40000		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
C10-C16	mg/kg								<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
C16-C34	mg/kg	100							<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
C34-C40	mg/kg								<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
C6 - C10	mg/kg	20							<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20



								Field_ID	HA8_0.1-0.2	HA8_0.9-1.0
								Sampled_Date-Time	19/11/2015	19/11/2015
			CT1 NSW 2014 General Solid	CT2 NSW 2014 Restricted Solid		TCLP1 NSW 2014 General Solid	SCC2 NSW 2014 Restricted		Fill	Residual Soil
			Waste (No Leaching)	Waste (No Leaching)	Waste Specific Contaminant	Waste Leachable	Solid Waste Specific	Solid Waste Leachable		
					Concentration	Concentration	Contaminant Concentration	Concentration		
ChemName	Units	EQL								
Benzene	mg/kg	0.1	10	40	18		72		<0.1	<0.1
Ethylbenzene	mg/kg	0.1	600	2400	1080		4320		<0.1	<0.1
Toluene	mg/kg	0.1	288	1152	518		2073		<0.1	<0.1
Xylene (m & p)	mg/kg	0.2							<0.2	<0.2
Xylene (o)	mg/kg	0.1							<0.1	<0.1
Xylene Total	mg/kg	0.3	1000	4000	1800		7200		<0.3	<0.3
C6-C10 less BTEX (F1)	mg/kg	20							<20	<20
Moisture Content (dried @ 103°C)	%	0.1							20	26
Arsenic	mg/kg	2	100	400	500		2000		5.2	15
Cadmium	mg/kg	0.4	20	80	100		400		<0.4	<0.4
Chromium	mg/kg	5	100		1900		7600		12	25
Copper	mg/kg	5							13	22
Lead	mg/kg	5	100	400	1500		6000		30	17
Lead TCLP	mg/L					5		20		
Mercury	mg/kg	0.05	4	16	50		200		0.07	<0.05
Nickel	mg/kg	5	40	160	1050		4200		9.5	<5
Zinc	mg/kg	5							75	45
4,4-DDE	mg/kg	0.05							<0.05	
a-BHC	mg/kg	0.05							<0.05	-
Aldrin	mg/kg	0.05							<0.05	-
Aldrin + Dieldrin	mg/kg	0.03							<0.03	+ -
b-BHC		0.05							<0.05	-
Chlordane	mg/kg mg/kg	0.05							<0.05	-
									+	
d-BHC	mg/kg	0.05							<0.05	-
DDD	mg/kg	0.05							<0.05	-
DDT	mg/kg	0.05							<0.05	-
DDT+DDE+DDD	mg/kg								<0.15	-
Dieldrin	mg/kg	0.05							<0.05	-
Endosulfan I	mg/kg	0.05							<0.05	-
Endosulfan II	mg/kg	0.05							<0.05	-
Endosulfan sulphate	mg/kg	0.05							<0.05	-
Endrin	mg/kg	0.05							<0.05	-
Endrin aldehyde	mg/kg	0.05							<0.05	-
Endrin ketone	mg/kg	0.05							<0.05	-
g-BHC (Lindane)	mg/kg	0.05							<0.05	-
Heptachlor	mg/kg	0.05							<0.05	-
Heptachlor epoxide	mg/kg	0.05							<0.05	-
Hexachlorobenzene	mg/kg	0.05							<0.05	-
Methoxychlor	mg/kg	0.2							<0.2	-
Toxaphene	mg/kg	1							<1	-
Acenaphthene	mg/kg	0.5							<0.5	<0.5
Acenaphthylene	mg/kg	0.5							<0.5	<0.5
Anthracene		0.5							<0.5	<0.5
Benzo(a)anthracene	mg/kg	0.5							<0.5	<0.5
	mg/kg		0.8	3.2	10		23		<0.5	<0.5
Benzo(a)pyrene	mg/kg	0.5	U.8	5.2	10	0.04	23	0.16	×0.5	<0.5
Benzo(a)pyrene TCLP	mg/L	0.001				0.04		0.16	-0.5	+
Benzo(g,h,i)perylene	mg/kg	0.5							<0.5	<0.5
Benzo(k)fluoranthene	mg/kg	0.5							<0.5	<0.5
Chrysene	mg/kg	0.5							<0.5	<0.5
Benzo[b+j]fluoranthene	mg/kg	0.5							<0.5	<0.5
Dibenz(a,h)anthracene	mg/kg	0.5							<0.5	<0.5
Fluoranthene	mg/kg	0.5							<0.5	<0.5
Fluorene	mg/kg	0.5							<0.5	<0.5
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5							<0.5	<0.5
Naphthalene	mg/kg	0.5							<0.5	<0.5
Phenanthrene	mg/kg	0.5							<0.5	<0.5
Pyrene	mg/kg	0.5							<0.5	<0.5
Total PAHs	mg/kg	0.5	200	800	200		800		<0.5	<0.5
F2-NAPHTHALENE	mg/kg	50							<50	<50
C6 - C9	mg/kg	20	650	2600	650		2600		<20	<20
C10 - C14	mg/kg	20							<20	<20
C15 - C28	mg/kg	50							<50	<50
C29 - C36	mg/kg	50							<50	<50
C10 - C36 (Sum of total)			10000	40000	10000		40000			
	mg/kg	50	10000	40000	10000		40000		<50	<50
C10-C16	mg/kg	50							<50	<50
C16-C34	mg/kg	100							<100	<100
C34-C40	mg/kg	100							<100	<100
C6 - C10	mg/kg	20							<20	<20





				Field_ID	BH01	BH03	BH05
				Sampled_Date-Time		1/12/2015	1/12/2015
				Matrix_Type		WATER	WATER
				ANZECC Freshwater GIL	WYTTER	WATER	WATER
Chem_Group	ChemName	Units	EQL				
BTEX	Benzene	μg/L	1	950	<1	<1	<1
	Ethylbenzene	μg/L	1	80	<1	<1	<1
	Toluene	μg/L	1	180	<1	<1	<1
	Xylene (m & p)	μg/L	2	75	4	<2	<2
	Xylene (o)	μg/L	1	350	2	<1	<1
	Xylene Total	μg/L	3		5	<3	<3
	C6-C10 less BTEX (F1)	mg/L	0.02		0.04	<0.02	0.04
Metals	Arsenic (Filtered)	mg/L	0.001	0.013	0.001	0.003	0.003
	Cadmium (Filtered)	mg/L	0.0001	0.0002	<0.0001	<0.0001	<0.0001
	Chromium (Filtered)	mg/L	0.001	0.001	<0.001	<0.001	<0.001
	Copper (Filtered)	mg/L	0.001	0.0014	<0.001	<0.001	<0.001
	Lead (Filtered)	mg/L	0.001	0.0034	<0.001	<0.001	<0.001
	Mercury (Filtered)	mg/L	0.0001	0.0006	<0.0001	<0.0001	<0.0001
	Nickel (Filtered)	mg/L	0.001	0.011	0.003	0.003	0.11
	Zinc (Filtered)	mg/L	0.005	0.008	0.007	<0.005	0.012
PAH	Acenaphthene	μg/L	1		<1	<1	<1
	Acenaphthylene	μg/L	1		<1	<1	<1
	Anthracene	μg/L	1	1	<1	<1	<1
	Benzo(a)anthracene	μg/L	1		<1	<1	<1
	Benzo(a)pyrene	μg/L	1	1	<1	<1	<1
	Benzo(g,h,i)perylene	μg/L	1		<1	<1	<1
	Benzo(k)fluoranthene	μg/L	1		<1	<1	<1
	Chrysene	μg/L	1		<1	<1	<1
	Benzo[b+j]fluoranthene	μg/L	1		<1	<1	<1
	Dibenz(a,h)anthracene	μg/L	1		<1	<1	<1
	Fluoranthene	μg/L	1	1	<1	<1	<1
	Fluorene	μg/L	1		<1	<1	<1
	Indeno(1,2,3-c,d)pyrene	μg/L	1		<1	<1	<1
	Naphthalene	μg/L	1	16	<1	<1	<1
	Phenanthrene	μg/L	1	1	<1	<1	<1
	Pyrene	μg/L	1		<1	<1	<1
	Total PAHs	μg/L	1		<1	<1	<1
TPH	F2-NAPHTHALENE	mg/L	0.05		<0.05	<0.05	<0.05
	C6 - C9	μg/L	20	20	20	<20	<20
	C10 - C14	μg/L	50	50	<50	<50	<50
	C15 - C28	μg/L	100	100	<100	<100	<100
	C29 - C36	μg/L	100	100	<100	<100	<100
	C10 - C36 (Sum of total)	μg/L	100		<100	<100	<100
	C10-C16	mg/L	0.05		<0.05	<0.05	<0.05
	C16-C34	mg/L	0.1		<0.1	<0.1	<0.1
	C34-C40	mg/L	0.1		<0.1	<0.1	<0.1
	C6 - C10	mg/L	0.02		0.05	<0.02	0.04



F: 11 D II 1 (00 II			000	0040 44	0010 11		0040.44	0010 11		0010 11		
Field Duplicates (SOII Filter: ALL	L)		SDG Field ID	0210-11 HA4 0.1-0.2	0210-11 DUP01	RPD	0210-11 HA6 0.1-0.2	0210-11 DUP02	RPD	0210-11 HA4 0.1-0.2	Interlab_D DUP01A	RPD
FIITET: ALL			Sampled Date/Time	19/11/2015	19/11/2015	KPD	19/11/2015	19/11/2015	KPD	19/11/2015	19/11/2015	
			Campica Date, Time	10/11/2010	13/11/2013		10/11/2010	13/11/2010		13/11/2013	13/11/2013	
Chem Group	ChemName	Units	IEQL	l e	I			I			ı	Т
BTEX	Benzene	mg/kg	0.1 (Primary): 0.2 (Interlab)	<0.1	<0.1	-	<0.1	<0.1	0	<0.1	<0.2	0
	Ethylbenzene	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	-	<0.1	<0.1	0	<0.1	<0.5	0
	Toluene	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	-	<0.1	<0.1	0	<0.1	< 0.5	0
	Xylene (m & p)	mg/kg	0.2 (Primary): 0.5 (Interlab)	<0.2	<0.2	-	<0.2	<0.2	0	<0.2	< 0.5	0
	Xylene (o)	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	-	<0.1	<0.1	0	<0.1	<0.5	0
	Xylene Total	mg/kg	0.3 (Primary): 0.5 (Interlab)	< 0.3	<0.3	-	<0.3	< 0.3	0	< 0.3	<0.5	0
	C6-C10 less BTEX (F1)	mg/kg	20 (Primary): 10 (Interlab)	<20.0	<20.0	•	<20.0	<20.0	0	<20.0	<10.0	0
												<u>↓</u>
Inorganics	Moisture Content (dried @ 103°C)	%	0.1	16.0	22.0	32	17.0	21.0	21	16.0		1
Madala	A i -		2 (Brinner): 5 (Intendeb)	31.0	40.0	45	20.0	50.0	40	31.0	49.0	45
Metals	Arsenic Cadmium	mg/kg	2 (Primary): 5 (Interlab)	0.4	49.0 0.7	45 55	36.0 < 0.4	59.0 <0.4	48	0.4	49.0 <1.0	45 0
	Chromium	mg/kg mg/kg	0.4 (Primary): 1 (Interlab) 5 (Primary): 2 (Interlab)	9.8	18.0	59	13.0	20.0	42	9.8	19.0	64
	Copper	mg/kg	s (Filliary). 2 (Interial)	20.0	40.0	67	34.0	22.0	43	20.0	44.0	75
	Lead	mg/kg	5	210.0	310.0	38	56.0	51.0	9	210.0	338.0	47
	Mercury	mg/kg	0.05 (Primary): 0.1 (Interlab)	0.06	0.18	100	0.09	0.11	20	0.06	0.1	50
	Nickel	mg/kg	5 (Primary): 2 (Interlab)	<5.0	6.7	-	6.8	7.1	4	<5.0	8.0	46
	Zinc	mg/kg	5	82.0	470.0	141	140.0	170.0	19	82.0	555.0	149
						<u> </u>						T.
OCP	4,4-DDE	mg/kg	0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	-	< 0.05	< 0.05	1 -
	a-BHC	mg/kg	0.05	< 0.05	<0.05	-	< 0.05	< 0.05	-	< 0.05	< 0.05	-
	Aldrin	mg/kg	0.05	< 0.05	< 0.05	-	<0.05	<0.05	-	< 0.05	< 0.05	Ι-
	b-BHC	mg/kg	0.05	< 0.05	<0.05	-	<0.05	<0.05	-	<0.05	< 0.05	Ŀ
	Chlordane	mg/kg	0.1 (Primary): 0.05 (Interlab)	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.05	
	d-BHC	mg/kg	0.05	< 0.05	<0.05	-	<0.05	<0.05	-	< 0.05	<0.05	-
	DDD	mg/kg	0.05	< 0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	-
	DDT	mg/kg	0.05 (Primary): 0.2 (Interlab)	<0.05	<0.05	-	< 0.05	< 0.05	-	<0.05	<0.2	<u> </u>
	Dieldrin	mg/kg	0.05	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	
	Endosulfan I	mg/kg	0.05	<0.05	<0.05	-	<0.05	< 0.05	-	<0.05	< 0.05	ᆂ
	Endosulfan II	mg/kg	0.05	<0.05	<0.05	-	<0.05	< 0.05	-	<0.05	< 0.05	ᆂ
	Endosulfan sulphate Endrin	mg/kg	0.05 0.05	<0.05 <0.05	<0.05 <0.05	-	<0.05 <0.05	<0.05 <0.05	-	<0.05 <0.05	<0.05 <0.05	+-
	Endrin aldehyde	mg/kg	0.05	<0.05	<0.05	<u> </u>	<0.05	<0.05	<u> </u>	<0.05	<0.05	一
	Endrin aldenyde Endrin ketone	mg/kg mg/kg	0.05	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	$+$ $\dot{-}$
	g-BHC (Lindane)	mg/kg	0.05	<0.05	<0.05	H	<0.05	<0.05	H	<0.05	<0.05	+÷
	Heptachlor	mg/kg	0.05	<0.05	<0.05		<0.05	<0.05		<0.05	<0.05	+-
	Heptachlor epoxide	mg/kg	0.05	<0.05	<0.05		<0.05	<0.05	-	<0.05	<0.05	+=
	Hexachlorobenzene	mg/kg	0.05	< 0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	+-
	Methoxychlor	mg/kg	0.2	<0.2	<0.2	-	<0.2	<0.2	-	<0.2	<0.2	† -
	Toxaphene	mg/kg	1	<1.0	<1.0	-	<1.0	<1.0	-	<1.0		Τ-
PAH	Acenaphthene	mg/kg	0.5	<0.5	<0.5	-	<0.5	<0.5	-	< 0.5	<0.5	-
	Acenaphthylene	mg/kg	0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-
	Anthracene	mg/kg	0.5	<0.5	<0.5	-	<0.5	< 0.5	-	<0.5	< 0.5	Ι-
	Benzo(a)anthracene	mg/kg	0.5	<0.5	<0.5	-	<0.5	< 0.5	-	<0.5	< 0.5	
	Benzo(a)pyrene	mg/kg	0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-
	Benzo(g,h,i)perylene	mg/kg	0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	ļ -
	Benzo(k)fluoranthene	mg/kg	0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	ᆣ
	Chrysene	mg/kg	0.5	< 0.5	< 0.5	-	<0.5	< 0.5	-	< 0.5	<0.5	+-
-	Benzo[b+j]fluoranthene	mg/kg	0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	0.6	+-
-	Dibenz(a,h)anthracene	mg/kg	0.5	<0.5 <0.5	<0.5 1.1	<u> </u>	<0.5 <0.5	<0.5 <0.5	-	<0.5 <0.5	<0.5 0.9	+
-	Fluoranthene	mg/kg	0.5			-			-	<0.5 <0.5	<0.5	+-
	Fluorene	mg/kg	0.5	<0.5 <0.5	<0.5 <0.5	-	<0.5 <0.5	<0.5 <0.5	-	<0.5 <0.5	<0.5	+-
}	Indeno(1,2,3-c,d)pyrene Naphthalene	mg/kg mg/kg	0.5 (Primary): 1 (Interlab)	<0.5 <0.5	<0.5	-	<0.5	<0.5	-	<0.5 <0.5	<0.5	一
	Naphthalene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	-	<0.5	<0.5	1	<0.5	<0.5	ŧ٠
-	Phenanthrene	mg/kg	0.5 (Filliary). 1 (Interlab)	<0.5	<0.5	÷	<0.5	<0.5	H	<0.5	<0.5	ا
	Pyrene	mg/kg	0.5	<0.5	1.1	-	<0.5	<0.5	-	<0.5	0.8	+-
	Total PAHs	mg/kg	0.5	<0.5	2.2	-	<0.5	<0.5	-	<0.5	2.3	+-
		9	i	1	i					1		1
TPH	F2-NAPHTHALENE	mg/kg	50	<50.0	<50.0	-	<50.0	<50.0	-	<50.0	<50.0	Τ-
	C6 - C9	mg/kg	20 (Primary): 10 (Interlab)	<20.0	<20.0	-	<20.0	<20.0	-	<20.0	<10.0	1 -
	C10 - C14	mg/kg	20 (Primary): 50 (Interlab)	<20.0	<20.0	-	<20.0	<20.0	-	<20.0	<50.0	Ι-
	C15 - C28	mg/kg	50 (Primary): 100 (Interlab)	<50.0	<50.0	-	<50.0	<50.0	-	<50.0	<100.0	Ι-
	C29 - C36	mg/kg		<50.0	<50.0	-	<50.0	<50.0	-	<50.0	<100.0	I
	C10 - C36 (Sum of total)	mg/kg	50	<50.0	<50.0	-	<50.0	<50.0	-	<50.0	<50.0	Ι-
	C10-C16	mg/kg	50	<50.0	<50.0	-	<50.0	<50.0	-	<50.0	<50.0	-
	C16-C34	mg/kg	100	<100.0	<100.0	-	<100.0	<100.0		<100.0	<100.0	1 =
	C34-C40	mg/kg	100 20 (Primary): 10 (Interlab)	<100.0 <20.0	<100.0 <20.0	-	<100.0 <20.0	<100.0 <20.0	-	<100.0	<100.0	ļ -
	C6 - C10	mg/kg								<20.0	<10.0	

RPDs have only been considered where a concentration is greater than 0 times the EQL.

**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 200 (0-10 x EQL); 50 (10-20 x EQL); 30 (> 20 x EQL))

**Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory



SDG	8010	8010	
Field ID	BH01	DUP01	RPD
Sampled Date/Time	1/12/2015	1/12/2015	

Chem_Group	ChemName	Units	EQL			
BTEX	Benzene	μg/l	1	<1.0	<1.0	0
	Ethylbenzene	μg/l	1	<1.0	<1.0	0
	Toluene	μg/l	1	<1.0	<1.0	0
	Xylene (m & p)	μg/l	2	4.0	4.0	0
	Xylene (o)	μg/l	1	2.0	2.0	0
	Xylene Total	μg/l	3	5.0	6.0	18
	C6-C10 less BTEX (F1)	mg/l	0.02	0.04	0.07	55
	00 010 1000 21 27 (1.1)		0.02	0.0.	0.0.	
Metals	Arsenic (Filtered)	mg/l	0.001	0.001	0.001	0
	Cadmium (Filtered)	mg/l	0.0001	< 0.0001	<0.0001	0
	Chromium (Filtered)	mg/l	0.001	<0.001	<0.001	0
	Copper (Filtered)	mg/l	0.001	< 0.001	<0.001	0
	Lead (Filtered)	mg/l	0.001	<0.001	<0.001	0
	Mercury (Filtered)	mg/l	0.0001	<0.0001	<0.0001	0
	Nickel (Filtered)	mg/l	0.001	0.003	0.003	0
	Zinc (Filtered)	mg/l	0.005	0.007	<0.005	33
			0.000	0.00.	0.000	
PAH	Acenaphthene	μg/l	1	<1.0	<1.0	0
. ,	Acenaphthylene	μg/l	1	<1.0	<1.0	0
	Anthracene	μg/l	1	<1.0	<1.0	0
	Benzo(a)anthracene	μg/l	1	<1.0	<1.0	0
	Benzo(a)pyrene	μg/l	1	<1.0	<1.0	0
	Benzo(g,h,i)perylene	μg/l	1	<1.0	<1.0	0
	Benzo(k)fluoranthene	μg/l	1	<1.0	<1.0	0
	Chrysene	µg/l	1	<1.0	<1.0	0
	Benzo[b+j]fluoranthene	mg/l	0.001	<0.001	<0.001	0
	Dibenz(a,h)anthracene	µg/l	1	<1.0	<1.0	0
	Fluoranthene	μg/l	1' 1	<1.0	<1.0	0
	Fluorene	μg/l	1	<1.0	<1.0	0
	Indeno(1,2,3-c,d)pyrene	μg/l	1	<1.0	<1.0	0
	Naphthalene	μg/l	10	<10.0	<10.0	0
	Naphthalene	μg/l	1	<1.0	<1.0	0
	Phenanthrene	μg/l	1	<1.0	<1.0	0
	Pyrene	μg/l	1	<1.0	<1.0	0
	Total PAHs	μg/l	1	<1.0	<1.0	0
	Total FALIS	μул	1	V1.0	\1.0	_
TPH	F2-NAPHTHALENE	mg/l	0.05	<0.05	<0.05	0
IFII	C6 - C9	μg/l	20	20.0	40.0	67
	C10 - C14	μg/l	50	<50.0	<50.0	0
	C15 - C28	μg/l	100	<100.0	<100.0	0
	C29 - C36	μg/l μg/l	100	<100.0	<100.0	0
	C10 - C36 (Sum of total)	μg/l	100	<100.0	<100.0	0
	C10 - C36 (Sum of total)		0.05	<0.05	<0.05	0
	C16-C34	mg/l	0.05	<0.05	<0.05	0
	C34-C40	mg/l	0.1		<0.1	0
	C6 - C10	mg/l	0.02	<0.1		46
	onsidered where a concentration is d	mg/l		0.05	0.08	40

^{*}RPDs have only been considered where a concentration is greater than 0 times the EQL.

^{**}High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 200 (0-10 x EQL); 50 (10-20 x EQL); 30 (> 20 x EQL))

^{***}Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory



TABLE 7 TRIP RINSATE BLANK TABLE

Field Blanks (WATER) Filter: ALL

SDG	8010	0210-11	8010	0210-11
Field ID	RINSATE	RB1	TRIP BLANK	TRIP BLANK
Sampled_Date/Time	1/12/2015	19/11/2015	1/12/2015	19/11/2015
Sample Type	Rinsate	Rinsate	Trip_B	Trip_B

Chem_Group	ChemName	Units	EQL				
BTEX	Benzene	μg/l	1	<1	<1	<1	<1
	Ethylbenzene	μg/l	1	<1	<1	<1	<1
	Toluene	μg/l	1	<1	<1	<1	<1
	Xylene (m & p)	μg/l	2	<2	<2	<2	<2
	Xylene (o)	μg/l	<u>-</u> 1	<u>-</u> <1	<u>-</u> <1	<u>-</u> <1	<u>-</u> <1
	Xylene Total	μg/l	3	<3	<3	<3	<3
	C6-C10 less BTEX (F1)	mg/l	0.02	<0.02	<0.02	<0.02	<0.02
	00 0 10 1000 15 12 17 (1 1)	mg/.	0.02	0.02	0.02	-0.02	10.02
Metals	Arsenic	mg/l	0.001	< 0.005	<0.001		
	Arsenic (Filtered)	mg/l	0.001	0.000	0.00.		
	Cadmium	mg/l	0.0002	<0.0005	<0.0002		
	Cadmium (Filtered)	mg/l	0.0001	.0.0000	0.0002		
	Chromium	mg/l	0.001	<0.005	<0.001		
	Chromium (Filtered)	mg/l	0.001	٧٥.٥٥٥	١٥.٥٥١		
	Copper	mg/l	0.001	<0.005	<0.001		
	Copper (Filtered)	mg/l	0.001	₹0.005	~ 0.001		
	Lead	mg/l	0.001	<0.005	<0.001		
	Lead (Filtered)		0.001	~0.003	<u>~∪.∪∪1</u>		
	Mercury	mg/l mg/l	0.001	<0.0001	<0.0001		
				<0.0001	<0.0001		
	Mercury (Filtered) Nickel	mg/l	0.0001 0.001	<0.00E	<0.001		
		mg/l		<0.005	<0.001		
	Nickel (Filtered)	mg/l	0.001	10.005	10.004		
	Zinc	mg/l	0.001	<0.005	<0.001		
	Zinc (Filtered)	mg/l	0.005				
DALL							
PAH	Acenaphthene	μg/l	1	<1	<1		
	Acenaphthylene	μg/l	1	<1	<1		
	Anthracene	μg/l	1	<1	<1		
	Benzo(a)anthracene	μg/l	1	<1	<1		
	Benzo(a)pyrene	μg/l	1	<1	<1		
	Benzo(g,h,i)perylene	μg/l	1	<1	<1		
	Benzo(k)fluoranthene	μg/l	1	<1	<1		
	Chrysene	μg/l	1	<1	<1		
	Benzo[b+j]fluoranthene	mg/l	0.001	<0.001	<0.001		
	Dibenz(a,h)anthracene	μg/l	1	<1	<1		
	Fluoranthene	μg/l	1	<1	<1		
	Fluorene	μg/l	1	<1	<1		
	Indeno(1,2,3-c,d)pyrene	μg/l	1	<1	<1		
	Naphthalene	μg/l	1	<10	<10	<10	<10
	Phenanthrene	μg/l	1	<1	<1		
	Pyrene	μg/l	1	<1	<1		
	Total PAHs	μg/l	1	<1	<1		
]			
TPH	F2-NAPHTHALENE	mg/l	0.05	<0.05	<0.05		
	C6 - C9	μg/l	20	<20	<20	<20	<20
	C10 - C14	μg/l	50	<50	<50		
	C15 - C28	μg/l	100	<100	<100		
	C29 - C36	μg/l	100	<100	<100		
	C10 - C36 (Sum of total)	μg/l	100	<100	<100		
	C10-C16	mg/l	0.05	< 0.05	<0.05		
	C16-C34	mg/l	0.1	<0.1	<0.1		
	C34-C40	mg/l	0.1	<0.1	<0.1		
	C6 - C10	mg/l	0.02	< 0.02	< 0.02	< 0.02	< 0.02



		Benzene	Toluene	Ethylbenzene	m&p-Xylenes	o-Xylene	Xylenes - Total	TRH C6-C9
Sample ID	Date Sampled							
TRIP SPIKE	19/11/2015	91%	89%	87%	85%	89%	86%	88%
TRIP SPIKE	1/12/2015	102%	95%	90%	92%	93%	92%	74%

Appendix G Rising Head Test Data

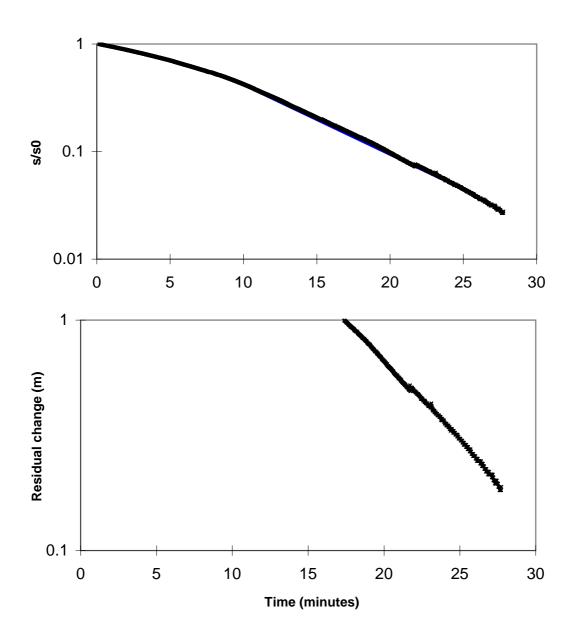
RISING OR FALLING HEAD TEST ANALYSIS

Bore Data	Units	Value
Initial groundwater level	m	4.796
Groundwater level at t=0	m	11.6
Casing radius (r)	m	0.025
Bore radius (R)	m	0.01
Screened interval length (L)	m	9.9
Match time start	min	10
Match time end	min	25
Characteristic Time (t ₀)	min	6.67
Hydraulic Conductivity (K)	m/day	0.0470

Borehole: BH01

Method Developed by **Hvorslev** (1951) $r^2 ln(L/R)$ K =

$$K = \frac{r^2 \ln(L/R)}{2Lt_0}$$



Reference: Hvorslev, M.J. (1951), Time lag and soil permeability in ground water observations. U.S. Army Corps of Engineers Waterway Experimentation Station, Bulletin 36.

drawn	BR
approved	
date	9 Dec 2015
scale	AS SHOWN
original size	A4



Bouygues Construction Australia										
project: Dooleys Lidcombe Club										
	& Hotel Development									
title:	Rising Head Test at BH01									
project no:	GEOTLCOV25554AA	Figure A1								

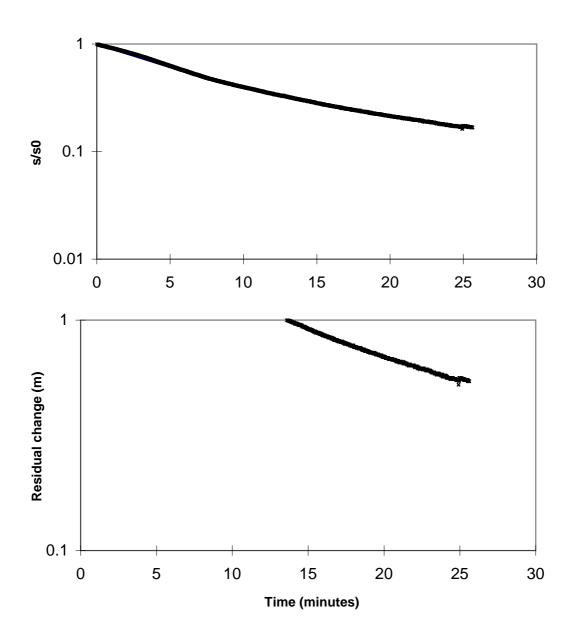
RISING OR FALLING HEAD TEST ANALYSIS

Bore Data	Units	Value
Initial groundwater level	m	4.273
Groundwater level at t=0	m	7.51
Casing radius (r)	m	0.025
Bore radius (R)	m	0.05
Screened interval length (L)	m	3.2
Match time start	min	1
Match time end	min	7
Characteristic Time (t ₀)	min	9.95
Hydraulic Conductivity (K)	m/day	0.0588

Borehole: BH03

Method Developed by Hvorslev (1951)

$$K = \frac{r^2 \ln(L/R)}{2Lt_0}$$



Reference: Hvorslev, M.J. (1951), Time lag and soil permeability in ground water observations. U.S. Army Corps of Engineers Waterway Experimentation Station, Bulletin 36.

drawn	BR
approved	
date	9 Dec 2015
scale	AS SHOWN
original size	A4



client:	Bouygues Construction Australia								
Dooleys Lidcombe Club									
	& Hotel Development								
title:	Rising Head Test a	t BH03							
project no:	GEOTLCOV25554AA	Figure A1							

Appendix H
Laboratory Analytical Certificates & Chain
of Custody Documentation

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

		Consigning Office: ATTOWN COCKE N										7							
CO	offey ?	Report R	esults to:	MATT	EN CE	CKE	Mobi	le:					Email:						@coffey.co
Invoices		to:		/	11	Phone:				Email:					@coffey.com				
roject N	10: LATTECOV ZSSS/A4 Task No:			ormer	75.						Anal	ysis Re	ques	t Secti	on		, ,	-,-,	,
Project N			pra							6	X	//	/	//	/	/	//	//	
Sampler	's Name: Alex . Touth of Project Man	ager:	m	4.					1	σ×,	//	//	1	//	//	/	//	//	
Special I	nstructions: < 5 / 5)								/\}	47	//	16	/	//	//	/	//	/	
Relevant	agreements: Eurofins COF_ENAUABTF00952AA_MSA1; ALS C	OF_ENAUA	3TF00952A				4		$\langle \cdot \rangle$	1	9/	(4)	/	//	//	/	//		
		Sample Date		(Soiletc)	Container Type & Preservative*	T-A-T (specify)	1/		18	6%		//	/	//	//	//	/	NOT	ES
Lab No.	Sample ID		Time	15 earl	110001100	(Speedy)	1	1	X	7	4	11	1	-	1	1	_		
	11AT 0.1-0.3	1910			1	1	Y	1	Y		-	+ +	-	+	+	-			
-	- 0.5-06	1				1	1	1	+		-4-	+	+	+	+	1	-		
	MAS C 1=0.2				1	1	1		1	1	-	1	1	-	1	1			
		1			-	1	1	X	1	-	-	+	-		+	1		_	
	0.5.0.6			1	4	-	1		+	+	-	1	-	- 1	1	1	-		
	- 1681	1	-	WATER	2014, 21 7	=	1		+				-	-				_	
	THE BUSINESS PORTS	1		1	20		1		-	1	1			1 6	1				
	1 , 50 4	1		1	7.			1	+	1	1	1		- 17		7			
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-	dupuz	17			11	V	1	1	1								To	ALS	
	S of ex	12	-	1		-	1		+										
	BH03_ 0-5-0-6	1		Soil	\$ I JAR 12	P	1	1											
	B+03-0-05-0-2			и	a	1	1												
-	BH03_1.0-1.1			n	FIJAR		1/	/	1			1							
	D4(00_1/0 1/1				-				1										
	RELINQUISHED BY		T	-	RE	CEIVED BY		_				Sam	ple Re	ceipt A	dvice:	(Lab	Use Only)	4
Name:	A Number Date:	15	Name	: 120g			Date	3	11.			All S	ample	s Recie	ved in	Good	Condition	1	4
0	invironments Time:		Comp	The state of the s	Va-		Time			4	0	All D	ocum	entatio	n is in	Prope	r Order		B
Name:	Date:		Name	SIGME	k 00		Date	: 23	11			Sam	ples R	eceived	Prope	erly Ch	illed		02
Compa			Comp	: SIQMC any: EPMG	7			. 14				Lab.	Ref/B	atch No). _[s ====	-
								_		15		7			1	44	1094	0 -	
*Conta	ner Typr Preservation Codes: P - Plastic, G- Glass Bot phuric A Preserved, I - Ice, ST - Sodium Thiosulfate, N	tle, J - Glas	s Jar, V-	Z Ziplock E	Bag, N - Nitric Acid P	reserved, C	- Hydro	cnioric	ACIO	erv	ea,	1			-	1.0			1

Pullar Paris a mar

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page ____ of ___ 0210

	Consigning C		HAT SWC	7		
coffey	Report Resul	ts to:	MATHEIN		Email:	@coffey.co
	Invoices to:		11	Phone:	Email:	@coffey.co
Project No: UEDT CCOU 25554 AA Task No		ON MENTS			Analysis Request Section	,,,,,,
Project Name: \\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ Laborat	ory:	IGT			XXY///////	////
iampler's Name: Alex Ruthyr Project Special Instructions: Email Multi	Manager:	716.	¢.			////
				(*)		///
Relevant agreements: Eurofins COF_ENAUABTF00952AA_MSA1; A				2AA_MSA3	10/////////	//
ab No. Sample ID	Sample Date T	ime (Soiletc)	Container Type & Preservative*	T-A-T (specify)		NOTES
Sample ID	Fall I	ing (sometry	15,13	1777		
		-	133,200	YYY	++++++++++++++++++++++++++++++++++++	
0,510						
1182 01-01				- KAAA		
1 1 2 2 4 5 4						
1 5-7-2-0 4						
LIA2 DE		1 13	18			
10A = 1 + 10 E = 1				PYYY		
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	-+		1	1/1/		
4-2-2		-1-1-	1	T I'V		
2.9		1				
65. 7 07				1/1/		
014 66				W. W.		
-FV_ 1-11-2-3				1/1/		
0.5 - 0.0				TYTE		
- 0.9-10		1	1			
RELINQUISHED BY		- 4	RECE	IVED BY	Sample Receipt Advice: (Lab U	se Only)
Jame: Date:	N	lame:		Date:	All Samples Recieved in Good Co	ondition
Coffey Environments Time:		ompany:	A.	Time:	All Documentation is in Proper C	Order 🗹
Name: Date:	→ N	ame: Siamak	350	Date:23///	Samples Received Properly Chill	ed 🗹
Company: Time:	lc	ompany: BFMS	-	Time: 143	Lab. Ref/Batch No.	

Zx F5/Cy. CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page _	of	0210

coffey		Report F	Results to:	(HATSW	MHEW LOOKE Mobile:			Email:	@coffey.co	
COII	Cy	Invoices	to:		11		hone:		Email:		@coffey.co
roject No:	GEOTLOU 25554 AA Task No:	EN	/ for m	ENT3			10-	Ana	lysis Request Sect	ion	
Project Name	e: Doclen 5 Laboratory	:	MAT					//	11111	1////	111
Sampler's Na	ime: Alex. Ructhers. Project Ma	nager:	ML	4				///	////	/////	//
Special Instru	uctions: email Mutt (oc	a t	Por C	nalysi	5		/	////	////	////	
Relevant agre	ements: Eurofins COF_ENAUABTF00952AA_MSA1 ; ALS	COF_ENAUA	BTF00952A	A_MSA2 and SG	S COF_ENAUABTF00	952AA_MSA3	//	////	////	////	/
		Sample		Matrix	Container Type &		///	////	////	////	NOTES
ab No.	Sample ID	Date	Time	(Soiletc)	Preservative*	(specify)	///	1111	1111	111	NOTES
	HA1 _ 0.1-0.2	15(1		50,1	15,12	solay					
	-0.5-0.6	1				1					
	0.5-0.6										
	HAZ_ 0.1-0.2										
	_ 0.5-0.6										
	0.9-1.0										
	HA3 0.1-0.2								5/24 14/14		
	2.0-7.0										
	V = 0.5-0.5										
	HA4_ 0.1-0.2										
	_ 0.5-0.6										
	- 0.9-1.0							6 1.			
	H45. 0.1-0.2										
	0.5-0.6								4		
	- 0.01-1.0								0		
	HA6_ 0.1-0.2						1.01	. 1			
- 9	0.5-0.6										
	- 0.9-1.0	1		0	V						
	RELINQUISHED BY				RE	CEIVED BY			Sample Reseipt A	dvice: (Lab Use Only)	
Name:	A Choches Date: 19/11/1	F .	Name:	Sean			Date: 19/1	(All Samples Reciev	ved in Good Condition	
Coffey Envir	onments Time: 1540		Compa		Val		ime:	3:40	All Documentation	n is in Proper Order	
Name:	Date:		Name:				Date:	0	Samples Received	Properly Chilled	
Company:	Time:		Compa	any:		Т	īme:	-	Lab. Ref/Batch No		

454

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page Z of 2

0211

-	\$	Consigni	ng Office:	CA	BWG	200				_		OCTI
coffe	ESTACOV 75554AA Task No: Laborato De: Ale Codfy Project N tions: SO S ents Eurofins COF_ENAUABTF00952AA_MSA1_AL	Report R	esults to:	MATTE	EN .	COCKE	Mobile:		Email:			@coffey.co
	2000	Invoices	to:		11	11	Phone:		Email:			@coffey.co
Project No:	EDTZCOJ 2555444 Task No:	FN	1V,Ro	rumen	75·				Analysis Request Se	ection		
Project Name:	Dooley 5 Laborato	ry:	ma	1				/	/////	111	1//	///
Sampler's Nam	e: Alex . (Codty Project N	lanager:	M	L .			1	//	/////	///	1//	//
Special Instruct	tions: See (5)							///	/////	///	///	
Relevant agreem	ents Eurofins COF_ENAUABTF00952AA_MSA1_AL	S COF_ENAUAB	TF00952AA	_MSA2 and SG	S COF_ENAUAB	TF00952AA_MSA3	1 /	////	/////	///	///	
Lab No.	Sample ID	Sample Date	Time	Matrix (Soiletc)	Container Ty Preservativ	pe & T-A-T	1/	////	/////	///	//	NOTES
	HA7_ 0.1-0.2	1911		501.1	15,12	Sday	1			11		
	- 0.5-0.6 - 0.9-1.0 HAS 0.1-0.2 - 0.5-0.6				1	1						
	- 0.9-10											
	HAS. 0.1-0.2											
	-0.5-0.6											
	- 10 6-10			V	V							
	R 15 1			WATER	20,14,21						1	
	Trip spike dupola dupola dupola	1 - 42			20,14,21						1	
	True spike			V	12V							
	dipol			Soil	15					1		
	dupola											
	dunoz	1			l.l	V					-	
		V										
				> ::								
											-	
	RELINQUISHED BY					RECEIVED BY	_		Sample Receipt	Advice: (Lab	Use Only)	
Name: A	1 Ructure Date: [4]111	15 >	Name:	Sean			Date:	9113:40	All Samples Reci			
Coffey Environn	nents Time: 540		Compan	Pro 10 1 1	Cot		Time:	3:40	All Documentation			
Name:	Date:	→	Name:	-	1		Date:	J. 10	Samples Receive	•		
Company:	Time:		Company	y:			Time:		Lab. Ref/Batch N		med	
Container Type	Preservation Codes: P - Plastic, G- Glass Bo	ttle. L- Glass I	ar V-1	7 - 7inlack Pa	T. M. Mitaka AII						30540	
	reserved, I - Ice, ST - Sodium Thiosulfate,	NP - No Presen	vative,	- Other Preser	vative	a Freserved, C - H	iyarochiori	c Acid Served,		10	USTU	



ABN - 50 005 085 521 e.mail : EnviroSales@eurofins.com.au

web: www.eurofins.com.au

Melbourne Melbourne
3-5 Kingston Town Close
Oakleigh Vic 3166
Phone: +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271 Sydney Unit F3, Building F 16 Mars Road Lane Cove West NSW 2066 Phone: +61 2 9900 8400 NATA # 1261 Site # 18217

Brisbane 1/21 Smallwood Place Murarrie QLD 4172 Phone: +61 7 3902 4600 NATA # 1261 Site # 20794

Sample Receipt Advice

Coffey Geotechnics Pty Ltd Chatswood Company name:

Contact name: Matthew Locke

Project name: GEOTLCOV25554AA

Project ID: **DOOLEYS** 0210-11 COC number: Turn around time: 5 Day

Date/Time received: Nov 23, 2015 2:36 PM

Eurofins | mgt reference: 480540

Sample information

- \mathbf{V} A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- \mathbf{V} Sample Temperature of a random sample selected from the batch as recorded by Eurofins | mgt Sample Receipt: 6.3 degrees Celsius.
- \mathbf{V} All samples have been received as described on the above COC.
- \square COC has been completed correctly.
- \square Attempt to chill was evident.
- \mathbf{V} Appropriately preserved sample containers have been used.
- \square All samples were received in good condition.
- \square Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- \mathbf{V} Appropriate sample containers have been used.
- \mathbf{V} Sample containers for volatile analysis received with zero headspace.
- XSome samples have been subcontracted.
- N/A Custody Seals intact (if used).

Notes

Sample DUP01A forwarded to ALS

Contact notes

If you have any questions with respect to these samples please contact:

Charl Du Preez on Phone: +61 (2) 9900 8400 or by e.mail: charldupreez@eurofins.com.au

Results will be delivered electronically via e.mail to Matthew Locke - Matthew_Locke@coffey.com.

Note: A copy of these results will also be delivered to the general Coffey Geotechnics Pty Ltd Chatswood email address.



Environmental Laboratory Water Analysis Soil Contamination Analysis

NATA Accreditation Stack Emission Sampling & Analysis Trade Waste Sampling & Analysis Groundwater Sampling & Analysis





Coffey Geotechnics Pty Ltd Chatswood Level 18, Tower B, Citadel Tower 799 Pacific Highway Chatswood NSW 2067





Certificate of Analysis

NATA Accredited Accreditation Number 1261 Site Number 1254

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

Attention: Matthew Locke

Report 480540-S

Project name GEOTLCOV25554AA

Project ID DOOLEYS
Received Date Nov 23, 2015

Client Sample ID			HA1_0.1-0.2	HA1_0.9-1.0	HA2_0.1-0.2	HA2_0.9-1.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S15-No18308	S15-No18310	S15-No18311	S15-No18313
Date Sampled			Nov 19, 2015	Nov 19, 2015	Nov 19, 2015	Nov 19, 2015
Test/Reference	LOR	Unit	·			
Total Recoverable Hydrocarbons - 1999 NEPM						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	140	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	140	< 50	< 50	< 50
ВТЕХ						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	73	79	77	76
Total Recoverable Hydrocarbons - 2013 NEPM	Fractions					
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)N04	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	< 50	< 50
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5



Client Sample ID			HA1_0.1-0.2	HA1_0.9-1.0	HA2_0.1-0.2	HA2_0.9-1.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S15-No18308	S15-No18310	S15-No18311	S15-No18313
, , ,			1			
Date Sampled			Nov 19, 2015	Nov 19, 2015	Nov 19, 2015	Nov 19, 2015
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons		T				
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	85	102	94	97
p-Terphenyl-d14 (surr.)	1	%	86	103	96	98
Organochlorine Pesticides		T ,			0.4	
Chlordanes - Total	0.1	mg/kg	< 0.2	-	< 0.1	-
4.4'-DDD	0.05	mg/kg	< 0.05	-	< 0.05	-
4.4'-DDE 4.4'-DDT	0.05	mg/kg	< 0.05	-	< 0.05	-
	0.05	mg/kg	< 0.05	-	< 0.05	-
a-BHC Aldrin	0.05	mg/kg	< 0.05	-	< 0.05	-
b-BHC	0.05 0.05	mg/kg	< 0.05 < 0.05	-	< 0.05 < 0.05	-
d-BHC	0.05	mg/kg mg/kg	< 0.05		< 0.05	-
Dieldrin	0.05	mg/kg	< 0.05	-	< 0.05	<u> </u>
Endosulfan I	0.05	mg/kg	< 0.05	_	< 0.05	_
Endosulfan II	0.05	mg/kg	< 0.05	_	< 0.05	_
Endosulfan sulphate	0.05	mg/kg	< 0.05	_	< 0.05	_
Endrin	0.05	mg/kg	< 0.05	_	< 0.05	-
Endrin aldehyde	0.05	mg/kg	< 0.05	_	< 0.05	-
Endrin ketone	0.05	mg/kg	< 0.05	-	< 0.05	-
g-BHC (Lindane)	0.05	mg/kg	< 0.05	-	< 0.05	-
Heptachlor	0.05	mg/kg	< 0.05	-	< 0.05	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	-	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	-	< 0.05	-
Methoxychlor	0.2	mg/kg	< 0.2	-	< 0.2	-
Toxaphene	1	mg/kg	< 1	-	< 1	-
Dibutylchlorendate (surr.)	1	%	111	-	102	-
Tetrachloro-m-xylene (surr.)	1	%	107	-	97	-
Total Recoverable Hydrocarbons - 2013 NEPM F	ractions					
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	160	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
Heavy Metals						
Arsenic	2	mg/kg	11	11	17	18
Cadmium	0.4	mg/kg	0.5	< 0.4	0.5	< 0.4
Chromium	5	mg/kg	24	25	27	29
Copper	5	mg/kg	44	12	38	13
Lead	5	mg/kg	140	18	170	19
Mercury	0.05	mg/kg	0.10	< 0.05	0.09	< 0.05
Nickel	5	mg/kg	11	< 5	7.9	< 5
Zinc	5	mg/kg	100	9.4	280	7.9
% Moisture	0.1	%	27	21	23	25



Client Sample ID			HA3_0.1-0.2	HA3_0.9-1.0	HA4_0.1-0.2	HA4_0.9-1.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S15-No18314	S15-No18316	S15-No18317	S15-No18319
Date Sampled			Nov 19, 2015	Nov 19, 2015	Nov 19, 2015	Nov 19, 2015
Test/Reference	LOR	Unit			Í	,
Total Recoverable Hydrocarbons - 1999 NEPM		O i iii				
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50
BTEX		ing/itg	100	100	1 00	1 00
Benzene	0.1	ma/ka	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.1	mg/kg	< 0.2	< 0.1	< 0.2	< 0.2
o-Xylene	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	81	77	78	81
Total Recoverable Hydrocarbons - 2013 NEPM		70	<u> </u>		10	- 01
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)N04	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	< 50	< 50
Polycyclic Aromatic Hydrocarbons	00	19,9	100	100	100	100
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	81	83	91	112
p-Terphenyl-d14 (surr.)	1	%	122	72	95	102
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	-	< 0.1	-
4.4'-DDD	0.05	mg/kg	< 0.05	-	< 0.05	-
4.4'-DDE	0.05	mg/kg	< 0.05	-	< 0.05	-
4.4'-DDT	0.05	mg/kg	< 0.05	-	< 0.05	-
a-BHC	0.05	mg/kg	< 0.05	-	< 0.05	-
Aldrin	0.05	mg/kg	< 0.05	-	< 0.05	-
b-BHC	0.05	mg/kg	< 0.05	-	< 0.05	-



Client Sample ID			HA3_0.1-0.2	HA3_0.9-1.0	HA4_0.1-0.2	HA4_0.9-1.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S15-No18314	S15-No18316	S15-No18317	S15-No18319
Date Sampled			Nov 19, 2015	Nov 19, 2015	Nov 19, 2015	Nov 19, 2015
Test/Reference	LOR	Unit				
Organochlorine Pesticides	•					
d-BHC	0.05	mg/kg	< 0.05	-	< 0.05	-
Dieldrin	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan I	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan II	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin aldehyde	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin ketone	0.05	mg/kg	< 0.05	-	< 0.05	-
g-BHC (Lindane)	0.05	mg/kg	< 0.05	-	< 0.05	-
Heptachlor	0.05	mg/kg	< 0.05	-	< 0.05	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	-	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	-	< 0.05	-
Methoxychlor	0.2	mg/kg	< 0.2	-	< 0.2	-
Toxaphene	1	mg/kg	< 1	-	< 1	-
Dibutylchlorendate (surr.)	1	%	94	-	88	-
Tetrachloro-m-xylene (surr.)	1	%	95	-	90	-
Total Recoverable Hydrocarbons - 2013 I	NEPM Fractions					
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
Heavy Metals	•					
Arsenic	2	mg/kg	4.8	12	31	7.3
Cadmium	0.4	mg/kg	< 0.4	< 0.4	0.4	< 0.4
Chromium	5	mg/kg	11	25	9.8	13
Copper	5	mg/kg	29	10	20	11
Lead	5	mg/kg	170	21	210	16
Mercury	0.05	mg/kg	0.12	< 0.05	0.06	< 0.05
Nickel	5	mg/kg	< 5	< 5	< 5	< 5
Zinc	5	mg/kg	140	13	82	8.6
	·					
% Moisture	0.1	%	24	19	16	22

Client Sample ID Sample Matrix Eurofins mgt Sample No. Date Sampled Test/Reference	LOR	Unit	HA5_0.1-0.2 Soil S15-No18320 Nov 19, 2015	HA5_0.9-1.0 Soil S15-No18322 Nov 19, 2015	HA6_0.1-0.2 Soil S15-No18323 Nov 19, 2015	HA6_0.9-1.0 Soil S15-No18325 Nov 19, 2015
Total Recoverable Hydrocarbons - 1999 NEPM Fract	ions	1				
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2



Client Comple ID						
Client Sample ID			HA5_0.1-0.2	HA5_0.9-1.0	HA6_0.1-0.2	HA6_0.9-1.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S15-No18320	S15-No18322	S15-No18323	S15-No18325
Date Sampled			Nov 19, 2015	Nov 19, 2015	Nov 19, 2015	Nov 19, 2015
Test/Reference	LOR	Unit				
ВТЕХ						
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	81	81	80	75
Total Recoverable Hydrocarbons - 2013 NEPM	Fractions					
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	< 50	< 50
Polycyclic Aromatic Hydrocarbons		1				
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (inediam bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	85	88	97	98
p-Terphenyl-d14 (surr.)	1	%	82	77	96	101
Organochlorine Pesticides	•					
Chlordanes - Total	0.1	mg/kg	< 0.1	-	< 0.1	_
4.4'-DDD	0.05	mg/kg	< 0.05	-	< 0.05	-
4.4'-DDE	0.05	mg/kg	< 0.05	-	< 0.05	_
4.4'-DDT	0.05	mg/kg	< 0.05	_	< 0.05	_
a-BHC	0.05	mg/kg	< 0.05	-	< 0.05	-
Aldrin	0.05	mg/kg	< 0.05	-	< 0.05	_
b-BHC	0.05	mg/kg	< 0.05	_	< 0.05	_
d-BHC	0.05	mg/kg	< 0.05	_	< 0.05	_
Dieldrin	0.05	mg/kg	< 0.05	_	< 0.05	_
Endosulfan I	0.05	mg/kg	< 0.05	-	< 0.05	_
Endosulfan II	0.05	mg/kg	< 0.05	-	< 0.05	_
Endosulfan sulphate	0.05	mg/kg	< 0.05	_	< 0.05	_
Endrin	0.05	mg/kg	< 0.05	-	< 0.05	_
Endrin aldehyde	0.05	mg/kg	< 0.05	_	< 0.05	_
Endrin ketone	0.05	mg/kg	< 0.05	-	< 0.05	_
g-BHC (Lindane)	0.05	mg/kg	< 0.05	-	< 0.05	_
Heptachlor	0.05	mg/kg	< 0.05	-	< 0.05	_



Client Sample ID			HA5_0.1-0.2	HA5_0.9-1.0	HA6_0.1-0.2	HA6_0.9-1.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S15-No18320	S15-No18322	S15-No18323	S15-No18325
Date Sampled			Nov 19, 2015	Nov 19, 2015	Nov 19, 2015	Nov 19, 2015
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Heptachlor epoxide	0.05	mg/kg	< 0.05	-	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	-	< 0.05	-
Methoxychlor	0.2	mg/kg	< 0.2	-	< 0.2	-
Toxaphene	1	mg/kg	< 1	=	< 1	=
Dibutylchlorendate (surr.)	1	%	96	-	101	-
Tetrachloro-m-xylene (surr.)	1	%	95	-	110	=
Total Recoverable Hydrocarbons - 2013 N	EPM Fractions					
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
Heavy Metals						
Arsenic	2	mg/kg	25	12	36	17
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	17	20	13	21
Copper	5	mg/kg	32	15	34	16
Lead	5	mg/kg	130	20	56	16
Mercury	0.05	mg/kg	0.06	< 0.05	0.09	< 0.05
Nickel	5	mg/kg	8.3	< 5	6.8	< 5
Zinc	5	mg/kg	140	11	140	31
		<u> </u>				
% Moisture	0.1	%	20	23	17	22

Client Sample ID Sample Matrix Eurofins mgt Sample No.			HA7_0.1-0.2 Soil S15-No18326	HA7_0.9-1.0 Soil S15-No18328	HA8_0.1-0.2 Soil S15-No18329	HA8_0.9-1.0 Soil S15-No18331
Date Sampled			Nov 19, 2015	Nov 19, 2015	Nov 19, 2015	Nov 19, 2015
Test/Reference	LOR	Unit		, , , ,		, , , ,
Total Recoverable Hydrocarbons - 1999 NEPM F	ractions					
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	79	78	76	77
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)N04	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16 less Naphthalene (F2)N01	50	mg/kg	< 50	< 50	< 50	< 50



Client Sample ID			HA7_0.1-0.2	HA7_0.9-1.0	HA8_0.1-0.2	HA8_0.9-1.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S15-No18326	S15-No18328	S15-No18329	S15-No18331
Date Sampled			Nov 19, 2015	Nov 19, 2015	Nov 19, 2015	Nov 19, 2015
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	98	93	95	91
p-Terphenyl-d14 (surr.)	1	%	100	94	96	80
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	-	< 0.1	-
4.4'-DDD	0.05	mg/kg	< 0.05	=	< 0.05	-
4.4'-DDE	0.05	mg/kg	< 0.05	-	< 0.05	-
4.4'-DDT	0.05	mg/kg	< 0.05	-	< 0.05	-
a-BHC	0.05	mg/kg	< 0.05	-	< 0.05	-
Aldrin	0.05	mg/kg	< 0.05	-	< 0.05	-
b-BHC	0.05	mg/kg	< 0.05	-	< 0.05	-
d-BHC	0.05	mg/kg	< 0.05	-	< 0.05	-
Dieldrin	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan I	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan II	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin aldehyde	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin ketone	0.05	mg/kg	< 0.05	-	< 0.05	-
g-BHC (Lindane)	0.05	mg/kg	< 0.05	-	< 0.05	-
Heptachlor	0.05	mg/kg	< 0.05	-	< 0.05	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	-	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	-	< 0.05	-
Methoxychlor	0.2	mg/kg	< 0.2	-	< 0.2	-
Toxaphene Pitar Internation (2007)	1	mg/kg	< 1	-	< 1	-
Dibutylchlorendate (surr.)	1	%	110	-	91	-
Tetrachloro-m-xylene (surr.)	1	%	112	-	93	-
Total Recoverable Hydrocarbons - 2013 NEPM Fra						
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100



Client Sample ID Sample Matrix Eurofins mgt Sample No. Date Sampled			HA7_0.1-0.2 Soil S15-No18326 Nov 19, 2015	HA7_0.9-1.0 Soil S15-No18328 Nov 19, 2015	HA8_0.1-0.2 Soil S15-No18329 Nov 19, 2015	HA8_0.9-1.0 Soil S15-No18331 Nov 19, 2015
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	52	11	5.2	15
Cadmium	0.4	mg/kg	1.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	33	22	12	25
Copper	5	mg/kg	71	14	13	22
Lead	5	mg/kg	1300	83	30	17
Mercury	0.05	mg/kg	0.43	< 0.05	0.07	< 0.05
Nickel	5	mg/kg	11	< 5	9.5	< 5
Zinc	5	mg/kg	1600	32	75	45
% Moisture	0.1	%	18	22	20	26

Client Sample ID			DUP01	DUP02	BH03_0.5-0.6	BH03_1.0-1.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S15-No18335	S15-No18336	S15-No18337	S15-No18339
Date Sampled			Nov 19, 2015	Nov 19, 2015	Nov 19, 2015	Nov 19, 2015
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM F	ractions					
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	130	< 50
TRH C10-36 (Total)	50	mg/kg	< 50	< 50	130	< 50
ВТЕХ						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	95	94	96	97
Total Recoverable Hydrocarbons - 2013 NEPM F	ractions					
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)N04	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	< 50	< 50
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	0.9	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	1.2	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.5	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	0.7	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5	0.6	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	1.1	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	0.6	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	0.6	< 0.5



Client Sample ID			DUP01	DUP02	BH03_0.5-0.6	BH03_1.0-1.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S15-No18335	S15-No18336	S15-No18337	S15-No18339
Date Sampled			Nov 19, 2015	Nov 19, 2015	Nov 19, 2015	Nov 19, 2015
Test/Reference	LOR	Unit	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	, , , , , , , , , , , , , , , , , , , ,	, , , , , , , , , , , , , , , , , , , ,	, , , , , , , , , , , , , , , , , , , ,
Polycyclic Aromatic Hydrocarbons	LOIC	Offic				
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	1.1	< 0.5	0.9	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	0.7	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	1.1	< 0.5	1.0	< 0.5
Total PAH*	0.5	mg/kg	2.2	< 0.5	6.2	< 0.5
2-Fluorobiphenyl (surr.)	1	%	91	97	95	101
p-Terphenyl-d14 (surr.)	1	%	84	88	90	88
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	-	-
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	-	-
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	-	-
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	-	-
a-BHC	0.05	mg/kg	< 0.05	< 0.05	-	-
Aldrin	0.05	mg/kg	< 0.05	< 0.05	-	-
b-BHC	0.05	mg/kg	< 0.05	< 0.05	-	-
d-BHC	0.05	mg/kg	< 0.05	< 0.05	-	-
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	-	-
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	-	-
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	-	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	-	-
Endrin	0.05	mg/kg	< 0.05	< 0.05	-	-
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	-	-
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	-	-
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	-	-
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	-	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	-	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	-	-
Methoxychlor	0.2	mg/kg	< 0.2	< 0.2	-	-
Toxaphene	1	mg/kg	< 1	< 1	-	-
Dibutylchlorendate (surr.) Tetrachloro-m-xylene (surr.)	1	% %	94	94	-	-
Total Recoverable Hydrocarbons - 2013 NEPM F		70	105	102	-	-
•		malle	- FO	- 50	- 50	- FO
TRH >C16 C24	100	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34 TRH >C34-C40	100	mg/kg mg/kg	< 100 < 100	< 100 < 100	110 < 100	< 100 < 100
Heavy Metals	100	Hig/kg	× 100	< 100	Z 100	Z 100
Arsenic	2	mg/kg	49	59	7.8	4.6
Cadmium	0.4	mg/kg	0.7	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	18	20	16	< 5
Copper	5	mg/kg	40	22	330	6.9
Lead	5	mg/kg	310	51	82	< 5
Mercury	0.05	mg/kg	0.18	0.11	0.07	< 0.05
Nickel	5	mg/kg	6.7	7.1	23	< 5
Zinc	5	mg/kg	470	170	290	12
	, -	, 5		1	1	_
	T	%	22	21	15	14



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 (regarding both quality and NATA accreditation).

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	Nov 24, 2015	14 Day
- Method: TRH C6-C36 - LTM-ORG-2010			
BTEX	Sydney	Nov 24, 2015	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Nov 24, 2015	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Eurofins mgt Suite B4			
Polycyclic Aromatic Hydrocarbons	Sydney	Nov 24, 2015	14 Day
- Method: E007 Polyaromatic Hydrocarbons (PAH)			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Nov 24, 2015	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Organochlorine Pesticides	Sydney	Nov 24, 2015	14 Day
- Method: E013 Organochlorine Pesticides (OC)			
Metals M8	Sydney	Nov 24, 2015	28 Day
- Method: LTM-MET-3040_R0 TOTAL AND DISSOLVED METALS AND MERCURY IN WATERS BY ICP-MS			
% Moisture	Sydney	Nov 23, 2015	14 Day

⁻ Method: LTM-GEN-7080 Moisture

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Brisbane 1/21 Smallwood Place Murarrie QLD 4172 Phone: +61 7 3902 4600 NATA # 1261 Site # 20794

Company Name: Coffey Geotechnics Pty Ltd Chatswood

Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway

> Chatswood NSW 2067

Project Name: GEOTLCOV25554AA

Project ID: **DOOLEYS** Order No.: Received: Nov 23, 2015 2:36 PM Report #:

480540 Due: Nov 30, 2015

Priority:

Fax: +61 2 9406 1002 **Contact Name:** Matthew Locke

Eurofins | mgt Client Manager: Charl Du Preez

5 Day

		Sample Detail			Asbestos Absence /Presence	HOLD	Organochlorine Pesticides	Metals M8	Metals M8	Moisture Set	Eurofins mgt Suite B4	BTEX and Volatile TRH
•	ere analysis is co											
	ooratory - NATA S		1271					Х				\vdash
	atory - NATA Site				Х	Х	Х		Х	Х	Х	Х
	oratory - NATA Si	te # 20794										\vdash
External Labor			1									\vdash
Sample ID	Sample Date	Sampling Time	Matrix	LAB ID								
HA1_0.1-0.2	Nov 19, 2015		Soil	S15-No18308	Х		Х		Х	Х	Х	
HA1_0.5-0.6	Nov 19, 2015		Soil	S15-No18309		Х						
HA1_0.9-1.0	Nov 19, 2015		Soil	S15-No18310					Х	Х	Х	
HA2_0.1-0.2	Nov 19, 2015		Soil	S15-No18311	Х		Х		Х	Х	Х	
HA2_0.5-0.6	Nov 19, 2015		Soil	S15-No18312		Х						
HA2_0.9-1.0	Nov 19, 2015		Soil	S15-No18313					Х	Х	Х	
HA3_0.1-0.2	Nov 19, 2015		Soil	S15-No18314	Х		Х		Х	Х	Х	
HA3_0.5-0.6	Nov 19, 2015		Soil	S15-No18315		Х						
HA3_0.9-1.0	Nov 19, 2015		Soil	S15-No18316					Х	Х	Х	



DOOLEYS

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Brisbane I/21 Smallwood Place
Murarrie QLD 4172
Phone: +61 7 3902 4600
NATA # 1261 Site # 20794

Company Name: Coffey Geotechnics Pty Ltd Chatswood Order No.: Received: Nov 23, 2015 2:36 PM

Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway Report #: 480540 Due: Nov 30, 2015

Chatswood Phone: +61 2 9406 1000 Priority: 5 Day

Contact Name: NSW 2067 Fax: +61 2 9406 1002 Matthew Locke

Project Name: GEOTLCOV25554AA

Eurofins | mgt Client Manager: Charl Du Preez

		Sample Detail			Asbestos Absence /Presence	HOLD	Organochlorine Pesticides	Metals M8	Metals M8	Moisture Set	Eurofins mgt Suite B4	BTEX and Volatile TRH
	ere analysis is c											
	boratory - NATA		271					Х				\mathbf{H}
	atory - NATA Site				Х	Х	Χ		Х	Х	Х	Х
	oratory - NATA Si	te # 20794										
External Labo		Ī	F=	1								\vdash
HA4_0.1-0.2	Nov 19, 2015		Soil	S15-No18317	Х		Х		Х	Х	Х	
HA4_0.5-0.6	Nov 19, 2015		Soil	S15-No18318		Х						\mathbf{H}
HA4_0.9-1.0	Nov 19, 2015		Soil	S15-No18319	l				Х	Х	Х	\vdash
HA5_0.1-0.2	Nov 19, 2015		Soil	S15-No18320	Х		Х		Х	Х	Х	\square
HA5_0.5-0.6	Nov 19, 2015		Soil	S15-No18321		Х						\square
HA5_0.9-1.0	Nov 19, 2015		Soil	S15-No18322					Х	Х	Х	
HA6_0.1-0.2	Nov 19, 2015		Soil	S15-No18323	Х		Х		Х	Х	Х	Ш
HA6_0.5-0.6	Nov 19, 2015		Soil	S15-No18324		Х						
HA6_0.9-1.0	Nov 19, 2015		Soil	S15-No18325					Х	Х	Х	
HA7_0.1-0.2	Nov 19, 2015		Soil	S15-No18326	Χ		Х		Х	Х	Х	



DOOLEYS

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Company Name: Coffey Geotechnics Pty Ltd Chatswood Order No.: Received: Nov 23, 2015 2:36 PM

Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway Report #: 480540 Due: Nov 30, 2015

> Chatswood Phone: +61 2 9406 1000 Priority: 5 Day

Contact Name: NSW 2067 Fax: +61 2 9406 1002 Matthew Locke

Project Name: GEOTLCOV25554AA

Eurofins | mgt Client Manager: Charl Du Preez

		Sample Detail			Asbestos Absence /Presence	HOLD	Organochlorine Pesticides	Metals M8	Metals M8	Moisture Set	Eurofins mgt Suite B4	BTEX and Volatile TRH
	ere analysis is c											
	boratory - NATA		271					Х				
	atory - NATA Site				Х	Х	Χ		Х	Х	Х	Х
	oratory - NATA Si	te # 20794										
External Labo												
HA7_0.5-0.6	Nov 19, 2015		Soil	S15-No18327		Х						
HA7_0.9-1.0	Nov 19, 2015		Soil	S15-No18328	1				Х	Х	Х	
HA8_0.1-0.2	Nov 19, 2015		Soil	S15-No18329	Х		Х		Х	Х	Х	
HA8_0.5-0.6	Nov 19, 2015		Soil	S15-No18330		Х						
HA8_0.9-1.0	Nov 19, 2015		Soil	S15-No18331					Х	Х	Х	
RB1	Nov 19, 2015		Water	S15-No18332				Х			Х	
TRIP BLANK	Nov 19, 2015		Water	S15-No18333								Х
TRIP SPIKE	Nov 19, 2015		Water	S15-No18334								Х
DUP01	Nov 19, 2015		Soil	S15-No18335			Х		Х	Х	Х	
DUP02	Nov 19, 2015		Soil	S15-No18336			Х		Х	Х	Х	



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Company Name: Coffey Geotechnics Pty Ltd Chatswood Order No.:

Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway

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NSW 2067

Project Name: GEOTLCOV25554AA

Project ID: **DOOLEYS** Received: Nov 23, 2015 2:36 PM

Due: Nov 30, 2015

Priority: 5 Day

Contact Name: Matthew Locke

Eurofins | mgt Client Manager: Charl Du Preez

		Sample Detail			Asbestos Absence /Presence	HOLD	Organochlorine Pesticides	Metals M8	Metals M8	Moisture Set	Eurofins mgt Suite B4	BTEX and Volatile TRH
Laboratory whe	ere analysis is c	onducted										
Melbourne Lab	oratory - NATA S	Site # 1254 & 142	271					Х				
Sydney Labora	tory - NATA Site	# 18217			Х	Х	Х		Χ	Χ	Χ	Х
Brisbane Labor	ratory - NATA Si	te # 20794										
External Labora	atory											
BH03_0.5-0.6	Nov 19, 2015		Soil	S15-No18337					Х	Х	Х	
BH03_0.05-0.2			Soil	S15-No18338		Х						
BH03_1.0-1.1	Nov 19, 2015		Soil	S15-No18339					Χ	Χ	Χ	



Internal Quality Control Review and Glossary

General

- 1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
- 2. All soil results are reported on a dry basis, unless otherwise stated.
- 3. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
- 4. Results are uncorrected for matrix spikes or surrogate recoveries
- 5. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise
- 6. Samples were analysed on an 'as received' basis. 7. 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.

**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

In the case of water samples these are performed on de-ionised water. $% \label{eq:case_eq} % \label{eq:case_eq}$

Surr - Surrogate The addition of a like compound to the analyte target and reported as percentage recovery.

DuplicateA second piece of analysis from the same sample and reported in the same units as the result to show comparison.

Batch Duplicate A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.

Batch SPIKE Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.

USEPA United States Environmental Protection Agency

APHA American Public Health Association

ASLP Australian Standard Leaching Procedure (AS4439.3)

TCLP Toxicity Characteristic Leaching Procedure

COC Chain of Custody

SRA Sample Receipt Advice

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 quidelines 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 50-150% - Phenols 20-130%.

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, Toxophene & Chlordane are not added to the LCS.
- 4. Organochlorine Pesticide analysis where reporting Spike data, Toxophene is not added to the Spike.
- 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 Arochlor 1260 in Matrix Spikes and LCS's.
- 9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
- $10. \ \ Duplicate \ RPD's \ are \ calculated \ from \ raw \ analytical \ data \ thus \ it \ is \ possible \ to \ have \ two \ sets \ of \ data.$

Report Number: 480540-S



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					
втех					
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		120			
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&i)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		< 0.5	0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5	0.5	Pass	
	mg/kg				
Fluoranthene Fluorene	mg/kg	< 0.5	0.5	Pass	
	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		0.4	0.4	D	
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	Oode
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	1 1119/119			1 400	
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			T		
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	1 mg/kg	100	100	1 455	
Heavy Metals			T		
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	< 0.05	0.05	Pass	
Nickel	mg/kg	< 5	5	Pass	
Zinc	mg/kg	< 5	5	Pass	
LCS - % Recovery	IIIg/kg			Fass	
Total Recoverable Hydrocarbons - 1999 NEPM Fractions		T T	Τ		
TRH C6-C9	%	70	70-130	Pass	
TRH C10-C14	%	104	70-130	Pass	
LCS - % Recovery	70	104	70-130	1 433	
BTEX					
Benzene	%	87	70-130	Pass	
Toluene	%	86	70-130	Pass	
Ethylbenzene	%	83	70-130	Pass	
m&p-Xylenes	%	81	70-130	Pass	
o-Xylene	%	83	70-130	Pass	
Xylenes - Total	%	82	70-130	Pass	
LCS - % Recovery	70	02	10-130	1 000	
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
	%	99	70-130	Pass	
Naphthalene	%	99	70-130	Pass	
Naphthalene TRH C6-C10	% %	99 74	70-130 70-130	Pass Pass	
Naphthalene TRH C6-C10 LCS - % Recovery					
Naphthalene TRH C6-C10 LCS - % Recovery Polycyclic Aromatic Hydrocarbons	%	74	70-130	Pass	
Naphthalene TRH C6-C10 LCS - % Recovery Polycyclic Aromatic Hydrocarbons Acenaphthene	%	103	70-130	Pass	
Naphthalene TRH C6-C10 LCS - % Recovery Polycyclic Aromatic Hydrocarbons Acenaphthene Acenaphthylene	% % %	74 103 92	70-130 70-130 70-130	Pass Pass Pass	
Naphthalene TRH C6-C10 LCS - % Recovery Polycyclic Aromatic Hydrocarbons Acenaphthene Acenaphthylene Anthracene	% % %	74 103 92 102	70-130 70-130 70-130 70-130	Pass Pass Pass Pass	
Naphthalene TRH C6-C10 LCS - % Recovery Polycyclic Aromatic Hydrocarbons Acenaphthene Acenaphthylene Anthracene Benz(a)anthracene	% % % %	103 92 102 93	70-130 70-130 70-130 70-130 70-130	Pass Pass Pass Pass Pass	
Naphthalene TRH C6-C10 LCS - % Recovery Polycyclic Aromatic Hydrocarbons Acenaphthene Acenaphthylene Anthracene Benz(a)anthracene Benzo(a)pyrene	% % % % %	103 92 102 93 88	70-130 70-130 70-130 70-130 70-130 70-130	Pass Pass Pass Pass Pass Pass	
Naphthalene TRH C6-C10 LCS - % Recovery Polycyclic Aromatic Hydrocarbons Acenaphthene Acenaphthylene Anthracene Benz(a)anthracene Benzo(a)pyrene Benzo(b&j)fluoranthene	% % % % % %	103 92 102 93 88 97	70-130 70-130 70-130 70-130 70-130 70-130 70-130	Pass Pass Pass Pass Pass Pass Pass Pass	
Naphthalene TRH C6-C10 LCS - % Recovery Polycyclic Aromatic Hydrocarbons Acenaphthene Acenaphthylene Anthracene Benz(a)anthracene Benzo(a)pyrene Benzo(b&j)fluoranthene Benzo(g.h.i)perylene	% % % % % %	74 103 92 102 93 88 97 77	70-130 70-130 70-130 70-130 70-130 70-130 70-130 70-130	Pass Pass Pass Pass Pass Pass Pass Pass	
Naphthalene TRH C6-C10 LCS - % Recovery Polycyclic Aromatic Hydrocarbons Acenaphthene Acenaphthylene Anthracene Benz(a)anthracene Benzo(a)pyrene Benzo(b&j)fluoranthene Benzo(g.h.i)perylene Benzo(k)fluoranthene	% % % % % % %	74 103 92 102 93 88 97 77 100	70-130 70-130 70-130 70-130 70-130 70-130 70-130 70-130 70-130	Pass Pass Pass Pass Pass Pass Pass Pass	
Naphthalene TRH C6-C10 LCS - % Recovery Polycyclic Aromatic Hydrocarbons Acenaphthene Acenaphthylene Anthracene Benz(a)anthracene Benzo(a)pyrene Benzo(b&j)fluoranthene Benzo(g.h.i)perylene Benzo(k)ffluoranthene Chrysene	% % % % % % % % %	74 103 92 102 93 88 97 77 100 104	70-130 70-130 70-130 70-130 70-130 70-130 70-130 70-130 70-130 70-130	Pass Pass Pass Pass Pass Pass Pass Pass	
Naphthalene TRH C6-C10 LCS - % Recovery Polycyclic Aromatic Hydrocarbons Acenaphthene Acenaphthylene Anthracene Benz(a)anthracene Benzo(a)pyrene Benzo(b&j)fluoranthene Benzo(g.h.i)perylene Benzo(k)fluoranthene Chrysene Dibenz(a.h)anthracene	% % % % % % % % % % % %	74 103 92 102 93 88 97 77 100 104 82	70-130 70-130 70-130 70-130 70-130 70-130 70-130 70-130 70-130 70-130	Pass Pass Pass Pass Pass Pass Pass Pass	
Naphthalene TRH C6-C10 LCS - % Recovery Polycyclic Aromatic Hydrocarbons Acenaphthene Acenaphthylene Anthracene Benz(a)anthracene Benzo(a)pyrene Benzo(b&j)fluoranthene Benzo(g.h.i)perylene Benzo(k)fluoranthene Chrysene Dibenz(a.h)anthracene Fluoranthene	% % % % % % % % % % % %	74 103 92 102 93 88 97 77 100 104 82 99	70-130 70-130 70-130 70-130 70-130 70-130 70-130 70-130 70-130 70-130 70-130	Pass Pass Pass Pass Pass Pass Pass Pass	
Naphthalene TRH C6-C10 LCS - % Recovery Polycyclic Aromatic Hydrocarbons Acenaphthene Acenaphthylene Anthracene Benz(a)anthracene Benzo(a)pyrene Benzo(b&j)fluoranthene Benzo(g.h.i)perylene Benzo(k)fluoranthene Chrysene Dibenz(a.h)anthracene	% % % % % % % % % % % %	74 103 92 102 93 88 97 77 100 104 82	70-130 70-130 70-130 70-130 70-130 70-130 70-130 70-130 70-130 70-130	Pass Pass Pass Pass Pass Pass Pass Pass	



т	est		Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Phenanthrene			%	104		70-130	Pass	
Pyrene			%	100		70-130	Pass	
LCS - % Recovery								
Organochlorine Pesticides								
Chlordanes - Total			%	109		70-130	Pass	
4.4'-DDD			%	111		70-130	Pass	
4.4'-DDE			%	116		70-130	Pass	
4.4'-DDT			%	130		70-130	Pass	
а-ВНС			%	98		70-130	Pass	
Aldrin			%	110		70-130	Pass	
b-BHC			%	101		70-130	Pass	
d-BHC			%	90		70-130	Pass	
Dieldrin			%	112		70-130	Pass	
Endosulfan I			%	108		70-130	Pass	
Endosulfan II			% %	117		70-130	Pass	
Endosulfan sulphate				106		70-130	Pass	
Endrin			%	125		70-130	Pass	
Endrin aldehyde			%	120		70-130	Pass	
Endrin ketone			%	126		70-130	Pass	
g-BHC (Lindane)			%	98		70-130	Pass	
Heptachlor			%	127		70-130	Pass	
Heptachlor epoxide			%	106		70-130	Pass	
Hexachlorobenzene			%	99		70-130	Pass	
Methoxychlor			%	130		70-130	Pass	
Toxaphene			%	85		70-130	Pass	
LCS - % Recovery								
Total Recoverable Hydrocarb	ons - 2013 NEPM Fract	tions						
TRH >C10-C16			%	110		70-130	Pass	
LCS - % Recovery				T	T T	T	I	
Heavy Metals							_	
Arsenic			%	90		70-130	Pass	
Cadmium			%	91		70-130	Pass	
Chromium			%	92		70-130	Pass	
Copper			%	93		70-130	Pass	
Lead			%	87		70-130	Pass	
Mercury			%	107		70-130	Pass	
Nickel			%	93		70-130	Pass	
Zinc		T	%	93		70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery								
Organochlorine Pesticides				Result 1				
Chlordanes - Total	S15-No17282	NCP	%	114		70-130	Pass	
4.4'-DDD	S15-No17282	NCP	%	117		70-130	Pass	
4.4'-DDE	S15-No17282	NCP	%	121		70-130	Pass	
4.4'-DDT	S15-No17282	NCP	%	128		70-130	Pass	
a-BHC	S15-No17282	NCP	%	100		70-130	Pass	
Aldrin	S15-No17282	NCP	%	111		70-130	Pass	
b-BHC	S15-No17282	NCP	%	106		70-130	Pass	
d-BHC	S15-No17282	NCP	%	92		70-130	Pass	
	S15-No17282	NCP	%	119		70-130	Pass	
Dieldrin			0/	113		70-130	Pass	
Dieldrin Endosulfan I	S15-No17282	NCP	%	113		70-130	1 000	
	S15-No17282 S15-No17282	NCP NCP	%	120		70-130	Pass	
Endosulfan I								



Test	Lab Sample ID	QA Source	Units	Result 1	Acceptance Limits	Pass Limits	Qualifying Code
Endrin aldehyde	S15-No17282	NCP	%	114	70-130	Pass	- 5545
Endrin ketone	S15-No17282	NCP	%	130	70-130	Pass	
g-BHC (Lindane)	S15-No17282	NCP	%	100	70-130	Pass	
Heptachlor	S15-No17282	NCP	%	129	70-130	Pass	
Heptachlor epoxide	S15-No17282	NCP	%	111	70-130	Pass	
Hexachlorobenzene	S15-No17282	NCP	%	99	70-130	Pass	
Methoxychlor	S15-No17282	NCP	%	127	70-130	Pass	
Toxaphene	S15-No18697	NCP	%	83	70-130	Pass	
	313-11010097	INCI	70	65	70-130	1 033	
Spike - % Recovery Total Recoverable Hydrocarbons	1000 NEDM Front	ione		Result 1		I	
TRH C10-C14		CP	0/		70.420	Door	
	S15-No18313	L CP	%	98	70-130	Pass	
Spike - % Recovery	0040 NEDM 5	•		Doort 4			1
Total Recoverable Hydrocarbons			0/	Result 1	70.400	D	
TRH >C10-C16	S15-No18313	CP	%	97	70-130	Pass	
Spike - % Recovery						T T	
Heavy Metals				Result 1		-	
Arsenic	S15-No18313	CP	%	78	70-130	Pass	-
Cadmium	S15-No18313	CP	%	99	70-130	Pass	
Chromium	S15-No18313	CP	%	70	70-130	Pass	
Copper	S15-No18313	CP	%	97	70-130	Pass	
Lead	S15-No18313	CP	%	79	70-130	Pass	
Mercury	S15-No18313	CP	%	107	70-130	Pass	
Nickel	S15-No18313	CP	%	97	70-130	Pass	
Zinc	S15-No18313	CP	%	100	70-130	Pass	
Spike - % Recovery							
Polycyclic Aromatic Hydrocarbo	ns			Result 1			
Acenaphthene	S15-No18316	CP	%	108	70-130	Pass	
Acenaphthylene	S15-No18316	CP	%	101	70-130	Pass	
Anthracene	S15-No18316	СР	%	104	70-130	Pass	
Benz(a)anthracene	S15-No18316	CP	%	90	70-130	Pass	
Benzo(a)pyrene	S15-No18316	CP	%	106	70-130	Pass	
Benzo(b&j)fluoranthene	S15-No18316	СР	%	95	70-130	Pass	
Benzo(q.h.i)perylene	S15-No18316	СР	%	105	70-130	Pass	
Benzo(k)fluoranthene	S15-No18316	СР	%	113	70-130	Pass	
Chrysene	S15-No18316	СР	%	106	70-130	Pass	
Dibenz(a.h)anthracene	S15-No18316	CP	%	94	70-130	Pass	
Fluoranthene	S15-No18316	CP	%	97	70-130	Pass	
Fluorene	S15-No18316	CP	%	103	70-130	Pass	
Indeno(1.2.3-cd)pyrene	S15-No18316	CP	%	101	70-130	Pass	
Naphthalene	S15-No18316	CP	%	107	70-130	Pass	
Phenanthrene	S15-No18316	CP	%	102	70-130	Pass	
Pyrene	S15-No18316	CP	// 0	97	70-130	Pass	
Spike - % Recovery	313-14010310	L CF	/0] 31	10-130	Fass	
	1000 NEDM 5	ione		Popult 4	-		
Total Recoverable Hydrocarbons			0/	Result 1	70.400	Desa	
TRH C6-C9	S15-No18328	CP	%	73	70-130	Pass	
TRH C10-C14	S15-No18328	CP	%	117	70-130	Pass	
Spike - % Recovery				Decide 4			
BTEX	045 N (2225	05		Result 1		-	-
Benzene	S15-No18328	CP	%	78	70-130	Pass	
Toluene	S15-No18328	CP	%	75	70-130	Pass	
Ethylbenzene	S15-No18328	CP	%	74	70-130	Pass	
m&p-Xylenes	S15-No18328	CP	%	71	70-130	Pass	
o-Xylene	S15-No18328	CP	%	72	70-130	Pass	
Xylenes - Total	S15-No18328	CP	%	72	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 Fract	ions		Result 1					
Naphthalene	S15-No18328	CP	%	71			70-130	Pass	
TRH C6-C10	S15-No18328	CP	%	76			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons -	2013 NEPM Fract	ions		Result 1					
TRH >C10-C16	S15-No18328	CP	%	117			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S15-No18328	CP	%	110			70-130	Pass	
Cadmium	S15-No18328	CP	%	99			70-130	Pass	
Chromium	S15-No18328	CP	%	87			70-130	Pass	
Copper	S15-No18328	CP	%	100			70-130	Pass	
Mercury	S15-No18328	CP	%	96			70-130	Pass	
Nickel	S15-No18328	CP	%	105			70-130	Pass	
Zinc	S15-No18328	CP	%	105			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons	S			Result 1					
Acenaphthene	S15-No18331	CP	%	113			70-130	Pass	
Acenaphthylene	S15-No18331	СР	%	103			70-130	Pass	
Anthracene	S15-No18331	СР	%	107			70-130	Pass	
Benz(a)anthracene	S15-No18331	СР	%	94			70-130	Pass	
Benzo(a)pyrene	S15-No18331	СР	%	110			70-130	Pass	
Benzo(b&j)fluoranthene	S15-No18331	СР	%	96			70-130	Pass	
Benzo(g.h.i)perylene	S15-No18331	СР	%	104			70-130	Pass	
Benzo(k)fluoranthene	S15-No18331	СР	%	108			70-130	Pass	
Chrysene	S15-No18331	СР	%	110			70-130	Pass	
Dibenz(a.h)anthracene	S15-No18331	СР	%	99			70-130	Pass	
Fluoranthene	S15-No18331	СР	%	101			70-130	Pass	
Fluorene	S15-No18331	СР	%	109			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S15-No18331	СР	%	101			70-130	Pass	
Naphthalene	S15-No18331	СР	%	113			70-130	Pass	
Phenanthrene	S15-No18331	СР	%	108			70-130	Pass	
Pyrene	S15-No18331	CP	%	102			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons -	· 1999 NEPM Fract	ions		Result 1	Result 2	RPD			
TRH C10-C14	S15-No17295	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S15-No17295	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TDL1 C00 C00					< 50	<1	30%	Pass	
TRH C29-C36	S15-No17295	NCP	mg/kg	< 50	< 50				
Duplicate	S15-No17295	NCP	mg/kg	< 50	< 30				
			mg/kg	< 50 Result 1	Result 2	RPD			
Duplicate			mg/kg	ı			30%	Pass	
Duplicate Total Recoverable Hydrocarbons	2013 NEPM Fract	ions		Result 1	Result 2	RPD			
Duplicate Total Recoverable Hydrocarbons - TRH >C10-C16	2013 NEPM Fract S15-No17295	ions NCP	mg/kg	Result 1	Result 2 < 50	RPD <1	30%	Pass	
Total Recoverable Hydrocarbons - TRH >C10-C16 TRH >C16-C34	2013 NEPM Fract S15-No17295 S15-No17295	NCP NCP	mg/kg mg/kg	Result 1 < 50 < 100	Result 2 < 50 < 100	RPD <1 <1	30%	Pass Pass	
Duplicate Total Recoverable Hydrocarbons - TRH >C10-C16 TRH >C16-C34 TRH >C34-C40	2013 NEPM Fract S15-No17295 S15-No17295 S15-No17295	NCP NCP NCP	mg/kg mg/kg	Result 1 < 50 < 100	Result 2 < 50 < 100	RPD <1 <1	30%	Pass Pass	
Duplicate Total Recoverable Hydrocarbons - TRH >C10-C16 TRH >C16-C34 TRH >C34-C40 Duplicate	2013 NEPM Fract S15-No17295 S15-No17295 S15-No17295	NCP NCP NCP	mg/kg mg/kg	Result 1 < 50 < 100 < 100	Result 2 < 50 < 100 < 100	RPD <1 <1 <1 <1	30%	Pass Pass	
Duplicate Total Recoverable Hydrocarbons - TRH >C10-C16 TRH >C16-C34 TRH >C34-C40 Duplicate Total Recoverable Hydrocarbons -	2013 NEPM Fract S15-No17295 S15-No17295 S15-No17295	NCP NCP NCP NCP	mg/kg mg/kg mg/kg	Result 1 < 50 < 100 < 100 Result 1	Result 2 < 50 < 100 < 100 Result 2	RPD <1 <1 <1 <1 RPD	30% 30% 30%	Pass Pass Pass	
Duplicate Total Recoverable Hydrocarbons - TRH >C10-C16 TRH >C16-C34 TRH >C34-C40 Duplicate Total Recoverable Hydrocarbons - TRH C6-C9	2013 NEPM Fract S15-No17295 S15-No17295 S15-No17295	NCP NCP NCP NCP	mg/kg mg/kg mg/kg	Result 1 < 50 < 100 < 100 Result 1	Result 2 < 50 < 100 < 100 Result 2	RPD <1 <1 <1 <1 RPD	30% 30% 30%	Pass Pass Pass	
Duplicate Total Recoverable Hydrocarbons - TRH >C10-C16 TRH >C16-C34 TRH >C34-C40 Duplicate Total Recoverable Hydrocarbons - TRH C6-C9 Duplicate	2013 NEPM Fract S15-No17295 S15-No17295 S15-No17295	NCP NCP NCP NCP	mg/kg mg/kg mg/kg	Result 1 < 50 < 100 < 100 Result 1 < 20	Result 2 < 50 < 100 < 100 Result 2 < 20	RPD <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	30% 30% 30%	Pass Pass Pass	
Duplicate Total Recoverable Hydrocarbons - TRH >C10-C16 TRH >C16-C34 TRH >C34-C40 Duplicate Total Recoverable Hydrocarbons - TRH C6-C9 Duplicate BTEX	2013 NEPM Fract S15-No17295 S15-No17295 S15-No17295 - 1999 NEPM Fract S15-No18311	ions NCP NCP NCP Cons NCP	mg/kg mg/kg mg/kg	Result 1 < 50 < 100 < 100 Result 1 < 20 Result 1	Result 2 < 50 < 100 < 100 Result 2 < 20 Result 2	RPD <1 <1 <1 <1 RPD <1 RPD <1 RPD	30% 30% 30% 30%	Pass Pass Pass Pass	
Duplicate Total Recoverable Hydrocarbons - TRH >C10-C16 TRH >C16-C34 TRH >C34-C40 Duplicate Total Recoverable Hydrocarbons - TRH C6-C9 Duplicate BTEX Benzene	2013 NEPM Fract S15-No17295 S15-No17295 S15-No17295 - 1999 NEPM Fract S15-No18311	ions NCP NCP NCP CP	mg/kg mg/kg mg/kg	Result 1 < 50 < 100 < 100 Result 1 < 20 Result 1 < 0.1	Result 2 < 50 < 100 < 100 Result 2 < 20 Result 2 < 0.1	RPD <1 <1 RPD <1 RPD <1	30% 30% 30% 30%	Pass Pass Pass Pass	



Duplicate									
BTEX				Result 1	Result 2	RPD			
o-Xylene	S15-No18311	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	S15-No18311	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons	- 2013 NEPM Fract	ions		Result 1	Result 2	RPD			
Naphthalene	S15-No18311	СР	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S15-No18311	СР	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S15-No18311	CP	mg/kg	17	19	9.0	30%	Pass	
Cadmium	S15-No18311	СР	mg/kg	0.5	< 0.4	20	30%	Pass	
Chromium	S15-No18311	СР	mg/kg	27	34	21	30%	Pass	
Copper	S15-No18311	СР	mg/kg	38	31	19	30%	Pass	
Lead	S15-No18311	СР	mg/kg	170	140	16	30%	Pass	
Mercury	S15-No18311	СР	mg/kg	0.09	0.08	8.0	30%	Pass	
Nickel	S15-No18311	СР	mg/kg	7.9	7.5	6.0	30%	Pass	
Zinc	S15-No18311	СР	mg/kg	280	230	20	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S15-No18311	СР	%	23	26	16	30%	Pass	
Duplicate				•	,				
Polycyclic Aromatic Hydrocarbon	s			Result 1	Result 2	RPD			
Acenaphthene	S15-No18314	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S15-No18314	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S15-No18314	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S15-No18314	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S15-No18314	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S15-No18314	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S15-No18314	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S15-No18314	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S15-No18314	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S15-No18314	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S15-No18314	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S15-No18314	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S15-No18314	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S15-No18314	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S15-No18314	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S15-No18314	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate		<u> </u>		1 0,0	10.0		3373	1 400	
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S15-No18320	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	S15-No18320	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	S15-No18320	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	S15-No18320	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	S15-No18320	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S15-No18320	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-BHC	S15-No18320	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	S15-No18320	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S15-No18320	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	S15-No18320	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	S15-No18320	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	S15-No18320	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	S15-No18320	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
	S15-No18320	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	1 515-M018370								



Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
g-BHC (Lindane)	S15-No18320	СР	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	S15-No18320	CP CP	mg/kg	< 0.05	< 0.05	<u> </u>	30%	Pass	
Heptachlor epoxide	S15-No18320	CP	mg/kg	< 0.05	< 0.05	<u><1</u>	30%	Pass	
Hexachlorobenzene	S15-No18320	CP	mg/kg	< 0.05	< 0.05	<u><1</u>	30%	Pass	
Methoxychlor	S15-No18320	CP	mg/kg	< 0.03	< 0.05	<u><1</u>	30%	Pass	
Toxaphene	S15-No18320	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate	313-11010320	OF .	i ilig/kg				30 //	rass	
Total Recoverable Hydrocarbo	ns - 1000 NEDM Fract	ione		Result 1	Result 2	RPD			
TRH C6-C9	S15-No18326	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate	313-11010320	0	i iiig/kg	\ \ 20	\ 20		3076	1 033	
BTEX				Result 1	Result 2	RPD			
Benzene	S15-No18326	СР	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S15-No18326	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S15-No18326	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S15-No18326	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
o-Xylene	S15-No18326	CP	mg/kg	< 0.2	< 0.2	<u><1</u>	30%	Pass	
Xvlenes - Total	S15-No18326	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Duplicate	313-11010320	OF .	i ilig/kg	< 0.5	(0.5		30 //	rass	
Total Recoverable Hydrocarbo	ne - 2013 NEDM Fract	ione		Result 1	Result 2	RPD			
Naphthalene	S15-No18326	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S15-No18326	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate	313-11010320	OF .	l llig/kg	<u> </u>	< 20		30 //	rass	
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S15-No18326	СР	mg/kg	52	55	6.0	30%	Pass	
Cadmium	S15-No18326	CP	mg/kg	1.4	1.2	12	30%	Pass	
Chromium	S15-No18326	CP	mg/kg	33	30	9.0	30%	Pass	
Copper	S15-No18326	CP	mg/kg	71	77	8.0	30%	Pass	
Lead	S15-No18326	CP	mg/kg	1300	1200	8.0	30%	Pass	
Mercury	S15-No18326	CP	mg/kg	0.43	0.38	13	30%	Pass	
Nickel	S15-No18326	CP	mg/kg	11	11	<1	30%	Pass	
Zinc	S15-No18326	CP	mg/kg	1600	1600	1.0	30%	Pass	
Duplicate	01010010020	Oi	i iiig/kg	1000	1000	1.0	3070	1 433	
Барпоасс				Result 1	Result 2	RPD		T	
% Moisture	S15-No18326	СР	%	18	18	1.0	30%	Pass	
Duplicate	01011010020	OI	70	10	10	1.0	0070	1 400	
Polycyclic Aromatic Hydrocarb	ons			Result 1	Result 2	RPD			
Acenaphthene	S15-No18329	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S15-No18329	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S15-No18329	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S15-No18329	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S15-No18329	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&i)fluoranthene	S15-No18329	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S15-No18329	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S15-No18329	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S15-No18329	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S15-No18329	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S15-No18329	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S15-No18329	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S15-No18329	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S15-No18329	CP	mg/kg	< 0.5	< 0.5	<u><1</u>	30%	Pass	
Phenanthrene	S15-N018329	CP CP	mg/kg	< 0.5	< 0.5	<u><1</u> <1	30%	Pass	
		CP CP		1	1 1		1		
Pyrene	S15-No18329	CP	mg/kg	< 0.5	< 0.5	<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 Yes Samples received within HoldingTime Yes Some samples have been subcontracted No

Qualifier Codes/Comments

Code Description

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).

N01

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.

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. N04

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 N07

Authorised By

N02

Charl Du Preez Analytical Services Manager **Bob Symons** Senior Analyst-Inorganic (NSW) Ivan Taylor Senior Analyst-Metal (NSW) Nibha Vaidya Senior Analyst-Asbestos (NSW) Rvan Hamilton Senior Analyst-Organic (NSW) Ryan Hamilton Senior Analyst-Volatile (NSW)



Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

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

Uncertainty data is available on request

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Certificate of Analysis





NATA Accredited Accreditation Number 1261 Site Number 18217

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

Coffey Geotechnics Pty Ltd Chatswood Level 18, Tower B, Citadel Tower 799 Pacific Highway Chatswood NSW 2067

Attention: Matthew Locke
Report 480540-AID

Project Name GEOTLCOV25554AA

Project ID DOOLEYS
Received Date Nov 23, 2015
Date Reported Nov 30, 2015

Methodology:

Asbestos ID

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. Bulk samples include building materials, soils and ores.

Subsampling Soil Samples

The whole sample submitted is first dried and then sieved through a 10mm sieve followed by a 2mm sieve. All fibrous matter viz 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) Iron ores - Sampling and Sample preparation procedures is employed. 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 asbestoscontaining material (ACM) The material is first examined and any fibres isolated and where required interfering organic fibres or matter may be removed by treating the sample for several hours at a temperature not exceeding 400 ± 30 °C. The resultant material is then ground and examined in accordance with AS 4964-2004.

Limit of Reporting

The nominal detection limit of the AS4964 method is around 0.01%. The examination of large sample sizes (at least 500 ml is recommended) may improve the likelihood of identifying asbestos material in the greater than 2 mm fraction. The NEPM screening level of 0.001% w/w asbestos in soil for FA and AF (i.e. non-bonded/friable asbestos) only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres. NOTE: NATA News, September 2011 – page 34, states, "Weighing of fibres is problematic and can lead to loss of fibres and potential exposure for laboratory analysts. To request laboratories to report information which is outside the scope of AS 4964-2004 and the scope of their accreditation is misleading and is most unwise" therefore such values reported are outside the scope of Eurofins | mgt NATA accreditation as designated by an asterisk.

Report Number: 480540-AID







NATA Accredited Accreditation Number 1261 Site Number 18217

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

Project Name GEOTLCOV25554AA

Project ID DOOLEYS

Date Sampled Nov 19, 2015

Report 480540-AID

Client Sample ID	Eurofins mgt Sample No.	Date Sampled	Sample Description	Result
HA1_0.1-0.2	15-No18308	Nov 19, 2015	Approximate Sample 34g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
HA2_0.1-0.2	15-No18311	Nov 19, 2015	Approximate Sample 36g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
HA3_0.1-0.2	15-No18314	Nov 19, 2015	Approximate Sample 84g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
HA4_0.1-0.2	15-No18317	Nov 19, 2015	Approximate Sample 168g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected. Synthetic mineral fibre detected. Organic fibre detected. No respirable fibres detected.
HA5_0.1-0.2	15-No18320	Nov 19, 2015	Approximate Sample 42g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
HA6_0.1-0.2	15-No18323	Nov 19, 2015	Approximate Sample 109g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
HA7_0.1-0.2	15-No18326	Nov 19, 2015	Approximate Sample 121g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
HA8_0.1-0.2	15-No18329	Nov 19, 2015	Approximate Sample 98g Sample consisted of: Brown coarse grain sandy soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.

Page 2 of 9



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 (regarding both quality and NATA accreditation).

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.

DescriptionTesting SiteExtractedHolding TimeAsbestos - LTM-ASB-8020SydneyNov 23, 2015Indefinite



DOOLEYS

Address:

Project ID:

ABN - 50 005 085 521 e.mail : EnviroSales@eurofins.com.au web : www.eurofins.com.au

Melbourne

3-5 Kingston Town Close Oakleigh VIC 3166 Phone: +61 3 8564 5000 NATA # 1261

Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone: +61 2 9900 8400
NATA # 1261 Site # 18217

Eurofins | mgt Client Manager: Charl Du Preez

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone: +61 7 3902 4600
NATA # 1261 Site # 20794

Company Name: Coffey Geotechnics Pty Ltd Chatswood Order No.: Received: Nov 23, 2015 2:36 PM

Level 18, Tower B, Citadel Tower 799 Pacific Highway Report #: 480540 Due: Nov 30, 2015

 Chatswood
 Phone:
 +61 2 9406 1000
 Priority:
 5 Day

NSW 2067 Fax: +61 2 9406 1002 Contact Name: Matthew Locke

Project Name: GEOTLCOV25554AA

Sample Detail						HOLD	Organochlorine Pesticides	Metals M8	Metals M8	Moisture Set	Eurofins mgt Suite B4	BTEX and Volatile TRH
Laboratory where analysis is conducted												
Melbourne Laboratory - NATA Site # 1254 & 14271								Х				
Sydney Laboratory - NATA Site # 18217						Х	Х		Х	Х	Х	Х
Brisbane Laboratory - NATA Site # 20794												
External Laboratory												
Sample ID	Sample Date	Sampling Time	Matrix	LAB ID								
HA1_0.1-0.2	Nov 19, 2015		Soil	S15-No18308	Х		Х		Х	Х	Х	
HA1_0.5-0.6	Nov 19, 2015		Soil	S15-No18309		Х						
HA1_0.9-1.0	Nov 19, 2015		Soil	S15-No18310					Х	Χ	Х	
HA2_0.1-0.2	Nov 19, 2015		Soil	S15-No18311	Х		Х		Х	Χ	Х	
HA2_0.5-0.6	Nov 19, 2015		Soil	S15-No18312		Х						
HA2_0.9-1.0	Nov 19, 2015		Soil	S15-No18313					Х	Х	Х	
HA3_0.1-0.2	Nov 19, 2015		Soil	S15-No18314	Х		Х		Х	Х	Х	
HA3_0.5-0.6	Nov 19, 2015		Soil	S15-No18315		Х						
HA3_0.9-1.0	Nov 19, 2015		Soil	S15-No18316					Х	Χ	Х	



GEOTLCOV25554AA

Address:

ABN - 50 005 085 521 e.mail: EnviroSales@eurofins.com.au web: www.eurofins.com.au

Melbourne

3-5 Kingston Town Close Oakleigh VIC 3166 Phone: +61 3 8564 5000 NATA # 1261

Site # 1254 & 14271

Sydney Unit F3, Building F 16 Mars Road Lane Cove West NSW 2066 Phone: +61 2 9900 8400 NATA # 1261 Site # 18217

Brisbane 1/21 Smallwood Place Murarrie QLD 4172 Phone: +61 7 3902 4600 NATA # 1261 Site # 20794

Company Name: Coffey Geotechnics Pty Ltd Chatswood Order No.: Received: Nov 23, 2015 2:36 PM

> Level 18, Tower B, Citadel Tower 799 Pacific Highway Report #: 480540 Due: Nov 30, 2015 Chatswood Phone: +61 2 9406 1000 Priority: 5 Day

NSW 2067 Fax: +61 2 9406 1002 **Contact Name:** Matthew Locke

Project Name: Project ID: **DOOLEYS Eurofins | mgt Client Manager: Charl Du Preez**

		Sample Detail			Asbestos Absence /Presence	HOLD	Organochlorine Pesticides	Metals M8	Metals M8	Moisture Set	Eurofins mgt Suite B4	BTEX and Volatile TRH
Laboratory wh	ere analysis is c	onducted										
	boratory - NATA		271					Х				
	atory - NATA Site				Х	Х	Х		Х	Х	Х	Х
	oratory - NATA Si	te # 20794										
External Labo	ratory		1									
HA4_0.1-0.2	Nov 19, 2015		Soil	S15-No18317	Х		Х		Х	Х	Х	
HA4_0.5-0.6	Nov 19, 2015		Soil	S15-No18318		Х						
HA4_0.9-1.0	Nov 19, 2015		Soil	S15-No18319					Х	Х	Х	
HA5_0.1-0.2	Nov 19, 2015		Soil	S15-No18320	Х		Х		Х	Х	Х	
HA5_0.5-0.6	Nov 19, 2015		Soil	S15-No18321		Х						
HA5_0.9-1.0	Nov 19, 2015		Soil	S15-No18322					Х	Х	Х	
HA6_0.1-0.2	Nov 19, 2015		Soil	S15-No18323	Х		Х		Х	Х	Х	
HA6_0.5-0.6	Nov 19, 2015		Soil	S15-No18324		Х						
HA6_0.9-1.0	Nov 19, 2015		Soil	S15-No18325					Х	Х	Х	
HA7_0.1-0.2	Nov 19, 2015		Soil	S15-No18326	Х		Х		Х	Х	Х	



DOOLEYS

Address:

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Melbourne

3-5 Kingston Town Close Oakleigh VIC 3166 Phone: +61 3 8564 5000 NATA # 1261

Site # 1254 & 14271

Sydney Unit F3, Building F 16 Mars Road Lane Cove West NSW 2066 Phone: +61 2 9900 8400 NATA # 1261 Site # 18217

Brisbane 1/21 Smallwood Place Murarrie QLD 4172 Phone: +61 7 3902 4600 NATA # 1261 Site # 20794

Company Name: Coffey Geotechnics Pty Ltd Chatswood Order No.: Received: Nov 23, 2015 2:36 PM

> Level 18, Tower B, Citadel Tower 799 Pacific Highway Report #: 480540 Due: Nov 30, 2015

Chatswood Phone: +61 2 9406 1000 Priority: 5 Day

NSW 2067 Fax: +61 2 9406 1002 **Contact Name:** Matthew Locke

Project Name: GEOTLCOV25554AA

Project ID: **Eurofins | mgt Client Manager: Charl Du Preez**

		Sample Detail			Asbestos Absence /Presence	HOLD	Organochlorine Pesticides	Metals M8	Metals M8	Moisture Set	Eurofins mgt Suite B4	BTEX and Volatile TRH
	ere analysis is c											
	boratory - NATA		271					Х				
	atory - NATA Site				Х	Χ	Х		Х	Χ	Х	Х
	oratory - NATA Si	te # 20794										
External Labo												
HA7_0.5-0.6	Nov 19, 2015		Soil	S15-No18327		Х						
HA7_0.9-1.0	Nov 19, 2015		Soil	S15-No18328	1				Х	Х	Х	
HA8_0.1-0.2	Nov 19, 2015		Soil	S15-No18329	Х		Х		Х	Х	Х	
HA8_0.5-0.6	Nov 19, 2015		Soil	S15-No18330		Х						
HA8_0.9-1.0	Nov 19, 2015		Soil	S15-No18331					Х	Х	Х	
RB1	Nov 19, 2015		Water	S15-No18332				Х			Х	
TRIP BLANK	Nov 19, 2015		Water	S15-No18333								Х
TRIP SPIKE	Nov 19, 2015		Water	S15-No18334								Х
DUP01	Nov 19, 2015		Soil	S15-No18335			Х		Х	Х	Х	
DUP02	Nov 19, 2015		Soil	S15-No18336			Х		Х	Х	Х	



ABN - 50 005 085 521 e.mail: EnviroSales@eurofins.com.au web: www.eurofins.com.au

Melbourne

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Site # 1254 & 14271

Lane Cove West NSW 2066 Phone: +61 2 9900 8400 NATA # 1261 Site # 18217

Sydney Unit F3, Building F

16 Mars Road

Brisbane 1/21 Smallwood Place Murarrie QLD 4172 Phone: +61 7 3902 4600 NATA # 1261 Site # 20794

Coffey Geotechnics Pty Ltd Chatswood

Address:

Company Name:

Level 18, Tower B, Citadel Tower 799 Pacific Highway

Chatswood

NSW 2067

Project Name: Project ID:

GEOTLCOV25554AA

DOOLEYS

Order No.:

Report #: 480540

Phone: +61 2 9406 1000 Fax:

+61 2 9406 1002

Received: Nov 23, 2015 2:36 PM

Due: Nov 30, 2015 Priority: 5 Day

Contact Name: Matthew Locke

Eurofins | mgt Client Manager: Charl Du Preez

		Sample Detail			Asbestos Absence /Presence	HOLD	Organochlorine Pesticides	Metals M8	Metals M8	Moisture Set	Eurofins mgt Suite B4	BTEX and Volatile TRH
Laboratory who	ere analysis is c	onducted										
Melbourne Lab	oratory - NATA	Site # 1254 & 142	271					Х				
Sydney Labora	tory - NATA Site	# 18217			Χ	Х	Х		Χ	Χ	Χ	Χ
Brisbane Labor	ratory - NATA Si	te # 20794										
External Labora	atory											
BH03_0.5-0.6	Nov 19, 2015		Soil	S15-No18337					Х	Х	Х	
BH03_0.05-0.2	Nov 19, 2015		Soil	S15-No18338		Х						
BH03_1.0-1.1	Nov 19, 2015		Soil	S15-No18339					Χ	Х	Х	



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. 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

ΑF

Date Reported: Nov 30, 2015

Dry Where a moisture has been determined on a solid sample the result is expressed on a dry basis.

LOR Limit of Reporting.
COC Chain of custody
SRA Sample Receipt Advice

ISO International Stardards Organisation

AS Australian Standards

WA DOH Western Australia Department of Health

NOHSC National Occupational Health and Safety Commission

ACM Bonded asbestos-containing material means any material containing more than 1% asbestos and comprises asbestos-containing-material which is in sound condition,

although possibly broken or fragmented, and where the asbestos is bound in a matrix such as cement or resin. Common examples of ACM include but are not limited to: pipe and boiler insulation, sprayed-on fireproofing, troweled-on acoustical plaster, floor tile and mastic, floor linoleum, transite shingles, roofing materials, wall and ceiling plaster, ceiling tiles, and gasket materials. This term is restricted to material that cannot pass a 7 mm x 7 mm sieve. This sieve size is selected because it approximates the thickness of common asbestos cement sheeting and for fragments to be smaller than this would imply a high degree of damage and hence potential

for fibre release.

FA FA comprises friable asbestos material and includes severely weathered cement sheet, insulation products and woven asbestos material. This type of friable asbestos

is defined here as asbestos material that is in a degraded condition such that it can be broken or crumbled by hand pressure. This material is typically unbonded or

was previously bonded and is now significantly degraded (crumbling).

PACM Presumed Asbestos-Containing Material means thermal system insulation and surfacing material found in buildings, vessels, and vessel sections constructed no later

than 1980 that are assumed to contain greater than one percent asbestos but have not been sampled or analyzed to verify or negate the presence of asbestos.

Asbestos fines (AF) are defined as free fibres, or fibre bundles, smaller than 7mm. It is the free fibres which present the greatest risk to human health, although very small fibres (< 5 microns in length) are not considered to be such a risk. AF also includes small fragments of bonded ACM that pass through a 7 mm x 7 mm sieve.

(Note that for bonded ACM fragments to pass through a 7 mm x 7 mm sieve implies a substantial degree of damage which increases the potential for fibre release.)

AC Asbestos cement means a mixture of cement and asbestos fibres (typically 90:10 ratios).



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	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code Description N/A Not applicable

Authorised by:

Nibha Vaidya Senior Analyst-Asbestos (NSW)

Glenn Jackson National Operations Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

Date Reported: Nov 30, 2015

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

Uncertainty data is available on request

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Coffey Geotechnics Pty Ltd Chatswood Level 18, Tower B, Citadel Tower 799 Pacific Highway Chatswood NSW 2067





Certificate of Analysis

NATA Accredited Accreditation Number 1261 Site Number 1254

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

Attention: Matthew Locke

Report 480540-W

Project name GEOTLCOV25554AA

Project ID DOOLEYS
Received Date Nov 23, 2015

Client Sample ID			RB1	TRIP BLANK	TRIP SPIKE
Sample Matrix			Water	Water	Water
Eurofins mgt Sample No.			S15-No18332	S15-No18333	S15-No18334
Date Sampled			Nov 19, 2015	Nov 19, 2015	Nov 19, 2015
Test/Reference	LOR	Unit	,	·	
		T ,,			
TRH C6-C10 less BTEX (F1) ^{N04}	0.02	mg/L	-	< 0.02	-
Total Recoverable Hydrocarbons - 1999 NEPM	1				
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	88%
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 C10-36 (Total)	0.1	mg/L	< 0.1	-	-
BTEX		T			
Benzene	0.001	mg/L	< 0.001	< 0.001	91%
Toluene	0.001	mg/L	< 0.001	< 0.001	89%
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	87%
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	85%
o-Xylene	0.001	mg/L	< 0.001	< 0.001	89%
Xylenes - Total	0.003	mg/L	< 0.003	< 0.003	86%
4-Bromofluorobenzene (surr.)	1	%	90	88	100
Total Recoverable Hydrocarbons - 2013 NEPM	Fractions				
TRH C6-C10	0.02	mg/L	-	< 0.02	104%
Volatile Organics					
Naphthalene ^{N02}	0.01	mg/L	-	< 0.01	82%
Total Recoverable Hydrocarbons - 2013 NEPM	Fractions				
Naphthalene ^{N02}	0.01	mg/L	< 0.01	-	-
TRH C6-C10	0.02	mg/L	< 0.02	-	-
TRH C6-C10 less BTEX (F1)N04	0.02	mg/L	< 0.02	-	-
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	< 0.05	-	-
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	-	-



Client Sample ID Sample Matrix			RB1 Water	TRIP BLANK Water	TRIP SPIKE Water
Eurofins mgt Sample No.			S15-No18332	S15-No18333	S15-No18334
Date Sampled			Nov 19, 2015	Nov 19, 2015	Nov 19, 2015
Test/Reference	LOR	Unit			
Polycyclic Aromatic Hydrocarbons	'	1			
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	-	-
Total PAH*	0.001	mg/L	< 0.001	-	-
2-Fluorobiphenyl (surr.)	1	%	93	-	-
p-Terphenyl-d14 (surr.)	1	%	128	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fi	ractions				
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	-	-
Heavy Metals					
Arsenic	0.001	mg/L	< 0.001	-	-
Cadmium	0.0002	mg/L	< 0.0002	-	-
Chromium	0.001	mg/L	< 0.001	-	-
Copper	0.001	mg/L	< 0.001	-	-
Lead	0.001	mg/L	< 0.001	-	-
Mercury	0.0001	mg/L	< 0.0001	-	-
Nickel	0.001	mg/L	< 0.001	-	-
Zinc	0.001	mg/L	< 0.001	-	-



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 (regarding both quality and NATA accreditation).

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
TRH C6-C10 less BTEX (F1)	Sydney	Nov 23, 2015	14 Day
- Method: LM-LTM-ORG-2010			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Nov 25, 2015	7 Day
- Method: TRH C6-C36 - LTM-ORG-2010			
BTEX	Sydney	Nov 23, 2015	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Nov 25, 2015	7 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Volatile Organics	Sydney	Nov 25, 2015	7 Day
- Method: E016 Volatile Organic Compounds (VOC)			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Nov 23, 2015	7 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Eurofins mgt Suite B4			
Polycyclic Aromatic Hydrocarbons	Sydney	Nov 25, 2015	7 Day
- Method: E007 Polyaromatic Hydrocarbons (PAH)			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Nov 25, 2015	7 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Metals M8	Melbourne	Nov 23, 2015	28 Day

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Brisbane I/21 Smallwood Place
Murarrie QLD 4172
Phone: +61 7 3902 4600
NATA # 1261 Site # 20794

ABN - 50 005 085 521 e.mail : EnviroSales@eurofins.com.au

Order No.:

Report #:

Phone:

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+61 2 9406 1000

+61 2 9406 1002

480540

Company Name: Coffey Geotechnics Pty Ltd Chatswood

Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway

Chatswood

NSW 2067

GEOTLCOV25554AA **Project Name:**

Project ID: **DOOLEYS** Received: Nov 23, 2015 2:36 PM

Due: Nov 30, 2015 Priority: 5 Day

Contact Name: Matthew Locke

Eurofins | mgt Client Manager: Charl Du Preez

		Sample Detail			Asbestos Absence /Presence	HOLD	Organochlorine Pesticides	Metals M8	Metals M8	Moisture Set	Eurofins mgt Suite B4	BTEX and Volatile TRH
	ere analysis is co		074					X				
	ooratory - NATA S atory - NATA Site		-271		Х	Х	Х	^	Х	Х	Х	Х
	oratory - NATA Site											\vdash
External Labor		te # 20794										
Sample ID	Sample Date	Sampling Time	Matrix	LAB ID								
HA1_0.1-0.2	Nov 19, 2015		Soil	S15-No18308	Х		Х		Х	Х	Х	
HA1_0.5-0.6	Nov 19, 2015		Soil	S15-No18309		Х						
HA1_0.9-1.0	Nov 19, 2015		Soil	S15-No18310					Х	Х	Х	
HA2_0.1-0.2	Nov 19, 2015		Soil	S15-No18311	Х		Х		Х	Х	Х	
HA2_0.5-0.6	Nov 19, 2015		Soil	S15-No18312		Х						
HA2_0.9-1.0	Nov 19, 2015		Soil	S15-No18313					Х	Х	Х	
HA3_0.1-0.2	Nov 19, 2015		Soil	S15-No18314	Х		Х		Х	Х	Х	Ш
HA3_0.5-0.6	Nov 19, 2015		Soil	S15-No18315		Χ						Ш
HA3_0.9-1.0	Nov 19, 2015		Soil	S15-No18316					Х	Х	Х	

Eurofins | mgt Unit F3, Building F, 16 Mars Road, Lane Cove West, NSW, Australia, 2066 ABN: 50 005 085 521 Telephone: +61 2 9900 8400 Facsimile: +61 2 9420 2977

Page 4 of 12



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Melbourne 3-5 Kingston Town Close Oakleigh VIC 3166 Phone: +61 3 8564 5000 NATA # 1261 Site # 1254 & 14271 Sydney Unit F3, Building F 16 Mars Road Lane Cove West NSW 2066 Phone: +61 2 9900 8400 NATA # 1261 Site # 18217

Received:

Priority:

Contact Name:

Due:

Brisbane I/21 Smallwood Place
Murarrie QLD 4172
Phone: +61 7 3902 4600
NATA # 1261 Site # 20794

Nov 23, 2015 2:36 PM

Nov 30, 2015

Matthew Locke

Eurofins | mgt Client Manager: Charl Du Preez

Company Name: Coffey Geotechnics Pty Ltd Chatswood

Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway

Chatswood

NSW 2067

Project Name: GEOTLCOV25554AA

Project ID: **DOOLEYS** Order No.:

Report #: 480540

Phone: +61 2 9406 1000 Fax: +61 2 9406 1002

5 Day

		Sample Detail			Asbestos Absence /Presence	HOLD	Organochlorine Pesticides	Metals M8	Metals M8	Moisture Set	Eurofins mgt Suite B4	BTEX and Volatile TRH
Laboratory wh	ere analysis is c	onducted										
Melbourne Lat	poratory - NATA	Site # 1254 & 14	271					Х				
Sydney Labora	atory - NATA Site	# 18217			Х	Х	Х		Х	Х	Х	Х
	oratory - NATA Si											
External Labor	ratory											
HA4_0.1-0.2	Nov 19, 2015		Soil	S15-No18317	Х		Χ		Х	Χ	Х	
HA4_0.5-0.6	Nov 19, 2015		Soil	S15-No18318		Х						
HA4_0.9-1.0	Nov 19, 2015		Soil	S15-No18319					Х	Χ	Х	
HA5_0.1-0.2	Nov 19, 2015		Soil	S15-No18320	Х		Х		Х	Χ	Х	
HA5_0.5-0.6	Nov 19, 2015		Soil	S15-No18321		Х						
HA5_0.9-1.0	Nov 19, 2015		Soil	S15-No18322					Х	Χ	Х	
HA6_0.1-0.2	Nov 19, 2015		Soil	S15-No18323	Х		Х		Х	Χ	Х	
HA6_0.5-0.6	Nov 19, 2015		Soil	S15-No18324		Х						
HA6_0.9-1.0	Nov 19, 2015		Soil	S15-No18325					Х	Χ	Х	
HA7_0.1-0.2	Nov 19, 2015		Soil	S15-No18326	Х		Х		Х	Х	Х	



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Company Name: Coffey Geotechnics Pty Ltd Chatswood

Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway

Chatswood

NSW 2067

Project Name: GEOTLCOV25554AA

Project ID: **DOOLEYS** Order No.: Received: Nov 23, 2015 2:36 PM Report #:

480540 Due: Nov 30, 2015 +61 2 9406 1000 Priority: 5 Day

Contact Name: Fax: +61 2 9406 1002 Matthew Locke

Eurofins | mgt Client Manager: Charl Du Preez

		Sample Detail			Asbestos Absence /Presence	HOLD	Organochlorine Pesticides	Metals M8	Metals M8	Moisture Set	Eurofins mgt Suite B4	BTEX and Volatile TRH
Laboratory wh	ere analysis is c	onducted										
Melbourne Lak	ooratory - NATA	Site # 1254 & 14	271					Х				
Sydney Labora	atory - NATA Site	# 18217			Х	Х	Х		Х	Х	Х	Х
Brisbane Labo	oratory - NATA Si	te # 20794										
External Labor	ratory											
HA7_0.5-0.6	Nov 19, 2015		Soil	S15-No18327		Х						
HA7_0.9-1.0	Nov 19, 2015		Soil	S15-No18328					Х	Х	Х	
HA8_0.1-0.2	Nov 19, 2015		Soil	S15-No18329	Х		Х		Х	Х	Х	
HA8_0.5-0.6	Nov 19, 2015		Soil	S15-No18330		Х						
HA8_0.9-1.0	Nov 19, 2015		Soil	S15-No18331					Х	Х	Х	
RB1	Nov 19, 2015		Water	S15-No18332				Х			Х	
TRIP BLANK	Nov 19, 2015		Water	S15-No18333								Х
TRIP SPIKE	Nov 19, 2015		Water	S15-No18334								Х
DUP01	Nov 19, 2015		Soil	S15-No18335			Х		Х	Х	Х	
DUP02	Nov 19, 2015		Soil	S15-No18336			Х		Х	Х	Х	



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Project ID: **DOOLEYS** Order No.: Received:

Report #: 480540 Due: Nov 30, 2015 Phone: +61 2 9406 1000 Priority: 5 Day

Contact Name: Fax: +61 2 9406 1002 Matthew Locke

Eurofins | mgt Client Manager: Charl Du Preez

Nov 23, 2015 2:36 PM

		Sample Detail			Asbestos Absence /Presence	HOLD	Organochlorine Pesticides	Metals M8	Metals M8	Moisture Set	Eurofins mgt Suite B4	BTEX and Volatile TRH
Laboratory whe	ere analysis is co	onducted										
Melbourne Lab	oratory - NATA S	Site # 1254 & 142	271					Χ				
Sydney Labora	tory - NATA Site	# 18217			Χ	Χ	Χ		Χ	Χ	Χ	Χ
Brisbane Labor	atory - NATA Si	te # 20794										
External Labora	atory											
BH03_0.5-0.6	Nov 19, 2015		Soil	S15-No18337					Χ	Χ	Χ	
BH03_0.05-0.2	Nov 19, 2015		Soil	S15-No18338		Х						
BH03_1.0-1.1	Nov 19, 2015		Soil	S15-No18339					Χ	Х	Χ	



Internal Quality Control Review and Glossary

General

- 1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
- 2. All soil results are reported on a dry basis, unless otherwise stated.
- 3. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
- 4. Results are uncorrected for matrix spikes or surrogate recoveries
- 5. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise
- 6. Samples were analysed on an 'as received' basis. 7. 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.

**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

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.

DuplicateA second piece of analysis from the same sample and reported in the same units as the result to show comparison.

Batch Duplicate A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.

Batch SPIKE Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.

USEPA United States Environmental Protection Agency

APHA American Public Health Association

ASLP Australian Standard Leaching Procedure (AS4439.3)

TCLP Toxicity Characteristic Leaching Procedure

COC Chain of Custody

SRA Sample Receipt Advice

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 quidelines 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 50-150% - Phenols 20-130%.

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, Toxophene & Chlordane are not added to the LCS.
- 4. Organochlorine Pesticide analysis where reporting Spike data. Toxophene is not added to the Spike.
- 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 Arochlor 1260 in Matrix Spikes and LCS's.
- 9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
- $10. \ \ Duplicate \ RPD's \ are \ calculated \ from \ raw \ analytical \ data \ thus \ it \ is \ possible \ to \ have \ two \ sets \ of \ data.$



Quality Control Results

Test	Units	Result 1	Acceptance Limits	Pass Limits	Qualifying Code
Method Blank					
Total Recoverable Hydrocarbons - 1999 NEPM Fra	ctions				
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					
ВТЕХ					
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		10.000	3.000	. 455	
Total Recoverable Hydrocarbons - 2013 NEPM Fra	ctions				
TRH C6-C10	mg/L	< 0.02	0.02	Pass	
Method Blank	ı myr	7 0.02	0.02		
Volatile Organics					
Naphthalene	mg/L	< 0.01	0.01	Pass	
Method Blank	IIIg/L	< 0.01	0.01	rass	
		T T	T		
Polycyclic Aromatic Hydrocarbons	ma/l	10.001	0.001	Door	
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 Fra	ctions				
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	mg/L	< 0.001	0.001	Pass	
Cadmium	mg/L	< 0.0002	0.0002	Pass	
Chromium	mg/L	< 0.001	0.001	Pass	
Copper	mg/L	< 0.001	0.001	Pass	
Lead	mg/L	< 0.001	0.001	Pass	
Mercury	mg/L	< 0.0001	0.0001	Pass	
Nickel	mg/L	< 0.001	0.001	Pass	



			Acceptones	Door	Ouglifying
Test	Units	Result 1	Acceptance Limits	Pass Limits	Qualifying Code
Zinc	mg/L	< 0.001	0.001	Pass	
LCS - % Recovery				ı	
Total Recoverable Hydrocarbons - 1999 NEPM Fraction					
TRH C6-C9	%	86	70-130	Pass	
TRH C10-C14	%	82	70-130	Pass	
LCS - % Recovery				ı	
BTEX					
Benzene	%	93	70-130	Pass	
Toluene	%	93	70-130	Pass	
Ethylbenzene	%	91	70-130	Pass	
m&p-Xylenes	%	90	70-130	Pass	
o-Xylene	%	92	70-130	Pass	
Xylenes - Total	%	91	70-130	Pass	
LCS - % Recovery					
Total Recoverable Hydrocarbons - 2013 NEPM Fractio	ns				
TRH C6-C10	%	93	70-130	Pass	
LCS - % Recovery					
Volatile Organics					
Naphthalene	%	92	70-130	Pass	
LCS - % Recovery					
Polycyclic Aromatic Hydrocarbons					
Acenaphthene	%	106	70-130	Pass	
Acenaphthylene	%	104	70-130	Pass	
Anthracene	%	113	70-130	Pass	
Benz(a)anthracene	%	92	70-130	Pass	
Benzo(a)pyrene	%	105	70-130	Pass	
Benzo(b&j)fluoranthene	%	104	70-130	Pass	
Benzo(g.h.i)perylene	%	102	70-130	Pass	
Benzo(k)fluoranthene	%	122	70-130	Pass	
Chrysene	%	116	70-130	Pass	
Dibenz(a.h)anthracene	%	106	70-130	Pass	
Fluoranthene	%	112	70-130	Pass	
Fluorene	%	105	70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	101	70-130	Pass	
Naphthalene	%	99	70-130	Pass	
Phenanthrene	%	103	70-130	Pass	
Pyrene	%	110	70-130	Pass	
LCS - % Recovery					
Total Recoverable Hydrocarbons - 2013 NEPM Fractio	ns				
TRH >C10-C16	%	83	70-130	Pass	
LCS - % Recovery					
Heavy Metals					
Arsenic	%	97	80-120	Pass	
Cadmium	%	93	80-120	Pass	
Chromium	%	95	80-120	Pass	
Copper	%	95	80-120	Pass	
Lead	%	94	80-120	Pass	
Mercury	%	88	75-125	Pass	
Nickel	%	95	80-120	Pass	
Zinc	%	92	80-120	Pass	



_		QA					Acceptance	Pass	Qualifying
Test	Lab Sample ID	Source	Units	Result 1			Limits	Limits	Code
Spike - % Recovery				I	T T		T		
Total Recoverable Hydrocarbons -				Result 1				_	
TRH C6-C9	S15-No20057	NCP	%	77			70-130	Pass	
Spike - % Recovery				I	1		T		
BTEX	T			Result 1				_	
Benzene	S15-No20057	NCP	%	97			70-130	Pass	
Toluene	S15-No20057	NCP	%	96			70-130	Pass	
Ethylbenzene	S15-No20057	NCP	%	93			70-130	Pass	
m&p-Xylenes	S15-No20057	NCP	%	92			70-130	Pass	
o-Xylene	S15-No20057	NCP	%	94			70-130	Pass	
Xylenes - Total	S15-No20057	NCP	%	93			70-130	Pass	
Spike - % Recovery				T	1		T		
Total Recoverable Hydrocarbons -	2013 NEPM Fract	ions		Result 1					
TRH C6-C10	S15-No20057	NCP	%	81			70-130	Pass	
Spike - % Recovery				T	T T		1		
Volatile Organics	Г			Result 1					
Naphthalene	S15-No20057	NCP	%	95			70-130	Pass	
Spike - % Recovery					, , ,		,		
Heavy Metals				Result 1					
Arsenic	M15-No17785	NCP	%	102			75-125	Pass	
Cadmium	M15-No17785	NCP	%	95			75-125	Pass	
Chromium	M15-No17785	NCP	%	96			75-125	Pass	
Copper	M15-No17785	NCP	%	95			75-125	Pass	
Lead	M15-No17785	NCP	%	94			75-125	Pass	
Mercury	M15-No17785	NCP	%	98			70-130	Pass	
Nickel	M15-No17785	NCP	%	77			75-125	Pass	
Zinc	M15-No17785	NCP	%	93			75-125	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons -	1999 NEPM Fract	ions		Result 1	Result 2	RPD			
TRH C6-C9	S15-No20054	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
ВТЕХ				Result 1	Result 2	RPD			
Benzene	S15-No20054	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	S15-No20054	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	S15-No20054	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	S15-No20054	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	S15-No20054	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total	S15-No20054	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
				1 0.000					
Duplicate				10.000					
Duplicate Total Recoverable Hydrocarbons -	2013 NEPM Fract	ions		Result 1	Result 2	RPD			
_	2013 NEPM Fract S15-No20054		mg/L		Result 2	RPD <1	30%	Pass	
Total Recoverable Hydrocarbons - TRH C6-C10		ions NCP	mg/L	Result 1			30%	Pass	
Total Recoverable Hydrocarbons - TRH C6-C10 Duplicate			mg/L	Result 1 < 0.02	Result 2 < 0.02	<1	30%	Pass	
Total Recoverable Hydrocarbons - TRH C6-C10		NCP		Result 1	Result 2		30%	Pass	
Total Recoverable Hydrocarbons - TRH C6-C10 Duplicate Volatile Organics	S15-No20054		mg/L	Result 1 < 0.02 Result 1	Result 2 < 0.02	<1 RPD			
Total Recoverable Hydrocarbons - TRH C6-C10 Duplicate Volatile Organics Naphthalene	S15-No20054	NCP		Result 1 < 0.02 Result 1	Result 2 < 0.02	<1 RPD			
Total Recoverable Hydrocarbons - TRH C6-C10 Duplicate Volatile Organics Naphthalene Duplicate	S15-No20054 S15-No20054	NCP	mg/L	Result 1 < 0.02 Result 1 < 0.01	Result 2 < 0.02 Result 2 < 0.01	<1 RPD <1			
Total Recoverable Hydrocarbons - TRH C6-C10 Duplicate Volatile Organics Naphthalene Duplicate Heavy Metals	S15-No20054	NCP NCP	mg/L	Result 1 < 0.02 Result 1 < 0.01 Result 1	Result 2 < 0.02 Result 2 < 0.01 Result 2	<1 RPD <1 RPD	30%	Pass	
Total Recoverable Hydrocarbons - TRH C6-C10 Duplicate Volatile Organics Naphthalene Duplicate Heavy Metals Arsenic Cadmium	S15-No20054 S15-No20054 M15-No17785 M15-No17785	NCP NCP NCP	mg/L mg/L	Result 1 < 0.02 Result 1 < 0.01 Result 1 0.004 < 0.0002	Result 2 < 0.02 Result 2 < 0.01 Result 2 0.004 < 0.0002	<1 RPD <1 RPD 12 <1	30% 30% 30%	Pass Pass Pass	
Total Recoverable Hydrocarbons - TRH C6-C10 Duplicate Volatile Organics Naphthalene Duplicate Heavy Metals Arsenic Cadmium Chromium	S15-No20054 S15-No20054 M15-No17785 M15-No17785 M15-No17785	NCP NCP NCP NCP NCP	mg/L mg/L mg/L	Result 1 < 0.02 Result 1 < 0.01 Result 1 0.004 < 0.0002 0.013	Result 2 < 0.02 Result 2 < 0.01 Result 2 0.004 < 0.0002 0.013	<1 RPD <1 RPD 12 <1 2.0	30% 30% 30% 30%	Pass Pass Pass Pass	
Total Recoverable Hydrocarbons - TRH C6-C10 Duplicate Volatile Organics Naphthalene Duplicate Heavy Metals Arsenic Cadmium Chromium Copper	S15-No20054 S15-No20054 M15-No17785 M15-No17785 M15-No17785 M15-No17785	NCP NCP NCP NCP NCP NCP	mg/L mg/L mg/L mg/L	Result 1 < 0.02 Result 1 < 0.01 Result 1 0.004 < 0.0002 0.013 0.003	Result 2 < 0.02 Result 2 < 0.01 Result 2 0.004 < 0.0002 0.013 0.003	<1 RPD <1 RPD 12 <1 2.0 13	30% 30% 30% 30% 30%	Pass Pass Pass Pass Pass	
Total Recoverable Hydrocarbons - TRH C6-C10 Duplicate Volatile Organics Naphthalene Duplicate Heavy Metals Arsenic Cadmium Chromium Copper Lead	S15-No20054 S15-No20054 M15-No17785 M15-No17785 M15-No17785 M15-No17785	NCP NCP NCP NCP NCP NCP NCP NCP	mg/L mg/L mg/L mg/L mg/L	Result 1 < 0.02 Result 1 < 0.01 Result 1 0.004 < 0.0002 0.013 0.003 < 0.001	Result 2 < 0.02 Result 2 < 0.01 Result 2 0.004 < 0.0002 0.013 0.003 < 0.001	<1 RPD <1 RPD 12 <1 2.0 13 <1	30% 30% 30% 30% 30% 30%	Pass Pass Pass Pass Pass Pass Pass	
Total Recoverable Hydrocarbons - TRH C6-C10 Duplicate Volatile Organics Naphthalene Duplicate Heavy Metals Arsenic Cadmium Chromium Copper	S15-No20054 S15-No20054 M15-No17785 M15-No17785 M15-No17785 M15-No17785	NCP NCP NCP NCP NCP NCP	mg/L mg/L mg/L mg/L	Result 1 < 0.02 Result 1 < 0.01 Result 1 0.004 < 0.0002 0.013 0.003	Result 2 < 0.02 Result 2 < 0.01 Result 2 0.004 < 0.0002 0.013 0.003	<1 RPD <1 RPD 12 <1 2.0 13	30% 30% 30% 30% 30%	Pass Pass Pass Pass 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 Yes Samples received within HoldingTime Yes Some samples have been subcontracted No

Qualifier Codes/Comments

Code Description

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).

N01

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.

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. N04

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 N07

Authorised By

N02

Charl Du Preez Analytical Services Manager Emily Rosenberg Senior Analyst-Metal (VIC) Ryan Hamilton Senior Analyst-Organic (NSW) Ryan Hamilton Senior Analyst-Volatile (NSW)



Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

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

Uncertainty data is available on request

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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 1 of [0212

	0	Consigning	z Office:				
CC	ffey 🦠			Locke +	Mobile: 1406	1193 Email	: MATTHEW.LOCKE @coffey.com : ALEX. RUCTTINGER @coffey.com st Section
	iio y	Invoices to);	Alex RANT	Phone:	Email	: ALEX . RUCTINGER @coffey.com
Project I	10: 4E07 LCOV 25554 Task 1	No:		Ruc	tinu el	Analysis Reque	st Section
Project I	Name: DOOLEYS LIDCOME Labor	ratory:			J	XXV//	//////////
Sampler	's Name: TO Project	ect Manager: Mou	itt Locke		X	XT / / /	/////////
Special I	nstructions: Email LOC to	matthew	locke a	coffey. com	N. X. X.		'///////
Relevant	agreements Eurofins COF_ENAUABTF00952AA_MSA1	, ALS COF_ENAUABT	F00952AA_MSA2 and SG	S COF_ENAUABTF00952A	IA MSA3	<u> </u>	//////
Lab No.	Sample tO	Sample Date	Matrix Time (Soiletc)	1 ''	T-A-T specify)	9////	NOTES
	13HO/m 0.05-0.2m	23/11	5011	JartBug			
	BH01 = 0 5-0.6m	lı	11	Jar - Bag			
	B401- 1-0-1.45	11	71	Sar			
		1 me					
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			7)				
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				-			
-	The state of the s						
	RELINQUISHED BY			RECEIV	/ED BY	Sample Re	celpt Advice: (Lab Use Only)
Name:	+ our Date: 24/11/1	15 >	Name: SiaMal	C 200	Date: 24/11/15	All Sample	s Recleved in Good Condition
	invironments Time:		Company: EPM	25 00	Time: 16:05	All Docum	entation is In Proper Order
Name:	Date:	•	Name: Sigma	K 0/2	Time: 16:05 Date: 27 (11 1/5		eceived Properly Chilled
Compar	ny: Time:		Company: BFMG	25	Time: 11-26 9/4	Lab. Ref/B	atch No.
	ner Type Preservation Codes: P - Plastic, G- Glaphuric At reserved, I - Ice, ST - Sodium Thiosul				rved, C - Hydrochloric Acid 1 se	erved,	480822

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

	- 7		T .	
Page		_of _		

0212

		Consigning	g Office:					
CO	ffey	Report Re	sults to: Matt	Locke +	Mobile:	9406 119:	3 Email: MATTHELI. 2 Email: ALEX. RUCT	LOCKE @coffey.com
-		Invoices to	0:	Alex R	Phone:		Email: ALEX, RKCT	LINGER @coffey.com
Project N	10: 4E07 LLOV 25554 T	Task No:		R	ucting er		Analysis Request Section	
Project N	lame: DOOLEYS LIDCOME L				J	//	7///////	7///
Sampler'	s Name: TO P	Project Manager: Ma	att Lockt	2		///	1////////	///
Special Ir	nstructions: Email LOL to	matthew	locke a	coffey co	em	////	1////////	///
Relevant	agreements. Eurofins COF_ENAUABTF00952AA_M	ASA1, ALS COF ENAUABT	(F00952AA_MSA2 and S/	GS COF_ENAUABTF0	0952AA_MSA3	////	/////////	//
Lab No.	Sample ID	Sample Date	Matrix Time (Soiletc)	Container Type 8 Preservative*		11/1/		NOTES
	BHO1- 0.05-0.2m	23//	5011	Jar + Bug				
	BHOL- 0.5-0.6m	ti	11	Jar + Bug				
	BH01- 1-0-1.45	IX	- 11	Jan				
		0.00						
								,
	RELINQUISHED BY				ECEIVED BY		Sample Receipt Advice: (Lab Use C	Only)
Name:	+ on Date: 24/1	1115	Name: Stama	C ext	Date: 2	24/4/1	All Samples Recieved in Good Cond	lition \square
Coffey Er	nvironments Time:		Name: Siamal Company: EFM	5 00	Time: ((All Documentation is in Proper Orde	
Name:	Date:	→	Name:		Date:		Samples Received Properly Chilled	er 🔲
Company	v: Time:		Company:		Time:		Lab. Ref/Batch No.	er 🗆

Sample Receipt 1 Syd

Sample Receipt 1 Syd From:

Tuesday, 24 November 2015 4:56 PM Alex Ructtinger Sent: <u>1</u>0;

Matthew_Locke@coffey.com; EnviroSampleNSW Dooleys Lidcome Dooleys Lidcome GEOTLCOV25554.pdf **Subject:** ü

Attachments:

Hi Alex & Matt,

Could you provide analysis for the above project received today, thank you gentlemen.

Ellen

Sample Receipt 1 Syd

Eurofins | mgt

Unit F3, Parkview Building 16 Mars Road

LANE COVE WEST NSW 2066

AUSTRALIA

Phone: +61299008400 Fax:+61294202977

: sample syd 1@eurofins.com.au Email

Website: environment.eurofins.com.au

Eurofins | mgt add Illicit Drug analysis to our Brisbane Laboratory to assist the clean-up of clandestine drug labs in Australia & New Zealand. Additionally PFBA added to PFASs analysis - for more information click <u>here</u>



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Brisbane 1/21 Smallwood Place Murarrie QLD 4172 Phone: +61 7 3902 4600 NATA # 1261 Site # 20794

Sample Receipt Advice

Coffey Geotechnics Pty Ltd Chatswood Company name:

Contact name: Matthew Locke

Project name: DOOLEYS LIDCOME Project ID: GEOTLCOV25554 COC number: Not provided

Turn around time: 5 Day

Nov 25, 2015 11:26 AM Date/Time received:

Eurofins | mgt reference: 480822

Sample information

- \mathbf{V} A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- \mathbf{V} Sample Temperature of a random sample selected from the batch as recorded by Eurofins | mgt Sample Receipt: 12.8 degrees Celsius.
- \mathbf{V} All samples have been received as described on the above COC.
- \square COC has been completed correctly.
- \square Attempt to chill was evident.
- \mathbf{V} Appropriately preserved sample containers have been used.
- \mathbf{V} All samples were received in good condition.
- \square Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- \mathbf{V} Appropriate sample containers have been used.
- \boxtimes Some samples have been subcontracted.
- Custody Seals intact (if used). N/A

Contact notes

If you have any questions with respect to these samples please contact:

Charl Du Preez on Phone: +61 (2) 9900 8400 or by e.mail: charldupreez@eurofins.com.au

Results will be delivered electronically via e.mail to Matthew Locke - Matthew_Locke@coffey.com.

Note: A copy of these results will also be delivered to the general Coffey Geotechnics Pty Ltd Chatswood email address.





Coffey Geotechnics Pty Ltd Chatswood Level 18, Tower B, Citadel Tower 799 Pacific Highway Chatswood NSW 2067





Certificate of Analysis

NATA Accredited Accreditation Number 1261 Site Number 1254

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

Attention: Matthew Locke

Report 480822-S

Project name DOOLEYS LIDCOME
Project ID GEOTLCOV25554
Received Date Nov 25, 2015

Client Sample ID Sample Matrix			BH01_0.5-0.6m	BH01_1.0- 1.45m Soil
·				
Eurofins mgt Sample No.			S15-No20691	S15-No20692
Date Sampled			Nov 23, 2015	Nov 23, 2015
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons - 1999 NEPM	Fractions			
TRH C6-C9	20	mg/kg	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	< 50	< 50
ВТЕХ				
Benzene	0.1	mg/kg	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	126	113
Total Recoverable Hydrocarbons - 2013 NEPM	Fractions			
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20
TRH C6-C10 less BTEX (F1)N04	20	mg/kg	< 20	< 20
TRH >C10-C16 less Naphthalene (F2)N01	50	mg/kg	< 50	< 50
Polycyclic Aromatic Hydrocarbons				
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5



Client Sample ID			BH01_0.5-0.6m	1
Sample Matrix			Soil	Soil
Eurofins mgt Sample No.			S15-No20691	S15-No20692
Date Sampled			Nov 23, 2015	Nov 23, 2015
Test/Reference	LOR	Unit		
Polycyclic Aromatic Hydrocarbons				
Naphthalene	0.5	mg/kg	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	98	89
p-Terphenyl-d14 (surr.)	1	%	118	110
Organochlorine Pesticides	<u>.</u>			
Chlordanes - Total	0.1	mg/kg	< 0.1	-
4.4'-DDD	0.05	mg/kg	< 0.05	-
4.4'-DDE	0.05	mg/kg	< 0.05	-
4.4'-DDT	0.05	mg/kg	< 0.05	-
a-BHC	0.05	mg/kg	< 0.05	-
Aldrin	0.05	mg/kg	< 0.05	-
b-BHC	0.05	mg/kg	< 0.05	-
d-BHC	0.05	mg/kg	< 0.05	-
Dieldrin	0.05	mg/kg	< 0.05	-
Endosulfan I	0.05	mg/kg	< 0.05	-
Endosulfan II	0.05	mg/kg	< 0.05	_
Endosulfan sulphate	0.05	mg/kg	< 0.05	_
Endrin	0.05	mg/kg	< 0.05	-
Endrin aldehyde	0.05	mg/kg	< 0.05	-
Endrin ketone	0.05	mg/kg	< 0.05	-
g-BHC (Lindane)	0.05	mg/kg	< 0.05	-
Heptachlor	0.05	mg/kg	< 0.05	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	-
Methoxychlor	0.2	mg/kg	< 0.2	-
Toxaphene	1	mg/kg	< 1	-
Dibutylchlorendate (surr.)	1	%	72	-
Tetrachloro-m-xylene (surr.)	1	%	102	-
Total Recoverable Hydrocarbons - 2013 N	IEPM Fractions			
TRH >C10-C16	50	mg/kg	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100
Heavy Metals		. 55		
Arsenic	2	mg/kg	9.1	6.6
Cadmium	0.4	mg/kg	< 0.4	< 0.4
Chromium	5	mg/kg	15	< 5
Copper	5	mg/kg	20	24
Lead	5	mg/kg	15	9.0
Mercury	0.05	mg/kg	< 0.05	< 0.05
Nickel	5	mg/kg	< 5	< 5
Zinc	5	mg/kg	22	23
	1 -	פייש.		
% Moisture	0.1	%	13	14

Report Number: 480822-S



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 (regarding both quality and NATA accreditation).

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
Eurofins mgt Suite B4			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Nov 26, 2015	14 Day
- Method: TRH C6-C36 - LTM-ORG-2010			
BTEX	Sydney	Nov 26, 2015	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Nov 26, 2015	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Polycyclic Aromatic Hydrocarbons	Sydney	Nov 26, 2015	14 Day
- Method: E007 Polyaromatic Hydrocarbons (PAH)			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Nov 26, 2015	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Organochlorine Pesticides	Sydney	Nov 26, 2015	14 Day
- Method: E013 Organochlorine Pesticides (OC)			
Metals M8	Sydney	Nov 26, 2015	28 Day
- Method: LTM-MET-3040_R0 TOTAL AND DISSOLVED METALS AND MERCURY IN WATERS BY ICP-MS			
% Moisture	Sydney	Nov 25, 2015	14 Day

⁻ Method: LTM-GEN-7080 Moisture

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com.au web : www.eurofins.com.au

Melbourne 3-5 Kingston Town Close Oakleigh VIC 3166 Phone: +61 3 8564 5000 NATA # 1261 Site # 1254 & 14271 Sydney Unit F3, Building F 16 Mars Road Lane Cove West NSW 2066 Phone: +61 2 9900 8400 NATA # 1261 Site # 18217

Brisbane 1/21 Smallwood Place Murarrie QLD 4172 Phone : +61 7 3902 4600 NATA # 1261 Site # 20794

Company Name: Coffey Geotechnics Pty Ltd Chatswood Order No.: Received: Nov 25, 2015 11:26 AM

Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway Report #: 480822 Due: Dec 2, 2015

Chatswood Phone: +61 2 9406 1000 Priority: 5 Day
NSW 2067 Fax: +61 2 9406 1002 Contact Name: Matthew Locke

NSW 2067 Fax: +61 2 9406 1002 Contact

Project Name: DOOLEYS LIDCOME
Project ID: GEOTLCOV25554

Eurofins | mgt Client Manager: Charl Du Preez

		Sample Detail			Asbestos Absence /Presence	HOLD	Organochlorine Pesticides	Metals M8	Moisture Set	Eurofins mgt Suite B4
Laboratory who	ere analysis is co	onducted								
	oratory - NATA S		271							
	tory - NATA Site				Х	Х	Х	Х	Х	Х
Brisbane Labo	ratory - NATA Si	te # 20794								
External Labor	1 -									
Sample ID	Sample Date	Sampling Time	Matrix	LAB ID						
BH01_0.05- 0.2m	Nov 23, 2015		Soil	S15-No20690		Х				
BH01_0.5- 0.6m	Nov 23, 2015		Soil	S15-No20691	Х		Х	Х	Х	Х
BH01_1.0- 1.45m	Nov 23, 2015		Soil	S15-No20692				Х	Х	Х



Internal Quality Control Review and Glossary

General

- 1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
- 2. All soil results are reported on a dry basis, unless otherwise stated.
- 3. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
- 4. Results are uncorrected for matrix spikes or surrogate recoveries
- 5. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise
- 6. Samples were analysed on an 'as received' basis. 7. 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.

**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

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.

Batch Duplicate A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.

Batch SPIKE Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.

USEPA United States Environmental Protection Agency

APHA American Public Health Association

ASLP Australian Standard Leaching Procedure (AS4439.3)

TCLP Toxicity Characteristic Leaching Procedure

COC Chain of Custody

SRA Sample Receipt Advice

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 50-150% - Phenols 20-130%.

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, Toxophene & Chlordane are not added to the LCS.
- 4. Organochlorine Pesticide analysis where reporting Spike data. Toxophene is not added to the Spike.
- 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 Arochlor 1260 in Matrix Spikes and LCS's.
- 9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
- $10. \ \ Duplicate \ RPD's \ are \ calculated \ from \ raw \ analytical \ data \ thus \ it \ is \ possible \ to \ have \ two \ sets \ of \ data.$

Report Number: 480822-S



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					
втех					
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		120			
Polycyclic Aromatic Hydrocarbons		T T			
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&i)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		< 0.5	0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5	0.5	Pass	
	mg/kg				
Fluoranthene Fluorene	mg/kg	< 0.5	0.5	Pass	
	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		0.4	0.4	D	
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	Oode
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	19/1.9			1 466	
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	į ilig/ikg	100	100	1 433	
Heavy Metals		T T			
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	< 0.05	0.05	Pass	
Nickel	mg/kg	< 5	5	Pass	
Zinc	mg/kg	< 5	5	Pass	
LCS - % Recovery	IIIg/kg	<3		Fass	
Total Recoverable Hydrocarbons - 1999 NEPM Fractions		T T	T		
TRH C6-C9	%	97	70-130	Pass	
TRH C10-C14	%	87	70-130	Pass	
LCS - % Recovery	70	01	70-130	1 433	
BTEX					
Benzene	%	101	70-130	Pass	
Toluene	%	96	70-130	Pass	
Ethylbenzene	%	98	70-130	Pass	
m&p-Xylenes	%	103	70-130	Pass	
o-Xylene	%	105	70-130	Pass	
Xylenes - Total	%	104	70-130	Pass	
LCS - % Recovery	70	104	70-130	1 433	
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
Naphthalene					
	%	109	70-130	Pass	
· ·	%	109	70-130 70-130	Pass	
TRH C6-C10	%	109 99	70-130 70-130	Pass Pass	
TRH C6-C10 LCS - % Recovery					
TRH C6-C10 LCS - % Recovery Polycyclic Aromatic Hydrocarbons	%	99	70-130	Pass	
TRH C6-C10 LCS - % Recovery Polycyclic Aromatic Hydrocarbons Acenaphthene	%	107	70-130	Pass Pass	
TRH C6-C10 LCS - % Recovery Polycyclic Aromatic Hydrocarbons Acenaphthene Acenaphthylene	% % %	99 107 101	70-130 70-130 70-130	Pass Pass Pass	
TRH C6-C10 LCS - % Recovery Polycyclic Aromatic Hydrocarbons Acenaphthene Acenaphthylene Anthracene	% % %	99 107 101 104	70-130 70-130 70-130 70-130	Pass Pass Pass Pass	
TRH C6-C10 LCS - % Recovery Polycyclic Aromatic Hydrocarbons Acenaphthene Acenaphthylene Anthracene Benz(a)anthracene	% % % %	107 101 104 95	70-130 70-130 70-130 70-130 70-130	Pass Pass Pass Pass Pass	
TRH C6-C10 LCS - % Recovery Polycyclic Aromatic Hydrocarbons Acenaphthene Acenaphthylene Anthracene Benz(a)anthracene Benzo(a)pyrene	% % % % %	99 107 101 104 95 102	70-130 70-130 70-130 70-130 70-130 70-130	Pass Pass Pass Pass Pass Pass	
TRH C6-C10 LCS - % Recovery Polycyclic Aromatic Hydrocarbons Acenaphthene Acenaphthylene Anthracene Benz(a)anthracene Benzo(a)pyrene Benzo(b&j)fluoranthene	% % % % % %	99 107 101 104 95 102 94	70-130 70-130 70-130 70-130 70-130 70-130 70-130	Pass Pass Pass Pass Pass Pass Pass	
TRH C6-C10 LCS - % Recovery Polycyclic Aromatic Hydrocarbons Acenaphthene Acenaphthylene Anthracene Benzo(a)anthracene Benzo(a)pyrene Benzo(b&j)fluoranthene Benzo(g.h.i)perylene	% % % % % % %	99 107 101 104 95 102 94 72	70-130 70-130 70-130 70-130 70-130 70-130 70-130 70-130	Pass Pass Pass Pass Pass Pass Pass Pass	
TRH C6-C10 LCS - % Recovery Polycyclic Aromatic Hydrocarbons Acenaphthene Acenaphthylene Anthracene Benz(a)anthracene Benzo(a)pyrene Benzo(b&j)fluoranthene Benzo(g.h.i)perylene Benzo(k)fluoranthene	% % % % % % %	99 107 101 104 95 102 94 72 114	70-130 70-130 70-130 70-130 70-130 70-130 70-130 70-130 70-130	Pass Pass Pass Pass Pass Pass Pass Pass	
TRH C6-C10 LCS - % Recovery Polycyclic Aromatic Hydrocarbons Acenaphthene Acenaphthylene Anthracene Benz(a)anthracene Benzo(a)pyrene Benzo(b&j)fluoranthene Benzo(g.h.i)perylene Benzo(k)ffluoranthene Chrysene	% % % % % % % % % %	99 107 101 104 95 102 94 72 114 107	70-130 70-130 70-130 70-130 70-130 70-130 70-130 70-130 70-130 70-130	Pass Pass Pass Pass Pass Pass Pass Pass	
TRH C6-C10 LCS - % Recovery Polycyclic Aromatic Hydrocarbons Acenaphthene Acenaphthylene Anthracene Benz(a)anthracene Benzo(a)pyrene Benzo(b&j)fluoranthene Benzo(g.h.i)perylene Benzo(k)fluoranthene Chrysene Dibenz(a.h)anthracene	% % % % % % % % % % % %	99 107 101 104 95 102 94 72 114 107 80	70-130 70-130 70-130 70-130 70-130 70-130 70-130 70-130 70-130 70-130 70-130	Pass Pass Pass Pass Pass Pass Pass Pass	
TRH C6-C10 LCS - % Recovery Polycyclic Aromatic Hydrocarbons Acenaphthene Acenaphthylene Anthracene Benz(a)anthracene Benzo(a)pyrene Benzo(b&j)fluoranthene Benzo(g.h.i)perylene Benzo(k)fluoranthene Chrysene Dibenz(a.h)anthracene Fluoranthene	% % % % % % % % % % % %	99 107 101 104 95 102 94 72 114 107 80 105	70-130 70-130 70-130 70-130 70-130 70-130 70-130 70-130 70-130 70-130 70-130 70-130	Pass Pass Pass Pass Pass Pass Pass Pass	
TRH C6-C10 LCS - % Recovery Polycyclic Aromatic Hydrocarbons Acenaphthene Acenaphthylene Anthracene Benz(a)anthracene Benzo(a)pyrene Benzo(b&j)fluoranthene Benzo(g.h.i)perylene Benzo(k)fluoranthene Chrysene Dibenz(a.h)anthracene	% % % % % % % % % % % %	99 107 101 104 95 102 94 72 114 107 80	70-130 70-130 70-130 70-130 70-130 70-130 70-130 70-130 70-130 70-130 70-130	Pass Pass Pass Pass Pass Pass Pass Pass	



Test			Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Phenanthrene			%	99		70-130	Pass	
Pyrene			%	107		70-130	Pass	
LCS - % Recovery								
Organochlorine Pesticides								
Chlordanes - Total			%	105		70-130	Pass	
4.4'-DDD			%	109		70-130	Pass	
4.4'-DDE			%	104		70-130	Pass	
4.4'-DDT			%	118		70-130	Pass	
a-BHC			%	114		70-130	Pass	
Aldrin			%	111		70-130	Pass	
b-BHC			%	119		70-130	Pass	
d-BHC			%	113		70-130	Pass	
Dieldrin			%	105		70-130	Pass	
Endosulfan I			%	107		70-130	Pass	
Endosulfan II			%	108		70-130	Pass	
Endosulfan sulphate			%	117		70-130	Pass	
Endrin			%	104		70-130	Pass	
Endrin aldehyde			%	115		70-130	Pass	
Endrin ketone			%	109		70-130	Pass	
g-BHC (Lindane)			%	109		70-130	Pass	
Heptachlor			%	124		70-130	Pass	
Heptachlor epoxide			%	107		70-130	Pass	
Hexachlorobenzene			%	108		70-130	Pass	
Methoxychlor			%	115		70-130	Pass	
LCS - % Recovery								
Total Recoverable Hydrocarbons -	2013 NEPM Fract	ions						
TRH >C10-C16			%	84		70-130	Pass	
LCS - % Recovery								
Heavy Metals								
Arsenic			%	99		70-130	Pass	
Cadmium			%	103		70-130	Pass	
Chromium			%	103		70-130	Pass	
Copper			%	107		70-130	Pass	
Lead			%	115		70-130	Pass	
Mercury			%	118		70-130	Pass	
Nickel			%	106		70-130	Pass	
Zinc			%	98		70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery								
Total Recoverable Hydrocarbons -	1999 NEPM Fract	ions		Result 1				
TRH C10-C14	S15-No20230	NCP	%	100		70-130	Pass	
Spike - % Recovery								
Polycyclic Aromatic Hydrocarbons	i .			Result 1				
Acenaphthene	S15-No19881	NCP	%	107		70-130	Pass	
Acenaphthylene	S15-No19881	NCP	%	104		70-130	Pass	
Anthracene	S15-No19881	NCP	%	103		70-130	Pass	
Benz(a)anthracene	S15-No19881	NCP	%	95		70-130	Pass	
Benzo(a)pyrene	S15-No19881	NCP	%	105		70-130	Pass	
Benzo(b&j)fluoranthene	S15-No19881	NCP	%	98		70-130	Pass	
Benzo(g.h.i)perylene	S15-No19881	NCP	%	80		70-130	Pass	
Benzo(k)fluoranthene	S15-No19881	NCP	%	114		70-130	Pass	
Chrysene	S15-No19881	NCP	%	106		70-130	Pass	
•								
Dibenz(a.h)anthracene	S15-No19881	NCP	%	86]	70-130	Pass	



Test	Lab Sample ID	QA Source	Units	Result 1	Acceptance Limits	Pass Limits	Qualifying Code
Fluorene	S15-No19881	NCP	%	103	70-130	Pass	
Indeno(1.2.3-cd)pyrene	S15-No19881	NCP	%	86	70-130	Pass	
Naphthalene	S15-No19881	NCP	%	106	70-130	Pass	
Phenanthrene	S15-No19881	NCP	%	101	70-130	Pass	
Pyrene	S15-No19881	NCP	%	108	70-130	Pass	
Spike - % Recovery							
Organochlorine Pesticides				Result 1			
Chlordanes - Total	S15-No20691	CP	%	101	70-130	Pass	
4.4'-DDD	S15-No20691	CP	%	110	70-130	Pass	
4.4'-DDE	S15-No20691	CP	%	101	70-130	Pass	
4.4'-DDT	S15-No20691	CP	%	102	70-130	Pass	
a-BHC	S15-No20691	CP	%	113	70-130	Pass	
Aldrin	S15-No20691	CP	%	103	70-130	Pass	
b-BHC	S15-No20691	CP	%	100	70-130	Pass	
d-BHC	S15-No20691	CP	%	103	70-130	Pass	
Dieldrin	S15-No20691	CP	%	103	70-130	Pass	
Endosulfan I	S15-No20691	CP	%	103	70-130	Pass	
Endosulfan II	S15-No20691	CP	%	105	70-130	Pass	
Endosulfan sulphate	S15-No20691	CP	%	109	70-130	Pass	
Endrin	S15-No20691	СР	%	100	70-130	Pass	
Endrin aldehyde	S15-No20691	СР	%	107	70-130	Pass	
Endrin ketone	S15-No20691	CP	%	109	70-130	Pass	
g-BHC (Lindane)	S15-No20691	CP	%	100	70-130	Pass	
Heptachlor	S15-No20691	CP	%	107	70-130	Pass	
Heptachlor epoxide	S15-No20691	CP	%	102	70-130	Pass	
Hexachlorobenzene	S15-No20691	CP	%	104	70-130	Pass	
Methoxychlor	S15-No20691	СР	%	110	70-130	Pass	
Spike - % Recovery							
Total Recoverable Hydrocarbo	ns - 2013 NEPM Fract	ions		Result 1			
TRH >C10-C16	S15-No20230	NCP	%	97	70-130	Pass	
Spike - % Recovery							
Heavy Metals				Result 1			
Arsenic	S15-No20239	NCP	%	86	70-130	Pass	
Cadmium	S15-No20239	NCP	%	89	70-130	Pass	
Chromium	S15-No20239	NCP	%	83	70-130	Pass	
Copper	S15-No20239	NCP	%	92	70-130	Pass	
Lead	S15-No20239	NCP	%	94	70-130	Pass	
Mercury	S15-No20239	NCP	%	105	70-130	Pass	
Nickel	S15-No20239	NCP	%	90	70-130	Pass	
Zinc	S15-No20239	NCP	%	93	70-130	Pass	
Spike - % Recovery							
Total Recoverable Hydrocarbo	ns - 1999 NEPM Fract	ions		Result 1			
TRH C6-C9	S15-No20692	CP	%	95	70-130	Pass	
Spike - % Recovery							
BTEX				Result 1			
Benzene	S15-No20692	CP	%	86	70-130	Pass	
Toluene	S15-No20692	CP	%	114	70-130	Pass	
Ethylbenzene	S15-No20692	CP	%	115	70-130	Pass	
m&p-Xylenes	S15-No20692	СР	%	123	70-130	Pass	
o-Xylene	S15-No20692	CP	%	124	70-130	Pass	
Xylenes - Total	S15-No20692	CP	%	123	70-130	Pass	
	,						
Spike - % Recovery							
Spike - % Recovery Total Recoverable Hydrocarbo	ns - 2013 NEPM Fract	ions		Result 1			
Total Recoverable Hydrocarbo Naphthalene	ns - 2013 NEPM Fract S15-No20692	ions CP	%	Result 1	70-130	Pass	



Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons	- 1999 NEPM Fract	ions		Result 1	Result 2	RPD			
TRH C6-C9	S15-No20691 CP mg/kg < 20 < 20 <1 30% Pas					Pass			
TRH C10-C14	H C10-C14 S15-No18501 NCP mg/		mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S15-No18501	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S15-No18501	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
ВТЕХ				Result 1	Result 2	RPD			
Benzene	S15-No20691	СР	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S15-No20691	СР	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S15-No20691	СР	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S15-No20691	СР	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S15-No20691	СР	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	S15-No20691	СР	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate								1 3.00	
Total Recoverable Hydrocarbons	- 2013 NEPM Fract	tions		Result 1	Result 2	RPD			
Naphthalene	S15-No20691	СР	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S15-No20691	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate	<u> </u>	<u> </u>		120	120	1.	3070		
Polycyclic Aromatic Hydrocarbor	ns			Result 1	Result 2	RPD			
Acenaphthene	S15-No23310	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S15-No23310	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S15-No23310	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S15-No23310	NCP	mg/kg	1.1	1.1	4.0	30%	Pass	
Benzo(a)pyrene	S15-No23310	NCP	mg/kg	1.5	1.5	1.0	30%	Pass	
Benzo(b&i)fluoranthene	S15-No23310	NCP	mg/kg	1.3	1.2	10	30%	Pass	
Benzo(g.h.i)perylene	S15-No23310	NCP	mg/kg	0.9	0.9	1.0	30%	Pass	
Benzo(k)fluoranthene	S15-No23310	NCP	mg/kg	1.2	1.4	17	30%	Pass	
Chrysene	S15-No23310	NCP	mg/kg	1.2	1.2	2.0	30%	Pass	
Dibenz(a.h)anthracene	S15-No23310	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S15-No23310	NCP	mg/kg	2.4	2.3	4.0	30%	Pass	
Fluorene	S15-No23310	NCP	mg/kg	< 0.5	< 0.5	- 4.0 <1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S15-No23310	NCP	mg/kg	0.7	0.7	1.0	30%	Pass	
Naphthalene	S15-No23310	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene								_	
Pyrene	S15-No23310 S15-No23310	NCP NCP	mg/kg	1.3 2.4	1.3 2.3	3.0 4.0	30%	Pass Pass	
Duplicate	313-N023310	INCI	mg/kg	2.4	2.5	4.0	3070	1 033	
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S15-No19881	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	S15-No19881	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	S15-No19881	NCP		< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE 4.4'-DDT	S15-No19881	NCP	mg/kg mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	S15-No19881	NCP		< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S15-No19881	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-BHC	S15-No19881	NCP	mg/kg						
d-BHC		NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S15-No19881	NCP	mg/kg	< 0.05	< 0.05	<1 ~1	30%	Pass	
	S15-No19881	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	S15-No19881		mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan aulahata	S15-No19881	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	S15-No19881	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldahuda	S15-No19881	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
ndrin aldehyde S15-No19881 NCP mg/kg		< 0.05	< 0.05	<1	30%	Pass			
Endrin ketone	S15-No19881	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	



Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Heptachlor	S15-No19881	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	S15-No19881	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	S15-No19881	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	S15-No19881	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Toxaphene	S15-No19881	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarb	oons - 2013 NEPM Fract	ions		Result 1	Result 2	RPD			
TRH >C10-C16	S15-No18501	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S15-No18501	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40 S15-No18501		NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S15-No20234	NCP	mg/kg	26	17	41	30%	Fail	Q15
Cadmium	S15-No20234	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S15-No20234	NCP	mg/kg	12	11	6.0	30%	Pass	
Copper	S15-No20234	NCP	mg/kg	28	22	26	30%	Pass	
Lead	S15-No20234	NCP	mg/kg	66	48	31	30%	Fail	Q15
Mercury	S15-No20234	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Nickel	S15-No20234	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	S15-No20234	NCP	mg/kg	41	35	17	30%	Pass	
Duplicate									•
				Result 1	Result 2	RPD			
% Moisture	S15-No07138	NCP	%	24	23	2.0	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 Yes Samples received within HoldingTime Yes Some samples have been subcontracted No

Qualifier Codes/Comments

Code	Description

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).

N01

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.

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. N04

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 N07

Q15 The RPD reported passes Eurofins | mgt's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised By

N02

Charl Du Preez Analytical Services Manager Bob Symons Senior Analyst-Inorganic (NSW) Ivan Taylor Senior Analyst-Metal (NSW) Nibha Vaidva Senior Analyst-Asbestos (NSW) Ryan Hamilton Senior Analyst-Organic (NSW) Rvan Hamilton Senior Analyst-Volatile (NSW)



Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

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

Uncertainty data is available on request

Euroffins, Imgt shall not be liable for loss, cost, damages or expenses incurred by the client, or any other person or company, resulting from the use of any information or interpretation given in this report. In no case shall Euroffins I mgt be liable for consequential clausers in continuous transfers of the continuous transfers of the



Certificate of Analysis





NATA Accredited Accreditation Number 1261 Site Number 18217

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

Coffey Geotechnics Pty Ltd Chatswood Level 18, Tower B, Citadel Tower 799 Pacific Highway Chatswood NSW 2067

Dec 02, 2015

Attention: Matthew Locke
Report 480822-AID

Project Name DOOLEYS LIDCOME
Project ID GEOTLCOV25554
Received Date Nov 25, 2015

Methodology:

Date Reported

Asbestos ID

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. Bulk samples include building materials, soils and ores.

Subsampling Soil Samples

The whole sample submitted is first dried and then sieved through a 10mm sieve followed by a 2mm sieve. All fibrous matter viz 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) Iron ores - Sampling and Sample preparation procedures is employed. 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 asbestoscontaining material (ACM) The material is first examined and any fibres isolated and where required interfering organic fibres or matter may be removed by treating the sample for several hours at a temperature not exceeding 400 ± 30 °C. The resultant material is then ground and examined in accordance with AS 4964-2004.

Limit of Reporting

The nominal detection limit of the AS4964 method is around 0.01%. The examination of large sample sizes (at least 500 ml is recommended) may improve the likelihood of identifying asbestos material in the greater than 2 mm fraction. The NEPM screening level of 0.001% w/w asbestos in soil for FA and AF (i.e. non-bonded/friable asbestos) only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres. NOTE: NATA News, September 2011 – page 34, states, "Weighing of fibres is problematic and can lead to loss of fibres and potential exposure for laboratory analysts. To request laboratories to report information which is outside the scope of AS 4964-2004 and the scope of their accreditation is misleading and is most unwise" therefore such values reported are outside the scope of Eurofins | mgt NATA accreditation as designated by an asterisk.







NATA Accredited Accreditation Number 1261 Site Number 18217

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

Project Name DOOLEYS LIDCOME
Project ID GEOTLCOV25554

Date SampledNov 23, 2015Report480822-AID

Client S	sample ID	Eurofins mgt Sample No.	Date Sampled	Sample Description	Result		
BH01_0	0.5-0.6m	15-No20691	Nov 23, 2015	Approximate Sample 151g Sample consisted of: Red-brown fine grain soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres 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 (regarding both quality and NATA accreditation).

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.

DescriptionTesting SiteExtractedHolding TimeAsbestos - LTM-ASB-8020SydneyNov 25, 2015Indefinite



Coffey Geotechnics Pty Ltd Chatswood

Company Name:

Address:

ABN - 50 005 085 521 e.mail : EnviroSales@eurofins.com.au web : www.eurofins.com.au

Melbourne

3-5 Kingston Town Close Oakleigh VIC 3166 Phone: +61 3 8564 5000 NATA # 1261

Site # 1254 & 14271

16 Mars Road Lane Cove West NSW 2066 Phone: +61 2 9900 8400 NATA # 1261 Site # 18217

Sydney Unit F3, Building F

Received:

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone: +61 7 3902 4600
NATA # 1261 Site # 20794

Nov 25, 2015 11:26 AM

Level 18, Tower B, Citadel Tower 799 Pacific Highway Report #: 480822 Due: Dec 2, 2015

NSW 2067 Fax: +61 2 9406 1002 Contact Name: Matthew Locke

Order No.:

Project Name: DOOLEYS LIDCOME

Project ID: GEOTLCOV25554

Eurofins | mgt Client Manager: Charl Du Preez

	Sample Detail Laboratory where analysis is conducted						Organochlorine Pesticides	Metals M8	Moisture Set	Eurofins mgt Suite B4
	oratory - NATA S		271							
	atory - NATA Site				Х	Х	Х	Х	Х	Х
Brisbane Labo	ratory - NATA Si	te # 20794								
External Labor	atory									
Sample ID	Sample Date	Sampling Time	Matrix	LAB ID						
BH01_0.05- 0.2m										
BH01_0.5- 0.6m							Х	Х	Х	Х
BH01_1.0- 1.45m	Nov 23, 2015		Soil	S15-No20692				Х	Х	Х



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. 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

ΑF

Date Reported: Dec 02, 2015

Dry Where a moisture has been determined on a solid sample the result is expressed on a dry basis.

LOR Limit of Reporting.
COC Chain of custody
SRA Sample Receipt Advice

ISO International Stardards Organisation

AS Australian Standards

WA DOH Western Australia Department of Health

NOHSC National Occupational Health and Safety Commission

ACM Bonded asbestos-containing material means any material containing more than 1% asbestos and comprises asbestos-containing-material which is in sound condition,

although possibly broken or fragmented, and where the asbestos is bound in a matrix such as cement or resin. Common examples of ACM include but are not limited to: pipe and boiler insulation, sprayed-on fireproofing, troweled-on acoustical plaster, floor tile and mastic, floor linoleum, transite shingles, roofing materials, wall and ceiling plaster, ceiling tiles, and gasket materials. This term is restricted to material that cannot pass a 7 mm x 7 mm sieve. This sieve size is selected because it approximates the thickness of common asbestos cement sheeting and for fragments to be smaller than this would imply a high degree of damage and hence potential

for fibre release.

FA FA comprises friable asbestos material and includes severely weathered cement sheet, insulation products and woven asbestos material. This type of friable asbestos

is defined here as asbestos material that is in a degraded condition such that it can be broken or crumbled by hand pressure. This material is typically unbonded or

was previously bonded and is now significantly degraded (crumbling).

PACM Presumed Asbestos-Containing Material means thermal system insulation and surfacing material found in buildings, vessels, and vessel sections constructed no later

than 1980 that are assumed to contain greater than one percent asbestos but have not been sampled or analyzed to verify or negate the presence of asbestos.

Asbestos fines (AF) are defined as free fibres, or fibre bundles, smaller than 7mm. It is the free fibres which present the greatest risk to human health, although very

small fibres (< 5 microns in length) are not considered to be such a risk. AF also includes small fragments of bonded ACM that pass through a 7 mm x 7 mm sieve.

(Note that for bonded ACM fragments to pass through a 7 mm x 7 mm sieve implies a substantial degree of damage which increases the potential for fibre release.)

AC Asbestos cement means a mixture of cement and asbestos fibres (typically 90:10 ratios).

Report Number: 480822-AID



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	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code Description N/A Not applicable

Authorised by:

Nibha Vaidya Senior Analyst-Asbestos (NSW)

lift for

Glenn Jackson

National Operations Manager

Final Report - this report replaces any previously issued Report

- Indicates Not Requested

Date Reported: Dec 02, 2015

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

Uncertainty data is available on request

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page	1	_of	}		
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0213 CHATSWOOD Consigning Office: coffey Report Results to: Matt Locke Mobile: 0427202493 Email: MATTHEW. LOCKE Email: ALEXANDER - RUCTTINGE Coffey.com Project No: GEOT L COV 25554 AA Task No: **Analysis Request Section** Project Name: DOOLETS LIDLOMSE Laboratory: Sampler's Name: 10 Project Manager: Special Instructions: Email LOC to Mint Locke Relevant agreements: Eurofins COF_ENAUABTF00952AA_MSA1_ALS COF_ENAUABTF00952AA_MSA2_and SGS COF_ENAUABTF00952AA_MSA3 Matrix Sample Container Type & **NOTES** Date (Soil...etc) Preservative* (specify) Lab No. Sample ID BH05-0-05-0-2m 25/11 Seil Bag + Jar BH05_ 0-5-0-6m B405- 1-0-1-45m 14 1 € --- 1 RELINOUISHED BY RECEIVED BY Sample Receipt Advice: (Lab Use Only) > Name: Stangt Name: T-OUN Date: 25/11/15 Date: 25/11/15 All Samples Recieved in Good Condition Company: EFNST Coffey Environments Time: 12-18/14 Time: All Documentation is in Proper Order Name: Sea Ma Date: Samples Received Properly Chilled Time: Lab. Ref/Batch No. Company: 486936 Preservation Codes: P - Plastic, G- Glass Bottle, J - Glass Jar. V-1 Z - Ziplock Bag, N - Nitric Acid Preserved, C - Hydrochloric Acid. Served

S - Sulphuric Ab.... reserved, 1 - Ice, ST - Sodium Thiosulfate, NP - No Preservative, ... - Other Preservative

Enquiries Syd

From: **Enquiries Syd**

Sent: Wednesday, 25 November 2015 12:24 PM

Jo: Matthew Locke

Subject: **EnviroSampleNSW** Dooleys Lidcombe

Attachments: 25112015112124-0001.pdf

Hi Matthew

The samples for this job have arrived. Awaiting analysis.

Thanks

Siamak

Enquiries Syd

Eurofins | mgt

Unit F3, Parkview Building

16 Mars Road

LANE COVE WEST NSW 2066

AUSTRALIA

Phone : +61 2 9900 8400

Fax : +61 2 9420 2977

Email : EnquiriesSyd@eurofins.com.au

Website: http://environment.eurofins.com.au

Eurofins | mgt add Illicit Drug analysis to our Brisbane Laboratory to assist the clean-up of clandestine drug labs in Australia & New Zealand.

Additionally PFBA added to PFASs analysis - for more information see

http://www.eurofins.com.au/media/11795793/environote 1056 - new analytical developments.pdf

--Original Message-

From: PLAC01 [mailto:PLAC01@mgtlabmark.com.au]

Sent: Wednesday, 25 November 2015 12:21 PM

To: Enquiries Syd

Subject: Scan Data from PLAC01

Number of Images: 1

Attachment File Type: PDF

Device Location: Lane Cove Device Name: PLAC01

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page <u>1</u> of <u>1</u> 0213

	•	Consignii	ng Office:													
CO	ffey 🍑	Report R	esults to:	Matt	Locke		Mobile:				Em	nail: ///	TTHE	W. L	OCKE	@coffey.co
-		Invoices	to:				Phone:				Em	nail:AL	EXAM	DER.	RULTTI	NGER@coffey.co
Project f	10: GEOTL COUZS 554 AA Task N	lo:								Analy	sis Req					
	dame: DOOLEYS LIDCOMSELabora								/	//	//	77	//	//	///	//
		t Manager:						,	//	//	//	//	//	//	///	
Special I	nstructions: Email LOL to M	nutt L	ocke				1	/	//	//	//	//	//	//	///	
	agreements: Eurofins COF_ENAUABTF00952AA_MSA1;			_MSA2 and SG	S COF_ENAUABTF00	952AA_MSA3	1	//	//	//	//	//	//	//	//	
Lab No.	Sample ID	Sample Date	Time	Matrix (Soiletc)	Container Type & Preservative*	T-A-T (specify)	1/	//	//	//	//	//	//	//		NOTES
	BH05_0.05-0.2m	25/11		Soil	Bay + Jar		T									
	BH05_ 0.5-0.6m	((1.0											
	B405- 1-0-145m	((14	i t											
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	RELINQUISHED BY		T		RE	CEIVED BY		-		+	Sample	Receipt	: Advice:	(Lab Us	e Only)	
Name:	T-04 Date: 25/11/	15 -	Name:	Samak	Bec		Date: 25	11111			All Sam	ples Rec	ieved in	Good Co	ndition	
Coffey E	nvironments Time:		Compai	ny: EFNG			Time: 12	:18/14			All Docu	ımentat	ion is in I	Proper O	rder	
Name:	Date:	-	Name:				Date:				Samples	s Receiv	ed Prope	rly Chille	:d	
Compar	y: Time:		Compa	ny:			Time:				Lab. Ref	/Batch	No.			



ABN - 50 005 085 521 e.mail: EnviroSales@eurofins.com.au

web: www.eurofins.com.au

Melbourne Melbourne
3-5 Kingston Town Close
Oakleigh Vic 3166
Phone: +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271 Sydney Unit F3, Building F 16 Mars Road Lane Cove West NSW 2066 Phone: +61 2 9900 8400 NATA # 1261 Site # 18217

Brisbane 1/21 Smallwood Place Murarrie QLD 4172 Phone: +61 7 3902 4600 NATA # 1261 Site # 20794

Sample Receipt Advice

Coffey Geotechnics Pty Ltd Chatswood Company name:

Contact name: Matthew Locke

Project name: DOOLEYS LIDCOMBE Project ID: GEOTLCOV25554AA

COC number: Not provided

Turn around time: 5 Day

Nov 25, 2015 4:10 PM Date/Time received:

Eurofins | mgt reference: 480934

Sample information

- \mathbf{V} A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- \mathbf{V} Sample Temperature of a random sample selected from the batch as recorded by Eurofins | mgt Sample Receipt: 14.1 degrees Celsius.
- \mathbf{V} All samples have been received as described on the above COC.
- \square COC has been completed correctly.
- \square Attempt to chill was evident.
- \mathbf{V} Appropriately preserved sample containers have been used.
- \mathbf{V} All samples were received in good condition.
- \square Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- \mathbf{V} Appropriate sample containers have been used.
- \boxtimes Some samples have been subcontracted.
- Custody Seals intact (if used). N/A

Contact notes

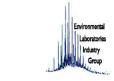
If you have any questions with respect to these samples please contact:

Charl Du Preez on Phone: +61 (2) 9900 8400 or by e.mail: charldupreez@eurofins.com.au

Results will be delivered electronically via e.mail to Matthew Locke - Matthew_Locke@coffey.com.

Note: A copy of these results will also be delivered to the general Coffey Geotechnics Pty Ltd Chatswood email address.







Coffey Geotechnics Pty Ltd Chatswood Level 18, Tower B, Citadel Tower 799 Pacific Highway Chatswood NSW 2067





Certificate of Analysis

NATA Accredited Accreditation Number 1261 Site Number 1254

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

Attention: Matthew Locke

Report 480934-S

Project name DOOLEYS LIDCOMBE
Project ID GEOTLCOV25554AA
Received Date Nov 25, 2015

Client Sample ID			BH05_0.05-0.2	BH05_1.0-1.45
Sample Matrix			Soil	Soil
Eurofins mgt Sample No.			S15-No21703	S15-No21705
Date Sampled			Nov 25, 2015	Nov 25, 2015
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons - 1999 NEPM	Fractions	1		
TRH C6-C9	20	mg/kg	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20
TRH C15-C28	50	mg/kg	84	< 50
TRH C29-C36	50	mg/kg	290	< 50
TRH C10-36 (Total)	50	mg/kg	370	< 50
ВТЕХ				
Benzene	0.1	mg/kg	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	95	96
Total Recoverable Hydrocarbons - 2013 NEPM	Fractions			
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20
TRH C6-C10 less BTEX (F1)N04	20	mg/kg	< 20	< 20
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50
Polycyclic Aromatic Hydrocarbons				
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	1.3	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	1.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.9	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	1.0	< 0.5
Benzo(a)pyrene	0.5	mg/kg	1.0	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	1.0	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	1.0	< 0.5
Chrysene	0.5	mg/kg	1.0	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	2.4	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5



Client Sample ID			BH05_0.05-0.2	BH05_1.0-1.45
Sample Matrix			Soil	Soil
Eurofins mgt Sample No.			S15-No21703	S15-No21705
Date Sampled			Nov 25, 2015	Nov 25, 2015
Test/Reference	LOR	Unit		
Polycyclic Aromatic Hydrocarbons				
Naphthalene	0.5	mg/kg	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	1.5	< 0.5
Pyrene	0.5	mg/kg	2.5	< 0.5
Total PAH*	0.5	mg/kg	11	< 0.5
2-Fluorobiphenyl (surr.)	1	%	92	89
p-Terphenyl-d14 (surr.)	1	%	108	100
Organochlorine Pesticides	<u>'</u>			
Chlordanes - Total	0.1	mg/kg	< 0.1	-
4.4'-DDD	0.05	mg/kg	< 0.05	_
4.4'-DDE	0.05	mg/kg	< 0.05	-
4.4'-DDT	0.05	mg/kg	< 0.05	_
a-BHC	0.05	mg/kg	< 0.05	-
Aldrin	0.05	mg/kg	< 0.05	-
b-BHC	0.05	mg/kg	< 0.05	-
d-BHC	0.05	mg/kg	< 0.05	-
Dieldrin	0.05	mg/kg	< 0.05	-
Endosulfan I	0.05	mg/kg	< 0.05	-
Endosulfan II	0.05	mg/kg	< 0.05	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	-
Endrin	0.05	mg/kg	< 0.05	-
Endrin aldehyde	0.05	mg/kg	< 0.05	-
Endrin ketone	0.05	mg/kg	< 0.05	-
g-BHC (Lindane)	0.05	mg/kg	< 0.05	-
Heptachlor	0.05	mg/kg	< 0.05	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	-
Methoxychlor	0.2	mg/kg	< 0.2	-
Toxaphene	1	mg/kg	< 1	-
Dibutylchlorendate (surr.)	1	%	72	-
Tetrachloro-m-xylene (surr.)	1	%	78	-
Total Recoverable Hydrocarbons - 2013 NE	PM Fractions			
TRH >C10-C16	50	mg/kg	< 50	< 50
TRH >C16-C34	100	mg/kg	250	< 100
TRH >C34-C40	100	mg/kg	240	< 100
Heavy Metals				
Arsenic	2	mg/kg	2.3	< 2
Cadmium	0.4	mg/kg	< 0.4	< 0.4
Chromium	5	mg/kg	12	< 5
Copper	5	mg/kg	26	16
Lead	5	mg/kg	20	6.7
Mercury	0.05	mg/kg	0.06	< 0.05
Nickel	5	mg/kg	10	< 5
Zinc	5	mg/kg	41	24
	<u> </u>			
% Moisture	0.1	%	11	16



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 (regarding both quality and NATA accreditation).

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
Eurofins mgt Suite B4			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Nov 27, 2015	14 Day
- Method: TRH C6-C36 - LTM-ORG-2010			
BTEX	Sydney	Nov 27, 2015	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Nov 27, 2015	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Polycyclic Aromatic Hydrocarbons	Sydney	Nov 27, 2015	14 Day
- Method: E007 Polyaromatic Hydrocarbons (PAH)			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Nov 27, 2015	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Organochlorine Pesticides	Sydney	Nov 27, 2015	14 Day
- Method: E013 Organochlorine Pesticides (OC)			
Metals M8	Sydney	Nov 27, 2015	28 Day
- Method: LTM-MET-3040_R0 TOTAL AND DISSOLVED METALS AND MERCURY IN WATERS BY ICP-MS			
% Moisture	Sydney	Nov 26, 2015	14 Day

⁻ Method: LTM-GEN-7080 Moisture



Melbourne

3-5 Kingston Town Close Oakleigh VIC 3166 Phone: +61 3 8564 5000 NATA # 1261 Site # 1254 & 14271

Sydney Unit F3, Building F 16 Mars Road Lane Cove West NSW 2066 Phone: +61 2 9900 8400 NATA # 1261 Site # 18217

Brisbane 1/21 Smallwood Place Murarrie QLD 4172 Phone: +61 7 3902 4600 NATA # 1261 Site # 20794

ABN - 50 005 085 521 e.mail : EnviroSales@eurofins.com.au

web : www.eurofins.com.au

Company Name: Coffey Geotechnics Pty Ltd Chatswood

Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway

> Chatswood NSW 2067

DOOLEYS LIDCOMBE **Project Name:** Project ID: GEOTLCOV25554AA

Order No.:

Report #: 480934

Phone: +61 2 9406 1000 Fax: +61 2 9406 1002 Received:

Nov 25, 2015 4:10 PM

Due: Dec 2, 2015 Priority: 5 Day

Contact Name: Matthew Locke

Eurofins | mgt Client Manager: Charl Du Preez

		Sample Detail			Asbestos Absence /Presence	HOLD	Organochlorine Pesticides	Metals M8	Moisture Set	Eurofins mgt Suite B4
Laboratory whe	ere analysis is co	onducted								
Melbourne Lab	oratory - NATA S	Site # 1254 & 14	271							
Sydney Labora	tory - NATA Site	# 18217			Х	Х	Х	Х	Χ	Χ
Brisbane Labor	atory - NATA Sit	te # 20794								
External Labora	atory									
Sample ID	Sample ID Sample Date Sampling Matrix LAB ID									
BH05_0.05-0.2	Nov 25, 2015		Soil	S15-No21703	Х		Х	Х	Х	Х
BH05_0.5-0.6	Nov 25, 2015		Soil	S15-No21704		Х				
BH05_1.0-1.45	Nov 25, 2015		Soil	S15-No21705				Х	Χ	Χ

Eurofins | mgt Unit F3, Building F, 16 Mars Road, Lane Cove West, NSW, Australia, 2066 ABN: 50 005 085 521 Telephone: +61 2 9900 8400 Facsimile: +61 2 9420 2977

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Internal Quality Control Review and Glossary

General

- 1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
- 2. All soil results are reported on a dry basis, unless otherwise stated.
- 3. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
- 4. Results are uncorrected for matrix spikes or surrogate recoveries
- 5. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise
- 6. Samples were analysed on an 'as received' basis. 7. 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.

**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

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.

DuplicateA second piece of analysis from the same sample and reported in the same units as the result to show comparison.

Batch Duplicate A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.

Batch SPIKE Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.

USEPA United States Environmental Protection Agency

APHA American Public Health Association

ASLP Australian Standard Leaching Procedure (AS4439.3)

TCLP Toxicity Characteristic Leaching Procedure

COC Chain of Custody

SRA Sample Receipt Advice

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 quidelines 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 50-150% - Phenols 20-130%.

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, Toxophene & Chlordane are not added to the LCS.
- 4. Organochlorine Pesticide analysis where reporting Spike data. Toxophene is not added to the Spike.
- 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 Arochlor 1260 in Matrix Spikes and LCS's.
- 9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
- $10. \ \, \text{Duplicate RPD's are calculated from raw analytical data thus it is possible to have two sets of data}.$

Report Number: 480934-S



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					
втех					
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		120			
Polycyclic Aromatic Hydrocarbons		T T			
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&i)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		< 0.5	0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5	0.5	Pass	
	mg/kg				
Fluoranthene Fluorene	mg/kg	< 0.5	0.5	Pass	
	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		0.4	0.4	D	
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	Qualifying
Endrin ketone	mg/kg	< 0.05	0.05	Limits Pass	Code
g-BHC (Lindane)		< 0.05	0.05	Pass	
Heptachlor	mg/kg 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	< 0.05	0.03	Pass	
Toxaphene	mg/kg	< 1	1	Pass	
Method Blank	Hig/kg	<u> </u>		Fass	
Total Recoverable Hydrocarbons - 2013 NEPM Fractions		l l	T	Ι	
TRH >C10-C16	mg/kg	< 50	50	Pass	
TRH >C16-C34	mg/kg	< 100	100	Pass	
TRH >C16-C34		< 100	100	Pass	
	mg/kg	< 100	100	Pass	
Method Blank					
Heavy Metals		0		D	
Arsenic	mg/kg	< 2	2	Pass	
Charactives	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	< 0.05	0.05	Pass	
Nickel	mg/kg	< 5	5	Pass	
Zinc	mg/kg	< 5	5	Pass	
LCS - % Recovery				Γ	
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	1				
TRH C6-C9	%	112	70-130	Pass	
TRH C10-C14	%	107	70-130	Pass	
LCS - % Recovery		T	T	Г	
BTEX	1			_	
Benzene	%	96	70-130	Pass	
Toluene	%	115	70-130	Pass	
Ethylbenzene	%	119	70-130	Pass	
m&p-Xylenes	%	129	70-130	Pass	
o-Xylene	%	130	70-130	Pass	
Xylenes - Total	%	129	70-130	Pass	
LCS - % Recovery		T	T	Г	
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	1				
Naphthalene	%	109	70-130	Pass	
TRH C6-C10	%	114	70-130	Pass	
LCS - % Recovery		T T	<u> </u>		
Polycyclic Aromatic Hydrocarbons					
Acenaphthene	%	104	70-130	Pass	
Acenaphthylene	%	99	70-130	Pass	
Anthracene	%	98	70-130	Pass	
Benz(a)anthracene	%	91	70-130	Pass	
Benzo(a)pyrene	%	102	70-130	Pass	
Benzo(b&j)fluoranthene	%	98	70-130	Pass	
Benzo(g.h.i)perylene	%	93	70-130	Pass	
Benzo(k)fluoranthene	%	110	70-130	Pass	
Chrysene	%	103	70-130	Pass	
Dibenz(a.h)anthracene	%	94	70-130	Pass	
Fluoranthene	%	100	70-130	Pass	
Fluorene	%	101	70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	96	70-130	Pass	



Phenanthrene Pyrene							
Pyrene			%	97	70-130	Pass	
,			%	102	70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total			%	108	70-130	Pass	
4.4'-DDD			%	104	70-130	Pass	
4.4'-DDE			%	106	70-130	Pass	
4.4'-DDT			%	109	70-130	Pass	
a-BHC			%	103	70-130	Pass	
Aldrin			%	108	70-130	Pass	
b-BHC			%	100	70-130	Pass	
d-BHC			%	112	70-130	Pass	
Dieldrin			%	107	70-130	Pass	
Endosulfan I			%	107	70-130	Pass	
Endosulfan II			%	106	70-130	Pass	
Endosulfan sulphate			%	111	70-130	Pass	
Endrin			%	107	70-130	Pass	
Endrin aldehyde			<u> </u>	114	70-130	Pass	
Endrin ketone			%	106	70-130	Pass	
g-BHC (Lindane)			%	106	70-130	Pass	
Heptachlor			<u> </u>	107	70-130	Pass	
· ·			%			Pass	
Heptachlor epoxide				106	70-130		
Hexachlorobenzene Mathamahlar			%	100	70-130	Pass	
Methoxychlor			<u>%</u>	105	70-130	Pass	
LCS - % Recovery				T		Т	
Total Recoverable Hydrocarbons	- 2013 NEPM Fract	ions				_	
TRH >C10-C16			%	114	70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic			%	89	70-130	Pass	
Cadmium			%	92	70-130	Pass	
Chromium			%	91	70-130	Pass	
Copper			%	92	70-130	Pass	
Lead			%	96	70-130	Pass	
Mercury			%	96	70-130	Pass	
Nickel			%	92	70-130	Pass	
Zinc			%	86	70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1	Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery							
Total Recoverable Hydrocarbons -		ions		Result 1			
TRH C6-C9	S15-No21100	NCP	%	75	70-130	Pass	
TRH C10-C14	S15-No21164	NCP	%	99	70-130	Pass	
Spike - % Recovery							
BTEX				Result 1			
Benzene	S15-No21100	NCP	%	91	70-130	Pass	
Toluene	S15-No21100	NCP	%	86	70-130	Pass	
Ethylbenzene	S15-No21100	NCP	%	83	70-130	Pass	
m&p-Xylenes	S15-No21100	NCP	%	90	70-130	Pass	
o-Xylene	S15-No21100	NCP	%	90	70-130	Pass	
Xylenes - Total	S15-No21100	NCP	%	90	70-130	Pass	
Spike - % Recovery			,,,		, , , , , , , ,	. 400	
CP.II.C /U I COUVERY				Dec. II 4		T	
	- 2013 NFPM Fract	เดทร		I Result 1			
Total Recoverable Hydrocarbons · Naphthalene	- 2013 NEPM Fract S15-No21100	NCP	%	Result 1 82	70-130	Pass	



Test	Lab Sample ID	QA Source	Units	Result 1		ceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery						ļ		
Polycyclic Aromatic Hydrocar	bons			Result 1				
Acenaphthene	S15-No19835	NCP	%	112	7	70-130	Pass	
Acenaphthylene	S15-No19835	NCP	%	115	7	70-130	Pass	
Anthracene	S15-No19835	NCP	%	113	7	70-130	Pass	
Benz(a)anthracene	S15-No19835	NCP	%	98	7	70-130	Pass	
Benzo(a)pyrene	S15-No19835	NCP	%	108	7	70-130	Pass	
Benzo(b&j)fluoranthene	S15-No19835	NCP	%	124	7	70-130	Pass	
Benzo(g.h.i)perylene	S15-No19835	NCP	%	93	7	70-130	Pass	
Benzo(k)fluoranthene	S15-No19835	NCP	%	120	7	70-130	Pass	
Chrysene	S15-No19835	NCP	%	103	7	70-130	Pass	
Dibenz(a.h)anthracene	S15-No19835	NCP	%	109	7	70-130	Pass	
Fluoranthene	S15-No19835	NCP	%	101	7	70-130	Pass	
Fluorene	S15-No19835	NCP	%	113	7	70-130	Pass	
Indeno(1.2.3-cd)pyrene	S15-No19835	NCP	%	100	7	70-130	Pass	
Naphthalene	S15-No19835	NCP	%	111	7	70-130	Pass	
Phenanthrene	S15-No19835	NCP	%	103	7	70-130	Pass	
Pyrene	S15-No19835	NCP	%	104	7	70-130	Pass	
Spike - % Recovery								
Organochlorine Pesticides				Result 1				
Chlordanes - Total	S15-No23138	NCP	%	100	7	70-130	Pass	
4.4'-DDD	S15-No23138	NCP	%	115	7	70-130	Pass	
4.4'-DDE	S15-No23138	NCP	%	98	7	70-130	Pass	
4.4'-DDT	S15-No23138	NCP	%	85	7	70-130	Pass	
a-BHC	S15-No23138	NCP	%	99	7	70-130	Pass	
Aldrin	S15-No23138	NCP	%	92	7	70-130	Pass	
b-BHC	S15-No23138	NCP	%	85	7	70-130	Pass	
d-BHC	S15-No23138	NCP	%	100	7	70-130	Pass	
Dieldrin	S15-No23138	NCP	%	101	7	70-130	Pass	
Endosulfan I	S15-No23138	NCP	%	99	7	70-130	Pass	
Endosulfan II	S15-No23138	NCP	%	97	7	70-130	Pass	
Endosulfan sulphate	S15-No23138	NCP	%	101	7	70-130	Pass	
Endrin	S15-No23138	NCP	%	100	7	70-130	Pass	
Endrin aldehyde	S15-No23138	NCP	%	108	7	70-130	Pass	
Endrin ketone	S15-No23138	NCP	%	105	7	70-130	Pass	
g-BHC (Lindane)	S15-No23138	NCP	%	93	7	70-130	Pass	
Heptachlor	S15-No23138	NCP	%	106	7	70-130	Pass	
Heptachlor epoxide	S15-No23138	NCP	%	98	7	70-130	Pass	
Hexachlorobenzene	S15-No23138	NCP	%	95	7	70-130	Pass	
Methoxychlor	S15-No23138	NCP	%	99	7	70-130	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbo	ons - 2013 NEPM Fract	ions		Result 1				
TRH >C10-C16	S15-No21164	NCP	%	99	7	70-130	Pass	
Spike - % Recovery								
Heavy Metals				Result 1				
Arsenic	S15-No23436	NCP	%	83		70-130	Pass	
Cadmium	S15-No23436	NCP	%	92		70-130	Pass	
Chromium	S15-No23436	NCP	%	78		70-130	Pass	
Copper	S15-No23436	NCP	%	93		70-130	Pass	
Lead	S15-No23436	NCP	%	99		70-130	Pass	
Mercury	S15-No23436	NCP	%	98		70-130	Pass	
Nickel	S15-No23436	NCP	%	90		70-130	Pass	
Zinc	S15-No23436	NCP	%	96		70-130	Pass	



Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate					, , , , , , , , , , , , , , , , , , ,			ı	
Total Recoverable Hydrocarbo	ns - 1999 NEPM Fract	ions		Result 1	Result 2	RPD			
TRH C6-C9	S15-No21137	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate							1		
BTEX				Result 1	Result 2	RPD			
Benzene	S15-No21137	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S15-No21137	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S15-No21137	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S15-No21137	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S15-No21137	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	S15-No21137	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbo	ns - 2013 NEPM Fract	ions		Result 1	Result 2	RPD			
Naphthalene	S15-No21137	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S15-No21137	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S15-No23134	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	S15-No23134	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	S15-No23134	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	S15-No23134	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	S15-No23134	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S15-No23134	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-BHC	S15-No23134	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	S15-No23134	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S15-No23134	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	S15-No23134	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	S15-No23134	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	S15-No23134	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	S15-No23134	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	S15-No23134	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	S15-No23134	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-BHC (Lindane)	S15-No23134	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	S15-No23134	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	S15-No23134	NCP		< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	S15-No23134	NCP	mg/kg mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor		NCP			< 0.03		30%	Pass	
•	S15-No23134		mg/kg	< 0.2		<1			
Toxaphene	S15-No23134	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate User Metals				Daguit 4	Deeuk 0	DDD			
Heavy Metals	C45 N=04000	NOD		Result 1	Result 2	RPD	200/	F-:1	045
Arsenic	S15-No21082	NCP	mg/kg	8.7	5.8	41	30%	Fail	Q15
Cadmium	S15-No21082	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S15-No21082	NCP	mg/kg	22	19	12	30%	Pass	
Copper	S15-No21082	NCP	mg/kg	29	25	15	30%	Pass	0:-
Lead	S15-No21082	NCP	mg/kg	40	28	36	30%	Fail	Q15
Mercury	S15-No21082	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Nickel	S15-No21082	NCP	mg/kg	17	16	6.0	30%	Pass	
Zinc	S15-No21082	NCP	mg/kg	100	97	7.0	30%	Pass	
Duplicate					, ,		1		
		1		Result 1	Result 2	RPD			
% Moisture	S15-No15491	NCP	%	3.9	4.2	7.0	30%	Pass	



Duplicate												
Total Recoverable Hydrocarbons -	1999 NEPM Fract	ions		Result 1	Result 2	RPD						
TRH C10-C14	S15-No21705	CP	mg/kg	< 20	< 20	<1	30%	Pass				
TRH C15-C28	S15-No21705	CP	mg/kg	< 50	< 50	<1	30%	Pass				
TRH C29-C36	S15-No21705	CP	mg/kg	< 50	< 50	<1	30%	Pass				
Duplicate	Duplicate											
Polycyclic Aromatic Hydrocarbons Result 1 Result 2 RPD												
Acenaphthene	S15-No21705	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass				
Acenaphthylene	S15-No21705	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass				
Anthracene	S15-No21705	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass				
Benz(a)anthracene	S15-No21705	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass				
Benzo(a)pyrene	S15-No21705	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass				
Benzo(b&j)fluoranthene	S15-No21705	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass				
Benzo(g.h.i)perylene	S15-No21705	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass				
Benzo(k)fluoranthene	S15-No21705	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass				
Chrysene	S15-No21705	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass				
Dibenz(a.h)anthracene	S15-No21705	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass				
Fluoranthene	S15-No21705	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass				
Fluorene	S15-No21705	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass				
Indeno(1.2.3-cd)pyrene	S15-No21705	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass				
Naphthalene	S15-No21705	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass				
Phenanthrene	S15-No21705	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass				
Pyrene	S15-No21705	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass				
Duplicate												
Total Recoverable Hydrocarbons - 2013 NEPM Fractions Result 1 Result 2 RPD												
TRH >C10-C16	S15-No21705	CP	mg/kg	< 50	< 50	<1	30%	Pass				
TRH >C16-C34	S15-No21705	CP	mg/kg	< 100	< 100	<1	30%	Pass				
TRH >C34-C40	S15-No21705	CP	mg/kg	< 100	< 100	<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 Yes Samples received within HoldingTime Yes Some samples have been subcontracted No

Qualifier Codes/Comments

Code Description

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).

N01

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.

N02

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. N04

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 N07

The RPD reported passes Eurofins | mgt's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised By

Q15

Charl Du Preez Analytical Services Manager Bob Symons Senior Analyst-Inorganic (NSW) Ivan Taylor Senior Analyst-Metal (NSW) Nibha Vaidva Senior Analyst-Asbestos (NSW) Ryan Hamilton Senior Analyst-Organic (NSW) Rvan Hamilton Senior Analyst-Volatile (NSW)



Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

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

Uncertainty data is available on request

Eurofins, Imgt shall not be liable for loss, cost, damages or expenses incurred by the client, or any other person or company, resulting from the use of any information or interpretation given in this report. In no case shall Eurofins I mg be liable for consequential claims anges including, but not limited to, lost or ordition, among so find laure to meet deadlines and lost so routedoin arising from this report. This document shall be reported evece in full and art relates only to the interestset. Unless indicated otherwise, the tests were sindicated otherwise.

Report Number: 480934-S



Certificate of Analysis





NATA Accredited Accreditation Number 1261 Site Number 18217

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

Coffey Geotechnics Pty Ltd Chatswood Level 18, Tower B, Citadel Tower 799 Pacific Highway Chatswood NSW 2067

Attention: Matthew Locke
Report 480934-AID

Project Name DOOLEYS LIDCOMBE
Project ID GEOTLCOV25554AA

Received Date Nov 25, 2015 **Date Reported** Dec 02, 2015

Methodology:

Asbestos ID

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. Bulk samples include building materials, soils and ores.

Subsampling Soil Samples

The whole sample submitted is first dried and then sieved through a 10mm sieve followed by a 2mm sieve. All fibrous matter viz 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) Iron ores - Sampling and Sample preparation procedures is employed. 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 asbestoscontaining material (ACM) The material is first examined and any fibres isolated and where required interfering organic fibres or matter may be removed by treating the sample for several hours at a temperature not exceeding 400 ± 30 °C. The resultant material is then ground and examined in accordance with AS 4964-2004.

Limit of Reporting

The nominal detection limit of the AS4964 method is around 0.01%. The examination of large sample sizes (at least 500 ml is recommended) may improve the likelihood of identifying asbestos material in the greater than 2 mm fraction. The NEPM screening level of 0.001% w/w asbestos in soil for FA and AF (i.e. non-bonded/friable asbestos) only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres. NOTE: NATA News, September 2011 – page 34, states, "Weighing of fibres is problematic and can lead to loss of fibres and potential exposure for laboratory analysts. To request laboratories to report information which is outside the scope of AS 4964-2004 and the scope of their accreditation is misleading and is most unwise" therefore such values reported are outside the scope of Eurofins | mgt NATA accreditation as designated by an asterisk.







NATA Accredited Accreditation Number 1261 Site Number 18217

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

Project NameDOOLEYS LIDCOMBEProject IDGEOTLCOV25554AA

Date SampledNov 25, 2015Report480934-AID

Clien	t Sample ID	Eurofins mgt Sample No.	Date Sampled	Sample Description	Result
ВНО	5_0.05-0.2	15-No21703	Nov 25, 2015	Approximate Sample 122g	No asbestos detected. Organic fibre detected. No respirable fibres 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 (regarding both quality and NATA accreditation).

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.

DescriptionTesting SiteExtractedHolding TimeAsbestos - LTM-ASB-8020SydneyNov 26, 2015Indefinite



Address:

ABN - 50 005 085 521 e.mail : EnviroSales@eurofins.com.au web : www.eurofins.com.au

Melbourne

3-5 Kingston Town Close Oakleigh VIC 3166 Phone: +61 3 8564 5000 NATA # 1261 Site # 1254 & 14271 Sydney Unit F3, Building F 16 Mars Road Lane Cove West NSW 2066 Phone: +61 2 9900 8400

NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone: +61 7 3902 4600
NATA # 1261 Site # 20794

Company Name: Coffey Geotechnics Pty Ltd Chatswood Order No.: Received: Nov 25, 2015 4:10 PM

Level 18, Tower B, Citadel Tower 799 Pacific Highway Report #: 480934 Due: Dec 2, 2015

 Chatswood
 Phone:
 +61 2 9406 1000
 Priority:
 5 Day

 NSW 2067
 Fax:
 +61 2 9406 1002
 Contact Name:
 Matthew Locke

NSW 2067 Fax: +61 2 9406 1002 Contact Name: Mattnew Locke

Project Name: DOOLEYS LIDCOMBE
Project ID: GEOTLCOV25554AA

Eurofins | mgt Client Manager: Charl Du Preez

		Sample Detail			Asbestos Absence /Presence	HOLD	Organochlorine Pesticides	Metals M8	Moisture Set	Eurofins mgt Suite B4
Laboratory who	ere analysis is c	onducted								
Melbourne Lab	oratory - NATA	Site # 1254 & 14	271							
Sydney Labora	tory - NATA Site	# 18217			Х	Х	Х	Х	Х	Х
Brisbane Labor	ratory - NATA Si	te # 20794								
External Labora	atory									
Sample ID										
BH05_0.05-0.2	Nov 25, 2015		Soil	S15-No21703	Х		Х	Х	Х	Х
BH05_0.5-0.6						Х				
BH05_1.0-1.45	Nov 25, 2015		Soil	S15-No21705				Х	Х	Х



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. 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

ΑF

Date Reported: Dec 02, 2015

Dry Where a moisture has been determined on a solid sample the result is expressed on a dry basis.

LOR Limit of Reporting.
COC Chain of custody
SRA Sample Receipt Advice

ISO International Stardards Organisation

AS Australian Standards

WA DOH Western Australia Department of Health

NOHSC National Occupational Health and Safety Commission

ACM Bonded asbestos-containing material means any material containing more than 1% asbestos and comprises asbestos-containing-material which is in sound condition,

although possibly broken or fragmented, and where the asbestos is bound in a matrix such as cement or resin. Common examples of ACM include but are not limited to: pipe and boiler insulation, sprayed-on fireproofing, troweled-on acoustical plaster, floor tile and mastic, floor linoleum, transite shingles, roofing materials, wall and ceiling plaster, ceiling tiles, and gasket materials. This term is restricted to material that cannot pass a 7 mm x 7 mm sieve. This sieve size is selected because it approximates the thickness of common asbestos cement sheeting and for fragments to be smaller than this would imply a high degree of damage and hence potential

for fibre release.

FA FA comprises friable asbestos material and includes severely weathered cement sheet, insulation products and woven asbestos material. This type of friable asbestos

is defined here as asbestos material that is in a degraded condition such that it can be broken or crumbled by hand pressure. This material is typically unbonded or

was previously bonded and is now significantly degraded (crumbling).

PACM Presumed Asbestos-Containing Material means thermal system insulation and surfacing material found in buildings, vessels, and vessel sections constructed no later

than 1980 that are assumed to contain greater than one percent asbestos but have not been sampled or analyzed to verify or negate the presence of asbestos.

Asbestos fines (AF) are defined as free fibres, or fibre bundles, smaller than 7mm. It is the free fibres which present the greatest risk to human health, although very

small fibres (< 5 microns in length) are not considered to be such a risk. AF also includes small fragments of bonded ACM that pass through a 7 mm x 7 mm sieve.

(Note that for bonded ACM fragments to pass through a 7 mm x 7 mm sieve implies a substantial degree of damage which increases the potential for fibre release.)

AC Asbestos cement means a mixture of cement and asbestos fibres (typically 90:10 ratios).

Report Number: 480934-AID



Comments

Sample Integrity

N/A
Yes
No

Qualifier Codes/Comments

Code Description N/A Not applicable

Authorised by:

Nibha Vaidya Senior Analyst-Asbestos (NSW)

Glenn Jackson

National Operations Manager

Final Report - this report replaces any previously issued Report

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

Uncertainty data is available on request

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

	- 1		1	
Page		of		

8029

		Consigning Office	CHA	MSWOR	20					
coffey	•	Report Results to:	Alex	R+ MG	# L Mr	lobile:		Email		@coffey.com
		Invoices to:	1	11	Ph	none:		Email.		@coffey.com
Project No: CEON	COU 25552 ATask No. COU 25552 ATask No. Laborato Vicu. Project I	Consigning Office: Report Results to: Invoices to: o: ZAB TES tory: MGT	STING-	ENVIRO			Ana	alysis Request S	ection	
Project Name: Dc	DOCEYS Laborate	cory: MaT	/-				11,	1111	7///	7///
Sampler's Name:	Nich. Project	Manager: MC					10	6///	1///	///
Special Instructions:						/	14/4/ B	1///	1///	///
Relevant agreements: Eurofin	s COF_ENAUABTF00952AA_MSA1;A	ALS COF_ENAUABTF00952/	AA_MSA2 and SC	3S COF ENAUABTEO	J952AA MSA3	128	10/2 N	1///	1///	//
		Sample	Matrix	Container Type &		10/00	4017/	////	////	NOTES
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Company:	Time:	Compa	any:		Tim	ne:		Lab. Ref/Batch	1	
*Container Type & Preser								1	48431	00

Coffey Environments



ABN - 50 005 085 521 e.mail: EnviroSales@eurofins.com.au

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Sample Receipt Advice

Coffey Geotechnics Pty Ltd Chatswood Company name:

Contact name: Matthew Locke Project name: **DOOLEYS**

Project ID: GEOTLCOV25554AA

COC number: Not provided

Turn around time: 5 Day

Nov 27, 2015 3:53 PM Date/Time received:

Eurofins | mgt reference: 481308

Sample information

- \mathbf{V} A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- \mathbf{V} Sample Temperature of a random sample selected from the batch as recorded by Eurofins | mgt Sample Receipt : 5.3 degrees Celsius.
- \mathbf{V} All samples have been received as described on the above COC.
- \square COC has been completed correctly.
- \square Attempt to chill was evident.
- \mathbf{V} Appropriately preserved sample containers have been used.
- \mathbf{V} All samples were received in good condition.
- \square Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- \mathbf{V} Appropriate sample containers have been used.
- \boxtimes Some samples have been subcontracted.
- Custody Seals intact (if used). N/A

Contact notes

If you have any questions with respect to these samples please contact:

Charl Du Preez on Phone: +61 (2) 9900 8400 or by e.mail: charldupreez@eurofins.com.au

Results will be delivered electronically via e.mail to Matthew Locke - Matthew_Locke@coffey.com.

Note: A copy of these results will also be delivered to the general Coffey Geotechnics Pty Ltd Chatswood email address.





Coffey Geotechnics Pty Ltd Chatswood Level 18, Tower B, Citadel Tower 799 Pacific Highway Chatswood NSW 2067





Certificate of Analysis

NATA Accredited Accreditation Number 1261 Site Number 1254

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

Attention: Matthew Locke

Report 481308-S Project name DOOLEYS

Project ID GEOTLCOV25554AA

Received Date Nov 27, 2015

Client Sample ID			BH4A	ВН4В	вн4С
Sample Matrix			Soil	Soil	Soil
Eurofins mgt Sample No.			S15-No25017	S15-No25018	S15-No25019
Date Sampled			Nov 26, 2015	Nov 26, 2015	Nov 26, 2015
Test/Reference	LOR	Unit			
Total Recoverable Hydrocarbons - 1999 NEPM	Fractions				
TRH C6-C9	20	mg/kg	< 20	-	-
TRH C10-C14	20	mg/kg	< 20	-	-
TRH C15-C28	50	mg/kg	< 50	-	-
TRH C29-C36	50	mg/kg	140	-	-
TRH C10-36 (Total)	50	mg/kg	140	-	-
втех		-			
Benzene	0.1	mg/kg	< 0.1	-	-
Toluene	0.1	mg/kg	< 0.1	-	-
Ethylbenzene	0.1	mg/kg	< 0.1	-	-
m&p-Xylenes	0.2	mg/kg	< 0.2	-	-
o-Xylene	0.1	mg/kg	< 0.1	-	-
Xylenes - Total	0.3	mg/kg	< 0.3	-	-
4-Bromofluorobenzene (surr.)	1	%	84	-	-
Total Recoverable Hydrocarbons - 2013 NEPM	Fractions				
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	-	-
TRH C6-C10	20	mg/kg	< 20	-	-
TRH C6-C10 less BTEX (F1)N04	20	mg/kg	< 20	-	-
TRH >C10-C16 less Naphthalene (F2)N01	50	mg/kg	< 50	-	-
Polycyclic Aromatic Hydrocarbons					
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	-	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	-	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	-	-
Acenaphthene	0.5	mg/kg	< 0.5	-	-
Acenaphthylene	0.5	mg/kg	< 0.5	-	-
Anthracene	0.5	mg/kg	< 0.5	-	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	-	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	-	-
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	-	-
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	-	-
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	-	-
Chrysene	0.5	mg/kg	< 0.5	-	-
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	-	-
Fluoranthene	0.5	mg/kg	0.9	-	-
Fluorene	0.5	mg/kg	< 0.5	-	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	-	-



Client Sample ID			DUIAA	DUAD	BH4C
-			BH4A Soil	BH4B Soil	Soil
Sample Matrix					
Eurofins mgt Sample No.			S15-No25017	S15-No25018	S15-No25019
Date Sampled			Nov 26, 2015	Nov 26, 2015	Nov 26, 2015
Test/Reference	LOR	Unit			
Polycyclic Aromatic Hydrocarbons					
Naphthalene	0.5	mg/kg	< 0.5	-	-
Phenanthrene	0.5	mg/kg	< 0.5	-	-
Pyrene	0.5	mg/kg	0.9	-	-
Total PAH*	0.5	mg/kg	1.8	-	-
2-Fluorobiphenyl (surr.)	1	%	113	-	-
p-Terphenyl-d14 (surr.)	1	%	125	-	-
Organochlorine Pesticides					
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05
a-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05
b-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05
d-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Methoxychlor	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Toxaphene	1	mg/kg	< 1	< 1	< 1
Dibutylchlorendate (surr.)	1	%	73	76	68
Tetrachloro-m-xylene (surr.)	1	%	85	81	80
Total Recoverable Hydrocarbons - 2013 NEPM F	ractions				
TRH >C10-C16	50	mg/kg	< 50	-	-
TRH >C16-C34	100	mg/kg	110	-	-
TRH >C34-C40	100	mg/kg	250	-	-
Heavy Metals					
Arsenic	2	mg/kg	4.9	2.9	4.6
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	22	14	< 5
Copper	5	mg/kg	28	21	27
Lead	5	mg/kg	19	20	6.9
Mercury	0.05	mg/kg	0.05	< 0.05	< 0.05
Nickel	5	mg/kg	16	12	< 5
Zinc	5	mg/kg	48	47	33
% Moisture	0.1	%	26	-	-



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 (regarding both quality and NATA accreditation).

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
Eurofins mgt Suite B4			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Dec 01, 2015	14 Day
- Method: TRH C6-C36 - LTM-ORG-2010			
BTEX	Sydney	Dec 01, 2015	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Dec 01, 2015	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Polycyclic Aromatic Hydrocarbons	Sydney	Dec 01, 2015	14 Day
- Method: E007 Polyaromatic Hydrocarbons (PAH)			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Dec 01, 2015	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Organochlorine Pesticides	Sydney	Dec 01, 2015	14 Day
- Method: E013 Organochlorine Pesticides (OC)			
Metals M8	Sydney	Dec 01, 2015	28 Day
- Method: LTM-MET-3040_R0 TOTAL AND DISSOLVED METALS AND MERCURY IN WATERS BY ICP-MS			
% Moisture	Sydney	Nov 27, 2015	14 Day

⁻ Method: LTM-GEN-7080 Moisture



Melbourne

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Brisbane 1/21 Smallwood Place Murarrie QLD 4172 Phone: +61 7 3902 4600 NATA # 1261 Site # 20794

ABN - 50 005 085 521 e.mail : EnviroSales@eurofins.com.au

Order No.:

Report #:

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481308

Company Name: Coffey Geotechnics Pty Ltd Chatswood

Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway

Chatswood

NSW 2067

Project Name: **DOOLEYS**

Project ID: GEOTLCOV25554AA Received: Nov 27, 2015 3:53 PM

Due: Dec 4, 2015 Priority: 5 Day

Contact Name: Matthew Locke

Eurofins | mgt Client Manager: Charl Du Preez

		Sample Detail			Asbestos Absence /Presence	Organochlorine Pesticides	Metals M8	Moisture Set	Eurofins mgt Suite B4
Laboratory who	ere analysis is co	onducted							
Melbourne Lab	oratory - NATA S	Site # 1254 & 14	271						
Sydney Labora	tory - NATA Site	# 18217			Х	Х	Х	Х	Х
Brisbane Labo	ratory - NATA Sit	te # 20794							
External Labor	atory								
Sample ID	Sample Date	Sampling Time	Matrix	LAB ID					
BH4A	Nov 26, 2015		Soil	S15-No25017	Х	Х	Х	Х	Х
ВН4В	Nov 26, 2015		Soil	S15-No25018	Х	Х	Х		
BH4C	Nov 26, 2015		Soil	S15-No25019	Х	Х	Х		

Eurofins | mgt Unit F3, Building F, 16 Mars Road, Lane Cove West, NSW, Australia, 2066 ABN: 50 005 085 521 Telephone: +61 2 9900 8400 Facsimile: +61 2 9420 2977

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Internal Quality Control Review and Glossary

General

- 1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
- 2. All soil results are reported on a dry basis, unless otherwise stated.
- 3. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
- 4. Results are uncorrected for matrix spikes or surrogate recoveries
- 5. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise
- 6. Samples were analysed on an 'as received' basis. 7. 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.

**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

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.

DuplicateA second piece of analysis from the same sample and reported in the same units as the result to show comparison.

Batch Duplicate A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.

Batch SPIKE Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.

USEPA United States Environmental Protection Agency

APHA American Public Health Association

ASLP Australian Standard Leaching Procedure (AS4439.3)

TCLP Toxicity Characteristic Leaching Procedure

COC Chain of Custody

SRA Sample Receipt Advice

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 50-150% - Phenols 20-130%.

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, Toxophene & Chlordane are not added to the LCS.
- 4. Organochlorine Pesticide analysis where reporting Spike data. Toxophene is not added to the Spike.
- 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 Arochlor 1260 in Matrix Spikes and LCS's.
- 9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
- $10. \ \, \text{Duplicate RPD's are calculated from raw analytical data thus it is possible to have two sets of data}.$

Report Number: 481308-S



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	1g,g	120			
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		< 0.5	0.5	Pass	
Fluoranthene	mg/kg	< 0.5	0.5	Pass	
Fluorene	mg/kg	< 0.5	0.5	Pass	
	mg/kg				
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 Marke of Plants	mg/kg	< 0.5	0.5	Pass	
Method Blank			1		
Organochlorine Pesticides		0.4	0.4	D	
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	1



Test	Units	Result 1	Acceptance Limits	Pass Limits	Qualifying Code
Endrin ketone	mg/kg	< 0.05	0.05	Pass	Code
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	IIIg/kg			1 033	
Total Recoverable Hydrocarbons - 2013 NEPM Fractions		T T			
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	IIIg/kg	< 100	100	Fass	
Heavy Metals		T T			
-	ma/ka	< 2		Pass	
Arsenic Cadmium	mg/kg		0.4	Pass	
	mg/kg	< 0.4			
Chromium	mg/kg	< 5	5	Pass	
Copper	mg/kg	< 5	5	Pass	
Lead	mg/kg	< 5	5	Pass	
Mercury	mg/kg	< 0.05	0.05	Pass	
Nickel	mg/kg	< 5	5	Pass	
Zinc	mg/kg	< 5	5	Pass	
LCS - % Recovery		T T	T	Г	
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	T			_	
TRH C6-C9	%	96	70-130	Pass	
TRH C10-C14	%	85	70-130	Pass	
LCS - % Recovery		T T	<u> </u>	Г	
BTEX	0,	100	70.400	_	
Benzene	%	100	70-130	Pass	
Toluene	%	95	70-130	Pass	
Ethylbenzene	%	94	70-130	Pass	
m&p-Xylenes	%	100	70-130	Pass	
o-Xylene	%	102	70-130	Pass	
Xylenes - Total	%	100	70-130	Pass	
LCS - % Recovery					
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	1				
Naphthalene	%	97	70-130	Pass	
TRH C6-C10	%	97	70-130	Pass	
LCS - % Recovery		1 1			
Polycyclic Aromatic Hydrocarbons	1				
Acenaphthene	%	127	70-130	Pass	
Acenaphthylene	%	94	70-130	Pass	
Anthracene	%	121	70-130	Pass	
Benz(a)anthracene	%	97	70-130	Pass	
Benzo(a)pyrene	%	94	70-130	Pass	
Benzo(b&j)fluoranthene	%	117	70-130	Pass	
Benzo(g.h.i)perylene	%	82	70-130	Pass	
Benzo(k)fluoranthene	%	125	70-130	Pass	
Chrysene	%	125	70-130	Pass	
Dibenz(a.h)anthracene	%	87	70-130	Pass	
Fluoranthene	%	111	70-130	Pass	
Fluorene	%	109	70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	87	70-130	Pass	



Test			Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Phenanthrene			%	115		70-130	Pass	
Pyrene			%	109		70-130	Pass	
LCS - % Recovery				•				
Organochlorine Pesticides								
Chlordanes - Total			%	102		70-130	Pass	
4.4'-DDD			%	101		70-130	Pass	
4.4'-DDE			%	98		70-130	Pass	
4.4'-DDT			%	93		70-130	Pass	
a-BHC			%	105		70-130	Pass	
Aldrin			%	98		70-130	Pass	
b-BHC			%	98		70-130	Pass	
d-BHC			%	109		70-130	Pass	
Dieldrin			%	103		70-130	Pass	
Endosulfan I			%	100		70-130	Pass	
Endosulfan II			%	98		70-130	Pass	
Endosulfan sulphate			%	100		70-130	Pass	
Endrin			%	99		70-130	Pass	
Endrin aldehyde			%	97		70-130	Pass	
Endrin ketone			%	97		70-130	Pass	
g-BHC (Lindane)			%	105		70-130	Pass	
Heptachlor			%	106		70-130	Pass	
Heptachlor epoxide			%	99		70-130	Pass	
Hexachlorobenzene			%	100		70-130	Pass	
Methoxychlor			%	95		70-130	Pass	
LCS - % Recovery				T	1		Γ	
Total Recoverable Hydrocarbons	· 2013 NEPM Fract	ions						
TRH >C10-C16			%	90		70-130	Pass	
LCS - % Recovery				T	1		Ι	
Heavy Metals							_	
Arsenic			%	103		70-130	Pass	
	Cadmium			102		70-130	Pass	
Chromium			% %	109		70-130	Pass	
	Copper			113		70-130	Pass	
Lead			%	112		70-130	Pass	
Mercury			%	102		70-130	Pass	
Nickel			%	109		70-130	Pass	
Zinc	1		%	105		70-130	Pass	0
Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery								
Total Recoverable Hydrocarbons	1999 NEPM Fract	ions		Result 1				
TRH C6-C9	S15-No25433	NCP	%	89		70-130	Pass	
TRH C10-C14	S15-De01974	NCP	%	82		70-130	Pass	
Spike - % Recovery								
втех				Result 1				
Benzene	S15-No25433	NCP	%	97		70-130	Pass	
Toluene	S15-No25433	NCP	%	95		70-130	Pass	
Ethylbenzene	S15-No25433	NCP	%	93		70-130	Pass	
m&p-Xylenes	S15-No25433	NCP	%	99		70-130	Pass	
o-Xylene	S15-No25433	NCP	%	99		70-130	Pass	
Xylenes - Total	S15-No25433	NCP	%	99		70-130	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons	2013 NEPM Fract	ions		Result 1				
Naphthalene	S15-No25433	NCP	%	90		70-130	Pass	
TRH C6-C10	S15-No25433	NCP	%	90	1	70-130	Pass	1



Test	Lab Sample ID	QA Source	Units	Result 1	Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery							
Polycyclic Aromatic Hydrocar	bons			Result 1			
Acenaphthene	S15-No23415	NCP	%	126	70-130	Pass	
Acenaphthylene	S15-No23415	NCP	%	100	70-130	Pass	
Anthracene	S15-No23415	NCP	%	117	70-130	Pass	
Benz(a)anthracene	S15-No23415	NCP	%	104	70-130	Pass	
Benzo(a)pyrene	S15-No23415	NCP	%	104	70-130	Pass	
Benzo(b&j)fluoranthene	S15-No23415	NCP	%	111	70-130	Pass	
Benzo(g.h.i)perylene	S15-No23415	NCP	%	92	70-130	Pass	
Benzo(k)fluoranthene	S15-No23415	NCP	%	111	70-130	Pass	
Chrysene	S15-No23415	NCP	%	128	70-130	Pass	
Dibenz(a.h)anthracene	S15-No23415	NCP	%	93	70-130	Pass	
Fluoranthene	S15-No23415	NCP	%	116	70-130	Pass	
Fluorene	S15-No23415	NCP	%	115	70-130	Pass	
Indeno(1.2.3-cd)pyrene	S15-No23415	NCP	%	96	70-130	Pass	
Naphthalene	S15-No23415	NCP	%	119	70-130	Pass	
Phenanthrene	S15-No23415	NCP	%	123	70-130	Pass	
Pyrene	S15-No23415	NCP	%	120	70-130	Pass	
Spike - % Recovery							
Organochlorine Pesticides				Result 1			
Chlordanes - Total	S15-No24273	NCP	%	94	70-130	Pass	
4.4'-DDD	S15-No24273	NCP	%	101	70-130	Pass	
4.4'-DDE	S15-No24273	NCP	%	93	70-130	Pass	
4.4'-DDT	S15-No24273	NCP	%	92	70-130	Pass	
a-BHC	S15-No24273	NCP	%	94	70-130	Pass	
Aldrin	S15-No24273	NCP	%	91	70-130	Pass	
b-BHC	S15-No24273	NCP	%	88	70-130	Pass	
d-BHC	S15-No24273	NCP	%	101	70-130	Pass	
Dieldrin	S15-No24273	NCP	%	99	70-130	Pass	
Endosulfan I	S15-No24273	NCP	%	94	70-130	Pass	
Endosulfan II	S15-No24273	NCP	%	95	70-130	Pass	
Endosulfan sulphate	S15-No24273	NCP	%	101	70-130	Pass	
Endrin	S15-No24273	NCP	%	98	70-130	Pass	
Endrin aldehyde	S15-No24273	NCP	%	98	70-130	Pass	
Endrin ketone	S15-No24273	NCP	%	104	70-130	Pass	
g-BHC (Lindane)	S15-No24273	NCP	%	97	70-130	Pass	
Heptachlor	S15-No24273	NCP	%	99	70-130	Pass	
Heptachlor epoxide	S15-No24273	NCP	%	92	70-130	Pass	
Hexachlorobenzene	S15-No24273	NCP	%	91	70-130	Pass	
Methoxychlor	S15-No24273	NCP	%	95	70-130	Pass	
Spike - % Recovery				•			
Total Recoverable Hydrocarbo	ons - 2013 NEPM Fract	ions		Result 1			
TRH >C10-C16	S15-De01974	NCP	%	87	70-130	Pass	
Spike - % Recovery							
Heavy Metals				Result 1			
Arsenic	S15-No24307	NCP	%	92	70-130	Pass	
Cadmium	S15-No24307	NCP	%	94	70-130	Pass	
Chromium	S15-No24307	NCP	%	106	70-130	Pass	
Copper	S15-No24307	NCP	%	94	70-130	Pass	
Lead	S15-No24307	NCP	%	102	70-130	Pass	
Mercury	S15-No24307	NCP	%	96	70-130	Pass	
Nickel	S15-No24307	NCP	%	101	70-130	Pass	
Zinc	S15-No24307	NCP	%	92	70-130	Pass	



Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbon	s - 1999 NEPM Frac	tions		Result 1	Result 2	RPD			
TRH C6-C9	S15-No25084	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S15-No25123	NCP	mg/kg	3700	3100	18	30%	Pass	
TRH C15-C28	S15-No25123	NCP	mg/kg	13000	13000	5.0	30%	Pass	
TRH C29-C36	S15-No25123	NCP	mg/kg	78	67	16	30%	Pass	
Duplicate				•					
BTEX				Result 1	Result 2	RPD			
Benzene	S15-No25084	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S15-No25084	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S15-No25084	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S15-No25084	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S15-No25084	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	S15-No25084	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate	01011020004	1101	mg/kg	1 0.0	V 0.0		0070	1 455	
Total Recoverable Hydrocarbon	s - 2013 NFPM Fract	ions		Result 1	Result 2	RPD			
Naphthalene	S15-No25084	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S15-No25084	NCP	mg/kg	< 20	< 20	<u><1</u>	30%	Pass	
Duplicate	313-14023064	INCF	i iig/kg	<u> </u>	< 20	<u> </u>	3070	F d 5 5	
Polycyclic Aromatic Hydrocarbo				Result 1	Result 2	RPD	T		
		NCD	m a/lea	1	1		200/	Door	
Acenaphthene	S15-No24810	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S15-No24810	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S15-No24810	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S15-No24810	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S15-No24810	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S15-No24810	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S15-No24810	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S15-No24810	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S15-No24810	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S15-No24810	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S15-No24810	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S15-No24810	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S15-No24810	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S15-No24810	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S15-No24810	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S15-No24810	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S15-No24272	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	S15-No24272	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	S15-No24272	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	S15-No24272	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	S15-No24272	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S15-No24272	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-BHC	S15-No24272	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	S15-No24272	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S15-No24272	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	S15-No24272	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	S15-No24272	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	S15-No24272	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	S15-No24272	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	S15-No24272	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	S15-No24272	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endilli Notolic	010-11024212	INOF	my/Ny	\ U.UU	~ U.UU	<u> </u>	JU /0	1 033	



Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Heptachlor	S15-No24272	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	S15-No24272	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	S15-No24272	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	S15-No24272	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Toxaphene	S15-No24272	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocark	oons - 2013 NEPM Fract	ions		Result 1	Result 2	RPD			
TRH >C10-C16	S15-No25123	NCP	mg/kg	7800	7300	7.0	30%	Pass	
TRH >C16-C34	S15-No25123	NCP	mg/kg	7300	7700	5.0	30%	Pass	
TRH >C34-C40	S15-No25123	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S15-No24306	NCP	mg/kg	2.2	< 2	110	30%	Fail	Q15
Cadmium	S15-No24306	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S15-No24306	NCP	mg/kg	< 5	6.0	78	30%	Fail	Q15
Copper	S15-No24306	NCP	mg/kg	11	18	46	30%	Fail	Q15
Lead	S15-No24306	NCP	mg/kg	14	15	12	30%	Pass	
Mercury	S15-No24306	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Nickel	S15-No24306	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	S15-No24306	NCP	mg/kg	7.4	22	98	30%	Fail	Q15
Duplicate									
		_		Result 1	Result 2	RPD			
% Moisture	S15-No09584	NCP	%	21	23	7.0	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 Yes Samples received within HoldingTime Yes Some samples have been subcontracted No

Qualifier Codes/Comments

Code	Description

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). N01

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.

N02

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. N04

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 N07

Q15 The RPD reported passes Eurofins | mgt's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised By

Charl Du Preez Analytical Services Manager Bob Symons Senior Analyst-Inorganic (NSW) Ivan Taylor Senior Analyst-Metal (NSW) Nibha Vaidva Senior Analyst-Asbestos (NSW) Ryan Hamilton Senior Analyst-Organic (NSW) Rvan Hamilton Senior Analyst-Volatile (NSW)



Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

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

Uncertainty data is available on request

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Certificate of Analysis





NATA Accredited Accreditation Number 1261 Site Number 18217

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

Coffey Geotechnics Pty Ltd Chatswood Level 18, Tower B, Citadel Tower 799 Pacific Highway Chatswood NSW 2067

Attention: Matthew Locke
Report 481308-AID
Project Name DOOLEYS

Project ID GEOTLCOV25554AA

Received Date Nov 27, 2015 **Date Reported** Dec 04, 2015

Methodology:

Asbestos ID

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. Bulk samples include building materials, soils and ores.

Subsampling Soil Samples

The whole sample submitted is first dried and then sieved through a 10mm sieve followed by a 2mm sieve. All fibrous matter viz 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) Iron ores - Sampling and Sample preparation procedures is employed. 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 asbestoscontaining material (ACM) The material is first examined and any fibres isolated and where required interfering organic fibres or matter may be removed by treating the sample for several hours at a temperature not exceeding 400 ± 30 °C. The resultant material is then ground and examined in accordance with AS 4964-2004.

Limit of Reporting

Date Reported: Dec 04, 2015

The nominal detection limit of the AS4964 method is around 0.01%. The examination of large sample sizes (at least 500 ml is recommended) may improve the likelihood of identifying asbestos material in the greater than 2 mm fraction. The NEPM screening level of 0.001% w/w asbestos in soil for FA and AF (i.e. non-bonded/friable asbestos) only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres. NOTE: NATA News, September 2011 – page 34, states, "Weighing of fibres is problematic and can lead to loss of fibres and potential exposure for laboratory analysts. To request laboratories to report information which is outside the scope of AS 4964-2004 and the scope of their accreditation is misleading and is most unwise" therefore such values reported are outside the scope of Eurofins | mgt NATA accreditation as designated by an asterisk.







NATA Accredited Accreditation Number 1261 Site Number 18217

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

Project Name DOOLEYS

Project ID GEOTLCOV25554AA

Date SampledNov 26, 2015Report481308-AID

Client Sample ID	Eurofins mgt Sample No.	Date Sampled	Sample Description	Result
BH4A	15-No25017	Nov 26, 2015	Approximate Sample 155g	No asbestos detected. Organic fibre detected. No respirable fibres detected.
BH4B	15-No25018	Nov 26, 2015	Approximate Sample 146g	No asbestos detected. Organic fibre detected. No respirable fibres detected.
BH4C	15-No25019	Nov 26, 2015	Approximate Sample 130g	No asbestos detected. Organic fibre detected. No respirable fibres 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 (regarding both quality and NATA accreditation).

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.

DescriptionTesting SiteExtractedHolding TimeAsbestos - LTM-ASB-8020SydneyNov 27, 2015Indefinite



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Melbourne

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Sydney Unit F3, Building F Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone: +61 7 3902 4600
NATA # 1261 Site # 20794

Company Name:

Coffey Geotechnics Pty Ltd Chatswood

Address:

Level 18, Tower B, Citadel Tower 799 Pacific Highway

Chatswood

NSW 2067

Project Name: Project ID: **DOOLEYS**

GEOTLCOV25554AA

Order No.:

Report #: 481308

Phone: Fax: +61 2 9406 1000

+61 2 9406 1002

Received:

Nov 27, 2015 3:53 PM

 Due:
 Dec 4, 2015

 Priority:
 5 Day

Contact Name: Matthew Locke

Eurofins | mgt Client Manager: Charl Du Preez

Sample Detail							Metals M8	Moisture Set	Eurofins mgt Suite B4
Laboratory who	ere analysis is co	onducted							
Melbourne Lab	oratory - NATA S	Site # 1254 & 14	271						
Sydney Labora	tory - NATA Site	# 18217			Х	Х	Х	Х	Х
Brisbane Labo	ratory - NATA Si	te # 20794							
External Labor	atory								
Sample ID									
BH4A	Nov 26, 2015		Soil	S15-No25017	Х	Х	Х	Х	Х
BH4B	Х	Х	Х						
BH4C	Х	Х	Х						



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. 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

ΑF

Date Reported: Dec 04, 2015

Dry Where a moisture has been determined on a solid sample the result is expressed on a dry basis.

LOR Limit of Reporting.
COC Chain of custody
SRA Sample Receipt Advice

ISO International Stardards Organisation

AS Australian Standards

WA DOH Western Australia Department of Health

NOHSC National Occupational Health and Safety Commission

ACM Bonded asbestos-containing material means any material containing more than 1% asbestos and comprises asbestos-containing-material which is in sound condition,

although possibly broken or fragmented, and where the asbestos is bound in a matrix such as cement or resin. Common examples of ACM include but are not limited to: pipe and boiler insulation, sprayed-on fireproofing, troweled-on acoustical plaster, floor tile and mastic, floor linoleum, transite shingles, roofing materials, wall and ceiling plaster, ceiling tiles, and gasket materials. This term is restricted to material that cannot pass a 7 mm x 7 mm sieve. This sieve size is selected because it approximates the thickness of common asbestos cement sheeting and for fragments to be smaller than this would imply a high degree of damage and hence potential

for fibre release

FA FA comprises friable asbestos material and includes severely weathered cement sheet, insulation products and woven asbestos material. This type of friable asbestos

is defined here as asbestos material that is in a degraded condition such that it can be broken or crumbled by hand pressure. This material is typically unbonded or

was previously bonded and is now significantly degraded (crumbling).

PACM Presumed Asbestos-Containing Material means thermal system insulation and surfacing material found in buildings, vessels, and vessel sections constructed no later

than 1980 that are assumed to contain greater than one percent asbestos but have not been sampled or analyzed to verify or negate the presence of asbestos.

Asbestos fines (AF) are defined as free fibres, or fibre bundles, smaller than 7mm. It is the free fibres which present the greatest risk to human health, although very

small fibres (< 5 microns in length) are not considered to be such a risk. AF also includes small fragments of bonded ACM that pass through a 7 mm x 7 mm sieve.

(Note that for bonded ACM fragments to pass through a 7 mm x 7 mm sieve implies a substantial degree of damage which increases the potential for fibre release.)

AC Asbestos cement means a mixture of cement and asbestos fibres (typically 90:10 ratios).

Report Number: 481308-AID



Comments

Sample Integrity

	•	
Custody Seals Intact	t (if used)	N/A
Attempt to Chill was e	evident	Yes
Sample correctly pres	served	Yes
Appropriate sample c	containers have been used	Yes
Sample containers for	or volatile analysis received with minimal headspace	Yes
Samples received wit	ithin HoldingTime	Yes
Some samples have I	been subcontracted	No

Qualifier Codes/Comments

Code Description N/A Not applicable

Authorised by:

Nibha Vaidya Senior Analyst-Asbestos (NSW)

Company of the Compan

Glenn Jackson National Operations Manager

Final Report - this report replaces any previously issued Report

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

Uncertainty data is available on request

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page ___of ___

8010

		Consignin	g Office:	CH	75W08	S			
coffe	ev	Report Re	sults to:	Alex.R	t Mah	.L	Mobile:	Email:	@coffey.cor
	- J	Invoices to	0:	11		11	Phone:	Email:	@coffey.com
Project No: (EOTL(OV75554 AA Task No: DOCEYS. Laboratory ie: Alex. R. Project Ma	FNU	iRo	Lab.			1	Analysis Request Section	
Project Name:	DOOKEYS . Laboratory	M	CIT				A	7///////	11/1/
Sampler's Nam	e: Alex. R. Project Mai	nager:	nc.					6///////	////
Special Instruct							1 100	7////////	///
Relevant agreem	nents Eurofins COF_ENAUABTF00952AA_MSA1; ALS	COF_ENAUAB	TF00952A	A_MSA2 and SG	S COF_ENAUABTF0	0952AA_MSA3		////////	//
		Sample		Matrix	Container Type 8			/////////	/ NOTES
Lab No.	Sample ID	Date	Time	(Soiletc)	Preservative*	(specify)	17/19//	////////	NOTES
	BITOI	1/1/15		WATER	20,19,39	5 DAY	XX		
	BH03	/					XX		
	BH 05						XX		
	DUROI						XX		
	Kinsate				V		XX		
	BIT 05 DURO 1 RINSOITE Trip blank trip Spine				22				
	trip Spine			V	[1 1)		X		
	, , , , , , , , , , , , , , , , , , , ,								
			1	3					
			,						
	RELINQUISHED BY		T		RF	CEIVED BY		Sample Receipt Advice: (Lab Us	e Only)
Name: A La .	x. Rooth of Date: 1/2/17	→	Name	SIGNE _			Date: 1/12/17	All Samples Recieved in Good Co	
Coffey Environn			Compar	ny: lêf MO			Time: (3:57	All Documentation is in Proper O	400
Name:	Date:		Name:	11. 10 1. 10l					
Company:	Time:		1	N/:			Date:	Samples Received Properly Chille	:0 <u>1</u>
		_	Compar				Time:	Lab. Ref/Batch No.	
	e & Preservation Codes: P - Plastic, G- Glass Bot					reserved, C -	Hydrochloric Acid Preserved,	45	31647
S - Sulphuric A	cid Preserved, I - Ice, ST - Sodium Thiosulfate, N	P - No Preser	vative, O	P - Other Prese	rvative				P 1



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Sample Receipt Advice

Coffey Geotechnics Pty Ltd Chatswood Company name:

Contact name: Matthew Locke Project name: **DOOLEYS**

GEOTLCOV25554AA Project ID:

COC number: 8010 Turn around time: 5 Day Dec 1, 2015 Date/Time received: Eurofins | mgt reference: 481647

Sample information

- \mathbf{V} A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- \mathbf{V} Sample Temperature of a random sample selected from the batch as recorded by Eurofins | mgt Sample Receipt : 2.1 degrees Celsius.
- \mathbf{V} All samples have been received as described on the above COC.
- \square COC has been completed correctly.
- \square Attempt to chill was evident.
- \mathbf{V} Appropriately preserved sample containers have been used.
- **7** All samples were received in good condition.
- \square Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- \mathbf{V} Appropriate sample containers have been used.
- \mathbf{V} Sample containers for volatile analysis received with zero headspace.
- \boxtimes Some samples have been subcontracted.
- Custody Seals intact (if used). N/A

Contact notes

If you have any questions with respect to these samples please contact:

Charl Du Preez on Phone: +61 (2) 9900 8400 or by e.mail: charldupreez@eurofins.com.au

Results will be delivered electronically via e.mail to Matthew Locke - Matthew_Locke@coffey.com.

Note: A copy of these results will also be delivered to the general Coffey Geotechnics Pty Ltd Chatswood email address.





Coffey Geotechnics Pty Ltd Chatswood Level 18, Tower B, Citadel Tower 799 Pacific Highway Chatswood NSW 2067





Certificate of Analysis

NATA Accredited Accreditation Number 1261 Site Number 1254

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

Attention: Matthew Locke

Report 481647-W Project name DOOLEYS

Project ID GEOTLCOV25554AA

Received Date Dec 01, 2015

Client Sample ID			BH01	BH03	BH05	DUP01
Sample Matrix			Water	Water	Water	Water
Eurofins mgt Sample No.			S15-De01371	S15-De01372	S15-De01373	S15-De01374
Date Sampled			Dec 01, 2015	Dec 01, 2015	Dec 01, 2015	Dec 01, 2015
•	1.00		Dec 01, 2013	Dec 01, 2013	Dec 01, 2013	Dec 01, 2013
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM			2.22	0.00	0.00	2.24
TRH C6-C9	0.02	mg/L	0.02	< 0.02	< 0.02	0.04
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-36 (Total)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
BTEX	<u> </u>	1				
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	0.004	< 0.002	< 0.002	0.004
o-Xylene	0.001	mg/L	0.002	< 0.001	< 0.001	0.002
Xylenes - Total	0.003	mg/L	0.005	< 0.003	< 0.003	0.006
4-Bromofluorobenzene (surr.)	1	%	94	83	83	94
Total Recoverable Hydrocarbons - 2013 NEPM	Fractions					
Naphthalene ^{N02}	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
TRH C6-C10	0.02	mg/L	0.05	< 0.02	0.04	0.08
TRH C6-C10 less BTEX (F1)N04	0.02	mg/L	0.04	< 0.02	0.04	0.07
TRH >C10-C16 less Naphthalene (F2)N01	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene ^{N07}	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001



Client Sample ID			BH01 Water	BH03 Water	BH05 Water	DUP01 Water
Sample Matrix Eurofins mgt Sample No.			S15-De01371	S15-De01372	S15-De01373	S15-De01374
Date Sampled			Dec 01, 2015	Dec 01, 2015	Dec 01, 2015	Dec 01, 2015
Test/Reference	LOR	Unit		,	, , ,	, , ,
Polycyclic Aromatic Hydrocarbons		1				
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Fluorobiphenyl (surr.)	1	%	91	89	90	92
p-Terphenyl-d14 (surr.)	1	%	103	122	124	124
Total Recoverable Hydrocarbons - 2013 NEPM Fract	tions					
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	0.001	0.003	0.003	0.001
Cadmium (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.003	0.003	0.11	0.003
Zinc (filtered)	0.005	mg/L	0.007	< 0.005	0.012	< 0.005

Client Sample ID			RINSATE	TRIP BLANK	TRIP SPIKE
Sample Matrix			Water	Water	Water
Eurofins mgt Sample No.			S15-De01375	S15-De01376	S15-De01377
Date Sampled			Dec 01, 2015	Dec 01, 2015	Dec 01, 2015
Test/Reference	LOR	Unit			
	<u> </u>				
TRH C6-C10 less BTEX (F1) ^{N04}	0.02	mg/L	-	< 0.02	-
Total Recoverable Hydrocarbons - 1999 NEPM	Fractions				
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	74%
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 C10-36 (Total)	0.1	mg/L	< 0.1	-	-
BTEX					
Benzene	0.001	mg/L	< 0.001	< 0.001	102%
Toluene	0.001	mg/L	< 0.001	< 0.001	95%
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	90%
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	92%
o-Xylene	0.001	mg/L	< 0.001	< 0.001	93%
Xylenes - Total	0.003	mg/L	< 0.003	< 0.003	92%
4-Bromofluorobenzene (surr.)	1	%	82	81	100
Total Recoverable Hydrocarbons - 2013 NEPM	Fractions				
TRH C6-C10	0.02	mg/L	-	< 0.02	87%
Volatile Organics	•				
Naphthalene ^{N02}	0.01	mg/L	-	< 0.01	98%
Total Recoverable Hydrocarbons - 2013 NEPM	Fractions				
Naphthalene ^{N02}	0.01	mg/L	< 0.01	-	-
TRH C6-C10	0.02	mg/L	< 0.02	-	-
TRH C6-C10 less BTEX (F1)N04	0.02	mg/L	< 0.02	-	-
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	< 0.05	_	-



Client Sample ID			RINSATE	TRIP BLANK	TRIP SPIKE
Sample Matrix			Water	Water	Water
Eurofins mgt Sample No.			S15-De01375	S15-De01376	S15-De01377
Date Sampled			Dec 01, 2015	Dec 01, 2015	Dec 01, 2015
Test/Reference	LOR	Unit			
Polycyclic Aromatic Hydrocarbons		1			
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	-	-
Total PAH*	0.001	mg/L	< 0.001	-	-
2-Fluorobiphenyl (surr.)	1	%	89	-	-
p-Terphenyl-d14 (surr.)	1	%	126	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fr	actions				
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	-	-
Heavy Metals					
Arsenic	0.005	mg/L	< 0.005	-	-
Cadmium	0.0005	mg/L	< 0.0005	-	-
Chromium	0.005	mg/L	< 0.005	-	-
Copper	0.005	mg/L	< 0.005	-	-
Lead	0.005	mg/L	< 0.005	-	-
Mercury	0.0001	mg/L	< 0.0001	-	-
Nickel	0.005	mg/L	< 0.005	-	-
Zinc	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 (regarding both quality and NATA accreditation).

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
TRH C6-C10 less BTEX (F1)	Sydney	Dec 01, 2015	14 Day
- Method: LM-LTM-ORG-2010			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Dec 02, 2015	7 Day
- Method: TRH C6-C36 - LTM-ORG-2010			
BTEX	Sydney	Dec 01, 2015	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Dec 02, 2015	7 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Volatile Organics	Sydney	Dec 02, 2015	7 Day
- Method: E016 Volatile Organic Compounds (VOC)			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Dec 01, 2015	7 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Eurofins mgt Suite B4			
Polycyclic Aromatic Hydrocarbons	Sydney	Dec 02, 2015	7 Day
- Method: E007 Polyaromatic Hydrocarbons (PAH)			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Dec 02, 2015	7 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Metals M8	Sydney	Dec 08, 2015	28 Day
- Method: LTM-MET-3040 Metals in Waters by ICP-MS			
Metals M8 filtered	Sydney	Dec 01, 2015	28 Day
- Method: LTM-MET-3040 Metals in Waters by ICP-MS			



Melbourne

3-5 Kingston Town Close Oakleigh VIC 3166 Phone: +61 3 8564 5000 NATA # 1261 Site # 1254 & 14271

Sydney Unit F3, Building F 16 Mars Road Lane Cove West NSW 2066 Phone: +61 2 9900 8400 NATA # 1261 Site # 18217

Received:

Priority:

Due:

Brisbane 1/21 Smallwood Place Murarrie QLD 4172 Phone: +61 7 3902 4600 NATA # 1261 Site # 20794

ABN - 50 005 085 521 e.mail : EnviroSales@eurofins.com.au

web : www.eurofins.com.au

Company Name: Coffey Geotechnics Pty Ltd Chatswood

Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway

Chatswood

NSW 2067

Project Name: **DOOLEYS**

Project ID: GEOTLCOV25554AA Order No.:

Report #: 481647 Phone: +61 2 9406 1000

Fax: +61 2 9406 1002 **Contact Name:**

Eurofins | mgt Client Manager: Charl Du Preez

Dec 8, 2015

Matthew Locke

5 Day

Dec 1, 2015 12:00 AM

	Sample Detail							BTEX and Volatile TRH
Laboratory wh								
Melbourne Lab	oratory - NATA	Site # 1254 & 14	1271					
Sydney Labora	atory - NATA Site	# 18217			Х	Х	Х	Х
Brisbane Labo	ratory - NATA Si	te # 20794						
External Labor	atory		_					
Sample ID	Sample Date	Sampling Time	Matrix	LAB ID				
BH01	Dec 01, 2015		Water	S15-De01371		Х	Х	
BH03	Dec 01, 2015		Water	S15-De01372		Х	Х	
BH05 Dec 01, 2015 Water S15-De01373							Х	
DUP01 Dec 01, 2015 Water S15-De01374							Х	
RINSATE	S15-De01375	Х		Х				
TRIP BLANK	Dec 01, 2015		Water	S15-De01376				Х
TRIP SPIKE	Dec 01, 2015		Water	S15-De01377				Х

Eurofins | mgt Unit F3, Building F, 16 Mars Road, Lane Cove West, NSW, Australia, 2066 ABN: 50 005 085 521 Telephone: +61 2 9900 8400 Facsimile: +61 2 9420 2977

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Internal Quality Control Review and Glossary

General

- 1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
- 2. All soil results are reported on a dry basis, unless otherwise stated.
- 3. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
- 4. Results are uncorrected for matrix spikes or surrogate recoveries
- 5. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise
- 6. Samples were analysed on an 'as received' basis. 7. 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.

**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

In the case of water samples these are performed on de-ionised water. $% \label{eq:case_eq} % \label{eq:case_eq}$

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.

Batch Duplicate A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.

Batch SPIKE Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.

USEPA United States Environmental Protection Agency

APHA American Public Health Association

ASLP Australian Standard Leaching Procedure (AS4439.3)

TCLP Toxicity Characteristic Leaching Procedure

COC Chain of Custody

SRA Sample Receipt Advice

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 50-150% - Phenols 20-130%.

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, Toxophene & Chlordane are not added to the LCS.
- 4. Organochlorine Pesticide analysis where reporting Spike data. Toxophene is not added to the Spike.
- 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 Arochlor 1260 in Matrix Spikes and LCS's.
- 9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
- $10. \ \ Duplicate \ RPD's \ are \ calculated \ from \ raw \ analytical \ data \ thus \ it \ is \ possible \ to \ have \ two \ sets \ of \ data.$



Quality Control Results

Test	Units	Result 1	Acceptance Limits	Pass Limits	Qualifying Code
Method Blank					
Total Recoverable Hydrocarbons - 1999 NEPM Frac	tions				
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					
ВТЕХ					
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	ı mg/L	1 0.000	0.000	1 433	
Total Recoverable Hydrocarbons - 2013 NEPM Frac	tions				
TRH C6-C10	mg/L	< 0.02	0.02	Pass	
Method Blank	IIIg/L	\ \ 0.02	0.02	1 033	
Volatile Organics		Т	Τ		
Naphthalene	ma/l	< 0.01	0.01	Pass	
	mg/L	< 0.01	0.01	Fass	
Method Blank				Ι	
Polycyclic Aromatic Hydrocarbons		0.004	0.004	Dana	
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 Frac	tions				
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	<u> </u>				
Heavy Metals					
Arsenic	mg/L	< 0.005	0.005	Pass	
Arsenic (filtered)	mg/L	< 0.001	0.001	Pass	
Cadmium	mg/L	< 0.0005	0.0005	Pass	
Cadmium (filtered)	mg/L	< 0.0003	0.0003	Pass	
Chromium	mg/L	< 0.005	0.005	Pass	
Chromium (filtered)	mg/L	< 0.003	0.003	Pass	
Omornium (microu)	IIIg/L	< 0.001	0.001	1 033	



Test	Units	Result 1	Acceptance Limits	Pass Limits	Qualifying Code
Copper (filtered)	mg/L	< 0.001	0.001	Pass	
Lead	mg/L	< 0.005	0.005	Pass	
Lead (filtered)	mg/L	< 0.001	0.001	Pass	
Mercury	mg/L	< 0.0001	0.0001	Pass	
Mercury (filtered)	mg/L	< 0.0001	0.0001	Pass	
Nickel	mg/L	< 0.005	0.005	Pass	
Nickel (filtered)	mg/L	< 0.001	0.001	Pass	
Zinc	mg/L	< 0.005	0.005	Pass	
Zinc (filtered)	mg/L	< 0.005	0.005	Pass	
LCS - % Recovery					
Total Recoverable Hydrocarbons - 1999 NEPM Fra	ections				
TRH C6-C9	%	89	70-130	Pass	
TRH C10-C14	%	83	70-130	Pass	
LCS - % Recovery	, , ,		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 2.23	
BTEX					
Benzene	%	105	70-130	Pass	
Toluene	%	100	70-130	Pass	
Ethylbenzene	%	97	70-130	Pass	
m&p-Xylenes	%	99	70-130	Pass	
o-Xylene	%	101	70-130	Pass	
Xylenes - Total	%	100	70-130	Pass	
LCS - % Recovery	70	100	70 100	1 455	
Total Recoverable Hydrocarbons - 2013 NEPM Fra	ections				
TRH C6-C10	%	110	70-130	Pass	
LCS - % Recovery	70	110	70-130	1 033	
Volatile Organics					
Naphthalene	%	111	70-130	Pass	
LCS - % Recovery	/0		70-130	Fass	
Polycyclic Aromatic Hydrocarbons					
Acenaphthene	%	117	70-130	Pass	
Acenaphthylene	%	103	70-130	Pass	
Anthracene	%	106	70-130	Pass	
Benz(a)anthracene	%	88	70-130	Pass	
	%	1			
Benzo(a)pyrene Benzo(b&j)fluoranthene		103	70-130	Pass	
	%	95	70-130	Pass	
Benzo(g.h.i)perylene	%	81	70-130	Pass	
Benzo(k)fluoranthene	%	121	70-130	Pass	
Chrysene P'hardene	%	118	70-130	Pass	
Dibenz(a.h)anthracene	%	73	70-130	Pass	
Fluoranthene	%	109	70-130	Pass	
Fluorene	%	112	70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	78	70-130	Pass	
Naphthalene	%	108	70-130	Pass	
Phenanthrene	%	95	70-130	Pass	
Pyrene	%	105	70-130	Pass	
LCS - % Recovery					
Total Recoverable Hydrocarbons - 2013 NEPM Fra					
TRH >C10-C16	%	79	70-130	Pass	
LCS - % Recovery					
Heavy Metals					
Arsenic	%	90	70-130	Pass	
Arsenic (filtered)	%	103	70-130	Pass	
Cadmium	%	92	70-130	Pass	
Cadmium (filtered)	%	105	70-130	Pass	1



Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Chromium			%	87			70-130	Pass	
Chromium (filtered)			%	106			70-130	Pass	
Copper			%	85			70-130	Pass	
Copper (filtered)			%	108			70-130	Pass	
Lead			%	90			70-130	Pass	
Lead (filtered)			%	105			70-130	Pass	
Mercury			%	90			70-130	Pass	
Mercury (filtered)			%	93			70-130	Pass	
Nickel			%	85			70-130	Pass	
Nickel (filtered)			%	105			70-130	Pass	
, ,			%	92					
Zinc (filtered)							70-130	Pass	
Zinc (filtered) Test	Lab Sample ID	QA	% Units	105 Result 1			70-130 Acceptance	Pass Pass	Qualifying
	Zas campio is	Source	Cinco	- Nooun 1			Limits	Limits	Code
Spike - % Recovery	1000 NETT			B			T		
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C9	S15-De01372	CP	%	75	<u> </u>		70-130	Pass	
Spike - % Recovery				I					
BTEX	T	<u> </u>		Result 1					
Benzene	S15-De01372	CP	%	103			70-130	Pass	
Toluene	S15-De01372	CP	%	96			70-130	Pass	
Ethylbenzene	S15-De01372	CP	%	90			70-130	Pass	
m&p-Xylenes	S15-De01372	CP	%	87			70-130	Pass	
o-Xylene	S15-De01372	CP	%	92			70-130	Pass	
Xylenes - Total	S15-De01372	CP	%	89			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons	- 2013 NEPM Fract	ions		Result 1					
TRH C6-C10	S15-De01372	CP	%	78			70-130	Pass	
Spike - % Recovery					,				
Heavy Metals				Result 1					
Arsenic (filtered)	S15-De01372	CP	%	108			70-130	Pass	
Cadmium (filtered)	S15-De01372	CP	%	100			70-130	Pass	
Chromium (filtered)	S15-De01372	CP	%	102			70-130	Pass	
Copper (filtered)	S15-De01372	CP	%	85			70-130	Pass	
Lead (filtered)	S15-De01372	CP	%	76			70-130	Pass	
Nickel (filtered)	S15-De01372	CP	%	92			70-130	Pass	
Zinc (filtered)	S15-De01372	CP	%	88			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S15-De06309	NCP	%	89			70-130	Pass	
Cadmium	S15-De06309	NCP	%	89			70-130	Pass	
Chromium	S15-De06309	NCP	%	86			70-130	Pass	
Copper	S15-De06309	NCP	%	84			70-130	Pass	
Lead	S15-De06309	NCP	%	89			70-130	Pass	
Mercury	S15-De06309	NCP	%	89			70-130	Pass	
Nickel	S15-De06309	NCP	%	84			70-130	Pass	
Zinc	S15-De06309	NCP	%	91			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate					1				
Heavy Metals	1			Result 1	Result 2	RPD			
Arsenic (filtered)	S15-De01371	CP	mg/L	0.001	< 0.001	19	30%	Pass	
Cadmium (filtered)	S15-De01371	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Chromium (filtered)	S15-De01371	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper (filtered)	S15-De01371	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	



Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Lead (filtered)	S15-De01371	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Mercury (filtered)	S15-De01371	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel (filtered)	S15-De01371	CP	mg/L	0.003	0.003	5.0	30%	Pass	
Zinc (filtered)	S15-De01371	CP	mg/L	0.007	0.007	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S15-De01375	СР	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Cadmium	S15-De01375	СР	mg/L	< 0.0005	< 0.0005	<1	30%	Pass	
Chromium	S15-De01375	СР	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Copper	S15-De01375	СР	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Lead	S15-De01375	СР	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Mercury	S15-De01375	СР	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel	S15-De01375	СР	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Zinc	S15-De01375	СР	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 Yes Samples received within HoldingTime Yes Some samples have been subcontracted No

Qualifier Codes/Comments

Code Description

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).

N01

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.

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. N04

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 N07

Authorised By

N02

Charl Du Preez Analytical Services Manager Ivan Taylor Senior Analyst-Metal (NSW) Ryan Hamilton Senior Analyst-Organic (NSW) Ryan Hamilton Senior Analyst-Volatile (NSW)



Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

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

Uncertainty data is available on request

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Sample Receipt 1 Syd

From: Nibha Vaidya

Sent: Tuesday, 1 December 2015 4:35 PM

To: EnviroSampleNSW

Subject: FW: Eurofins | mgt Test Results, Invoice - Report 480540 : Site GEOTLCOV25554AA

(DOOLEYS)

Additional TCLP please.

Nibha Vaidya

Phone: +61 2 9900 8415

Email: NibhaVaidya@eurofins.com.au

PFOS &PSOA proficiency study results demonstrate Eurofins | mgt's commitment to QUALITY - http://environment.eurofins.com.au/media/11492387/environote 1052 - proficiency testing pfass.pdf

----Original Message-----

From: Alex Ructtinger [mailto:Alexander.Ructtinger@coffey.com]

Sent: Tuesday, 1 December 2015 4:34 PM

To: Charl DuPreez; Nibha Vaidya

Cc: Matthew Locke

Subject: RE: Eurofins | mgt Test Results, Invoice - Report 480540 : Site GEOTLCOV25554AA (DOOLEYS)

Could I please schedule the following samples for analysis of TCLP (Lead) on a 5 day turnaround:

Dup01

HA1_0.1-0.2

HA2_0.1-0.2

HA3_0.1-0.2

HA4 0.1-0.2

HA5 0.1-0.2

HA7_0.1-0.2

Kind Regards,

Alex Ructtinger

Environmental Scientist

Level 19, Tower B - Citadel Tower, 799 Pacific Highway, Chatswood, NSW 2067

t: +61 2 9406 1052 f: +61 2 9406 1002 m: +61 427 235 873

----Original Message----

From: charldupreez@eurofins.com.au [mailto:charldupreez@eurofins.com.au]

Sent: Monday, 30 November 2015 5:19 PM



ABN - 50 005 085 521 e.mail: EnviroSales@eurofins.com.au

web: www.eurofins.com.au

Melbourne Melbourne
3-5 Kingston Town Close
Oakleigh Vic 3166
Phone: +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271 Sydney Unit F3, Building F 16 Mars Road Lane Cove West NSW 2066 Phone: +61 2 9900 8400 NATA # 1261 Site # 18217

Brisbane 1/21 Smallwood Place Murarrie QLD 4172 Phone: +61 7 3902 4600 NATA # 1261 Site # 20794

Sample Receipt Advice

Coffey Geotechnics Pty Ltd Chatswood Company name:

Contact name: Alex Ructtinger

ADDITIONAL: GEOTLCOV25554AA Project name:

Project ID: **DOOLEYS** COC number: Not provided

Turn around time: 5 Day

Dec 1, 2015 4:35 PM Date/Time received:

Eurofins | mgt reference: 481681

Sample information

- \mathbf{V} A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- \mathbf{V} Sample Temperature of a random sample selected from the batch as recorded by Eurofins | mgt Sample Receipt: 6.3 degrees Celsius.
- \mathbf{V} All samples have been received as described on the above COC.
- \square COC has been completed correctly.
- **7** Attempt to chill was evident.
- \mathbf{V} Appropriately preserved sample containers have been used.
- \square All samples were received in good condition.
- \square Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- \mathbf{V} Appropriate sample containers have been used.
- \boxtimes Some samples have been subcontracted.
- Custody Seals intact (if used). N/A

Notes

Additional from 480540

Contact notes

If you have any questions with respect to these samples please contact:

Charl Du Preez on Phone: +61 (2) 9900 8400 or by e.mail: charldupreez@eurofins.com.au

Results will be delivered electronically via e.mail to Alex Ructtinger - alexander.ructtinger@coffey.com.

Note: A copy of these results will also be delivered to the general Coffey Geotechnics Pty Ltd Chatswood email address.



Environmental Laboratory Soil Contamination Analysis

NATA Accreditation Stack Emission Sampling & Analysis Trade Waste Sampling & Analysis Groundwater Sampling & Analysis





Coffey Geotechnics Pty Ltd Chatswood Level 18, Tower B, Citadel Tower 799 Pacific Highway Chatswood NSW 2067





Certificate of Analysis

NATA Accredited Accreditation Number 1261 Site Number 1254

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

Attention: Alex Ructtinger

Report 481681-L

Project name ADDITIONAL: GEOTLCOV25554AA

Project ID DOOLEYS
Received Date Dec 01, 2015

Client Sample ID Sample Matrix Eurofins mgt Sample No. Date Sampled Test/Reference Heavy Metals	LOR	Unit	HA1_0.1-0.2 TCLP S15-De01523 Nov 19, 2015	HA2_0.1-0.2 TCLP S15-De01524 Nov 19, 2015	HA3_0.1-0.2 TCLP S15-De01525 Nov 19, 2015	HA4_0.1-0.2 TCLP S15-De01526 Nov 19, 2015
Lead	0.01	mg/L	0.01	< 0.01	< 0.01	0.08
USA Leaching Procedure						
Leachate Fluid ^{C01}		comment	1.0	1.0	1.0	1.0
pH (initial)	0.1	pH Units	6.7	7.3	6.8	6.6
pH (off)	0.1	pH Units	5.6	5.7	6.6	5.9
pH (USA HCl addition)	0.1	pH Units	1.9	2.0	2.0	2.0

Client Sample ID Sample Matrix			HA5_0.1-0.2 TCLP	HA7_0.1-0.2 TCLP
Eurofins mgt Sample No.			S15-De01527	S15-De01528
Date Sampled			Nov 19, 2015	Nov 19, 2015
Test/Reference	LOR	Unit		
Heavy Metals				
Lead	0.01	mg/L	0.01	0.71
USA Leaching Procedure				
Leachate Fluid ^{C01}		comment	1.0	1.0
pH (initial)	0.1	pH Units	7.1	6.6
pH (off)	0.1	pH Units	5.7	5.6
pH (USA HCI addition)	0.1	pH Units	2.1	2.1



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 (regarding both quality and NATA accreditation).

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
Heavy Metals	Sydney	Dec 02, 2015	180 Day
- Method: LTM-MET-3030 by ICP-OES (hydride ICP-OES for Mercury)			
USA Leaching Procedure	Sydney	Dec 02, 2015	14 Day
- Method: E019 TCLP Preparation			

Report Number: 481681-L



Melbourne

3-5 Kingston Town Close Oakleigh VIC 3166 Phone: +61 3 8564 5000 NATA # 1261 Site # 1254 & 14271

Sydney
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ABN - 50 005 085 521 e.mail : EnviroSales@eurofins.com.au

Report #:

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481681

Company Name: Coffey Geotechnics Pty Ltd Chatswood

Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway

Chatswood

NSW 2067

Project Name: ADDITIONAL: GEOTLCOV25554AA

Project ID: DOOLEYS Order No.: Received: Dec 1, 2015 4:35 PM

> Due: Dec 8, 2015 Priority: 5 Day

Contact Name: Alex Ructtinger

Eurofins | mgt Client Manager: Charl Du Preez

		Sample Detail			Lead	USA Leaching Procedure
Laboratory wh	ere analysis is co	onducted				
Melbourne Lak	ooratory - NATA S	Site # 1254 & 14	271			
	atory - NATA Site				X	Х
	oratory - NATA Si	te # 20794				
External Labor	ratory		1			
Sample ID	Sample Date	Sampling Time	Matrix	LAB ID		
HA1_0.1-0.2	Nov 19, 2015		TCLP	S15-De01523	X	Х
HA2_0.1-0.2	Nov 19, 2015		TCLP	S15-De01524	X	Х
HA3_0.1-0.2 Nov 19, 2015 TCLP S15-De01525						
HA4_0.1-0.2 Nov 19, 2015 TCLP S15-De01526						
HA5_0.1-0.2 Nov 19, 2015 TCLP S15-De01527						
HA7_0.1-0.2	Nov 19, 2015		TCLP	S15-De01528	Х	Х



Internal Quality Control Review and Glossary

General

- 1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
- 2. All soil results are reported on a dry basis, unless otherwise stated.
- 3. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
- 4. Results are uncorrected for matrix spikes or surrogate recoveries
- 5. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise
- 6. Samples were analysed on an 'as received' basis. 7. 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.

**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

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.

DuplicateA second piece of analysis from the same sample and reported in the same units as the result to show comparison.

Batch Duplicate A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.

Batch SPIKE Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.

USEPA United States Environmental Protection Agency

APHA American Public Health Association

ASLP Australian Standard Leaching Procedure (AS4439.3)

TCLP Toxicity Characteristic Leaching Procedure

COC Chain of Custody

SRA Sample Receipt Advice

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 50-150% - Phenols 20-130%.

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, Toxophene & Chlordane are not added to the LCS.
- 4. Organochlorine Pesticide analysis where reporting Spike data. Toxophene is not added to the Spike.
- 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 Arochlor 1260 in Matrix Spikes and LCS's.
- 9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
- $10. \ \ Duplicate \ RPD's \ are \ calculated \ from \ raw \ analytical \ data \ thus \ it \ is \ possible \ to \ have \ two \ sets \ of \ data.$

Report Number: 481681-L



Quality Control Results

Test Uni				Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank									
Heavy Metals									
Lead			mg/L	< 0.01			0.01	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Heavy Metals				Result 1					
Lead	S15-De01528	CP	%	85			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Lead	S15-De01527	СР	mg/L	0.01	0.01	7.0	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	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code Description

C01 Leachate Fluid Key: 1 - pH 5.0; 2 - pH 2.9; 3 - pH 9.2; 4 - Reagent (DI) water; 5 - Client sample, 6 - other

Authorised By

Charl Du Preez Analytical Services Manager Ivan Taylor Senior Analyst-Metal (NSW)

Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

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

Uncertainty data is available on request

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Report Number: 481681-L

Sample Receipt 1 Syd

Subject:

FW: Dooleys Lidcombe TCLP Analysis Request

From: Alex Ructtinger [mailto:Alexander.Ructtinger@coffey.com]

Sent: Thursday, 10 December 2015 10:33 AM

To: EnviroSampleNSW; Nibha Vaidya

Cc: Matthew Locke

Subject: Dooleys Lidcombe TCLP Analysis Request

Hi Nibha.

Could we please schedule BH05_0.05-0.2 for TCLP B(a)P please. It is located within report 480934.

Could we please have results by Monday 14th December?

Thanks.

Kind Regards,

Alex Ructtinger

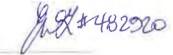
Environmental Scientist

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Sample Receipt Advice

Coffey Geotechnics Pty Ltd Chatswood Company name:

Contact name: Matthew Locke

Project name: ADDITONAL: DOOLEYS LIDCOMBE

Project ID: GEOTLCOV25554AA

COC number: Not provided

Turn around time: 2 Day

Dec 10, 2015 10:33 AM Date/Time received:

Eurofins | mgt reference: 482920

Sample information

- \mathbf{V} A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- \mathbf{V} Sample Temperature of a random sample selected from the batch as recorded by Eurofins | mgt Sample Receipt: 14.1 degrees Celsius.
- \mathbf{V} All samples have been received as described on the above COC.
- \square COC has been completed correctly.
- **7** Attempt to chill was evident.
- \mathbf{V} Appropriately preserved sample containers have been used.
- \square All samples were received in good condition.
- \times Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- \mathbf{V} Appropriate sample containers have been used.
- \boxtimes Some samples have been subcontracted.
- Custody Seals intact (if used). N/A

Notes

B(a)P conducted outside of holding time

Contact notes

If you have any questions with respect to these samples please contact:

Charl Du Preez on Phone: +61 (2) 9900 8400 or by e.mail: charldupreez@eurofins.com.au

Results will be delivered electronically via e.mail to Matthew Locke - Matthew_Locke@coffey.com.

Note: A copy of these results will also be delivered to the general Coffey Geotechnics Pty Ltd Chatswood email address.



Environmental Laboratory Soil Contamination Analysis

NATA Accreditation Stack Emission Sampling & Analysis Trade Waste Sampling & Analysis Groundwater Sampling & Analysis





Coffey Geotechnics Pty Ltd Chatswood Level 18, Tower B, Citadel Tower 799 Pacific Highway Chatswood NSW 2067





Certificate of Analysis

NATA Accredited Accreditation Number 1261 Site Number 1254

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

Attention: Matthew Locke

Report 482920-L

Project name ADDITONAL: DOOLEYS LIDCOMBE

Project ID GEOTLCOV25554AA

Received Date Dec 10, 2015

Client Sample ID Sample Matrix Eurofins mgt Sample No. Date Sampled			BH05_0.05-0.2 TCLP S15-De10503 Nov 25, 2015
Test/Reference	LC	R Ur	nit
Benzo[a]pyrene			
Benzo(a)pyrene	0.0	01 mg	g/L < 0.001
p-Terphenyl-d14 (surr.)	1	%	6 119
2-Fluorobiphenyl (surr.)	1	%	6 100
USA Leaching Procedure			
Leachate Fluid ^{C01}		comr	ment 1.0
pH (initial)	0.	1 pH L	Jnits 11
pH (off)	0.	1 pH L	Jnits 5.5
pH (USA HCI addition)	0.	1 pH L	Jnits 3.2



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 (regarding both quality and NATA accreditation).

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
Benzo[a]pyrene	Sydney	Dec 11, 2015	7 Day
- Method: E007 Benzo[a]pyrene			
USA Leaching Procedure	Sydney	Dec 10, 2015	14 Day
- Method: E019 TCLP Preparation			

Report Number: 482920-L



Melbourne

3-5 Kingston Town Close Oakleigh VIC 3166 Phone: +61 3 8564 5000 NATA # 1261 Site # 1254 & 14271

Sydney Unit F3, Building F 16 Mars Road Lane Cove West NSW 2066 Phone: +61 2 9900 8400 NATA # 1261 Site # 18217

Received:

Priority:

Contact Name:

Due:

Brisbane 1/21 Smallwood Place Murarrie QLD 4172 Phone: +61 7 3902 4600 NATA # 1261 Site # 20794

Dec 10, 2015 10:33 AM

Dec 14, 2015

Matthew Locke

Eurofins | mgt Client Manager: Charl Du Preez

2 Day

ABN - 50 005 085 521 e.mail : EnviroSales@eurofins.com.au

web : www.eurofins.com.au

Level 18, Tower B, Citadel Tower 799 Pacific Highway

Coffey Geotechnics Pty Ltd Chatswood

Chatswood

NSW 2067

ADDITONAL: DOOLEYS LIDCOMBE **Project Name:**

Project ID: GEOTLCOV25554AA

Company Name:

Address:

Order No.:

Report #: 482920 Phone: +61 2 9406 1000

Fax: +61 2 9406 1002

Sample Detail					USA Leaching Procedure	Benzo[a]pyrene
Laboratory where analysis is conducted						
Melbourne Laboratory - NATA Site # 1254 & 14271						
Sydney Laboratory - NATA Site # 18217					Х	Х
Brisbane Laboratory - NATA Site # 20794						
External Laboratory						
Sample ID	Sample Date	Sampling Time	Matrix	LAB ID		
BH05_0.05-0.2	Nov 25, 2015		TCLP	S15-De10503	Χ	Х

Eurofins | mgt Unit F3, Building F, 16 Mars Road, Lane Cove West, NSW, Australia, 2066 ABN: 50 005 085 521 Telephone: +61 2 9900 8400 Facsimile: +61 2 9420 2977

Page 3 of 6



Internal Quality Control Review and Glossary

General

- 1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
- 2. All soil results are reported on a dry basis, unless otherwise stated.
- 3. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
- 4. Results are uncorrected for matrix spikes or surrogate recoveries
- 5. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise
- 6. Samples were analysed on an 'as received' basis. 7. 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.

**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

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.

DuplicateA second piece of analysis from the same sample and reported in the same units as the result to show comparison.

Batch Duplicate A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.

Batch SPIKE Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.

USEPA United States Environmental Protection Agency

APHA American Public Health Association

ASLP Australian Standard Leaching Procedure (AS4439.3)

TCLP Toxicity Characteristic Leaching Procedure

COC Chain of Custody

SRA Sample Receipt Advice

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 50-150% - Phenols 20-130%.

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, Toxophene & Chlordane are not added to the LCS.
- 4. Organochlorine Pesticide analysis where reporting Spike data. Toxophene is not added to the Spike.
- 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 Arochlor 1260 in Matrix Spikes and LCS's.
- 9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
- $10. \ \ Duplicate \ RPD's \ are \ calculated \ from \ raw \ analytical \ data \ thus \ it \ is \ possible \ to \ have \ two \ sets \ of \ data.$

Report Number: 482920-L



Quality Control Results

	Test		Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank									
Benzo[a]pyrene									
Benzo(a)pyrene			mg/L	< 0.001			0.001	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Benzo[a]pyrene				Result 1					
Benzo(a)pyrene	S15-De06711	NCP	%	111			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Benzo[a]pyrene				Result 1	Result 2	RPD			
Benzo(a)pyrene	S15-De06710	NCP	mg/L	< 0.001	< 0.001	<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	Yes
Samples received within HoldingTime	No
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code Description

C01 Leachate Fluid Key: 1 - pH 5.0; 2 - pH 2.9; 3 - pH 9.2; 4 - Reagent (DI) water; 5 - Client sample, 6 - other

Authorised By

Charl Du Preez Analytical Services Manager
Ryan Hamilton Senior Analyst-Organic (NSW)

Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

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

Uncertainty data is available on request

Eurofins, Img shall not be liable for loss, cost, damages or expenses incurred by the client, or any other person or company, resulting from the use of any information or interpretation given in this report, in no case shall Eurofins I mg be liable for consequential claims, but not limited to, lost profits, damages for relative to meet decidines and lost production arising from this report. This document shall be reported used except in full and relates only to the tiens tested. Unless indicated otherwise, the tests were, the test serves, indicated otherwise, the tests were, the test serves in full and relates only to the tiens tested. Unless indicated otherwise, the tests were performed on the samples as received.



CERTIFICATE OF ANALYSIS

Work Order : **ES1537023** Page : 1 of 5

Client : COFFEY ENVIRONMENTS PTY LTD Laboratory : Environmental Division Sydney

Contact : MR MATTHEW LOCKE Contact

Address : LEVEL 19, 799 PACIFIC HIGHWAY Tower B - Citadel Tower Address : 277-289 Woodpark Road Smithfield NSW Australia 2164

CHATSWOOD NSW, AUSTRALIA 2067

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Project : GEOTLCOV25554AA DOOLEYS QC Level : NEPM 2013 B3 & ALS QC Standard

 Order number
 : -- Date Samples Received
 : 24-Nov-2015 12:30

 C-O-C number
 : 0211
 Date Analysis Commenced
 : 24-Nov-2015

Sampler : ---- Issue Date : 01-Dec-2015 13:42

Site : ----

Quote number No. of samples received : 1

Quote number No. of samples analysed · 1

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

This Certificate of Analysis contains the following information:

General Comments

Analytical Results



NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

Signatories

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

 Signatories
 Position
 Accreditation Category

 Pabi Subba
 Senior Organic Chemist
 Sydney Organics

Shobhna Chandra Metals Coordinator Sydney Organics
Sydney Organics
Sydney Organics
Sydney Inorganics

Page : 2 of 5 Work Order : ES1537023

Client : COFFEY ENVIRONMENTS PTY LTD

Project : GEOTLCOV25554AA DOOLEYS

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

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

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

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

When 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.

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.

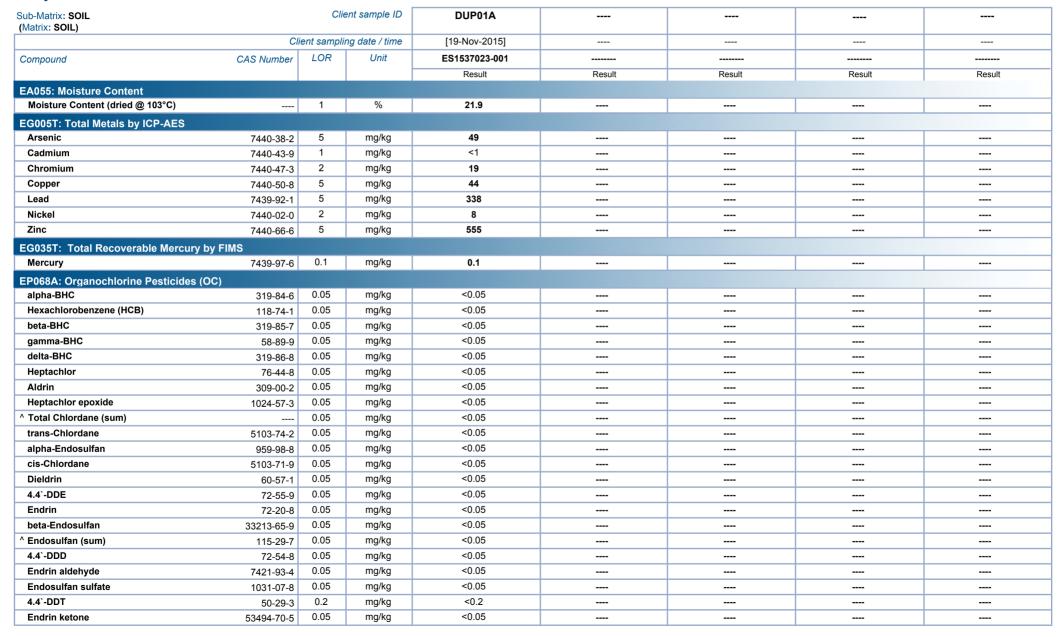
• Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & 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.



Page : 3 of 5 Work Order : ES1537023

Client : COFFEY ENVIRONMENTS PTY LTD

Project : GEOTLCOV25554AA DOOLEYS

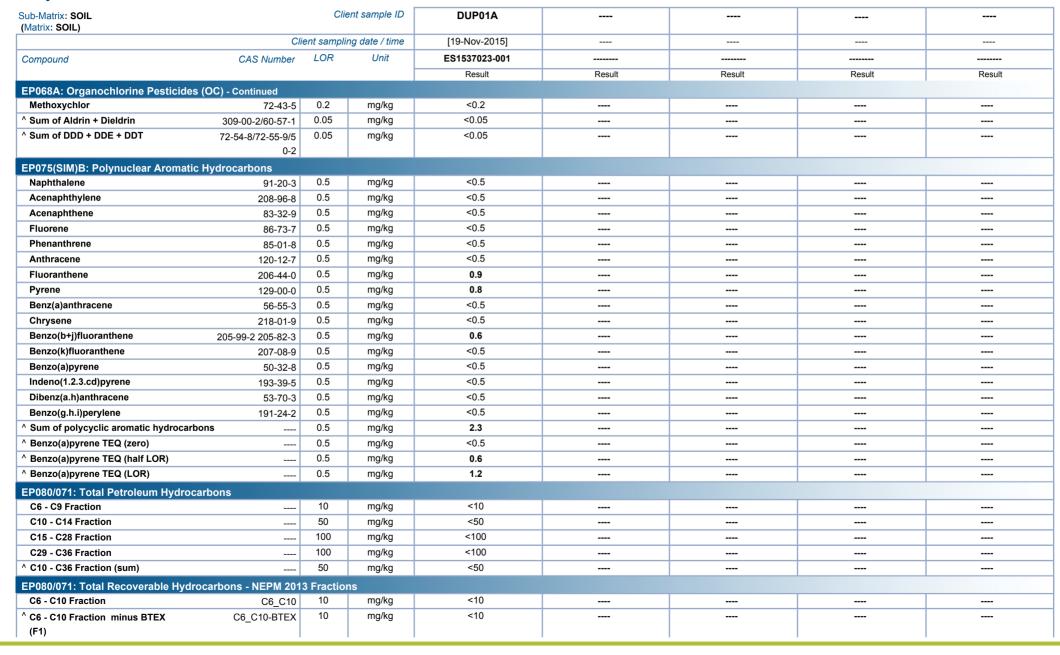




Page : 4 of 5 Work Order : ES1537023

Client : COFFEY ENVIRONMENTS PTY LTD

Project : GEOTLCOV25554AA DOOLEYS

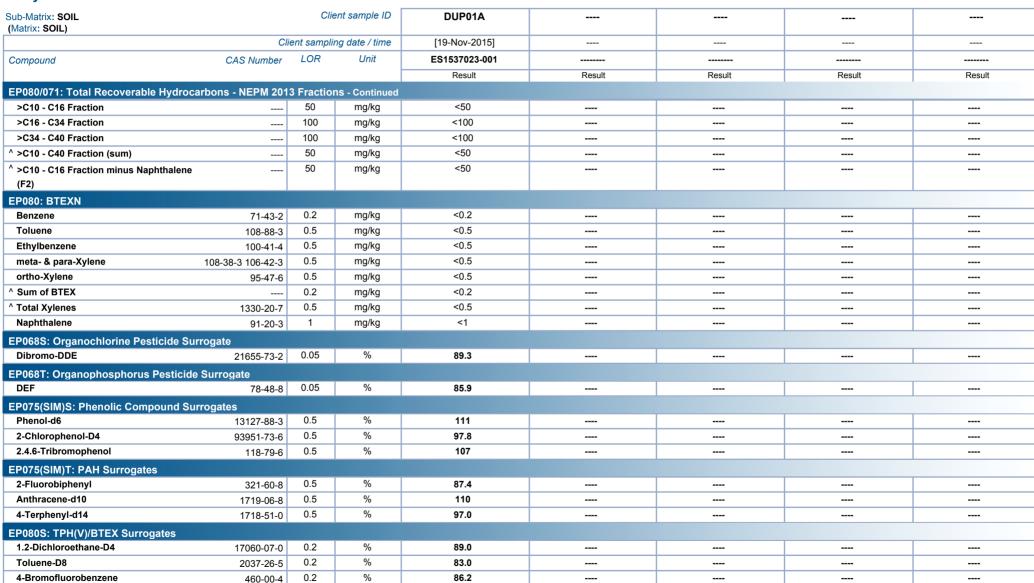




Page : 5 of 5 Work Order : ES1537023

Client : COFFEY ENVIRONMENTS PTY LTD

Project : GEOTLCOV25554AA DOOLEYS







QUALITY CONTROL REPORT

Work Order : **ES1537023** Page : 1 of 10

Client : COFFEY ENVIRONMENTS PTY LTD Laboratory : Environmental Division Sydney

Contact : MR MATTHEW LOCKE Contact

Address : LEVEL 19, 799 PACIFIC HIGHWAY Tower B - Citadel Tower Address : 277-289 Woodpark Road Smithfield NSW Australia 2164

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Project : GEOTLCOV25554AA DOOLEYS QC Level : NEPM 2013 B3 & ALS QC Standard

 Order number
 : --- Date Samples Received
 : 24-Nov-2015

 C-O-C number
 : 0211
 Date Analysis Commenced
 : 24-Nov-2015

 Sampler
 Issue Date
 : 01-Dec-2015

Site : --- No. of samples received : 1

Quote number : --- No. of samples analysed : 1

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

This Quality Control Report contains the following information:

Laboratory 825

Accredited for

compliance with

ISO/IEC 17025.

• Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits

- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited Signatories

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

Signatories Position Accreditation Category

Pabi SubbaSenior Organic ChemistSydney OrganicsShobhna ChandraMetals CoordinatorSydney Inorganics

Page : 2 of 10 Work Order : ES1537023

Client : COFFEY ENVIRONMENTS PTY LTD
Project : GEOTLCOV25554AA DOOLEYS



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

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

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

Key: Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot

CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

RPD = Relative Percentage Difference

= Indicates failed QC

Page : 3 of 10 Work Order : ES1537023

Client : COFFEY ENVIRONMENTS PTY LTD
Project : GEOTLCOV25554AA DOOLEYS



Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:0% - 20%.

Sub-Matrix: SOIL						Laboratory	Duplicate (DUP) Report		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%
A055: Moisture Co	ontent (QC Lot: 288021)								
ES1536988-003	Anonymous	EA055-103: Moisture Content (dried @ 103°C)		1	%	11.4	12.0	4.99	0% - 50%
ES1536989-011	Anonymous	EA055-103: Moisture Content (dried @ 103°C)		1	%	13.0	13.1	0.886	0% - 50%
G005T: Total Metal	Is by ICP-AES (QC Lot:	291257)							
ES1536986-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	26	22	14.0	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	14	12	13.9	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	16	16	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	126	112	11.7	0% - 20%
		EG005T: Lead	7439-92-1	5	mg/kg	87	70	21.3	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	204	175	15.2	0% - 20%
S1537039-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	58	49	17.5	0% - 20%
		EG005T: Chromium	7440-47-3	2	mg/kg	973	984	1.10	0% - 20%
		EG005T: Nickel	7440-02-0	2	mg/kg	266	240	10.4	0% - 20%
		EG005T: Arsenic	7440-38-2	5	mg/kg	22	20	8.90	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	809	842	3.91	0% - 20%
		EG005T: Lead	7439-92-1	5	mg/kg	778	678	13.8	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	32800	29700	9.99	0% - 20%
G035T: Total Reco	overable Mercury by FIN	MS (QC Lot: 291258)							
S1536986-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
S1537039-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.4	0.3	37.8	No Limit
P068A: Organochlo	orine Pesticides (OC) (QC Lot: 287753)							
S1536986-004	Anonymous	EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
	•	EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

Page : 4 of 10 Work Order : ES1537023



sub-Matrix: SOIL						Laboratory	Duplicate (DUP) Report		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP068A: Organochl	orine Pesticides (OC)	(QC Lot: 287753) - continued							
ES1536986-004	Anonymous	EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
ES1536913-041	Anonymous	EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
P075/SIM)R: Polyn	uclear Aromatic Hydro	ocarbons (QC Lot: 287752)							
ES1536986-004	Anonymous		83-32-9	0.5	mg/kg	<0.8	<0.8	0.00	No Limit
LO 1000900-00 4	Anonymous	EP075(SIM): Accepability Inc.	208-96-8	0.5	mg/kg	<0.8	<0.8	0.00	No Limit
		EP075(SIM): Acthroppe	120-12-7	0.5	mg/kg	<0.8	<0.8	0.00	No Limit
		EP075(SIM): Anthracene	56-55-3	0.5	mg/kg	<0.8	<0.8	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	50-32-8	0.5	mg/kg	<0.8	<0.8	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-6	0.5	mg/kg	<0.5	<0.6	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	205-99-2	0.5	mg/kg	<0.8	<0.8	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.0	mg/kg	~0.0	٧٠.٥	0.00	INO LIIIII
		ED075(SIM): Renzo(a h i)pondopo	191-24-2	0.5	mg/kg	<0.8	<0.8	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	207-08-9	0.5	mg/kg	<0.8	<0.8	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.8	<0.8	0.00	No Limit

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ub-Matrix: SOIL						Laboratory	Duplicate (DUP) Report		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%
P075(SIM)B: Polyr	nuclear Aromatic Hydro	carbons (QC Lot: 287752) - continued							
S1536986-004	Anonymous	EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.8	<0.8	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.8	<0.8	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.8	<0.8	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.8	<0.8	0.00	No Limit
		EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.8	<0.8	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.8	<0.8	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.8	<0.8	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons		0.5	mg/kg	<0.5	<0.5	0.00	No Limit
S1536913-041	Anonymous	EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)		0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	0.9	55.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	0.6	22.1	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	0.8	47.9	No Limit
		EP075(SIM): Sum of polycyclic aromatic		0.5	mg/kg	<0.5	2.3	128	No Limit
		hydrocarbons							
P080/071: Total Pe	etroleum Hydrocarbons	(QC Lot: 287751)							
S1536986-004	Anonymous	EP071: C15 - C28 Fraction		100	mg/kg	2590	2590	0.00	0% - 20%
	, , , , , ,	EP071: C29 - C36 Fraction		100	mg/kg	3130	3120	0.491	0% - 20%
		EP071: C10 - C14 Fraction		50	mg/kg	110	110	0.00	No Limit
S1536913-041	Anonymous	EP071: C15 - C28 Fraction		100	mg/kg	<100	<100	0.00	No Limit
	, , , , , , , , , , , , , , , , , , , ,	EP071: C29 - C36 Fraction		100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction		50	mg/kg	<50	<50	0.00	No Limit
P080/071 <u>: Total Pe</u>	etroleum Hydrocarbons								
S1536976-001	Anonymous	EP080: C6 - C9 Fraction		10	mg/kg	<10	<10	0.00	No Limit
S1536980-023	Anonymous	EP080: C6 - C9 Fraction		10	mg/kg	<10	<10	0.00	No Limit

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Sub-Matrix: SOIL						Laboratory L	Ouplicate (DUP) Report		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080/071: Total Re	coverable Hydrocarbons	s - NEPM 2013 Fractions (QC Lot: 287751) - continued							
ES1536986-004	Anonymous	EP071: >C16 - C34 Fraction		100	mg/kg	4700	4680	0.456	0% - 20%
		EP071: >C34 - C40 Fraction		100	mg/kg	1560	1560	0.00	0% - 50%
		EP071: >C10 - C16 Fraction		50	mg/kg	240	240	0.00	No Limit
ES1536913-041	Anonymous	EP071: >C16 - C34 Fraction		100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction		100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction		50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Re	coverable Hydrocarbons	s - NEPM 2013 Fractions (QC Lot: 288003)							
ES1536976-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
ES1536980-023	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080: BTEXN (QC	Lot: 288003)								
ES1536976-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
ES1536980-023	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit

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Client : COFFEY ENVIRONMENTS PTY LTD
Project : GEOTLCOV25554AA DOOLEYS



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

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

Sub-Matrix: SOIL				Method Blank (MB)	Laboratory Control Spike (LCS) Report				
				Report	Spike	Spike Recovery (%)	Recovery	Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High	
EG005T: Total Metals by ICP-AES (QCLot: 29125	57)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	109	86	126	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	100.0	83	113	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	88.3	76	128	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	107	86	120	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	97.8	80	114	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	101	87	123	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	94.3	80	122	
EG035T: Total Recoverable Mercury by FIMS (C	(CLot: 291258)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	79.7	70	105	
EP068A: Organochlorine Pesticides (OC) (QCLo	t: 287753)								
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	110	69	121	
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	108	67	115	
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	101	66	120	
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	98.6	69	115	
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	88.1	69	113	
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	103	66	116	
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	93.8	67	119	
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	103	69	115	
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	103	64	116	
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	83.5	65	117	
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	98.6	66	116	
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	106	62	124	
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	101	67	123	
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	98.3	56	120	
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	96.1	64	122	
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	92.1	68	116	
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	103	67	115	
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	100	62	118	
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	95.3	65	117	
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	87.4	54	130	
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	90.6	63	117	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbo	ns (QCLot: 2 <u>87752)</u>								
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	92.9	73	127	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	95.7	72	124	

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Sub-Matrix: SOIL				Method Blank (MB)	Laboratory Control Spike (LCS) Report				
				Report	Spike	Spike Recovery (%)	Recovery	Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbo	ns (QCLot: 287752) - conti	inued							
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	96.6	77	127	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	91.1	69	123	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	92.2	70	126	
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	91.4	68	116	
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	89.8	63	121	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	96.8	74	126	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	96.8	75	127	
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	87.6	62	118	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	96.3	73	127	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	90.0	72	126	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	89.5	61	121	
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	97.4	77	125	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	96.1	75	127	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	96.2	74	128	
EP080/071: Total Petroleum Hydrocarbons (QCL	ot: 287751)								
P071: C10 - C14 Fraction		50	mg/kg	<50	200 mg/kg	101	75	129	
EP071: C15 - C28 Fraction		100	mg/kg	<100	300 mg/kg	107	77	131	
EP071: C29 - C36 Fraction		100	mg/kg	<100	200 mg/kg	102	71	129	
EP080/071: Total Petroleum Hydrocarbons (QCL	ot: 288003)				, ,				
P080: C6 - C9 Fraction		10	mg/kg	<10	26 mg/kg	84.8	68	128	
EP080/071: Total Recoverable Hydrocarbons - N	EPM 2013 Fractions (QCLo	t: 287751)							
P071: >C10 - C16 Fraction		50	mg/kg	<50	250 mg/kg	106	77	125	
EP071: >C16 - C34 Fraction		100	mg/kg	<100	350 mg/kg	112	74	138	
EP071: >C34 - C40 Fraction		100	mg/kg	<100	150 mg/kg	94.3	63	131	
EP080/071: Total Recoverable Hydrocarbons - N	EPM 2013 Fractions (QCLo	rt: 288003)							
P080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	83.5	68	128	
EP080: BTEXN (QCLot: 288003)									
P080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	91.5	62	116	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	88.0	65	117	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	92.1	66	118	
,	106-42-3								
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	90.2	63	119	
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	96.9	68	120	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	93.8	67	121	

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Client : COFFEY ENVIRONMENTS PTY LTD
Project : GEOTLCOV25554AA DOOLEYS



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

ub-Matrix: SOIL				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery I	Limits (%)
boratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
G005T: Total Me	tals by ICP-AES (QCLot: 291257)						
S1536985-006	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	104	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	105	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	110	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	110	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	122	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	102	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	107	70	130
G035T: Total Re	coverable Mercury by FIMS (QCLot: 291258	3)					
S1536986-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	98.2	70	130
P068A: Organoc	hlorine Pesticides (OC) (QCLot: 287753)						
S1536913-041	Anonymous	EP068: 4.4`-DDT	50-29-3	2 mg/kg	82.0	70	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	99.2	70	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	86.3	70	130
		EP068: Endrin	72-20-8	2 mg/kg	81.6	70	130
		EP068: gamma-BHC	58-89-9	0.5 mg/kg	104	70	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	97.2	70	130
P075(SIM)B: Poly	ynuclear Aromatic Hydrocarbons (QCLot: 2	87752)					
S1536913-041	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	90.4	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	98.1	70	130
P080/071: Total F	Petroleum Hydrocarbons (QCLot: 287751)						
S1536913-041	Anonymous	EP071; C10 - C14 Fraction		523 mg/kg	102	73	137
	, alonyous	EP071: C15 - C28 Fraction		2319 mg/kg	102	53	131
		EP071: C29 - C36 Fraction		1714 mg/kg	124	52	132
P080/071: Total F	Petroleum Hydrocarbons (QCLot: 288003)			3 3			
S1536976-001	Anonymous	EP080: C6 - C9 Fraction		32.5 mg/kg	91.5	70	130
	Recoverable Hydrocarbons - NEPM 2013 Fra			02.0 mg/kg	01.0	7.0	100
S1536913-041				000	91.5	73	137
23 13309 13-04 1	Anonymous	EP071: >C10 - C16 Fraction		860 mg/kg			131
		EP071: >C16 - C34 Fraction		3223 mg/kg	121 113	53 52	131
		EP071: >C34 - C40 Fraction		1058 mg/kg	113	52	132
	Recoverable Hydrocarbons - NEPM 2013 Fra	ictions (QCLot: 288003)					
ES1536976-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	86.6	70	130
P080: BTEXN (Q	(CLot: 288003)						
S1536976-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	80.0	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	86.1	70	130

Page : 10 of 10 Work Order : ES1537023



Sub-Matrix: SOIL		Matrix Spike (MS) Report					
				Spike	SpikeRecovery(%)	Recovery Li	mits (%)
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080: BTEXN (Q0	CLot: 288003) - continued						
ES1536976-001	Anonymous	EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	87.4	70	130
			106-42-3				
		EP080: Naphthalene	91-20-3	2.5 mg/kg	82.1	70	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	92.6	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	82.4	70	130



QA/QC Compliance Assessment to assist with Quality Review

Work Order : **ES1537023** Page : 1 of 4

Client : COFFEY ENVIRONMENTS PTY LTD Laboratory : Environmental Division Sydney

 Contact
 : MR MATTHEW LOCKE
 Telephone
 : +61-2-8784 8555

 Project
 : GEOTLCOV25554AA DOOLEYS
 Date Samples Received
 : 24-Nov-2015

 Site
 : --- Issue Date
 : 01-Dec-2015

Sampler : --- No. of samples received : 1
Order number : --- No. of samples analysed : 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers: Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- NO Method Blank value outliers occur.
- NO Duplicate outliers occur.
- NO Laboratory Control outliers occur.
- NO Matrix Spike outliers occur.
- For all regular sample matrices, NO surrogate recovery outliers occur.

Outliers: Analysis Holding Time Compliance

NO Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

• NO Quality Control Sample Frequency Outliers exist.

Page : 2 of 4 Work Order : ES1537023

Client : COFFEY ENVIRONMENTS PTY LTD
Project : GEOTLCOV25554AA DOOLEYS



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not quarantee a breach for all non-volatile parameters.

Holding times for <u>VOC in soils</u> vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

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

Matrix: SOIL				Evaluation	: 🗴 = Holding time	breach ; ✓ = Withi	n holding time
Method	Sample Date	Ex	traction / Preparation			Analysis	
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content							
Soil Glass Jar - Unpreserved (EA055-103) DUP01A	19-Nov-2015				24-Nov-2015	03-Dec-2015	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) DUP01A	19-Nov-2015	26-Nov-2015	17-May-2016	✓	27-Nov-2015	17-May-2016	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T) DUP01A	19-Nov-2015	26-Nov-2015	17-Dec-2015	1	30-Nov-2015	17-Dec-2015	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068) DUP01A	19-Nov-2015	25-Nov-2015	03-Dec-2015	1	27-Nov-2015	04-Jan-2016	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071) DUP01A	19-Nov-2015	25-Nov-2015	03-Dec-2015	✓	27-Nov-2015	04-Jan-2016	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) DUP01A	19-Nov-2015	25-Nov-2015	03-Dec-2015	✓	27-Nov-2015	04-Jan-2016	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080) DUP01A	19-Nov-2015	25-Nov-2015	03-Dec-2015	✓	26-Nov-2015	03-Dec-2015	✓

Page : 3 of 4
Work Order : ES1537023

Client : COFFEY ENVIRONMENTS PTY LTD
Project : GEOTLCOV25554AA DOOLEYS



Quality Control Parameter Frequency Compliance

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

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

Quality Control Sample Type		Co	ount		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Moisture Content	EA055-103	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	13	15.38	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	13	15.38	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Page : 4 of 4 Work Order : ES1537023

Client : COFFEY ENVIRONMENTS PTY LTD
Project : GEOTLCOV25554AA DOOLEYS



Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055-103	SOIL	In-house. A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Pesticides by GCMS	EP068	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 504,505)
TRH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TRH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve.
Preparation Methods	Method	Matrix	Method Descriptions
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.



CERTIFICATE OF ANALYSIS

Work Order : ES1537701 Page : 1 of 4

Client : COFFEY ENVIRONMENTS PTY LTD Laboratory : Environmental Division Sydney

Contact : MR ALEX RUCTTINGER Contact

Address : LEVEL 19, 799 PACIFIC HIGHWAY Tower B - Citadel Tower : 277-289 Woodpark Road Smithfield NSW Australia 2164

CHATSWOOD NSW, AUSTRALIA 2067

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 : +61 02 9406 1000
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 Facsimile
 : --- Facsimile
 : +61-2-8784 8500

Project : GEOTLCOV25554AA DOOLEYS QC Level : NEPM 2013 B3 & ALS QC Standard

 Order number
 : -- Date Samples Received
 : 01-Dec-2015 17:00

 C-O-C number
 : -- Date Analysis Commenced
 : 03-Dec-2015

Sampler : ---- Issue Date : 09-Dec-2015 12:15

Site : ---No. of samples received

Quote number : --- No. of samples received : 1

Quote number : --- No. of samples analysed : 1

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results



NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

Signatories

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

Signatories Position Accreditation Category

Celine Conceicao Senior Spectroscopist Sydney Inorganics

Page : 2 of 4
Work Order : ES1537701

Client : COFFEY ENVIRONMENTS PTY LTD

Project : GEOTLCOV25554AA DOOLEYS

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

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

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

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

When 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.

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

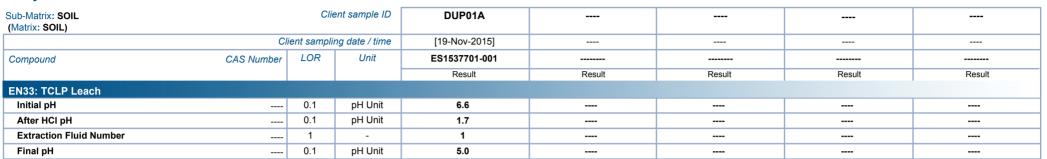
ø = ALS is not NATA accredited for these tests.



Page : 3 of 4
Work Order : ES1537701

Client : COFFEY ENVIRONMENTS PTY LTD

Project : GEOTLCOV25554AA DOOLEYS

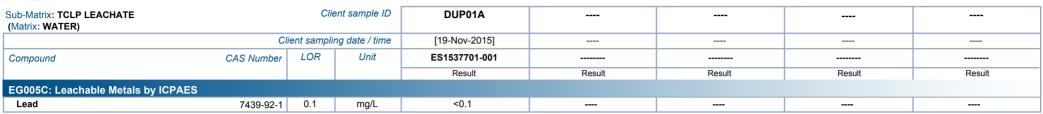




Page : 4 of 4
Work Order : ES1537701

Client : COFFEY ENVIRONMENTS PTY LTD

Project : GEOTLCOV25554AA DOOLEYS







QUALITY CONTROL REPORT

Work Order : **ES1537701** Page : 1 of 4

Client : COFFEY ENVIRONMENTS PTY LTD Laboratory : Environmental Division Sydney

Contact : MR ALEX RUCTTINGER Contact

Address : LEVEL 19, 799 PACIFIC HIGHWAY Tower B - Citadel Tower : 277-289 Woodpark Road Smithfield NSW Australia 2164

CHATSWOOD NSW, AUSTRALIA 2067

E-mail : alexander.ructtinger@coffey.com E-mail

Telephone : +61 02 9406 1000 Telephone : +61-2-8784 8555
Facsimile : ---- Facsimile : +61-2-8784 8500

Project : GEOTLCOV25554AA DOOLEYS QC Level : NEPM 2013 B3 & ALS QC Standard

Order number: ---Date Samples Received: 01-Dec-2015C-O-C number: 03-Dec-2015Sampler---Issue Date: 09-Dec-2015

Site : --- No. of samples received : 1
Quote number : --- No. of samples analysed : 1

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

This Quality Control Report contains the following information:

Laboratory 825

Accredited for

compliance with

ISO/IEC 17025.

• Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits

- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited Signatories

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

Signatories Position Accreditation Category

Celine Conceicao Senior Spectroscopist Sydney Inorganics

Page : 2 of 4
Work Order : ES1537701

Client : COFFEY ENVIRONMENTS PTY LTD
Project : GEOTLCOV25554AA DOOLEYS



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

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

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

Key: Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot

CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

RPD = Relative Percentage Difference

= Indicates failed QC

Page : 3 of 4
Work Order : ES1537701

Client : COFFEY ENVIRONMENTS PTY LTD
Project : GEOTLCOV25554AA DOOLEYS



Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:0% - 20%.

Sub-Matrix: WATER			Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG005C: Leachable N	Metals by ICPAES (QC Lot:	300213)							
ES1537469-001	Anonymous	EG005C: Lead	7439-92-1	0.1	mg/L	<0.1	<0.1	0.00	No Limit
ES1537820-003	Anonymous	EG005C: Lead	7439-92-1	0.1	mg/L	<0.1	<0.1	0.00	No Limit

Page : 4 of 4 Work Order : ES1537701

Client : COFFEY ENVIRONMENTS PTY LTD
Project : GEOTLCOV25554AA DOOLEYS



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

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

Sub-Matrix: SOIL	b-Matrix: SOIL			Method Blank (MB)	Laboratory Control Spike (LCS) Report			
				Report	Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EN33: TCLP Leach (QCLot: 297500)								
EN33a: After HCl pH		0.1	pH Unit	1.0				
EN33a: Final pH		0.1	pH Unit	1.0				
EN33a: Initial pH		0.1	pH Unit	1.0				
Sub-Matrix: WATER				Method Blank (MB)		Laboratory Control Spike (LC	S) Report	
				Report	Spike	Spike Recovery (%)	Recovery	Limits (%)
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005C: Leachable Metals by ICPAES (QCLot: 300213)								
EG005C: Lead	7439-92-1	0.1	mg/L	<0.1	0.1 mg/L	93.4	80	118

Matrix Spike (MS) Report

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

Sub-Matrix: WATER	Matrix Spike (MS) Report						
				Spike	SpikeRecovery(%)	Recovery L	imits (%)
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005C: Leachable	Metals by ICPAES (QCLot: 300213)						
ES1537469-002	Anonymous	EG005C: Lead	7439-92-1	1 mg/L	95.6	70	130



QA/QC Compliance Assessment to assist with Quality Review

Work Order : **ES1537701** Page : 1 of 4

Client : COFFEY ENVIRONMENTS PTY LTD Laboratory : Environmental Division Sydney

 Contact
 : MR ALEX RUCTTINGER
 Telephone
 : +61-2-8784 8555

 Project
 : GEOTLCOV25554AA DOOLEYS
 Date Samples Received
 : 01-Dec-2015

 Site
 : --- Issue Date
 : 09-Dec-2015

Sampler : --- No. of samples received : 1
Order number : --- No. of samples analysed : 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers: Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- NO Method Blank value outliers occur.
- NO Duplicate outliers occur.
- NO Laboratory Control outliers occur.
- NO Matrix Spike outliers occur.
- For all regular sample matrices, NO surrogate recovery outliers occur.

Outliers: Analysis Holding Time Compliance

NO Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

Quality Control Sample Frequency Outliers exist - please see following pages for full details.

Page : 2 of 4
Work Order : ES1537701

Client : COFFEY ENVIRONMENTS PTY LTD
Project : GEOTLCOV25554AA DOOLEYS



Outliers: Frequency of Quality Control Samples

Matrix: SOIL

Quality Control Sample Type	Co	ount	Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Method Blanks (MB)					
TCLP for Non & Semivolatile Analytes	0	11	0.00	9.09	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for <u>VOC in soils</u> vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive <u>or</u> Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: WATER

	Evaluation:	★ = Hol	ding time	breach ; 🔻	🗸 = Within	holding time.
--	-------------	----------------	-----------	------------	------------	---------------

WATER				Lvaluation	. ~ - Holding time	breach, • - with	ir riolaling time.
Method	Sample Date	Ex	traction / Preparation		Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG005C: Leachable Metals by ICPAES							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG005C)							
DUP01A	03-Dec-2015	05-Dec-2015	31-May-2016	✓	07-Dec-2015	31-May-2016	✓

Page : 3 of 4
Work Order : ES1537701

Client : COFFEY ENVIRONMENTS PTY LTD
Project : GEOTLCOV25554AA DOOLEYS



Quality Control Parameter Frequency Compliance

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

Matrix: SOIL				Evaluation	n: 🗴 = Quality Co	ontrol frequency r	not within specification; 🗸 = Quality Control frequency within specificatio	
Quality Control Sample Type		Co	ount		Rate (%)		Quality Control Specification	
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation		
Method Blanks (MB)								
TCLP for Non & Semivolatile Analytes	EN33a	0	11	0.00	9.09	≸ £	NEPM 2013 B3 & ALS QC Standard	
Matrix: WATER				Evaluation	n: × = Quality Co	ontrol frequency r	not within specification; ✓ = Quality Control frequency within specification	
Quality Control Sample Type		Co	ount	Rate (%)			Quality Control Specification	
Analytical Methods	Method	QC	Reaular	Actual	Expected	Evaluation		
Laboratory Duplicates (DUP)								
Leachable Metals by ICPAES	EG005C	2	10	20.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard	
Laboratory Control Samples (LCS)								
Leachable Metals by ICPAES	EG005C	1	10	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard	
Method Blanks (MB)								
Leachable Metals by ICPAES	EG005C	1	10	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard	
Matrix Spikes (MS)								
Leachable Metals by ICPAES	EG005C	1	10	10.00	5.00	1	NEPM 2013 B3 & ALS QC Standard	

Page : 4 of 4 Work Order : ES1537701

Client : COFFEY ENVIRONMENTS PTY LTD
Project : GEOTLCOV25554AA DOOLEYS



Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
Leachable Metals by ICPAES	EG005C	SOIL	In house: referenced to APHA 3120; USEPA SW 846 - 6010: The ICPAES technique ionises leachate sample atoms emitting a characteristic spectrum. This spectrum is then compared against matrix matched standards for quantification. This method is compliant with NEPM (2013) Schedule B(3)
Preparation Methods	Method	Matrix	Method Descriptions
TCLP for Non & Semivolatile Analytes	EN33a	SOIL	In house QWI-EN/33 referenced to USEPA SW846-1311: The TCLP procedure is designed to determine the mobility of both organic and inorganic analytes present in wastes. The standard TCLP leach is for non-volatile and Semivolatile test parameters.

Appendix I Site Photographs



Photograph 1. Southern section of site – Dooley's Catholic Club Car Park.



Photograph 2. Residential dwellings on northern section of site, with Board Street in the foreground.



Photograph 3. Fragments of cement sheeting suspected to contain asbestos. Fragments present on surface soil of rear yard of no.26 Board Street.



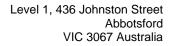
Photograph 4. Rail corridor and Lidcombe Station to the south of the site.



Photograph 5. Light commercial businesses on John Street.

Detailed Site Investigation Dooley's Catholic Club and Hotel Development, Olympic Drive, Lidcombe NSW

Appendix J Health Risk Screening Assessment





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coffey.com

30 March 2016

Our ref: GEOTLCOV25554AA-AI

Bouygues Construction Australia Olympic Drive, Lidcombe, Sydney, NSW

Attention: George Pontifix

Dear George

Limited Health Risk Screening Assessment - Groundwater Seepage at Proposed Development at Olympic Drive, Lidcombe, Sydney, NSW

1. Background

A limited risk assessment was conducted to address potential impacts to human health associated with groundwater seepage into a basement structure based on the proposed redevelopment at Olympic Drive, Lidcombe, NSW, referred to further as the 'site'.

The proposed development includes a two level basement structure that will extend approximately 6 m below ground surface (mbgs). The development will include a club area (gaming, dining, bar, reception), business/conference area and a hotel. The current (December 2015) water level has been recorded to range between 4.3mbgs and 6.0mbgs at monitoring well BH05 and the lower basement level is likely to intersect the water table. Based on the development plans provided, it is understood the lower basement level will be used for a range of purposes:

- Car parking
- Plant equipment /system rooms
- Storage (including food & beverages, linen, garbage bins and compactors)
- Offices (administration and security)
- Staff rooms (toilets/change rooms, kitchen and dining)
- Delivery docks

Groundwater infiltrating into the proposed basement is understood to be collected via a floor drainage system and pumped to stormwater drains for discharge.

Hydrocarbon impact in groundwater was detected in the December 2015 monitoring event with maximum hydrocarbon concentrations of TPH (F1 fraction) 40 μ g/L (at monitoring wells BH01 and

BH05) and xylenes 5 μ g/L (BH01). All other hydrocarbon analytes were reported at concentrations below the limit of reporting.

2. Purpose

The purpose of this basement screening evaluation was to determine the likely health risks to future site users associated with the identified hydrocarbon impacted groundwater.

The screening assessment was conducted in accordance with the Schedule B4 of the NEPM (2013) "Site-Specific Health Risk Assessment Methodology".

3. Exposure assessment

Based on the proposed usage of the lower basement level, the selected receptors include car park users, club and hotel employees (commercial workers), workers involved in the maintenance and repair of the drainage and sump/pump systems, and construction workers within a basement excavation during site development.

The identified hydrocarbon contaminants in groundwater are considered to be volatile; therefore, lower basement users may be exposed via the inhalation of hydrocarbon vapours associated with impacted groundwater seeping into the basement structure. Similarly, maintenance and construction workers may be exposed via the inhalation of hydrocarbon vapours, in addition to incidental ingestion or dermal contact with impacted water whilst conducting drainage/sump works or construction of the proposed basement.

It is assumed the floor drains will be inaccessible to general car park users or commercial workers, thereby preventing direct contact exposures. The identified exposure pathways are summarised in Table 3-1.

Table 3-1: Exposure Pathway Evaluation

On-site Receptor	Source	Point of Exposure	Complete exposure pathway/Scenario				
			Inhalation	Dermal Contact	Incidental ingestion		
Lower basement car park /store room user / commercial worker	Groundwater	Basement car park	√	×	×		
Maintenance worker	seepage & volatilisation	Basement drainage/sump area	√	✓	√		
Construction Worker		Basement excavation	✓	✓	√		

[✓] Pathway potentially complete

4. Screening Assessment

The selection of appropriate screening criteria for groundwater associated with seepage into a basement is based on the identified potentially complete exposure scenarios in Table 3-1.

Pathway incomplete

Screening criteria deemed protective of future construction and maintenance workers and users of a basement structure (particularly intersecting the watertable) have not been established in the amended NEPM for the identified potentially complete exposure pathways.

Australian and international sources of screening criteria for TPH fractions are limited given they are based on mixtures rather than individual compounds. Two guideline sources were selected based on the following:

Drinking water guidelines - World Health Organisation (WHO)

Petroleum Products in Drinking-Water. Background document for development of WHO Guidelines for Drinking water Quality (WHO, 2008).

- Drinking water guidelines were derived by the WHO that are protective of health associated with
 the ingestion of petroleum hydrocarbon impacted water. The guidelines are not considered to
 address aesthetic impacts; however, given the groundwater is not intended for drinking water
 purposes, the consideration of aesthetics is not considered relevant for the groundwater seepage
 scenarios identified.
- The drinking water guideline assumes 2.0 L is consumed per day for 365 days/year which is conservative given incidental ingestion is likely to be less than 0.1 L/day for 40 days/year for workers in the identified scenarios.
- The guideline includes a conservative assumption that 90% of exposure to the contaminant is
 associated with other background sources such as in air, food and direct contact. Given the low
 concentrations reported in groundwater at the site, the guideline is considered to be protective of
 exposures via other pathways such as dermal contact.

Regional Screening Levels (RSLs) for Tapwater – United States Environmental Protection Agency, (USEPA, 2015) (http://www.epa.gov/risk/regional-screening-levels-rsls -generic-tables-november-2015)

- Tapwater RSLs are generally derived to be protective of the inhalation (volatilisation of compounds during bathing/showering), ingestion and dermal contact pathways, where appropriate (i.e. if sufficiently volatile at room temperature), and where toxicity criteria is available.
- The RSLs for tapwater are intended to be protective of children.
- Exposure parameters adopted to derive criteria are based on daily domestic use of the water
 which is significantly higher than exposure parameters expected in the scenarios identified in this
 assessment. For example, residential exposures, assumed to occur 365 days/year for 30 years
 and are based on the physical parameters for children, are considered to overestimate exposures
 relating to an adult worker exposed for 10 days/year over a 30 year period (maintenance),40
 days/year over a 1 year period (construction) or 240 days/year over a 30 year period
 (commercial).
- It is noted the published RSLs for the low aliphatic TPH fraction is only based on the inhalation pathway, and the medium aliphatic TPH fraction is based on the inhalation and ingestion pathways. The low and medium aromatic fractions however have included the inhalation, dermal and ingestion pathways in the RSL derivation.

The maximum reported hydrocarbon concentrations and selected screening criteria are presented in Table 4-1.

Table 4-1: Screening Criteria Selection

TPH fraction	WHO drinking water criteria ug/L	USEPA Tapwater criteria ug/L	Maximum Groundwater Concentration μg/L
TPH Aliphatic EC >5 - EC 8	300 (1)	13,000 (2)	40
TPH Aliphatic EC >9 – EC 16	300 ⁽¹⁾	100 (1),(2)	
Xylenes	500 ⁽¹⁾	190 (1) (2) (3)	5

⁽¹⁾ Protective of ingestion pathway

The comparison of the maximum reported concentrations with the selected screening criteria indicates scenarios involving inhalation and/or ingestion exposures are considered to be acceptable. On this basis, car park users where only inhalation is expected to be the complete exposure pathway, no exceedances of the screening criteria were noted.

Whilst the dermal contact exposure pathway was not specifically evaluated in the development of the USEPA tapwater RSLs for the TPH aliphatic fractions associated with the F1 fraction, the selected criteria are considered appropriate based on the following:

- Conservative background exposures incorporated into the derivation of the WHO screening criteria are considered to be sufficiently protective of acute or subchronic dermal exposures by commercial, maintenance and construction workers.
- The exposure periods generally associated with commercial, maintenance and construction workers are considerably less than those assumed in deriving tapwater RSLs for domestic usage, and adopted physical parameters for children are also considered conservative.
- Preliminary studies conducted by Coffey and other consultants (Hanson, 2015) have evaluated
 the use of drinking water guidelines, developed based on 90% background exposures (i.e. WHO
 and the Australian Drinking Water Guidelines (ADWG)), to screen for other exposure pathways
 based on recreational or maintenance scenarios. The preliminary outcomes indicate the WHO
 and ADWG guidelines were protective of recreational or maintenance trench scenarios (which
 include inhalation, ingestion and dermal contact pathways).

5. Conclusions

The limited site specific health risk screening evaluation was undertaken to assess the potential health risks to site users of the proposed future development where hydrocarbon impacted groundwater infiltrates into a basement or construction excavation.

Based on the information provided, receptors of concern included car park users, commercial workers, maintenance workers and construction workers. Although limited screening criteria have been specifically established for the TPH F1 fraction and identified exposure scenarios by international agencies, protective screening criteria were selected based on the pathways included in their derivation and the conservative assumptions adopted. The health risks associated with the exposure scenarios evaluated are summarised in Table 5-1.

⁽²⁾ Protective of inhalation pathway

⁽³⁾ Protective of dermal contact pathway.

Table 5-1: Exposure Pathway - Risk Evaluation

On-site Receptor	Source	Point of Exposure	Exposure Scenario – Risk Evaluation		Evaluation	
			Inhalation	Dermal Contact	Incidental ingestion	
Lower basement car park / store room user, commercial worker	Infiltration of	Basement car park	Low & Acceptable	NA NA		
Maintenance worker	groundwater	Basement drainage systems	Low & Acceptable			
Construction Worker		Basement excavation	Low & Acceptable			

NA - Not applicable as pathway not considered complete based on managed limited access.

Based on the current concentrations of hydrocarbons detected in groundwater at the site, the seepage of groundwater into a lower basement structure or construction excavation is considered to present a low and acceptable health risk to future basement car park users, commercial workers, drainage/sump maintenance workers and construction workers within a basement excavation.

For and on behalf of Coffey

Koren Teggre

Karen Teague Principal

Attachment: Statement of Limitations

References

- Hanson, K. (2015). RISK-BASED SCREENING CRITERIA. *CleanUp 2015* (pp. 258-259). Melbourne: CRC Care.
- NEPC. (2013). *National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No. 1).* Canberra: National Environment Protection Council.
- NHMRC & NRMMC. (2015). *Australian Drinking Water Guidelines 6 Version 3.1.* Canberra: National Health and Medical Research Council and Natural Resource Management Ministerial Council.
- USEPA. (2015). Regional Screening Levels (RSL) for Chemical Contaminants at Superfund Sites. Summary Table (TR=1E-6, HQ=0.1), June 2015. U.S. Environmental Protection Agency.
- WHO. (2008). Petroleum Products in Drinking-water. Background document for development of WHO Guidelines for Drinking-water Quality. Geneva: World Health Organisation.



Important information about your Coffey Environmental Report

Introduction

This report has been prepared by Coffey for you, as Coffey's client, in accordance with our agreed purpose, scope, schedule and budget.

The report has been prepared using accepted procedures and practices of the consulting profession at the time it was prepared, and the opinions, recommendations and conclusions set out in the report are made in accordance with generally accepted principles and practices of that profession.

The report is based on information gained from environmental conditions (including assessment of some or all of soil, groundwater, vapour and surface water) and supplemented by reported data of the local area and professional experience. Assessment has been scoped with consideration to industry standards, regulations, guidelines and your specific requirements, including budget and timing. The characterisation of site conditions is an interpretation of information collected during assessment, in accordance with industry practice,

This interpretation is not a complete description of all material on or in the vicinity of the site, due to the inherent variation in spatial and temporal patterns of contaminant presence and impact in the natural environment. Coffey may have also relied on data and other information provided by you and other qualified individuals in preparing this report. Coffey has not verified the accuracy or completeness of such data or information except as otherwise stated in the report. For these reasons the report must be regarded as interpretative, in accordance with industry standards and practice, rather than being a definitive record.

Your report has been written for a specific purpose

Your report has been developed for a specific purpose as agreed by us and applies only to the site or area investigated. Unless otherwise stated in the report, this report cannot be applied to an adjacent site or area, nor can it be used when the nature of the specific purpose changes from that which we agreed.

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

Limitations of the Report

The work was conducted, and the report has been prepared, in response to an agreed purpose and scope, within time and budgetary constraints, and in reliance on certain data and information made available to Coffey.

The analyses, evaluations, opinions and conclusions presented in this report are based on that purpose and scope, requirements, data or information, and they could change if such requirements or data are inaccurate or incomplete.

This report is valid as of the date of preparation. The condition of the site (including subsurface conditions) and extent or nature of contamination or other environmental hazards can change over time, as a result of either natural processes or human influence. Coffey should be kept appraised of any such events and should be consulted for further investigations if any changes are noted, particularly during construction activities where excavations often reveal subsurface conditions.

In addition, advancements in professional practice regarding contaminated land and changes in applicable statues and/or guidelines may affect the validity of this report. Consequently, the currency of conclusions and recommendations in this report should be verified if you propose to use this report more than 6 months after its date of issue.

The report does not include the evaluation or assessment of potential geotechnical engineering constraints of the site.

Interpretation of factual data

Environmental site assessments identify actual conditions only at those points where samples are taken and on the date collected. Data derived from indirect field measurements, and sometimes other reports on the site, are interpreted by geologists, engineers or scientists to provide an opinion about overall site conditions, their likely impact with respect to the report purpose and recommended actions.

Variations in soil and groundwater conditions may occur between test or sample locations and actual conditions may differ from those inferred to exist. No environmental assessment program, no matter how comprehensive, can reveal all subsurface details and anomalies. Similarly, no professional, no matter how well qualified, can reveal what is hidden by earth, rock or changed through time.

The actual interface between different materials may be far more gradual or abrupt than assumed based on the facts obtained. Nothing can be done to change the actual site conditions which exist, but steps can be taken to reduce the impact of unexpected conditions.

For this reason, parties involved with land acquisition, management and/or redevelopment should retain the services of a suitably qualified and experienced environmental consultant through the development and use of the site to identify variances, conduct additional tests if required, and recommend solutions to unexpected conditions or other unrecognised features encountered on site. Coffey would be pleased to assist with any investigation or advice in such circumstances.

Recommendations in this report

This report assumes, in accordance with industry practice, that the site conditions recognised through discrete sampling are representative of actual conditions throughout the investigation area. Recommendations are based on the resulting interpretation.

Should further data be obtained that differs from the data on which the report recommendations are based (such as through excavation or other additional assessment), then the recommendations would need to be reviewed and may need to be revised.

Report for benefit of client

Unless otherwise agreed between us, the report has been prepared for your benefit and no other party. Other parties should not rely upon the report or the accuracy or completeness of any recommendation and should make their own enquiries and obtain independent advice in relation to such matters.

Coffey assumes no responsibility and will not be liable to any other person or organisation for, or in relation to, any matter dealt with or conclusions expressed in the report, or for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusions expressed in the report.

To avoid misuse of the information presented in your report, we recommend that Coffey be consulted before the report is provided to another party who may not be familiar with the background and the purpose of the report. In particular, an environmental disclosure report for a property vendor may not be suitable for satisfying the needs of that property's purchaser. This report should not be applied for any purpose other than that stated in the report.

Interpretation by other professionals

Costly problems can occur when other professionals develop their plans based on misinterpretations of a report. To help avoid misinterpretations, a suitably qualified and experienced environmental consultant should be retained to explain the implications of the report to other professionals referring to the report and then review plans and specifications produced to see how other professionals have incorporated the report findings.

Given Coffey prepared the report and has familiarity with the site, Coffey is well placed to provide such

assistance. If another party is engaged to interpret the recommendations of the report, there is a risk that the contents of the report may be misinterpreted and Coffey disowns any responsibility for such misinterpretation.

Data should not be separated from the report

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

This report should be reproduced in full. No responsibility is accepted for use of any part of this report in any other context or for any other purpose or by third parties.

Responsibility

Environmental reporting relies on interpretation of factual information using professional judgement and opinion and has a level of uncertainty attached to it, which is much less exact than other design disciplines. This has often resulted in claims being lodged against consultants, which are unfounded. As noted earlier, the recommendations and findings set out in this report should only be regarded as interpretive and should not be taken as accurate and complete information about all environmental media at all depths and locations across the site.