

Appendix C Monitoring Data

Groundwater Monitoring South Site Reservoir

Installation ref	Total Depth (m)	Installed Strata	Free product recorded?		Depth to groundwater (m)	Comments/Notes		
			Y/N	Product Thickness				
May-99								
MSMW100			N		1.6			
MSMW103d			N		2.45			
MSMW103s			N		2.22			
MSMW104			Y	trace	4.22			
MSMW217d			N		0.15			
MSMW217s			N		0.1			
Mar-00								
MSMW100			N		1.67			
MSMW103d			N		2.29			
MSMW103s			N		2.07			
MSMW104			N		4.06			
MSMW217d			N		0.01			
MSMW217s			N		0.005			
Sep-00								
MSMW100			N		1.77			
MSMW101			N		0.72			
MSMW103d			N		3.6			
MSMW103s			N		2.5			
MSMW104			N		5.014			
MSMW217d			N		0.05			
MSMW217s			N		0.03			
Mar-01								
MSMW100			N		1.64			
MSMW101			N		0.93			
MSMW103d			N		2.39			
MSMW103s			N		2.19			
MSMW104			N		4.3			
RHRW032			Y	0.03	2.39			
RHRW033A			Y	0.001	1.7			
RHRW033B			N		1.69			
RHRW034A			Y	0.002	1.57			
RHRW034B			N		0.83			
RHRW035			N		1.65			
Apr-01								
RHRW032			N		2.051			
RHRW033A			N		1.51			
RHRW033B			N		1.54			
RHRW034A			Y	trace	1.44			
RHRW034B			N		0.65			
RHRW035			N		1.48			
May-01								
RHRW032			N		2.43			
RHRW033A			N		1.83			
RHRW033B			N		1.89			
RHRW034A			N		1.5			
RHRW034B			N		0.91			
RHRW035			N		1.67			
Jun-01								
RHRW032			Y	0.01	2.72			
RHRW033A			Y	0.001	2.21			
RHRW033B			N		2.6			
RHRW034A			Y	0.001	1.73			
RHRW034B			N		1.03			
RHRW035			N		1.81			
Sep-01								
MSMW100			N		1.7			
MSMW101			N		0.93			
MSMW104			N		5.07			
RHRW032			Y	0.01	2.6			
RHRW033A			N		2.13			
RHRW034A			Y	0.001	1.96			
RHRW034B			N		1.52			
RHRW035			Y	0.001	1.94			
Mar-02								
MSMW100			N		1.59			
MSMW103d			N		2.4			
MSMW103s			N		2.18			
MSMW104			N		4.3			
RHRW032			N		2.45			
RHRW033A			N		1.78			
RHRW033B			N		1.65			
RHRW034A			N		1.36			
RHRW034B			N		0.88			

RHRW035			N	trace	1.63			
Sep-02								
MSMW100			N		1.94			
MSMW101			N		0.86			
MSMW103d			N		3.05			
MSMW103s			N		2.73			
MSMW104			N		5.5			
MSMW217d			N		0.23			
MSMW217s			N		0.25			
RHRW033A			N		3.09			
RHRW034A			Y	trace	2.41			
RHRW034B			N		1.83			
RHRW035			Y	0.002	2.3			
Mar-03								
MSMW100			N		1.68			
MSMW103d			N		2.48			
MSMW103s			N		2.32			
MSMW104			N		4.31			
MSMW217d			N		0.05			
RHRW032			N		2.58			
RHRW033A			N		1.84			
RHRW033B			N		1.98			
RHRW034A			N		1.43			
RHRW034B			N		1.36			
RHRW035			Y	0.002	1.45			
Oct-03								
WMSW004			N		1.11			
WSMW005			N		0.31			
MSMW100			N		1.94			
MSMW101			N		0.83			
MSMW103d			N		3.12			
MSMW103s			N		0.11			
MSMW104			N		5.44			
MSMW217d			N		0.16			
MSMW217s			N		0.19			
RHRW033B			N		2.79			
RHRW034A			N		2.23			
RHRW034B			N		1.84			
RHRW035			Y	0.002	2.25			
Mar-04								
MSMW101			N		0.845			
MSMW103d			N		2.3			
MSMW103s			N		2			
MSMW104			N		4.27			
RHRW033A			N		1.916			
RHRW033B			N		1.58			
RHRW034A			N		1.22			
RHRW034B			N		0.84			
RHRW035			N		1.45			
Sep-04								
MSMW101			N		0.86			
MSMW103s			N		2.4			
MSMW104			N		4.04			
RHRW034A			N		1.43			
RHRW034B			N		0.98			
RHEW035			N		1.67			
Mar-06								
RHRW026			N		5.02			
RHRW027			N		5.16			
RHRW028			Y	0.01	4.06			
RHRW029A			Y	0.05	4.2			
RHRW030			N		4.11			
RHRW031			N		DRY			
RHRW034A			N		1.14			
RHRW034B			N		0.76			
RHRW035			Y	0.01	1.48			
Sep-06								
RHRW028			Y	trace	4.395			
RHRW034A			N		2.08			
RHRW034B			N		1.78			
May-08								
MSMW100			N		1.71			
MSMW103d			N		2.82			

MSMW104			N		5.03			
RHRW032			N		2.76			
RHRW034A			N		1.12			
RHRW034B			N		0.99			
RHRW035			Y	0.29	1.85			
Oct-08								
MSMW100			N		1.54			
MSMW103d			N		2.4			
MSMW104			N		4.35			
RHRW027			N		4.92			
RHRW028			Y	trace	4.4			
RHRW029			Y	0.1	4.2			
RHRW032			N		2.35			
RHRW034A			N		1.08			
RHRW034B			N		0.9			
RHRW035			Y	0.15	1.6			
Apr-09								
RHRW027			N					
RHRW028			Y	0.01	5.2			
RHRW029				0.01	4.18			
RHRW030			N		4.27			
RHRW031			N		DRY			
RHRW032			N		DRY			
RHRW033A			N		2.68			
RHRW034A			N		1.91			
RHRW034B			N		1.11			
RHRW035			Y	0.01	0.93			
Oct-09								
MSMW100			N		1.3			
MSMW103d			N		2.04			
MSMW104			N		4.89			
RHRW027			N		4.92			
RHRW028			Y	0.01	3.82			
RHRW031			N		DRY			
RHRW032			N		2.46			
RHRW034A			N		0.77			
RHRW034B			N		0.6			
RHRW035			Y	0.01	0.88			
Apr-10								
RHRW028			N					
RHRW029			N		3.74			
RHRW030			N		3.94			
RHRW031			N		DRY			
RHRW032			N		DRY			
RHRW034A			N		2.29			
RHRW034B			N		0.57			
RHRW035			Y	0.02	0.57			
					1.01			
Jun-10								
RHRW027			N					
RHRW028			Y	0.01	5.37			
RHRW029			Y	0.02	4.42			
RHRW030			N		4.53			
RHRW031			N		DRY			
RHRW032			N		DRY			
RHRW033A			N		DRY			
RHRW033B			N		DRY			
RHRW034A			N		DRY			
RHRW034B			N		1.82			
RHRW035			Y	0.03	1.52			
					2.08			
Nov-10								
MSMW100			N		0.95			
MSMW103d			N		1.63			
MSMW104			N		2.87			
RHRW028			N		4.06			
RHRW029			Y	0.04	4.18			
RHRW030			N		DRY			
RHRW031			N		DRY			
RHRW032			N		2.43			
RHRW034A			N		1.70			
RHRW034B			N		0.88			
RHRW035			Y	0.1	0.36			

Appendix D Chemical Laboratory Reports



Atkins Global Ltd
Project Jonah site office
Llan Coed House
Suite 24
Coed Darcy
Llandarcy
SA10 6HJ

Attention: Alex Mann

CERTIFICATE OF ANALYSIS

Date: 05 July 2011
Customer: H_ATKINS_LDC
Sample Delivery Group (SDG): 110629-14
Your Reference: SSR Base Samples
Location: Coed Darcy
Report No: 137520

We received 8 samples on Wednesday June 29, 2011 and 8 of these samples were scheduled for analysis which was completed on Tuesday July 05, 2011. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

All chemical testing (unless subcontracted) is performed at ALcontrol Hawarden Laboratories.

Approved By:

Sonia McWhan

Operations Manager





SDG:	110629-14	Location:	Coed Darcy	Order Number:	CD0142
Job:	H_ATKINS_LDC-124	Customer:	Atkins Global Ltd	Report Number:	137520
Client Reference:	SSR Base Samples	Attention:	Alex Mann	Superseded Report:	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
3767611	SSR 15			28/06/2011
3767612	SSR 18			28/06/2011
3767613	SSR 22			28/06/2011
3767614	SSR 25			28/06/2011
3767615	SSR 28			28/06/2011
3767616	SSR 29			28/06/2011
3767617	SSR 38			28/06/2011
3767618	SSR 41			28/06/2011

Only received samples which have had analysis scheduled will be shown on the following pages.



CERTIFICATE OF ANALYSIS

SDG: 110629-14
Job: H_ATKINS_LDC-124
Client Reference: SSR Base Samples

Location: Coed Darcy
Customer: Atkins Global Ltd
Attention: Alex Mann

Order Number: CD0142
Report Number: 137520
Superseded Report:

SOLID Results Legend X Test N No Determination Possible	Lab Sample No(s)		3767611	3767612	3767613	3767614	3767615	3767616	3767617	3767618
	Customer Sample Reference		SSR 15	SSR 18	SSR 22	SSR 25	SSR 28	SSR 29	SSR 38	SSR 41
	AGS Reference									
	Depth (m)									
	Container		250g Amber Jar (AL 250g VOC (ALE214)	250g Amber Jar (AL 60g VOC (ALE215)	250g Amber Jar (AL 60g VOC (ALE215)	250g Amber Jar (AL 60g VOC (ALE215)	250g Amber Jar (AL 60g VOC (ALE215)	250g Amber Jar (AL 60g VOC (ALE215)	250g Amber Jar (AL 60g VOC (ALE215)	250g Amber Jar (AL 60g VOC (ALE215)
EPH CWG (Aliphatic) GC (S)	All	NDPs: 0 Tests: 8	X	X	X	X	X	X	X	X
EPH CWG (Aromatic) GC (S)	All	NDPs: 0 Tests: 8	X	X	X	X	X	X	X	X
GRO by GC-FID (S)	All	NDPs: 0 Tests: 8		X	X	X	X	X	X	X
Metals by iCap-OES (Soil)	Arsenic	NDPs: 0 Tests: 8	X	X	X	X	X	X	X	X
	Cadmium	NDPs: 0 Tests: 8	X	X	X	X	X	X	X	X
	Chromium	NDPs: 0 Tests: 8	X	X	X	X	X	X	X	X
	Copper	NDPs: 0 Tests: 8	X	X	X	X	X	X	X	X
	Lead	NDPs: 0 Tests: 8	X	X	X	X	X	X	X	X
	Mercury	NDPs: 0 Tests: 8	X	X	X	X	X	X	X	X
	Nickel	NDPs: 0 Tests: 8	X	X	X	X	X	X	X	X
	Selenium	NDPs: 0 Tests: 8	X	X	X	X	X	X	X	X
	Vanadium	NDPs: 0 Tests: 8	X	X	X	X	X	X	X	X
	Zinc	NDPs: 0 Tests: 8	X	X	X	X	X	X	X	X
PAH by GCMS	All	NDPs: 0 Tests: 8	X	X	X	X	X	X	X	X
pH	All	NDPs: 0 Tests: 8	X	X	X	X	X	X	X	X



CERTIFICATE OF ANALYSIS

SDG: 110629-14
Job: H_ATKINS_LDC-124
Client Reference: SSR Base Samples

Location: Coed Darcy
Customer: Atkins Global Ltd
Attention: Alex Mann

Order Number: CD0142
Report Number: 137520
Superseded Report:

SOLID																		
Results Legend X Test N No Determination Possible	Lab Sample No(s)		3767611		3767612		3767613		3767614		3767615		3767616		3767617		3767618	
	Customer Sample Reference		SSR 15		SSR 18		SSR 22		SSR 25		SSR 28		SSR 29		SSR 38		SSR 41	
	AGS Reference																	
	Depth (m)																	
	Container		400g Tub (ALE214)		250g Amber Jar (AL)		60g VOC (ALE215)		400g Tub (ALE214)		250g Amber Jar (AL)		60g VOC (ALE215)		400g Tub (ALE214)		250g Amber Jar (AL)	
Sample description	All	NDPs: 0 Tests: 8	X		X		X		X		X		X		X		X	
Total Organic Carbon	All	NDPs: 0 Tests: 8	X		X		X		X		X		X		X		X	
TPH CWG GC (S)	All	NDPs: 0 Tests: 8	X		X		X		X		X		X		X		X	



SDG:	110629-14	Location:	Coed Darcy	Order Number:	CD0142
Job:	H_ATKINS_LDC-124	Customer:	Atkins Global Ltd	Report Number:	137520
Client Reference:	SSR Base Samples	Attention:	Alex Mann	Superseded Report:	

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm
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Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Grain size	Inclusions	Inclusions 2
3767611	SSR 15		Dark Brown	Sand	0.1 - 2 mm	Stones	N/A
3767612	SSR 18		Dark Brown	Sand	0.1 - 2 mm	Stones	Vegetation
3767613	SSR 22		Dark Brown	Silty Sand	0.1 - 2 mm	Stones	N/A
3767614	SSR 25		Dark Brown	Sand	0.1 - 2 mm	Stones	Vegetation
3767615	SSR 28		Dark Brown	Sand	0.1 - 2 mm	Stones	N/A
3767616	SSR 29		Light Brown	Sand	0.1 - 2 mm	Stones	N/A
3767617	SSR 38		Dark Brown	Sand	0.1 - 2 mm	Stones	N/A
3767618	SSR 41		Dark Brown	Sand	0.1 - 2 mm	Stones	N/A

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Order Number: CD0142
Report Number: 137520
Superseded Report:

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CERTIFICATE OF ANALYSIS

SDG: 110629-14
Job: H_ATKINS_LDC-124
Client Reference: SSR Base Samples

Location: Coed Darcy
Customer: Atkins Global Ltd
Attention: Alex Mann

Order Number: CD0142
Report Number: 137520
Superseded Report:

[illegible]

Order Number: CD0142
Report Number: 137520
Superseded Report:

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CERTIFICATE OF ANALYSIS

SDG: 110629-14
Job: H_ATKINS_LDC-124
Client Reference: SSR Base Samples

Location: Coed Darcy
Customer: Atkins Global Ltd
Attention: Alex Mann

Order Number: CD0142
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Superseded Report:

PAH by GCMS

[illegible]



CERTIFICATE OF ANALYSIS

SDG: 110629-14
Job: H_ATKINS_LDC-124
Client Reference: SSR Base Samples

Location: Coed Darcy
Customer: Atkins Global Ltd
Attention: Alex Mann

Order Number: CD0142
Report Number: 137520
Superseded Report:

TPH CWG (S)

Results Legend			Customer Sample R		SSR 15	SSR 18	SSR 22	SSR 25	SSR 28	SSR 29
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Date Received SDG Ref Lab Sample No.(s) AGS Reference		Soil/Solid 28/06/2011 29/06/2011 110629-14 3767611	Soil/Solid 28/06/2011 29/06/2011 110629-14 3767612	Soil/Solid 28/06/2011 29/06/2011 110629-14 3767613	Soil/Solid 28/06/2011 29/06/2011 110629-14 3767614	Soil/Solid 28/06/2011 29/06/2011 110629-14 3767615	Soil/Solid 28/06/2011 29/06/2011 110629-14 3767616
M	mCERTS accredited.									
S	Non-conforming work.									
aq	Aqueous / settled sample.									
diss.filt	Dissolved / filtered sample.									
tot.unfilt	Total / unfiltered sample.									
*	Subcontracted test.									
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery									
(F)	Trigger breach confirmed									
Component	LOD/Units	Method								
GRO Surrogate % recovery**	%	TM089			109	102	105	52	67	99
GRO >C5-C12	<44 µg/kg	TM089			373	527	381	11400	10100	75.7
Methyl tertiary butyl ether (MTBE)	<5 µg/kg	TM089			<5	<5	<5	<5	<5	<5
Benzene	<10 µg/kg	TM089			<10	<10	<10	<10	<10	<10
Toluene	<2 µg/kg	TM089			<2	2.22	<2	<2	<2	<2
Ethylbenzene	<3 µg/kg	TM089			<3	<3	<3	<3	<3	<3
m,p-Xylene	<6 µg/kg	TM089			<6	<6	8.05	<6	<6	<6
o-Xylene	<3 µg/kg	TM089			<3	<3	6.9	<3	<3	<3
sum of detected mpo xylene by GC	µg/kg	TM089			none detected	none detected	15	none detected	none detected	none detected
sum of detected BTEX by GC	µg/kg	TM089			none detected	2.22	15	none detected	none detected	none detected
Aliphatics >C5-C6	<10 µg/kg	TM089			<10	<10	13.8	54.6	18.1	<10
Aliphatics >C6-C8	<10 µg/kg	TM089			35.2	44.4	79.4	1300	487	13.6
Aliphatics >C8-C10	<10 µg/kg	TM089			54.5	84.4	62.1	2610	2000	11.3
Aliphatics >C10-C12	<10 µg/kg	TM089			136	193	100	3390	3780	21.5
Aliphatics >C12-C16	<100 µg/kg	TM173			5580	4520	22100	179000	61000	1840
Aliphatics >C16-C21	<100 µg/kg	TM173			7320	5490	49200	488000	215000	1290
Aliphatics >C21-C35	<100 µg/kg	TM173			14200	12700	73400	681000	439000	<100
Aliphatics >C35-C44	<100 µg/kg	TM173			3300	<100	20300	166000	78800	<100
Total Aliphatics >C12-C44	<100 µg/kg	TM173			30400	22800	165000	1510000	794000	3140
Aromatics >EC5-EC7	<10 µg/kg	TM089			<10	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/kg	TM089			<10	<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089			44.9	63.3	56.4	1740	1330	10.2
Aromatics >EC10-EC12	<10 µg/kg	TM089			90.8	129	66.7	2260	2520	14.7
Aromatics >EC12-EC16	<100 µg/kg	TM173			8550	2250	10100	73300	21800	2480
Aromatics >EC16-EC21	<100 µg/kg	TM173			5930	3420	31100	267000	110000	2700
Aromatics >EC21-EC35	<100 µg/kg	TM173			9680	8320	62400	495000	324000	5720
Aromatics >EC35-EC44	<100 µg/kg	TM173			1740	1740	20100	149000	74600	1130
Aromatics >EC40-EC44	<100 µg/kg	TM173			209	177	7730	54600	25200	<100
Total Aromatics >EC12-EC44	<100 µg/kg	TM173			25900	15700	124000	985000	531000	12000
Total Aliphatics & Aromatics >C5-C44	<100 µg/kg	TM173			56700	39000	289000	2510000	1330000	15200
Total Aliphatics >C5-35	<100 µg/kg	TM173			27400	23100	145000	1360000	721000	3190
Total Aromatics >C5-35	<100 µg/kg	TM173			24300	14200	104000	840000	460000	10900
Total Aliphatics & Aromatics >C5-35	<100 µg/kg	TM173			51700	37300	249000	2200000	1180000	14100



CERTIFICATE OF ANALYSIS

SDG: 110629-14
Job: H_ATKINS_LDC-124
Client Reference: SSR Base Samples

Location: Coed Darcy
Customer: Atkins Global Ltd
Attention: Alex Mann

Order Number: CD0142
Report Number: 137520
Superseded Report:

TPH CWG (S)

Results Legend			Customer Sample R				
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Date Received SDG Ref Lab Sample No.(s) AGS Reference	SSR 38		SSR 41		
M	mCERTS accredited.		Soil/Solid		Soil/Solid		
S	Non-conforming work.		28/06/2011		28/06/2011		
aq	Aqueous / settled sample.		29/06/2011		29/06/2011		
diss.filt	Dissolved / filtered sample.		110629-14		110629-14		
tot.unfilt	Total / unfiltered sample.		3767617		3767618		
*	Subcontracted test.						
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery						
(F)	Trigger breach confirmed						
Component	LOD/Units	Method					
GRO Surrogate % recovery**	%	TM089	90		65		
GRO >C5-C12	<44 µg/kg	TM089	740		105		
Methyl tertiary butyl ether (MTBE)	<5 µg/kg	TM089	<5		<5		
Benzene	<10 µg/kg	TM089	<10		<10		
Toluene	<2 µg/kg	TM089	<2		<2		
Ethylbenzene	<3 µg/kg	TM089	<3		<3		
m,p-Xylene	<6 µg/kg	TM089	<6		<6		
o-Xylene	<3 µg/kg	TM089	<3		<3		
sum of detected mpo xylene by GC	µg/kg	TM089	none detected		none detected		
sum of detected BTEX by GC	µg/kg	TM089	none detected		none detected		
Aliphatics >C5-C6	<10 µg/kg	TM089	<10		<10		
Aliphatics >C6-C8	<10 µg/kg	TM089	23.6		26.5		
Aliphatics >C8-C10	<10 µg/kg	TM089	87.9		15.9		
Aliphatics >C10-C12	<10 µg/kg	TM089	337		25.4		
Aliphatics >C12-C16	<100 µg/kg	TM173	11800		7490		
Aliphatics >C16-C21	<100 µg/kg	TM173	30300		8510		
Aliphatics >C21-C35	<100 µg/kg	TM173	49700		12400		
Aliphatics >C35-C44	<100 µg/kg	TM173	11600		1670		
Total Aliphatics >C12-C44	<100 µg/kg	TM173	103000		30100		
Aromatics >EC5-EC7	<10 µg/kg	TM089	<10		<10		
Aromatics >EC7-EC8	<10 µg/kg	TM089	<10		<10		
Aromatics >EC8-EC10	<10 µg/kg	TM089	60		14.8		
Aromatics >EC10-EC12	<10 µg/kg	TM089	225		16.9		
Aromatics >EC12-EC16	<100 µg/kg	TM173	4620		3440		
Aromatics >EC16-EC21	<100 µg/kg	TM173	14100		4050		
Aromatics >EC21-EC35	<100 µg/kg	TM173	34400		5990		
Aromatics >EC35-EC44	<100 µg/kg	TM173	7990		1520		
Aromatics >EC40-EC44	<100 µg/kg	TM173	2130		576		
Total Aromatics >EC12-EC44	<100 µg/kg	TM173	61100		15000		
Total Aliphatics & Aromatics >C5-C44	<100 µg/kg	TM173	165000		45200		
Total Aliphatics >C5-35	<100 µg/kg	TM173	92300		28500		
Total Aromatics >C5-35	<100 µg/kg	TM173	53400		13500		
Total Aliphatics & Aromatics >C5-35	<100 µg/kg	TM173	146000		42000		



SDG:	110629-14	Location:	Coed Darcy	Order Number:	CD0142
Job:	H_ATKINS_LDC-124	Customer:	Atkins Global Ltd	Report Number:	137520
Client Reference:	SSR Base Samples	Attention:	Alex Mann	Superseded Report:	

Table of Results - Appendix

REPORT KEY

Results expressed as (e.g.) 1.03E-07 is equivalent to 1.03x10 ⁻⁷							
NDP	No Determination Possible	#	ISO 17025 Accredited	*	Subcontracted Test	M	MCERTS Accredited
NFD	No Fibres Detected	PFD	Possible Fibres Detected	»	Result previously reported (Incremental reports only)	EC	Equivalent Carbon (Aromatics C8-C35)

Note: Method detection limits are not always achievable due to various circumstances beyond our control

Method No	Reference	Description	Wet/Dry Sample ¹	Surrogate Corrected
PM001		Preparation of Samples for Metals Analysis		
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material		
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)		
TM132	In - house Method	ELTRA CS800 Operators Guide		
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter		
TM173	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GC-FID		
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES		
TM218	Microwave extraction – EPA method 3546	Microwave extraction - EPA method 3546		

¹ Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.



SDG:	110629-14	Location:	Coed Darcy	Order Number:	CD0142
Job:	H_ATKINS_LDC-124	Customer:	Atkins Global Ltd	Report Number:	137520
Client Reference:	SSR Base Samples	Attention:	Alex Mann	Superseded Report:	

Test Completion Dates

Lab Sample No(s)	3767611	3767612	3767613	3767614	3767615	3767616	3767617	3767618
Customer Sample Ref.	SSR 15	SSR 18	SSR 22	SSR 25	SSR 28	SSR 29	SSR 38	SSR 41
AGS Ref.								
Depth								
Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
EPH CWG (Aliphatic) GC (S)	01-Jul-2011	01-Jul-2011	04-Jul-2011	04-Jul-2011	04-Jul-2011	01-Jul-2011	01-Jul-2011	04-Jul-2011
EPH CWG (Aromatic) GC (S)	01-Jul-2011	01-Jul-2011	04-Jul-2011	04-Jul-2011	04-Jul-2011	01-Jul-2011	01-Jul-2011	04-Jul-2011
GRO by GC-FID (S)	30-Jun-2011	30-Jun-2011	30-Jun-2011	30-Jun-2011	30-Jun-2011	30-Jun-2011	30-Jun-2011	30-Jun-2011
Metals by iCap-OES (Soil)	01-Jul-2011	01-Jul-2011	01-Jul-2011	01-Jul-2011	01-Jul-2011	01-Jul-2011	01-Jul-2011	01-Jul-2011
PAH by GCMS	01-Jul-2011	01-Jul-2011	01-Jul-2011	01-Jul-2011	30-Jun-2011	30-Jun-2011	30-Jun-2011	30-Jun-2011
pH	01-Jul-2011	01-Jul-2011	01-Jul-2011	01-Jul-2011	01-Jul-2011	01-Jul-2011	01-Jul-2011	01-Jul-2011
Sample description	29-Jun-2011	29-Jun-2011	29-Jun-2011	29-Jun-2011	29-Jun-2011	29-Jun-2011	29-Jun-2011	29-Jun-2011
Total Organic Carbon	30-Jun-2011	30-Jun-2011	01-Jul-2011	01-Jul-2011	01-Jul-2011	30-Jun-2011	01-Jul-2011	01-Jul-2011
TPH CWG GC (S)	01-Jul-2011	01-Jul-2011	05-Jul-2011	05-Jul-2011	05-Jul-2011	01-Jul-2011	01-Jul-2011	05-Jul-2011



SDG: 110629-14
Job: H_ATKINS_LDC-124
Client Reference: SSR Base Samples

Location: Coed Darcy
Customer: Atkins Global Ltd
Attention: Alex Mann

Order Number: CD0142
Report Number: 137520
Superseded Report:

Appendix

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA Leach tests, flash point, ammonium as NH₄ by the BRE method, VOC TICS, SVOC TICS, TOF-MS SCAN/SEARCH and TOF-MS TICS.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for both soil jars, tubs and volatile jars. All waters and vials will be discarded 10 days after the analysis is completed (e-mailed). All material removed during an asbestos containing material screen and analysed for the presence of asbestos will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Laboratories reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be screened in house for the presence of large asbestos containing material fragments/pieces. If no asbestos containing material is found this will be reported as 'no asbestos containing material detected'. If asbestos containing material is detected it will be removed and analysed by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If asbestos containing material is present no further analysis will be undertaken. At no point is the fibre content of the soil sample determined.

7. If no separate volatile sample is supplied by the client, the integrity of the data may be compromised if the laboratory is required to create a sub-sample from the bulk sample -similarly, if a headspace or sediment is present in the volatile sample. This will be flagged up as an invalid VOC on the test schedule or recorded on the log sheet.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP -No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals -total metals must be requested separately.

11. Results relate only to the items tested.

12. LODs for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** -Most of our organic methods include surrogates, the recovery of which is monitored and reported. For EPH, MO, PAH, GRO and VOCs on soils the result is not surrogate corrected, but a percentage recovery is quoted. Acceptable limits for most organic methods are 70 -130 %.

14. **Product analyses** -Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

21. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials -whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C₄-C₁₀ range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

SOLID MATRICES EXTRACTION SUMMARY

ANALYSIS	D/C OR VET	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
SOLVENT EXTRACTABLE MATTER	D&C	DOM	SOX THERM	GRAVIMETRIC
CYCLOHEXANE EXT. MATTER	D&C	CYCLOHEXANE	SOX THERM	GRAVIMETRIC
THIN LAYER CHROMATOGRAPHY	D&C	DOM	SOX THERM	ATROSCAN
ELEMENTAL SULPHUR	D&C	DOM	SOX THERM	HPLC
PHENOLSBY GCMS	VET	DOM	SOX THERM	GCMS
HERBICIDES	D&C	HEXANEACETONE	SOX THERM	GCMS
PESTICIDES	D&C	HEXANEACETONE	SOX THERM	GCMS
EPH (DRO)	D&C	HEXANEACETONE	END OVEREND	GCFID
EPH (MINOIL)	D&C	HEXANEACETONE	END OVEREND	GCFID
EPH (CLEANED UP)	D&C	HEXANEACETONE	END OVEREND	GCFID
EPH CAG BY GC	D&C	HEXANEACETONE	END OVEREND	GCFID
PCB TOT / PCB CON	D&C	HEXANEACETONE	END OVEREND	GCMS
POLYAROMATIC HYDROCARBONS (MS)	VET	HEXANEACETONE	MICROWAVE TM218.	GCMS
C8-C10 (C8-C10) EZ FLASH	VET	HEXANEACETONE	SHAKER	GCEZ
POLYAROMATIC HYDROCARBONS RAPID GC	VET	HEXANEACETONE	SHAKER	GCEZ
SEM VOLATILE ORGANIC COMPOUNDS	VET	DOMACETONE	SONICATE	GCMS

LIQUID MATRICES EXTRACTION SUMMARY

ANALYSIS	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
PAHMS	HEXANE	STIRRED EXTRACTION (STIR BAR)	GCMS
EPH	HEXANE	STIRRED EXTRACTION (STIR BAR)	GCFID
EPH CAG	HEXANE	STIRRED EXTRACTION (STIR BAR)	GCFID
MINERAL OIL	HEXANE	STIRRED EXTRACTION (STIR BAR)	GCFID
PCB 7 CONGENERS	HEXANE	STIRRED EXTRACTION (STIR BAR)	GCMS
PCB TOTAL	HEXANE	STIRRED EXTRACTION (STIR BAR)	GCMS
SVOC	DOM	LIQUID LIQUID SHAKE	GCMS
FREE SULPHUR	DOM	SOLID PHASE EXTRACTION	HPLC
PEST COP/OPP	DOM	LIQUID LIQUID SHAKE	GCMS
TRIAZINE HERBS	DOM	LIQUID LIQUID SHAKE	GCMS
PHENOLSMS	DOM	SOLID PHASE EXTRACTION	GCMS
TPH by INFRARED (R)	TCE	LIQUID LIQUID SHAKE	HPLC
MINERAL OIL by IR	TCE	LIQUID LIQUID SHAKE	HPLC
GLYCOLS	NONE	DIRECT INJECTION	GCMS

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials or those identified as potentially asbestos containing during sample description which have been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace -Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

APPENDIX

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following:
NRA Leach tests, flash point, ammonium as NH_4 by the BRE method, VOC TICS, SVOC TICS, TOF-MS SCAN/SEARCH and TOF-MS TICS.
2. Samples will be run in duplicate upon request, but an additional charge may be incurred.
3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for both soil jars, tubs and volatile jars. All waters and vials will be discarded 10 days after the analysis is completed (e-mailed). All material removed during an asbestos containing material screen and analysed for the presence of asbestos will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Laboratories reserve the right to charge for samples received and stored but not analysed.
4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.
5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.
6. When requested, the individual sub sample scheduled will be screened in house for the presence of large asbestos containing material fragments/pieces. If no asbestos containing material is found this will be reported as 'no asbestos containing material detected'. If asbestos containing material is detected it will be removed and analysed by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If asbestos containing material is present no further analysis will be undertaken. At no point is the fibre content of the soil sample determined.
7. If no separate volatile sample is supplied by the client, the integrity of the data may be compromised if the laboratory is required to create a sub-sample from the bulk sample – similarly, if a headspace or sediment is present in the volatile sample. This will be flagged up as an invalid VOC on the test schedule or recorded on the log sheet.
8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.
9. NDP – No determination possible due to insufficient/unsuitable sample.
10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals – total metals must be requested separately.
11. A table containing the date of analysis for each parameter is not routinely included with the report, but is available upon request.
12. Results relate only to the items tested
13. **Surrogate recoveries** – Most of our organic methods include surrogates, the recovery of which is monitored and reported.
For EPH, MO, PAH, GRO and VOCs on soils the result is not surrogate corrected, but a percentage recovery is quoted. Acceptable limits for most organic methods are 70 – 130 %.
14. **Product analyses** – Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.
15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).
16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 14).
17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.
18. Our MCERTS accreditation for PAHs by GCMS applies to all product types apart from Kerosene, where naphthalene only is not accredited.
19. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.
19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.
20. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.
21. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.
22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials – whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.
23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C4 – C10 range, the total area of the chromatogram is integrated and expressed as $\mu\text{g/kg}$ or $\mu\text{g/l}$. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

LIQUID MATRICES EXTRACTION SUMMARY

ANALYSIS	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
PAH MS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC MS
EPH	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
EPH CWG	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
MINERAL OIL	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
PCB 7 CONGENERS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC MS
PCB TOTAL	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GS MS
SVOC	DCM	LIQUID/LIQUID SHAKE	GC MS
FREE SULPHUR	DCM	SOLID PHASE EXTRACTION	HPLC
PEST OCP/OPP	DCM	LIQUID/LIQUID SHAKE	GC MS
TRIAZINE HERBS	DCM	LIQUID/LIQUID SHAKE	GC MS
PHENOLS MS	DCM	SOLID PHASE EXTRACTION	GC MS
TPH by INFRA RED (IR)	TCE	LIQUID/LIQUID EXTRACTION	HPLC
MINERAL OIL by IR	TCE	LIQUID/LIQUID EXTRACTION	HPLC
GLYCOLS	NONE	DIRECT INJECTION	GC FID

SOLID MATRICES EXTRACTION SUMMARY

ANALYSIS	D/C OR WET	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
Solvent Extractable Matter	D&C	DCM	SOXTHERM	GRAVIMETRIC
Cyclohexane Ext. Matter	D&C	CYCLOHEXANE	SOXTHERM	GRAVIMETRIC
Thin Layer Chromatography	D&C	DCM	SOXTHERM	IATROSCAN
Elemental Sulphur	D&C	DCM	SOXTHERM	HPLC
Phenols by GCMS	WET	DCM	SOXTHERM	GC-MS
Herbicides	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
Pesticides	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
EPH (DRO)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH (Min oil)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH (Cleaned up)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH CWG by GC	D&C	HEXANE:ACETONE	END OVER END	GC-FID
PCB tot / PCB con	D&C	HEXANE:ACETONE	END OVER END	GC-MS
Polyaromatic Hydrocarbons (MS)	WET	HEXANE:ACETONE	Microwave TM218.	GC-MS
C8-C40 (C6-C40)EZ Flash	WET	HEXANE:ACETONE	SHAKER	GC-EZ
Polyaromatic Hydrocarbons Rapid GC	WET	HEXANE:ACETONE	SHAKER	GC-EZ
Semi Volatile Organic Compounds	WET	DCM:ACETONE	SONICATE	GC-MS

Identification of Asbestos in Bulk Materials

The results for asbestos identification for soil samples are obtained from possible Asbestos Containing Material, removed during the 'Screening of soils for Asbestos Containing Materials', which have been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Visual Estimation Of Fibre Content.

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: -

Trace – Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in MDHS 100.

The identification of asbestos containing materials falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Asbestos Type

Common Name

Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-



Atkins Global Ltd
Project Jonah site office
Llan Coed House
Suite 24
Coed Darcy
Llandarcy
SA10 6HJ

Attention: Alex Mann

CERTIFICATE OF ANALYSIS

Date: 11 July 2011
Customer: H_ATKINS_LDC
Sample Delivery Group (SDG): 110705-3
Your Reference: SSR Samples
Location: Coed Darcy
Report No: 138852

We received 5 samples on Tuesday July 05, 2011 and 5 of these samples were scheduled for analysis which was completed on Monday July 11, 2011. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

All chemical testing (unless subcontracted) is performed at ALcontrol Hawarden Laboratories.

Approved By:

Sonia McWhan

Operations Manager





SDG:	110705-3	Location:	Coed Darcy	Order Number:	CD0145
Job:	H_ATKINS_LDC-119	Customer:	Atkins Global Ltd	Report Number:	138852
Client Reference:	SSR Samples	Attention:	Alex Mann	Superseded Report:	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
3811116	SOUTH BAY			04/07/2011
3811111	SSR POOL 1			04/07/2011
3811113	SSR POOL 2			04/07/2011
3811109	SSR SEEP 1			04/07/2011
3811112	SSR SEEP 2			04/07/2011

Only received samples which have had analysis scheduled will be shown on the following pages.



SDG: 110705-3
Job: H_ATKINS_LDC-119
Client Reference: SSR Samples

Location: Coed Darcy
Customer: Atkins Global Ltd
Attention: Alex Mann

Order Number: CD0145
Report Number: 138852
Superseded Report:

LIQUID Results Legend X Test N No Determination Possible	Lab Sample No(s)		3811116	3811111	3811109	3811113	3811112
	Customer Sample Reference		SOUTH BAY	SSR POOL 1	SSR SEEP 1	SSR POOL 2	SSR SEEP 2
	AGS Reference						
	Depth (m)						
	Container		1l green glass bottle	1l plastic (ALE221) Vial (ALE297)	0.5l glass bottle (AL Vial (ALE297)	1l plastic (ALE221) Vial (ALE297)	0.5l glass bottle (AL Vial (ALE297)
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 5	X	X	X	X	X
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 5	X	X	X	X	X
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 5	X	X	X	X	X
GRO by GC-FID (W)	All	NDPs: 0 Tests: 5		X	X	X	X
Mercury Dissolved	All	NDPs: 0 Tests: 5	X	X	X	X	X
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 5	X	X	X	X	X
pH Value	All	NDPs: 0 Tests: 5	X	X	X	X	X
Suspended Solids	All	NDPs: 0 Tests: 5	X	X	X	X	X
TPH CWG (W)	All	NDPs: 0 Tests: 5	X	X	X	X	X

Order Number: CD0145
Report Number: 138852
Superseded Report:

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PAH Spec MS - Aqueous (W)

Order Number: CD0145
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Order Number: CD0145
Report Number: 138852
Superseded Report:

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SDG:	110705-3	Location:	Coed Darcy	Order Number:	CD0145
Job:	H_ATKINS_LDC-119	Customer:	Atkins Global Ltd	Report Number:	138852
Client Reference:	SSR Samples	Attention:	Alex Mann	Superseded Report:	

Table of Results - Appendix

REPORT KEY

Results expressed as (e.g.) 1.03E-07 is equivalent to 1.03x10 ⁻⁷							
NDP	No Determination Possible	#	ISO 17025 Accredited	*	Subcontracted Test	M	MCERTS Accredited
NFD	No Fibres Detected	PFD	Possible Fibres Detected	»	Result previously reported (Incremental reports only)	EC	Equivalent Carbon (Aromatics C8-C35)

Note: Method detection limits are not always achievable due to various circumstances beyond our control

Method No	Reference	Description	Wet/Dry Sample ¹	Surrogate Corrected
TM022	Method 2540D, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part120 1981;BS EN 872	Determination of total suspended solids in waters		
TM061	Method for the Determination of EPH,Massachusetts Dept.of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)		
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS		
TM174	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID		
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters		
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry		
TM245	By GC-FID	Determination of GRO by Headspace in waters		
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter		

¹ Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.



SDG:	110705-3	Location:	Coed Darcy	Order Number:	CD0145
Job:	H_ATKINS_LDC-119	Customer:	Atkins Global Ltd	Report Number:	138852
Client Reference:	SSR Samples	Attention:	Alex Mann	Superseded Report:	

Test Completion Dates

Lab Sample No(s)	3811116	3811111	3811113	3811109	3811112
Customer Sample Ref.	SOUTH BAY	SSR POOL 1	SSR POOL 2	SSR SEEP 1	SSR SEEP 2
AGS Ref.					
Depth					
Type	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID
Dissolved Metals by ICP-MS	08-Jul-2011	08-Jul-2011	08-Jul-2011	08-Jul-2011	08-Jul-2011
EPH CWG (Aliphatic) Aqueous GC (W)	11-Jul-2011	11-Jul-2011	11-Jul-2011	11-Jul-2011	11-Jul-2011
EPH CWG (Aromatic) Aqueous GC (W)	11-Jul-2011	11-Jul-2011	11-Jul-2011	11-Jul-2011	11-Jul-2011
GRO by GC-FID (W)	10-Jul-2011	10-Jul-2011	10-Jul-2011	10-Jul-2011	10-Jul-2011
Mercury Dissolved	07-Jul-2011	07-Jul-2011	07-Jul-2011	07-Jul-2011	07-Jul-2011
PAH Spec MS - Aqueous (W)	09-Jul-2011	11-Jul-2011	11-Jul-2011	11-Jul-2011	11-Jul-2011
pH Value	06-Jul-2011	06-Jul-2011	06-Jul-2011	06-Jul-2011	06-Jul-2011
Suspended Solids	07-Jul-2011	07-Jul-2011	07-Jul-2011	07-Jul-2011	07-Jul-2011
TPH CWG (W)	11-Jul-2011	11-Jul-2011	11-Jul-2011	11-Jul-2011	11-Jul-2011

APPENDIX

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following:
NRA Leach tests, flash point, ammonium as NH_4 by the BRE method, VOC TICS, SVOC TICS, TOF-MS SCAN/SEARCH and TOF-MS TICS.
2. Samples will be run in duplicate upon request, but an additional charge may be incurred.
3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for both soil jars, tubs and volatile jars. All waters and vials will be discarded 10 days after the analysis is completed (e-mailed). All material removed during an asbestos containing material screen and analysed for the presence of asbestos will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Laboratories reserve the right to charge for samples received and stored but not analysed.
4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.
5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.
6. When requested, the individual sub sample scheduled will be screened in house for the presence of large asbestos containing material fragments/pieces. If no asbestos containing material is found this will be reported as 'no asbestos containing material detected'. If asbestos containing material is detected it will be removed and analysed by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If asbestos containing material is present no further analysis will be undertaken. At no point is the fibre content of the soil sample determined.
7. If no separate volatile sample is supplied by the client, the integrity of the data may be compromised if the laboratory is required to create a sub-sample from the bulk sample – similarly, if a headspace or sediment is present in the volatile sample. This will be flagged up as an invalid VOC on the test schedule or recorded on the log sheet.
8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.
9. NDP – No determination possible due to insufficient/unsuitable sample.
10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals – total metals must be requested separately.
11. A table containing the date of analysis for each parameter is not routinely included with the report, but is available upon request.
12. Results relate only to the items tested
13. **Surrogate recoveries** – Most of our organic methods include surrogates, the recovery of which is monitored and reported.
For EPH, MO, PAH, GRO and VOCs on soils the result is not surrogate corrected, but a percentage recovery is quoted. Acceptable limits for most organic methods are 70 – 130 %.
14. **Product analyses** – Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.
15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).
16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 14).
17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.
18. Our MCERTS accreditation for PAHs by GCMS applies to all product types apart from Kerosene, where naphthalene only is not accredited.
19. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.
19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.
20. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.
21. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.
22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials – whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.
23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C4 – C10 range, the total area of the chromatogram is integrated and expressed as $\mu\text{g/kg}$ or $\mu\text{g/l}$. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

LIQUID MATRICES EXTRACTION SUMMARY

ANALYSIS	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
PAH MS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC MS
EPH	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
EPH CWG	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
MINERAL OIL	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
PCB 7 CONGENERS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC MS
PCB TOTAL	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GS MS
SVOC	DCM	LIQUID/LIQUID SHAKE	GC MS
FREE SULPHUR	DCM	SOLID PHASE EXTRACTION	HPLC
PEST OCP/OPP	DCM	LIQUID/LIQUID SHAKE	GC MS
TRIAZINE HERBS	DCM	LIQUID/LIQUID SHAKE	GC MS
PHENOLS MS	DCM	SOLID PHASE EXTRACTION	GC MS
TPH by INFRA RED (IR)	TCE	LIQUID/LIQUID EXTRACTION	HPLC
MINERAL OIL by IR	TCE	LIQUID/LIQUID EXTRACTION	HPLC
GLYCOLS	NONE	DIRECT INJECTION	GC FID

SOLID MATRICES EXTRACTION SUMMARY

ANALYSIS	D/C OR WET	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
Solvent Extractable Matter	D&C	DCM	SOXTHERM	GRAVIMETRIC
Cyclohexane Ext. Matter	D&C	CYCLOHEXANE	SOXTHERM	GRAVIMETRIC
Thin Layer Chromatography	D&C	DCM	SOXTHERM	IATROSCAN
Elemental Sulphur	D&C	DCM	SOXTHERM	HPLC
Phenols by GCMS	WET	DCM	SOXTHERM	GC-MS
Herbicides	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
Pesticides	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
EPH (DRO)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH (Min oil)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH (Cleaned up)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH CWG by GC	D&C	HEXANE:ACETONE	END OVER END	GC-FID
PCB tot / PCB con	D&C	HEXANE:ACETONE	END OVER END	GC-MS
Polyaromatic Hydrocarbons (MS)	WET	HEXANE:ACETONE	Microwave TM218.	GC-MS
C8-C40 (C6-C40)EZ Flash	WET	HEXANE:ACETONE	SHAKER	GC-EZ
Polyaromatic Hydrocarbons Rapid GC	WET	HEXANE:ACETONE	SHAKER	GC-EZ
Semi Volatile Organic Compounds	WET	DCM:ACETONE	SONICATE	GC-MS

Identification of Asbestos in Bulk Materials

The results for asbestos identification for soil samples are obtained from possible Asbestos Containing Material, removed during the 'Screening of soils for Asbestos Containing Materials', which have been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Visual Estimation Of Fibre Content.

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: -

Trace – Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in MDHS 100.

The identification of asbestos containing materials falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Asbestos Type

Common Name

Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-



Atkins Global Ltd
Project Jonah site office
Llan Coed House
Suite 24
Coed Darcy
Llandarcy
SA10 6HJ

Attention: Selina Bamforth

CERTIFICATE OF ANALYSIS

Date: 30 September 2011
Customer: H_ATKINS_LDC
Sample Delivery Group (SDG): 110921-21
Your Reference: Weekly Samples
Location: Coed Darcy Urban Village
Report No: 152725

We received 10 samples on Wednesday September 21, 2011 and 10 of these samples were scheduled for analysis which was completed on Friday September 30, 2011. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

All chemical testing (unless subcontracted) is performed at ALcontrol Hawarden Laboratories.

Approved By:

Sonia McWhan

Operations Manager





CERTIFICATE OF ANALYSIS

Validated

SDG:	110921-21	Location:	Coed Darcy Urban Village	Order Number:	CD0169
Job:	H_ATKINS_LDC-105	Customer:	Atkins Global Ltd	Report Number:	152725
Client Reference:	Weekly Samples	Attention:	Selina Bamforth	Superseded Report:	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
4336659	36"			20/09/2011
4336660	DIRE DV 1			20/09/2011
4336661	DIRE DV 2			20/09/2011
4336663	EAST BAY			20/09/2011
4336648	NSR IN			20/09/2011
4336655	NSR IN (EAST)			20/09/2011
4336657	NSR INFLOW 1			20/09/2011
4336658	NSR INFLOW 2			20/09/2011
4336653	NSR OUT			20/09/2011
4336662	SSR SURFACE			20/09/2011

Only received samples which have had analysis scheduled will be shown on the following pages.



CERTIFICATE OF ANALYSIS

SDG: 110921-21
Job: H_ATKINS_LDC-105
Client Reference: Weekly Samples

Location: Coed Darcy Urban Village
Customer: Atkins Global Ltd
Attention: Selina Bamforth

Order Number: CD0169
Report Number: 152725
Superseded Report:

LIQUID Results Legend X Test N No Determination Possible	Lab Sample No(s)		Customer Sample Reference		AGS Reference		Depth (m)		Container	
	4336659		36"						Vial (ALE297)	
	4336658		NSR INFLOW 2						11 plastic (ALE221)	
	4336661		DIRE DV 2						11 green glass bottle	
	4336657		NSR INFLOW 1						11 plastic (ALE221)	
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 10							Vial (ALE297)	
Anions by Kone (w)	All	NDPs: 0 Tests: 10							11 green glass bottle	
BOD True Total	All	NDPs: 0 Tests: 10							Vial (ALE297)	
COD Unfiltered	All	NDPs: 0 Tests: 10							11 plastic (ALE221)	
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 10							Vial (ALE297)	
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 10							11 green glass bottle	
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 10							Vial (ALE297)	
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 10							11 plastic (ALE221)	
GRO by GC-FID (W)	All	NDPs: 0 Tests: 10							Vial (ALE297)	
pH Value	All	NDPs: 0 Tests: 10							11 green glass bottle	
Suspended Solids	All	NDPs: 0 Tests: 10							Vial (ALE297)	
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 10							11 plastic (ALE221)	
TPH CWG (W)	All	NDPs: 0 Tests: 10							Vial (ALE297)	
VOC MS (W)	All	NDPs: 0 Tests: 10							11 green glass bottle	

Order Number: CD0169
Report Number: 152725
Superseded Report:

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Order Number: CD0169
Report Number: 152725
Superseded Report:

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CERTIFICATE OF ANALYSIS

SDG: 110921-21
Job: H_ATKINS_LDC-105
Client Reference: Weekly Samples

Location: Coed Darcy Urban Village
Customer: Atkins Global Ltd
Attention: Selina Bamforth

Order Number: CD0169
Report Number: 152725
Superseded Report:

SVOC MS (W) - Aqueous

Results Legend			Customer Sample R		36"	DIRE DV 1	DIRE DV 2	EAST BAY	NSR IN	NSR IN (EAST)
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Date Received SDG Ref Lab Sample No.(s) AGS Reference		Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)
M	mCERTS accredited.				20/09/2011	20/09/2011	20/09/2011	20/09/2011	20/09/2011	20/09/2011
S	Deviating sample.				21/09/2011	21/09/2011	21/09/2011	21/09/2011	21/09/2011	21/09/2011
aq	Aqueous / settled sample.				110921-21	110921-21	110921-21	110921-21	110921-21	110921-21
diss.filt	Dissolved / filtered sample.				4336659	4336660	4336661	4336663	4336648	4336655
tot.unfilt	Total / unfiltered sample.									
*	Subcontracted test.									
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery									
(F)	Trigger breach confirmed									
Component	LOD/Units	Method								
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<10
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<10
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<10
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<10
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<10
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<10
2,4-Dichlorophenol (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<10
2,4-Dimethylphenol (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<10
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<10
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<10
2-Chloronaphthalene (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<10
2-Chlorophenol (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<10
2-Methylnaphthalene (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<10
2-Methylphenol (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<10
2-Nitroaniline (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<10
2-Nitrophenol (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<10
3-Nitroaniline (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<10
4-Bromophenylphenylether (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<10
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<10
4-Chloroaniline (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<10
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<10
4-Methylphenol (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<10
4-Nitrophenol (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<10
4-Nitroaniline (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<10
Azobenzene (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<10
Acenaphthylene (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<10
Acenaphthene (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<10
Anthracene (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<10
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<10
bis(2-Chloroethoxy)methan e (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<10
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176			<2	<2	<2	<2	<2	<20
Benzo(a)anthracene (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	2.49
Butylbenzyl phthalate (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<10
Benzo(b)fluoranthene (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<10
Benzo(k)fluoranthene (aq)	<1 µg/l	TM176			<1	<1	<1	<1	<1	<10

Order Number: CD0169
Report Number: 152725
Superseded Report:

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CERTIFICATE OF ANALYSIS

SDG: 110921-21
Job: H_ATKINS_LDC-105
Client Reference: Weekly Samples

Location: Coed Darcy Urban Village
Customer: Atkins Global Ltd
Attention: Selina Bamforth

Order Number: CD0169
Report Number: 152725
Superseded Report:

SVOC MS (W) - Aqueous

Results Legend			Customer Sample R	NSR INFLOW 1	NSR INFLOW 2	NSR OUT	SSR SURFACE		
#	ISO17025 accredited.								
M	mCERTS accredited.		Depth (m) Sample Type Date Sampled Date Received SDG Ref Lab Sample No.(s) AGS Reference	Water(GW/SW) 20/09/2011 21/09/2011 110921-21 4336657	Water(GW/SW) 20/09/2011 21/09/2011 110921-21 4336658	Water(GW/SW) 20/09/2011 21/09/2011 110921-21 4336653	Water(GW/SW) 20/09/2011 21/09/2011 110921-21 4336662		
S	Deviating sample.								
aq	Aqueous / settled sample.								
diss.filt	Dissolved / filtered sample.								
tot.unfilt	Total / unfiltered sample.								
*	Subcontracted test.								
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery								
(F)	Trigger breach confirmed								
Component	LOD/Units	Method							
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
2,4-Dichlorophenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
2,4-Dimethylphenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
2-Chloronaphthalene (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
2-Chlorophenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
2-Methylnaphthalene (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
2-Methylphenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
2-Nitroaniline (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
2-Nitrophenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
3-Nitroaniline (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
4-Bromophenylphenylether (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
4-Chloroaniline (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
4-Methylphenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
4-Nitrophenol (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
4-Nitroaniline (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
Azobenzene (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
Acenaphthylene (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
Acenaphthene (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
Anthracene (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
bis(2-Chloroethoxy)methan e (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176		<2	<2	<2	<2		
Benzo(a)anthracene (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
Butylbenzyl phthalate (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
Benzo(b)fluoranthene (aq)	<1 µg/l	TM176		<1	<1	<1	<1		
Benzo(k)fluoranthene (aq)	<1 µg/l	TM176		<1	<1	<1	<1		

Order Number: CD0169
Report Number: 152725
Superseded Report:

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Order Number: CD0169
Report Number: 152725
Superseded Report:

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Order Number: CD0169
Report Number: 152725
Superseded Report:

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CERTIFICATE OF ANALYSIS

SDG: 110921-21
Job: H_ATKINS_LDC-105
Client Reference: Weekly Samples

Location: Coed Darcy Urban Village
Customer: Atkins Global Ltd
Attention: Selina Bamforth

Order Number: CD0169
Report Number: 152725
Superseded Report:

VOC MS (W)

Results Legend			Customer Sample R	36"	DIRE DV 1	DIRE DV 2	EAST BAY	NSR IN	NSR IN (EAST)
#	ISO17025 accredited.								
M	mCERTS accredited.		Depth (m) Sample Type Date Sampled Date Received SDG Ref Lab Sample No.(s) AGS Reference	Water(GW/SW) 20/09/2011 21/09/2011 110921-21 4336659	Water(GW/SW) 20/09/2011 21/09/2011 110921-21 4336660	Water(GW/SW) 20/09/2011 21/09/2011 110921-21 4336661	Water(GW/SW) 20/09/2011 21/09/2011 110921-21 4336663	Water(GW/SW) 20/09/2011 21/09/2011 110921-21 4336648	Water(GW/SW) 20/09/2011 21/09/2011 110921-21 4336655
S	Deviating sample.								
aq	Aqueous / settled sample.								
diss.filt	Dissolved / filtered sample.								
tot.unfilt	Total / unfiltered sample.								
*	Subcontracted test.								
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery								
(F)	Trigger breach confirmed								
Component	LOD/Units	Method							
Dibromofluoromethane**	%	TM208		110	106	105	106	111	109
				\$	\$	\$	\$	\$	\$
Toluene-d8**	%	TM208		98.5	100	98.9	99.3	99.5	99.4
				\$	\$	\$	\$	\$	\$
4-Bromofluorobenzene**	%	TM208		96.8	98.4	99.2	98.2	102	97.9
				\$	\$	\$	\$	\$	\$
Dichlorodifluoromethane	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				\$ #	\$ #	\$ #	\$ #	\$ #	\$ #
Chloromethane	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				\$ #	\$ #	\$ #	\$ #	\$ #	\$ #
Vinyl chloride	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				\$ #	\$ #	\$ #	\$ #	\$ #	\$ #
Bromomethane	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				\$ #	\$ #	\$ #	\$ #	\$ #	\$ #
Chloroethane	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				\$ #	\$ #	\$ #	\$ #	\$ #	\$ #
Trichlorofluoromethane	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				\$ #	\$ #	\$ #	\$ #	\$ #	\$ #
1,1-Dichloroethene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				\$ #	\$ #	\$ #	\$ #	\$ #	\$ #
Carbon disulphide	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				\$ #	\$ #	\$ #	\$ #	\$ #	\$ #
Dichloromethane	<3 µg/l	TM208		<3	<3	<3	<3	<3	<3
				\$ #	\$ #	\$ #	\$ #	\$ #	\$ #
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				\$ #	\$ #	\$ #	\$ #	\$ #	\$ #
trans-1,2-Dichloroethene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				\$ #	\$ #	\$ #	\$ #	\$ #	\$ #
1,1-Dichloroethane	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				\$ #	\$ #	\$ #	\$ #	\$ #	\$ #
cis-1,2-Dichloroethene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				\$ #	\$ #	\$ #	\$ #	\$ #	\$ #
2,2-Dichloropropane	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				\$ #	\$ #	\$ #	\$ #	\$ #	\$ #
Bromochloromethane	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				\$ #	\$ #	\$ #	\$ #	\$ #	\$ #
Chloroform	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				\$ #	\$ #	\$ #	\$ #	\$ #	\$ #
1,1,1-Trichloroethane	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				\$ #	\$ #	\$ #	\$ #	\$ #	\$ #
1,1-Dichloropropene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				\$ #	\$ #	\$ #	\$ #	\$ #	\$ #
Carbontetrachloride	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				\$ #	\$ #	\$ #	\$ #	\$ #	\$ #
1,2-Dichloroethane	<1 µg/l	TM208		<1	<1	<1	<1	108	41.7
				\$	\$	\$	\$	\$	\$
Benzene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				\$ #	\$ #	\$ #	\$ #	\$ #	\$ #
Trichloroethene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				\$ #	\$ #	\$ #	\$ #	\$ #	\$ #
1,2-Dichloropropane	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				\$ #	\$ #	\$ #	\$ #	\$ #	\$ #
Dibromomethane	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				\$ #	\$ #	\$ #	\$ #	\$ #	\$ #
Bromodichloromethane	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				\$ #	\$ #	\$ #	\$ #	\$ #	\$ #
cis-1,3-Dichloropropene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				\$ #	\$ #	\$ #	\$ #	\$ #	\$ #
Toluene	<1 µg/l	TM208		<1	<1	<1	<1	<1	1.17
				\$ #	\$ #	\$ #	\$ #	\$ #	\$ #
trans-1,3-Dichloropropene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				\$ #	\$ #	\$ #	\$ #	\$ #	\$ #
1,1,2-Trichloroethane	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				\$ #	\$ #	\$ #	\$ #	\$ #	\$ #
1,3-Dichloropropane	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				\$ #	\$ #	\$ #	\$ #	\$ #	\$ #
Tetrachloroethene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				\$ #	\$ #	\$ #	\$ #	\$ #	\$ #
Dibromochloromethane	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				\$ #	\$ #	\$ #	\$ #	\$ #	\$ #



CERTIFICATE OF ANALYSIS

SDG: 110921-21
Job: H_ATKINS_LDC-105
Client Reference: Weekly Samples

Location: Coed Darcy Urban Village
Customer: Atkins Global Ltd
Attention: Selina Bamforth

Order Number: CD0169
Report Number: 152725
Superseded Report:

VOC MS (W)

Results Legend			Customer Sample R	36"	DIRE DV 1	DIRE DV 2	EAST BAY	NSR IN	NSR IN (EAST)
#	M	S							
ISO17025 accredited.			Depth (m) Sample Type Date Sampled Date Received SDG Ref Lab Sample No.(s) AGS Reference	Water(GW/SW) 20/09/2011 21/09/2011 110921-21 4336659	Water(GW/SW) 20/09/2011 21/09/2011 110921-21 4336660	Water(GW/SW) 20/09/2011 21/09/2011 110921-21 4336661	Water(GW/SW) 20/09/2011 21/09/2011 110921-21 4336663	Water(GW/SW) 20/09/2011 21/09/2011 110921-21 4336648	Water(GW/SW) 20/09/2011 21/09/2011 110921-21 4336655
mCERTS accredited.									
Deviating sample.									
Aqueous / settled sample.									
Dissolved / filtered sample.									
Total / unfiltered sample.									
Subcontracted test.									
% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery									
Trigger breach confirmed									
(F)									
Component	LOD/Units	Method							
1,2-Dibromoethane	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				§ #	§ #	§ #	§ #	§ #	§ #
Chlorobenzene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				§ #	§ #	§ #	§ #	§ #	§ #
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				§ #	§ #	§ #	§ #	§ #	§ #
Ethylbenzene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				§ #	§ #	§ #	§ #	§ #	§ #
m,p-Xylene	<1 µg/l	TM208		<1	<1	<1	<1	<1	3.05
				§ #	§ #	§ #	§ #	§ #	§ #
o-Xylene	<1 µg/l	TM208		<1	<1	<1	<1	<1	5.3
				§ #	§ #	§ #	§ #	§ #	§ #
Styrene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				§ #	§ #	§ #	§ #	§ #	§ #
Bromoform	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				§ #	§ #	§ #	§ #	§ #	§ #
Isopropylbenzene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				§ #	§ #	§ #	§ #	§ #	§ #
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				§	§	§	§	§	§
1,2,3-Trichloropropane	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				§ #	§ #	§ #	§ #	§ #	§ #
Bromobenzene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				§ #	§ #	§ #	§ #	§ #	§ #
Propylbenzene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				§ #	§ #	§ #	§ #	§ #	§ #
2-Chlorotoluene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				§ #	§ #	§ #	§ #	§ #	§ #
1,3,5-Trimethylbenzene	<1 µg/l	TM208		<1	<1	<1	<1	<1	2.46
				§ #	§ #	§ #	§ #	§ #	§ #
4-Chlorotoluene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				§ #	§ #	§ #	§ #	§ #	§ #
tert-Butylbenzene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				§ #	§ #	§ #	§ #	§ #	§ #
1,2,4-Trimethylbenzene	<1 µg/l	TM208		<1	<1	<1	<1	<1	1.49
				§ #	§ #	§ #	§ #	§ #	§ #
sec-Butylbenzene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				§ #	§ #	§ #	§ #	§ #	§ #
4-iso-Propyltoluene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				§ #	§ #	§ #	§ #	§ #	§ #
1,3-Dichlorobenzene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				§ #	§ #	§ #	§ #	§ #	§ #
1,4-Dichlorobenzene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				§ #	§ #	§ #	§ #	§ #	§ #
n-Butylbenzene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				§ #	§ #	§ #	§ #	§ #	§ #
1,2-Dichlorobenzene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				§	§	§	§	§	§
1,2-Dibromo-3-chloropropene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				§	§	§	§	§	§
1,2,4-Trichlorobenzene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				§ #	§ #	§ #	§ #	§ #	§ #
Hexachlorobutadiene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				§ #	§ #	§ #	§ #	§ #	§ #
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				§ #	§ #	§ #	§ #	§ #	§ #
Naphthalene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				§ #	§ #	§ #	§ #	§ #	§ #
1,2,3-Trichlorobenzene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				§ #	§ #	§ #	§ #	§ #	§ #
1,3,5-Trichlorobenzene	<1 µg/l	TM208		<1	<1	<1	<1	<1	<1
				§	§	§	§	§	§



CERTIFICATE OF ANALYSIS

SDG: 110921-21
Job: H_ATKINS_LDC-105
Client Reference: Weekly Samples

Location: Coed Darcy Urban Village
Customer: Atkins Global Ltd
Attention: Selina Bamforth

Order Number: CD0169
Report Number: 152725
Superseded Report:

VOC MS (W)

Results Legend		Customer Sample R	NSR INFLOW 1	NSR INFLOW 2	NSR OUT	SSR SURFACE		
#	ISO17025 accredited.							
M	mCERTS accredited.	Depth (m) Sample Type Date Sampled Date Received SDG Ref Lab Sample No.(s) AGS Reference	Water(GW/SW) 20/09/2011 21/09/2011 110921-21 4336657	Water(GW/SW) 20/09/2011 21/09/2011 110921-21 4336658	Water(GW/SW) 20/09/2011 21/09/2011 110921-21 4336653	Water(GW/SW) 20/09/2011 21/09/2011 110921-21 4336662		
S	Deviating sample.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	Subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery							
(F)	Trigger breach confirmed							
Component	LOD/Units	Method						
Dibromofluoromethane**	%	TM208	106	107	107	105		
			\$	\$	\$	\$		
Toluene-d8**	%	TM208	98.9	99.1	101	101		
			\$	\$	\$	\$		
4-Bromofluorobenzene**	%	TM208	97.9	100	102	101		
			\$	\$	\$	\$		
Dichlorodifluoromethane	<1 µg/l	TM208	<1	<1	<1	<1		
			\$ #	\$ #	\$ #	\$ #		
Chloromethane	<1 µg/l	TM208	<1	<1	<1	<1		
			\$ #	\$ #	\$ #	\$ #		
Vinyl chloride	<1 µg/l	TM208	<1	<1	<1	<1		
			\$ #	\$ #	\$ #	\$ #		
Bromomethane	<1 µg/l	TM208	<1	<1	<1	<1		
			\$ #	\$ #	\$ #	\$ #		
Chloroethane	<1 µg/l	TM208	<1	<1	<1	<1		
			\$ #	\$ #	\$ #	\$ #		
Trichlorofluoromethane	<1 µg/l	TM208	<1	<1	<1	<1		
			\$ #	\$ #	\$ #	\$ #		
1,1-Dichloroethene	<1 µg/l	TM208	<1	<1	<1	<1		
			\$ #	\$ #	\$ #	\$ #		
Carbon disulphide	<1 µg/l	TM208	<1	<1	<1	<1		
			\$ #	\$ #	\$ #	\$ #		
Dichloromethane	<3 µg/l	TM208	<3	<3	<3	<3		
			\$ #	\$ #	\$ #	\$ #		
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208	<1	<1	<1	<1		
			\$ #	\$ #	\$ #	\$ #		
trans-1,2-Dichloroethene	<1 µg/l	TM208	<1	<1	<1	<1		
			\$ #	\$ #	\$ #	\$ #		
1,1-Dichloroethane	<1 µg/l	TM208	<1	<1	<1	<1		
			\$ #	\$ #	\$ #	\$ #		
cis-1,2-Dichloroethene	<1 µg/l	TM208	<1	<1	<1	<1		
			\$ #	\$ #	\$ #	\$ #		
2,2-Dichloropropane	<1 µg/l	TM208	<1	<1	<1	<1		
			\$ #	\$ #	\$ #	\$ #		
Bromochloromethane	<1 µg/l	TM208	<1	<1	<1	<1		
			\$ #	\$ #	\$ #	\$ #		
Chloroform	<1 µg/l	TM208	<1	<1	<1	<1		
			\$ #	\$ #	\$ #	\$ #		
1,1,1-Trichloroethane	<1 µg/l	TM208	<1	<1	<1	<1		
			\$ #	\$ #	\$ #	\$ #		
1,1-Dichloropropene	<1 µg/l	TM208	<1	<1	<1	<1		
			\$ #	\$ #	\$ #	\$ #		
Carbontetrachloride	<1 µg/l	TM208	<1	<1	<1	<1		
			\$ #	\$ #	\$ #	\$ #		
1,2-Dichloroethane	<1 µg/l	TM208	<1	27.8	<1	<1		
			\$	\$	\$	\$		
Benzene	<1 µg/l	TM208	<1	<1	<1	<1		
			\$ #	\$ #	\$ #	\$ #		
Trichloroethene	<1 µg/l	TM208	<1	<1	<1	<1		
			\$ #	\$ #	\$ #	\$ #		
1,2-Dichloropropane	<1 µg/l	TM208	<1	<1	<1	<1		
			\$ #	\$ #	\$ #	\$ #		
Dibromomethane	<1 µg/l	TM208	<1	<1	<1	<1		
			\$ #	\$ #	\$ #	\$ #		
Bromodichloromethane	<1 µg/l	TM208	<1	<1	<1	<1		
			\$ #	\$ #	\$ #	\$ #		
cis-1,3-Dichloropropene	<1 µg/l	TM208	<1	<1	<1	<1		
			\$ #	\$ #	\$ #	\$ #		
Toluene	<1 µg/l	TM208	<1	1.21	<1	<1		
			\$ #	\$ #	\$ #	\$ #		
trans-1,3-Dichloropropene	<1 µg/l	TM208	<1	<1	<1	<1		
			\$ #	\$ #	\$ #	\$ #		
1,1,2-Trichloroethane	<1 µg/l	TM208	<1	<1	<1	<1		
			\$ #	\$ #	\$ #	\$ #		
1,3-Dichloropropane	<1 µg/l	TM208	<1	<1	<1	<1		
			\$ #	\$ #	\$ #	\$ #		
Tetrachloroethene	<1 µg/l	TM208	<1	<1	<1	<1		
			\$ #	\$ #	\$ #	\$ #		
Dibromochloromethane	<1 µg/l	TM208	<1	<1	<1	<1		
			\$ #	\$ #	\$ #	\$ #		



CERTIFICATE OF ANALYSIS

SDG: 110921-21
Job: H_ATKINS_LDC-105
Client Reference: Weekly Samples

Location: Coed Darcy Urban Village
Customer: Atkins Global Ltd
Attention: Selina Bamforth

Order Number: CD0169
Report Number: 152725
Superseded Report:

VOC MS (W)

Results Legend			Customer Sample R	NSR INFLOW 1	NSR INFLOW 2	NSR OUT	SSR SURFACE		
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Date Received SDG Ref Lab Sample No.(s) AGS Reference							
M	mCERTS accredited.								
S	Deviating sample.								
aq	Aqueous / settled sample.								
diss.filt	Dissolved / filtered sample.								
tot.unfilt	Total / unfiltered sample.								
**	Subcontracted test.								
	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery								
(F)	Trigger breach confirmed								
Component	LOD/Units	Method							
1,2-Dibromoethane	<1 µg/l	TM208	<1	<1	<1	<1			
Chlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1			
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208	<1	<1	<1	<1			
Ethylbenzene	<1 µg/l	TM208	<1	<1	<1	<1			
m,p-Xylene	<1 µg/l	TM208	1.27	1.78	<1	<1			
o-Xylene	<1 µg/l	TM208	3.18	4.03	<1	<1			
Styrene	<1 µg/l	TM208	<1	<1	<1	<1			
Bromoform	<1 µg/l	TM208	<1	<1	<1	<1			
Isopropylbenzene	<1 µg/l	TM208	<1	<1	<1	<1			
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208	<1	<1	<1	<1			
1,2,3-Trichloropropane	<1 µg/l	TM208	<1	<1	<1	<1			
Bromobenzene	<1 µg/l	TM208	<1	<1	<1	<1			
Propylbenzene	<1 µg/l	TM208	<1	<1	<1	<1			
2-Chlorotoluene	<1 µg/l	TM208	<1	<1	<1	<1			
1,3,5-Trimethylbenzene	<1 µg/l	TM208	1.71	1.58	<1	<1			
4-Chlorotoluene	<1 µg/l	TM208	<1	<1	<1	<1			
tert-Butylbenzene	<1 µg/l	TM208	<1	<1	<1	<1			
1,2,4-Trimethylbenzene	<1 µg/l	TM208	<1	<1	<1	<1			
sec-Butylbenzene	<1 µg/l	TM208	<1	<1	<1	<1			
4-iso-Propyltoluene	<1 µg/l	TM208	<1	<1	<1	<1			
1,3-Dichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1			
1,4-Dichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1			
n-Butylbenzene	<1 µg/l	TM208	<1	<1	<1	<1			
1,2-Dichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1			
1,2-Dibromo-3-chloroprop ane	<1 µg/l	TM208	<1	<1	<1	<1			
1,2,4-Trichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1			
Hexachlorobutadiene	<1 µg/l	TM208	<1	<1	<1	<1			
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208	<1	<1	<1	<1			
Naphthalene	<1 µg/l	TM208	<1	<1	<1	<1			
1,2,3-Trichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1			
1,3,5-Trichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1			



CERTIFICATE OF ANALYSIS

SDG: 110921-21
Job: H_ATKINS_LDC-105
Client Reference: Weekly Samples

Location: Coed Darcy Urban Village
Customer: Atkins Global Ltd
Attention: Selina Bamforth

Order Number: CD0169
Report Number: 152725
Superseded Report:

Notification of Deviating Samples

Sample Number	Customer Sample Ref.	Depth (m)	Matrix	Test Name	Component Name	Comment
4336706	EAST BAY		LIQUID	VOC MS (W)	1,1,1,2-Tetrachloroethane	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	1,1,1-Trichloroethane	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	1,1,2,2-Tetrachloroethane	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	1,1,2-Trichloroethane	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	1,1-Dichloroethane	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	1,1-Dichloroethene	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	1,1-Dichloropropene	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	1,2,3-Trichlorobenzene	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	1,2,3-Trichloropropane	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	1,2,4-Trichlorobenzene	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	1,2,4-Trimethylbenzene	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	1,2-Dibromo-3-chloropropane	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	1,2-Dibromoethane	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	1,2-Dichlorobenzene	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	1,2-Dichloroethane	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	1,2-Dichloropropane	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	1,3,5-Trichlorobenzene	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	1,3,5-Trimethylbenzene	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	1,3-Dichlorobenzene	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	1,3-Dichloropropane	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	1,4-Dichlorobenzene	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	2,2-Dichloropropane	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	2-Chlorotoluene	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	4-Bromofluorobenzene**	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	4-Chlorotoluene	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	4-iso-Propyltoluene	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	Benzene	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	Bromobenzene	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	Bromochloromethane	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	Bromodichloromethane	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	Bromoform	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	Bromomethane	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	Carbon disulphide	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	Carbontetrachloride	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	Chlorobenzene	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	Chloroethane	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	Chloroform	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	Chloromethane	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	cis-1,2-Dichloroethene	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	cis-1,3-Dichloropropene	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	Dibromochloromethane	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	Dibromofluoromethane**	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	Dibromomethane	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	Dichlorodifluoromethane	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	Dichloromethane	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	Ethylbenzene	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	Hexachlorobutadiene	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	Isopropylbenzene	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	m,p-Xylene	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	Methyl tertiary butyl ether (MTBE)	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	Naphthalene	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	n-Butylbenzene	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	o-Xylene	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	Propylbenzene	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	sec-Butylbenzene	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	Styrene	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	tert-Amyl methyl ether (TAME)	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	tert-Butylbenzene	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	Tetrachloroethene	Sample holding time exceeded



CERTIFICATE OF ANALYSIS

SDG: 110921-21
Job: H_ATKINS_LDC-105
Client Reference: Weekly Samples

Location: Coed Darcy Urban Village
Customer: Atkins Global Ltd
Attention: Selina Bamforth

Order Number: CD0169
Report Number: 152725
Superseded Report:

Sample Number	Customer Sample Ref.	Depth (m)	Matrix	Test Name	Component Name	Comment
4336706	EAST BAY		LIQUID	VOC MS (W)	Toluene	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	Toluene-d8**	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	trans-1,2-Dichloroethene	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	trans-1,3-Dichloropropene	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	Trichloroethene	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	Trichlorofluoromethane	Sample holding time exceeded
4336706	EAST BAY		LIQUID	VOC MS (W)	Vinyl chloride	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	1,1,1,2-Tetrachloroethane	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	1,1,1-Trichloroethane	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	1,1,2,2-Tetrachloroethane	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	1,1,2-Trichloroethane	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	1,1-Dichloroethane	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	1,1-Dichloroethene	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	1,1-Dichloropropene	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	1,2,3-Trichlorobenzene	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	1,2,3-Trichloropropane	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	1,2,4-Trichlorobenzene	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	1,2,4-Trimethylbenzene	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	1,2-Dibromo-3-chloropropane	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	1,2-Dibromoethane	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	1,2-Dichlorobenzene	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	1,2-Dichloroethane	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	1,2-Dichloropropane	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	1,3,5-Trichlorobenzene	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	1,3,5-Trimethylbenzene	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	1,3-Dichlorobenzene	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	1,3-Dichloropropane	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	1,4-Dichlorobenzene	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	2,2-Dichloropropane	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	2-Chlorotoluene	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	4-Bromofluorobenzene**	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	4-Chlorotoluene	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	4-iso-Propyltoluene	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	Benzene	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	Bromobenzene	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	Bromochloromethane	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	Bromodichloromethane	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	Bromoform	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	Bromomethane	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	Carbon disulphide	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	Carbontetrachloride	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	Chlorobenzene	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	Chloroethane	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	Chloroform	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	Chloromethane	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	cis-1,2-Dichloroethene	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	cis-1,3-Dichloropropene	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	Dibromochloromethane	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	Dibromofluoromethane**	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	Dibromomethane	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	Dichlorodifluoromethane	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	Dichloromethane	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	Ethylbenzene	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	Hexachlorobutadiene	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	Isopropylbenzene	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	m,p-Xylene	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	Methyl tertiary butyl ether (MTBE)	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	Naphthalene	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	n-Butylbenzene	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	o-Xylene	Sample holding time exceeded



CERTIFICATE OF ANALYSIS

SDG: 110921-21
Job: H_ATKINS_LDC-105
Client Reference: Weekly Samples

Location: Coed Darcy Urban Village
Customer: Atkins Global Ltd
Attention: Selina Bamforth

Order Number: CD0169
Report Number: 152725
Superseded Report:

Sample Number	Customer Sample Ref.	Depth (m)	Matrix	Test Name	Component Name	Comment
4336717	SSR SURFACE		LIQUID	VOC MS (W)	Propylbenzene	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	sec-Butylbenzene	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	Styrene	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	tert-Amyl methyl ether (TAME)	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	tert-Butylbenzene	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	Tetrachloroethene	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	Toluene	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	Toluene-d8**	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	trans-1,2-Dichloroethene	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	trans-1,3-Dichloropropene	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	Trichloroethene	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	Trichlorofluoromethane	Sample holding time exceeded
4336717	SSR SURFACE		LIQUID	VOC MS (W)	Vinyl chloride	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	1,1,1,2-Tetrachloroethane	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	1,1,1-Trichloroethane	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	1,1,2,2-Tetrachloroethane	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	1,1,2-Trichloroethane	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	1,1-Dichloroethane	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	1,1-Dichloroethene	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	1,1-Dichloropropene	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	1,2,3-Trichlorobenzene	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	1,2,3-Trichloropropane	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	1,2,4-Trichlorobenzene	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	1,2,4-Trimethylbenzene	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	1,2-Dibromo-3-chloropropane	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	1,2-Dibromoethane	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	1,2-Dichlorobenzene	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	1,2-Dichloroethane	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	1,2-Dichloropropane	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	1,3,5-Trichlorobenzene	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	1,3,5-Trimethylbenzene	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	1,3-Dichlorobenzene	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	1,3-Dichloropropane	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	1,4-Dichlorobenzene	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	2,2-Dichloropropane	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	2-Chlorotoluene	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	4-Bromofluorobenzene**	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	4-Chlorotoluene	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	4-iso-Propyltoluene	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	Benzene	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	Bromobenzene	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	Bromochloromethane	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	Bromodichloromethane	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	Bromoform	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	Bromomethane	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	Carbon disulphide	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	Carbontetrachloride	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	Chlorobenzene	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	Chloroethane	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	Chloroform	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	Chloromethane	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	cis-1,2-Dichloroethene	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	cis-1,3-Dichloropropene	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	Dibromochloromethane	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	Dibromofluoromethane**	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	Dibromomethane	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	Dichlorodifluoromethane	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	Dichloromethane	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	Ethylbenzene	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	Hexachlorobutadiene	Sample holding time exceeded



CERTIFICATE OF ANALYSIS

SDG: 110921-21
Job: H_ATKINS_LDC-105
Client Reference: Weekly Samples

Location: Coed Darcy Urban Village
Customer: Atkins Global Ltd
Attention: Selina Bamforth

Order Number: CD0169
Report Number: 152725
Superseded Report:

Sample Number	Customer Sample Ref.	Depth (m)	Matrix	Test Name	Component Name	Comment
4336723	DIRE DV 2		LIQUID	VOC MS (W)	Isopropylbenzene	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	m,p-Xylene	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	Methyl tertiary butyl ether (MTBE)	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	Naphthalene	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	n-Butylbenzene	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	o-Xylene	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	Propylbenzene	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	sec-Butylbenzene	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	Styrene	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	tert-Amyl methyl ether (TAME)	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	tert-Butylbenzene	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	Tetrachloroethene	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	Toluene	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	Toluene-d8**	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	trans-1,2-Dichloroethene	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	trans-1,3-Dichloropropene	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	Trichloroethene	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	Trichlorofluoromethane	Sample holding time exceeded
4336723	DIRE DV 2		LIQUID	VOC MS (W)	Vinyl chloride	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	1,1,1,2-Tetrachloroethane	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	1,1,1-Trichloroethane	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	1,1,2,2-Tetrachloroethane	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	1,1,2-Trichloroethane	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	1,1-Dichloroethane	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	1,1-Dichloroethene	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	1,1-Dichloropropene	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	1,2,3-Trichlorobenzene	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	1,2,3-Trichloropropane	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	1,2,4-Trichlorobenzene	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	1,2,4-Trimethylbenzene	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	1,2-Dibromo-3-chloropropane	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	1,2-Dibromoethane	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	1,2-Dichlorobenzene	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	1,2-Dichloroethane	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	1,2-Dichloropropane	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	1,3,5-Trichlorobenzene	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	1,3,5-Trimethylbenzene	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	1,3-Dichlorobenzene	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	1,3-Dichloropropane	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	1,4-Dichlorobenzene	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	2,2-Dichloropropane	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	2-Chlorotoluene	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	4-Bromofluorobenzene**	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	4-Chlorotoluene	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	4-iso-Propyltoluene	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	Benzene	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	Bromobenzene	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	Bromochloromethane	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	Bromodichloromethane	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	Bromoform	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	Bromomethane	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	Carbon disulphide	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	Carbontetrachloride	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	Chlorobenzene	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	Chloroethane	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	Chloroform	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	Chloromethane	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	cis-1,2-Dichloroethene	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	cis-1,3-Dichloropropene	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	Dibromochloromethane	Sample holding time exceeded



CERTIFICATE OF ANALYSIS

SDG: 110921-21
Job: H_ATKINS_LDC-105
Client Reference: Weekly Samples

Location: Coed Darcy Urban Village
Customer: Atkins Global Ltd
Attention: Selina Bamforth

Order Number: CD0169
Report Number: 152725
Superseded Report:

Sample Number	Customer Sample Ref.	Depth (m)	Matrix	Test Name	Component Name	Comment
4336732	DIRE DV 1		LIQUID	VOC MS (W)	Dibromofluoromethane**	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	Dibromomethane	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	Dichlorodifluoromethane	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	Dichloromethane	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	Ethylbenzene	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	Hexachlorobutadiene	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	Isopropylbenzene	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	m,p-Xylene	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	Methyl tertiary butyl ether (MTBE)	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	Naphthalene	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	n-Butylbenzene	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	o-Xylene	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	Propylbenzene	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	sec-Butylbenzene	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	Styrene	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	tert-Amyl methyl ether (TAME)	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	tert-Butylbenzene	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	Tetrachloroethene	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	Toluene	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	Toluene-d8**	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	trans-1,2-Dichloroethene	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	trans-1,3-Dichloropropene	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	Trichloroethene	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	Trichlorofluoromethane	Sample holding time exceeded
4336732	DIRE DV 1		LIQUID	VOC MS (W)	Vinyl chloride	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	1,1,1,2-Tetrachloroethane	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	1,1,1-Trichloroethane	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	1,1,2,2-Tetrachloroethane	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	1,1,2-Trichloroethane	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	1,1-Dichloroethane	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	1,1-Dichloroethene	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	1,1-Dichloropropene	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	1,2,3-Trichlorobenzene	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	1,2,3-Trichloropropane	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	1,2,4-Trichlorobenzene	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	1,2,4-Trimethylbenzene	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	1,2-Dibromo-3-chloropropane	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	1,2-Dibromoethane	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	1,2-Dichlorobenzene	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	1,2-Dichloroethane	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	1,2-Dichloropropane	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	1,3,5-Trichlorobenzene	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	1,3,5-Trimethylbenzene	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	1,3-Dichlorobenzene	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	1,3-Dichloropropane	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	1,4-Dichlorobenzene	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	2,2-Dichloropropane	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	2-Chlorotoluene	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	4-Bromofluorobenzene**	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	4-Chlorotoluene	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	4-iso-Propyltoluene	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	Benzene	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	Bromobenzene	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	Bromochloromethane	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	Bromodichloromethane	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	Bromoform	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	Bromomethane	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	Carbon disulphide	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	Carbontetrachloride	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	Chlorobenzene	Sample holding time exceeded



CERTIFICATE OF ANALYSIS

SDG: 110921-21
Job: H_ATKINS_LDC-105
Client Reference: Weekly Samples

Location: Coed Darcy Urban Village
Customer: Atkins Global Ltd
Attention: Selina Bamforth

Order Number: CD0169
Report Number: 152725
Superseded Report:

Sample Number	Customer Sample Ref.	Depth (m)	Matrix	Test Name	Component Name	Comment
4336741	36"		LIQUID	VOC MS (W)	Chloroethane	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	Chloroform	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	Chloromethane	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	cis-1,2-Dichloroethene	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	cis-1,3-Dichloropropene	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	Dibromochloromethane	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	Dibromofluoromethane**	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	Dibromomethane	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	Dichlorodifluoromethane	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	Dichloromethane	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	Ethylbenzene	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	Hexachlorobutadiene	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	Isopropylbenzene	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	m,p-Xylene	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	Methyl tertiary butyl ether (MTBE)	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	Naphthalene	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	n-Butylbenzene	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	o-Xylene	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	Propylbenzene	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	sec-Butylbenzene	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	Styrene	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	tert-Amyl methyl ether (TAME)	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	tert-Butylbenzene	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	Tetrachloroethene	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	Toluene	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	Toluene-d8**	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	trans-1,2-Dichloroethene	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	trans-1,3-Dichloropropene	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	Trichloroethene	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	Trichlorofluoromethane	Sample holding time exceeded
4336741	36"		LIQUID	VOC MS (W)	Vinyl chloride	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	1,1,1,2-Tetrachloroethane	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	1,1,1-Trichloroethane	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	1,1,2,2-Tetrachloroethane	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	1,1,2-Trichloroethane	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	1,1-Dichloroethane	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	1,1-Dichloroethene	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	1,1-Dichloropropene	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	1,2,3-Trichlorobenzene	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	1,2,3-Trichloropropane	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	1,2,4-Trichlorobenzene	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	1,2,4-Trimethylbenzene	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	1,2-Dibromo-3-chloropropane	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	1,2-Dibromoethane	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	1,2-Dichlorobenzene	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	1,2-Dichloroethane	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	1,2-Dichloropropane	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	1,3,5-Trichlorobenzene	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	1,3,5-Trimethylbenzene	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	1,3-Dichlorobenzene	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	1,3-Dichloropropane	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	1,4-Dichlorobenzene	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	2,2-Dichloropropane	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	2-Chlorotoluene	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	4-Bromofluorobenzene**	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	4-Chlorotoluene	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	4-iso-Propyltoluene	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	Benzene	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	Bromobenzene	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	Bromochloromethane	Sample holding time exceeded



CERTIFICATE OF ANALYSIS

SDG: 110921-21
Job: H_ATKINS_LDC-105
Client Reference: Weekly Samples

Location: Coed Darcy Urban Village
Customer: Atkins Global Ltd
Attention: Selina Bamforth

Order Number: CD0169
Report Number: 152725
Superseded Report:

Sample Number	Customer Sample Ref.	Depth (m)	Matrix	Test Name	Component Name	Comment
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	Bromodichloromethane	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	Bromoform	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	Bromomethane	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	Carbon disulphide	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	Carbontetrachloride	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	Chlorobenzene	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	Chloroethane	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	Chloroform	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	Chloromethane	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	cis-1,2-Dichloroethene	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	cis-1,3-Dichloropropene	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	Dibromochloromethane	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	Dibromofluoromethane**	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	Dibromomethane	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	Dichlorodifluoromethane	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	Dichloromethane	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	Ethylbenzene	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	Hexachlorobutadiene	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	Isopropylbenzene	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	m,p-Xylene	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	Methyl tertiary butyl ether (MTBE)	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	Naphthalene	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	n-Butylbenzene	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	o-Xylene	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	Propylbenzene	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	sec-Butylbenzene	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	Styrene	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	tert-Amyl methyl ether (TAME)	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	tert-Butylbenzene	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	Tetrachloroethene	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	Toluene	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	Toluene-d8**	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	trans-1,2-Dichloroethene	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	trans-1,3-Dichloropropene	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	Trichloroethene	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	Trichlorofluoromethane	Sample holding time exceeded
4336750	NSR INFLOW 2		LIQUID	VOC MS (W)	Vinyl chloride	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	1,1,1,2-Tetrachloroethane	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	1,1,1-Trichloroethane	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	1,1,2,2-Tetrachloroethane	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	1,1,2-Trichloroethane	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	1,1-Dichloroethane	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	1,1-Dichloroethene	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	1,1-Dichloropropene	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	1,2,3-Trichlorobenzene	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	1,2,3-Trichloropropane	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	1,2,4-Trichlorobenzene	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	1,2,4-Trimethylbenzene	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	1,2-Dibromo-3-chloropropane	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	1,2-Dibromoethane	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	1,2-Dichlorobenzene	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	1,2-Dichloroethane	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	1,2-Dichloropropane	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	1,3,5-Trichlorobenzene	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	1,3,5-Trimethylbenzene	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	1,3-Dichlorobenzene	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	1,3-Dichloropropane	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	1,4-Dichlorobenzene	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	2,2-Dichloropropane	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	2-Chlorotoluene	Sample holding time exceeded



CERTIFICATE OF ANALYSIS

SDG: 110921-21
Job: H_ATKINS_LDC-105
Client Reference: Weekly Samples

Location: Coed Darcy Urban Village
Customer: Atkins Global Ltd
Attention: Selina Bamforth

Order Number: CD0169
Report Number: 152725
Superseded Report:

Sample Number	Customer Sample Ref.	Depth (m)	Matrix	Test Name	Component Name	Comment
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	4-Bromofluorobenzene**	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	4-Chlorotoluene	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	4-iso-Propyltoluene	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	Benzene	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	Bromobenzene	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	Bromochloromethane	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	Bromodichloromethane	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	Bromoform	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	Bromomethane	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	Carbon disulphide	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	Carbontetrachloride	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	Chlorobenzene	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	Chloroethane	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	Chloroform	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	Chloromethane	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	cis-1,2-Dichloroethene	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	cis-1,3-Dichloropropene	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	Dibromochloromethane	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	Dibromofluoromethane**	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	Dibromomethane	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	Dichlorodifluoromethane	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	Dichloromethane	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	Ethylbenzene	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	Hexachlorobutadiene	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	Isopropylbenzene	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	m,p-Xylene	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	Methyl tertiary butyl ether (MTBE)	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	Naphthalene	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	n-Butylbenzene	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	o-Xylene	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	Propylbenzene	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	sec-Butylbenzene	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	Styrene	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	tert-Amyl methyl ether (TAME)	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	tert-Butylbenzene	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	Tetrachloroethene	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	Toluene	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	Toluene-d8**	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	trans-1,2-Dichloroethene	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	trans-1,3-Dichloropropene	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	Trichloroethene	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	Trichlorofluoromethane	Sample holding time exceeded
4336756	NSR INFLOW 1		LIQUID	VOC MS (W)	Vinyl chloride	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	1,1,1,2-Tetrachloroethane	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	1,1,1-Trichloroethane	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	1,1,2,2-Tetrachloroethane	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	1,1,2-Trichloroethane	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	1,1-Dichloroethane	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	1,1-Dichloroethene	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	1,1-Dichloropropene	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	1,2,3-Trichlorobenzene	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	1,2,3-Trichloropropane	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	1,2,4-Trichlorobenzene	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	1,2,4-Trimethylbenzene	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	1,2-Dibromo-3-chloropropane	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	1,2-Dibromoethane	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	1,2-Dichlorobenzene	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	1,2-Dichloroethane	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	1,2-Dichloropropane	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	1,3,5-Trichlorobenzene	Sample holding time exceeded



CERTIFICATE OF ANALYSIS

SDG: 110921-21
Job: H_ATKINS_LDC-105
Client Reference: Weekly Samples

Location: Coed Darcy Urban Village
Customer: Atkins Global Ltd
Attention: Selina Bamforth

Order Number: CD0169
Report Number: 152725
Superseded Report:

Sample Number	Customer Sample Ref.	Depth (m)	Matrix	Test Name	Component Name	Comment
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	1,3,5-Trimethylbenzene	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	1,3-Dichlorobenzene	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	1,3-Dichloropropane	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	1,4-Dichlorobenzene	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	2,2-Dichloropropane	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	2-Chlorotoluene	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	4-Bromofluorobenzene**	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	4-Chlorotoluene	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	4-iso-Propyltoluene	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	Benzene	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	Bromobenzene	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	Bromochloromethane	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	Bromodichloromethane	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	Bromoform	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	Bromomethane	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	Carbon disulphide	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	Carbontetrachloride	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	Chlorobenzene	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	Chloroethane	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	Chloroform	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	Chloromethane	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	cis-1,2-Dichloroethene	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	cis-1,3-Dichloropropene	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	Dibromochloromethane	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	Dibromofluoromethane**	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	Dibromomethane	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	Dichlorodifluoromethane	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	Dichloromethane	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	Ethylbenzene	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	Hexachlorobutadiene	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	Isopropylbenzene	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	m,p-Xylene	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	Methyl tertiary butyl ether (MTBE)	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	Naphthalene	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	n-Butylbenzene	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	o-Xylene	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	Propylbenzene	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	sec-Butylbenzene	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	Styrene	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	tert-Amyl methyl ether (TAME)	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	tert-Butylbenzene	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	Tetrachloroethene	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	Toluene	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	Toluene-d8**	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	trans-1,2-Dichloroethene	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	trans-1,3-Dichloropropene	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	Trichloroethene	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	Trichlorofluoromethane	Sample holding time exceeded
4336762	NSR IN (EAST)		LIQUID	VOC MS (W)	Vinyl chloride	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	1,1,1,2-Tetrachloroethane	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	1,1,1-Trichloroethane	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	1,1,2,2-Tetrachloroethane	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	1,1,2-Trichloroethane	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	1,1-Dichloroethane	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	1,1-Dichloroethene	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	1,1-Dichloropropene	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	1,2,3-Trichlorobenzene	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	1,2,3-Trichloropropane	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	1,2,4-Trichlorobenzene	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	1,2,4-Trimethylbenzene	Sample holding time exceeded



CERTIFICATE OF ANALYSIS

SDG: 110921-21
Job: H_ATKINS_LDC-105
Client Reference: Weekly Samples

Location: Coed Darcy Urban Village
Customer: Atkins Global Ltd
Attention: Selina Bamforth

Order Number: CD0169
Report Number: 152725
Superseded Report:

Sample Number	Customer Sample Ref.	Depth (m)	Matrix	Test Name	Component Name	Comment
4336767	NSR OUT		LIQUID	VOC MS (W)	1,2-Dibromo-3-chloropropane	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	1,2-Dibromoethane	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	1,2-Dichlorobenzene	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	1,2-Dichloroethane	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	1,2-Dichloropropane	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	1,3,5-Trichlorobenzene	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	1,3,5-Trimethylbenzene	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	1,3-Dichlorobenzene	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	1,3-Dichloropropane	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	1,4-Dichlorobenzene	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	2,2-Dichloropropane	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	2-Chlorotoluene	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	4-Bromofluorobenzene**	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	4-Chlorotoluene	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	4-iso-Propyltoluene	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	Benzene	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	Bromobenzene	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	Bromochloromethane	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	Bromodichloromethane	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	Bromoform	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	Bromomethane	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	Carbon disulphide	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	Carbontetrachloride	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	Chlorobenzene	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	Chloroethane	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	Chloroform	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	Chloromethane	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	cis-1,2-Dichloroethene	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	cis-1,3-Dichloropropene	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	Dibromochloromethane	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	Dibromofluoromethane**	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	Dibromomethane	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	Dichlorodifluoromethane	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	Dichloromethane	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	Ethylbenzene	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	Hexachlorobutadiene	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	Isopropylbenzene	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	m,p-Xylene	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	Methyl tertiary butyl ether (MTBE)	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	Naphthalene	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	n-Butylbenzene	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	o-Xylene	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	Propylbenzene	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	sec-Butylbenzene	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	Styrene	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	tert-Amyl methyl ether (TAME)	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	tert-Butylbenzene	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	Tetrachloroethene	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	Toluene	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	Toluene-d8**	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	trans-1,2-Dichloroethene	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	trans-1,3-Dichloropropene	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	Trichloroethene	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	Trichlorofluoromethane	Sample holding time exceeded
4336767	NSR OUT		LIQUID	VOC MS (W)	Vinyl chloride	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	1,1,1,2-Tetrachloroethane	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	1,1,1-Trichloroethane	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	1,1,2,2-Tetrachloroethane	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	1,1,2-Trichloroethane	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	1,1-Dichloroethane	Sample holding time exceeded



CERTIFICATE OF ANALYSIS

SDG: 110921-21
Job: H_ATKINS_LDC-105
Client Reference: Weekly Samples

Location: Coed Darcy Urban Village
Customer: Atkins Global Ltd
Attention: Selina Bamforth

Order Number: CD0169
Report Number: 152725
Superseded Report:

Sample Number	Customer Sample Ref.	Depth (m)	Matrix	Test Name	Component Name	Comment
4336773	NSR IN		LIQUID	VOC MS (W)	1,1-Dichloroethene	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	1,1-Dichloropropene	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	1,2,3-Trichlorobenzene	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	1,2,3-Trichloropropane	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	1,2,4-Trichlorobenzene	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	1,2,4-Trimethylbenzene	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	1,2-Dibromo-3-chloropropane	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	1,2-Dibromoethane	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	1,2-Dichlorobenzene	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	1,2-Dichloroethane	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	1,2-Dichloropropane	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	1,3,5-Trichlorobenzene	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	1,3,5-Trimethylbenzene	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	1,3-Dichlorobenzene	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	1,3-Dichloropropane	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	1,4-Dichlorobenzene	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	2,2-Dichloropropane	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	2-Chlorotoluene	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	4-Bromofluorobenzene**	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	4-Chlorotoluene	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	4-iso-Propyltoluene	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	Benzene	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	Bromobenzene	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	Bromochloromethane	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	Bromodichloromethane	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	Bromoform	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	Bromomethane	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	Carbon disulphide	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	Carbontetrachloride	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	Chlorobenzene	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	Chloroethane	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	Chloroform	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	Chloromethane	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	cis-1,2-Dichloroethene	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	cis-1,3-Dichloropropene	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	Dibromochloromethane	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	Dibromofluoromethane**	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	Dibromomethane	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	Dichlorodifluoromethane	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	Dichloromethane	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	Ethylbenzene	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	Hexachlorobutadiene	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	Isopropylbenzene	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	m,p-Xylene	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	Methyl tertiary butyl ether (MTBE)	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	Naphthalene	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	n-Butylbenzene	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	o-Xylene	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	Propylbenzene	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	sec-Butylbenzene	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	Styrene	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	tert-Amyl methyl ether (TAME)	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	tert-Butylbenzene	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	Tetrachloroethene	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	Toluene	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	Toluene-d8**	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	trans-1,2-Dichloroethene	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	trans-1,3-Dichloropropene	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	Trichloroethene	Sample holding time exceeded
4336773	NSR IN		LIQUID	VOC MS (W)	Trichlorofluoromethane	Sample holding time exceeded



CERTIFICATE OF ANALYSIS

SDG:	110921-21	Location:	Coed Darcy Urban Village	Order Number:	CD0169
Job:	H_ATKINS_LDC-105	Customer:	Atkins Global Ltd	Report Number:	152725
Client Reference:	Weekly Samples	Attention:	Selina Bamforth	Superseded Report:	

Sample Number	Customer Sample Ref.	Depth (m)	Matrix	Test Name	Component Name	Comment
4336773	NSR IN		LIQUID	VOC MS (W)	Vinyl chloride	Sample holding time exceeded
4339484	36"		LIQUID	Anions by Kone (w)	Nitrite as NO2	Sample holding time exceeded
4339564	NSR INFLOW 2		LIQUID	Anions by Kone (w)	Nitrite as NO2	Sample holding time exceeded
4344135	DIRE DV 1		LIQUID	Anions by Kone (w)	Nitrite as NO2	Sample holding time exceeded
4344235	DIRE DV 2		LIQUID	Anions by Kone (w)	Nitrite as NO2	Sample holding time exceeded

Note : Test results may be compromised



SDG: 110921-21
Job: H_ATKINS_LDC-105
Client Reference: Weekly Samples

Location: Coed Darcy Urban Village
Customer: Atkins Global Ltd
Attention: Selina Bamforth

Order Number: CD0169
Report Number: 152725
Superseded Report:

Table of Results - Appendix

REPORT KEY

Results expressed as (e.g.) 1.03E-07 is equivalent to 1.03x10⁻⁷

NDP	No Determination Possible	#	ISO 17025 Accredited	*	Subcontracted Test	M	MCERTS Accredited
NFD	No Fibres Detected	PFD	Possible Fibres Detected	»	Result previously reported (Incremental reports only)	EC	Equivalent Carbon (Aromatics C8-C35)

Note: Method detection limits are not always achievable due to various circumstances beyond our control

Method No	Reference	Description	Wet/Dry Sample ¹	Surrogate Corrected
TM022	Method 2540D, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part120 1981;BS EN 872	Determination of total suspended solids in waters		
TM045	MEWAM BOD5 2nd Ed.HMSO 1988 / Method 5210B, AWWA/APHA, 20th Ed., 1999; SCA Blue Book 130	Determination of BOD5 (ATU) Filtered by Oxygen Meter on liquids		
TM061	Method for the Determination of EPH,Massachusetts Dept.of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)		
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser		
TM107	ISO 6060-1989	Determination of Chemical Oxygen Demand using COD Dr Lange Kit		
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter		
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS		
TM174	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID		
TM176	EPA 8270D Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of SVOCs in Water by GCMS		
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers		
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters		
TM245	By GC-FID	Determination of GRO by Headspace in waters		
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter		

¹ Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.



CERTIFICATE OF ANALYSIS

SDG: 110921-21
Job: H_ATKINS_LDC-105
Client Reference: Weekly Samples

Location: Coed Darcy Urban Village
Customer: Atkins Global Ltd
Attention: Selina Bamforth

Order Number: CD0169
Report Number: 152725
Superseded Report:

Test Completion Dates

Lab Sample No(s)	4336659	4336660	4336661	4336663	4336648	4336655	4336657	4336658	4336653	4336662
Customer Sample Ref.	36"	DIRE DV 1	DIRE DV 2	EAST BAY	NSR IN	NSR IN (EAST)	NSR INFLOW 1	NSR INFLOW 2	NSR OUT	SSR SURFACE
AGS Ref.										
Depth										
Type	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID
Ammoniacal Nitrogen	22-Sep-2011	26-Sep-2011	26-Sep-2011	26-Sep-2011	26-Sep-2011	26-Sep-2011	26-Sep-2011	22-Sep-2011	26-Sep-2011	26-Sep-2011
Anions by Kone (w)	26-Sep-2011	27-Sep-2011	27-Sep-2011	22-Sep-2011	23-Sep-2011	23-Sep-2011	23-Sep-2011	26-Sep-2011	23-Sep-2011	22-Sep-2011
BOD True Total	26-Sep-2011	26-Sep-2011	26-Sep-2011	26-Sep-2011	27-Sep-2011	27-Sep-2011	27-Sep-2011	26-Sep-2011	27-Sep-2011	26-Sep-2011
COD Unfiltered	24-Sep-2011	23-Sep-2011	23-Sep-2011	23-Sep-2011	23-Sep-2011	23-Sep-2011	23-Sep-2011	24-Sep-2011	23-Sep-2011	23-Sep-2011
Conductivity (at 20 deg.C)	22-Sep-2011	22-Sep-2011	22-Sep-2011	22-Sep-2011	22-Sep-2011	22-Sep-2011	22-Sep-2011	21-Sep-2011	22-Sep-2011	22-Sep-2011
Dissolved Metals by ICP-MS	26-Sep-2011	23-Sep-2011	23-Sep-2011	23-Sep-2011	23-Sep-2011	23-Sep-2011	23-Sep-2011	26-Sep-2011	23-Sep-2011	23-Sep-2011
EPH CWG (Aliphatic) Aqueous GC (W)	28-Sep-2011	28-Sep-2011	26-Sep-2011	26-Sep-2011	26-Sep-2011	26-Sep-2011	26-Sep-2011	26-Sep-2011	26-Sep-2011	26-Sep-2011
EPH CWG (Aromatic) Aqueous GC (W)	28-Sep-2011	28-Sep-2011	26-Sep-2011	26-Sep-2011	26-Sep-2011	26-Sep-2011	26-Sep-2011	26-Sep-2011	26-Sep-2011	26-Sep-2011
GRO by GC-FID (W)	28-Sep-2011	28-Sep-2011	28-Sep-2011	28-Sep-2011	28-Sep-2011	28-Sep-2011	28-Sep-2011	28-Sep-2011	28-Sep-2011	28-Sep-2011
pH Value	21-Sep-2011	22-Sep-2011	22-Sep-2011	22-Sep-2011	22-Sep-2011	22-Sep-2011	22-Sep-2011	21-Sep-2011	22-Sep-2011	22-Sep-2011
Suspended Solids	22-Sep-2011	23-Sep-2011	23-Sep-2011	22-Sep-2011	22-Sep-2011	23-Sep-2011	23-Sep-2011	23-Sep-2011	22-Sep-2011	23-Sep-2011
SVOC MS (W) - Aqueous	26-Sep-2011	26-Sep-2011	26-Sep-2011	27-Sep-2011	27-Sep-2011	27-Sep-2011	26-Sep-2011	26-Sep-2011	26-Sep-2011	27-Sep-2011
TPH CWG (W)	28-Sep-2011	28-Sep-2011	28-Sep-2011	28-Sep-2011	28-Sep-2011	28-Sep-2011	28-Sep-2011	28-Sep-2011	28-Sep-2011	28-Sep-2011
VOC MS (W)	29-Sep-2011	29-Sep-2011	29-Sep-2011	29-Sep-2011	29-Sep-2011	29-Sep-2011	29-Sep-2011	29-Sep-2011	29-Sep-2011	30-Sep-2011



CERTIFICATE OF ANALYSIS

SDG:	110921-21	Location:	Coed Darcy Urban Village	Order Number:	CD0169
Job:	H_ATKINS_LDC-105	Customer:	Atkins Global Ltd	Report Number:	152725
Client Reference:	Weekly Samples	Attention:	Selina Bamforth	Superseded Report:	

Appendix

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA Leach tests, flash point, ammonium as NH4 by the BRE method, VOC TICS, SVOC TICS, TOF-MS SCAN/SEARCH and TOF-MS TICS.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for both soil jars, tubs and volatile jars. All waters and vials will be discarded 10 days after the analysis is completed (e-mailed). All material removed during an asbestos containing material screen and analysed for the presence of asbestos will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Laboratories reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be screened in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. Is an asbestos fibre type is found it will be reported as detected (for each fibre type found). If asbestos is present either as asbestos containing material or loose fibres no further analysis will be undertaken. The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, the integrity of the data may be compromised if the laboratory is required to create a sub-sample from the bulk sample -similarly, if a headspace or sediment is present in the volatile sample. This will be flagged up as an invalid VOC on the test schedule or recorded on the log sheet.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP -No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals -total metals must be requested separately.

11. Results relate only to the items tested.

12. LODs for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** -Most of our organic methods include surrogates, the recovery of which is monitored and reported. For EPH, MO, PAH, GRO and VOCs on soils the result is not surrogate corrected, but a percentage recovery is quoted. Acceptable limits for most organic methods are 70 -130 %.

14. **Product analyses** -Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

21. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials -whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute themajor part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C4 -C10 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

SOLID MATRICES EXTRACTION SUMMARY				
ANALYSIS	DC OR WET	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
SOLVENTEXTRACTABLE MATTER	D&C	DCM	SOX THERM	GRAVIMETRIC
CYCLOHEXANE EXT. MATTER	D&C	CYCLOHEXANE	SOX THERM	GRAVIMETRIC
ELEMENTAL SULPHUR	D&C	DCM	SOX THERM	HPLC
PHENOLS BY GCMS	WET	DCM	SOX THERM	GCMS
HERBICIDES	D&C	HEXANE/ACETONE	SOX THERM	GCMS
PESTICIDES	D&C	HEXANE/ACETONE	SOX THERM	GCMS
EPH (DRO)	D&C	HEXANE/ACETONE	END OVER END	GC-FID
EPH (MIN OIL)	D&C	HEXANE/ACETONE	END OVER END	GC-FID
EPH (CLEANED UP)	D&C	HEXANE/ACETONE	END OVER END	GC-FID
EPH CWGBY GC	D&C	HEXANE/ACETONE	END OVER END	GC-FID
PCBTOT/PCB CON	D&C	HEXANE/ACETONE	END OVER END	GCMS
POLYAROMATIC HYDROCARBONS (MS)	WET	HEXANE/ACETONE	MICROWAVE TM218.	GCMS
C8-C40 (C6-C40) EZ FLASH	WET	HEXANE/ACETONE	SHAKER	GC-EZ
POLYAROMATIC HYDROCARBONS RAPID GC	WET	HEXANE/ACETONE	SHAKER	GC-EZ
SEMI VOLATILE ORGANIC COMPOUNDS	WET	DOM/ACETONE	SONICATE	GCMS

LIQUID MATRICES EXTRACTION SUMMARY			
ANALYSIS	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
PAHMS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GCMS
EPH	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
EPH CWG	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
MINERAL OIL	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
PCB 7 CONGENERS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GCMS
PCB TOTAL	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GCMS
SVOC	DCM	LIQUID/LIQUID SHAKE	GCMS
FREESULPHUR	DCM	SOLID PHASE EXTRACTION	HPLC
PEST COC/OPP	DCM	LIQUID/LIQUID SHAKE	GCMS
TRIAZINE HERBS	DCM	LIQUID/LIQUID SHAKE	GCMS
PHENOLS MS	DCM	SOLID PHASE EXTRACTION	GCMS
TRI by INFRARED (IR)	TCE	LIQUID/LIQUID SHAKE	HPLC
MINERAL OIL by IR	TCE	LIQUID/LIQUID SHAKE	HPLC
GLYCOLS	NONE	DIRECT INJECTION	GCMS

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials or those identified as potentially asbestos containing during sample description which have been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace -Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Appendix E Photographs of the Works

South Site Reservoir Verification Photographs



Photograph 1: SSR pre-remediation



Photograph 2: De-watering of SSR

South Site Reservoir Verification Photographs



Photograph 3: Preparation of Treatment pad



Photograph 4: Hydrocarbon impacted Sludge Stabilisation & Removal

South Site Reservoir Verification Photographs



Photograph 5: Hydrocarbon impacted sludge removal



Photograph 6: Hydrocarbon impacted material on the Treatment pad

South Site Reservoir Verification Photographs



Photograph 7: Emergency draw down valve plinth



Photograph 8: Pressurised air being used to remove oil tide mark from walls

South Site Reservoir Verification Photographs



Photograph 9: Remediated walls



Photograph 10: Remediated base

South Site Reservoir Verification Photographs



Photograph 11: Remediated base



Photograph 12: Remediated base.

South Site Reservoir Verification Photographs



Photograph 13: Remediated base.



Photograph 14: Remediated base

South Site Reservoir Verification Photographs



Photograph 15: SSR post remediation appearance with recharge of water.

Technical Note 678

Subject:	RAP feature 18 (API separators)		
Reference:	5041216-RAP-TN-000678	Revision:	1
Author:	Alex Mann	Checker:	Selina Bamforth
Issued to:	St Modwen Developments, URS Scott Wilson	Reviewer:	Howel Morris/Michelle Lee
Date:	12 th October 2011	Authoriser:	Mike Poland

1. Introduction

1.1 Background

Atkins Limited (Atkins) was commissioned by St. Modwen Developments Ltd (SMD) to produce a verification report for remediation works, undertaken and validated by Celtic Technologies Ltd (Celtic), of the API separators (APIs) on the North Site of the former Llandarcy Oil Refinery, Neath, South Wales.

The works were commissioned as part of the Remedial Action Plan (RAP) for the Coed Darcy site and consisted of the decommissioning and remediation of the oil / water separators located adjacent to the North Site Reservoir (NSR). These works form part of the RAP program of works and are nominated as 'Phase 12' for the purpose of Monitor sign off (see Drawing 5041216-RAP-DWG-1056, attached).

A key objective of the works was to demonstrate environmental improvement in accordance with the requirements of the Section 106 Deed of Planning Conditions for the Coed Darcy development for RAP Remediation. The location of RAP Feature 18 (API separators) is shown on a reproduction of the RAP drawing within the S106 and presented as Drawing No. 5041216-RAP-DWG-538.

The scope of the works relating to RAP Feature 18, as set out in the S106, Schedule 7, Table 1 is as follows:

'Design and implement sludge removal and treatment programme for {API Separators}'

The performance criteria for the remedial works as set out in the S106 are as follows:

- *Sludge removed, treated to satisfaction of EA dependent on fate and disposed of or re-used.*
- *Water removed, treated as required and disposed of.*

A remediation strategy (Ref. 1) has been prepared by Celtic for RAP Feature 18 (API Separators). The works were wholly undertaken and controlled by Celtic. Detailed information on the works is presented within the Celtic API Validation Report (Ref. 2).

It is thought that the APIs will be demolished during the redevelopment of the site and the area of the APIs will be available for recreational use.

1.2 Sources of Information & Parties Involved

The previous works and supporting data are summarised in this report and set out in detail in the following documentation:

- Ref 1 - Celtic Report No. R1434-10-3960 - South Site Reservoir, East Bay and API Separators Remediation Strategy, February 2011

- Ref 2 – Celtic Report No. R1434/11/4093 - API Separators Verification Report, July 2011
- Ref 3 URS Report no. 4438274/BRRP0001 '*BP Llandarcy Refinery Desk Study*' dated 5th July 2007.
- Ref 4 URS Report no. FR1287 '*Final Factual Report for Whole Site Investigation – BP Llandarcy Refinery*', dated 12th August 2005.

The following parties are referred to in this document and were involved during the works.

- Employer: St Modwen Developments Ltd
- Nominated Client Representative (NR): Prosurv
- Nominated Engineering Representative (NER): Atkins Ltd
- The Monitor: URS Scott Wilson
- Contractor: Celtic Technologies Ltd

2. Site History & Features

The APIs occupy around 0.5 hectares in area. The separators were historically used for the treatment of site drainage and process water from the refinery. The APIs are composed of two main units; each unit consisted of a primary oil separator followed by a secondary larger unit used for sedimentation as well as oil removal. The units were designed to work independently of each other to allow for maintenance and cleaning. The units are referred to as chambers 1, 2, 3 and 4 in the Celtic Verification Report (see Drawing D1434/11/4092/A3), and the same terminology has been used in this technical note.

The separators are still operational as a drainage control feature but the oil recovery system has been removed. The inflow to the separators is via a drainage channel to the south west of the separators, with the final effluent discharging to the north east of the separators into the NSR.

3. Works Summary & Verification

This chapter summarises the remediation work undertaken and presents the information collected by Atkins to independently verify the data provided within Celtic's validation report.

3.1 Summary of Remedial Works

The works were undertaken between 22nd of January 2011 and 27th of June 2011. A summary of works completed by Celtic are presented below;

- Production of a remediation strategy for the removal of sludge,
- Diversion of surface water inflows around the APIs,
- Installation of sludge treatment pad area on North Site with a vacuum system,
- Sludge removal equipment mobilisation, including a long reach excavator, water pump and organic ameliorant,
- Dewatering of APIs and discharge of water to an oil/ water separator before entry to NSR,
- In situ stabilisation of sludges using wood chip,
- Excavation of hydrocarbon impacted sludges and placement of excavated materials upon the constructed treatment pad,
- Concrete and brick infrastructure was cleaned using a combination of high pressure jet washing and a rotary brush on a skid steer

- Daily visual monitoring of NSR,
- Production of Contractors Validation Report.

A total of 3830m³ of sludge was removed from the 4 chambers of the API separators and taken to the North Site Treatment Pad. 1500 tonnes of wood chip was mixed with this material increasing the excavated volume to approximately 5000m³. The treatment of the sludge is currently ongoing under an appropriate EA Permit. The validation and verification of the bio-remediation operation will be subject to separate reporting and will not be covered further within this report.

The volume of excavated sludge is consistent with previous estimates presented in the S106 (5000m³). A photographic record of the works is presented in Appendix A (attached).

3.2 Remediation Standards

The Contractor, in accordance with the specification for the works and S106, was required to demonstrate the removal of 'all' hydrocarbon impacted material including impacted sludge from the base and sides of the APIs.

To verify that the works have achieved the requirements of the S106 Atkins assessed the following:

- Visual and olfactory evidence of removal by inspections of the base and sides following sludge removal,
- Observations of the structure following sludge removal,
- Observations of the structure following oil stain removal,
- Observations of any seepages,

3.3 Verification of the Remedial Works

The verification of the works by Atkins consisted of a watching brief of the remedial works to ensure compliance with the specification. The verification was completed by the visual assessment of the APIs. Prior to the APIs refilling Atkins carried out a visual survey of the structure (refer to attached photographs).

Prior to allowing the APIs to refill, Atkins undertook a general inspection of the remediated profile within the base. The following observations were made:

- The structure comprised mostly concrete with a number of brick features,
- The structure appeared free of sludge,
- The remaining oil stains are considered minor and are unlikely to impact on the reuse of the material,

Table 3.3 gives a brief summary of the condition of the separator in each chamber. The location and direction of the photographs are shown on Drawing 5041216-RAP-DWG-1056.

Table 3.3 Summary of Photographs Taken

Photograph number	Brief description	Location reference (Chamber No.)
1	Base clear of sludge, some residual minor staining	1
2	Heavy staining of brick in area of former oil collection sump	1
3	Base clear of sludge, some residual minor staining	2
4	Some staining of brickwork and some localised sheen	2
5	Heavy staining of brick in area of former oil collection sump	2
6	Some staining and residue on brickwork	2
7	Some staining on upper brickwork	3
8	Occasional heavy staining on upper brickwork	3
9	Some staining on upper brickwork	3
10	Base clear of sludge, some occasional minor staining	4
11	Some heavy staining on brickwork	4
12	Sludge removed behind brick work, heavy staining in area of former oil collection sump	4
13	Some staining and residue on brickwork	4

During refilling, localised sheens were noted within the APIs. These were short term and are considered likely to be associated with the presence of remnant staining on the brickwork.

4. Conclusion

Atkins verification has shown a low degree of residual contamination to be present across the former API separators following sludge removal. This is in the form of staining on the brickwork and, to a much lesser extent, concrete. However it should be noted that visual removal of all hydrocarbon impacted sludge has been achieved and once refilled any residual contamination present is considered unlikely to have a significant impact on water quality within the APIs.

In the context of the proposed end use of the site and the surrounding area it is considered that a suitable remediation standard has been achieved within the confines of the APIs which has led to a significant improvement in water, land and aesthetic quality.

External Hydrocarbon Impacts

The potential external hydrocarbon impacts on the APIs are considered very low as it is a self contained structure. The APIs may be used again for settlement of drainage from the main site but based on current water quality results it is unlikely to be recontaminated.

In the longer term, the area immediately surrounding the APIs will be remediated as part of the ongoing redevelopment of the site.

Residual Basal Quality

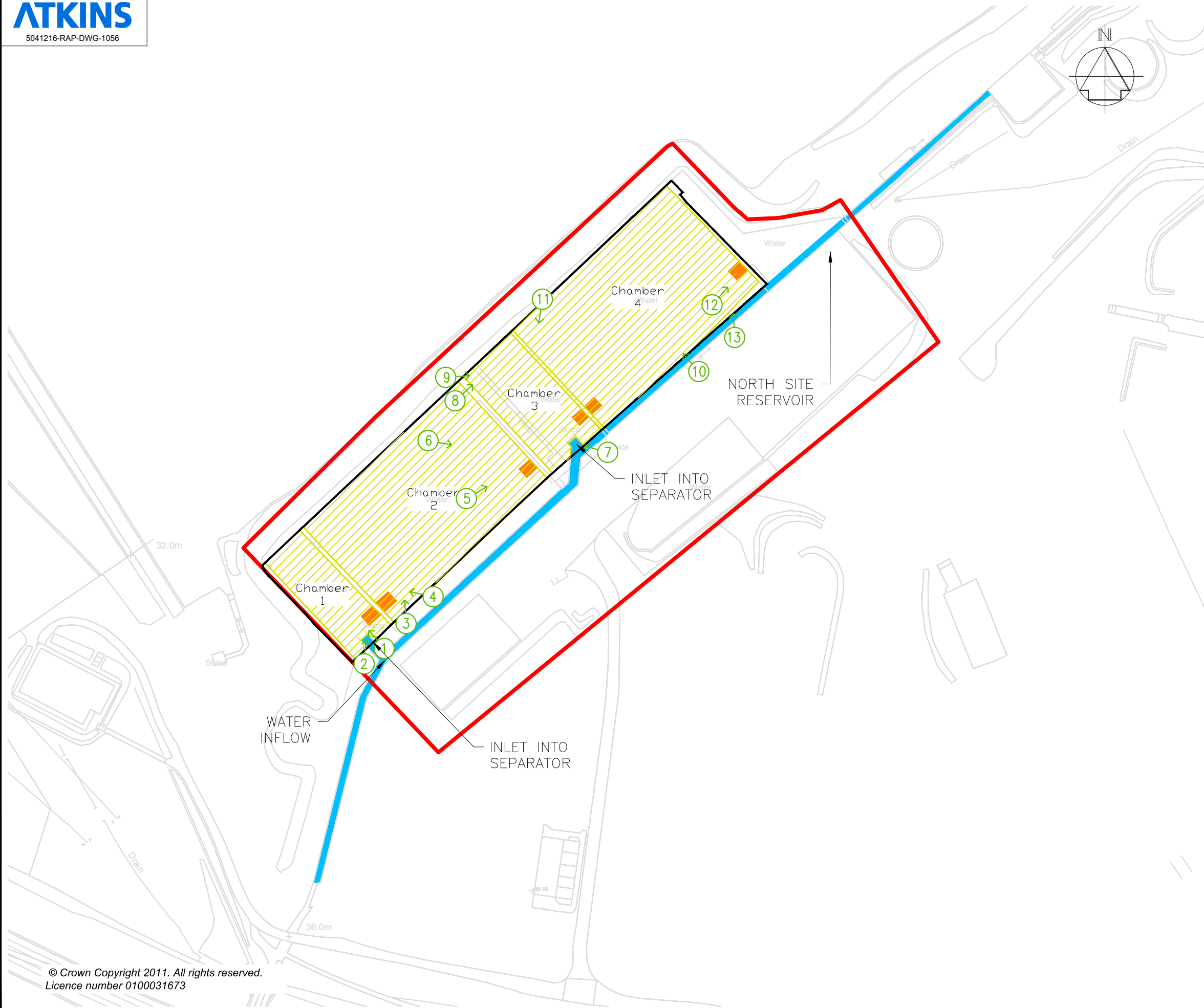
Overall the structure of the APIs has been demonstrated to be free of any remaining significant hydrocarbon impacted sludge materials.

Based on the observations and activities summarised in preceding sections it is considered that the works undertaken by Celtic have achieved the requirements of the RAP in relation to the removal of hydrocarbon impacted materials from the APIs (RAP feature 18) as set out in the Section 106 Agreement for the Coed Darcy development.

It is considered that Celtics contractual obligations with respect to the removal of impacted material have been achieved to a degree considered satisfactory to Atkins.

KEY:

- PHASE BOUNDARY 12
- ① → PHOTO DIRECTION
- CHAMBERS
- REMOVED CHAMBERS
- EXISTING CONCRETE DRAINAGE CHANNEL



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Photograph 1. Chamber 1 – Post Remediation



Photograph 2. Chamber 1 – Post remediation, staining on former oil collection sump



Photograph 3. Chamber 2 – Scrubbing unit in operation following sludge removal



Photograph 4. Chamber 2 – Post remediation some staining on brickwork



Photograph 5. Chamber 2. Post remediation with heavier staining on former oil collection sump



Photograph 6: Chamber 2 - Post remediation staining on lower brickwork



Photograph 7: Chamber 3 - Post sludge removal undergoing jet washing



Photograph 8: Chamber 3 – Post remediation some light staining on concrete



Photograph 9: Chamber 3. Post Remediation



Photograph 10: Chamber 4 – Post remediation



Photograph 11: Chamber 4 – Post remediation



Photograph 12: Chamber 4 – Post remediation, some staining within former oil collection sump



Photograph 13: Chamber 4 – Post remediation

Technical Note 931

Subject	Coed Darcy – RAP Feature 2, Western Margin Sumps		
Reference	5041216-RAP-TN-931	Revision	FINAL
Author	Matt Timmins	Checker	Howel Morris
Issued to	Monitor	Reviewer	Mike Poland
Date	24 th April 2013	Authoriser	Mike Poland

Introduction

The current interception feature (RAP feature 2) located on the Western Margin of Coed Darcy, captures migrating free product in the area (Drawing 5041216-RAP-DWG-433). This technical note outlines proposed works to improve the current interception feature to increase the capture of free product and prevent migration of ochre into the Crymlyn Bog SSSI.

Pertinent information relating to the works undertaken in this area as well as Section 106 requirements have been reviewed as part of this technical note. The following reports were reviewed:

- Coed Darcy, Remedial Action Plan
- S106 Deed of Planning Obligations. NPTC, Coed Darcy Limited, St Modwen Developments Ltd, St Modwens Properties plc and BP Oil Llandarcy Refinery Limited, 2008
- Atkins Report 5041216-RAP-RPT-770. RAP Features 2,3,4 & 5, Western Margin RAP Works Assessment Report, 2012.

Section Requirements

The Remedial Action Plan (RAP) works, as listed within the S106 for the Western Margin, details the proposed installation of a permanent system to intercept and recover free product to prevent the migration of oil off-site. The proposed remedial solution comprised the installation of an interception trench system listed as items 2 on Drawing 5041216-RAP-DWG-433, in addition to a 200m linear wetland feature included as part of RAP Feature 2.

The scope of currently envisaged remedial actions for RAP Features 2 to 5, as described in the S106 agreement, is as follows:

Product interception and recovery, consisting of the following programme elements:

1. *Design-level investigations to assess specific requirements (RAP 2, 3, 4 & 5)*
2. *Design and installation of permanent system to intercept and recover free-phase product (RAP 2, 3, 4 & 5)*
3. *Diffuse discharge of water arising from interception system to Bog, via purpose-constructed wetland features. (RAP 2)*
4. *System specific monitoring of surface and groundwater (RAP 2, 3, 4 & 5)*

The performance criteria for RAP Features 2, 3, 4 and 5 and the proposed wetland feature within the S106 states the following:

- *Install permanent measures to prevent free product from crossing the site boundary and entering Crymlyn Bog to the satisfaction of the Environment Agency (EA) and Countryside Council for Wales (CCW), (RAP 2, 3 & 5)*

- *Diffuse discharge of water arising from interception system to the Crymlyn Bog, via a purpose-constructed wetland features to reduce dissolved hydrocarbon load and without the requirement for a discharge consent, (RAP 2) and*
- *Prevent ochreous precipitate discharges from site to the Crymlyn Bog arising from the interception feature. (RAP 2)*

The performance criteria and RAP features identified within the S106 were developed on the assumption that the former refinery would remain undeveloped. As such, the primary objective of the proposed RAP works was to deal with potential statutory liabilities associated with the site and any remaining contamination. The requirement for a series of interception features along the western margin of the site was, therefore, largely proposed in order to provide protection from migrating oil into the Crymlyn Bog SSSI to the west.

The former refinery is, however, now proposed for redevelopment. The most recent Masterplan for the former refinery shows the area around RAP Feature 2 to lie within an area designated as 'accessible green space' within the most recent Masterplan.

Proposed works

Previous works are discussed within section 5 of Atkins Report 5041216-RAP-RPT-770 which included the installation of a total of 10no. 600mm diameter sumps along RAP feature 2. Additional works include the installation of a small gravel blanket and a HDPE proto-board which was to stop further migration of free product into the SSSI.

Routine monitoring of these sumps is undertaken monthly and has identified the presence of free product in sumps 2 and 5 on every monitoring visit since installation. The proposed works have been designed to target these areas and are detailed on Drawing 5041216-RAP-DWG-1512.

The works comprise two parts and are discussed separately below.

Works to improve effectiveness of existing proto-board

The proto board currently lies between WMSumps1-3 and Crymlyn Bog SSSI as an additional interception feature (Drawing 5041216-RAP-DWG-1512). It is proposed that the ground immediately east of the board is excavated to approximately 2m bgl and then backfilled with granular fill to allow the movement of groundwater and free product northwards along the trench. A baffle board will be installed to permit the continued movement of water northwards and constrain product migrating past this point. This point of product retention would then be serviced regularly to monitor the inflow rate of product.

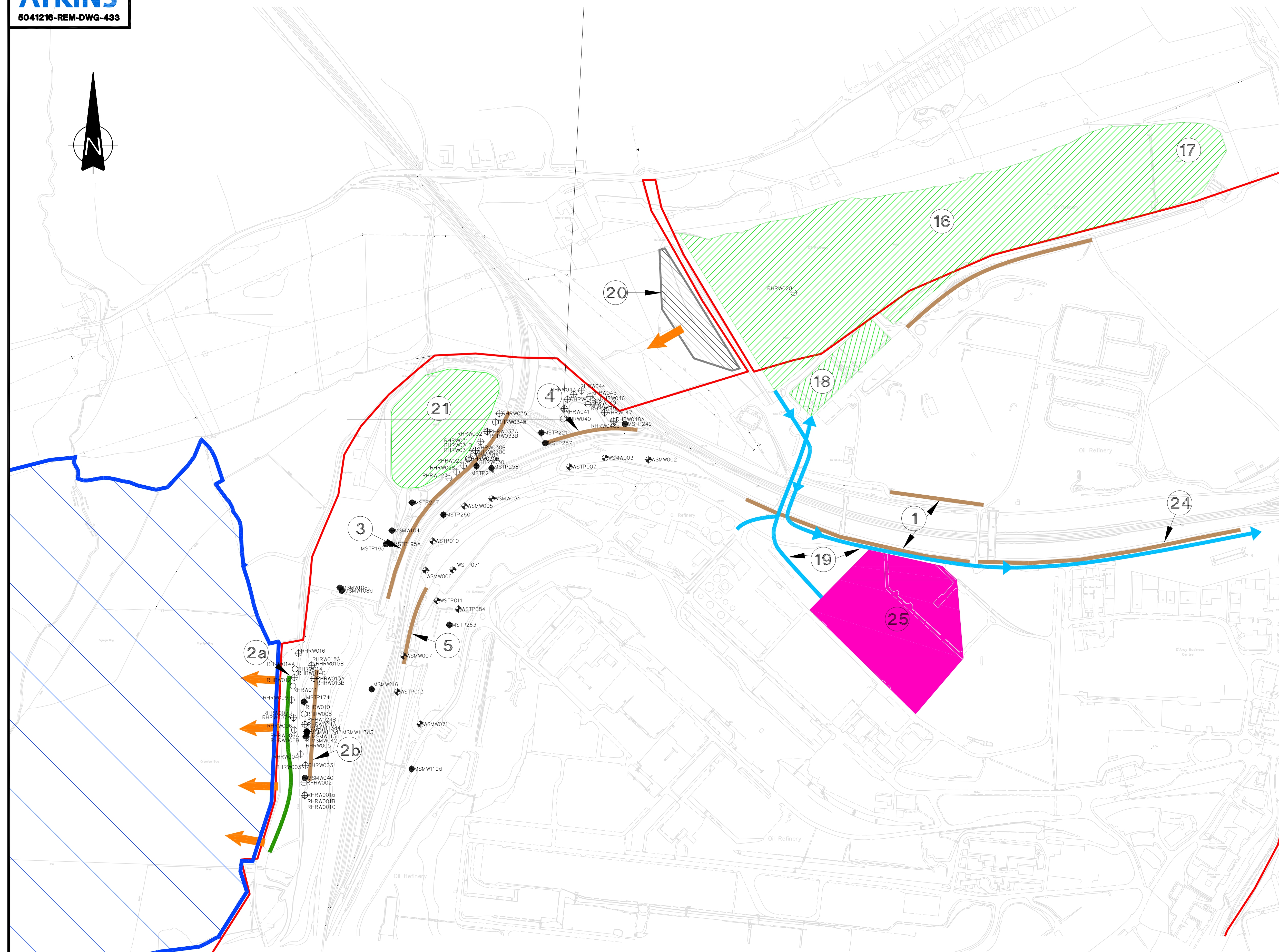
The water passing under the baffle board will flow to a proposed outfall/spillway into an existing pond. To prevent migration of ochre from this pond, reeds will be planted to slow the flow of water from the spillway and to increase the capture of ochre from the trench.

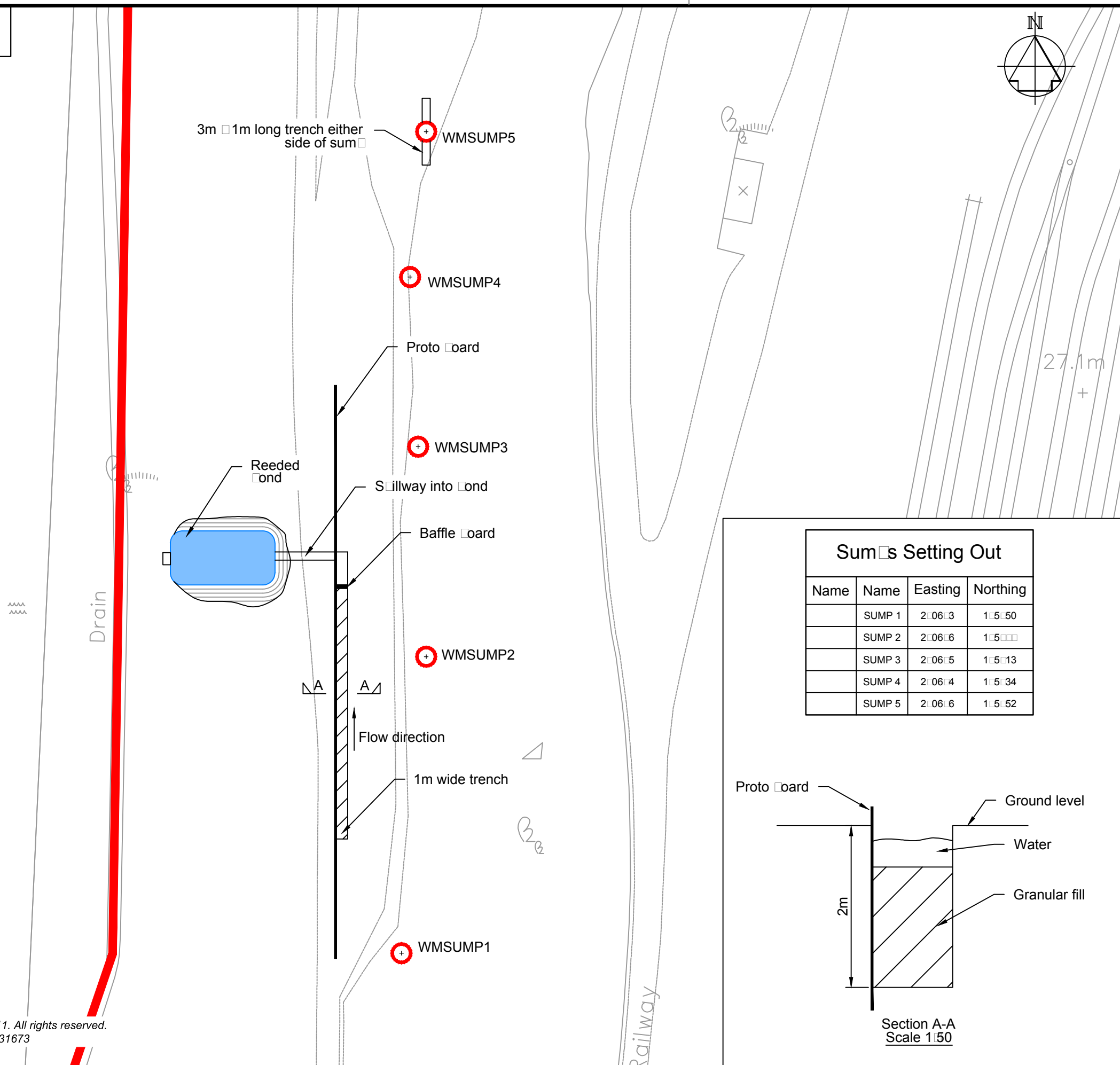
Increase groundwater capture of WMSump 5

Free product has been noted within WMSump 5 on every monitoring round since installation. To satisfy S106 requirements to show that this is a sufficient interception feature for free product, the proposed works comprise the excavation of a trench 3m long, 1m wide and 3m deep either side of the sump and backfilled with granular fill (Drawing 5041216-RAP-DWG-1512). This granular blanket will increase the capture of the local groundwater and in turn localised free product. The sump will be serviced regularly to encourage increased through-flow of groundwater in to the sump.

Conclusions

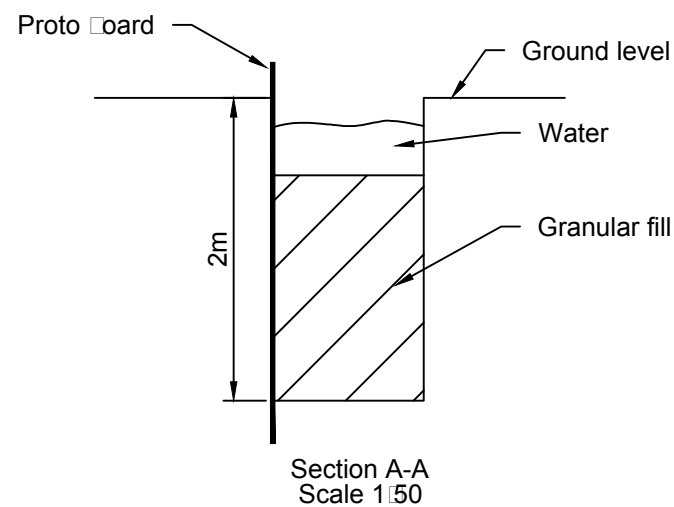
It is considered that the result of the proposed works will be an adequate interception feature, which will increase capture of migrating free product and prevent the migration of ochre into Crymlyn Bog SSSI. Once completed, these works will therefore satisfy the requirements of the RAP.

[illegible]



Sumps Setting Out

Name	Name	Easting	Northing
	SUMP 1	2 06 3	1 5 50
	SUMP 2	2 06 6	1 5 00
	SUMP 3	2 06 5	1 5 13
	SUMP 4	2 06 4	1 5 34
	SUMP 5	2 06 6	1 5 52



NOTES

- Do not scale this drawing.

KEY

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PROJECT
Coed Darcy

DRAWING TITLE
RAP Feature 2 (Western Margin Sumps)
Proposed Works for RWCS

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Technical Note 1106

Subject	Coed Darcy – RAP Feature 2, Western Margin Sumps		
Reference	5041216-RAP-TN-1106	Revision	FINAL
Author	Adam Putt	Checker	Michelle Lee
Issued to	Rhys Mander (URS) (Monitor)	Reviewer	Michelle Lee
Date	2 nd April 2014	Authoriser	Mike Poland

Introduction

This technical note outlines recent works completed in the Western Margin area to improve the interception of oil/free product, preventing migration of these materials into the Crymlyn Bog SSSI.

The works primarily comprised upgrading the previously constructed interception feature (RAP 2). In addition, a slit trench was excavated adjacent to Groundwater Monitoring Sump 5 to increase the capture of groundwater, and in turn free product.

Background

Prior to the construction of the new interception feature, pertinent information relating to the works undertaken in relation to the Section 106 requirements has been reviewed within Technical Note 5041216-RAP-TN-931. For ease of reference, a copy of this previous Technical Note is attached.

Completed works

Works were undertaken between 11th and 19th November 2013. As discussed within technical Note 5041216-RAP-TN-931, the works comprised two parts:

- Upgrade to previously constructed collection trench
- Installation of slit trenches adjacent to Sump 5

Upgrade to Previously constructed collection trench

The upgraded trench was constructed broadly in line with the design shown on Atkins drawing 5041216-RAP-DWG-1512, with the exception of the use of granular fill. Selected photographs are attached and referenced below for information.

Granular fill was not utilised as part of the works as, during the excavation, the trench sides were deemed robust enough to remain open without the need for backfill. The sides have been battered back at a suitable stable angle and the trench will be cordoned off to prevent access.

The trench measures approximately 37m x 2m and is approximately 2m in depth.

The completed trench has been lined with marine ply to the north, to assist with the collection of free product (photograph 1). A baffle has been placed at the eastern end of the trench to allow the flow of water out of the trench to prohibit flooding, whilst prohibiting the flow of free product (photograph 2). Water flows from the trench down a spillway into a reed pond (photograph 3).

Excess vegetation around the reed pond was cleared as part of the works, and the outlet pipe into the separator tank at the exit from the reed pond was cleaned out such that it is fully functioning to prevent the migration of ochre into Crymlyn Bog SSSI (see photographs 4 and 5).

It was noted that water flowing from the separator adjacent to the reed pond did not appear to be contaminated with free product or ochre.

Slit trench adjacent to Sump 5

A slit trench, measuring approximately 8m by 1.2m and 2m in depth, was excavated, in an east-west direction, to either side of Sump 5. This is in agreement with the design as shown on drawing 5041216-RAP-DWG-1512. The completed excavation is shown in photograph 6.

Following excavation, the sides of the excavation were considered stable enough such that there was no need to utilise granular backfill.

The excavation has been cordoned off to prohibit access (photograph 6).

Some free product was noted to flow into the trench onto of the ground water following the completion of the excavation (photograph 7).

Monitoring and maintenance

Following the completion of this RAP feature, it is proposed that regular monitoring and inspections will take place in order to ensure that they are functioning correctly and that product is removed, as required.

Conclusions

It is considered that following the completion of these works an adequate interception feature has been constructed to prevent the migration free product and ochre into Crymlyn Bog SSSI.

It is considered, therefore, that the requirements of the RAP have been satisfied for RAP feature 2, as per the requirements of the S106.



Photograph 1 – Completed trench showing boards to north (facing west)



Photograph 2 – Baffle board



Photograph 3 – Slipway and reed pond



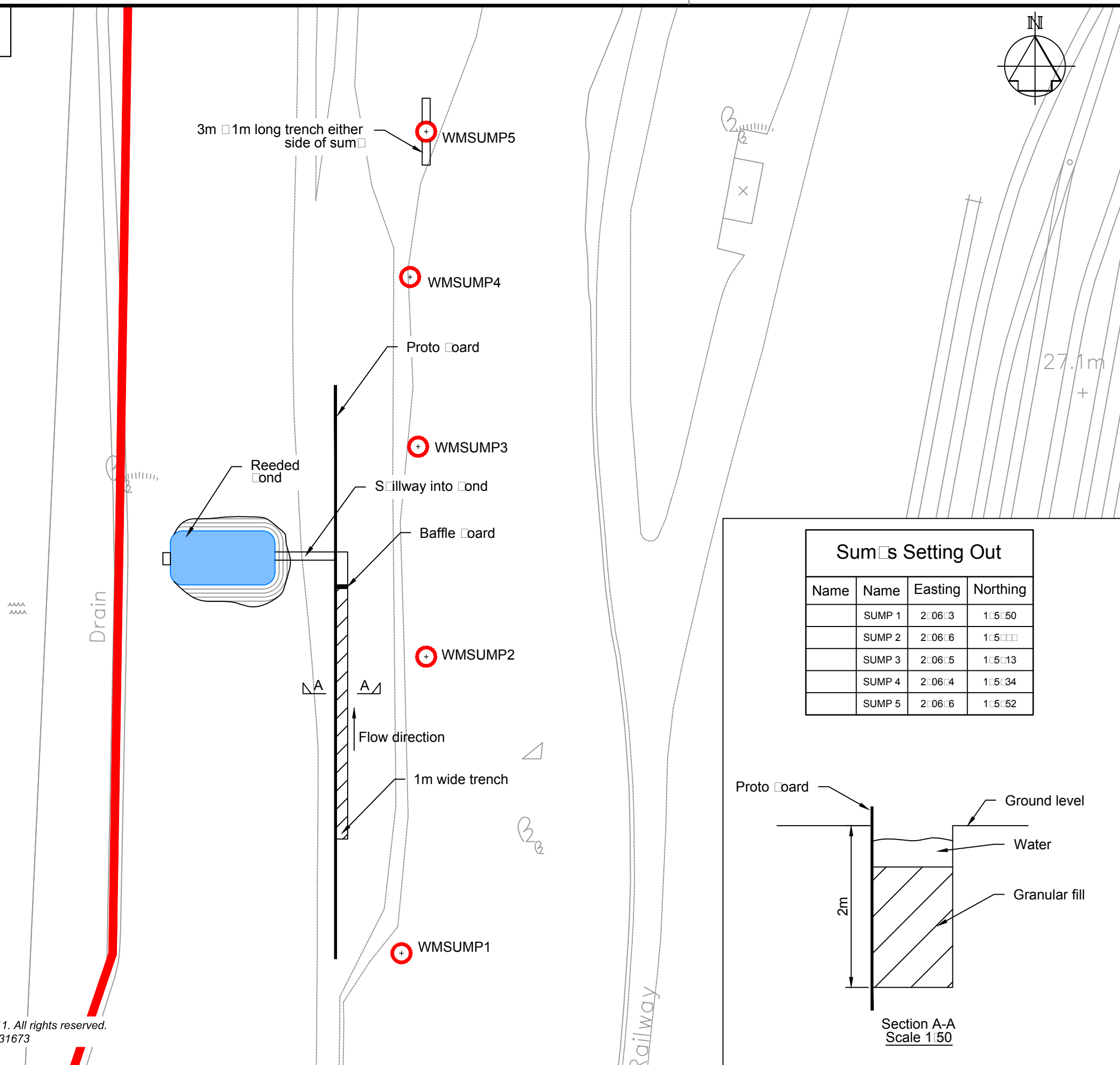
Photographs 4 and 5 – Operational outlet pipe from reed pond into separator



Photograph 6 – Complete excavation to east and west of Sump 5

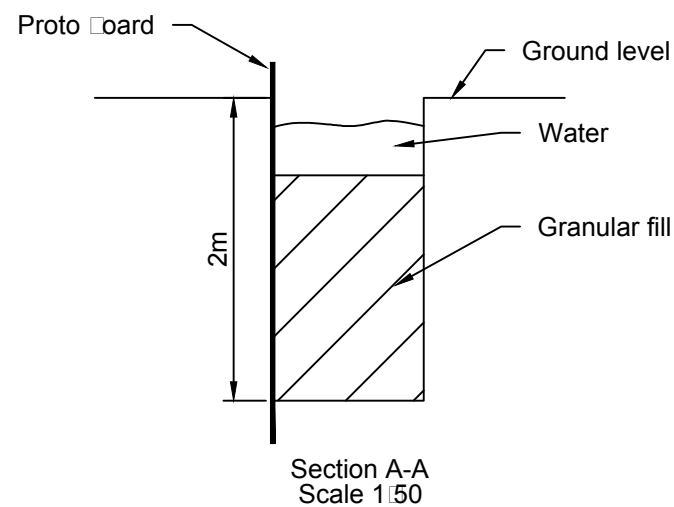


Photograph 7 – Observations of groundwater and free product in slit trench



Sumps Setting Out

Name	Name	Easting	Northing
	SUMP 1	2 06 3	1 5 50
	SUMP 2	2 06 6	1 5 00
	SUMP 3	2 06 5	1 5 13
	SUMP 4	2 06 4	1 5 34
	SUMP 5	2 06 6	1 5 52



NOTES

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Proposed Works for RWCS

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Technical Note 949

Subject	Coed Darcy – RAP feature 5 assessment		
Reference	5041216-RAP-TN-949	Revision	1
Author	Alex Mann	Checker	Howel Morris
Issued to	Rhys Mander (Monitor)	Reviewer	Mike Poland
Date	7 th June 2013	Authoriser	Mike Poland

1. Introduction

The following Technical note discusses the need for the installation of RAP feature 5 and should be read as an addendum to the Atkins report 5041216-RAP-RPT-770 (RAP features 2-5, Western Margin RAP works assessment report).

The Remedial Action Plan (RAP) works, as listed within the S106 for RAP feature 5, details the proposed installation of a permanent system to intercept and recover free product to prevent the migration of oil off-site.

The location of RAP feature 5, associated monitoring sumps, up-gradient boreholes and monitoring points are shown on drawing 5041216-DWG-RAP-864.

2. Ground conditions encountered during primary investigation

The following ground conditions were encountered during the initial ground investigation for the installation of RAP feature 5. The initial ground investigation was undertaken in three phases from May to July in 2009.

- Trial pits MP501-505 targeted the approximate proposed location of RAP 5 trench. Trial pits MP506-512 were positioned along the railway line further to the west and south-west.
- Made Ground was absent in trial pits MP501-505 but was encountered in MP506-512. The Made Ground encountered comprised approximately 0.2m of coarse sandstone gravel underlain in turn by 0.1m of ashy material.
- Glacial Till was encountered at the surface in MP501-505 and was directly overlain by Made Ground in MP506-512. The thickness of Glacial Deposits was proven in two of the trial pits to extend to depths of 2.8m (MP503) and 3m (MP504) with both pits encountering Sandstone bedrock at these depths. The base of the Made Ground was not proven in the remaining ten trial pits.
- Occasional hydrocarbon staining and some light odours were noted in all of the exploratory holes at depths ranging between 0.2m and 2.5m within Glacial Deposits. There was no recoverable free phase oil encountered within these trial pits.

3. Pit monitoring summary

- Trial pits MP506- MP512 were monitored from 2009 until 2010.
- A hydrocarbon sheen was observed on the water within trial pits MP506-MP508 and MP512.
- Monitoring pit MP507 recorded a free product discharge at the base of the ashy Made Ground during the first monitoring visit. However, during subsequent visits only a hydrocarbon sheen was recorded. Ochreous discharges were recorded in MP506.

- Hydrocarbon and ochreous discharges were not recorded in the water within monitoring pits MP509-MP511.

4. Sump and borehole monitoring summary

A total of 3No. 600mm HDPE slotted sumps (WMS14-16) were installed along RAP feature 5 approximately 1m bgl in Made Ground comprising ash and clinker. The groundwater along this part of the Railhead is very near to ground level and includes ochreous groundwater discharges and surface water flow (see Drawing 5041216-REM-DWG-863). The monitoring rounds from sumps WMS14 to WMS16 record an ochreous/ metallic sheen on the surface of the groundwater but no hydrocarbon sheen has been noted since April 2012 and no free phase product since January 2011 (Appendix A).

Two round of monitoring were undertaken of boreholes up-gradient of RAP feature 5. No free product was detected in any of the installations monitored.

Borehole Number	February 2011		January 2012	
	Depth to Product (m bgl)	Depth to Groundwater (m bgl)	Depth to Product (m bgl)	Depth to Groundwater (m bgl)
MSMW119	-	0.0	-	0.00
WSMW037	-	2.89	-	Dry
WSMW071	-	2.745	-	2.99

5. Conclusions

Ochreous seepages are present along RAP feature 5, however these are not considered to be indicative of free product migrating through the area but from groundwater flow through the iron rich sandstones in the region. No free product was detected in the monitoring pits 501-512 or WMS14 to WMS16. The last recorded hydrocarbon sheen from the sumps was in April 2012.

The options discussed with the Monitor to link RAP feature 5 to the contingency features being installed in the area of RAP feature 2 would be impractical due to the large gradient change between the two areas. It is proposed that the temporary surface water channel that runs along the former railhead area be left in situ with reed growth encouraged along its entirety to aesthetically enhance the area.

Based on the observations and activities summarised in preceding sections and reports it is considered that the works undertaken by Atkins has achieved the requirements of the RA in relation to the interception and removal of free phase hydrocarbons RA feature as set out in the Section Agreement for the Coed Darcy development water quality migrating from site is only likely to improve with the redevelopment of the site

Drawings

Appendix A – Monitoring Data

Appendix B – Logs