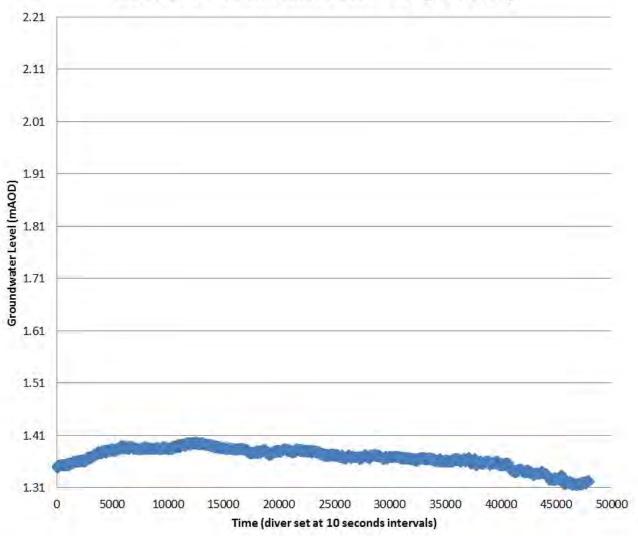
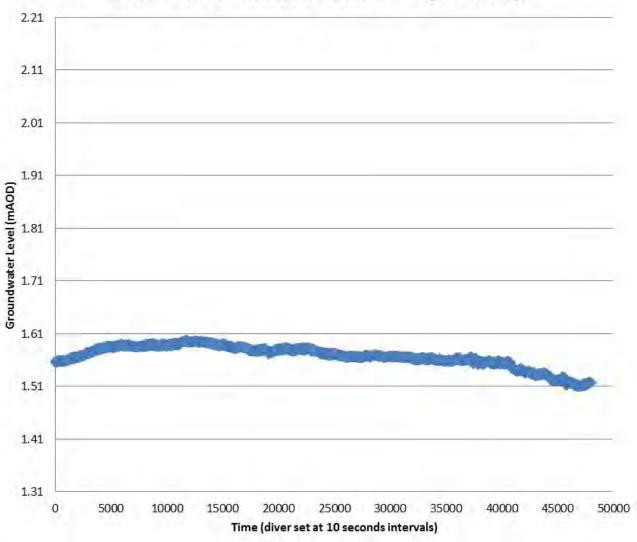
**GRAPH 2** 

## Diver data for borehole BH4 - Stag Brewery

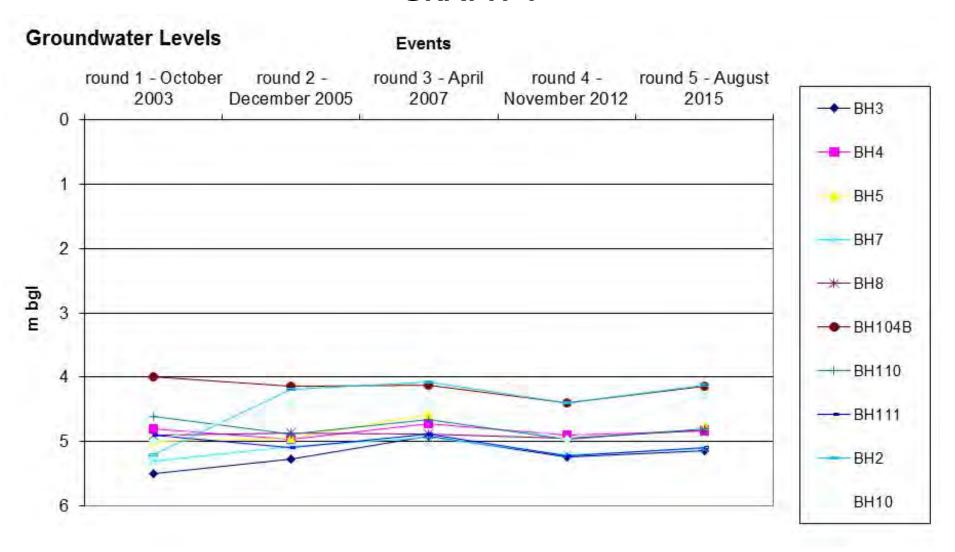


**GRAPH 3** 

## Diver data for borehole BH10 - Stag Brewery



# **GRAPH 4**





# APPENDIX A – DE-SILTING & DEVELOPMENT OF EXISTING MONITORING WELLS



#### **DE-SILTING OF MONITORING WELLS**

The review of the historical information in the previous SPMP reports between October 2003 and November 2012 indicated the depths of four groundwater monitoring wells to have decreased due to accumulation of sand and silt in the standpipes. The changes in depth are presented in **Table A1**.

Table A1 – Cha	anges in Wells De	epths			
Well ID	Dip Round 1 October 2003 [m bgl]	Dip Round 2  December 2005  [m bgl]	Dip Round 3 April 2007 [m bgl]	Dip Round 4  November 2012 [m bgl]	Change in Depth [m]
BH3	6.60	6.18	5.94	5.38	-1.22
BH4	6.70	6.31	6.23	4.95	-1.75
BH5	7.00	6.47	6.23	4.87	-2.13
BH10	7.13	7.13	7.13	5.53	-1.47

On 24 and 25 August 2015 AECOM undertook the de-silting of the thirteen existing groundwater monitoring wells: BH2, BH3, BH4, BH5, BH7, BH8, BH9, BH10, BH104B, BH109, BH110, BH111 and BH112.

Air lift surging techniques were used to de-silt the thirteen monitoring wells. The monitoring wells were alternatively surged and pumped with air using a compressor in combination with a peristaltic pump. Air is injected into the base of the silted wells and the air bubbles created a surging effect that carries water and dislodged sediments upwards and out of the well. As the groundwater reaches the top of the casing, the air supply is shut off, allowing the aerated water column to fall. A peristaltic pump is then used to pump the well to remove the silt and sand deposits from the screen from the base of the wells.

A summary of the results of the de-silting works is in Table A2.

Table A2: De	silting of Groun	ndwater Moni	toring Wells (	AECOM, 24-25 Au	gust 2015)
Well ID	Well Screen Interval [m bgl] (Formation)	Standing Water Level [m bgl]	Initial Depth to Bottom of Well [m bgl]	Final Depth to Bottom of Well After De-silting [m bgl]	Comments
BH2	3.0 - 6.8 (Gravel)	4.150	6.540	6.800	Good recharge. 2 litres of sludge / silt removed and the well returned to its as constructed depth.
ВН3	2.5 – 6.5 (Sand)	5.250	5.130	6.095	Initially dry. Organic material removed. Good recharge thereafter.
BH4	2.5 - 6.7m (Sand)	4.895	4.090	6.190	Initially dry. Organic material removed. Good groundwater recharge thereafter.
BH5	3.0 – 7.0m (Sand)	4.840	4.750	6.100	Initially dry. Organic material removed. Good recharge thereafter.
ВН7	2.5 - 6.7m (*) (Sand)	5.140	6.470	7.150	Good recharge. 3 litres of sludge / silt removed.



Table A2: De	silting of Grour	ndwater Moni	toring Wells (	AECOM, 24-25 Au	gust 2015)
Well ID	Well Screen Interval [m bgl] (Formation)	Standing Water Level [m bgl]	Initial Depth to Bottom of Well [m bgl]	Final Depth to Bottom of Well After De-silting [m bgl]	Comments
BH8	3.0 - 7.2m (Sand)	4.875	6.240	6.900	Good recharge. 1.5 litres of sludge / silt removed.
ВН9	No information available. (**)	Dry	2.360	2.650	Initially dry. Very little sludge removed. Recharges slowly.
BH10	3.0 - 7.0m (Sand)	4.375	5.015	7.035	Good recharge. Silty sludge removed. Well returned to its as constructed depth.
BH104B	1.0 – 6.0m (MG + sandy Clay+Sand)	4.190	4.880	4.980	Good recharge. Very little sludge removed.
BH109	1.0 – 6.0m (sandy Clay + Sand)	4.550	6.130	6.150	Good recharge. 1 litre of sand / sludge removed.
BH110	0.8 - 5.70m (MG + Sand + Gravel)	4.855	4.750	5.530	Initially dry. Silty sludge removed. Good groundwater recharge thereafter.
BH111	1.0 - 7.6m (MG + Sand)	5.150	7.470	7.657	Good recharge. Well returned to its as constructed depth.
BH112	1.0 – 3.0m (MG+Grave)	Dry	2.680	2.780	Well found dry. Very little sludge removed. Remaining deposits could not be removed as very compacted.

MG – Made Ground

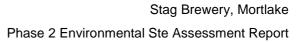
m bgl - metres below ground level

The volume of groundwater/silt/sand sludge removed from the wells was between 1.5 and 50 litres. Following the purging, standing water levels ranging between 4.150m and 5.250m bgl were measured in the monitoring wells, with the exception of well BH112 which remained dry. The post-desilting and development water column thicknesses for monitoring and sampling ranged between 0.675m (BH110) and 2.660m (BH10).

No historical information is reported to detail the construction of the monitoring well at BH9. However, the drilling of BH9A, immediately adjacent to BH9, recorded an obstruction at 3.3m bgl, thought to represent a relict concrete slab. This is consistent with the drilling refusal reported on the BH9 at 2.2m bgl. It is therefore considered that BH9 is installed within the Made Ground and groundwater samples collected from this location are representative of perched water. With the exception of BH9, where fast drawdown and slow recharge of the perched groundwater was noted, the monitoring wells displayed relatively slow drawdown

<sup>(\*)</sup> Well Assumed deeper. Original CRA, 2003 BH7 borehole log indicates 6.70m bgl as the final depth to installation but the well measurements carried out in August 2015 indicate that the depth to bottom of this well reached 7.150m bgl. During the September 2015 groundwater monitoring event this was measured to 6.947m bgl as a result of further silt deposited after the de-silting event.

<sup>(\*\*)</sup> Based on the original CRA, 2003 borehole log, no monitoring well was installed within the Made Ground in this location. However, analyses of groundwater samples were carried out. Following the initial AECOM July 2015 site walkover, a 50mm well standpipe was noted within a steel cover flush to the ground. Based on the review of the historical groundwater monitoring reports and September 2015 dipping activities, BH9 is considered complete with a groundwater monitoring installation. No information on the well screen interval is available for review





and rapid recharge. This, along with the amount of water available, suggested that the monitoring network is suitable for monitoring and sampling from the superficial aquifer beneath the Site.



# **APPENDIX B - EXPLORATORY HOLE LOGS**



Proje		tag Brewei			ke, Lor	idon S	W14	Client		Al	B Inbev			BOREHOI	
Job l		7075502	!	Date Start D	ate 28-0	)8-15 )8-15	Groui	nd Level (1	m)	Co-Ordi	nates ()			BH109	9 <b>A</b>
Con				Sila De			Meth	od / Plant	Used					Sheet	
	Е	SL						Concret	te Corer aı	nd Premier	Rig.			1 of	1
			(mdd)	L						STRAT	A				
Depth BGL		mple / Test Details	PID (pp	Water	Legend	Depth (Thick- ness)		DI	ESCRIPTI	ON		CO	OMME	NTS	Installation
_					2 4 4 4		- CONCE	RETE							\ <u></u>
- 0.5 -			<0.1			(0.35) 0.35 (0.35) 0.70	MADE to coars	GROUNE e, angular coarse. Gra	to subagu	lar gravel.	Sand is	Dry NVO			
- - - 1.0	<b>&gt;</b>	BH109A_0.8	<0.1			(0.50)	yellow tellow te	orick and r rk brown, o coarse. C	natural stor	ne. evelly clay	/ . Sand	Damp NVC	)		
- - - 1.5			<0.1			(0.70)	angular Brown, is fine to	to subang sandy, slig coarse. Coded of flir	ular of flin ghtly grave Gravel is fi	it. elly CLAY	. Sand	Damp NVC	)		
-2.0			<0.1		000	1.90 2.10	- Brown,	sandy fine	to mediu	m, subrour	nded to	Damp NVC			
- - -2.5			<0.1		0	(0.70)	_\ coarse. - Brown,	grey, sligh	ntly gravel	ly, fine to	coarse	Damp NVC	)		
-			\\\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		0	2.80	- Brown/o	Gravel is for	avelly, fine	e to coarse	SAND.	Damp NVC	)		
- 3.0 - -			<0.1		0	(0.70)	<ul> <li>Gravel i</li> </ul>	s fine to maded of flin	nedium, su	bangular t	0				
-3.5			<0.1			3.50		e terminat	ed at 3.5m	ı bgl.					
							- - -								
- - -							- - -								
- - -							- - -								
- - -							- - -								
							- - - -								
-							_ - -								
- - -							- - -								
-							-								
		ackfill					mple De			egend				GENERA REMARI	
		ent seal onite Fill					Small dist	turbed	Concrete Sandy grav Gravelly Sa	-		e Ground dy Gravel		NVO - No visual or Olfa Evidence of Contaminati m bgl - meters below gro Hand pitted to 1.2mbgl	ctory on.
								<u></u>	Groundwate	er Table	₫ Grou	ndwater Strike			
								Ш	Logged	By	CG		App	roved By MM	ſ



Projec	ct Name and Site						Client						BOR	EHOLE	. No
	Stag Brewer	y, Mo	rtlak	ke, Lon	don SV	V14			Al	B Inbev				3H201	
Job N		St	ate	te 20-0	8-15	Groun	nd Level (r	n)	Co-Ordi	inates ()				οπΖυ ι	
	47075502	Eı	nd Date	e 20-0	8-15										
Contr						Metho	od / Plant						Sheet		
	ESL						Concret	te Corer.						1 of 1	
		(md	ı					5	STRAT	Ά					
Depth BGL	Sample / Test Details	PID (ppm)	Water	Legend	Depth (Thick- ness)		DE	ESCRIPTIO	ON		CC	OMMEN	NTS		Installation
-					0.25 -	TARMA	AC over C	ONCRETE	Ξ						
-0.5					(0.45)	MADE of fine-med	GROUND lium, angu	D: Dense, sa ular-subang e. Sand is fi	andy, gular grav	vel of	Dry NVO.				
						Borehold on concr	e terminate	ed at 0.7m	bgl due to	o refusal					
	D 1 C11				-  -	1.0			1						
	Backfill Sample Cement seal					nple De	etails	Le	egend	Mad	e Ground			ENERAL MARKS	
								Groundwate	r Table		indwater Strike		NVO - No vis Evidence of C m bgl - meters Hand pitted to	ontamination. below ground	
										Grou					
								Logged I	Зу	CG		Appr	oved By	MM	



Project Name and S						Client				BOREHOLE	E No
Stag Brewe	ery, N	1ort	lake, Lor	idon S	W14		AB Inbev	7		BH201	۸
Job No		Dat	:Date 24-0	8-15	Groun	d Level (m)	Co-Ordinates ()			<b>ΒΠΖ</b> ΨΙ	A
47075502		End	Date 25-0	08-15							
Contractor					Metho	od / Plant Used				Sheet	
ESL						Concrete Corer	and Solid Stem Auge	er.		1 of 1	
	(ma	Ù,					STRATA				
Depth BGL Sample / Test Details	PID (mmm)	Weton	Legend	Depth (Thick- ness)		DESCRIP	ΓΙΟΝ	C	OMMENT	S	Installation
-				0.25	- TARMA	C over CONCRE	TE				M
-0.5 BH201A_0.	7	1		(0.95)	MADE ( gravelly, fine-coar	GROUND: Brown, fine-coarse sand. rse, angular-suban ral stone.	/red/ yellow, Gravel is gular of brick, flint	Damp NVO	O		
-1.0	<0.	1		1.20	_ -						
-1.5	<0.1 × × × 1.					own, dense, mediu aal rounded flint.	m-fine SAND with	Dry NVO			
BH201A_1.9-	2.0 <0.	1		(2.00)	- - - - -						
-2.5	<0.1										
-3.0	<0.	1		2 20							
-3.5	<0.1 \( \frac{\frac}\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac					and GRAVEL. Gra -coarse flint. Sand ght brown.		Wet from 3	3.7mbgl NV	<b>/</b> O	
-4.0			\(\frac{1}{2}\)\(\frac{1}\)\(\frac{1}{2}\)\(\frac{1}{2}\)\(\frac{1}{2}\)\(\frac{1}{2}\)\(\frac{1}{2}\)\(\frac{1}{2}\)\(\frac{1}{2}\)\(\frac{1}{2}\)\(\frac{1}{2}\)\(\frac{1}{2}\)\(\frac{1}{2}\)\(\frac{1}{2}\)\(1	(1.90)	 - - - -						
.			*/^ */*		-						
- 5.0			/ <u>/</u> <u>\\</u> \\	5.10	- - - Grey, mo	ottled dark brown,	possibly stiff	Dry, NVO.			
-5.5				(0.90)	- CLAY (1 - - -	LONDON CLAY	).				
-6.0				6.00	-						$\perp$
· · · · · · · · · · · · · · · · · · ·					- Borenoid - - - - - -	e terminated at 6.0	m bgi.				
Backfill				Sa	mple De	tails	Legend			GENERAI	
Cement seal riser  Bentonite seal riser  Filter pack screen					Small distu sample	Ashphalt  Sand  Clay		ade Ground lty/clayey PEAT	E	REMARKS  IVO - No visual or Olfacto vidence of Contamination a bgl - meters below groun land pitted to 1.2mbgl	ory i.
Filter pack screen Hole Collapse						<u>▼</u> Groundwa	ater Table $\sum_{\underline{\underline{-}}}^{1}$ Gro	oundwater Strike			
						Logge	d By CG/N	и́М	Approv	red By GM	



Proje		me and Sit ig Brewei			ke, Lor	idon SW	V14	Client	Į.	Al	B Inbev			BOREHO	
Job N		75502		Date Start Da	ate 24-0	08-15 18-15	Groun	nd Level (	(m)	Co-Ordi	nates ()			BH2	02
Cont	tractor		F	End Da	ite 24-0	18-13	Metho	od / Plan	t Used					Sheet	
	ES								ete Corer.					1 of	1
			n)							STRAT	A			<u> </u>	
Depth BGL	Sam	nple / Test Details	PID (ppm)	Water	Legend	Depth (Thick- ness)		D	ESCRIPT			CC	OMME	NTS	Installation
-						0.25 -	TARMA	AC over (	CONCRE	ГЕ					\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
-0.5			<0.1			(0.35)	gravel or	f concrete	D: Grey, de. Sand is	ense, sand fine-coarse	and e. Gravel	Dry NVO			
						0.80	MADE (fine-med concrete	GROUN dium, ang e. Sand is e termina	D: Brown gular-suba fine-coars			Dry NVO			
- - - - - - -						- - - - - - - - -	-								
	Bac	ckfill				Sar	nple De	etails	I	egend				GENER.	AL
	Cemeni Bentoni								Ashphalt		Made	e Ground		REMAR  NVO - No visual or Olf Evidence of Contamina m bgl - meters below gr Hand pitted to 1.2mbgl	actory tion.
									<b>Groundwa</b>		₫ Grou	ndwater Strike			
									Logged	l By	CG		Appı	roved By Mi	M



Proje		lame and Site tag Brewer			ka Lon	don SW	14	Client	,	AB Inbev			BORI	EHOLE	No
Job N		lag Diewei		Date				nd Level (m)		dinates ()			Bŀ	1202	4
0001		075502		Start D	ate 24-0 te 24-0	8-15 8-15	Groun	ia zever (iii)		diffaces ()					
Cont							Meth	od / Plant Used					Sheet		
	Е	SL						Concrete Core	r and Solid	Stem Auger			1	of 1	
			(md	ı					STRA	TA					
Depth BGL	Sa	mple / Test Details	PID (ppm)	Water	Legend	ness)		DESCRII			C	OMME	NTS		Installation
-						0.25 -		AC over CONCR							
- 0.5			<0.1			0.60	fine-med concrete	GROUND: Grey dium, angular-sul e. Sand is fine-coa	oangular gra arse.	,	Wet NVO				
-1.0	<b>×</b>	BH202A_0.8	<0.1			- - -	MADE (fine-coa subangu	GROUND: Brownse sand. Gravel alar-subrounded of	n, gravelly, is fine-med f concrete.	ium,	Dry NVO				
-			0.1			(1.20)									
1.5 - -			<0.1			1.80	Rorehole	e terminated at 1.	8m hal due	to refueal					
- - -						- - - -	on conci		om ogi due	to refusar					
-						- - -									
- -						- - -									
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- - -						- - -									
- - -						-  -  -  -									
	В	ackfill	-			San	ıple De		Legend				GEN	VERAL	
	Cement seal  Bentonite Fill						Small dist sample	urbed Ashpha	It	Mad Mad	de Ground		NVO - No visua Evidence of Co m bgl - meters b Hand pitted to 1	ntamination. elow ground	У
								<u>▼</u> Ground	water Table	∑_ Grou	undwater Strike				
						l		Logg	ed By	CG		Appı	roved By	MM	



Projec	ct Name and Site						Client						BOREH	IOLE No	)
	Stag Brewer	ry, Mo	ortla	ke, Lon	don SV	V14			AI	B Inbev			рц	202	
Job N	O	I	Date	ate 20-0	8-15	Ground	d Level (n	n)	Co-Ordi	nates ()			ВΠ	203	
	47075502	I	End Da	te 20-0	8-15										
Conti						Metho	d / Plant U						Sheet		
	ESL						Concrete	e Corer an	d Solid St	tem Auger.			1 (	of 1	_
		(md	ır					S	STRAT.	A					
Depth BGL	Sample / Test Details	PID (ppm)	Water	Legend	Depth (Thick- ness)		DE	ESCRIPTIO	ON		CO	OMMEN	TS	responding to the state of the	Installation
-					0.20			ONCRETE						X	X
-0.5		<0.1			(0.70)	MADE C fine-med yellow ar	GROUND ium, angu nd red bric	: Very den llar-subang ck, granite	se, sandy gular grav and conc	el of rete.	Dry NVO				
-					1.00			e granite sl	ab.	/					<b>.</b>
-					(2.00)	No recov	ery.								
-					- - - - -										
-					3.00	D 1.1		ed at 3.0m	1 1 1 .	C 1					∄.
						on concre									
	Backfill				Saı	nple Det	tails	Le	gend				GENE	RAL	
■ B	ement seal riser entonite seal riser illter pack riser illter pack screen							Ashphalt		4	e Ground	- 11	NVO - No visual or Evidence of Contan m bgl - meters belot Hand pitted to 1.2m	Olfactory nination. w ground level	1.
							Ī	Groundwater		<del></del>	ndwater Strike		avad Der		_
								Logged F	ъy	CG		Appro	oved By	MM	



	t Name and Si Stag Brewe			ıke. Lor	idon SW	/14	Client	A	B Inbev			BORI	EHOLE I	No
Job No			Date	•	08-15		nd Level (m)		inates ()			Bl	1203A	
4	47075502		Start D End Da	ate 20-0 ate 20-0	18-15 18-15									
Contra						Meth	od / Plant Used					Sheet		
	ESL		1	1			Concrete Core						of 1	=
		(wdd	ter		Depth			STRAT	TA .					
Depth BGL	Sample / Test Details	PID (ppm)	Water	Legend	(Thick- ness)		DESCRI			C	OMMEN	NTS		
					0.20		AC over CONCR			Dry NVO				X
-0.5	≥ BH203A_0.	5 <0.1			(0.70)	angular and con	GROUND: Very to sub-angular gr crete.	avel of brick	y, x, granite	Dry NVO				
-1.0		<0.1		p 6 4 p	0.90	Concrete No reco	e / granite slab. very.			Damp, NV	Э.			
-1.5		<0.1			- - - -									
-2.0		<0.1			- - - -									
-2.5		<0.1			(2.50)									
-3.0					- - - -									
-3.5				p 6 4 p	3.50	Concrete No reco	e / granite slab.			Damp, NV	D.			
-4.0					(1.20)		very.							
-4.5					4.80									
-5.0					5.00	Possibly	CLAY (no reco	very).		Wet. NVO.				
					- - - - - - - -	Borenor	e terminated at 5	om ogi.						
					- - - - - - - - -									
	Backfill				San	nple De	etails	Legend				GEN	NERAL	=
■ Be	ement seal riser entonite seal riser ter pack riser ter pack screen							alt	Mad Clay	le Ground		NVO - No visua Evidence of Con m bgl - meters the Hand pitted to 1	MARKS al or Olfactory ntamination. below ground le	
							<b>▼</b> Ground	water Table	≟ Grou	undwater Strike				
							Logg	ged By	CG		Appr	roved By	MM	=



Proje		me and Sit						Client						BORE	HOLE	No
	Sta	g Brewei	ry, Mo	ortla	ke, Lor	ndon S	W14			AF	3 Inbev			DI	1204	
Job N	o		(	Date	ate 21-0	08-15	Groun	d Level (1	m)	Co-Ordin	nates ()			DI	1204	
	470	75502	I	End Da	te 21-0	08-15										
Conti	ractor						Metho	od / Plant	Used					Sheet		
	ES	L						Concret	te Corer an	d Premier	Rig.			1	of 1	
			m)						S	STRATA	A					
Depth BGL		ple / Test Details	PID (ppm)	Water	Legend	Depth (Thick ness)	1	DI	ESCRIPTIO	ON		CC	OMMEN	ITS		Indefine
								C over C	ONCRETE	Ξ		Dry NVO				Y
					XXX	0.28	MADE (	GROUNE	D: Pea shing	gle.		Dry NVO				
-0.5					0000		- CONCR			<i>-</i>		Dry NVO				
			<0.1			0.70		GROUND	D: Red brick	ks.		Dry NVO				-
-1.0			\\\ 0.1		$\rangle\rangle\rangle\rangle$	(0.40)	_ MADE (	GROUND	D: Brown/ r	ed, sandy,	/ ,	Dry NVO				
1.0						1.20		lium, angı	ular-subang	gular brick	ζ.					
	$\simeq$	BH204_1.3	< 0.1			1.50	MADE	GROUNE	D: Very soft	t, brown/ 1	red,	Dry NVO				
1.5						1.30	very san	dy clay. S	and is fine	-coarse.		Dry NVO				
2.0			<0.1				- fine-med	ium, angu nd is fine-	D: Dark gre ular-subang coarse.	y/ black, s gular grave	sandy, el of					
						(1.50)	-									
2.5							-									
2.3						1	-									
						2.00	_									
3.0			< 0.1		XXX	3.00		yellow, fi	ne-coarse S	SAND.		Dry NVO				
	=	BH204_3.3	<0.1		0000	3.20	- Brown, s	andy, fin	e-medium,			Damp NVC	)			-
3.5					000	3.50	subangul	lar-subrou	unded GRA							
							- Borehole	terminat	ed at 3.5m	bgl.						
							-									
.							-									
							-									
							-									
							-									
							-									
							_									
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							-									
							-									
							-									
							_									
	Bac	kfill				S	ample De	tails	Le	gend					ERAL	
	Cement	seal					Small distusample	urbed   _	Ashphalt		Mad	e Ground		REM	ARKS	
_	Bentonii	te Fill						P	Concrete		San	d		NVO - No visual Evidence of Cont	amination.	
									Sandy Grav	el				m bgl - meters be Hand pitted to 1.2	Iow ground 2mbgl	leve
									Groundwater	Table	<sup>1</sup> Grou	ındwater Strike				
								-			÷					
									Logged F	By	CG		Appro	oved By	улу	_
		- 1							1 000	-	CG		1.1.	J	MM	



Proje		Vame and Sit tag Brewei			ke. Lon	don SW	14	Client	Δ	AB Inbev			BOR	EHOLE	No
Job N				Date	21.0			nd Level (m)		dinates ()			В	H205	1
	47	7075502		Start D End Da	ate 21-0 ate 21-0	8-15 8-15									
Con	tract	or					Meth	od / Plant Used					Sheet		
	Е	SL						Concrete Core	and Premi	er Rig.				1 of 1	
			(mc	ı					STRA	ГА					
Depth BGL	Sa	imple / Test Details	PID (ppm)	Water	Legend	Depth (Thick- ness)		DESCRI	TION		Co	OMME	NTS		Installation
-					0 0 0 0	0.27	CONCR	RETE							
- 0.5 						(0.53)	MADE coarse s	GROUND: Grey, and and gravel of	dense, fine concrete.	to	Dry NVO				-
- - - 1.0	><	BH205_1.0	<0.1			0.80	sandy, f	GROUND: Very ine-medium, anguf brick, concrete,	ılar-subangı	ular	Dry NVO				-
- - 1.5			<0.1			(1.70)	fine-coa	rse. Little ricover	y.						
-2.0			<0.1			- - - - -									
- - -2.5 -	×	BH205_2.5	<0.1			(0.50)	Gravel i	orange, gravelly, s fine-medium,			Dry NVO				-
- - - - -			<0.1			3.00	gravelly	llar-subrounded, the with depth. Little e terminated at 3.	recovery.	iore					
- - -						- - - -									
-  - -						- - - -									
- - -						- - - -									
- - - -						- - - -									
- - -						- - - -									
- - - -						- - - -									
-						-  -  -  -									
						-									
		ackfill ent seal				Sam	nple De Small dist sample		Legend	∑ Mac	le Ground		GEI REN	NERAL MARKS	,
	Bento	onite Fill						G Gravelly	/ Sand				NVO - No visu Evidence of Co m bgl - meters Hand pitted to	ntamination. below ground	-
								<u>▼</u> Ground	vater Table	∑ Grou	undwater Strike				
								Logg	ed By	CG		Appı	roved By	MM	



Proje	Stag B				ke, Loi	ndon SW	714	Client	Į.	A	B Inbev			BOREHO	
Job N	No 470755	502		Date Start Da	ate 21-0	)8-15 )8-15	Groun	nd Level (	(m)	Co-Ord	inates ()			BH2	206
Cont	ractor						Meth	od / Plant	t Used					Sheet	
	ESL							Concre	ete Corer a	and Premie	r Rig.			1 of	1
			(ma	L						STRAT	ੌΑ				
Depth BGL	Sample / Detai	Test	PID (ppm)	Water	Legend	Depth (Thick- ness)		D	ESCRIPT	ION		CO	OMME	NTS	Installation
-						0.20			CONCRE						\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
-0.5 -1.0 -1.5	≥ BH2	06_1.1	<0.1			(0.80) -	MADE	GROUN	D: Soft br	ense, fine oncrete. own sandy ular-suban	clay	Dry, NVO.			
	<0.1			1.80	on conci	rete.		n bgl due t	o refusal						
N77	Backfi	11					nple De		_	ægend				GENER REMAF	KAL RKS
	Cement seal						Small dist sample		Ashphalt  Groundwa	ter Table	4	le Ground undwater Strike		NVO - No visual or O Evidence of Contamin m bgl - meters below Hand pitted to 1.2mbg	lfactory ation. ground level.
									Logged		∑ Glob	- Since	Appi	roved By M	IM
										-	CG	J	1.1	- IVI	11/1



Projec	t Name and Site						Client					BOREH	OLE No
	Stag Brewer	y, M	ortla	ke, Lon	don SV	V14		AB	Inbev			DU.	207
Job N	0	I	Date	ate 25-0	8-15	Ground Le	evel (m)	Co-Ordina	ites ()			BH	207
	47075502	1	End Da	te 25-0	8-15								
Contr	actor					Method /	Plant Used					Sheet	
	ESL					C	oncrete Corer a	and Premier R	lig.			1 o	f 1
		(m	_					STRATA					
Depth	Sample / Test Details	PID (ppm)	Water		Depth		D EG GD ID			00	)	70	notion
BĞL	Details	PIL	>	Legend	(Thick- ness)		DESCRIPT	TON		CC	OMMENT	.5	Installation
					0.20	TARMAC							
					-	MADE GRO	OUND: Grey/re and gravel of c	ed, dense, fine oncrete and b	to rick.	Dry, NVO.			
-0.5	PU207 0 7	<0.1			(0.90)								
	BH207_0.7				(0.50)								
1.0					1.10	-							
		< 0.1			-	Soft, gravell	y, brown CLA` n, subangular-si	Y. Gravel is	flint	Dry, NVO.			
1.5					-	(Possibly rev	worked)	abrounded or	min.				
				<u> </u>	-								
2.0		<0.1											
2.0					-	-							
	<0.1				-								
2.5	BH207 2 6-3 5	BH207_2.6-3.5											
	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	DI 1207 2 6 2 5				Brown, dens occasionally	se, gravelly SA medium of flir	ND. Gravel fi nt. Sand is fin	ne, e to	Dry, NVO.			
3.0		01				_ medium.							
	$\Lambda$				-								
3.5	/ \	<0.1		0	3.50								
3.0		1011			-	Borehole ter	minated at 3.51	n bgl.					
					-								
					-	-							
					-								
					-								
					-								
					-	-							
					-								
					-								
					-								
					-								
					-	-							
					-								
					-								
					-								
	Backfill				Saı	nple Detail		egend				GENE	
⊠ с	ment seal					Small disturbed sample	Ashphalt		Mad Mad	e Ground		REMA	
В	entonite Fill						Gravelly C	Clay	G Grav	velly Sand	E	NVO - No visual or C Evidence of Contami	nation.
											l n	n bgl - meters below Hand pitted to 1.2mb	ground level gl
									4				
							▼ Groundwa	ter Table	Grou	ındwater Strike			
	T												
							Logged	l By	CG		Approv	ved By	ИM



Proje	ct Name and Sit						Client						BOREH	OLE No
	Stag Brewer	ry, Mo	ortla	ke, Lon	idon SV	V14			AI	B Inbev			DU4	200
Job N	lo	I	Date	25-0	18-15	Groun	d Level (r	n)	Co-Ordi	nates ()			BH	208
	47075502	I	End Da	ate 25-0 te 25-0	8-15									
Cont	ractor					Metho	od / Plant	Used					Sheet	
	ESL						Concret	te Corer.					1 o	f 1
		m)							STRAT	A				
Depth	Sample / Test Details	PID (ppm)	Water	Legend	Depth		DI	ESCRIPTIO	ON		CC	OMMEN'	TS	Installation
BĞL	Details	PII			ness)			ESCRIPTIO	JN			JIVIIVILIV		Instal
-				4444	0.25	CONCR								
-0.5		<0.1			(0.55)	MADE Of	GROUND concrete	: Brown, s , brick and	andy, med flint.	dium	Dry, NVO.			
- 0.3		0.1			0.80			•						
-					0.80	Borehole	terminate	ed at 0.8m	bgl due to	o refusal				
-					-	on concr	ete.							
-														
-					-									
-					-									
ŀ			- - - - -											
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9/15					-									
					-									
	Dool-Fill				Ca	1. D	4:1	I a	a a m d			П	GEN TE	D. 4.T.
33 AI	Backfill				Sa	mple De			egend				GENE REMA	KAL RKS
AGS:	Cement seal						P	Concrete		Mad	e Ground	-		
G E	Bentonite Fill												NVO - No visual or C Evidence of Contami m bgl - meters below	ination.  ground level
FUL													Hand pitted to 1.2mb	ogl
- SS														
AG LC								Crown	r Toble	1 ~	induinte - Ct-II			
0 ST/								Groundwater	riable	≟ Grou	ındwater Strike			
0802:10 STAG LOGS - FULL.GPJ AGS3 ALL.GDJ Z29915								Logged I	Q <sub>V</sub>				oved By	
ಠ								Logged	J y	CG		Appro	, von by	MМ



Proje	ct Name and Site	e Loca	tion				Client					BOREHOLE	E No
	Stag Brewer	y, M	ortla	ke, Lor	idon S	W14		A	AB Inbev			BUOO	^
Job N	Ю	I	Date	ate 25-0	8-15	Groun	d Level (m)	Co-Ore	dinates ()			BH208	A
	47075502	ì	End Da	te 25-0	8-15								
Cont	ractor					Metho	od / Plant Used					Sheet	
	ESL						Concrete Cor	er and Premi	er Rig.			1 of 1	
		(ma	L					STRA	ГА				
Depth		PID (ppm)	Water	Legend	Depth (Thick		DESCR	IDTION		CC	OMMENT	rc	lation
BGL	Details	PII		-	ness)			IPTION			JIVIIVILIN I		Installation
1					0.25								
ļ.,		0.1			0.50	MADE (	GROUND: Fine gular concrete g	to medium,	angular	Dry NVO			
-0.5		<0.1				- MADE	GROUND: Dar	k brown, slig	htly	Dry NVO			
	BH208A_0.8				(0.50)	<ul> <li>fine occa</li> </ul>	gravelly, fine to asionally coarse	, subangular	Gravel to				
1.0 	BH208A_1.1	<0.1		0	1.00		ded of brick and	l flint.	/	Dry NVO			
ŀ				a .		<ul><li>coarse S</li></ul>	density, brown AND. Gravel is	fine to medi	um.				
-1.5		<0.1		0		subangu	lar to subrounde 1.5m and 1.9m	ed of flint. Vo	ery sandy				
-				α .		-	1.5111 4114 1.5111						
-2.0		<0.1				-							
-		<0.1				-							
2.5						-							
-2.5	Hand Sample / Test Details  BH208A_0.8  BH208A_1.1   Column Sample / Test Details  Bh208A_0.8			0		- -							
ŀ		<0.1				-							
-3.0 -		<0.1		0		-							
-						-							
- -3.5				0	3.50		e terminated at 3	3 5m hal					
[						- Borchold	commaca at .	o.om ogi.					
Ŀ						-							
ŀ						-							
						-							
ŀ						-							
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377						-							
	- 1 AH										П		
3 AL	Backfill				Sa	ample De		Legend				GENERAL REMARKS	
§ ⊠ (	Cement seal					Small distu sample	urbed Concr	rete	Mad Mad	e Ground			
E E	Bentonite Fill						G Grave	elly Sand			E	NVO - No visual or Olfacto Evidence of Contamination.	
										l r	n bgl - meters below ground Hand pitted to 1.2mbgl	u ievel.	
2													
									1				
OSO.2.10 SING LOGS - FULL GPJ AGS3_ALL GPJ ZZB775							Groun	dwater Table	∑ Grou	ındwater Strike			
02:10	Т						<u> </u>	1					
							Log	ged By	CG		Approv	ved By MM	



Proje		lame and Site ag Brewer			ke, Lor	ıdon SW	714	Client	1	AB Inbev				EHOLE	
Job l		075502	- 1 :	Date Start D	ate 25-0	08-15 08-15	Groun	nd Level (m)	Co-Oı	rdinates ()			В	H209	
Con				End Da	ne 23-0	10-13	Meth	od / Plant Used					Sheet		
	Е	SL						Concrete Core	r and Prem	ier Rig.				1 of 1	
			(m)	Ι.,					STRA	TA					
Deptl BGL	Sa	mple / Test Details	PID (ppm)	Water	Legend	Depth (Thick- ness)		DESCRI	PTION		CC	OMMEN	NTS		Installation
_					4 4 4 4		CONCR	RETE							
- 0.5 -	×	BH209_0.5	<0.1				gravelly, coarse, a concrete		and. Gravel	is fine to	Dry NVO				
1.0			<0.1			- - - - -	Becomin	ng							
- 1.5 - -						(2.43)									
-2.0		BH209_2.7-3.4 <0.1													
-2.5		BH209_2.7-3.4 <0.1													
-3.0		(0.7					of flint.	gravelly, fine to comedium, subang Very little gravel covery between 1	gular to sub between 3 .2m - 3.4m	orounded .0 -3.2m.	Dry NVO				
-	V \				. · . · a ·	3.40		becoming dense e terminated at 3.							
-  -  -  -						- - - -									
- - - -						- - - -									
- - - -						- - - - -									
-  -  -						- - - -									
_ - - -						- - - - -									
- - -						- - - -									
	Ва	ackfill				San	nple De	etails	Legend					NERAL	
		ent seal onite Fill					Small dist sample	Concre		Mad	e Ground		NVO - No visu Evidence of Co m bgl - meters Hand pitted to	ntamination. below ground	y
								<b>▼</b> Ground	water Table	1 Gro∪	ındwater Strike				
								Logg	ed By	CG		Appr	oved By	MM	



Proje		Name and Site tag Brewer			ike Lor	ndon SW	714	Client		Δ1	B Inbev			BOR	EHOLE	No
Job N		ug Brewer		Date				d Level (1	m)	Co-Ordi				_ E	3H210	)
		075502		Start D	<sub>ate</sub> 26-0 ate 26-0	)8-15 )8-15		`	,							
Cont	ract	or					Metho	od / Plant	Used					Sheet		
	Е	SL						Concre	te Corer an	d Premier	r Rig.				1 of 1	
			(md	H					, ,	STRAT	A					
Depth BGL	Sa	mple / Test Details	PID (ppm)	Water	Legend	Depth (Thick- ness)			ESCRIPTI(	ON		C	OMME	NTS		Installation
					P 4 4 P	0.30	CONCR	RETE								
-0.5	×	BH210_0.8	<0.1			(0.90)	MADE of to coarse natural s	e, subangu	Dense, builar to roun	rown, san ded grave	ndy, fine el of	Dry NVO				-
- 1.0						1.20										
- 1.5 			<0.1			(0.90)	Soft, bro	own, sand	y CLAY (p	ossibly re	eworked	Dry NVO				
-2.0			<0.1			2.10										
-		BH210_2.2-2.8				is fine to	medium	ine to coar to subroun ravelly with	ded of flin	o. Gravel nt.	Dry NVO					
-2.5 - -	$\land$					(1.40)										
-3.0		0.1				- - -										
- 3.5 -			<0.1			3.50	Borehole	e terminat	ed at 3.5m	bgl.						
- - -						- - - -										
- - -						- - -										
- - -						- - -										
-						- - - -										
- - -						- - -										
- - - -						- - -										
- - -						- - -										
-						-										
	В	ackfill		-		San	nple De	etails	Le	egend				GF	NERAL	
		ent seal							Concrete	<u> </u>	Mad	le Ground		REI	MARKS	•
	Bento	onite Fill					sample		Sandy Clay		G Gra	velly Sand		NVO - No visu Evidence of Co m bgl - meters Hand pitted to	ontamination. below ground	-
								Ī	Groundwate	r Table	≟ Grou	undwater Strike				
									Logged 1	Ву	CG		App	roved By	MM	



Proje		Vame and Site tag Brewer			ike Lor	don SW	714	Client	Δ	B Inbev			BOR	EHOLE	No
Job l		ing Diewei	· .	D-4-				nd Level (m)		linates ()			— В	H211	
		075502	:	Start D End Da	ate 26-0	18-15 18-15		,		V					
Con	tract	or					Meth	od / Plant Used					Sheet		
	Е	SL						Concrete Cor	er and Premie	er Rig.				1 of 1	
			(md	ır					STRAT	ГΑ					
Depth BGL		mple / Test Details	PID (ppm)	Water	Legend	ness)		DESCR	IPTION		CC	OMME	NTS		Installation
-						0.25	CONCR								
0.5 0.5	×	BH211_0.7	<0.1				coarse, s	GROUND: Bro subangular to ro stone, wood and ng clayey with d	unded gravel occasional br	of	Dry NVO				
1.0 						(1.25)   -   -   -   -   -   -   -   -   -									
-1.5 - - - -2.0			<0.1			(0.60)	Gravel is angular	own, grey, sandy s fine to medium and subrounded e. (possibly rew	n, subangular l of flint. Sand	to	Dry NVO				-
- 2.0 - - - -	<b>×</b>	ВН211_2.2	<0.1			2.10	Brown, is fine to	gravelly, fine to o medium, subar coming more gr	coarse SANI	ided of	Dry NVO				_
- - - - - - -		<0.1 (1.40)													
- - - - - -						- - - - - - -	Boreholo	e terminated at 3	3.5m bgl.						
- - - - -						- - - - - - -									
- - - -						- - - - -									
- - - - -						- - - - - -									
-						-									
-						<u>                                     </u>							П		
		ackfill					nple De		Legend					NERAL MARKS	
		ent seal onite Fill					Small dist sample	11 —	rete elly Sandy Clay		de Ground velly Sand		NVO - No visu Evidence of Co m bgl - meters Hand pitted to	al or Olfactory ontamination. below ground	у
								<u> </u>	idwater Table	∯ Grou	undwater Strike				
								Log	ged By	CG		Appı	roved By	MM	



Proje	ct N	lame and Site	Loca	tion				Client						BORE	HOLE	No
	St	ag Brewer	y, Mo	ortla	ke, Lon	idon S	SW14			A]	B Inbev			DI	<b></b>	
Job N	Ю		I	Date	ata 27-0	8-15	Groun	d Level (1	n)	Co-Ordi	inates ()			DI	<del>1</del> 212	
	47	075502	I	End Da	ate 27-0 te 27-0	8-15										
Cont							Metho	od / Plant	Used					Sheet		
,	Е	SL						Concret	te Corer an	d Premier	r Rig.			1	of 1	
			(mic						S	STRAT	Ά					
Depth BGL	Sa	mple / Test Details	PID (ppm)	Water	Legend	Deptl (Thicl ness)	h K-	DI	ESCRIPTI(	ON		CC	OMMENT	ΓS		Installation
					0 0 0 0		- CONCR	ETE								<b>X</b> ///
- - - - - -	×	BH212_0.6	<0.1			0.3	- MADE (	e sand. Gr h occasion	D: Pink / recavel is fine hal coarse b	to mediu	ım of	Dry NVO				
- - - - -			<0.1			(1.40)	_	•								
-  1.5 -			<0.1			1.7	0		44 21							-
-2.0	X	BH212_1.8-2.5	<0.1				- Dense, b - Gravel is - rounded	orown, gra s fine to m . Becomin	velly fine t nedium sub ng more gra	o coarse l angular to welly with	SAND. o h depth.	Dry NVO				
- -2.5 - -	<u>/ \</u>		<0.1			(1.80)	-  -  -  -  -									
-3.0 -			<0.1			3.5	- - - - -									
-3.5 - - -			<0.1				- Borehole - - -	e terminat	ed at 3.5m	bgl.						
- - -							- - - -									
- - - -							- - - -									
-							- - - -									
-							- - - -									
							- - - -									
-							-									
N/1		ackfill					ample De			egend				GEN REM	ERAL ARKS	
		ent seal onite Fill					Small distr sample	urbed	Concrete Gravelly Sal	nd	∭ Mad	le Ground	I	NVO - No visual Evidence of Cont in bgl - meters be Hand pitted to 1.2	or Olfactory amination. low ground	
- - - - - - - - - - - - - - - - - - -								Ā	Groundwate	r Table	≟ Grou	undwater Strike				
									Logged I	Зу	CG		Appro	ved By	MM	



Proje		Name and Site						Client						BOR	EHOLE	No
		tag Brewer			ke, Lor	ndon SW					B Inbev			- F	3H213	
Job 1		7075502	-   9	Date Start D	ate 27-0	)8-15 )8-15	Groun	nd Level (n	n)	Co-Ordi	inates ()			_	<i>,</i> ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	,
Con				End De	27	.0 15	Meth	od / Plant	Used					Sheet		
	Е	SL						Concret	te Corer an	d Premier	r Rig.				1 of 1	
			m)						5	STRAT	'A					
Deptl BGL	Sa	mple / Test Details	PID (ppm)	Water	Legend			DE	ESCRIPTIO			C	OMME	NTS		Installation
-			I		P 0 0 P	ness)	CONCR	RETE								
- - 0.5 -	×	BH213_0.6	<0.1			0.24 -	clayey, s subangu	sandy, fine lar gravel	D: Brown / ge to coarse, of brick, cone to coarse	angular to	O	Damp NVC	)			-
- - - 1.0			<0.1			1.00	Soft bro (Possibl	wn grey sl y reworke	lightly grav d clay)	elly CLA	Y.					-
- 1.5						(0.60)	,	•	•							
- - -	X	BH213_1.7-2.0	<0.1			1.60	Dense, b Gravel is	orown, gra s fine to m	velly, fine nedium, ang nt. Occasion	to coarse gular to	SAND.	Damp NVC	)			_
-2.0		<0.1					gravel p	ockets thro	oughout.	mi sana a	and .					
-2.5 -		<0.1														
- -3.0			0					e terminate	ed at 3.0m	bgl.						
-																
-						-										
-						-										
_						_	-									
-						-										
-						-										
-						-										
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-						-										
-						-										
-						-										
-																
	В	Backfill					nple De		Le	gend					NERAL	
	Ceme	ent seal					Small dist sample	- 11	Concrete		Mad Mad	le Ground			MARKS	
	Bento	onite Fill						Gravelly Cla	у	G Grav	velly Sand		NVO - No visu Evidence of Co m bgl - meters Hand pitted to	ontamination. below ground	•	
							<u> </u>	Groundwater	Table	1 Gro∪	undwater Strike					
									T							
									Logged I	3y	CG		App	roved By	MM	



Proje		Vame and Site			dra I ar	don CW	71.4	Client		AB Inbo	~**			BOR	EHOLE	No
Job N		tag Brewer	-	Date				nd Level (m)	14	Co-Ordinates (				_ E	3H214	ļ
JOD I		075502		Start D	tate 25-0 ate 25-0	)8-15	Groui	id Levei (III)		co-Ordinates (	)					
Cont				End Da	ate 25-0	70-13	Meth	od / Plant Used	 d					Sheet		
		SL								Solid Stem Au	ıger.				1 of 1	
			Э						S	ГКАТА						
Depth BGL	Sa	mple / Test	PID (ppm)	Water	Legend	Depth (Thick-		DESCI	RIPTIO:			CO	MMEN	NTS		Installation
- BOL		Details	PI	ļ ·		ness)	TARMA									linst <sub>2</sub>
							CONCR	RETE			Dry N	NVO				
- 0.5						(0.60)	MADE gravel.	GROUND: Lig Sand is mediun	ght brov	vn, dense, sand rse. Gravel is	y					
			١			0.80	medium	to coarse, suband concrete.	angular	to subrounded	1					
-1.0	$\sim$	BH214_0.85	<0.1			}	MADE	GROUND: Li	ght brov	vn, dense	Dry N	VVO				
-						-	gravelly Gravel i	GROUND: Lig sand. Sand is s medium to co	medium oarse, su	to coarse. bangular to						
- 1.5							subroun	ded of flint and	d concre	ete.						
-						(1.80)										
2.0						-										
-2.0																
-						-										
-2.5 -				XXX	2.60	Borehol	e terminated at	t 2.6m b	gl due to refus:	al						
-						-	on conc			<b>6</b>						
-						-										
						-										
-						-										
-						-										
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						-										
	D	ackfill				Com	mla Da	toile.	Loc	rand				GE	NED AL	
RN N							nple De			gend	Consecti			GE	NERAL MARKS	S
		ent seal onite Fill					Small dist sample	11	phalt de Ground	A	Concrete			NVO - No visu		
	benic	Jille Fill						IVIAU	ie Ground					Evidence of Co m bgl - meters	ontamination. below ground	-
														Hand pitted to	1.2mbgl	
								▼ Grou	undwater 1	able $\frac{1}{\sum}$	Groundwater S	Strike				
										<del></del>						
								Lo	gged By	/ N	ИM		Appr	roved By	GM	



Proje	ct Name and Si						Client						BOREH	OLE No
	Stag Brewe	ry, Mo	ortlal	ke, Lon	don SV					3 Inbev			BH2	1//
Job N	47075502	5	Date Start Da	te 25-0	8-15 8-15	Ground	d Level (r	n)	Co-Ordin	nates ()			Ditz	17/
Cont	ractor		and Dut		0 10	Metho	od / Plant	Used					Sheet	
	ESL						Concret	te Corer an	d Solid Ste	em Auger.			1 o	f 1
		m)						(	STRATA	Α				
Depth BGL	Sample / Test Details	PID (ppm)	Water	Legend	Depth (Thick- ness)		DI	ESCRIPTI			C	OMME	NTS	Installation
-		<del>                                     </del>		0 0 1 0	0.05	TARMA				/				
0.5					(0.60)	gravel. S	GROUND and is me	dium to co	own, dense parse. Grav	el is	Dry NVO			
- - - - 1.0					0.80	of flint and MADE Of gravelly	nd concre GROUNE sand. San	ete. D: Light bro d is mediu	own, dense m to coars subangular rete.	e.	Dry NVO			
-1.5 -1.5 		(1.2)												
							terminati	ed at 2.0m	bgl due to	rerusai				
-														
-					- - - - - - - - -									
	Backfill				Sa	mple De	tails	Le	egend				GENE	
	Cement seal Bentonite Fill							Ashphalt Made Grou	nd	€ Cond	crete		NVO - No visual or Evidence of Contam m bgl - meters below Hand pitted to 1.2ml	Olfactory ination. ground level.
							Ā	Groundwate	r Table	₫ Grou	ndwater Strike			
								Logged	Ву	MM		Appı	roved By	GM



Projec	et N	ame and Sit	e Loca	tion				Client						BORE	HOLE 1	No
	St	ag Brewer	ry, M	ortla	ike, Lor	idon S	SW14			AB	Inbev	,		DI	<b>12</b> A	
Job N	О		]	Date	oate 25-0	8-15	Groun	d Level (1	m)	Co-Ordina	ates ()			БІ	H2A	
	47	075502	1	End D	ate 25-0	8-15										
Contr	acto	or					Metho	od / Plant	Used					Sheet		
	E	SL						Concre	te Corer an	d Premier I	Rig.			1	of 1	
			(ma	L					5	STRATA	<u>.</u>					
Depth BGL	Saı	mple / Test Details	PID (ppm)	Water	Legend	ness)	C-		ESCRIPTIO	ON		CC	OMMEN'	ΓS		Installation
-					4 4 4 4	0.25	- CONCR	ETE								<b>V</b> //
- 0.5	×	BH2A_0.5	<0.1			(0.55)	MADE C fine-med	lium angu	D: Brown sa llar gravel of Sand is fin	of flint and		Dry NVO				
-					P P P P	0.80	- CONCR	ETE				Dry NVO				
1.0 			<0.1		2 4 2	1.10	- Soft, bro	wn, sand	y CLAY. (I	Possibly		Dry NVO				
- 1.5	=	BH2A_1.5	<0.1				- reworked	i clay)								
-						(1.40)	-  -  -									
-2.0			<0.1			(1.40)	-  -									
-		<0.1					- - -									
- -2.5		\$0.1   O					Dense h	rown ora	velly fine	coarse SA	ND	Dry NVO				
							- Gravel is	fine-med	lium, anded of fli		ND.	Diyivo				
-3.0		<0.1					iai-subiot	ilided of th	π.							
-					0		-									
-3.5						3.50		terminat	ed at 3.5m	høl.						
-							-			- 6						
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	Do	ıckfill				C	ample De	toila	I o	egend			П	CEN	ED AT	_
M 6						•	-	Concrete	genu	No.	ade Ground			ERAL ARKS		
		nt seal nite Fill					Small distu sample	irbed 3	Sandy Clay			avelly Sand	1	NVO - No visual of Evidence of Conta m bgl - meters bel Hand pitted to 1.2	or Olfactory mination. ow ground le	evel.
									Groundwate	r Table	1 Gr	oundwater Strike				
										≟ Gro						
									Logged I	Ву	CG	·	Appro	ved By	MM	



Proje			e and Site Location Clien  Brewery, Mortlake, London SW14							Α.Τ	BOREHOLE N					
		ag Brewei			ke, Lor	idon S			`		3 Inbev			ВН3А		
Job N		075502	S	Oate Start Da End Da	te 28-0	8-15 8-15	Groun	nd Level (r	n)	Co-Ordin	nates ()				-	
Cont	racto	or					Metho	od / Plant	Used		Sheet					
	E	SL					Concrete Corer and Premier Rig.							1 of 1	1	
			(md	H												
epth BGL	Saı	mple / Test Details	PID (ppm)	Water	Legend	Depti (Thickness)	h k-	DI	ESCRIPTI(	ON		C	OMME	NTS	X	
					0 0 0 0	0.2	- CONCR	RETE.							X	
0.5	×	BH3A_0.5	<0.1				fine-coa occasion brick, gl	MADE GROUND: Brown, gravelly, Fine-coarse sand. Gravel is fine-medium, occasionally coarse, angular-subangular of orick, glass and concrete.  Dry NVO								
1.0			<0.1			(1.25	)									
1.5			<0.1			(0.50	- Dense, b - subangu	orown, san dar-subrou fine-coarse	ndy, fine-m unded GRA	edium, VEL of f	lint.	Dry NVO				
2.0			<0.1				- Dense, b - Gravel is - of flint.	orown, gra s subangul	velly, fine- lar-subrour	coarse SA	AND. coarse	Dry NVO				
2.5			<0.1		0	(1.00	- - -									
3.0			<0.1			0.0		e terminate	ed at 3.0m	bgl.						
							- - -									
							- - - -									
							- - - -									
							 - - -									
							- - - -									
							- - - -									
							- - -									
	Ва	ıckfill					Sample De		Le	gend				GENERA	L	
_		nt seal nite Fill					Small distr sample	urbed	Concrete Sandy Grav	el		e Ground velly Sand		NVO - No visual or Olfac Evidence of Contamination m bgl - meters below ground Hand pitted to 1.2mbgl	ctory	
								Ā	Groundwate	<sup>r</sup> Table	₫ Grou	ındwater Strike				
									Logged 1	Ву	CG		Appı	roved By MM	[	



Project Name and Site Location								Client							BOREHOLE No		
Stag Brewery, Mortlake, London S							V14	14 AB Inbev						BH4A			
Job N	Vo			Date	. 27-0	8-15	Groun	nd Level (	m)	Co-Ordi	nates ()			БІ	П4А		
	4	7075502		End Da	te 27-0	8-15											
Cont	trac	etor					Metho	Method / Plant Used Sheet									
	I	ESL						Concre	ete Corer an	nd Premier	Rig.			1	of 1		
			(ma	L					,	STRAT	A						
Depth	S	ample / Test Details	PID (ppm)	Water	Legend	Depth		D	ECCDIDEL	OM		C		JTC		Installation	
BĞL		Details	PII		Legend	ness)	_	DESCRIPTION COMMEN  MADE GROUND: Brown, grey, slightly Dry. Possible asbest							NIS		
- - - -0.5 -			<0.1			(1.30)	MADE ( clayey, g fine-med brick tile	GROUNI gravelly, f dium, ang e and roof	D: Brown, g fine-coarse gular-subang tlets.	grey, sligh sand. Grav gular of co	tly vel is oncrete,	Dry. Possib	le asbes	tos fragments.	X	'//	
1.0	×	■ BH4A_0.9	<0.1			1.30	-										
- 1.5 -			<0.1			- - -	Brown, Gravel is subangu	very grav s fine-me lar-subro	elly, fine-co dium, unded of fl	oarse SAN int.	√D.	Dry NVO					
-2.0			<0.1		0	  -  -	-										
-2.5 -			<0.1			(2.70)											
3.0			<0.1			- - - -	-										
-3.5 -	X	BH4A_3.5-4.0	<0.1		0	-											
-4.0 -			<0.1			4.00	Borehole	e termina	ted at 4.0m	bgl.							
-						-											
- -						- - - -	_										
-						-											
[ - -						- - - -	_										
-						- - -											
F						-											
		) o olre:11					1. D	4=:1	т	1			T		ED : 7	_	
		Backfill nent seal				Saı	mple De			egend nd	G Grav	relly Sand		GEN REM	ERAL ARKS		
1 —		tonite Fill					sample		y					NVO - No visual of Evidence of Conta m bgl - meters bel Hand pitted to 1.2	amination. ow ground leve	el.	
								Ī	Groundwate	r Table	₫ Grou	ndwater Strike					
									Logged	Ву	CG		Appr	roved By	MM		



Project Name and Site Location Stag Brewery, Mortlake, London SW14  Job No Date 20,00,15							71 /	Client		BOREHOLE No					
								- 1 I1 ()		AB Inbev		BH5A			
JOD I		075502		Start D	ate 28-0 ate 28-0	08-15 08-15	Groui	nd Level (m)	Co-Oi	rdinates ()					
Cont				End Da	ite 20-0	70-13	Meth	od / Plant Used					Sheet		
		SL						Concrete Co		ier Rig.			1 of 1		
			Î						STRA						
Depth	Sai	mple / Test	PID (ppm)	Water	Legend	Depth									ltion
BĞL	, J.	Details	PID	<b>M</b>	Legend	(Thick- ness)		DESCR	RIPTION		C	OMME	NTS		Installation
						0.10		GROUND: Pea		1	Dry NVO				
-		DUSA 0.5				-	gravelly	GROUND: Bro , fine-coarse sa	nd. Gravel is	ciayey,					
0.5 -		BH5A_0.5	<0.1				subangu	dium, occasional lar-subrounded	ally coarse, of red brick						
-						(1.70)									
-1.0			<0.1			(1.70) =									
-						-									
1.5 -			<0.1												
						1.80	Dense, b	orown, gravelly	, fine-coarse	SAND.	Dry NVO				-
- 2.0	<0.1						Gravel i flint.	s fine-medium,	subangular-r	ounded of					
					0	(1.20)									
-2.5 -			<0.1			-									
						2.00									
-3.0			<0.1			3.00	Borehol	e terminated at	3.0m bgl.						
						-									
-						-									
-						-									
_						_									
-						-									
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						<u> </u>									<u> </u>
	Ва	ckfill				San	nple De		Legend				GEN	NERAL	
	Ceme	nt seal					Small dist sample	urbed Made	e Ground	o Gra	velly Sand			MARKS	
	Bento	nite Fill											NVO - No visua Evidence of Con m bgl - meters b	ntamination.	
													Hand pitted to 1	.2mbgl	,
								<b>▼</b> Grou	ndwater Table	Grou	undwater Strike				
										<del>-</del>					
								Log	gged By	CG		App	roved By	MM	



Job No  Job No  Job No  Job No  Job No  Date Start Date Start Date End Date 27-08-15 End Date 27-08-15						W14	14 AB Inbev						BOREHOLI		
						Groun	nd Level (r	m)	Co-Ordi	inates ()			BH7A	<b>\</b>	
Cont				Lina Di	27		Meth	od / Plant		Sheet					
	Е	SL						Concret		1 of 1					
			m)							·					
Depth BGL	Sa	mple / Test Details	PID (ppm)	Water	_	Depth (Thick-		DI	ESCRIPTI	ON		CO	OMME	NTS	Installation
		BH7A_0.7  BH7A_2.5-3.0	<0.1			necc)	slightly subangu wood.  Brown, medium  Dense, to Gravel of fine-medium		D: Soft, dan ilty clay. O brick with avelly CL of flint. vvelly, fine creases with angular-su	ck brown/g Gravel is fi fragments AY. Grave -coarse SA h depth. C brounded	el is  AND. Gravel is	Damp NVO  Dry NVO  Dry NVO			lustri lustri
	R	ackfill				Sa	mple De	etails	Ţ	egend				CENEDAL	
		ent seal					Small dist		Concrete	-5011d	Ma	de Ground		GENERAI REMARKS	$\ddot{S}$
_		onite Fill					sample sample		Gravelly Cl	ay		avelly Sand		NVO - No visual or Olfacto Evidence of Contamination m bgl - meters below groun Hand pitted to 1.2mbgl	ory 1.
								Ī	Groundwate	r Table	₫ Gro	undwater Strike			
									Logged	Ву	CG		App	roved By MM	



Stag Brewery, Mortlake, London SW14							Client				BOREHOLE No					
									AB	Inbev			ВН7В			
Job No	Start Date 27-08-13							n)	Co-Ordina	ites ()			Bi	1/B		
	47075502	E	nd Dat	e 27-0	8-15											
Contra	actor					Metho	d / Plant	Used					Sheet			
	ESL						Concret	e Corer.					1 of 1			
		m)							STRATA							
Depth BGL	Sample / Test Details	PID (ppm)	Water	Legend	Depth (Thick-		DE	ESCRIPTIO	ON		CC	OMMEN.	ΓS	Installation		
		Д .			ness)	CONCRI	ETE									
-		a 7 a   0.20						: Brown, s	andy,		Dry NVO	ry NVO				
-0.5		fine-					ıum, angı concrete.	ılar-subang Sand is fir	andy, gular gravel ne-coarse.	of /						
-					7	CONCRI	ETE with	rebar.		/						
-					-	Borehole on concre	terminate ete.	ed at 0.6m	bgl due to r	efusal						
					-											
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Z	Backfill				San	nple Det		Le	egend				GENI REM	ERAL		
S C	ement seal						Pd	Concrete		Mad	e Ground	-				
5. E												1	NVO - No visual of Evidence of Conta	mination.		
													m bgl - meters belo Hand pitted to 0.6	nbgl		
- n																
										1						
<u> </u>							▼	Groundwater	r Table	Grou	ndwater Strike					
OSOCIO SINGELCOS - FULLISPO AGAS, ALL GUI ZZENTS																
200								Logged I	Зу	CG		Appro	ved By	MM		



Project Name and Site Location Stag Brewery, Mortlake, London SW14  Job No Date 26,00,15 Gro							71.4	Client AB Inbev						BOREHOLE No			
								d Level (m)	,	Co-Ordi				BH8A			
3001		075502		Start D	ate 26-0 ate 26-0	)8-15 )8-15	Groun	id Level (iii)	,	Co-Oran	mates ()						
Cont				Lilu Di	20 0	.0 10	Meth	od / Plant U	Ised					Sheet			
	Е	SL						Concrete	Corer and	l Premie	r Rig.				1 of 1		
			(ma						S	TRAT	'A						
Depth BGL	Sa	mple / Test Details	PID (ppm)	Water		Depth (Thick- ness)		DES	SCRIPTIC	N		C	OMME	NTS		Installation	
					9 4 4 9		CONCR										
-	_	BH8A				0.40	MADE of	GROUND: f concrete.	Grey, san	dy, fine-	medium	Dry NVO Dry. Black	ach note	v4		_	
0.5 - -		БПОА	2.1			(0.40)	MADE Gravel is	GROUND: s medium to	Black sar	d and gr	avel.	Diy. Black	asii iiou	zu.			
- 1.0			-0.1			0.80	sub-rour ash.	nded of flint	t. Sand is	fine-coar	Dry NVO						
- 1.0 -	-1.0					[-	Soft, bro	own/ grey, s	andy, grav	velly CL	AY.					AL KS ctory cton.	
- 1.5			<0.1			(1.40)	(Possibi	y reworked	ciay).								
- 1.3			<0.1		-	(1.40)											
- 20	2.0       <0.1																
- 2.0							D 1		11 (*		AND	D. MVO				_	
- 2.5		-						orown, grave s fine-mediu	elly, fine- um subanş	coarse Sa gular-rou	AND. inded of	Dry NVO					
-					0	-	flint.										
-3.0			<0.1			(1.30)											
-	$\mathbb{N}$	BH8A_3.0-3.5	\0.1			-											
- -3.5			<0.1		0	3.50											
-						-	Borehole	e termonate	d at 3.0m	bgl.							
						-											
-						-											
						-											
-						-											
						-											
-						-											
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-						-											
-						-											
	В	ackfill				San	nple De	etails	Le	gend				GE	NERAL	,	
	Ceme	ent seal					Small dist sample	urbed 6	Concrete		Mad	le Ground		REI	MARKS	)	
	Bento	onite Fill							Gravelly San	dy Clay	G Grav	velly Sand		NVO - No visu Evidence of Co m bgl - meters Hand pitted to	ntamination. below ground	-	
									Groundwater	Table	Grou	undwater Strike					
									Logged B		CG		Appı	roved By	MM		



Proje		ame and Site					** 1	Client						BOREHOLE No			
		ag Brewer			ke, Lor	ndon SW								ВН9А			
Job 1		075502		Date Start D	ate 26-0	08-15	Groun	nd Level	(m)	Co-Ordi	nates ()			_			
Con		075502		End Da	ite 26-0	)8-15	Metho	od / Plar	nt Used					Sheet			
Con		SL					IVICTIO		rete Corer a	nd Premier	·Rio				1 of 1	. 1	
$\vdash$				T				Conc		01 1							
Depth	C-	1. /T4	PID (ppm)	Water		Depth				STRAT	A					ion	
BGL	Sa	mple / Test Details	PID	M	Legend	ness)			DESCRIPT	ION		CO	OMMEN	ITS		Installation	
-						0.30	CONCR	ETE									
-0.5 -	<b>×</b>	BH9A_0.5	<0.1			- - - -	fine-coa subround	MADE GROUND: Dense, brown, gravelly, ine-coarse sand. Gravel is fine-medium, subrounded-rounded of natural stone, becoming clayey with depth. Poor recovery.									
- -1.0			<0.1			-	becomin	ig clayey	y with depth	. Poor reco	overy.						
-						(1.90)											
-1.5						*  - *  - *  - -											
-2.0						<u> </u>											
-	BH9A_2.2-3.3							MADE GROUND: Black, sandy, Wet NVO									
- -2.5	$\mathbb{N}$					-	fine-med and crus	dium, an shed con	gular, red/g crete. Sand	rey gravel is fine-coa	of flint irse.						
	X					(1.10)	Poor rec	covery.									
-3.0	$\ /\ $					-											
	Н				XXX	3.30			ated at 3.3n	n bgl due to	refusal						
-						-	on conci	rete.									
-						-											
-						-											
-						-											
-						-											
Ė						-											
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l	Ba	ackfill					nple De			egend					NERAL		
Cement seal  Bentonite Fill							Small distr sample	urbed   [2	Concrete		Mad Mad	le Ground		NVO - No visu Evidence of Co m bgl - meters Hand pitted to	ntamination. below ground	у	
														price to	8•		
									Groundwate	er Table	₫ Grou	undwater Strike					
							Logged By CG Approved By						oved Pv	1 Dv			
1									Logged	ъу	CG		Appro	oved by	MM		



<b>APPENDIX</b>	-	LABORA'			
		IABURA		ICIL . A	
AII LIVIA		LADUINA			

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AECOM St. George's House 2nd Floor 5 St. George's Road Wimbledon Greater London SW19 4DR

Attention: Gary Marshall

#### **CERTIFICATE OF ANALYSIS**

 Date:
 08 September 2015

 Customer:
 H\_URS\_WIM

 Sample Delivery Group (SDG):
 150822-16

Your Reference:

Location:Stag BreweryReport No:328751

We received 8 samples on Saturday August 22, 2015 and 6 of these samples were scheduled for analysis which was completed on Monday September 07, 2015. 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









Validated

SDG: 150822-16 Location: Stag Brewery Order Number: H\_URS\_WIM-273 AECOM Job: **Customer:** Report Number:

328751 Client Reference: Attention: Gary Marshall Superseded Report:

**Received Sample Overview** 

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
11942793	BH204		1.30	21/08/2015
11942794	BH204		1.80	21/08/2015
11942796	BH204		3.30	21/08/2015
11942797	BH205		1.00	21/08/2015
11942798	BH205		2.50	21/08/2015
11942799	BH206		1.10	21/08/2015
11942791	BH203A		0.50	20/08/2015
11942792	BH203A		2.50	21/08/2015

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

Validated

150822-16 SDG: Job:

H\_URS\_WIM-273

Stag Brewery Location: Customer: AEČOM

Order Number: Report Number:

Superseded Report:

328751

Client Reference:	Attention:				ary	Maı	sha	all								
SOLID				_		_			_			_		_		_
Results Legend	Lab Sample I	No(s)		11942793		1942/	11942797		19427		11942190	10/107		11942799		11942791
X Test				93		96			97		Ö	Ď Ø		99		91
No Determination			Г									Ť		T		П
Possible	Custome	r		Ψ.	!	型			堲		<u></u>	P	型			뫄
	Sample Refe	rence		BH204		BH204			BH205		100	202		BH206		вн203А
			Г		T							Ť		T		
	AGS Refere	nce														
			H				+					+		$\dashv$		
	Depth (m	.\		1.30		3.30			1.00		١. ٥	ა უ		1.10		0.50
	Deptii (iii	')		0		Ċ			٥		c	>		0		0
			250	60g 400	250	400	250	400	60g	250	400	250	400	60g	400 250	60g
	Containa	_	g Amb		g Amb	g Tub	g Amb	g Tub	Voc	a Amb	a T	g Amb	g Tub	VOC	g Tub Amb	Voc
	Containe	1	er Jar	60g VOC (ALE215) 400g Tub (ALE214)	er Jar	(ALE2	er Jar	(ALES	(ALE2	er Jar	A F	er Jar	(ALE2	(ALE2	ALE2	(ALE2
Access to October The Co	All		Æ.	4) 5	Æ	14)	į́β	14)	15)	P :	4)	P	14)	15)	Λ <u>Α</u>	15)
Ammonium Soil by Titration	All	NDPs: 0 Tests: 6		X		X		X			X		X		X	
Asbestos ID in Solid Samples	All	NDPs: 0		^		^	+	^		4	^	+	^		^	$\vdash$
·		Tests: 6		X		X		X		2	X		X		X	
Asbestos Quant Waste Limit	All	NDPs: 0					+						†			Н
		Tests: 2					t	X				Ì			X	
Easily Liberated Sulphide	All	NDPs: 0 Tests: 6											Ī	П	Ī	
				X		X		X		2	X		X		X	
EPH CWG (Aliphatic) GC (S)	All	NDPs: 0 Tests: 6														
EPH CWG (Aromatic) GC (S)	All	NDPs: 0	X		X		X			X		X	-	H	X	Н
El 11 oves (Alomatic) es (e)	OII.	Tests: 6	X		X		X			X	+	X			X	Н
GRO by GC-FID (S)	All	NDPs: 0	Ê	+	^					_	+			H		$\vdash$
		Tests: 6		X		)	(		X		)	K		X		X
Hexavalent Chromium (s)	All	NDPs: 0								+			t	Ħ	$^{+}$	T
		Tests: 6		X		X		X		2	x		X	П	X	
Metals in solid samples by OES	All	NDPs: 0 Tests: 6													I	
			X		X		X			X		X	_	<u> </u>	X	
PAH by GCMS	All	NDPs: 0 Tests: 6	2.0										_			
pH	All	NDPs: 0	X		X		X			X		X	_	-	X	
	/ · · ·	Tests: 6		X		X		X			X		X		X	
Sample description	All	NDPs: 0					+			_		+	ř	$\vdash$		Н
		Tests: 5	X		X		X			X					X	Н
Total Organic Carbon	All	NDPs: 0									+	+	t	Ħ		H
		Tests: 6	X		X		X			X		×		1	X	
Total Sulphate	All	NDPs: 0 Tests: 6									T					
TRU CWC CC (C)	All		X		X		X			X	_	X		<u> </u>	X	Ц
TPH CWG GC (S)	All	NDPs: 0 Tests: 6	X		X		X			X	+	×			X	Н



Validated

 SDG:
 150822-16
 Location:
 Stag Brewery
 Order Number:

 Job:
 H\_URS\_WIM-273
 Customer:
 AECOM
 Report Number:
 328751

 Client Reference:
 Attention:
 Gary Marshall
 Superseded Report:

SOLID Results Legend X Test	Lab Sample I	No(s)	11942793	11942796	11942797	11942798	11942799	11942791
No Determination Possible	Custome Sample Refei		BH204	BH204	ВН205	BH205	BH206	ВН203А
	AGS Refere	nce						
	Depth (m	)	1.30	3.30	1.00	2.50	1.10	0.50
	Containe	r	60g VOC (ALE215) 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	60g VOC (ALE215) 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
VOC MS (S)	All	NDPs: 0 Tests: 6	x	×	×	x	×	x.

Validated

**SDG**: 150822-16 **Job**: H\_URS\_W Location: Stag Brewery
Customer: AECOM

Order Number: Report Number: Superseded Report:

328751

Client Reference:

H\_URS\_WIM-273 Customer: Attention:

**Sample Descriptions** 

Gary Marshall

#### **Grain Sizes**

very fine	<0.0	63mm	fine	0.063mm - 0.1mm	medium	0.1mm	- 2mm	coarse	2mm - 10	umm	very coars	e >10mi
Lab Sample	No(s)	Custon	ner Sample R	ef. Depth (m)	Co	olour	Description	ı G	rain size	Inclu	sions	Inclusions 2
119427	93		BH204	1.30	Dark	Brown	Sandy Clay	/ 0.	1 - 2 mm	Sto	nes	Vegetation
119427	96		BH204	3.30	Light	t Brown	Loamy Sand	d 0.	1 - 2 mm	Sto	nes	Vegetation
119427	97		BH205	1.00	Light	t Brown	Sandy Loan	n 0.	1 - 2 mm	Bri	ick	Stones
119427	98		BH205	2.50	Light	t Brown	Loamy Sand	d 0.	1 - 2 mm	Sto	nes	Vegetation
119427	99		BH206	1.10	Dark	Brown	Sandy Clay Loam	0.	1 - 2 mm	Bri	ick	Stones
119427	91		BH203A	0.50	Light	Brown	Sandy Loan	n 0.	1 - 2 mm	Bri	ick	Stones

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.

Validated

150822-16 SDG Job:

Client Reference:

H\_URS\_WIM-273

Location: **Customer:** Attention:

Stag Brewery **AECOM** Gary Marshall

Order Number: Report Number: Superseded Report:

328751

Customer Sample R BH204 BH205 BH205 BH206 BH203A BH204 ISO17025 accredited mCERTS accredited Aqueous / settled sample Depth (m) 1.30 3.30 1.00 2.50 1.10 0.50 diss.filt Dissolved / filtered sample Total / unfiltered sample Sample Type Soil/Solid Soil/Solid Soil/Solid Soil/Solid Soil/Solid Soil/Solid 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 Date Sampled 21/08/2015 21/08/2015 21/08/2015 21/08/2015 21/08/2015 20/08/2015 Sampled Time 22/08/2015 22/08/2015 22/08/2015 22/08/2015 22/08/2015 22/08/2015 150822-16 150822-16 150822-16 150822-16 SDG Ref 150822-16 150822-16 11942793 11942796 11942797 11942798 11942799 11942791 Lab Sample No.(s) 1-5&+§@ Sample deviation (see appendix) AGS Reference LOD/Units Component Method Moisture Content Ratio (% PM024 16 7.2 8.8 5.2 12 11 of as received sample) <15 TM024 <15 <15 <15 Exchangeable Ammonia <15 <15 <15 as NH4 mg/kg Μ Μ Μ Μ Μ M Organic Carbon, Total <0.2 % TM132 0.266 <0.2 0.627 <0.2 0.522 0.396 Μ Μ Μ М M Μ TM133 9.88 8.95 рН 1 pH 9.55 8.43 11.3 11.7 Units Μ Μ М Μ Μ Μ Chromium, Hexavalent <0.6 TM151 <0.6 <0.6 <0.6 <0.6 <0.6 <0.6 mg/kg # # # # # Sulphide, Easily liberated TM180 20 <15 <15 <15 <15 <15 <15 mg/kg # # # # # # Arsenic <0.6 TM181 10.9 30 13.7 21.8 19.9 12.1 mg/kg M Μ М M M M Cadmium < 0.02 TM181 0.21 0.319 0.414 0.263 0.324 0.29 mg/kg Μ Μ Μ M M M Chromium <0.9 TM181 17.4 15.2 20 20.6 21.9 31.2 mg/kg M M M Μ M M <1.4 TM181 8.93 3.08 25.8 4.42 12.8 35.3 Copper mg/kg Μ Μ М Μ М TM181 6.08 96.4 10.2 Lead <0.7 10.6 39.4 59.6 mg/kg Μ Μ Μ Μ M Μ Mercury < 0.14 TM181 <0.14 <0.14 0.162 <0.14 <0.14 <0.14 mg/kg М Μ Μ М Μ М Nickel TM181 21.8 17.4 20 22.4 38.2 < 0.2 16.5 mg/kg Μ Μ Μ Μ М Μ Selenium <1 mg/kg TM181 <1 <1 <1 <1 <1 <1 # # # # # 7inc <1.9 TM181 44 4 25.3 93 28 2 54 2 96.4 mg/kg M M M M M M Sulphate, Total <48 TM221 4280 2040 3750 883 573 8120 mg/kg М М М M M M

Validated

150822-16 SDG: Location: Stag Brewery Order Number: Job: H\_URS\_WIM-273

Client Reference:

Customer: Attention:

AECOM Gary Marshall Report Number: Superseded Report:

328751

Client Reference:			Attention:	Gary Marshall		Superseded Repo	ort:	
PAH by GCMS								
Results Legend # ISO17025 accredited.	Cı	ustomer Sample R	BH204	BH204	BH205	BH205	BH206	BH203A
M mCERTS accredited.  Aqueous / settled sample.  Joselved / filtered sample.  tot.unfilt Total / unfiltered sample.  * Subcontracted test.  * Grecovery of the surrogate stancheck the efficiency of the methoresults of individual compounds samples aren't corrected for the refriger breach confirmed	d. The within ecovery	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s)	1.30 Soil/Solid 21/08/2015 22/08/2015 150822-16 11942793	3.30 Soil/Soild 21/08/2015 22/08/2015 150822-16 11942796	1.00 Soil/Solid 21/08/2015 22/08/2015 150822-16 11942797	2.50 Soil/Solid 21/08/2015 22/08/2015 150822-16 11942798	1.10 Soil/Solid 21/08/2015 22/08/2015 150822-16 11942799	0.50 Soil/Solid 20/08/2015 22/08/2015 150822-16 11942791
1-5&+§@ Sample deviation (see appendix)	1.00#1.7	AGS Reference						
Component	LOD/Units	Method	400	100	404	400	404	404
Naphthalene-d8 % recovery**	%	TM218	106	103	104	102	104	104
Acenaphthene-d10 % recovery**	%	TM218	103	102	103	102	105	105
Phenanthrene-d10 % recovery**	%	TM218	104	102	105	101	107	107
Chrysene-d12 % recovery**	%	TM218	96.7	99.7	112	101	98.9	101
Perylene-d12 % recovery**	%	TM218	104	99.7	110	102	105	107
Naphthalene	<9 µg/kg	TM218	<9	<9 M	173 M	<9 M M	<9 M	10.3 M
Acenaphthylene	<12 µg/kg	TM218	<12	<12	45.3	<12 M M	<12 M	<12 M
Acenaphthene	- 48 μg/kg	TM218	<8	<8	73.2		<8 M	<8 M
Fluorene	<10 µg/kg	TM218	<10	<10	79.6	<10 M	<10 M	<10 M
Phenanthrene	<15 μg/kg	TM218	<15	<15	811	<15 M M	28.4 M	160 M
Anthracene	<16 µg/kg	TM218	<16	<16	179	<16 M M	<16 M	41 M
Fluoranthene	<17 μg/kg	TM218	<17	<17	1310	<17 M M	47.3 M	429 M
Pyrene	<15 µg/kg	TM218	<15	<15	1510	<15 M M	53.2 M	412 M
Benz(a)anthracene	<14 μg/kg	TM218	<14	<14	1060	<14 M M	<14 M	192 M
Chrysene	<10 µg/kg	TM218	<10	<10	976	<10 M	16.3	194 M
Benzo(b)fluoranthene	<15 µg/kg	TM218	<15	<15	1300	<15 M M	37.7 M	206 M
Benzo(k)fluoranthene	<14 μg/kg	TM218	<14	<14	546	<14 M M	19.7 M	103 M
Benzo(a)pyrene	<15 μg/kg	TM218	<15	<15	970	<15 M M	38.2 M	203 M
Indeno(1,2,3-cd)pyrene	<18 μg/kg	TM218	<18	<18	543	<18 M M	29 M	124 M
Dibenzo(a,h)anthracene	<23 μg/kg	TM218	<23	<23	186	<23 M M	<23 M	32.7 M
Benzo(g,h,i)perylene	<24 μg/kg	TM218	<24	<24	676	<24 M M	30.1 M	142 M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	<118	<118	10400	<118	300	2250

Validated

ALcontrol Laboratories

SDG:

Job:

150822-16

H\_URS\_WIM-273

Location: Customer: Attention:

Stag Brewery AECOM Gary Marshall Order Number: Report Number: Superseded Report:

328751

Client Reference:

TPH CWG (S)			BH204							
Results Legend # ISO17025 accredited.	# ISO17025 accredited.						BH205	BH205	BH206	BH203A
m mCERTS accredited.  aq Aqueous / settled sample.  diss.filt tot.unfilt  Total / unfiltered sample.  Subcontracted test.  recovery of the surrogate standa		Depth (m) Sample Type Date Sampled Sampled Time	1.30 Soil/Solid 21/08/2015		3.30 Soil/Solid 21/08/2015		1.00 Soil/Solid 21/08/2015	2.50 Soil/Solid 21/08/2015	1.10 Soil/Solid 21/08/2015	0.50 Soil/Solid 20/08/2015
check the efficiency of the method. results of individual compounds wi samples aren't corrected for the rei (F) Trigger breach confirmed 1-5&+§@ Sample deviation (see appendix)	thin covery	Date Received SDG Ref Lab Sample No.(s) AGS Reference	22/08/2015 150822-16 11942793		22/08/2015 150822-16 11942796		22/08/2015 150822-16 11942797	22/08/2015 150822-16 11942798	22/08/2015 150822-16 11942799	22/08/2015 150822-16 11942791
Component	LOD/Unit	_		_			70		20	70
GRO Surrogate % recovery**	%	TM089	74		96		72	98	80	73
GRO TOT (Moisture Corrected)	<44 µg/kg	TM089	<44 N	М	<44	М	243 M	<44 M	<44 M	<44 M
Methyl tertiary butyl ether (MTBE)	<5 µg/k	g TM089	<5	М	<5	М	<5 M	<5 M	<5 M	<5 M
Benzene	<10 µg/kg	TM089	<10	M	<10	M	<10 M	<10	<10	<10 M
Toluene	<2 µg/k	g TM089	<2 N	М	<2	М	5.4 M	<2 M	<2 M	<2 M
Ethylbenzene	<3 µg/k	g TM089	<3	M	<3	М	<3 M	<3 M	<3	<3 M
m,p-Xylene	<6 µg/k	g TM089	<6 N	М	<6	М	7.55 M	<6 M	<6 M	<6 M
o-Xylene	<3 µg/k	g TM089	<3 N	М	<3	М	<3 M	<3 M	<3 M	<3 M
sum of detected mpo xylene by GC	<9 µg/k	g TM089	<9		<9		<9	<9	<9	<9
sum of detected BTEX by GC	<24 µg/kg	TM089	<24		<24		<24	<24	<24	<24
Aliphatics >C5-C6	<10 µg/kg	TM089	<10		<10		<10	<10	<10	<10
Aliphatics >C6-C8	<10 µg/kg	TM089	<10		<10		12.9	<10	<10	<10
Aliphatics >C8-C10	<10 µg/kg	TM089	<10		<10		25.9	<10	<10	<10
Aliphatics >C10-C12	<10 µg/kg	TM089	<10		<10		93.9	<10	<10	<10
Aliphatics >C12-C16	<100 µg/kg	TM173	480		808		5150	466	337	2500
Aliphatics >C16-C21	<100 µg/kg	TM173	<100		<100		30000	<100	<100	9990
Aliphatics >C21-C35	<100 µg/kg	TM173	<100		<100		120000	<100	1660	97500
Aliphatics >C35-C44	<100 µg/kg	TM173	<100		<100		39400	<100	<100	70000
Total Aliphatics >C12-C44	<100 µg/kg	TM173	480		808		195000	466	2000	180000
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	<10		<10		29.1	<10	<10	<10
Aromatics >EC10-EC12	<10 μg/kg	TM089	<10		<10		62.6	<10	<10	<10
Aromatics >EC12-EC16	<100 µg/kg	TM173	486		402		4430	519	<100	1610
Aromatics >EC16-EC21	<100 µg/kg	TM173	<100		<100		21900	<100	<100	6760
Aromatics >EC21-EC35	<100 µg/kg	TM173	269		462		75100	693	3460	78300
Aromatics >EC35-EC44	<100 µg/kg	TM173	<100		<100		55100	<100	<100	118000
Aromatics >EC40-EC44	<100 µg/kg	TM173	<100		<100		25300	<100	<100	46400
Total Aromatics >EC12-EC44	<100 µg/kg	TM173	755		864		156000	1210	3460	205000
Total Aliphatics & Aromatics >C5-C44	<100 µg/kg	TM173	1230		1680		352000	1680	5470	385000



SDG: Location:

150822-16 H\_URS\_WIM-273 Stag Brewery Order Number: Report Number: Customer: AECOM 328751 Client Reference: Attention: Gary Marshall Superseded Report: VOC MS (S)

Second content conte	Results Legend # ISO17025 accredited.		Customer Sample R	BH204		BH204		BH205	BH205		BH206		BH203A
Second Control Contr	<ul> <li>M mCERTS accredited.</li> <li>aq Aqueous / settled sample.</li> </ul>		Depth (m)	1.30		3,30		1.00	2.50		1.10		0.50
Secretary   Secr	tot.unfilt Total / unfiltered sample.		Sample Type	Soil/Solid		Soil/Solid		Soil/Solid	Soil/Solid		Soil/Solid		Soil/Solid
	** % recovery of the surrogate standa check the efficiency of the method	. The	Sampled Time										
Technological memory recognises   Membral Discorrison   Membral	samples aren't corrected for the re		SDG Ref	150822-16		150822-16		150822-16	150822-16		150822-16		150822-16
Discriminstructions and exercises   %   Thirtie   117   102   98.6   98.9   118   71.8   71.8	1-5&+§@ Sample deviation (see appendix)		AGS Reference										
Astronomburochervener**   Signing   Thirtife   48	· ·			117		102		96.6	98.9		116	+	71.6
Astronomburochervener**   Signing   Thirtife   48	Toluene-d8**	%	TM116	99.6		99.9		91.2	97.9		101	+	87 7
Dehicroordinaremethane												_	
Chloromethane	4-Bromofluorobenzene**	%	IM116	101		101		77.1	101		90.4		70.8
September   February   Februar	Dichlorodifluoromethane	<6 µg/	kg TM116	<6	М	<6	М		1	М		Л	
Viry Christofe	Chloromethane	<7 μg/	kg TM116	<7	#	<7	#		1	#		#	
Bromomethane	Vinyl Chloride	<6 µg/	kg TM116	<6		<6		<6	<6		<6		<6
Chiconethane	Bromomethane			<10		<10		<10	<10		<10		<10
Trichlorofituriormethane	Chloroethane	<10	TM116	<10		<10		<10	<10		<10		<10
1.1-Dichloroethene   <10	Trichlorofluorormethane			<6	M	<6	М			M		Л	
Carbon Disulphide	1.1-Dichloroethene	<10	TM116	<10	М	<10	М		+	М		Л	
Dichloromethane		μg/kg	ı		#		#	#		#	‡	#	#
Methyl Tertiary Butyl Ether	·				М		М	М		М	N	Л	М
Lange   Lan	Dichloromethane			<10	#	<10	#		1	#		#	
trans-1,2-Dichloroethene	Methyl Tertiary Butyl Ether			<10	М	<10	М		1	М		Л	
1,1-Dichloroethane	trans-1,2-Dichloroethene	<10	TM116	<10		<10		<10	<10		<10	$\top$	<10
Cis-1,2-Dichloroethene	1,1-Dichloroethane			<8		<8		<8	<8		<8		<8
2,2-Dichloropropane	cis-1,2-Dichloroethene	<6 µg/	kg TM116	<6		<6		<6	<6		<6		<6
Bromochloromethane	2,2-Dichloropropane			<10		<10		<10	<10		<10		<10
Chloroform	Bromochloromethane	<10	TM116	<10	М	<10	М			M		Л	
No.   No.	Chloroform		_	<8	М	<8	М			M		Л	M
M					М		М	М		М	N	Л	М
Carbontetrachloride	1,1,1-1 richioroethane	µg/</td <td>kg IM116</td> <td><!--</td--><td>М</td><td><!--</td--><td>М</td><td></td><td>1</td><td>М</td><td></td><td>Л</td><td></td></td></td>	kg IM116	</td <td>М</td> <td><!--</td--><td>М</td><td></td><td>1</td><td>М</td><td></td><td>Л</td><td></td></td>	М	</td <td>М</td> <td></td> <td>1</td> <td>М</td> <td></td> <td>Л</td> <td></td>	М		1	М		Л	
Carbontetrachloride	1,1-Dichloropropene			<10	М	<10	М		1	M		л	
1,2-Dichloroethane	Carbontetrachloride	<10	TM116	<10	М	<10			1	М		Л	<10
Benzene	1,2-Dichloroethane		_	<5		<5		<5	<5		<5		<5
Trichloroethene	Benzene	<9 µg/	kg TM116	<9		<9		<9	<9		<9		<9
1,2-Dichloropropane	Trichloroethene	<9 µg/	kg TM116	<9		<9		<9	<9		<9		<9
Dibromomethane   <9 μg/kg   TM116   <9   <9   <9   <9   <9   <9   <9   <	1,2-Dichloropropane			<10		<10		<10	<10		<10		<10
Bromodichloromethane	Dibromomethane			<9	M	<9	М			M		Л	
Cis-1,3-Dichloropropene	Bromodichloromethane	<7 ua	ka TM116	<7	M	<7	М			M		Л	M
μg/kg   μg/kg   M   M   M   M   M   M   M   M   M					М		М	М		М	N	Л	М
M   M   M   M   M   M   M   M   M   M		μg/kg	1		М		М	М		M	N	Л	М
μg/kg   1,1,2-Trichloroethane					М		М	М		М	N	Л	М
1,1,2-Trichloroethane <10 TM116 <10 <10 <10 <10 <10 <10	trans-1,3-Dichloropropene			<10		<10		<10	<10		<10		<10
	1,1,2-Trichloroethane	<10	TM116	<10	М		М		1	М		Л	<10 M

Validated

150822-16 SDG: Job: H\_URS\_WIM-273

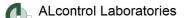
Location: Customer: Attention:

Stag Brewery AECOM Gary Marshall Order Number: Report Number: Superseded Report:

328751

Client Reference:

VOC MS (S)											
Results Legend # ISO17025 accredited.		Customer Sample R	BH204		BH204		BH205		BH205	BH206	BH203A
M mCERTS accredited. aq Aqueous / settled sample. diss.fill: Dissolved / filtered sample. tot.unfilt Total / unfiltered sample. * Subcontracted test. ** % recovery of the surrogate stands.	ard to	Depth (m) Sample Type Date Sampled Sampled Time	1.30 Soil/Solid 21/08/2015		3.30 Soil/Solid 21/08/2015		1.00 Soil/Solid 21/08/2015		2.50 Soil/Solid 21/08/2015	1.10 Soil/Solid 21/08/2015	0.50 Soil/Solid 20/08/2015
check the efficiency of the method results of individual compounds w samples aren't corrected for the re	. The ithin	Date Received SDG Ref	22/08/2015 150822-16 11942793		22/08/2015 150822-16 11942796		22/08/2015 150822-16 11942797		22/08/2015 150822-16 11942798	22/08/2015 150822-16 11942799	22/08/2015 150822-16 11942791
(F) Trigger breach confirmed 1-5&+§@ Sample deviation (see appendix)		Lab Sample No.(s) AGS Reference	11942793		11942790		11942191		11942790	11542755	11942791
Component	LOD/Unit		<7	+	<7	4	<7		<7	<7	<7
1,3-Dichloropropane	<7 μg/k	g HWHT6		Л		М	~1	М			M
Tetrachloroethene	<5 μg/k	g TM116	<5 M	T	<5	М	<5	М	<5 M	<5	<5 M
Dibromochloromethane	<10 µg/kg	TM116	<10 M	Л	<10	М	<10	М	<10 M	<10 M	<10 M
1,2-Dibromoethane	<10 µg/kg	TM116	<10 N	,	<10	М	<10	М	<10 M	<10 M	<10 M
Chlorobenzene	<5 μg/k	g TM116	<5 N	T	<5	М	<5	М	<5 M	<5	<5 M
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116	<10 N		<10	М	<10	М	<10	<10	<10 M
Ethylbenzene	<4 µg/k	g TM116	<4 N	4	<4	М	<4	М	<4 M	<4 M	<4 M
p/m-Xylene	<10 µg/kg	TM116	<10 #	T	<10	#	<10	#	<10 #	<10	<10 #
o-Xylene	<10 μg/kg	TM116	<10 N	T	<10	M	<10	M	<10 M	<10	<10 M
Styrene	<10 µg/kg	TM116	<10 #	T	<10	#	<10	#	<10 #	<10	<10 #
Bromoform	<10 µg/kg	TM116	<10	1	<10	М	<10	М	<10	<10	<10 M
Isopropylbenzene	<5 μg/k	g TM116	<5	#	<5	#	<5	#	<5 #	<5	<5 #
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116	<10 N	T	<10	M	<10	M	<10 M	<10	<10 M
1,2,3-Trichloropropane	<16 µg/kg	TM116	<16 M	Л	<16	М	<16	М	<16	<16	<16 M
Bromobenzene	<10 μg/kg	TM116	<10 N		<10	М	<10	М	<10	<10	<10 M
Propylbenzene	<10 µg/kg	TM116	<10 M		<10	М	<10	М	<10	<10	<10 M
2-Chlorotoluene	<9 µg/k	g TM116	<9 M	1	<9	М	<9	М	<9 M	<9 M	<9 M
1,3,5-Trimethylbenzene	<8 µg/k	g TM116	<8 M	Л	<8	М	<8	М	<8 M	<8 M	<8 M
4-Chlorotoluene	<10 µg/kg	TM116	<10 M	Л	<10	М	<10	М	<10 M	<10 M	<10 M
tert-Butylbenzene	<14 µg/kg	TM116	<14 N	Л	<14	М	<14	М	<14 M	<14 M	<14 M
1,2,4-Trimethylbenzene	<9 µg/k	g TM116	<9 #	#	<9	#	<9	#	<9 #	<9 #	<9 #
sec-Butylbenzene	<10 µg/kg	TM116	<10 M	Л		М	<10	М	<10 M		<10 M
4-Isopropyltoluene	<10 µg/kg	TM116	<10 M	Л	<10	М	<10	М	<10 M	<10 M	<10 M
1,3-Dichlorobenzene	<8 µg/k	g TM116	<8 M	Л	<8	М	<8	М	<8 M		<8 M
1,4-Dichlorobenzene	<5 μg/k		<5 M	Л		М	<5	М	<5 M		<5 M
n-Butylbenzene	<11 µg/kg	TM116	<11		<11		<11		<11	<11	<11
1,2-Dichlorobenzene	<10 µg/kg	TM116	<10 N	Л		М	<10	М	<10 M		<10 M
1,2-Dibromo-3-chloroprop ane	<14 µg/kg	TM116	<14 N	Л		М	<14	М	<14 M		<14 M
Tert-amyl methyl ether	<10 µg/kg	TM116		#	<10	#	<10	#	<10 #		<10 #
1,2,4-Trichlorobenzene	<20 µg/kg	TM116	<20		<20		<20		<20	<20	<20
Hexachlorobutadiene	<20 µg/kg	TM116	<20		<20		<20		<20	<20	<20
Naphthalene	<13 µg/kg	TM116	<13 N	Л	<13	М	196	М	<13 M	<13 M	<13 M



Validated

328751

150822-16 SDG: Location: Stag Brewery Order Number: Job:

H\_URS\_WIM-273 Customer: AECOM Report Number: Attention: Gary Marshall Superseded Report:

Client Reference:

VOC I	MS (S)								
	Results Legend	(	Customer Sample R	BH204	BH204	BH205	BH205	BH206	BH203A
# M	ISO17025 accredited. mCERTS accredited.								
aq diss.filt	Aqueous / settled sample. Dissolved / filtered sample.		Depth (m)	1.30	3.30	1.00	2.50	1.10	0.50
tot.unfilt	Total / unfiltered sample. Subcontracted test.		Sample Type Date Sampled	Soil/Solid 21/08/2015	Soil/Solid 21/08/2015	Soil/Solid 21/08/2015	Soil/Solid 21/08/2015	Soil/Solid 21/08/2015	Soil/Solid 20/08/2015
**	% recovery of the surrogate standarcheck the efficiency of the method.	rd to	Sampled Time	,				,	
	results of individual compounds wir samples aren't corrected for the red	thin	Date Received SDG Ref	22/08/2015 150822-16	22/08/2015 150822-16	22/08/2015 150822-16	22/08/2015 150822-16	22/08/2015 150822-16	22/08/2015 150822-16
(F)	Trigger breach confirmed	overy	Lab Sample No.(s)	11942793	11942796	11942797	11942798	11942799	11942791
Compo	Sample deviation (see appendix)	LOD/Units	AGS Reference Method						
	Trichlorobenzene	<20	TM116	<20	<20	<20	<20	<20	<20
, ,-		μg/kg		#	#	#	#	#	#



150822-16

SDG:

**CERTIFICATE OF ANALYSIS** 

Order Number:

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328751

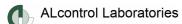
H\_URS\_WIM-273 AECOM Job: **Customer:** Report Number: Client Reference: Attention: Gary Marshall Superseded Report:

Location:

#### Asbestos Identification - Soil

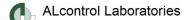
Stag Brewery

			ASI	Destos	iaentii	ication	- 2011				
		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH204 1.30 SOLID 21/08/2015 00:00:00 22/08/2015 16:18:39 150822-16 11942793 TM048	24/08/2015	Chris Swindells	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH204 3.30 SOLID 21/08/2015 00:00:00 22/08/2015 16:12:02 150822-16 11942796 TM048	24/08/2015	Chris Swindells	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH205 1.00 SOLID 21/08/2015 00:00:00 22/08/2015 16:24:15 150822-16 11942797 TM048	24/08/2015	Chris Swindells	Loose fibres in soil	Trace (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH205 2.50 SOLID 21/08/2015 00:00:00 22/08/2015 15:28:37 150822-16 11942798 TM048	24/08/2015	Chris Swindells	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH206 1.10 SOLID 21/08/2015 00:00:00 22/08/2015 15:33:31 150822-16 11942799 TM048	24/08/2015	Chris Swindells	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected



Validated

Stag Brewery 150822-16 SDG: Location: Order Number: H\_URS\_WIM-273 328751 Job: **Customer: AECOM** Report Number: Client Reference: Attention: Gary Marshall Superseded Report: Non-Asbestos Date of Crocidolite Fibrous Analysed By Comments Amosite Chrysotile Fibrous Fibrous Anthophyllite Analysis (Brown) (White) (Blue) Actinolite Tremolite Fibre Asbestos Asbestos Asbestos Cust. Sample BH203A 25/08/15 Martin Detected (#) Not Detected Not Detected Not Detected Not Detected Soil Not Detected Not Detected containing 0.50 SOLID Ref. Cotterell (#) (#) (#) (#) (#) Depth (m) loose fibres Sample Type Date Sampled 20/08/2015 and debris 00:00:00 typical of asbestos Date Receieved 24/08/2015 07:59:04 SDG bitumen Original Sample Method Number 150822-16 11942791 TM048



Validated

328751

150822-16 SDG: Location: Stag Brewery Order Number: H\_URS\_WIM-273 AECOM Job: **Customer:** Report Number: Attention: Gary Marshall

Client Reference:

Superseded Report:

# **Asbestos Quantification - Waste Limit**

	·	Additional Asbestos Components (Using TM048)	Analysts Comments	Waste Limit, Total - %
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH205 1.00 SOLID 21/08/2015 00:00:00 27/08/2015 15:58:07 150822-16 11942797 TM 304	Chrysotile (#)	Loose fibres in soil	<0.1 (#)
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH203A 0.50 SOLID 20/08/2015 00:00:00 03/09/2015 06:41:42 150822-16 11942791 TM 304	None (#)	N/C	<0.1 (#)

Client Reference:

#### **CERTIFICATE OF ANALYSIS**

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**SDG:** 150822-16 **Job:** H\_URS\_WIM-273

Location:Stag BreweryCustomer:AECOMAttention:Gary Marshall

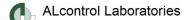
Order Number:
Report Number: 3
Superseded Report:

328751

**Table of Results - Appendix** 

Method No	Reference	Description	Wet/Dry Sample <sup>1</sup>	Surrogate Corrected
ASB_PREP				
PM001		Preparation of Samples for Metals Analysis		
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material		
TM 304				
TM024	Method 4500A & B, AWWA/APHA, 20th Ed., 1999	Determination of Exchangeable Ammonium and Ammoniacal Nitrogen as N by titration on solids		
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material		
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)		
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS		
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		
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser		
TM173	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GC-FID		
TM180	Sulphide in waters and waste waters 1991 ISBN 01 175 7186 SCA rec. 2007 (unpublished)'	The Determination Of Easily Liberated Sulphide In Soil Samples by Ion Selective Electrode Technique		
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		
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid extractable Sulphate in Soils by IRIS Emission Spectrometer		

<sup>&</sup>lt;sup>1</sup> Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.



Validated

328751

 SDG:
 150822-16
 Location:
 Stag Brewery
 Order Number:

 Job:
 H\_URS\_WIM-273
 Customer:
 AECOM
 Report Number:

Client Reference: Attention: Gary Marshall Superseded Report:

**Test Completion Dates** 

Lab Sample No(s)	11942793	11942796	11942797	11942798	11942799	11942791
Customer Sample Ref.	BH204	BH204	BH205	BH205	BH206	BH203A
AGS Ref.						
Depth	1.30	3.30	1.00	2.50	1.10	0.50
Туре	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
Ammonium Soil by Titration	26-Aug-2015	26-Aug-2015	26-Aug-2015	26-Aug-2015	26-Aug-2015	26-Aug-2015
Asbestos ID in Solid Samples	24-Aug-2015	24-Aug-2015	24-Aug-2015	24-Aug-2015	24-Aug-2015	25-Aug-2015
Asbestos Quant Waste Limit			03-Sep-2015			07-Sep-2015
Easily Liberated Sulphide	27-Aug-2015	28-Aug-2015	27-Aug-2015	27-Aug-2015	27-Aug-2015	27-Aug-2015
EPH CWG (Aliphatic) GC (S)	28-Aug-2015	28-Aug-2015	03-Sep-2015	28-Aug-2015	28-Aug-2015	03-Sep-2015
EPH CWG (Aromatic) GC (S)	28-Aug-2015	28-Aug-2015	03-Sep-2015	28-Aug-2015	28-Aug-2015	03-Sep-2015
GRO by GC-FID (S)	29-Aug-2015	29-Aug-2015	29-Aug-2015	29-Aug-2015	29-Aug-2015	29-Aug-2015
Hexavalent Chromium (s)	25-Aug-2015	25-Aug-2015	25-Aug-2015	25-Aug-2015	25-Aug-2015	25-Aug-2015
Metals in solid samples by OES	26-Aug-2015	25-Aug-2015	25-Aug-2015	25-Aug-2015	25-Aug-2015	25-Aug-2015
PAH by GCMS	26-Aug-2015	25-Aug-2015	25-Aug-2015	25-Aug-2015	25-Aug-2015	25-Aug-2015
рН	02-Sep-2015	02-Sep-2015	02-Sep-2015	02-Sep-2015	02-Sep-2015	02-Sep-2015
Sample description	24-Aug-2015	22-Aug-2015	22-Aug-2015	22-Aug-2015	22-Aug-2015	22-Aug-2015
Total Organic Carbon	01-Sep-2015	01-Sep-2015	02-Sep-2015	01-Sep-2015	01-Sep-2015	02-Sep-2015
Total Sulphate	28-Aug-2015	28-Aug-2015	28-Aug-2015	28-Aug-2015	28-Aug-2015	28-Aug-2015
TPH CWG GC (S)	29-Aug-2015	29-Aug-2015	03-Sep-2015	29-Aug-2015	29-Aug-2015	03-Sep-2015
VOC MS (S)	26-Aug-2015	26-Aug-2015	26-Aug-2015	26-Aug-2015	26-Aug-2015	26-Aug-2015

Validated

**SDG**: 150822-16 **Job**: H\_URS\_WIM-273

Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall

Order Number: Report Number:

328751

Client Reference:

ention: Gary Marshall Superseded Report:

# **ASSOCIATED AQC DATA**

#### Ammonium Soil by Titration

Component	Method Code	QC 1157
Exchangeable Ammonium as NH4	TM024	<b>93.03</b> 79.30 : 104.61

#### Easily Liberated Sulphide

Component	Method Code	QC 1159	QC 1129
Easily Liberated Sulphide	TM180	<b>106.83</b> 49.14 : 123.89	<b>95.34</b> 49.14 : 123.89

#### EPH CWG (Aliphatic) GC (S)

Component	Method Code	QC 1124	QC 1179
Total Aliphatics >C12-C35	TM173	<b>98.33</b> 71.67 : 116.67	<b>92.29</b> 68.25 : 114.73

## EPH CWG (Aromatic) GC (S)

Component	Method Code	QC 1124	QC 1179
Total Aromatics >EC12-EC35	TM173	<b>84.0</b> 59.92 : 107.95	<b>82.0</b> 60.67 : 124.27

### GRO by GC-FID (S)

Component	Method Code	QC 1197
Benzene by GC (Moisture Corrected)	TM089	<b>96.0</b> 82.67 : 117.96
Ethylbenzene by GC (Moisture Corrected)	TM089	<b>90.0</b> 80.45 : 118.61
m & p Xylene by GC (Moisture Corrected)	TM089	<b>89.75</b> 79.25 : 119.43
MTBE GC-FID (Moisture Corrected)	TM089	<b>99.0</b> 79.10 : 122.51
o Xylene by GC (Moisture Corrected)	TM089	<b>90.5</b> 80.03 : 117.19
QC	TM089	<b>107.33</b> 75.74 : 124.65
Toluene by GC (Moisture Corrected)	TM089	<b>94.0</b> 82.06 : 117.54

Validated

Order Number:

328751

 150822-16
 Location:
 Stag Brewery

 H\_URS\_WIM-273
 Customer:
 AECOM

 Customer:
 AECOM
 Report Number:

 Attention:
 Gary Marshall
 Superseded Report:

Hexavalent Chromium (s)

Client Reference:

SDG:

Job:

Component	Method Code	QC 1111	QC 1157
Hexavalent Chromium	TM151	98.0	98.0
		92.20 : 106.60	92.20 : 106.60

### Metals in solid samples by OES

Component	Method Code	QC 1164	QC 1154	QC 1117
Aluminium	TM181	<b>120.77</b> 86.49 : 129.71	<b>94.62</b> 86.49 : 129.71	<b>102.31</b> 86.49 : 129.71
Antimony	TM181	<b>100.0</b> 77.50 : 122.50	<b>92.83</b> 77.50 : 122.50	<b>108.96</b> 77.50 : 122.50
Arsenic	TM181	<b>95.58</b> 82.63 : 117.37	<b>85.93</b> 82.63 : 117.37	<b>106.19</b> 82.63 : 117.37
Barium	TM181	<b>100.0</b> 79.45 : 120.55	<b>92.48</b> 79.45 : 120.55	<b>102.26</b> 79.45 : 120.55
Beryllium	TM181	<b>101.71</b> 85.92 : 121.27	<b>92.09</b> 85.92 : 121.27	<b>104.96</b> 85.92 : 121.27
Boron	TM181	<b>132.82</b> 77.41 : 143.83	<b>93.13</b> 77.41 : 143.83	<b>105.34</b> 77.41 : 143.83
Cadmium	TM181	<b>93.78</b> 81.95 : 118.05	<b>88.57</b> 81.95 : 118.05	<b>105.04</b> 81.95 : 118.05
Chromium	TM181	<b>100.39</b> 81.29 : 118.71	<b>88.24</b> 81.29 : 118.71	<b>96.47</b> 81.29 : 118.71
Cobalt	TM181	<b>97.5</b> 83.86 : 116.14	<b>88.0</b> 83.86 : 116.14	<b>103.5</b> 83.86 : 116.14
Copper	TM181	<b>101.22</b> 78.57 : 121.43	<b>92.7</b> 78.57 : 121.43	<b>106.49</b> 78.57 : 121.43
Iron	TM181	<b>107.59</b> 87.50 : 122.82	<b>95.86</b> 87.50 : 122.82	<b>102.07</b> 87.50 : 122.82
Lead	TM181	<b>88.19</b> 74.18 : 117.25	<b>90.94</b> 74.18 : 117.25	<b>98.82</b> 74.18 : 117.25
Manganese	TM181	<b>104.2</b> 82.91 : 117.09	<b>95.2</b> 82.91 : 117.09	<b>100.0</b> 82.91 : 117.09
Mercury	TM181	<b>92.46</b> 81.99 : 118.01	<b>87.6</b> 81.99 : 118.01	<b>105.03</b> 81.99 : 118.01
Molybdenum	TM181	<b>96.97</b> 81.45 : 118.55	<b>92.04</b> 81.45 : 118.55	<b>110.19</b> 81.45 : 118.55
Nickel	TM181	<b>100.0</b> 79.64 : 120.36	<b>90.7</b> 79.64 : 120.36	<b>104.65</b> 79.64 : 120.36
Phosphorus	TM181	<b>99.7</b> 81.03 : 118.97	<b>91.21</b> 81.03 : 118.97	<b>100.15</b> 81.03 : 118.97
Selenium	TM181	<b>104.79</b> 87.05 : 121.93	<b>95.73</b> 87.05 : 121.93	<b>114.87</b> 87.05 : 121.93
Strontium	TM181	<b>105.75</b> 83.64 : 116.36	<b>89.27</b> 83.64 : 116.36	<b>99.23</b> 83.64 : 116.36
Thallium	TM181	<b>93.37</b> 77.50 : 122.50	<b>84.25</b> 77.50 : 122.50	<b>97.84</b> 77.50 : 122.50
Tin	TM181	<b>97.67</b> 78.30 : 113.98	<b>96.01</b> 78.30 : 113.98	<b>111.3</b> 78.30 : 113.98
Titanium	TM181	<b>121.88</b> 71.02 : 128.98	<b>99.22</b> 71.02 : 128.98	<b>103.91</b> 71.02 : 128.98

Validated

**SDG**: 150822-16 **Job**: H\_URS\_WIM-273 Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall

Order Number: Report Number: Superseded Report:

328751

Metals in solid samples by OES

		QC 1164	QC 1154	QC 1117
Vanadium	TM181	<b>103.82</b> 86.61 : 113.39	<b>91.18</b> 86.61 : 113.39	<b>102.94</b> 86.61 : 113.39
Zinc	TM181	<b>99.51</b> 90.81 : 120.30	<b>91.88</b> 90.81 : 120.30	<b>108.12</b> 90.81 : 120.30

## PAH by GCMS

Client Reference:

Component	Method Code	QC 1112	QC 1121	QC 1102
Acenaphthene	TM218	<b>99.5</b> 70.00 : 130.00	<b>97.0</b> 76.50 : 121.50	<b>97.5</b> 76.50 : 121.50
Acenaphthylene	TM218	<b>87.5</b> 70.00 : 130.00	<b>89.0</b> 73.50 : 118.50	<b>90.0</b> 73.50 : 118.50
Anthracene	TM218	<b>93.0</b> 70.00 : 130.00	<b>93.0</b> 74.25 : 117.75	<b>96.0</b> 74.25 : 117.75
Benz(a)anthracene	TM218	<b>97.0</b> 70.00 : 130.00	<b>108.5</b> 82.07 : 118.33	<b>101.0</b> 82.07 : 118.33
Benzo(a)pyrene	TM218	<b>98.5</b> 70.00 : 130.00	<b>101.5</b> 79.75 : 116.97	<b>105.5</b> 79.75 : 116.97
Benzo(b)fluoranthene	TM218	<b>98.5</b> 70.00 : 130.00	<b>101.0</b> 82.41 : 117.15	<b>101.0</b> 82.41 : 117.15
Benzo(ghi)perylene	TM218	<b>94.5</b> 70.00 : 130.00	<b>107.5</b> 77.09 : 114.38	<b>96.0</b> 77.09 : 114.38
Benzo(k)fluoranthene	TM218	<b>95.0</b> 70.00 : 130.00	<b>100.5</b> 81.43 : 115.17	<b>100.5</b> 81.43 : 115.17
Chrysene	TM218	<b>95.0</b> 70.00 : 130.00	<b>104.0</b> 82.50 : 113.51	<b>97.0</b> 82.50 : 113.51
Dibenzo(ah)anthracene	TM218	<b>95.0</b> 70.00 : 130.00	<b>106.0</b> 81.00 : 120.00	<b>98.0</b> 81.00 : 120.00
Fluoranthene	TM218	<b>97.0</b> 70.00 : 130.00	<b>96.0</b> 78.67 : 117.61	<b>96.5</b> 78.67 : 117.61
Fluorene	TM218	<b>98.0</b> 70.00 : 130.00	<b>93.5</b> 76.50 : 121.50	<b>95.5</b> 76.50 : 121.50
Indeno(123cd)pyrene	TM218	<b>92.5</b> 70.00 : 130.00	<b>104.0</b> 79.19 : 117.60	<b>96.0</b> 79.19 : 117.60
Naphthalene	TM218	<b>96.0</b> 70.00 : 130.00	<b>91.0</b> 77.00 : 117.50	<b>94.5</b> 77.00 : 117.50
Phenanthrene	TM218	<b>98.5</b> 70.00 : 130.00	<b>95.5</b> 75.00 : 123.00	<b>98.0</b> 75.00 : 123.00
Pyrene	TM218	<b>95.5</b> 70.00 : 130.00	<b>94.0</b> 77.82 : 116.98	<b>95.0</b> 77.82 : 116.98

#### рΗ

	Component	Method Code	QC 1188	QC 1135
Γ	pН	TM133	100.5	99.75
			96.22 : 103.78	97.19 : 102.81

#### **Total Organic Carbon**

Validated

**SDG**: 150822-16

Job: H\_URS\_WIM-273
Client Reference:

**Location:** Stag Brewery **Customer:** AECOM

Gary Marshall

Attention:

Order Number: Report Number: Superseded Report:

328751

Total Organic Carbon

Component	Method Code	QC 1110	QC 1121
Total Organic Carbon	TM132	98.63	94.06
		88.82 : 111.18	89.40 : 103.09

### Total Sulphate

Component	Method Code	QC 1128
Total Sulphate	TM221	112.12
		78.49 : 121.51

## VOC MS (S)

Component	Method Code	QC 1125	QC 1180
1,1,1,2-tetrachloroethane	TM116	101.8	100.6
		83.24 : 124.28	83.24 : 124.28
1,1,1-Trichloroethane	TM116	88.8	107.6
		81.77 : 121.07	81.77 : 121.07
1,1,2-Trichloroethane	TM116	97.0	94.6
		79.24 : 112.23	79.24 : 112.23
1,1-Dichloroethane	TM116	91.6	107.4
4.0 Piable made as	T14440	72.58 : 116.06	72.58 : 116.06
1,2-Dichloroethane	TM116	94.8	109.8
1,4-Dichlorobenzene	TM116	77.50 : 122.50	77.50 : 122.50
1,4-Dichiolobenzene	TIVITIO	<b>88.0</b> 73.23 : 116.39	<b>97.4</b> 73.23 : 116.39
2-Chlorotoluene	TM116		
		<b>88.4</b> 69.22 : 110.64	<b>93.0</b> 69.22 : 110.64
4-Chlorotoluene	TM116	86.2	92.0
		68.57 : 106.26	68.57 : 106.26
Benzene	TM116	95.4	107.2
		84.33 : 124.27	84.33 : 124.27
Carbon Disulphide	TM116	98.6	110.4
		77.20 : 122.80	77.20 : 122.80
Carbontetrachloride	TM116	100.2	107.6
		84.20 : 119.90	84.20 : 119.90
Chlorobenzene	TM116	103.4	106.4
Chloroform	TM116	85.28 : 129.96	85.28 : 129.96
Chloroform	TIVITIO	<b>92.4</b> 82.73 : 119.72	<b>106.8</b> 82.73 : 119.72
Chloromethane	TM116		
Oniorometriane	1101110	<b>128.8</b> 55.16 : 145.46	<b>122.4</b> 55.16 : 145.46
Cis-1,2-Dichloroethene	TM116	96.4	107.4
,		73.56 : 118.93	73.56 : 118.93
Dibromomethane	TM116	95.2	92.0
		73.40 : 116.60	73.40 : 116.60
Dichloromethane	TM116	94.8	107.4
		76.16 : 121.98	76.16 : 121.98

Validated

150822-16 SDG: Job:

Location: Stag Brewery H\_URS\_WIM-273 **Customer: AECOM** Attention: Gary Marshall Order Number: Report Number: Superseded Report:

328751

VOC MS (S)

Client Reference:

	· ·	QC 1125	QC 1180
Ethylbenzene	TM116	94.0	103.0
		80.07 : 125.98	80.07 : 125.98
Hexachlorobutadiene	TM116	68.8	120.0
		30.92 : 132.28	30.92 : 132.28
Isopropylbenzene	TM116	82.2	102.8
		69.27 : 125.32	69.27 : 125.32
Naphthalene	TM116	110.0	102.2
		79.15 : 121.98	79.15 : 121.98
o-Xylene	TM116	86.8	88.2
		75.46 : 111.52	75.46 : 111.52
p/m-Xylene	TM116	94.9	101.0
		76.97 : 121.75	76.97 : 121.75
Sec-Butylbenzene	TM116	74.6	108.8
		49.27 : 129.90	49.27 : 129.90
Tetrachloroethene	TM116	106.2	113.6
		87.96 : 133.65	87.96 : 133.65
Toluene	TM116	92.6	103.2
		79.23 : 114.58	79.23 : 114.58
Trichloroethene	TM116	91.8	100.8
		84.09 : 114.24	84.09 : 114.24
Trichlorofluoromethane	TM116	90.8	107.0
		76.22 : 114.82	76.22 : 114.82
Vinyl Chloride	TM116	77.8	97.4
		59.68 : 118.68	59.68 : 118.68

The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.

The figure detailed is the percentage recovery result for the AQC.

The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

Validated

150822-16 SDG: Job: H\_URS\_WIM-273 Location: Stag Brewery **Customer:** AECOM Gary Marshall Order Number: Report Number:

328751

Client Reference:

Attention:

Superseded Report:

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Depth**: 3.30 Sample No : 11954758

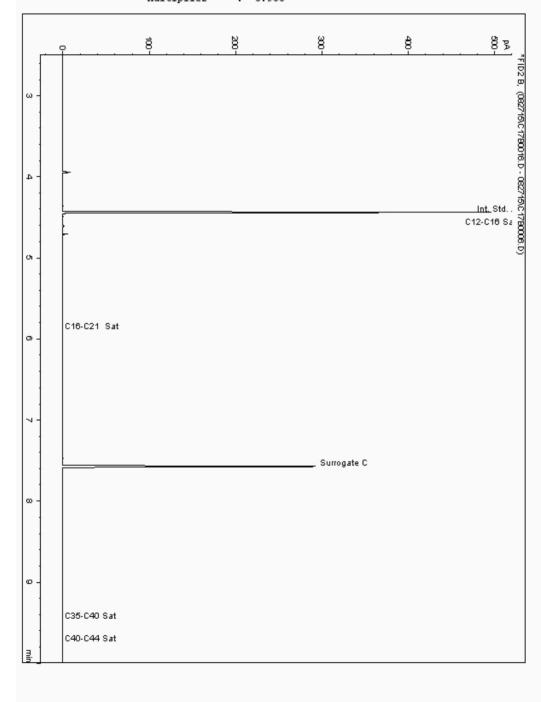
Sample ID :

Alcontrol/Geochem Analytical Services Speciated TPH - SATS ( Cl2 - C40 )

Sample Identity: Date Acquired : 11342140-27/08/2015 18:44:18 PM

Units ppb Dilution

CF 0.980 Multiplier



Client Reference:

#### **CERTIFICATE OF ANALYSIS**

Validated

150822-16 SDG: Job: H\_URS\_WIM-273 Location: **Customer:** Attention:

Stag Brewery AECOM Gary Marshall Order Number: Report Number: Superseded Report:

328751

Chromatogram

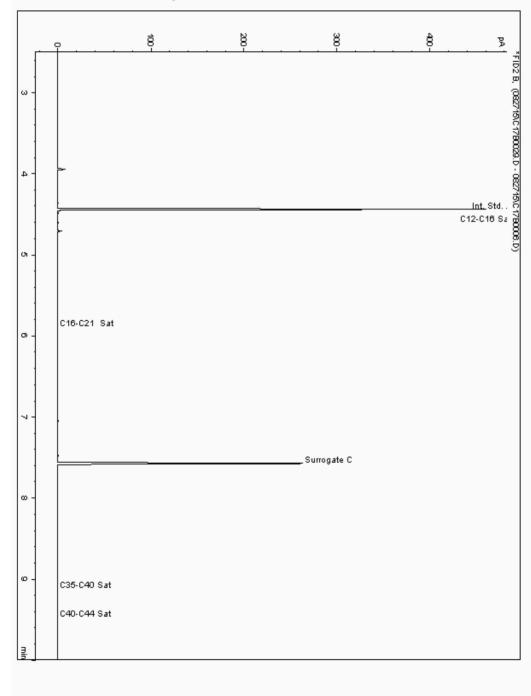
Analysis: EPH CWG (Aliphatic) GC (S) **Depth**: 1.30 Sample No : 11954791 Sample ID :

Alcontrol/Geochem Analytical Services Speciated TPH - SATS ( Cl2 - C40 )

11342131-27/08/2015 22:58:35 PM Sample Identity: Date Acquired :

Units ppb Dilution

CF 0.970 Multiplier



Validated

150822-16 SDG: Job: H\_URS\_WIM-273 Client Reference:

Location: **Customer:** Attention:

Stag Brewery AECOM Gary Marshall Order Number: Report Number: Superseded Report:

328751

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S)

Sample No : 11956254 Sample ID :

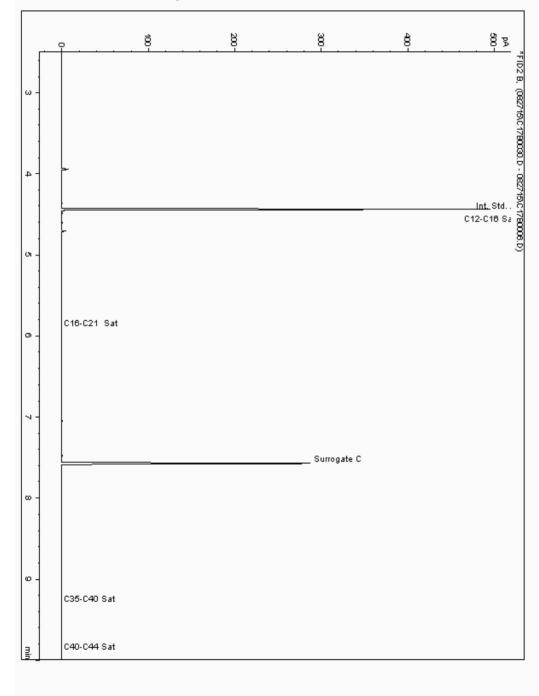
**Depth**: 1.10

Alcontrol/Geochem Analytical Services Speciated TPH - SATS ( Cl2 - C40 )

11342167-27/08/2015 23:18:56 PM Sample Identity: Date Acquired :

Units ppb Dilution

CF 0.960 Multiplier



Validated

SDG: 150822-16 Job: H\_URS\_WIM-273 Client Reference:

Location: **Customer:** Attention:

Stag Brewery AECOM Gary Marshall Order Number: Report Number: Superseded Report:

328751

## Chromatogram

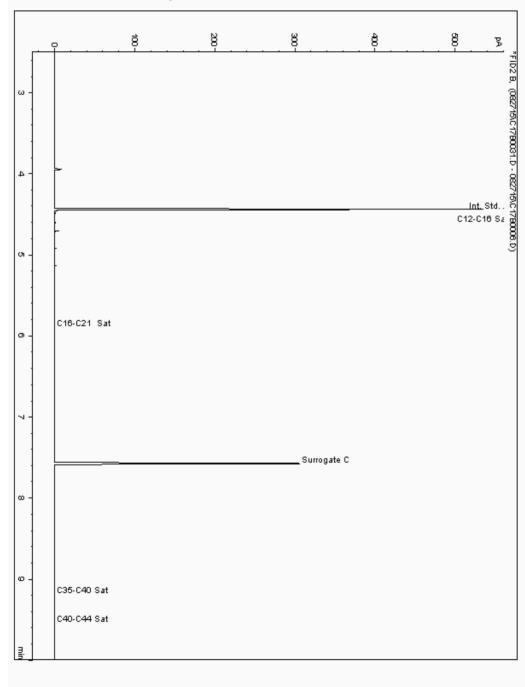
Analysis: EPH CWG (Aliphatic) GC (S) Sample No : **Depth**: 2.50 11956372 Sample ID :

Alcontrol/Geochem Analytical Services Speciated TPH - SATS ( Cl2 - C40 )

Sample Identity: Date Acquired : 11342158-27/08/2015 23:39:01 PM

Units ppb Dilution

CF 0.990 Multiplier



Validated

SDG: 150822-16 H\_URS\_WIM-273 Job:

Location: Stag Brewery **Customer:** AECOM Attention: Gary Marshall Order Number: Report Number: Superseded Report:

328751

Client Reference:

Analysis: EPH CWG (Aliphatic) GC (S)

Chromatogram Sample No : 11959414 Sample ID :

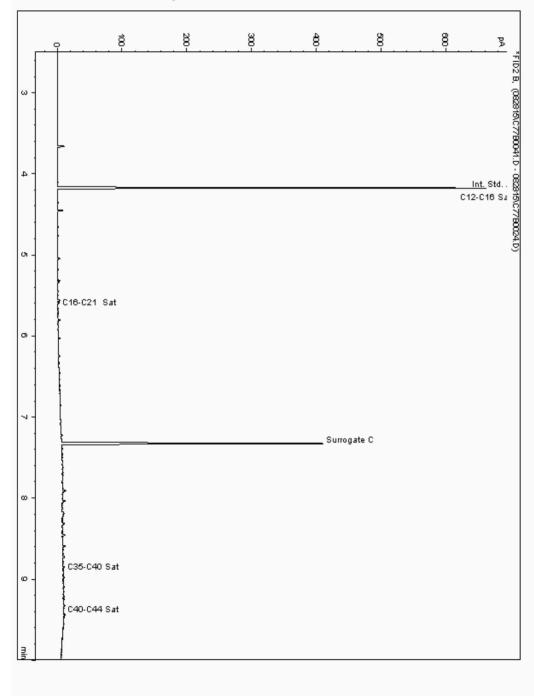
**Depth**: 0.50

Alcontrol/Geochem Analytical Services Speciated TPH - SATS ( Cl2 - C40 )

11342122-01/09/2015 07:58:49 PM Sample Identity: Date Acquired :

Units ppb Dilution

CF 1.040 Multiplier



Validated

SDG: 150822-16 H\_URS\_WIM-273 Job: Client Reference:

Location: Stag Brewery **Customer:** AECOM Attention: Gary Marshall Order Number: Report Number: Superseded Report:

328751

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Depth**: 1.00 Sample No : 11959467 Sample ID :

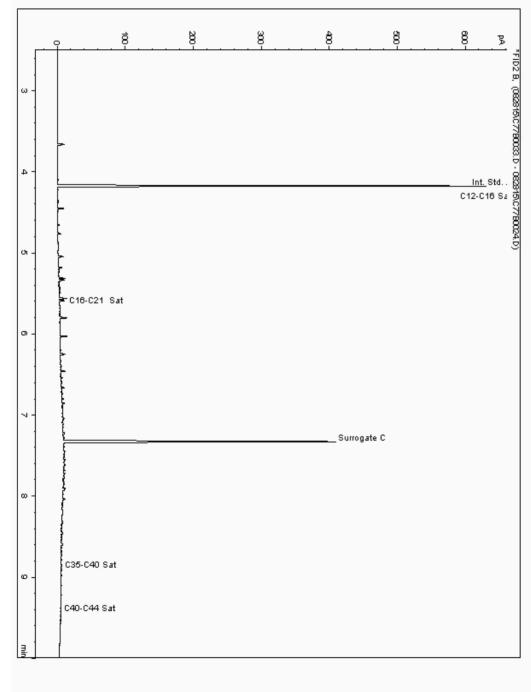
Alcontrol/Geochem Analytical Services Speciated TPH - SATS ( Cl2 - C40 )

11342149-

Sample Identity: Date Acquired : 29/08/2015 02:23:16 PM

Units ppb Dilution

CF 1.040 Multiplier



Validated

150822-16 Location: Stag Brewery SDG: Order Number: Job: H\_URS\_WIM-273 **Customer:** AECOM Report Number:

Client Reference: Attention: Gary Marshall Superseded Report:

328751

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Depth**: 3.30 Sample No : 11954758 Sample ID :

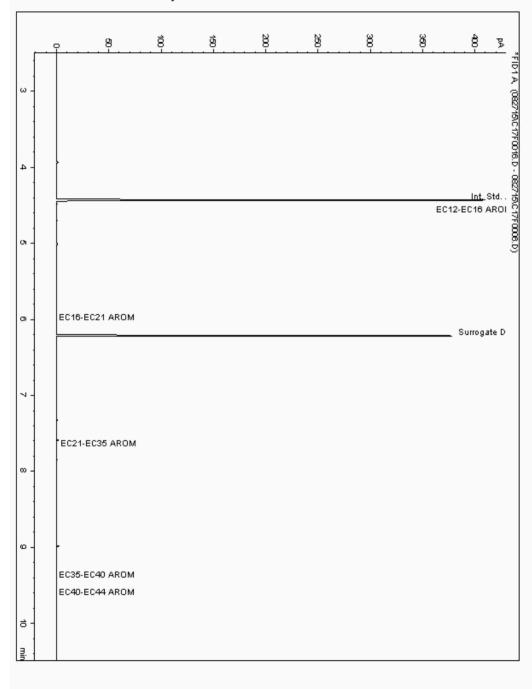
Alcontrol/Geochem Analytical Services Speciated TPH - AROM ( Cl2 - C40 )

Sample Identity:

11342141-27/08/2015 18:44:18 PM Date Acquired :

Units ppb Dilution

CF 0.980 Multiplier



Validated

150822-16 Location: Stag Brewery SDG: Order Number: 328751 Job: H\_URS\_WIM-273 **Customer:** AECOM Report Number: Client Reference: Attention: Gary Marshall Superseded Report:

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Depth**: 1.30 Sample No : 11954791

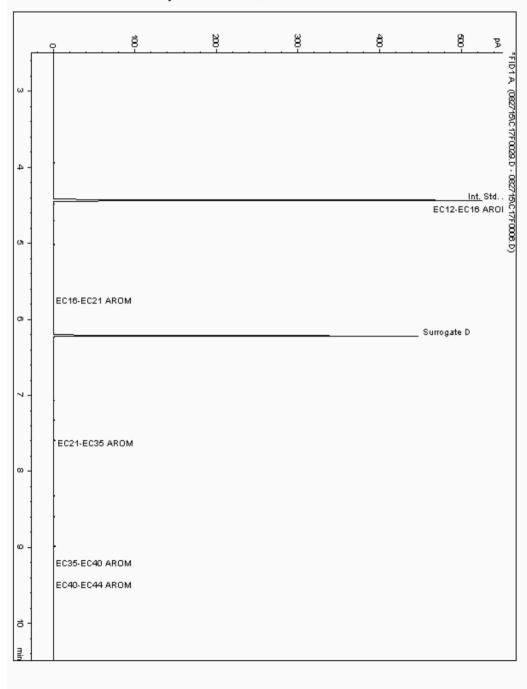
Sample ID :

Alcontrol/Geochem Analytical Services Speciated TPH - AROM ( Cl2 - C40 )

11342132-27/08/2015 22:58:35 PM Sample Identity: Date Acquired :

Units ppb Dilution

CF 0.970 Multiplier



Validated

328751

150822-16 Location: Stag Brewery SDG: Order Number: Job: H\_URS\_WIM-273 **Customer:** AECOM Report Number: Client Reference: Attention: Superseded Report:

Gary Marshall Chromatogram

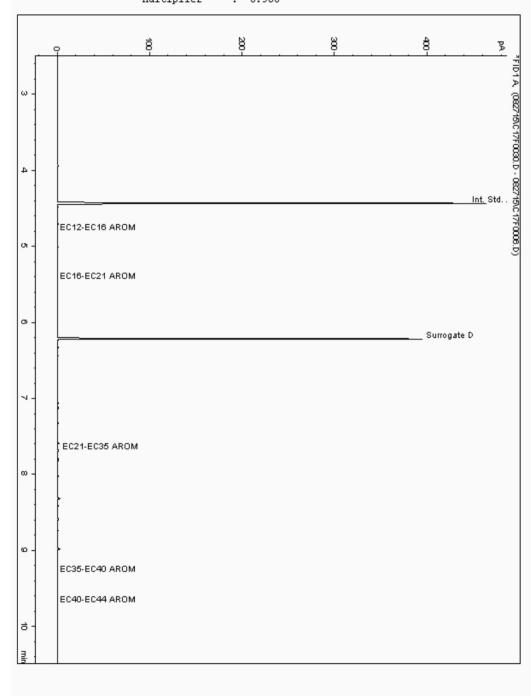
**Depth**: 1.10 Analysis: EPH CWG (Aromatic) GC (S) Sample No : 11956254

Sample ID : Alcontrol/Geochem Analytical Services Speciated TPH - AROM ( Cl2 - C40 )

11342168-27/08/2015 23:18:56 PM Sample Identity: Date Acquired :

Units ppb Dilution

CF 0.960 Multiplier



Client Reference:

#### **CERTIFICATE OF ANALYSIS**

Validated

150822-16 SDG: Job: H\_URS\_WIM-273 Location: **Customer:** Attention:

Stag Brewery AECOM Gary Marshall Order Number: Report Number: Superseded Report:

328751

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) Sample No : **Depth**: 2.50 11956372 Sample ID :

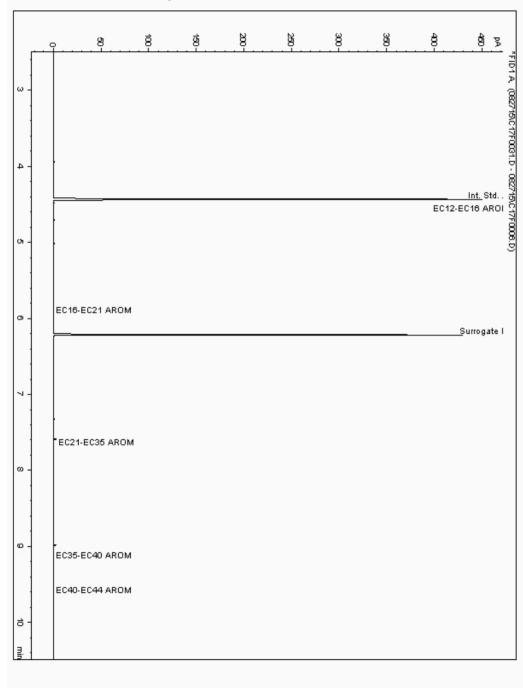
Alcontrol/Geochem Analytical Services Speciated TPH - AROM ( Cl2 - C40 )

Sample Identity:

11342159-27/08/2015 23:39:01 PM Date Acquired :

Units ppb Dilution

CF 0.990 Multiplier



Chromatogram

Validated

**SDG:** 150822-16 **Job:** H\_URS\_WIM-273

Location: Customer: Attention:

Stag Brewery AECOM Gary Marshall Order Number: Report Number: Superseded Report:

328751

Client Reference:

Analysis: EPH CWG (Aromatic) GC (S) Sample No :

 Sample No :
 11959414

 Sample ID :
 BH203A

**Depth**: 0.50

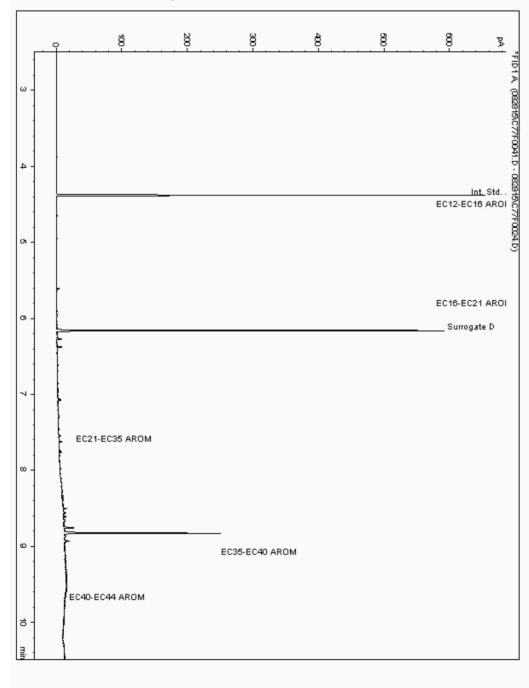
Alcontrol/Geochem Analytical Services Speciated TPH - AROM ( C12 - C40 )

Sample Identity: 11342123-

Date Accoursed : 01/09/2015 07:58:50 PM

Units : ppb

CF : 1 Multiplier : 1.040



Validated

150822-16 SDG: Job: H\_URS\_WIM-273 Client Reference:

Location: **Customer:** Attention:

Stag Brewery AECOM Gary Marshall Order Number: Report Number: Superseded Report:

328751

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Depth**: 1.00 Sample No : 11959467 Sample ID :

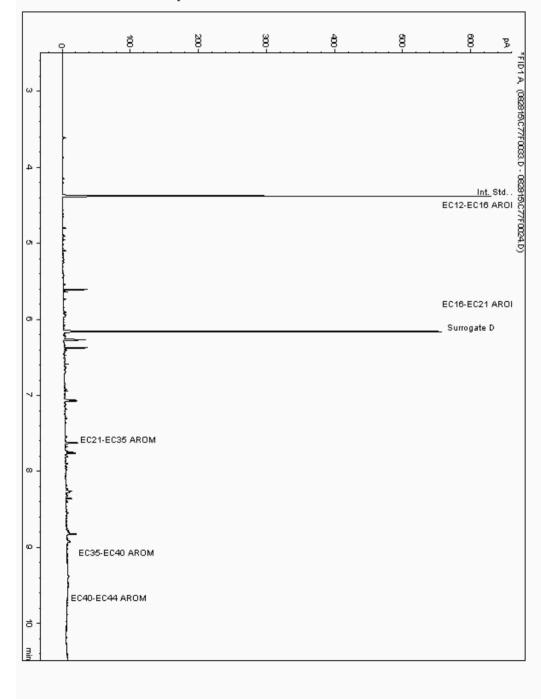
Alcontrol/Geochem Analytical Services Speciated TPH - AROM ( Cl2 - C40 )

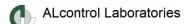
11342150-

Sample Identity: Date Acquired : 29/08/2015 02:23:16 PM

Units ppb Dilution

CF 1.040 Multiplier





Validated

**SDG**: 150822-16 **Job**: H\_URS\_WIM-273

Analysis: GRO by GC-FID (S)

Client Reference:

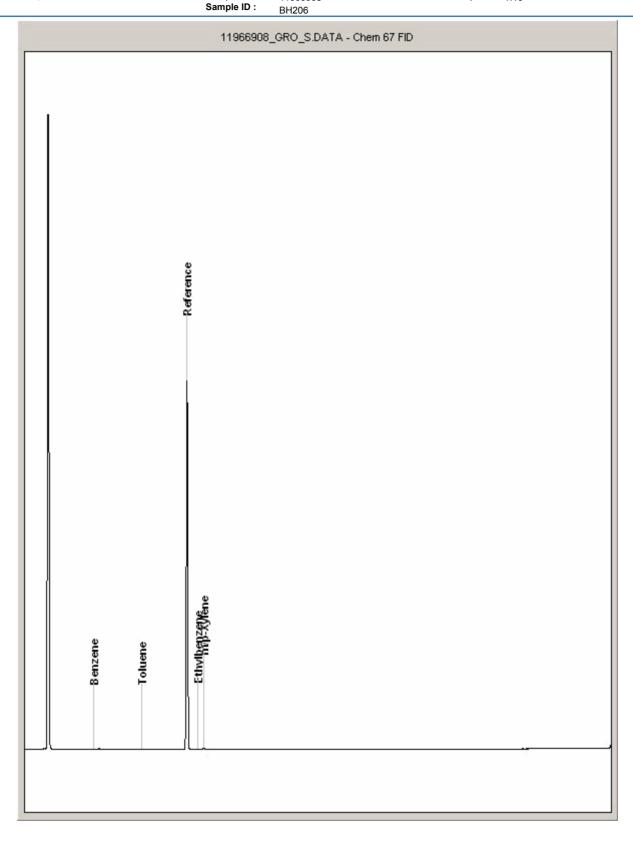
Location:Stag BreweryCustomer:AECOMAttention:Gary Marshall

Order Number: Report Number: Superseded Report:

328751

Chromatogram

**Sample No:** 11966908 **Depth:** 1.10





Validated

**SDG**: 150822-16 **Job**: H\_URS\_WIM-273 Location: Customer: Attention: Stag Brewery AECOM Gary Marshall Order Number: Report Number: Superseded Report:

328751

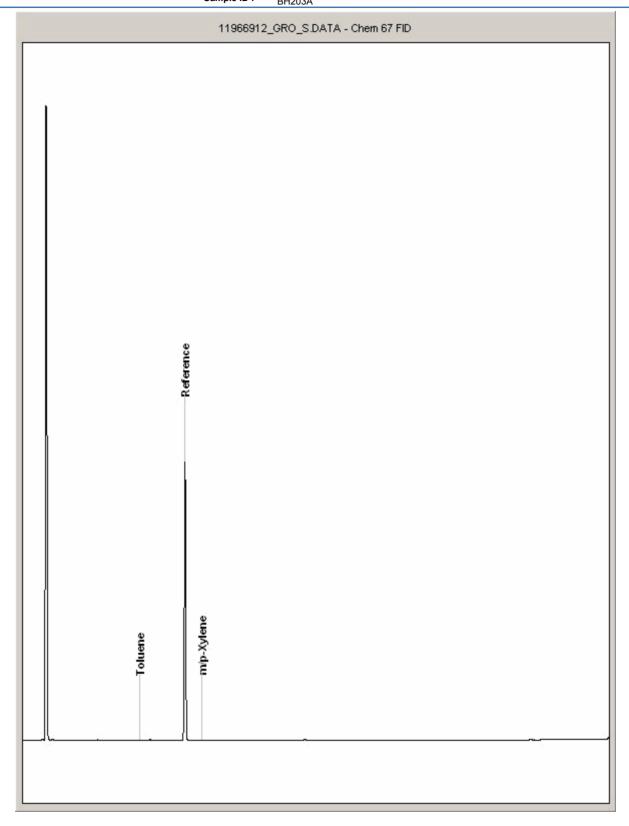
Chromatogram

**Analysis:** GRO by GC-FID (S)

Client Reference:

**Sample No**: 11966912 **Sample ID**: BH203A

**Depth**: 0.50





Analysis: GRO by GC-FID (S)

Client Reference:

#### **CERTIFICATE OF ANALYSIS**

Validated

**SDG**: 150822-16 **Job**: H\_URS\_WIM-273 Location: Customer: Attention: Stag Brewery AECOM Gary Marshall Order Number: Report Number: Superseded Report:

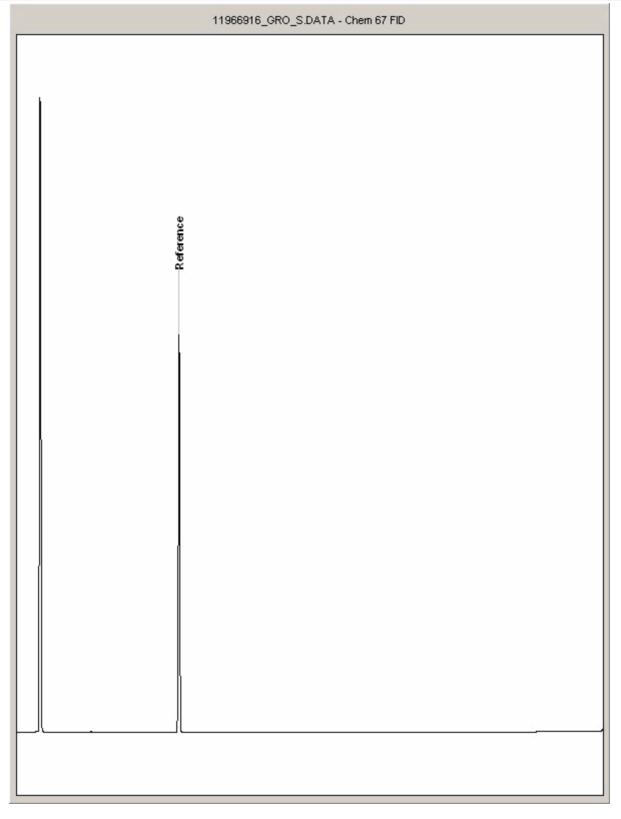
328751

y Warshall Superscued N

Chromatogram

**Sample No**: 11966916 **Depth**: 2.50

Sample ID : BH205



#### **CERTIFICATE OF ANALYSIS**

Validated

**SDG**: 150822-16 **Job**: H\_URS\_WIM-273 Location: Customer: Attention: Order Number: Report Number: Superseded Report:

328751

Client Reference:

H\_URS\_WIM-27

Chromatogram

Stag Brewery

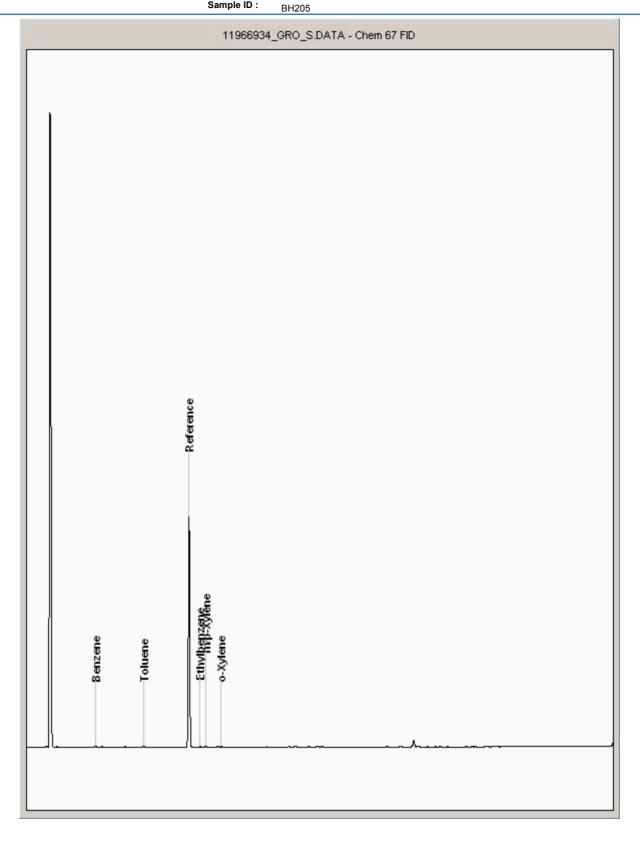
Gary Marshall

AECOM

 Analysis:
 GRO by GC-FID (S)
 Sample No :
 11

 Sample ID :
 BI

ple No: 11966934 Depth: 1.00





Analysis: GRO by GC-FID (S)

Client Reference:

#### **CERTIFICATE OF ANALYSIS**

Validated

150822-16 SDG: Job:

H\_URS\_WIM-273

Location: Stag Brewery AECOM **Customer:** Attention: Gary Marshall Order Number: Report Number: Superseded Report:

328751

Chromatogram

**Depth**: 3.30 Sample No : 11966959 Sample ID : BH204

11966959\_GRO\_S.DATA - Chem 67 FID



#### **CERTIFICATE OF ANALYSIS**

Validated

SDG: 150822-16 Location: Stag Brewery H\_URS\_WIM-273 Job:

Client Reference: Attention:

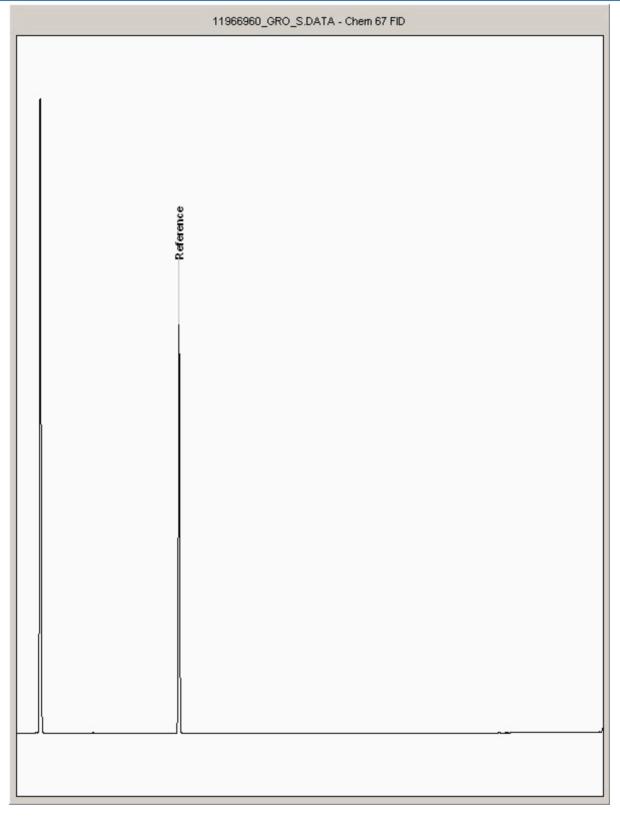
AECOM **Customer:** Gary Marshall Order Number: Superseded Report:

328751

Chromatogram

Analysis: GRO by GC-FID (S) **Depth**: 1.30 Sample No : 11966960

Sample ID : BH204



# **ALcontrol Laboratories**

#### **CERTIFICATE OF ANALYSIS**

150822-16 Location: Stag Brewery Order Number: H URS WIM-273 **AECOM Customer:** Report Number: Attention: Gary Marshall Superseded Report:

Job: Client Reference:

SDG

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 quaranteed 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
- . 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.
- monohydric by HPLC include phenol, cresols (2-Methylphenol, bl) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 3-Methylphenol 4-Methylphenol) 2.5 Dimethylphenol. Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).
- 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.
- 20. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample
- 21. 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
- 22. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction
- 23. 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.
- 24. 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

SOLID MATRICES EXTRACTION SUMMARY

328751

ANALYSIS	D/C OR WET	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYS
SOLVENT EXTRACTABLE MATTER	D&C	DOM	SOXTHERM	GRAVIMETRIC
CYCLOHEXANE EXT. MATTER	D&C	CYCLOHEXANE	SOXTHERM	GRAVIMETRIC
THIN LAYER CHROMATOGRAPHY	D&C	DOM	SOXTHERM	IATROSCAN
ELEMENTAL SULPHUR	D&C	DOM	SOXTHERM	HPLC
PHENOLSBYGOMS	WET	DOM	SOXTHERM	GCMS
HERBICIDES	D&C	HEXANEACETONE	SOXTHERM	GCMS
PESTICIDES	D&C	HEXANEACETONE	SOXTHERM	GCMS
EPH (DRO)	D&C	HEXANEACETONE	END OVEREND	GCFID
EPH (MINOL)	D&C	HEXANEACETONE	END OVEREND	GCFID
EPH (CLEANED UP)	D&C	HEXANEACETONE	END OVEREND	GCFID
EPH CWG BYGC	D&C	HEXANEACETONE	END OVEREND	GCFID
POB TOT / POB CON	D&C	HEXANEACETONE	END OVEREND	GCMS
POLYAROMATIC HYDROCARBONS (MS)	WET	HEXANEACETONE	MCROWAVE TM218.	GCMS
C8-C40(C6-C40) EZ FLASH	WET	HEXANEACETONE	SHAKER	GC-EZ
POLYAROMATIC HYDROCARBONS RAPID GC	WET	HEXANEACETONE	SHAKER	GCEZ
SEM VOLATILEORGANIC COMPOUNDS	WET	DOMACETONE	SONICATE	GCMS

#### LIQUID MATRICES EXTRACTION SUMMARY

ANALYSIS	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYS
PAHMS	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCMS
EPH .	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GC FID
EPH CWG	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GC FID
MNERALOIL	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GC FID
POB 7 CONGENERS	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCMS
POB TOTAL	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCMS
svoc	DOM	LIQUID/LIQUID SHAKE	GCMS
FREESULPHUR	DOM	SOLID PHASE EXTRACTION	HPLC
PEST OCP/OPP	DOM	LIQUID/LIQUID SHAKE	GCMS
TRIAZINE HERBS	DOM	LIQUID/LIQUID SHAKE	GCMS
PHENOLSMS	DOM	SOLID PHASE EXTRACTION	GCMS
TPH byINFRARED (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

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

Asbestos Type	Common Name						
Chrysofile	White Asbestos						
Amoste	BrownAsbestos						
Crodddite	Blue Asbestos						
Fibrous Adindite	=						
Fibrous Anthophylite	=						
Fibrous Trentalite	-						

#### 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.

# ALcontrol Laboratories

#### **CERTIFICATE OF ANALYSIS**

 SDG:
 150822-16
 Location:
 Stag Brewery
 Order Number:

 Job:
 H\_URS\_WIM-273
 Customer:
 AECOM
 Report Number:
 328751

 Client Reference:
 Attention:
 Gary Marshall
 Superseded Report:

# Appendix General

- 1. Results are expressed on a dry weight basis (dried at  $35^{\circ}$ C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICS and SVOC 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 all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 month 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 analysed 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. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible. The quantity of asbestos present is not determined unless specifically requested.
- 7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.
- 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 Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.
- 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 C5-C12 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.

# Sample Deviations

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
4	Holding time exceeded before sample received
5	Samples exceeded holding time before presevation was performed
§	Sampled on date not provided
•	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to sampled on date
&	Sample Holding Time exceeded - Late arrival of instructions.

#### **Asbestos**

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk 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).

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).

Asbestos Type	Common Name						
Chrysofile	WhiteAsbestos						
Amoste	BrownAsbestos						
Orodolite	Blue Asbestos						
Fibrous Adinoite	-						
Fibrous Anhaphylite	-						
Fibrous Tremdile	-						

#### 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.

Preliminary

# **ALcontrol Laboratories Analytical Services**

**Report No:** 

150826-58 H\_URS\_WIM-273 SDG:

Job: Client Reference:

Customer: Attention: Order No.: AECOM Gary Marshall

Location: **Stag Brewery** 

# **Asbestos Identification**

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Customer Sample	BH201A NS Z	3/9/15	Kevin Hughes	Loose fibres in soil	Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	0.70 SOLID 25/08/2015 00:00:00 27/08/2015 13:33:29 150826-58 11963169 TM048 11351888										
Customer Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH201A NS Z 1.90 - 2.00 2.00LTD 25/08/2015 00:00:00 27/08/2015 13:47:50 150826-58 11963171 TM048 11351923	3/9/15	Kevin Hughes	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Customer Sample Refe, Refe, Depth (m) Sample Type Date Sampled Date Receieved Sof Goriginal Sample Method Number	BH202A NS Z 0.80 SOLID 25/08/2015 00:00:00 27/08/2015 13:38:24 150826-58 11963170 TM048 11351909	3/9/15	Kevin Hughes	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Customer Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH207 NS Z 0.70 SOLID 25/08/2015 00:00:00 27/08/2015 14:00:07 150826-58 11963172 TM048 11351937	3/9/15	Kevin Hughes	Loose fibres in soil	Not Detected	Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Customer Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH208A NS Z 0.80 SOLID 25/08/2015 00:00:00 27/08/2015 11:24:24 150826-58 11963174 TM048 11351964	3/9/15	Kevin Hughes	Loose fibres in soil	Not Detected	Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected

Preliminary

# **ALcontrol Laboratories Analytical Services**

150826-58 H\_URS\_WIM-273 SDG: Job: Client Reference:

Location: **Stag Brewery**  Customer: Attention: Order No.: AECOM Gary Marshall

**Report No:** 

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Customer Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH209 NS Z 0.50 SOLID 25/08/2015 00:00:00 28/08/2015 12:31:33 150826-58 119631.77 TM048 11351994	3/9/15	Kevin Hughes	Loose fibres in soil	Not Detected	Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Customer Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH2A NS Z 0.50 SOLID 25/08/2015 00:00:00 28/08/2015 12:46:35 150826-58 11963166 TM048 11351834	3/9/15	Kevin Hughes	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected



Unit 7-8 Hawarden Business Park Manor Road (off Manor Lane) Hawarden Deeside

CH5 3US Tel: (01244) 528700

Fax: (01244) 528701 email: mkt@alcontrol.com Website: www.alcontrol.com

AECOM St. George's House 2nd Floor 5 St. George's Road Wimbledon Greater London SW19 4DR

Attention: Gary Marshall

Report No:

# PRELIMINARY/INTERIM REPORT

Date:	09 September 2015
Customer:	H_URS_WIM
Sample Delivery Group (SDG):	150828-41
Your Reference:	
Location:	Stag Brewery

We received 4 samples on Friday August 28, 2015 and 4 of these samples were scheduled for analysis which was completed on Wednesday September 09, 2015. 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.

329009

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.

This is a preliminary report which has not had final authorisation.

Approved By:









Preliminary

 SDG:
 150828-41

 Job:
 H\_URS\_WIM-273

 Client Reference:

Location: Customer: Attention:

Stag Brewery AECOM Gary Marshall Order Number: Report Number: Superseded Report:

329009

# **Received Sample Overview**

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
11977605	BH4A		0.90	27/08/2015
11977606	BH4A		3.50 - 4.00	27/08/2015
11977603	ВН7А		0.70	27/08/2015
11977604	ВН7А		2.50 - 3.00	27/08/2015

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

Preliminary

150828-41 SDG: Location: Stag Brewery Order Number: Job:

AECOM
Gary Marshall H\_URS\_WIM-273 Customer:

Report Number: Superseded Report:

329009

Client Reference: Attention					Mar	shall			
SOLID				_	_		_		_
Results Legend	Lab Sample l	No(s)		11077605	11977606		11977603		11977604
X Test				20	606		303		304
No Determination				Ť					
Possible	Custome	r			п		П		Ш
	Sample Refe	rence		RHAA	BH4A		ВН7А		вн7А
				$^{+}$					
	AGS Refere	nce							
				+					
	Danith (m		9	0 00	3.50 - 4.00		0.70		2.50 - 3.00
	Depth (m	1)		5	4.00		70		3.00
			400 250	250	400	400 250	60	400 250	600
			400g Tub (ALE214) 250g Amber Jar (AL	y VOC	og Tuk	)g Tub )g Aml	VOC	)g Tut )a Aml	VOC
	Containe	r	(ALE	ber Ja	(ALE	) (ALE ber Ja	(ALE	) (ALE ber Ja	(ALE
			214) r (AL	7 (AL	215)	214) r (AL	215)	214) r (AL	215)
Ammonium Soil by Titration	All	NDPs: 0 Tests: 4							
			X	1	X	X		X	
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 2							
Asbestos Quant Waste Limit	All	NDD. 0	X	+		X			
Aspestos Quant Waste Limit	All	NDPs: 0 Tests: 1	v						
Easily Liberated Sulphide	All	NDPs: 0	X						
		Tests: 4	X		X	X		X	
EPH CWG (Aliphatic) GC (S)	All	NDPs: 0							
		Tests: 4	X	X		X		X	
EPH CWG (Aromatic) GC (S)	All	NDPs: 0		Ť					Н
		Tests: 4	X	X		X		X	
GRO by GC-FID (S)	All	NDPs: 0 Tests: 4							
				X	X		X		X
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 4							
Metals in solid samples by OES	All	NDDo: 0	X		X	X		X	
include in solid samples by OLO	7-311	NDPs: 0 Tests: 4	X	×		X		X	
PAH by GCMS	All	NDPs: 0	^		<u> </u>	^		^	
		Tests: 4	X	X		X		X	H
pH	All	NDPs: 0		f					$\forall$
		Tests: 4	x		X	X		X	П
Sample description	All	NDPs: 0 Tests: 4		+					Ħ
		16515. 4	X	X		X		X	
Total Organic Carbon	All	NDPs: 0 Tests: 4							
			X	X		X		X	Ц
Total Sulphate	All	NDPs: 0 Tests: 4							
TDH CWG GC (S)	All	NDD- 0	X	X		X		X	Ц
TPH CWG GC (S)	All	NDPs: 0 Tests: 4	v	N.		v		v	H
			X	X	•	X		X	Ш



Preliminary

 SDG:
 150828-41
 Location:
 Stag Brewery
 Order Number:

 Job:
 H\_URS\_WIM-273
 Customer:
 AECOM
 Report Number:
 329009

 Client Reference:
 Attention:
 Gary Marshall
 Superseded Report:

SOLID Results Legend X Test	Lab Sample I	No(s)		1000	11077605		11977606		11977603			11977604
No Determination Possible	Custome Sample Refer			9			BH4A		BH/A			BH7A
	AGS Refere	nce										
	Depth (m	)		0			3.50 - 4.00		0.70			2.50 - 3.00
	Containe	r	250g Amber Jar (AL	400g Tub (ALE214)	250g Amber Jar (AL	400g Tub (ALE214)	60a VOC (ALE215)	250g Amber Jar (AL	400g Tub (ALE215)	250g Amber Jar (AL	400g Tub (ALE214)	60g VOC (ALE215)
VOC MS (S)	All	NDPs: 0 Tests: 4		2	<b>(</b>		X		×			X

Preliminary

150828-41 Job:

H\_URS\_WIM-273

Location: **Customer:** 

Attention:

Stag Brewery AECOM Gary Marshall Order Number: Report Number:

329009

Superseded Report:

# **Sample Descriptions**

#### **Grain Sizes**

Client Reference:

very fine	<0.0	63mm	fine	0.063mm - 0.1mm	medium	0.1mm	- 2mm	coarse	2mm - 1	0mm	very coars	e >10mm
Lab Sample	No(s)	Custom	er Sample R	ef. Depth (m)	Co	lour	Description	n (	Grain size	Inclu	sions	Inclusions 2
119776	05		BH4A	0.90	Dark	Brown	Sand	0	.1 - 2 mm	Br	ick (	Concrete/Aggre gate
119776	06		BH4A	3.50 - 4.00	Light	Brown	Sand	0	.1 - 2 mm	Sto	nes	None
119776	03		ВН7А	0.70	Dark	Brown	Sandy Clay Loam	/ 0	.1 - 2 mm	Br	ick	Stones
119776	04		ВН7А	2.50 - 3.00	Light	Brown	Sand	0	.1 - 2 mm	Sto	nes	None

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 ocurring 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.



Preliminary

150828-41 SDG: Location: Stag Brewery Order Number: Job: H\_URS\_WIM-273 Customer: AECOM

329009 Report Number: Client Reference: Attention: Gary Marshall Superseded Report:

Results Legend # ISO17025 accredited.	(	Customer Sample R	BH4A	BH4A	BH7A	BH7A	
M mCERTS accredited.							
aq Aqueous / settled sample. diss.filt Dissolved / filtered sample.		Depth (m)	0.90	3.50 - 4.00	0.70	2.50 - 3.00	
tot.unfilt Total / unfiltered sample.		Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	
* Subcontracted test.  ** % recovery of the surrogate standa	urd to	Date Sampled	27/08/2015 00:00:00	27/08/2015	27/08/2015	27/08/2015	
check the efficiency of the method.	The	Sampled Time Date Received	28/08/2015	28/08/2015	28/08/2015	28/08/2015	
results of individual compounds with samples aren't corrected for the re-		SDG Ref	150828-41	150828-41	150828-41	150828-41	
(F) Trigger breach confirmed	,	Lab Sample No.(s)	11977605	11977606	11977603	11977604	
1-5&+§@ Sample deviation (see appendix)		AGS Reference					
Component	LOD/Units						
Moisture Content Ratio (%	%	PM024	7.1	4.4	28	4.8	
of as received sample)							
Exchangeable Ammonia	<15	TM024	23.8	<15	35.3	15.8	
as NH4	mg/kg		M	М	M	M	
Organic Carbon, Total	<0.2 %	TM132	2.08	<0.2	3.51	<0.2	
			M	M	M	M	
рH	1 pH	TM133	7.92	8.01	7.67	8.01	
	Units		M	М	M	M	
Chromium, Hexavalent	<0.6	TM151	<0.6	<0.6	<0.6	<0.6	
	mg/kg		#	#	#	#	
Sulphide, Easily liberated	<15	TM180	<15	<15	<15	<15	
	mg/kg		<b>♦</b> #	<b>*</b> #	<b>♦</b> #	<b>♦</b> #	
Arsenic	<0.6	TM181	14.2	21.4	94	16.4	
	mg/kg		M	М	M	M	
Cadmium	<0.02	TM181	0.603	0.385	2.03	0.325	
	mg/kg		M	М	M	M	
Chromium	<0.9	TM181	16.9	21.5	28.7	16.5	
	mg/kg		M	М	M	M	
Copper	<1.4	TM181	31.4	6.36	82.3	4.42	
	mg/kg		M	M	M	M	
Lead	<0.7	TM181	309	8.03	468	5.77	
	mg/kg		M	М	M	М	
Mercury	<0.14	TM181	<0.14	<0.14	0.702	<0.14	
	mg/kg		M	М	M	М	
Nickel	<0.2	TM181	15.6	24.2	36	19.4	
	mg/kg		M	М	M	М	
Selenium	<1 mg/k	g TM181	<1	<1	<1	<1	
			#	#	#	#	
Zinc	<1.9	TM181	217	28.5	1640	20.8	
	mg/kg		M	М	M	М	
Sulphate, Total	<48	TM221	841	63.9	601	74.7	
	mg/kg		M	М	M	М	
		1					
		_					
		_					
		_					
		_					



Preliminary

SDG: 150828-41 Location: Stag Brewery Order Number:

Job: H\_URS\_WIM-273 Customer: AECOM Report Number: 329009
Client Reference: Attention: Gary Marshall Superseded Report:

PAH by GCMS	_	1						
Results Legend # ISO17025 accredited.		Customer Sample R	BH4A	BH4A	BH7A	BH7A		
M mCERTS accredited.  aq Aqueous / settled sample.		Donth (m)	0.00	2.50. 4.00	0.70	0.50000		
diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample.		Depth (m) Sample Type	0.90 Soil/Solid	3.50 - 4.00 Soil/Solid	0.70 Soil/Solid	2.50 - 3.00 Soil/Solid		
* Subcontracted test.		Date Sampled	27/08/2015	27/08/2015	27/08/2015	27/08/2015		
check the efficiency of the method.	The	Sampled Time Date Received	00:00:00 28/08/2015	28/08/2015	28/08/2015	28/08/2015		
results of individual compounds wi samples aren't corrected for the rec		SDG Ref	150828-41	150828-41	150828-41	150828-41		
(F) Trigger breach confirmed 1-5&+§@ Sample deviation (see appendix)		Lab Sample No.(s) AGS Reference	11977605	11977606	11977603	11977604		
Component	LOD/Unit							
Naphthalene-d8 %	%	TM218	97.2	92.6	104	92.3		
recovery**	,,,		·	02.0		52.5		
Acenaphthene-d10 %	%	TM218	98.5	92.1	104	91.4		
recovery**								
Phenanthrene-d10 %	%	TM218	99	89.7	104	89.4		
recovery**								
Chrysene-d12 %	%	TM218	93.5	79.4	94.8	80.1		
recovery**								
Perylene-d12 %	%	TM218	102	86.9	101	88.5		
recovery** Naphthalene	<9 µg/k	g TM218	56	<9	69.9	<9		
Марпиналене	<9 μg/κ	9   1101216	50 M	√9 M	09.9 M	M N		
Acenaphthylene	<12	TM218	83	<12	84.3	<12		
	μg/kg		М	M	M	M.		
Acenaphthene	<8 μg/k	g TM218	41.8	<8	11.5	<8		
			M	М	M	М		
Fluorene	<10	TM218	48.2	<10	<10	<10		
	μg/kg		M	M	M	М		
Phenanthrene	<15	TM218	1190	<15	307	<15		
Authorage	μg/kg	TN4040	M	M	M	M		
Anthracene	<16 µg/kg	TM218	317	<16	107	<16		
Fluoranthene	μg/kg <17	TM218	2500	M <17	967	<17		
ridorantiferie	μg/kg	1101210	2300 M	117 M	M	М М		
Pyrene	<15	TM218	2090	<15	971	<15		
	μg/kg		M	М	M	М		
Benz(a)anthracene	<14	TM218	1320	<14	630	<14		
	μg/kg		M	М	M	M		
Chrysene	<10	TM218	1060	<10	684	<10		
D #15	μg/kg	T14040	M	M	M	M		
Benzo(b)fluoranthene	<15	TM218	1700	<15	1930	<15		
Benzo(k)fluoranthene	μg/kg <14	TM218	609	M <14	724	<14		
Benzo(k)ndoranthene	μg/kg	1101210	M	M	M	M		
Benzo(a)pyrene	<15	TM218	1470	<15	1050	<15		
· ·	μg/kg		M	М	M	М		
Indeno(1,2,3-cd)pyrene	<18	TM218	787	<18	975	<18		
	μg/kg		M	M	M	M		
Dibenzo(a,h)anthracene	<23	TM218	216	<23	269	<23		
Benzo(g,h,i)perylene	μg/kg <24	TM218	967	<24	1160	<24		
Benzo(g,n,n)perylene	μg/kg	1101210	907 M	M	1100 M	M		
PAH, Total Detected	<118	TM218	14500	<118	9950	<118		
USEPA 16	μg/kg							
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Preliminary

Job: Client Reference:

SDG:

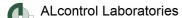
150828-41 Location: H\_URS\_WIM-273 Customer: Attention:

Stag Brewery AECOM Gary Marshall

Order Number: 329009 Report Number:

Superseded Report:

TPH CWG (S)											
Results Legend # ISO17025 accredited.		Customer Sample R	BH4A	BH4A		BH7A		ВН7А			
M mCERTS accredited.											
aq Aqueous / settled sample. diss.filt Dissolved / filtered sample.		Depth (m)	0.90	3.50 - 4.00		0.70		2.50 - 3.00			
tot.unfilt Total / unfiltered sample.  * Subcontracted test.		Sample Type Date Sampled	Soil/Solid 27/08/2015	Soil/Solid 27/08/2015		Soil/Solid 27/08/2015		Soil/Solid 27/08/2015			
** % recovery of the surrogate standa check the efficiency of the method		Sampled Time	00:00:00								
results of individual compounds w	ithin	Date Received SDG Ref	28/08/2015 150828-41	28/08/2015 150828-41		28/08/2015 150828-41		28/08/2015 150828-41			
samples aren't corrected for the re (F) Trigger breach confirmed	covery	Lab Sample No.(s)	11977605	11977606		11977603		11977604			
1-5&+§@ Sample deviation (see appendix)		AGS Reference									
Component	LOD/Unit										
GRO Surrogate %	%	TM089	74	117		28		129			
recovery**	.44	T14000	-44	-44		-44		.44			
GRO TOT (Moisture Corrected)	<44	TM089	<44	<44	.,	<44		<44			
Methyl tertiary butyl ether	μg/kg <5 μg/k	g TM089	M <5	<5	М	<5	М	<5	M		
(MTBE)	-5 μg/k	ig Tivioos	M		М		М	~5	М		
Benzene	<10	TM089	<10	<10	IVI	<10	IVI	<10	IVI		
Benzene	μg/kg	11000	М		М		М	-10	М		
Toluene	<2 μg/k	g TM089	<2	<2		<2		<2			
			М		М		М		М		
Ethylbenzene	<3 µg/k	g TM089	<3	<3		<3		<3			
·			М		М		М		М		
m,p-Xylene	<6 µg/k	g TM089	<6	<6		<6		<6			
			М		М		М		М		
o-Xylene	<3 µg/k	g TM089	<3	<3		<3		<3			
			М		М		М		M		<del></del>
sum of detected mpo	<9 µg/k	g TM089	<9	<9		<9		<9			
xylene by GC				5:							
sum of detected BTEX by	<24	TM089	<24	<24		<24		<24			
GC	μg/kg	T14000	-40	.40		-10	_	-40			
Aliphatics >C5-C6	<10	TM089	<10	<10		<10		<10			
Aliphatics >C6-C8	μg/kg <10	TM089	<10	<10	-	<10		<10			
Aliphatics >00-00	μg/kg	11009	~10	10		~10		~10			
Aliphatics >C8-C10	<10	TM089	<10	<10		<10		<10			
, inpriduce - de d'id	μg/kg	1111000	1,0	110		10		10			
Aliphatics >C10-C12	<10	TM089	<10	<10		<10		<10			
	μg/kg										
Aliphatics >C12-C16	<100	TM173	<100	<100		<100		<100			
	μg/kg										
Aliphatics >C16-C21	<100	TM173	1680	<100		<100		<100			
	μg/kg										
Aliphatics >C21-C35	<100	TM173	54500	<100		21900		<100			
	μg/kg	=111=2		100							
Aliphatics >C35-C44	<100	TM173	32400	<100		5130		<100			
Tatal Allahadaa 2040 044	μg/kg	T14470	20500	-100	-	07000		:400			
Total Aliphatics >C12-C44	<100 µg/kg	TM173	88500	<100		27000		<100			
Aromatics >EC5-EC7	μg/kg <10	TM089	<10	<10	$\dashv$	<10	_	<10			
Albinatics >LC5-LC1	μg/kg	11009	~10	10		~10		~10			
Aromatics >EC7-EC8	<10	TM089	<10	<10		<10		<10			
7	μg/kg										
Aromatics >EC8-EC10	<10	TM089	<10	<10		<10		<10			
	μg/kg			<u> </u>							<u> </u>
Aromatics >EC10-EC12	<10	TM089	<10	<10		<10		<10			
	μg/kg										
Aromatics >EC12-EC16	<100	TM173	1610	<100		1920		<100			
	μg/kg										
Aromatics >EC16-EC21	<100	TM173	17100	<100		8470		<100			
A	µg/kg	T14470	7.1700	.400		70000	_	:400			
Aromatics >EC21-EC35	<100 µg/kg	TM173	74700	<100		70000		<100			
Aromatics >EC35-EC44	μg/kg <100	TM173	37300	<100		28500	_	<100			<del>                                     </del>
, a omation > Loop-Lo44	μg/kg	1101173	37300	100		20000		- 100			
Aromatics >EC40-EC44	<100	TM173	14200	<100		10500		<100			<del>                                     </del>
	μg/kg		1.200	1.00		10000		.00			
Total Aromatics	<100	TM173	131000	<100		109000		<100			
>EC12-EC44	μg/kg		1 1 1 1								
Total Aliphatics &	<100	TM173	219000	<100		136000		<100			
Aromatics >C5-C44	μg/kg										
											<del> </del>
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Preliminary

150828-41 SDG: Location: Stag Brewery Order Number: Job: H\_URS\_WIM-273

Client Reference:

AECOM **Customer:** Attention: Gary Marshall

Report Number: Superseded Report:

329009

Client Reference:			Attention:	Ga	ry Marshall			Superseded Rep	ort:	
VOC MS (S)										
Results Legend		Customer Sample R	BH4A		BH4A		BH7A	BH7A		
# ISO17025 accredited.  M mCERTS accredited.										
aq Aqueous / settled sample. diss.filt Dissolved / filtered sample.		Depth (m)	0.90		3.50 - 4.00		0.70	2.50 - 3.00		
tot.unfilt Total / unfiltered sample.		Sample Type	Soil/Solid		Soil/Solid		Soil/Solid	Soil/Solid		
* Subcontracted test.  ** % recovery of the surrogate stand	ard to	Date Sampled Sampled Time	27/08/2015 00:00:00		27/08/2015		27/08/2015	27/08/2015		
check the efficiency of the method results of individual compounds w		Date Received	28/08/2015		28/08/2015		28/08/2015	28/08/2015		
samples aren't corrected for the re		SDG Ref	150828-41		150828-41		150828-41	150828-41		
(F) Trigger breach confirmed 1-5&+§@ Sample deviation (see appendix)		Lab Sample No.(s) AGS Reference	11977605		11977606		11977603	11977604		
Component	LOD/Uni									
Dibromofluoromethane**	%	TM116	120		103		112	124	+	
Dibromondorometriane	/0	1101110	120		103		112	124		
Toluene-d8**	%	TM116	98.1		103		99.5	110	+	
Tolderic do	/0	1111110	30.1		100		00.0	110		
4-Bromofluorobenzene**	%	TM116	69.9		94.2		74.1	106	+	
1 Bromondorobonzono	/*	'''''	00.0		01.2		,	100		
Dichlorodifluoromethane	<6 µg/l	kg TM116	<6		<6		<60	<6		
Dichiorodinacionicularic	10 μg/1	Ng   TWITTO	10	М	-0	М	M	N	1	
Chloromethane	<7 μg/l	kg TM116	<7	141	<7	171	<70	<7		
Chiorometrane	η μη	Ng   TWITTO	-1	#	-1	#	#		, l	
Vinyl Chloride	<6 µg/l	kg TM116	<6	π	<6	π	<60	<6	+	
Villy Stillottes	·o µg/			М		М	M	N	1	
Bromomethane	<10	TM116	<10	IVI	<10	IVI	<100	<10	+	
Bromomoulano	μg/kg		110	М	110	М	M	l N	1	
Chloroethane	<10	TM116	<10	141	<10	141	<100	<10		
Chicroculano	μg/kg		110	М	110	М	M	l N	1	
Trichlorofluorormethane	<6 µg/l		<6	IVI	<6	IVI	<60	<6		
monorolladionic	10 μg/1	Ng   HWITTO	-0	М	-0	М	M	N	1	
1,1-Dichloroethene	<10	TM116	<10	IVI	<10	IVI	<100	<10		
1,1 Dichioroculche	μg/kg		110	#	110	#	#		, l	
Carbon Disulphide	<7 µg/l		<7	#	<7	#	<70	<7	-	
Carbon Discipline	γ μg/i	Kg   TWITTO	-1	М	-1	М	M		1	
Dichloromethane	<10	TM116	<10	IVI	<10	IVI	<100	<10	-	
Biomorometrarie	μg/kg		110	#	110	#	#		, l	
Methyl Tertiary Butyl Ether	<10	TM116	<10	#	<10	#	<100	<10	-	
Welly Terdary Butyl Elliel	μg/kg		110	М	110	М	M	N	1	
trans-1,2-Dichloroethene	<10	TM116	<10	IVI	<10	IVI	<100	<10		
trans-1,2-bicinoroethene	μg/kg		110	М	110	М	M	N N	1	
1,1-Dichloroethane	<8 µg/l		<8	IVI	<8	IVI	<80	<8		
1,1 Biomorocatano	·o µg/			М		М	M	N	1	
cis-1,2-Dichloroethene	<6 µg/l	kg TM116	<6	141	<6	171	<60	<6		
0.0 1,2 2.00.00	o pg.		· ·	М		М	M	N	1	
2,2-Dichloropropane	<10	TM116	<10		<10		<100	<10		
	μg/kg			М		М	М		i l	
Bromochloromethane	<10	TM116	<10		<10		<100	<10		
	μg/kg			М		М	М		1	
Chloroform	<8 µg/l		<8		<8		<80	<8		
				М	_	М	М		1	
1,1,1-Trichloroethane	<7 µg/l	kg TM116	<7		<7		<70	<7		
	'	Ĭ		М		М	М	N	ı	
1,1-Dichloropropene	<10	TM116	<10		<10		<100	<10		
' ' '	μg/kg			М		М	М	N	1	
Carbontetrachloride	<10	TM116	<10		<10		<100	<10		
	μg/kg			М		М	М	N	1	
1,2-Dichloroethane	<5 µg/l	kg TM116	<5		<5		<50	<5		
ŕ		Ĭ		М		М	М	N	1	
Benzene	<9 µg/l	kg TM116	<9		<9		<90	<9		
		Ĭ		М		М	М	N	1	
Trichloroethene	<9 µg/l	kg TM116	<9		<9		<90	<9		
		Ĭ		#		#	#	#	<u> </u>	
1,2-Dichloropropane	<10	TM116	<10		<10		<100	<10		
	μg/kg			М		М	М	N	1	
Dibromomethane	<9 µg/l	kg TM116	<9		<9		<90	<9		
		- I		М		М	М	N	1	
Bromodichloromethane	<7 µg/l	kg TM116	<7		<7		<70	<7		
		1		М		М	М	N	ı [	
cis-1,3-Dichloropropene	<10	TM116	<10		<10		<100	<10		
	μg/kg			М		М	М		i	
Toluene	<7 μg/l		<7		<7		<70	<7		
		·		М		М	М	N	ı	
trans-1,3-Dichloropropene	<10	TM116	<10		<10		<100	<10		
	μg/kg									
1,1,2-Trichloroethane	<10	TM116	<10		<10		<100	<10		
	μg/kg			М		М	М	N	ı İ	

µg/kg

М

М

М



Preliminary

SDG: 150828-41 Location: Stag Brewery Order Number:

Job: H\_URS\_WIM-273 Customer: AECOM
Client Reference: Attention: Gary Marshall

Order Number: Report Number: Superseded Report:

329009

VOC MS (S)							
Results Legend # ISO17025 accredited.		Customer Sample R	BH4A	BH4A	BH7A	BH7A	
M mCERTS accredited. aq Aqueous / settled sample. diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample. * Subcontracted test.		Depth (m) Sample Type Date Sampled	0.90 Soil/Solid 27/08/2015	3.50 - 4.00 Soil/Solid 27/08/2015	0.70 Soil/Solid 27/08/2015	2.50 - 3.00 Soil/Solid 27/08/2015	
** % recovery of the surrogate standa check the efficiency of the method	. The	Sampled Time Date Received	00:00:00 28/08/2015	28/08/2015	28/08/2015	28/08/2015	
results of individual compounds w samples aren't corrected for the re		SDG Ref	150828-41	150828-41	150828-41	150828-41	
(F) Trigger breach confirmed 1-5&+§@ Sample deviation (see appendix)		Lab Sample No.(s) AGS Reference	11977605	11977606	11977603	11977604	
Component	LOD/Unit	s Method					
1,3-Dichloropropane	<7 μg/k	g TM116	<7	<7	<70	<7	
Tetrachloroethene	<5 μg/k	g TM116	<5 M	<5 M	<50 M	<5 M	
Dibromochloromethane	<10 µg/kg	TM116	<10 M	<10 M	<100 M	<10 M	
1,2-Dibromoethane	<10 µg/kg	TM116	<10 M	<10 M	<100 M	<10 M	
Chlorobenzene	<5 μg/k	g TM116	<5 M	<5 M	<50 M	95.5 M	
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116	<10 M	<10 M	<100 M	<10 M	
Ethylbenzene	<4 µg/k	g TM116	<4 M	<4 M	<40 M	<4 M	
p/m-Xylene	<10 µg/kg	TM116	<10 #	<10 #	<100 #	<10 #	
o-Xylene	<10 µg/kg	TM116	<10 M	<10 M	<100 M	<10 M	
Styrene	<10 µg/kg	TM116	<10 #	<10 #	<100 #	<10 #	
Bromoform	<10 µg/kg	TM116	<10 M	<10 M	<100 M	<10 M	
Isopropylbenzene	<5 μg/k		<5 #	<5 #	<50 #	<5 #	
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116	<10 M	<10 M	<100 M	<10 M	
1,2,3-Trichloropropane	<16 µg/kg	TM116	<16 M	<16 M	<160 M	<16 M	
Bromobenzene	<10 µg/kg	TM116	<10 M	<10 M	<100 M	<10 M	
Propylbenzene	<10 µg/kg	TM116	<10 M	<10 M	<100 M	<10 M	
2-Chlorotoluene	<9 µg/k		<9 M	<9 M	<90 M	<9 M	
1,3,5-Trimethylbenzene	<8 µg/k		<8 M	<8 M	<80 M	<8 M	
4-Chlorotoluene	<10 µg/kg	TM116	<10 M		<100 M	<10 M	
tert-Butylbenzene	<14 µg/kg	TM116	<14 M		<140 M	<14 M	
1,2,4-Trimethylbenzene	<9 μg/k		<9 #		<90 #	<9 #	
sec-Butylbenzene	<10 µg/kg	TM116	<10 M	<10 M	<100 M	<10 M	
4-Isopropyltoluene	<10 µg/kg	TM116	<10 M	<10 M	<100 M	<10 M	
1,3-Dichlorobenzene	<8 μg/k		<8 M	<8 M	<80 M	<8 M	
1,4-Dichlorobenzene	<5 μg/k		<5 M	<5 M	<50 M	<5 M	
n-Butylbenzene	<11 µg/kg	TM116	<11	<11	<110	<11	
1,2-Dichlorobenzene	<10 µg/kg	TM116	<10 M	<10 M	<100 M	<10 M	
1,2-Dibromo-3-chloroprop ane	<14 µg/kg	TM116	<14 M	<14 M	<140 M	<14 M	
Tert-amyl methyl ether	<10 µg/kg	TM116	<10 #		<100 #	<10 #	
1,2,4-Trichlorobenzene	<20 μg/kg	TM116	<20	<20	<200	<20	
Hexachlorobutadiene	<20 μg/kg	TM116	<20	<20	<200	<20	
Naphthalene	<13 µg/kg	TM116	<13 M	<13 M	<130 M	<13 M	



Gary Marshall

Preliminary

Superseded Report:

Stag Brewery 150828-41 Location: SDG: Order Number: H\_URS\_WIM-273 329009 Job: **Customer:** AECOM Report Number:

Attention:

Client Reference:

VOC MS (S) Customer Sample R BH4A BH4A ВН7А BH7A Results Legend
ISO17025 accredited.
mCERTS accredited.
Aqueous / settled sample.
Dissolved / filtered sample.
Total / unfiltered sample. aq diss.filt tot.unfilt Depth (m) 3.50 - 4.00 2.50 - 3.00 0.90 0.70 Sample Type Soil/Solid 27/08/2015 Soil/Solid 27/08/2015 Soil/Solid 27/08/2015 Soil/Solid 27/08/2015 tot.unfit 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

1-58+\$@ Sample deviation (see appendix) Date Sampled Sampled Time 00:00:00 28/08/2015 28/08/2015 28/08/2015 28/08/2015 Date Received 150828-41 11977604 150828-41 150828-41 150828-41 SDG Ref b Sample No.(s) AGS Reference 11977605 11977606 11977603 LOD/Units Component Method 1,2,3-Trichlorobenzene TM116 <20 <20 <200 <20 <20 μg/kg



Preliminary

329009

SDG: 150828-41 Location: Stag Brewery Order Number: Job:

H\_URS\_WIM-273 AECOM **Customer:** Report Number: Client Reference: Attention: Gary Marshall Superseded Report:

# **Asbestos Identification - Soil**

	,	Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH4A 0.90 SOLID 27/08/2015 00:00:00 28/08/2015 18:57:49 150828-41 11977605 TM048	3/9/15	Rebecca Rawlings	Loose fibres in soil	Detected (#)	Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH7A 0.70 SOLID 27/08/2015 00:00:00 28/08/2015 19:05:13 150828-41 11977603 TM048	4/9/15	Kevin Hughes	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

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# **Table of Results - Appendix**

Method No	Reference	Description	Wet/Dry Sample <sup>1</sup>	Surrogate Corrected
ASB_PREP				
PM001		Preparation of Samples for Metals Analysis		
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material		
TM 304				
TM024	Method 4500A & B, AWWA/APHA, 20th Ed., 1999	Determination of Exchangeable Ammonium and Ammoniacal Nitrogen as N by titration on solids		
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material		
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)		
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS		
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		
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser		
TM173	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GC-FID		
TM180	Sulphide in waters and waste waters 1991 ISBN 01 175 7186 SCA rec. 2007 (unpublished)'	The Determination Of Easily Liberated Sulphide In Soil Samples by Ion Selective Electrode Technique		
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		
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid extractable Sulphate in Soils by IRIS Emission Spectrometer		

<sup>&</sup>lt;sup>1</sup> Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.



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**Test Completion Dates** 

				-
Lab Sample No(s)	11977605	11977606	11977603	11977604
Customer Sample Ref.	BH4A	BH4A	BH7A	BH7A
•				
AGS Ref.				
Depth	0.90	3.50 - 4.00	0.70	2.50 - 3.00
Туре	SOLID	SOLID	SOLID	SOLID
Ammonium Soil by Titration	09-Sep-2015	08-Sep-2015	08-Sep-2015	08-Sep-2015
Asbestos ID in Solid Samples	04-Sep-2015		04-Sep-2015	
Easily Liberated Sulphide	08-Sep-2015	08-Sep-2015	08-Sep-2015	08-Sep-2015
EPH CWG (Aliphatic) GC (S)	04-Sep-2015	03-Sep-2015	04-Sep-2015	03-Sep-2015
EPH CWG (Aromatic) GC (S)	04-Sep-2015	03-Sep-2015	04-Sep-2015	03-Sep-2015
GRO by GC-FID (S)	04-Sep-2015	04-Sep-2015	03-Sep-2015	04-Sep-2015
Hexavalent Chromium (s)	07-Sep-2015	07-Sep-2015	07-Sep-2015	07-Sep-2015
Metals in solid samples by OES	04-Sep-2015	04-Sep-2015	04-Sep-2015	04-Sep-2015
PAH by GCMS	03-Sep-2015	03-Sep-2015	03-Sep-2015	03-Sep-2015
pH	08-Sep-2015	08-Sep-2015	08-Sep-2015	08-Sep-2015
Sample description	28-Aug-2015	29-Aug-2015	28-Aug-2015	29-Aug-2015
Total Organic Carbon	07-Sep-2015	03-Sep-2015	07-Sep-2015	03-Sep-2015
Total Sulphate	04-Sep-2015	07-Sep-2015	04-Sep-2015	07-Sep-2015
TPH CWG GC (S)	04-Sep-2015	04-Sep-2015	04-Sep-2015	04-Sep-2015
VOC MS (S)	02-Sep-2015	02-Sep-2015	03-Sep-2015	03-Sep-2015
	-			

SDG:

Job:

Client Reference:

#### PRELIMINARY/INTERIM REPORT

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# **ASSOCIATED AQC DATA**

#### Ammonium Soil by Titration

Component	Method Code	QC 1292	QC 1205
Exchangeable Ammonium as NH4	TM024	<b>86.07</b> 79.30 : 104.61	<b>98.01</b> 79.30 : 104.61

# Easily Liberated Sulphide

Component	Method Code	QC 1219	QC 1231
Easily Liberated Sulphide	TM180	<b>93.21</b> 49.14 : 123.89	<b>94.71</b> 49.14 : 123.89

# EPH CWG (Aliphatic) GC (S)

Component	Method Code	QC 1182	QC 1194
Total Aliphatics >C12-C35	TM173	<b>85.21</b> 62.50 : 112.50	<b>87.08</b> 70.80 : 111.51

# EPH CWG (Aromatic) GC (S)

Component	Method Code	QC 1182	QC 1194
Total Aromatics >EC12-EC35	TM173	<b>82.67</b> 60.62 : 126.95	<b>82.67</b> 65.21 : 121.32

# GRO by GC-FID (S)

Component	Method Code	QC 1173	QC 1290
Benzene by GC	TM089	<b>95.0</b>	<b>100.0</b>
(Moisture Corrected)		76.33 : 121.87	76.23 : 120.71
Ethylbenzene by GC (Moisture Corrected)	TM089	<b>99.0</b> 75.73 : 123.83	<b>100.5</b> 73.32 : 122.02
m & p Xylene by GC	TM089	<b>97.5</b>	<b>100.75</b>
(Moisture Corrected)		75.52 : 120.32	72.90 : 122.64
MTBE GC-FID (Moisture	TM089	<b>94.0</b>	<b>101.0</b>
Corrected)		77.89 : 119.70	72.17 : 124.81
o Xylene by GC (Moisture	TM089	<b>93.5</b>	<b>100.5</b>
Corrected)		74.15 : 124.59	71.65 : 124.40
QC	TM089	<b>99.2</b> 62.31 : 122.61	<b>105.5</b> 55.00 : 145.00
Toluene by GC (Moisture	TM089	<b>93.5</b>	<b>100.5</b>
Corrected)		77.91 : 122.33	74.60 : 120.38

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Client Reference: Attention: Gary Marshall

Report Number: 329009 Superseded Report:

# Hexavalent Chromium (s)

Component	Method Code	QC 1285
Hexavalent Chromium	TM151	<b>102.0</b> 92.20 : 106.60

# Metals in solid samples by OES

Component	Method Code	QC 1206	QC 1292
Aluminium	TM181	<b>99.23</b> 86.49 : 129.71	<b>108.46</b> 86.49 : 129.71
Antimony	TM181	<b>94.27</b> 77.50 : 122.50	<b>95.34</b> 77.50 : 122.50
Arsenic	TM181	<b>92.92</b> 82.63 : 117.37	<b>92.92</b> 82.63 : 117.37
Barium	TM181	<b>96.24</b> 79.45 : 120.55	<b>99.25</b> 79.45 : 120.55
Beryllium	TM181	<b>98.91</b> 85.92 : 121.27	<b>100.31</b> 85.92 : 121.27
Boron	TM181	<b>105.34</b> 77.41 : 143.83	<b>109.92</b> 77.41 : 143.83
Cadmium	TM181	<b>95.8</b> 81.95 : 118.05	<b>95.63</b> 81.95 : 118.05
Chromium	TM181	<b>93.33</b> 81.29 : 118.71	<b>96.47</b> 81.29 : 118.71
Cobalt	TM181	<b>95.83</b> 83.86 : 116.14	<b>96.67</b> 83.86 : 116.14
Copper	TM181	<b>97.7</b> 78.57 : 121.43	<b>98.51</b> 78.57 : 121.43
Iron	TM181	<b>95.86</b> 87.50 : 122.82	<b>101.38</b> 87.50 : 122.82
Lead	TM181	<b>93.7</b> 74.18 : 117.25	<b>92.91</b> 74.18 : 117.25
Manganese	TM181	<b>100.0</b> 82.91 : 117.09	<b>100.0</b> 82.91 : 117.09
Mercury	TM181	<b>94.3</b> 81.99 : 118.01	<b>93.47</b> 81.99 : 118.01
Molybdenum	TM181	<b>92.2</b> 81.45 : 118.55	<b>92.36</b> 81.45 : 118.55
Nickel	TM181	<b>95.93</b> 79.64 : 120.36	<b>97.67</b> 79.64 : 120.36
Phosphorus	TM181	<b>97.76</b> 81.03 : 118.97	<b>97.32</b> 81.03 : 118.97
Selenium	TM181	<b>105.3</b> 87.05 : 121.93	<b>105.47</b> 87.05 : 121.93
Strontium	TM181	<b>98.08</b> 83.64 : 116.36	<b>98.47</b> 83.64 : 116.36
Thallium	TM181	<b>87.56</b> 77.50 : 122.50	<b>91.38</b> 77.50 : 122.50
Tin	TM181	<b>92.03</b> 78.30 : 113.98	<b>92.69</b> 78.30 : 113.98
Titanium	TM181	<b>103.91</b> 71.02 : 128.98	<b>103.13</b> 71.02 : 128.98

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AECOM **Customer:** Attention: Gary Marshall

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Metals in solid samples by OES

	,	QC 1206	QC 1292
Vanadium	TM181	<b>93.53</b> 86.61 : 113.39	<b>95.0</b> 86.61 : 113.39
Zinc	TM181	<b>97.73</b> 89.82 : 114.54	<b>98.05</b> 89.82 : 114.54

# PAH by GCMS

Component	Method Code	QC 1122	QC 1106
Acenaphthene	TM218	<b>88.5</b> 78.75 : 116.25	<b>91.5</b> 78.84 : 114.36
Acenaphthylene	TM218	<b>85.0</b> 76.45 : 110.05	<b>85.5</b> 65.50 : 119.50
Anthracene	TM218	<b>87.5</b> 67.15 : 124.45	<b>91.0</b> 75.54 : 110.88
Benz(a)anthracene	TM218	<b>95.5</b> 82.00 : 127.00	<b>97.5</b> 78.02 : 127.38
Benzo(a)pyrene	TM218	<b>97.5</b> 75.60 : 124.20	<b>99.5</b> 79.21 : 128.01
Benzo(b)fluoranthene	TM218	<b>97.5</b> 81.20 : 121.77	<b>96.0</b> 86.21 : 131.42
Benzo(ghi)perylene	TM218	<b>96.5</b> 77.49 : 119.12	<b>95.0</b> 80.11 : 120.52
Benzo(k)fluoranthene	TM218	<b>94.5</b> 83.50 : 116.50	<b>97.0</b> 78.77 : 120.72
Chrysene	TM218	<b>93.0</b> 78.35 : 114.42	<b>94.5</b> 78.77 : 118.99
Dibenzo(ah)anthracene	TM218	<b>94.0</b> 77.15 : 122.45	<b>93.5</b> 76.39 : 122.63
Fluoranthene	TM218	<b>91.0</b> 79.08 : 114.40	<b>95.0</b> 77.25 : 117.75
Fluorene	TM218	<b>90.5</b> 79.03 : 113.38	<b>95.5</b> 79.28 : 117.35
Indeno(123cd)pyrene	TM218	<b>96.0</b> 75.65 : 125.15	<b>93.0</b> 78.87 : 122.50
Naphthalene	TM218	<b>92.0</b> 77.25 : 112.60	<b>93.0</b> 74.75 : 118.25
Phenanthrene	TM218	<b>90.5</b> 78.25 : 115.44	<b>95.0</b> 78.61 : 113.98
Pyrene	TM218	<b>90.0</b> 78.07 : 114.06	<b>94.0</b> 76.15 : 115.26

# рΗ

Component	Method Code	QC 1218	QC 1227
рН	TM133	100.25	100.5
		97.19 : 102.81	97.19 : 102.81

# **Total Organic Carbon**

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SDG: 150828-41 Job:

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Total Organic Carbon

Client Reference:

Component	Method Code	QC 1254	QC 1297
Total Organic Carbon	TM132	100.46	97.72
		88.82 : 111.18	89.40 : 103.09

# Total Sulphate

Component	Method Code	QC 1235	QC 1273
Total Sulphate	TM221	<b>102.27</b> 78.49 : 121.51	<b>103.79</b> 78.49 : 121.51

# VOC MS (S)

Component	Method Code	QC 1128	QC 1175	QC 1164
1,1,1,2-tetrachloroethane	TM116	<b>95.6</b> 83.24 : 124.28	<b>102.6</b> 83.24 : 124.28	<b>105.6</b> 76.60 : 121.00
1,1,1-Trichloroethane	TM116	<b>100.8</b> 81.77 : 121.07	<b>102.4</b> 81.77 : 121.07	<b>101.0</b> 77.80 : 123.40
1,1,2-Trichloroethane	TM116	<b>100.4</b> 79.24 : 112.23	<b>94.2</b> 79.24 : 112.23	<b>92.6</b> 75.40 : 119.80
1,1-Dichloroethane	TM116	<b>103.0</b> 72.58 : 116.06	<b>106.6</b> 72.58 : 116.06	<b>106.8</b> 80.84 : 124.49
1,2-Dichloroethane	TM116	<b>118.8</b> 77.50 : 122.50	<b>112.0</b> 77.50 : 122.50	<b>108.2</b> 91.00 : 135.67
1,4-Dichlorobenzene	TM116	<b>96.2</b> 73.23 : 116.39	<b>95.4</b> 73.23 : 116.39	<b>102.4</b> 80.88 : 114.60
2-Chlorotoluene	TM116	<b>85.6</b> 69.22 : 110.64	<b>86.6</b> 69.22 : 110.64	<b>97.2</b> 74.00 : 117.20
4-Chlorotoluene	TM116	<b>89.0</b> 68.57 : 106.26	<b>87.4</b> 68.57 : 106.26	<b>93.4</b> 71.20 : 113.20
Benzene	TM116	<b>103.2</b> 84.33 : 124.27	<b>106.0</b> 84.33 : 124.27	<b>99.6</b> 79.60 : 125.20
Carbon Disulphide	TM116	<b>110.4</b> 77.20 : 122.80	<b>107.4</b> 77.20 : 122.80	<b>101.4</b> 74.91 : 122.14
Carbontetrachloride	TM116	<b>98.2</b> 84.20 : 119.90	<b>102.8</b> 84.20 : 119.90	<b>101.0</b> 76.80 : 121.20
Chlorobenzene	TM116	<b>102.4</b> 85.28 : 129.96	<b>103.2</b> 85.28 : 129.96	<b>102.4</b> 83.47 : 116.82
Chloroform	TM116	<b>108.2</b> 82.73 : 119.72	<b>106.6</b> 82.73 : 119.72	<b>107.0</b> 82.00 : 128.80
Chloromethane	TM116	<b>123.4</b> 55.16 : 145.46	<b>117.2</b> 55.16 : 145.46	<b>129.8</b> 74.62 : 135.86
Cis-1,2-Dichloroethene	TM116	<b>108.4</b> 73.56 : 118.93	<b>108.4</b> 73.56 : 118.93	<b>109.8</b> 81.20 : 128.00
Dibromomethane	TM116	<b>104.4</b> 73.40 : 116.60	<b>98.0</b> 73.40 : 116.60	<b>90.8</b> 73.40 : 116.60
Dichloromethane	TM116	<b>113.2</b> 76.16 : 121.98	<b>108.2</b> 76.16 : 121.98	<b>109.2</b> 86.60 : 137.00

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VOC MS (S)

Client Reference:

	,	QC 1128	QC 1175	QC 1164
Ethylbenzene	TM116	<b>94.0</b> 80.07 : 125.98	<b>99.2</b> 80.07 : 125.98	<b>95.4</b> 73.60 : 115.60
Hexachlorobutadiene	TM116	<b>69.0</b> 30.92 : 132.28	<b>89.2</b> 30.92 : 132.28	<b>70.2</b> 33.65 : 130.56
Isopropylbenzene	TM116	<b>82.6</b> 69.27 : 125.32	<b>92.6</b> 69.27 : 125.32	<b>93.4</b> 72.52 : 117.52
Naphthalene	TM116	<b>110.0</b> 79.15 : 121.98	<b>107.4</b> 79.15 : 121.98	<b>104.4</b> 83.23 : 126.48
o-Xylene	TM116	<b>77.6</b> 75.46 : 111.52	<b>84.8</b> 75.46 : 111.52	<b>93.4</b> 69.60 : 110.40
p/m-Xylene	TM116	<b>90.2</b> 76.97 : 121.75	<b>96.6</b> 76.97 : 121.75	<b>91.4</b> 71.30 : 112.70
Sec-Butylbenzene	TM116	<b>69.6</b> 49.27 : 129.90	<b>85.8</b> 49.27 : 129.90	<b>93.2</b> 59.20 : 125.20
Tetrachloroethene	TM116	<b>102.2</b> 87.96 : 133.65	<b>110.6</b> 87.96 : 133.65	<b>105.2</b> 85.92 : 127.92
Toluene	TM116	<b>99.0</b> 79.23 : 114.58	<b>100.6</b> 79.23 : 114.58	<b>89.6</b> 76.08 : 110.17
Trichloroethene	TM116	<b>94.6</b> 84.09 : 114.24	<b>98.4</b> 84.09 : 114.24	<b>98.6</b> 78.17 : 121.37
Trichlorofluoromethane	TM116	<b>107.4</b> 76.22 : 114.82	<b>104.4</b> 76.22 : 114.82	<b>109.6</b> 83.78 : 132.82
Vinyl Chloride	TM116	<b>98.2</b> 59.68 : 118.68	<b>100.8</b> 59.68 : 118.68	<b>104.0</b> 66.81 : 138.46

The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.

The figure detailed is the percentage recovery result for the AQC.

The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

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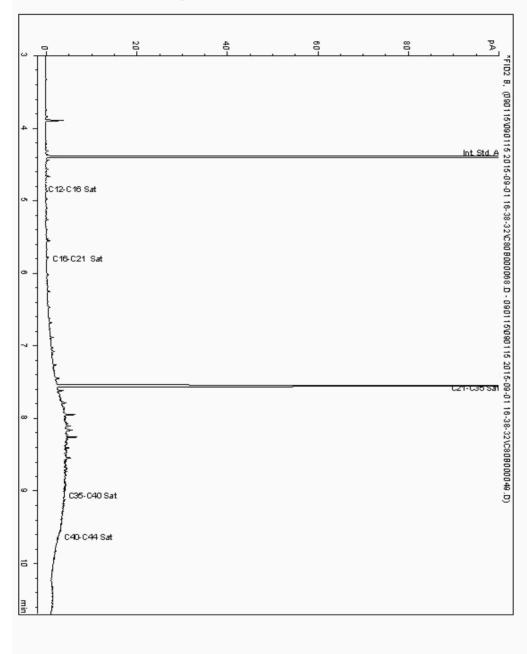
Chromatogram

> Alcontrol/Geochem Analytical Services Speciated TPH - SATS ( C12 - C40 )

Sample Identity: 11364167-

Date Acquired : 02/09/15 11:40:32

Units : ppb
Dilution :
CF : 1
Multiplier : 0.990



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 Client Reference:

Location: Sta Customer: AE Attention: Ga

Stag Brewery AECOM Gary Marshall

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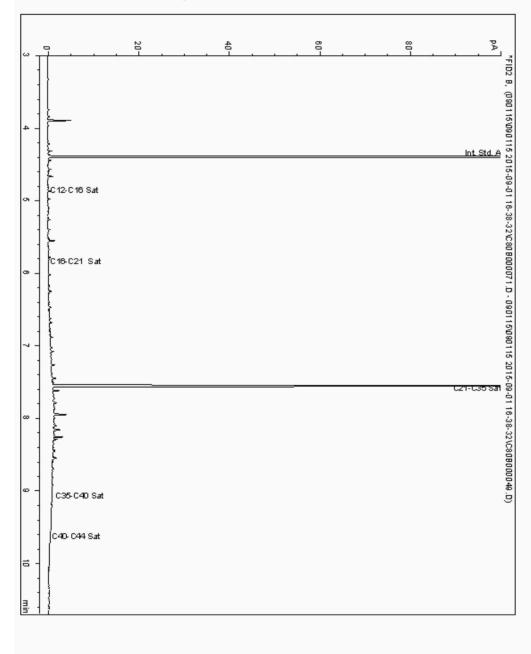
Chromatogram

> Alcontrol/Geochem Analytical Services Speciated TPH - SATS ( C12 - C40 )

Sample Identity: 11364144-

Date Acquired : 02/09/15 12:32:00

Units : ppb
Dilution :
CF : 1
Multiplier : 0.980



Preliminary

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Stag Brewery SDG: 150828-41 Location: Order Number: Job: H\_URS\_WIM-273 **Customer:** AECOM Report Number: Client Reference: Attention: Gary Marshall Superseded Report:

Chromatogram

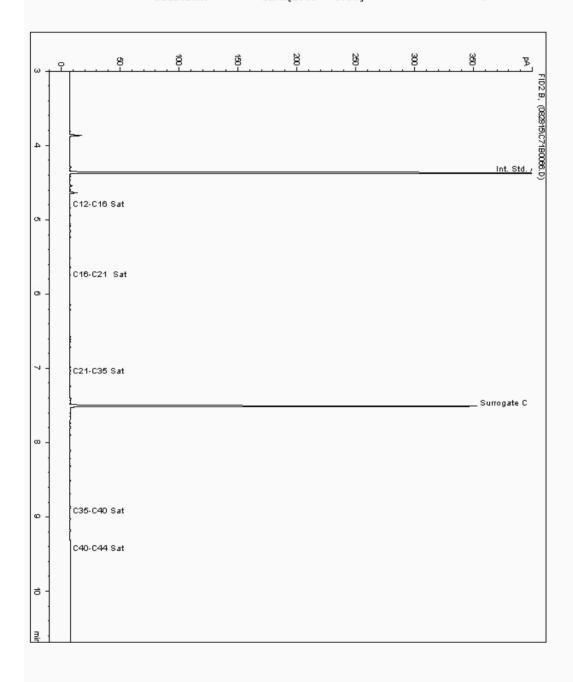
Analysis: EPH CWG (Aliphatic) GC (S) **Depth:** 2.50 - 3.00 Sample No : 11983540

Sample ID : BH7A

Alcontrol/Geochem Analytical Services Speciated TPH - AROM ( C12 - C40 )

11364157-02/09/2015 09:01:53 PM Sample Identity: Date Acquired : Units :

ppb BH7A[2.50 - 3.00] Dilution: ->



Chromatogram

Preliminary

SDG: 150828-41 Job: H\_URS\_WIM-273

Client Reference:

Location: **Customer:** Attention:

Stag Brewery AECOM Gary Marshall Order Number: Report Number: Superseded Report:

329009

Analysis: EPH CWG (Aliphatic) GC (S)

Sample No : 11983599 Sample ID :

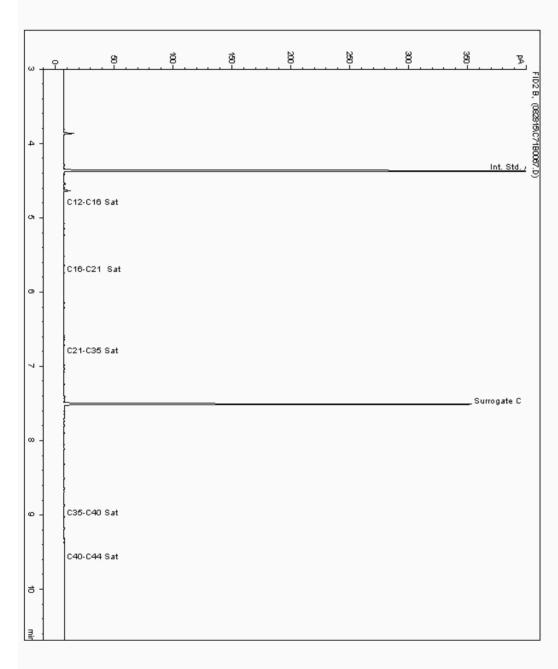
Depth: 3.50 - 4.00

Alcontrol/Geochem Analytical Services Speciated TPH - AROM ( C12 - C40 )

11364180-02/09/2015 09:21:45 PM Sample Identity: Date Acquired : Units :

ppb BH4A[3.50 - 4.00] Dilution:





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 Client Reference:
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 Gary Marshall
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Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) Sample No: 11981792 Depth: 0.90

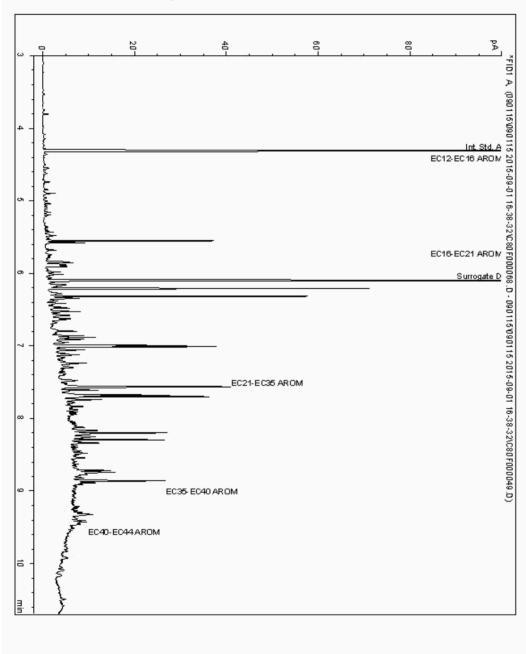
Sample ID : BH4A

Alcontrol/Geochem Analytical Services Speciated TPH - AROMS ( C12 - C44)

Sample Identity: 11364168-

Date Acquired : 02/09/15 11:40:32

Units : ppb
Dilution :
CF : 1
Multiplier : 0.990



Preliminary

Stag Brewery SDG: 150828-41 Location: Order Number: Job: H\_URS\_WIM-273 **Customer:** AECOM Report Number: Client Reference: Attention: Gary Marshall

Superseded Report:

329009

Chromatogram

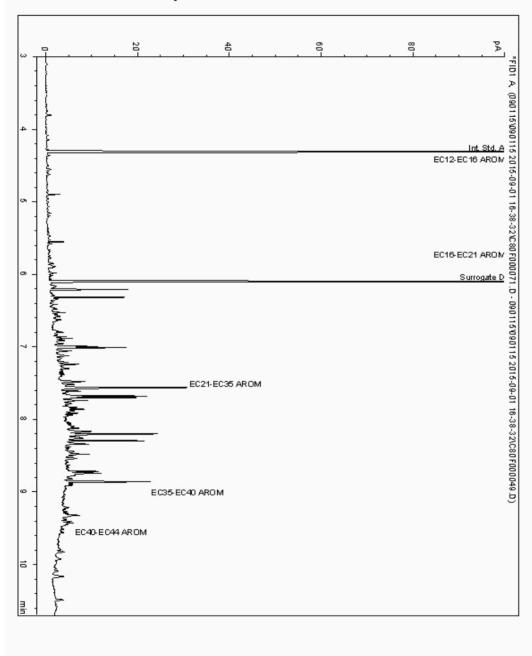
Analysis: EPH CWG (Aromatic) GC (S) Sample No : **Depth**: 0.70 11981802 Sample ID : BH7A

> Alcontrol/Geochem Analytical Services Speciated TPH - AROMS ( C12 - C44)

Sample Identity: 11364145-

02/09/15 12:32:00 Date Acquired :

Units ppb Dilution CFMultiplier : 0.980



Preliminary

329009

Stag Brewery 150828-41 Location: SDG: Order Number: Job: H\_URS\_WIM-273 **Customer:** AECOM Report Number: Client Reference:

Attention: Gary Marshall Superseded Report:

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Depth:** 2.50 - 3.00 Sample No : 11983540 Sample ID : BH7A

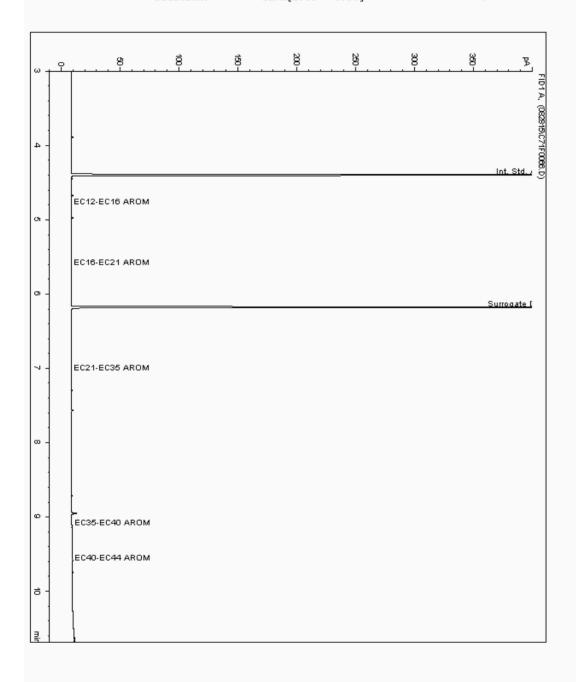
Alcontrol/Geochem Analytical Services Speciated TPH - AROM ( C12 - C40 )

Sample Identity:

11364158-02/09/2015 09:01:53 PM Date Acquired : Units :

ppb

BH7A[2.50 - 3.00] Dilution: ->



Preliminary

Stag Brewery 150828-41 Location: SDG: Order Number: Job: H\_URS\_WIM-273 **Customer:** AECOM Client Reference:

Attention: Gary Marshall Report Number: Superseded Report:

329009

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) Sample No : **Depth:** 3.50 - 4.00 11983599 Sample ID :

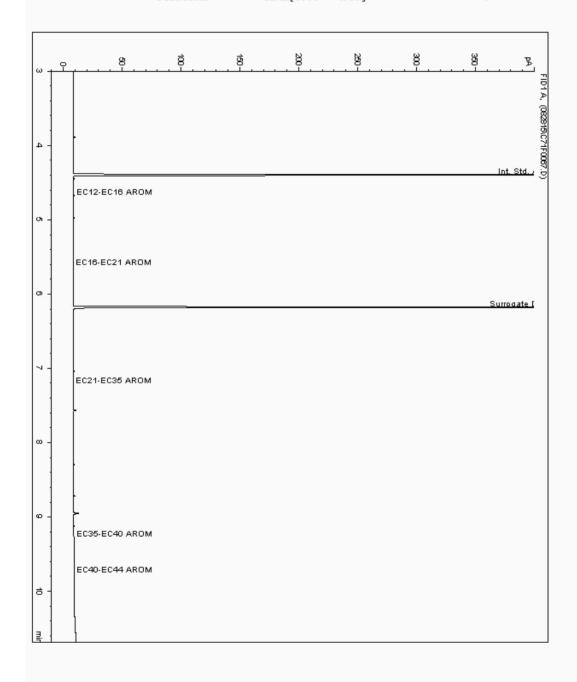
Alcontrol/Geochem Analytical Services Speciated TPH - AROM ( C12 - C40 )

Sample Identity:

11364181-02/09/2015 09:21:45 PM

Date Acquired : Units : ppb

BH4A[3.50 - 4.00] Dilution:





Preliminary

**SDG:** 150828-41 **Job:** H\_URS\_WIM-273

Analysis: GRO by GC-FID (S)

Client Reference:

Location: Customer: Attention: Stag Brewery AECOM Gary Marshall Order Number: Report Number: Superseded Report:

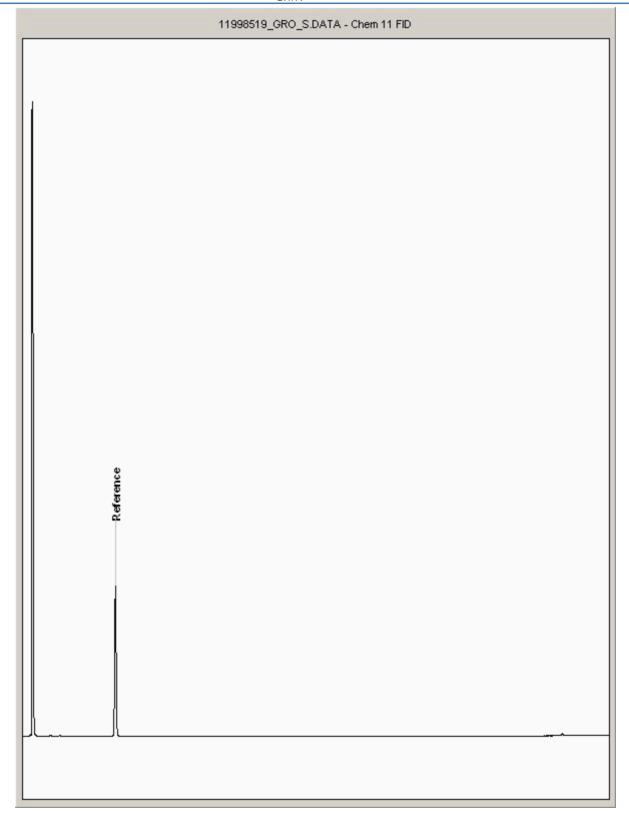
**Depth**: 0.70

329009

Chromatogram

Sample No : 11998519

Sample ID : BH7A





Preliminary

**SDG**: 150828-41 **Job**: H\_URS\_WIN

Analysis: GRO by GC-FID (S)

Client Reference:

H\_URS\_WIM-273

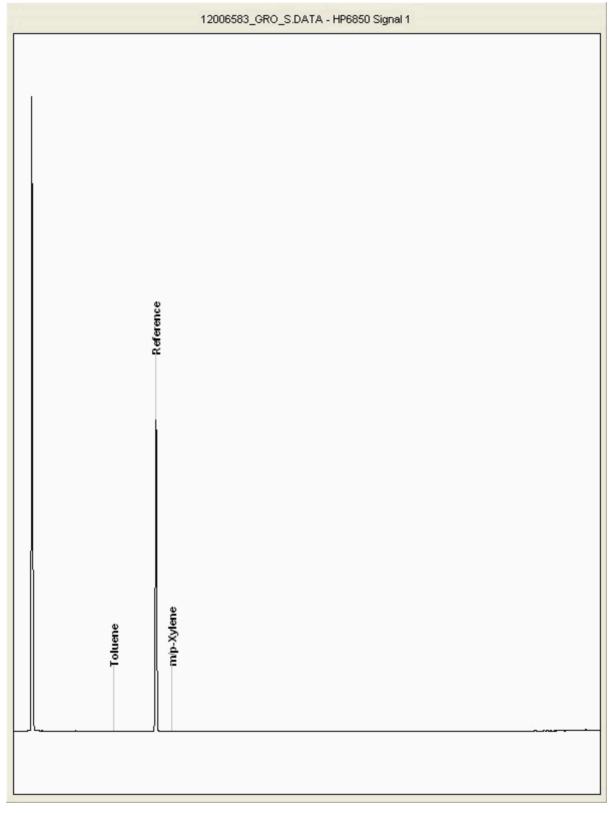
Location:Stag BreweryCustomer:AECOMAttention:Gary Marshall

Order Number: Report Number: Superseded Report:

329009

Chromatogram

Sample ID : BH4A





Preliminary

**SDG**: 150828-41 **Job**: H\_URS\_WIM-273

Client Reference:

Location: Customer: Attention: Stag Brewery AECOM Gary Marshall Order Number: Report Number: Superseded Report:

329009

Chromatogram

 Analysis:
 GRO by GC-FID (S)
 Sample No : 3.006588
 12006588
 Depth : 2.50 - 3.00

 Sample ID : 8H7A
 BH7A

12006588\_GRO\_S.DATA - HP6850 Signal 1



Preliminary

**SDG**: 150828-41 **Job**: H\_URS\_WIM-273

Analysis: GRO by GC-FID (S)

Client Reference:

Location: 1-273 Customer: Attention:

Stag Brewery AECOM Gary Marshall Order Number: Report Number: Superseded Report:

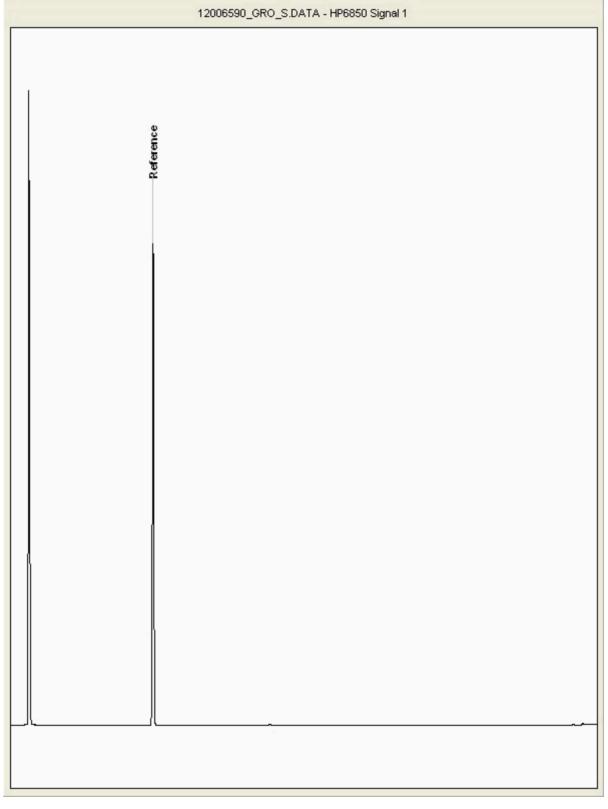
329009

Chromatogram

 Sample No :
 12006590
 Depth :
 3.50 - 4.00

 Sample ID :
 BH4A

ample ID: BH4A



150828-41 Stag Brewerv SDG Location: Order Number: H URS WIM-273 **AECOM** Job: **Customer:** Report Number: Attention: Gary Marshall Superseded Report:

Client Reference:

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 quaranteed 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
- 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
- monohydric by HPLC include phenol, cresols (2-Methylphenol, bl) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 3-Methylphenol 4-Methylphenol) 2.5 Dimethylphenol. Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).
- 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.
- 20. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample
- 21. 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
- 22. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction
- 23. 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.
- 24. 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

SOLID MATRICES EXTRACTION SUMMARY

329009

ANALYSIS	D/C OR WET	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYS
SOLVENT EXTRACTABLE MATTER	D&C	DOM	SOXTHERM	GRAVMETRIC
CYCLOHEXANE EXT. MATTER	D&C	CYCLOHEXANE	SOXTIHERM	GRAVMETRIC
THIN LAYER CHROMATOGRAPHY	D&C	DOM	SOXTHERM	IATROSCAN
ELEMENTAL SULPHUR	D&C	DOM	SOXTHERM	HPLC
PHENOLSBYGOMS	WET	DOM	SOXTHERM	GCMS
HERBICIDES	D&C	HEXANEACETONE	SOXTHERM	GCMS
PESTICIDES	D&C	HEXANEACETONE	SOXTHERM	GCMS
EPH (DRO)	D&C	HEXANEACETONE	END OVEREND	GCFD.
EPH (MINOL)	D&C	HEXANEACETONE	END OVEREND	GCFID
EPH (CLEANED UP)	D&C	HEXANEACETONE	END OVEREND	GCFD
EPH CWG BYGC	D&C	HEXANEACETONE	END OVER END	GCFD
POBITOT / POBICON	D&C	HEXANEACETONE	END OVEREND	GCMS
POLYAROMATIC HYDROCARBONS (MS)	WET	HEXANE/ACETONE	MCROWAVE TM218.	GCMS
C8-C40(C6-C40) EZ FLASH	WET	HEXANEACETONE	SHAKER	GCFZ
POLYAROMATIC HYDROCARBONS RAPID GC	WET	HEXANEACETONE	SHAKER	GC-EZ
SEM VOLATILEORGANIC COMPOUNDS	WET	DOMACETONE	SONICATE	GCMS

#### LIQUID MATRICES EXTRACTION SUMMARY

ANALYSIS	EXTRACTION SOLVENT	extraction Method	ANALYSS
PAHMS	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCMS
EPH .	HEXANE	STIRREDEXTRACTION(STIR-BAR)	€ FID
EPHCWG	HEXANE	STIRREDEXTRACTION(STIR-BAR)	€CFID
MINERALOIL	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GC FID
POB 7 CONGENERS	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCMS
POB TOTAL	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCMS
svoc	DOM	LIQUID/LIQUID SHAKE	GCMS
FREESULPHUR	DOM	SOLID PHASE EXTRACTION	HPLC
PEST OCP/OPP	DOM	LIQUID/LIQUID SHAKE	GCMS
TRIAZINE HERBS	DOM	LIQUID/LIQUID SHAKE	GCMS
PHENOLSMS	DOM	SOLID PHASE EXTRACTION	GCMS
TRH byINFRARED (IR)	TCE	LIQUID/LIQUID SHAKE	HPLC
MINERAL OIL by IR	TCE	LIQUID/LIQUID SHAKE	HPLC
GLYCOLS	NONE	DIRECT NJECTION	GCMS

Identification of Asbestos in Bulk

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

Asbestos Type	Common Name
Orrysofile	WhiteAsbestos
Amoste	BrownAsbestos
Crodddite	Blue Asbestos
Fibrous Adindite	=
Fibrous Anthophylite	-
Fibrous Trendite	-

#### 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.

# ALcontrol Laboratories

#### PRELIMINARY/INTERIM REPORT

SDG: 150828-41 Location: Stag Brewery Order Number:

Job: H\_URS\_WIM-273 Customer: AECOM Report Number: 329009
Client Reference: Attention: Gary Marshall Superseded Report:

## Appendix General

1. Results are expressed on a dry weight basis (dried at  $35^{\circ}$ C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICS and SVOC 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 all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples 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 analysed 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. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible. The quantity of asbestos present is not determined unless specifically requested.
- 7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.
- 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 Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.
- 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 C5-C12 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.

## Sample Deviations

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
4	Holding time exceeded before sample received
5	Samples exceeded holding time before presevation was performed
§	Sampled on date not provided
•	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to sampled on date
&	Sample Holding Time exceeded - Late arrival of instructions.

#### **Asbestos**

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk 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).

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).

Asbestos Type	Common Name
Chrysofile	White Asbestos
Amoste	BrownAsbestos
Orodolite	Blue Asbestos
Fibrous Adinoite	-
Fibrous Anhaphylite	-
Fibrous Tremdile	-

#### 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.



Unit 7-8 Hawarden Business Park Manor Road (off Manor Lane) Hawarden

Deeside CH5 3US Tel: (01244) 528700

Fax: (01244) 528701 email: mkt@alcontrol.com Website: www.alcontrol.com

**AECOM** St. George's House 2nd Floor 5 St. George's Road Wimbledon Greater London SW19 4DR

Attention: Gary Marshall

Report No:

## PRELIMINARY/INTERIM REPORT

Date:	09 September 2015
Customer:	H_URS_WIM
Sample Delivery Group (SDG):	150828-44
Your Reference:	
Location:	Stag Brewery
Report No:	329060

We received 4 samples on Friday August 28, 2015 and 4 of these samples were scheduled for analysis which was completed on Wednesday September 09, 2015. 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.

This is a preliminary report which has not had final authorisation.

Approved By:









Client Reference:

#### PRELIMINARY/INTERIM REPORT

Preliminary

**SDG**: 150828-44 **Job**: H\_URS\_WIM-273 Location: Customer: Attention:

Stag Brewery AECOM Gary Marshall Order Number: Report Number: Superseded Report:

329060

**Received Sample Overview** 

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
11977692	BH210		0.80	26/08/2015
11977693	BH210		2.20 - 2.80	26/08/2015
11977694	BH211		0.70	26/08/2015
11977695	BH211		2.20	26/08/2015

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

Preliminary

 SDG:
 150828-44
 Location:

 Job:
 H\_URS\_WIM-273
 Customer:

Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall

Order Number: Report Number: Superseded Report:

329060

Client Reference:		Attention	: Ga	ry Mars	shall	
SOLID						
Results Legend	Lab Sample I	No(s)	11977692	11977693	11977694	11977695
X Test	·	, ,	7692	7693	7694	7695
No Determination						
Possible	Custome Sample Refer		BH210	BH210	BH211	BH211
	AGS Refere	nce				
	Depth (m		0.80	.80	0.70	2.20
	Containe	r	60g VOC (ALE215) 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	60g VOC (ALE215) 400g Tub (ALE214) 250g Amber Jar (AL
Ammonium Soil by Titration	All	NDPs: 0 Tests: 4	X	x	X	x
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 2	X		x	
Asbestos Quant Waste Limit	All	NDPs: 0 Tests: 1	X			
Easily Liberated Sulphide	All	NDPs: 0 Tests: 4	X	X	X	X
EPH CWG (Aliphatic) GC (S)	All	NDPs: 0 Tests: 4	X	X	X	X
EPH CWG (Aromatic) GC (S)	All	NDPs: 0 Tests: 4	X	x	x	X
GRO by GC-FID (S)	All	NDPs: 0 Tests: 4	X	×	x	x
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 4	X	×	×	x
Metals in solid samples by OES	All	NDPs: 0 Tests: 4	X	x	x	X
PAH by GCMS	All	NDPs: 0 Tests: 4	X	x	x	x
рН	All	NDPs: 0 Tests: 4	X	x	x	x
Sample description	All	NDPs: 0 Tests: 4	x	x	x	x
Total Organic Carbon	All	NDPs: 0 Tests: 4	X	x	x	x
Total Sulphate	All	NDPs: 0 Tests: 4	X	x	X	x
TPH CWG GC (S)	All	NDPs: 0 Tests: 4	X	x	x	x



Preliminary

 SDG:
 150828-44
 Location:
 Stag Brewery
 Order Number:

 Job:
 H\_URS\_WIM-273
 Customer:
 AECOM
 Report Number:
 329060

 Client Reference:
 Attention:
 Gary Marshall
 Superseded Report:

							_				
SOLID Results Legend X Test	Lab Sample I	No(s)		76977611	440	1000	11077603		11977694		11977695
No Determination Possible	Custome Sample Refer	-		BHZIO		<u> </u>	DE 230		BH211		BH211
	AGS Refere	nce									
	Depth (m	)		0.80		2.20 - 2.00	3 30 3 80		0.70		2.20
	Containe	r	250g Amber Jar (AL	400g Tub (ALE214)	250g Amber Jar (AL	400g Tub (ALE214)	60g VOC (ALES15)	400g Tub (ALE214)	60g VOC (ALE215)	250g Amber Jar (AL	60g VOC (ALE215)
VOC MS (S)	All	NDPs: 0 Tests: 4		)	<u>(</u>	2	K		X		X

Preliminary

150828-44 Job:

H\_URS\_WIM-273

Stag Brewery Location: **Customer:** AECOM Attention: Gary Marshall Order Number: Report Number:

329060

Superseded Report:

## **Sample Descriptions**

#### **Grain Sizes**

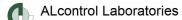
Client Reference:

very fine	<0.06	3mm	fine	0.063mm - 0.1mm	nedium	0.1mm	- 2mm	coarse	2mm - 1	2mm - 10mm		mm - 10mm very		se >10mn
Lab Sample No(s) Customer Sample Ref			ef. Depth (m)	Col	our	Description	n (	Grain size	Incl	usions	Inclusions 2			
119776	92		BH210	0.80	Dark	Brown	Sandy Clay Loam	y O	).1 - 2 mm	Sto	ones	None		
119776	7693 BH210		2.20 - 2.80	Light	Brown	Loamy San	nd 0	).1 - 2 mm	Vege	etation	Stones			
119776	694 BH211		4 BH211		BH211 0.70		Dark	Brown	Sandy Clay Loam	y C	).1 - 2 mm	Sto	ones	Vegetation
119776	11977695 BH211		BH211	2.20	Light	Brown	Loamy San	nd C	).1 - 2 mm	Sto	ones	Vegetation		

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 ocurring 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.



Preliminary

150828-44 SDG: Location: Stag Brewery Order Number: Job: H\_URS\_WIM-273

Client Reference:

Customer: AECOM Attention: Gary Marshall

Report Number: Superseded Report: 329060

Results Legend	C	ustomer Sample R	BH210	BH210	BH211	BH211	
# ISO17025 accredited.  M mCERTS accredited.							
aq Aqueous / settled sample.		Depth (m)	0.80	2.20 - 2.80	0.70	2.20	
diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample.		Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	
* Subcontracted test.		Date Sampled	26/08/2015	26/08/2015	26/08/2015	26/08/2015	
** % recovery of the surrogate standa check the efficiency of the method.		Sampled Time Date Received	28/08/2015	28/08/2015	28/08/2015	28/08/2015	
results of individual compounds w		SDG Ref	150828-44	150828-44	150828-44	150828-44	
samples aren't corrected for the re-		Lab Sample No.(s)	11977692	11977693	11977694	11977695	
1-5&+§@ Sample deviation (see appendix)		AGS Reference					
Component	LOD/Units	Method					
Moisture Content Ratio (%	%	PM024	13	6.9	12	8.9	
of as received sample)							
Exchangeable Ammonia	<15	TM024	45.6	<15	<15	<15	
as NH4	mg/kg		M	М	M	М	
Organic Carbon, Total	<0.2 %	TM132	0.358	<0.2	<0.2	<0.2	
			М	М	M	М	
pH	1 pH	TM133	9.67	8.35	10.3	8.66	
F	Units		М	М	М	М	
Chromium, Hexavalent	<0.6	TM151	<0.6	<0.6	<0.6	<0.6	
omorniam, noxavaione	mg/kg	1111101	#	#	#	#	
Sulphide, Easily liberated	<15	TM180	<15	<15	<15	<15	
Calpinac, Lasily liberated	mg/kg	1101100	<b>√</b> 13	<b>\</b> 15	<b>↓</b> #	<b>↓</b> #	
Arsenic	<0.6	TM181	23.6	20.2	11.8	19.5	
,	mg/kg	1101101	23.0 M	20.2 M	11.8 M	19.5 M	
Cadmium	<0.02	TM181	0.449	0.341	0.347	0.391	
Caumum	<0.02 mg/kg	1 101 10 1		I I			
Chromium	<0.9	TM181	M	16.6	17	M 24.1	
Chromium		1 (11 10)	25.9	I I			
Conner	mg/kg <1.4	TM181	31.2	5.29	9.01	6.47	
Copper		1101181		I I			
Land	mg/kg	T14404	M	M 5.70	M	M	
Lead	<0.7	TM181	32.7	5.73	44.5	7.8	
	mg/kg		M	M	M	M	
Mercury	<0.14	TM181	<0.14	<0.14	0.152	<0.14	
	mg/kg		M	M	M	M	
Nickel	<0.2	TM181	24.5	21.2	16.5	22.6	
	mg/kg		M	М	M	M	
Selenium	<1 mg/k@	g TM181	<1	<1	<1	<1	
			#	#	#	#	
Zinc	<1.9	TM181	43.4	21.9	41.3	28.4	
	mg/kg		M	M	M	M	
Sulphate, Total	<48	TM221	481	<48	545	88.2	
	mg/kg		M	M	M	M	
		1					
		1					
		1					
		1					
		1					
		1					



Preliminary

150828-44 SDG: Location: Stag Brewery Order Number: Job: H\_URS\_WIM-273

Client Reference:

AECOM **Customer:** Attention: Gary Marshall

Report Number: Superseded Report: 329060

Cilen	t Reference:			Attention:	Gar	y Marshall			Superseded R	eport:	
PAH b	y GCMS										
	Results Legend	(	Customer Sample R	BH210		BH210		BH211	BH211		
	ISO17025 accredited.  mCERTS accredited.										
aq	Aqueous / settled sample.		Depth (m)	0.80		2.20 - 2.80		0.70	2.20		
	Dissolved / filtered sample. Total / unfiltered sample.		Sample Type	Soil/Solid		Soil/Solid		Soil/Solid	Soil/Solid		
*	Subcontracted test.		Date Sampled	26/08/2015		26/08/2015		26/08/2015	26/08/2015		
**	% recovery of the surrogate standa check the efficiency of the method.	rd to	Sampled Time	· · · · · · · · · · · · · · · · · · ·							
	results of individual compounds wi	thin	Date Received SDG Ref	28/08/2015 150828-44		28/08/2015 150828-44		28/08/2015 150828-44	28/08/2015 150828-44		
	samples aren't corrected for the red Trigger breach confirmed	covery	Lab Sample No.(s)	11977692		11977693		11977694	11977695		
	Sample deviation (see appendix)		AGS Reference								
Compor	nent	LOD/Units									
	alene-d8 %	%	TM218	103	_	102		97.1	95.7		
recove		,,,	1.0.2.10	100		102		07.1	00.7		
	ohthene-d10 %	%	TM218	98.9		94.5	$\overline{}$	95.1	96.4		
recove		/0	1101210	90.9		34.3		93.1	30.4		
	•	0.1	=		-		$\rightarrow$				
	nthrene-d10 %	%	TM218	95.9		94.2		92.9	96.8		
recove	•						_				
	ne-d12 %	%	TM218	92.5		78.5		92	88.1		
recove	ry**										
Peryler	ne-d12 %	%	TM218	94.6		86.2		97	95.7		
recove											
Naphth	•	<9 µg/kg	g TM218	<9	_	<9		53.8	<9		
	· -	- 12,11	~   ·····= ·	ū	М		М	M		м	
Δοοοο	ohthylene	<12	TM218	<12	IVI	<12	IVI	14.8	<12	IVI	
Acena	nunyiene		1 IVI∠ I Ö	<b>~1</b> Z	.,	<b>~1</b> Z	, ,		<u> </u>		
_	1.0	μg/kg			М		М	M	_	М	
Acena	ohthene	<8 µg/k	g TM218	<8		<8		48.1	<8		
					М		М	M		М	
Fluorer	ne	<10	TM218	<10		<10		48.6	<10		
		μg/kg			М		М	М		М	
Phenai	nthrene	<15	TM218	27.7	$\neg$	<15		352	<15		
		μg/kg			М		М	M		М	
Anthra	oono	<16	TM218	<16	IVI	<16	IVI	78.8	<16	IVI	
Anuna	cene		1 1012 10	<10		<10					
		μg/kg	=		М		М	M		М	
Fluorar	nthene	<17	TM218	47		<17		389	<17		
		μg/kg			M		М	M		M	
Pyrene	<b>)</b>	<15	TM218	43.6		<15		317	<15		
		μg/kg			М		М	М		M	
Benz(a	)anthracene	<14	TM218	48.1		<14		174	<14		
`	,	μg/kg			М		М	М		М	
Chryse	ne	<10	TM218	28.5		<10	***	151	<10		
Omyou		μg/kg	12.10	20.0	М	110	М	M		м	
Ponzo/	(b)fluoranthene	<15	TM218	38.8	IVI	<15	IVI	199	<15	IVI	
Delizo(	Dilluoraritrierie		1101210	30.0		<b>~13</b>			<b>\15</b>		
	71.75 d	μg/kg	T14040	10.1	М		М	M	.4.4	М	
Benzo(	(k)fluoranthene	<14	TM218	18.1		<14		90.7	<14		
		μg/kg			М		М	M		M	
Benzo(	(a)pyrene	<15	TM218	30		<15		147	<15		
		μg/kg			М		М	M		М	
Indeno	(1,2,3-cd)pyrene	<18	TM218	<18		<18		77.5	<18		
		μg/kg			М		М	М		М	
Dibenz	o(a,h)anthracene	<23	TM218	<23		<23		<23	<23		
	. , ,	μg/kg			М		М	M		м	
Benzo/	(g,h,i)perylene	<24	TM218	28.6	191	<24	.41	105	<24		
201120(	3,. 1,1/POI \$10110	ν24 μg/kg	1101210	20.0	М		М	103 M		м	
DALI T	otal Detected	μg/kg <118	TM218	311	IVI	<118	IVI	2250	<118	IVI	
USEPA			1 IVI∠ I Ö	311		<118		2230	\$118		
USEPA	1 10	μg/kg	+		$\rightarrow$		_				
			T								
			+		$\overline{}$						
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					$\rightarrow$		_				
					[						
			+		$\overline{}$						
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			1 1								

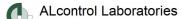


Preliminary

Stag Brewery AECOM 150828-44 SDG: Location: Order Number:

329060 Job: H\_URS\_WIM-273 Customer: Report Number: Client Reference: Attention: Gary Marshall Superseded Report:

TPH CWG (S)								
Results Legend		Customer Sample R	BH210	BH210	BH211	BH211		
# ISO17025 accredited.  M mCERTS accredited.		·						
aq Aqueous / settled sample.		Depth (m)	0.80	2.20 - 2.80	0.70	2.20		
diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample.		Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid		
* Subcontracted test.  ** % recovery of the surrogate standa	ard to	Date Sampled Sampled Time	26/08/2015	26/08/2015	26/08/2015	26/08/2015		
check the efficiency of the method.	The	Date Received	28/08/2015	28/08/2015	28/08/2015	28/08/2015		
results of individual compounds wi samples aren't corrected for the red		SDG Ref	150828-44	150828-44	150828-44	150828-44		
(F) Trigger breach confirmed 1-5&+§@ Sample deviation (see appendix)	.	Lab Sample No.(s)	11977692	11977693	11977694	11977695		
Component	LOD/Units	AGS Reference Method						
· ·			405	440	109	440		
GRO Surrogate % recovery**	%	TM089	105	119	109	110		
	.44	T14000	-44	.44	F100	-44		
GRO TOT (Moisture	<44	TM089	<44	<44	5160	<44		
Corrected)	μg/kg	=11222	M	M	M	M		
Methyl tertiary butyl ether	<5 μg/kg	g TM089	<5	<5	<5	<5		
(MTBE)			M	M	M	M		
Benzene	<10	TM089	<10	<10	<10	<10		
	μg/kg		M	M	M	M		
Toluene	<2 µg/k	g TM089	<2	<2	<2	<2		
			M	M	M	M		
Ethylbenzene	<3 μg/k	g TM089	<3	<3	<3	<3		
			M	M	M	M		
m,p-Xylene	<6 µg/k	g TM089	<6	<6	<6	<6		
			M	M	M	M		
o-Xylene	<3 µg/k	g TM089	<3	<3	<3	<3		
			M	M	M	M		
sum of detected mpo	<9 µg/k	g TM089	<9	<9	<9	<9		
xylene by GC								
sum of detected BTEX by	<24	TM089	<24	<24	<24	<24		
GC	μg/kg							
Aliphatics >C5-C6	<10	TM089	<10	<10	<10	<10		
·	μg/kg							
Aliphatics >C6-C8	<10	TM089	<10	<10	34.2	<10		
,	μg/kg					-		
Aliphatics >C8-C10	<10	TM089	<10	<10	1010	13.1		
	μg/kg							
Aliphatics >C10-C12	<10	TM089	<10	<10	2060	<10		
7.iipiidaioo * 0 10 0 12	μg/kg	1111000	-10	-10	2000	10		
Aliphatics >C12-C16	<100	TM173	<100	<100	15100	<100		
7 dipridues 7 0 12 0 10	μg/kg	1111170	1100	1100	10100	1100		
Aliphatics >C16-C21	<100	TM173	3150	<100	23200	<100		
Aliphatics >C10-C21	μg/kg	TIVITA	3130	<100	23200	100		
Aliphatics >C21-C35	μg/kg <100	TM173	18600	<100	57300	<100		
Aliphatics >C21-C55		TIVITA	16000	<b>~100</b>	37300	<b>~100</b>		
Aliabatics > C2F C44	μg/kg	TM472	1020	z100	10000	z100		
Aliphatics >C35-C44	<100	TM173	1920	<100	10600	<100		
T + 1 A II + II + 040 044	μg/kg	T14470	00700	.100	100000			
Total Aliphatics >C12-C44	<100	TM173	23700	<100	106000	<100		
Assessation : EQS EQS	μg/kg	T14000	.40	.40	.40	-40		
Aromatics >EC5-EC7	<10	TM089	<10	<10	<10	<10		
	μg/kg							
Aromatics >EC7-EC8	<10	TM089	<10	<10	<10	<10		
	μg/kg				:			
Aromatics >EC8-EC10	<10	TM089	<10	<10	671	<10		
	μg/kg							
Aromatics >EC10-EC12	<10	TM089	<10	<10	1380	<10		
	μg/kg							
Aromatics >EC12-EC16	<100	TM173	<100	<100	4150	<100		
	μg/kg							
Aromatics >EC16-EC21	<100	TM173	<100	<100	10500	<100		
	μg/kg						<u> </u>	
Aromatics >EC21-EC35	<100	TM173	4960	<100	26600	<100		
	μg/kg							
Aromatics >EC35-EC44	<100	TM173	1400	<100	10500	<100		
	μg/kg							
Aromatics >EC40-EC44	<100	TM173	<100	<100	3890	<100		
	μg/kg							
Total Aromatics	<100	TM173	6360	<100	51900	<100		
>EC12-EC44	μg/kg	710173	0000	1100	31000	100		
Total Aliphatics &	μg/kg <100	TM173	30000	<100	163000	<100		
Aromatics >C5-C44	µg/kg	1101173	30000	<b>~100</b>	103000	100		
7 TOTTIGUOS 7 00-044	μg/Ng	+						
		+						



Preliminary

150828-44 SDG: Location: Stag Brewery Job: H\_URS\_WIM-273

Customer: AECOM Attention: Gary Marshall Order Number: Report Number: Superseded Report:

329060

Client Reference:

VOC MS (S)				-			
Results Legend		Customer Sample R	BH210	BH210	BH211	BH211	
# ISO17025 accredited.  M mCERTS accredited.							
aq Aqueous / settled sample. diss.filt Dissolved / filtered sample.		Depth (m)	0.80	2.20 - 2.80	0.70	2.20	
tot.unfilt Total / unfiltered sample.		Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	
* Subcontracted test.     ** % recovery of the surrogate standar	urd to	Date Sampled	26/08/2015	26/08/2015	26/08/2015	26/08/2015	
check the efficiency of the method.	The	Sampled Time Date Received	28/08/2015	28/08/2015	28/08/2015	28/08/2015	
results of individual compounds wi samples aren't corrected for the re-		SDG Ref	150828-44	150828-44	150828-44	150828-44	
(F) Trigger breach confirmed		Lab Sample No.(s)	11977692	11977693	11977694	11977695	
1-5&+§@ Sample deviation (see appendix)	LOD/Unit	AGS Reference s Method					
Component	LOD/Unit		400	110	400	400	<del></del>
Dibromofluoromethane**	%	TM116	130	119	128	123	
	0.1	=======================================					
Toluene-d8**	%	TM116	102	111	103	111	
4-Bromofluorobenzene**	%	TM116	89.8	102	94.5	102	
Dichlorodifluoromethane	<6 µg/k	g TM116	<6	<6	<6	<6	
			M	M	M	M	
Chloromethane	<7 μg/k	g TM116	<7	<7	<7	<7	
			#	#	#	#	
Vinyl Chloride	<6 µg/k	g TM116	<6	<6	<6	<6	
			M	M	M	M	
Bromomethane	<10	TM116	<10	<10	<10	<10	
	μg/kg		M	М	M	M	
Chloroethane	<10	TM116	<10	<10	<10	<10	
	μg/kg		M	М	M	М	
Trichlorofluorormethane	<6 µg/k	g TM116	<6	<6	<6	<6	
			М	М	М	М	
1,1-Dichloroethene	<10	TM116	<10	<10	<10	<10	
	μg/kg		#	#	#	#	
Carbon Disulphide	<7 µg/k	g TM116	<7	<7	<7	<7	
i i			М	М	M	М	
Dichloromethane	<10	TM116	<10	<10	<10	<10	
	μg/kg		#	#	#	#	
Methyl Tertiary Butyl Ether	<10	TM116	<10	<10	<10	<10	
,,,,	μg/kg		М	М	М	М	
trans-1,2-Dichloroethene	<10	TM116	<10	<10	<10	<10	
,	μg/kg		M	М	М	М	
1,1-Dichloroethane	<8 μg/k	g TM116	<8	<8	<8	<8	
i, i diemeroanano	o µg/	9	М	М	М	М	
cis-1,2-Dichloroethene	<6 µg/k	g TM116	<6	<6	<6	<6	
0.0 1,2 2.00100010	o µg/	9	М	М	М	М	
2,2-Dichloropropane	<10	TM116	<10	<10	<10	<10	
2,2 3.66.6p.6pa.16	μg/kg		M	. б	M	М	
Bromochloromethane	<10	TM116	<10	<10	<10	<10	
Bromodilioration	μg/kg	1111110	М	M	M	М	
Chloroform	<8 µg/k	g TM116	<8	<8	<8	<8	
Chicionii	το μg/it	9 1111110	М	м	M	М	
1,1,1-Trichloroethane	<7 µg/k	g TM116	<7	<7	<7	<7	
., i, i i i i i i i i i i i i i i i i i	-, μg/N	9   1111110	M	_, M	M	M	
1,1-Dichloropropene	<10	TM116	<10	<10	<10	<10	<del>                                     </del>
., i Biomoropiopolie	μg/kg	1101110	M	M	~10 M	M	
Carbontetrachloride	γg/kg <10	TM116	<10	<10	<10	<10	<del>                                     </del>
Sarbontottaomonae	μg/kg	1101110	M	M	~10 M	M	
1,2-Dichloroethane	49/kg <5 μg/k	g TM116	<5	<5	<5	<5	<del>                                     </del>
1,4-DIGHIGHOEHIAHE	-υ μg/K	9 1101110	M	V5 M	<5 M	\ \ \ M	
Benzene	<9 µg/k	g TM116	<9	<9	<9	<9	<del>                                     </del>
DELIZERE	√9 μg/K	9   11/11/10			-	· ·	
Triphloroothono	Z0"	G TM440	M	M	M	M	<del>                                     </del>
Trichloroethene	<9 µg/k	g TM116	<9	<9	<9	<9	
4.0 Diablement :	.40	TN4440	#	#	#	#	<del>                                     </del>
1,2-Dichloropropane	<10	TM116	<10	<10	<10	<10	
Dibana and a the area	μg/kg	T14440	M	M	M	M	<del>                                     </del>
Dibromomethane	<9 µg/k	g TM116	<9	<9	<9	<9	
D #11			M	M	M	M	<del>                                     </del>
Bromodichloromethane	<7 µg/k	g TM116	<7	<7	<7	<7	
		=	M	M	M	M	<del>                                     </del>
cis-1,3-Dichloropropene	<10	TM116	<10	<10	<10	<10	
	μg/kg		M	M	M	M	<del>                                     </del>
Toluene	<7 µg/k	g TM116	<7	<7	<7	<7	
			M	М	M	М	
trans-1,3-Dichloropropene	<10	TM116	<10	<10	<10	<10	
	μg/kg						
1,1,2-Trichloroethane	<10	TM116	<10	<10	<10	<10	
	μg/kg		M	М	M	М	



Preliminary

329060

150828-44 Stag Brewery SDG Location: Order Number: Job: H\_URS\_WIM-273 **Customer: AECOM** Report Number:

Client Reference:

Attention: Gary Marshall Superseded Report: VOC MS (S) Customer Sample R BH210 BH210 BH211 BH211 ISO17025 accredited.

mCERTS accredited.

Aqueous / settled sampl
Dissolved / filtered sampl aq diss.filt Depth (m) 2.20 - 2.80 0.70 2.20 0.80 Sample Type Soil/Solid 26/08/2015 Soil/Solid 26/08/2015 tot.unfilt Total / unfiltered sample 26/08/2015 26/08/2015 Subcontracted test Date Sampled % 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 28/08/2015 28/08/2015 28/08/2015 28/08/2015 Date Received 150828-44 150828-44 150828-44 SDG Ref 11977692 11977693 11977694 11977695 nple No.(s) (F) Trigger breach confirmed 1-5&+§@ Sample deviation (see appendix) AGS Reference Component LOD/Units Method TM116 1,3-Dichloropropane <7 µg/kg <7 <7 <7 <7 Μ M Μ M Tetrachloroethene <5 µg/kg TM116 <5 <5 <5 <5 М M M M Dibromochloromethane <10 TM116 <10 <10 <10 <10 µg/kg M M M M 1,2-Dibromoethane <10 TM116 <10 <10 <10 <10 μg/kg Μ Μ Μ Μ <5 Chlorobenzene <5 µg/kg TM116 <5 <5 <5 Μ M Μ М 1,1,1,2-Tetrachloroethane <10 TM116 <10 <10 <10 <10 μg/kg Μ Μ Μ Ethylbenzene TM116 <4 <4 <4 <4 <4 µg/kg Μ Μ Μ Μ TM116 <10 <10 <10 p/m-Xylene <10 <10 µg/kg # # # # o-Xylene <10 TM116 <10 <10 <10 <10 µg/kg М М Μ M Styrene <10 TM116 <10 <10 <10 <10 μg/kg # Bromoform <10 TM116 <10 <10 <10 <10 μg/kg M M M M Isopropylbenzene TM116 <5 <5 <5 <5 <5 µg/kg # # # # 1,1,2,2-Tetrachloroethane <10 TM116 <10 <10 <10 <10 µg/kg Μ М Μ М 1,2,3-Trichloropropane <16 TM116 <16 <16 <16 <16 μg/kg Μ Μ Μ М TM116 <10 <10 <10 <10 Bromobenzene <10 µg/kg Μ М Μ М <10 <10 Propylbenzene TM116 <10 <10 <10 μg/kg Μ Μ М Μ 2-Chlorotoluene TM116 <9 <9 <9 <9 <9 µg/kg М М М M 1,3,5-Trimethylbenzene <8 µg/kg TM116 <8 <8 <8 <8 Μ M Μ M 4-Chlorotoluene <10 TM116 <10 <10 <10 <10 μg/kg Μ M M M tert-Butylbenzene <14 TM116 <14 <14 <14 <14 µg/kg М M M M 1,2,4-Trimethylbenzene TM116 <9 <9 <9 <9 <9 µg/kg # # # # TM116 <10 <10 <10 <10 sec-Butylbenzene <10 µg/kg Μ Μ Μ М <10 TM116 <10 <10 <10 <10 4-Isopropyltoluene µg/kg Μ Μ Μ М TM116 <8 <8 1.3-Dichlorobenzene <8 <8 <8 µg/kg Μ M Μ Μ 1,4-Dichlorobenzene TM116 <5 <5 <5 <5 µg/kg <5 M M M Μ n-Butylbenzene TM116 <11 <11 <11 <11 <11 µg/kg 1,2-Dichlorobenzene <10 TM116 <10 <10 <10 <10 µg/kg M M Μ M 1,2-Dibromo-3-chloroprop <14 TM116 <14 <14 <14 <14 μg/kg ane M M M M Tert-amyl methyl ether TM116 <10 <10 <10 <10 <10 µg/kg # # # # 1,2,4-Trichlorobenzene TM116 <20 <20 <20 <20 <20 µg/kg Hexachlorobutadiene <20 TM116 <20 <20 <20 <20 µg/kg Naphthalene <13 TM116 <13 <13 <13 <13 µg/kg Μ Μ Μ



Gary Marshall

Preliminary

329060

Superseded Report:

150828-44 SDG: Location: Stag Brewery Order Number: Job: AECOM Report Number:

H\_URS\_WIM-273 **Customer:** Client Reference: Attention:

OC MS (S)							
Results Legend	C	Customer Sample R	BH210	BH210	BH211	BH211	
# ISO17025 accredited.  M mCERTS accredited.							
aq Aqueous / settled sample. diss.filt Dissolved / filtered sample.		Depth (m)	0.80	2.20 - 2.80	0.70	2.20	
tot.unfilt Total / unfiltered sample.		Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	
* Subcontracted test.  ** % recovery of the surrogate stand	ard to	Date Sampled Sampled Time	26/08/2015	26/08/2015	26/08/2015	26/08/2015	
check the efficiency of the method	. The	Date Received	28/08/2015	28/08/2015	28/08/2015	28/08/2015	
results of individual compounds w samples aren't corrected for the re		SDG Ref	150828-44	150828-44	150828-44	150828-44	
(F) Trigger breach confirmed 1-5&+\$@ Sample deviation (see appendix)	·	Lab Sample No.(s)	11977692	11977693	11977694	11977695	
Component	LOD/Units	AGS Reference Method					
1,2,3-Trichlorobenzene	<20	TM116	<20	<20	<20	<20	
1,2,3-THCHIOLODEHZEHE	μg/kg	1101110	<b>~20</b>	~20 #	-20 #	~20 #	
	Parka		π	#	#	#	
		1			1		



Preliminary

SDG: 150828-44 Location: Stag Brewery Order Number:

H\_URS\_WIM-273 AECOM 329060 Job: **Customer:** Report Number: Client Reference: Superseded Report:

Attention: Gary Marshall

## **Asbestos Identification - Soil**

	·	Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH210 0.80 SOLID 26/08/2015 00::00:00 29/08/2015 10:30:50 150828-44 11977692 TM048	03/09/2015	Rebecca Rawlings	Loose fibres in soil	Trace (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH211 0.70 SOLID 26/08/2015 00:00:00 29/08/2015 10:17:28 150828-44 11977694 TM048	03/09/2015	Rebecca Rawlings	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Detected



Preliminary

 SDG:
 150828-44

 Job:
 H\_URS\_WIM-273

 Client Reference:

Location:Stag BreweryCustomer:AECOMAttention:Gary Marshall

Order Number:
Report Number: 33
Superseded Report:

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**Table of Results - Appendix** 

Method No	Reference	Description	Wet/Dry Sample <sup>1</sup>	Surrogate Corrected
ASB_PREP				
PM001		Preparation of Samples for Metals Analysis		
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material		
TM 304				
TM024	Method 4500A & B, AWWA/APHA, 20th Ed., 1999	Determination of Exchangeable Ammonium and Ammoniacal Nitrogen as N by titration on solids		
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material		
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)		
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS		
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		
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser		
TM173	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GC-FID		
TM180	Sulphide in waters and waste waters 1991 ISBN 01 175 7186 SCA rec. 2007 (unpublished)'	The Determination Of Easily Liberated Sulphide In Soil Samples by Ion Selective Electrode Technique		
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		
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid extractable Sulphate in Soils by IRIS Emission Spectrometer		

<sup>&</sup>lt;sup>1</sup> Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.



Preliminary

329060

 SDG:
 150828-44
 Location:
 Stag Brewery
 Order Number:

 Job:
 H\_URS\_WIM-273
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 AECOM
 Report Number:

Client Reference: Attention: Gary Marshall Superseded Report:

# **Test Completion Dates**

				-
Lab Sample No(s)	11977692	11977693	11977694	11977695
Customer Sample Ref.	BH210	BH210	BH211	BH211
•				
AGS Ref.				
Depth	0.80	2.20 - 2.80	0.70	2.20
Туре	SOLID	SOLID	SOLID	SOLID
Ammonium Soil by Titration	09-Sep-2015	08-Sep-2015	09-Sep-2015	08-Sep-2015
Asbestos ID in Solid Samples	03-Sep-2015		03-Sep-2015	
Easily Liberated Sulphide	08-Sep-2015	08-Sep-2015	08-Sep-2015	08-Sep-2015
EPH CWG (Aliphatic) GC (S)	04-Sep-2015	03-Sep-2015	04-Sep-2015	03-Sep-2015
EPH CWG (Aromatic) GC (S)	04-Sep-2015	03-Sep-2015	04-Sep-2015	03-Sep-2015
GRO by GC-FID (S)	04-Sep-2015	02-Sep-2015	07-Sep-2015	02-Sep-2015
Hexavalent Chromium (s)	07-Sep-2015	07-Sep-2015	07-Sep-2015	07-Sep-2015
Metals in solid samples by OES	04-Sep-2015	04-Sep-2015	04-Sep-2015	04-Sep-2015
PAH by GCMS	03-Sep-2015	03-Sep-2015	03-Sep-2015	03-Sep-2015
pH	08-Sep-2015	08-Sep-2015	08-Sep-2015	08-Sep-2015
Sample description	29-Aug-2015	28-Aug-2015	29-Aug-2015	28-Aug-2015
Total Organic Carbon	07-Sep-2015	07-Sep-2015	07-Sep-2015	07-Sep-2015
Total Sulphate	08-Sep-2015	04-Sep-2015	07-Sep-2015	04-Sep-2015
TPH CWG GC (S)	04-Sep-2015	03-Sep-2015	07-Sep-2015	03-Sep-2015
VOC MS (S)	02-Sep-2015	02-Sep-2015	02-Sep-2015	02-Sep-2015
	02 00p 2010	02 00p 2010	52 COP 2010	32 OOP 2010

Preliminary

SDG: 150828-44 Job:

Client Reference:

H\_URS\_WIM-273

Stag Brewery Location: **Customer:** AECOM Attention: Gary Marshall Order Number: Report Number: Superseded Report:

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# **ASSOCIATED AQC DATA**

#### Ammonium Soil by Titration

Component	Method Code	QC 1292	QC 1205
Exchangeable Ammonium as NH4	TM024	<b>86.07</b> 79.30 : 104.61	<b>98.01</b> 79.30 : 104.61

## Easily Liberated Sulphide

Component	Method Code	QC 1219	QC 1231
Easily Liberated Sulphide	TM180	<b>93.21</b> 49.14 : 123.89	<b>94.71</b> 49.14 : 123.89

## EPH CWG (Aliphatic) GC (S)

Component	Method Code	QC 1165	QC 1197
Total Aliphatics >C12-C35	TM173	<b>97.92</b> 69.19 : 111.75	<b>92.08</b> 71.67 : 116.67

## EPH CWG (Aromatic) GC (S)

Component	Method Code	QC 1197
Total Aromatics >EC12-EC35	TM173	<b>85.33</b> 59.92 : 107.95

## GRO by GC-FID (S)

Component	Method Code	QC 1100	QC 1290	QC 1294
Benzene by GC (Moisture Corrected)	TM089	<b>110.0</b> 82.67 : 117.96	<b>100.0</b> 76.23 : 120.71	<b>101.5</b> 79.00 : 121.00
Ethylbenzene by GC (Moisture Corrected)	TM089	<b>110.5</b> 80.45 : 118.61	<b>100.5</b> 73.32 : 122.02	<b>104.0</b> 79.00 : 121.00
m & p Xylene by GC (Moisture Corrected)	TM089	<b>110.0</b> 79.25 : 119.43	<b>100.75</b> 72.90 : 122.64	<b>104.25</b> 79.00 : 121.00
MTBE GC-FID (Moisture Corrected)	TM089	<b>114.5</b> 79.10 : 122.51	<b>101.0</b> 72.17 : 124.81	<b>106.5</b> 74.48 : 125.29
o Xylene by GC (Moisture Corrected)	TM089	<b>111.5</b> 80.03 : 117.19	<b>100.5</b> 71.65 : 124.40	<b>104.5</b> 79.00 : 121.00
QC	TM089	<b>102.79</b> 75.74 : 124.65	<b>105.5</b> 55.00 : 145.00	<b>98.6</b> 73.70 : 123.60
Toluene by GC (Moisture Corrected)	TM089	<b>110.5</b> 82.06 : 117.54	<b>100.5</b> 74.60 : 120.38	<b>102.5</b> 79.00 : 121.00

Preliminary

SDG: 150828-44 Job:

H\_URS\_WIM-273

Location: Stag Brewery AECOM **Customer:** 

Gary Marshall

Attention:

Order Number: Report Number: Superseded Report:

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Hexavalent Chromium (s)

Client Reference:

	Component	Method Code	QC 1299	QC 1285
ŀ	lexavalent Chromium	TM151	100.0	102.0
			92.20 : 106.60	92.20 : 106.60

## Metals in solid samples by OES

Component	Method Code	QC 1206	QC 1292
Aluminium	TM181	<b>99.23</b> 86.49 : 129.71	<b>108.46</b> 86.49 : 129.71
Antimony	TM181	<b>94.27</b> 77.50 : 122.50	<b>95.34</b> 77.50 : 122.50
Arsenic	TM181	<b>92.92</b> 82.63 : 117.37	<b>92.92</b> 82.63 : 117.37
Barium	TM181	<b>96.24</b> 79.45 : 120.55	<b>99.25</b> 79.45 : 120.55
Beryllium	TM181	<b>98.91</b> 85.92 : 121.27	<b>100.31</b> 85.92 : 121.27
Boron	TM181	<b>105.34</b> 77.41 : 143.83	<b>109.92</b> 77.41 : 143.83
Cadmium	TM181	<b>95.8</b> 81.95 : 118.05	<b>95.63</b> 81.95 : 118.05
Chromium	TM181	<b>93.33</b> 81.29 : 118.71	<b>96.47</b> 81.29 : 118.71
Cobalt	TM181	<b>95.83</b> 83.86 : 116.14	<b>96.67</b> 83.86 : 116.14
Copper	TM181	<b>97.7</b> 78.57 : 121.43	<b>98.51</b> 78.57 : 121.43
Iron	TM181	<b>95.86</b> 87.50 : 122.82	<b>101.38</b> 87.50 : 122.82
Lead	TM181	<b>93.7</b> 74.18 : 117.25	<b>92.91</b> 74.18 : 117.25
Manganese	TM181	<b>100.0</b> 82.91 : 117.09	<b>100.0</b> 82.91 : 117.09
Mercury	TM181	<b>94.3</b> 81.99 : 118.01	<b>93.47</b> 81.99 : 118.01
Molybdenum	TM181	<b>92.2</b> 81.45 : 118.55	<b>92.36</b> 81.45 : 118.55
Nickel	TM181	<b>95.93</b> 79.64 : 120.36	<b>97.67</b> 79.64 : 120.36
Phosphorus	TM181	<b>97.76</b> 81.03 : 118.97	<b>97.32</b> 81.03 : 118.97
Selenium	TM181	<b>105.3</b> 87.05 : 121.93	<b>105.47</b> 87.05 : 121.93
Strontium	TM181	<b>98.08</b> 83.64 : 116.36	<b>98.47</b> 83.64 : 116.36
Thallium	TM181	<b>87.56</b> 77.50 : 122.50	<b>91.38</b> 77.50 : 122.50
Tin	TM181	<b>92.03</b> 78.30 : 113.98	<b>92.69</b> 78.30 : 113.98
Titanium	TM181	<b>103.91</b> 71.02 : 128.98	<b>103.13</b> 71.02 : 128.98

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150828-44 SDG: Location: Stag Brewery Order Number: H\_URS\_WIM-273 Job:

AECOM **Customer:** Attention: Gary Marshall

329060 Report Number: Superseded Report:

Metals in solid samples by OES

		QC 1206	QC 1292
Vanadium	TM181	<b>93.53</b> 86.61 : 113.39	<b>95.0</b> 86.61 : 113.39
Zinc	TM181	<b>97.73</b> 89.82 : 114.54	<b>98.05</b> 89.82 : 114.54

## PAH by GCMS

Client Reference:

Component	Method Code	QC 1134	QC 1154	QC 1106
Acenaphthene	TM218	<b>88.5</b> 78.41 : 114.87	<b>92.0</b> 77.34 : 118.20	<b>91.5</b> 78.84 : 114.36
Acenaphthylene	TM218	<b>80.5</b> 72.38 : 111.60	<b>86.5</b> 62.65 : 116.35	<b>85.5</b> 65.50 : 119.50
Anthracene	TM218	<b>89.5</b> 72.78 : 117.53	<b>89.5</b> 73.54 : 114.21	<b>91.0</b> 75.54 : 110.88
Benz(a)anthracene	TM218	<b>88.0</b> 79.50 : 130.50	<b>102.5</b> 74.99 : 132.24	<b>97.5</b> 78.02 : 127.38
Benzo(a)pyrene	TM218	<b>91.0</b> 79.50 : 130.50	<b>102.0</b> 80.75 : 127.25	<b>99.5</b> 79.21 : 128.01
Benzo(b)fluoranthene	TM218	<b>87.5</b> 78.10 : 127.57	<b>99.5</b> 75.84 : 127.12	<b>96.0</b> 86.21 : 131.42
Benzo(ghi)perylene	TM218	<b>95.0</b> 81.67 : 122.61	<b>97.0</b> 74.74 : 124.03	<b>95.0</b> 80.11 : 120.52
Benzo(k)fluoranthene	TM218	<b>97.0</b> 81.20 : 118.10	<b>98.0</b> 80.00 : 125.00	<b>97.0</b> 78.77 : 120.72
Chrysene	TM218	<b>94.5</b> 80.60 : 117.80	<b>98.0</b> 77.24 : 120.84	<b>94.5</b> 78.77 : 118.99
Dibenzo(ah)anthracene	TM218	<b>104.0</b> 77.93 : 124.42	<b>96.5</b> 76.00 : 122.50	<b>93.5</b> 76.39 : 122.63
Fluoranthene	TM218	<b>91.5</b> 80.39 : 114.39	<b>92.5</b> 78.51 : 118.75	<b>95.0</b> 77.25 : 117.75
Fluorene	TM218	<b>92.0</b> 79.50 : 118.50	<b>93.0</b> 76.95 : 117.18	<b>95.5</b> 79.28 : 117.35
Indeno(123cd)pyrene	TM218	<b>100.0</b> 80.30 : 128.30	<b>98.5</b> 75.34 : 127.46	<b>93.0</b> 78.87 : 122.50
Naphthalene	TM218	<b>97.5</b> 82.25 : 118.25	<b>95.0</b> 76.24 : 112.91	<b>93.0</b> 74.75 : 118.25
Phenanthrene	TM218	<b>95.5</b> 71.53 : 114.48	<b>93.5</b> 76.49 : 119.30	<b>95.0</b> 78.61 : 113.98
Pyrene	TM218	<b>91.5</b> 79.12 : 114.39	<b>91.0</b> 78.25 : 118.17	<b>94.0</b> 76.15 : 115.26

рΗ

Component	Method Code	QC 1218	QC 1227
рН	TM133	<b>100.25</b> 97.19 : 102.81	<b>100.5</b> 97.19 : 102.81

## **Total Organic Carbon**

Preliminary

 SDG:
 150828-44
 Location:
 Stag Brewery
 Order Number:

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 Customer:
 AECOM
 Report Number

Job: H\_URS\_WIM-273 Customer: AECOM
Client Reference: Attention: Gary Marshall

Report Number: 329060 Superseded Report:

## **Total Organic Carbon**

Component	Method Code	QC 1245	QC 1297
Total Organic Carbon	TM132	<b>98.17</b> 89.40 : 103.09	<b>97.72</b> 89.40 : 103.09

## Total Sulphate

Component	Method Code	QC 1235	QC 1273	QC 1292
Total Sulphate	TM221	<b>102.27</b> 78.49 : 121.51	<b>103.79</b> 78.49 : 121.51	<b>99.24</b> 78.49 : 121.51

## VOC MS (S)

Component	Method Code	QC 1172	QC 1128
1,1,1,2-tetrachloroethane	TM116	<b>101.0</b> 76.60 : 121.00	<b>95.6</b> 83.24 : 124.28
1,1,1-Trichloroethane	TM116	<b>96.2</b> 77.80 : 123.40	<b>100.8</b> 81.77 : 121.07
1,1,2-Trichloroethane	TM116	<b>90.6</b> 75.40 : 119.80	<b>100.4</b> 79.24 : 112.23
1,1-Dichloroethane	TM116	<b>99.8</b> 80.84 : 124.49	<b>103.0</b> 72.58 : 116.06
1,2-Dichloroethane	TM116	<b>104.8</b> 91.00 : 135.67	<b>118.8</b> 77.50 : 122.50
1,4-Dichlorobenzene	TM116	<b>105.6</b> 80.88 : 114.60	<b>96.2</b> 73.23 : 116.39
2-Chlorotoluene	TM116	<b>94.2</b> 74.00 : 117.20	<b>85.6</b> 69.22 : 110.64
4-Chlorotoluene	TM116	<b>90.2</b> 71.20 : 113.20	<b>89.0</b> 68.57 : 106.26
Benzene	TM116	<b>97.6</b> 79.60 : 125.20	<b>103.2</b> 84.33 : 124.27
Carbon Disulphide	TM116	<b>99.4</b> 74.91 : 122.14	<b>110.4</b> 77.20 : 122.80
Carbontetrachloride	TM116	<b>100.2</b> 76.80 : 121.20	<b>98.2</b> 84.20 : 119.90
Chlorobenzene	TM116	<b>102.0</b> 83.47 : 116.82	<b>102.4</b> 85.28 : 129.96
Chloroform	TM116	<b>98.4</b> 82.00 : 128.80	<b>108.2</b> 82.73 : 119.72
Chloromethane	TM116	<b>117.2</b> 74.62 : 135.86	<b>123.4</b> 55.16 : 145.46
Cis-1,2-Dichloroethene	TM116	<b>103.6</b> 81.20 : 128.00	<b>108.4</b> 73.56 : 118.93
Dibromomethane	TM116	<b>88.4</b> 73.40 : 116.60	<b>104.4</b> 73.40 : 116.60
Dichloromethane	TM116	<b>101.6</b> 86.60 : 137.00	<b>113.2</b> 76.16 : 121.98

Preliminary

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 SDG:
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 Stag Brewery
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 Report Number

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 Report Number:

 Client Reference:
 Attention:
 Gary Marshall
 Superseded Report:

VOC MS (S)

		QC 1172	QC 1128
Ethylbenzene	TM116	<b>96.6</b> 73.60 : 115.60	<b>94.0</b> 80.07 : 125.98
Harrist Lander de Pare	TM116		00.07 . 123.90
Hexachlorobutadiene	1M116	<b>114.0</b> 33.65 : 130.56	<b>69.0</b> 30.92 : 132.28
Isopropylbenzene	TM116	92.0	82.6
		72.52 : 117.52	69.27 : 125.32
Naphthalene	TM116	107.0	110.0
		83.23 : 126.48	79.15 : 121.98
o-Xylene	TM116	92.4	77.6
		69.60 : 110.40	75.46 : 111.52
p/m-Xylene	TM116	94.1	90.2
		71.30 : 112.70	76.97 : 121.75
Sec-Butylbenzene	TM116	116.4	69.6
		59.20 : 125.20	49.27 : 129.90
Tetrachloroethene	TM116	104.6	102.2
		85.92 : 127.92	87.96 : 133.65
Toluene	TM116	90.2	99.0
		76.08 : 110.17	79.23 : 114.58
Trichloroethene	TM116	96.4	94.6
		78.17 : 121.37	84.09 : 114.24
Trichlorofluoromethane	TM116	102.2	107.4
		83.78 : 132.82	76.22 : 114.82
Vinyl Chloride	TM116	94.6	98.2
		66.81 : 138.46	59.68 : 118.68

The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.

The figure detailed is the percentage recovery result for the AQC.

The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

Analysis: EPH CWG (Aliphatic) GC (S)

### PRELIMINARY/INTERIM REPORT

Preliminary

150828-44 Stag Brewery SDG: Location: Job: H\_URS\_WIM-273 **Customer:** AECOM Client Reference: Attention: Gary Marshall

Order Number: Report Number: Superseded Report:

->

329060

Chromatogram

Sample No : **Depth:** 2.20 - 2.80 11980752 Sample ID : BH210

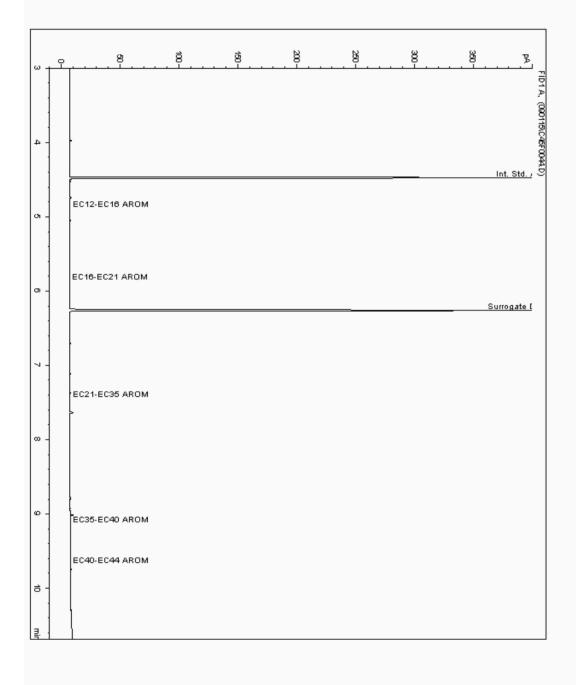
Alcontrol/Geochem Analytical Services Speciated TPH - AROM ( C12 - C40 )

Sample Identity:

11364106-02/09/15 06:29:40 PM Date Acquired : Units :

ppb

BH210[2.20 - 2.80] Dilution:



Preliminary

SDG: 150828-44 Job: H\_URS\_WIM-273

Client Reference:

Location: **Customer:** Attention:

Stag Brewery AECOM Gary Marshall

Order Number: Report Number: Superseded Report:

329060

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) Sample No : **Depth**: 2.20 11980788 Sample ID :

Alcontrol/Geochem Analytical Services Speciated TPH - AROM ( C12 - C40 )

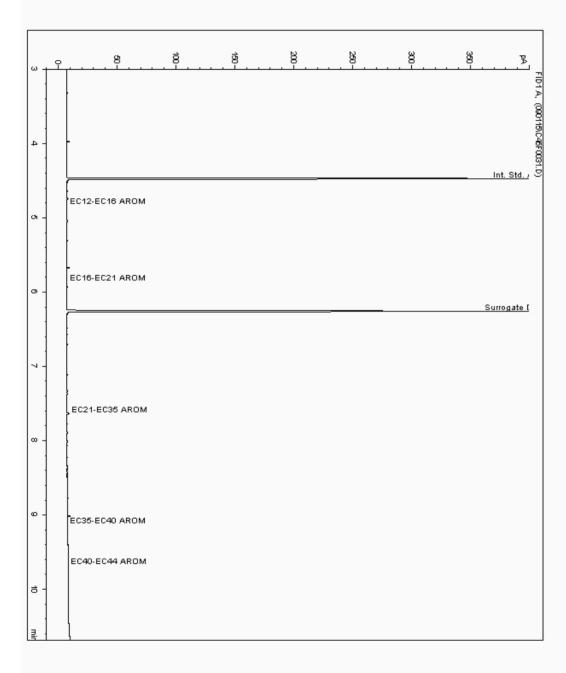
Sample Identity:

11364130-02/09/15 02:28:55 PM

Date Acquired : Units : ppb

Dilution: BH211[2.20]

->



Preliminary

SDG: 150828-44 Job:

Client Reference:

H\_URS\_WIM-273

Stag Brewery Location: **Customer:** AECOM Attention: Gary Marshall

Order Number: Report Number: Superseded Report:

329060

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) Sample No : **Depth**: 0.80 11982958 Sample ID : BH210

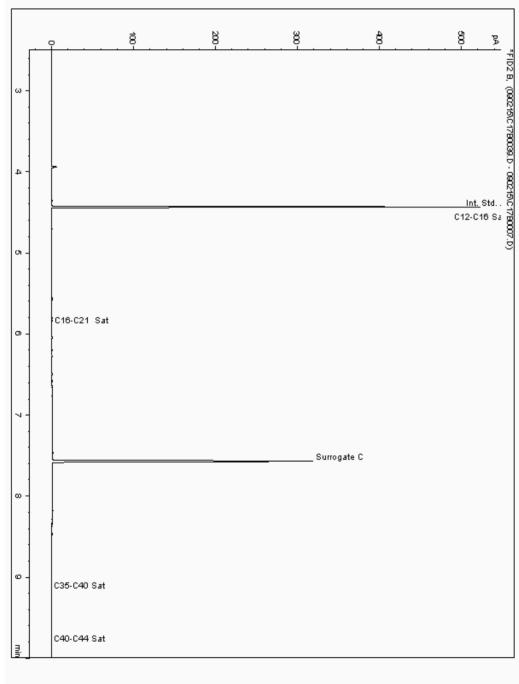
Alcontrol/Geochem Analytical Services Speciated TPH - SATS ( Cl2 - C40 )

11364091-

Sample Identity: Date Acquired : 03/09/2015 00:07:46 PM

Units ppb Dilution

CF 0.980 Multiplier



Chromatogram

Preliminary

SDG: 150828-44 Job: H\_URS\_WIM-273 Location: **Customer:** Attention:

Stag Brewery AECOM Gary Marshall

Order Number: Report Number: Superseded Report:

329060

Client Reference:

Analysis: EPH CWG (Aliphatic) GC (S)

Sample No : 11983028 Sample ID :

**Depth**: 0.70

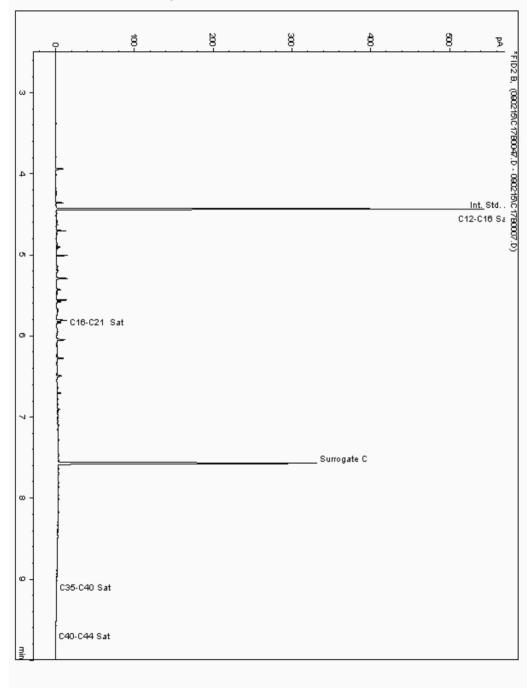
Alcontrol/Geochem Analytical Services Speciated TPH - SATS ( Cl2 - C40 )

11364117-

Sample Identity: Date Acquired : 03/09/2015 02:19:12 PM

Units ppb Dilution

CF 0.960 Multiplier



Preliminary

329060

SDG: 150828-44 Location: Stag Brewery Order Number: Job: H\_URS\_WIM-273 **Customer:** AECOM Report Number: Client Reference: Attention: Gary Marshall Superseded Report:

Chromatogram

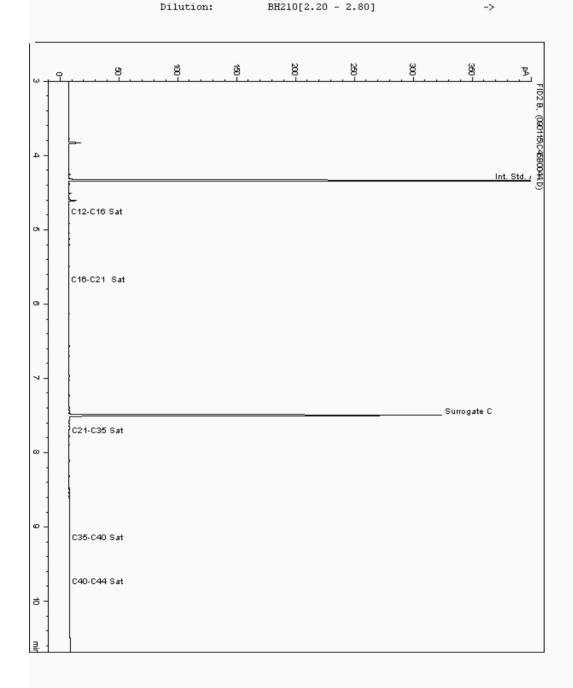
Analysis: EPH CWG (Aromatic) GC (S) **Depth:** 2.20 - 2.80 Sample No : 11980752

Sample ID : BH210

Alcontrol/Geochem Analytical Services Speciated TPH - SATS ( Cl2 - C40 )

11364107-02/09/15 06:29:40 PM Sample Identity: Date Acquired : Units :

ppb BH210[2.20 - 2.80] Dilution:



Preliminary

SDG: 150828-44 H\_URS\_WIM-273 Job:

Location: **Customer:** Attention:

Stag Brewery AECOM Gary Marshall Order Number: Report Number: Superseded Report:

329060

Client Reference:

Analysis: EPH CWG (Aromatic) GC (S)

Chromatogram Sample No : 11980788

Sample ID :

**Depth**: 2.20

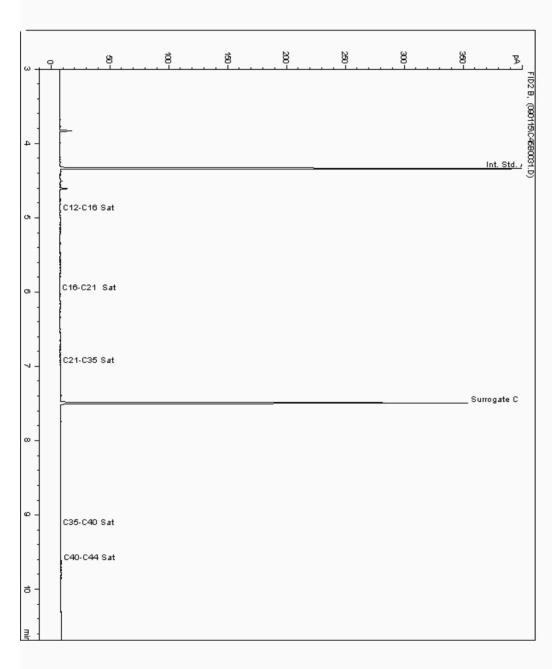
Alcontrol/Geochem Analytical Services Speciated TPH - SATS ( Cl2 - C40 )

11364131-02/09/15 02:28:55 PM

Sample Identity: Date Acquired : Units :

ppb BH211[2.20] Dilution:

->



Preliminary

329060

150828-44 Location: Stag Brewery SDG: Order Number: Job: H\_URS\_WIM-273 **Customer:** AECOM Report Number: Client Reference:

Attention: Gary Marshall Superseded Report:

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) Sample No : **Depth**: 0.80 11982958 Sample ID :

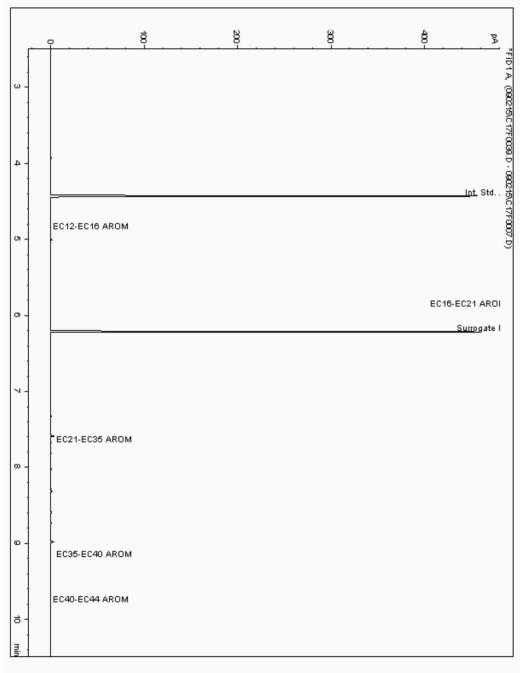
BH210 Alcontrol/Geochem Analytical Services Speciated TPH - AROM ( Cl2 - C40 )

Sample Identity: 11364092-Date Acquired : 03/09/2015 00:07:46 PM

Units ppb Dilution

CF

0.980 Multiplier



Preliminary

329060

150828-44 Stag Brewery SDG: Location: Order Number: Job: H\_URS\_WIM-273 **Customer:** AECOM Report Number: Client Reference: Attention:

Gary Marshall Superseded Report:

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) Sample No : **Depth**: 0.70 11983028 Sample ID :

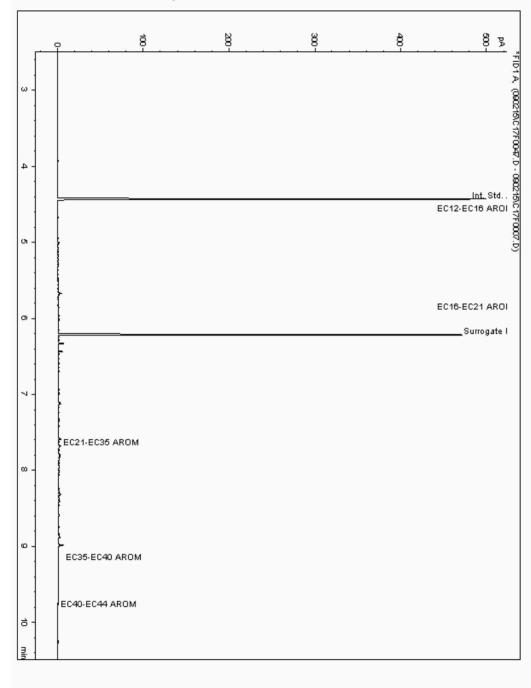
Alcontrol/Geochem Analytical Services Speciated TPH - AROM ( Cl2 - C40 )

Sample Identity: 11364118-

Date Acquired : 03/09/2015 02:19:11 PM

Units ppb Dilution

CF 0.960 Multiplier





Preliminary

**SDG:** 150828-44 **Job:** H\_URS\_WIM-

Analysis: GRO by GC-FID (S)

Client Reference:

H\_URS\_WIM-273 Cu

Location:Stag BreweryCustomer:AECOMAttention:Gary Marshall

Order Number: Report Number: Superseded Report:

329060

Chromatogram

 Sample No :
 11991345
 Depth :
 2.20 - 2.80

 Sample ID :
 BH210

BH210 11991345\_GRO\_S.DATA - Chem 67 FID Reference



Preliminary

150828-44 SDG: Job:

Analysis: GRO by GC-FID (S)

Client Reference:

H\_URS\_WIM-273

Location: Stag Brewery AECOM **Customer:** Attention: Gary Marshall Order Number: Superseded Report:

329060

Chromatogram

**Depth**: 2.20 Sample No : 11991356 Sample ID : BH211

11991356\_GRO\_S.DATA - Chem 67 FID



Preliminary

**SDG**: 150828-44 **Job**: H\_URS\_WII

Client Reference:

H\_URS\_WIM-273

Location: S Customer: A Attention: S

Stag Brewery AECOM Gary Marshall Order Number: Report Number: Superseded Report:

329060

Chromatogram

Analysis: GRO by GC-FID (S) Sample No: 12006569 Sample ID: 12006569 BH210

12006569\_GRO\_S.DATA - HP6850 Signal 1

Analysis: GRO by GC-FID (S)

Job:

Client Reference:

PRELIMINARY/INTERIM REPORT

Preliminary

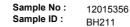
SDG: 150828-44 H\_URS\_WIM-273

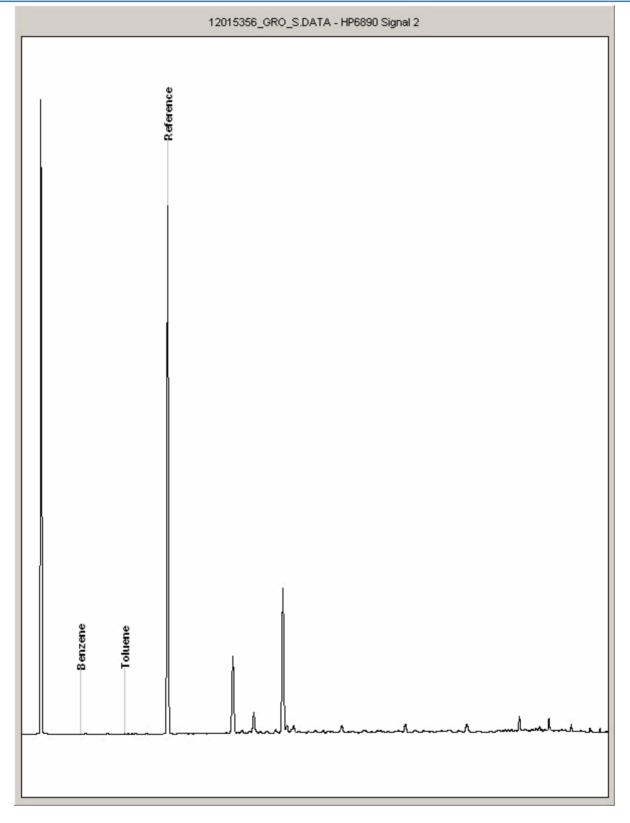
Location: Stag Brewery AECOM **Customer:** Attention: Gary Marshall Order Number: Superseded Report:

329060

Chromatogram

**Depth**: 0.70





#### PRELIMINARY/INTERIM REPORT

 150828-44
 Location:
 Stag Brewery
 Order Number:

 H\_URS\_WIM-273
 Customer:
 AECOM
 Report Number:

 Attention:
 Gary Marshall
 Superseded Report:

Client Reference:

SDG

Job:

**Appendix** 

 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. 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, 2,5 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.
- 20. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.
- 21. 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.
- 22. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.
- 23. 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.
- 24. 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-C-10 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

SOLID MATRICES EXTRACTION SUMMARY

329060

ANALYSIS	D/C OR WET	EXTRACTION SOLVENT	EXTRACTION METHOD	SEYLANA
SOLVENT EXTRACTABLE MATTER	D&C	DOM	SOXTHERM	GRAMMETRIC
CYCLOHEXANE EXT. MATTER	D&C	CYCLOHEXANE	SOXTHERM	GRAMMETRIC
THIN LAYER CHROMATOGRAPHY	D&C	DOM	SOXTHERM	IATROSCAN
ELEMENTALSULPHUR	D&C	DOM	SOXTHERM	HPLC
PHENOLSBYGOMS	WET	DOM	SOXTHERM	GCMS
HERBICIDES	D&C	HEXANEACETONE	SOXTHERM	GCMS
PESTICIDES	D&C	HEXANEACETONE	SOXTHERM	GCMS
EPH (DRO)	D&C	HEXANEACETONE	END OVEREND	GCFID
EPH (MINOL)	D&C	HEXANEACETONE	END OVEREND	GCFID
EPH (CLEANED UP)	D&C	HEXANEACETONE	END OVEREND	GCFID
EPH CWG BYGC	D&C	HEXANEACETONE	END OVEREND	GCFID
POB TOT / POB CON	D&C	HEXANEACETONE	END OVEREND	GCMS
POLYAROMATIC HYDROCARBONS (MS)	WET	HEXANEACETONE	MCROWAVE TM218.	GCMS
C8-C40(C6-C40) EZ FLASH	WET	HEXANEACETONE	SHAVER	GC-EZ
POLYAROMATIC HYDROCARBONS RAPID GC	WET	HEXANEACETONE	SHAKER	GC-EZ
SEM VOLATILEORGANIC COMPOUNDS	WET	DOMACETONE	SONICATE	GCMS

#### LIQUID MATRICES EXTRACTION SUMMARY

ANALYSIS	EXTRACTION SOLVENT	EXTRACTION METHOD	SEYJANA
PAHMS	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCMS
EPH .	HEXANE	STIRREDEXTRACTION(STIR-BAR)	€ FID
EPH CWG	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GC FID
MINERALOIL	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GC FID
POB 7 CONGENERS	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCMS
POB TOTAL	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCMS
svoc	DOM	LIQUID/LIQUID SHAKE	GCMS
FREESULPHUR	DOM	SOLID PHASE EXTRACTION	HPLC
PEST OCP/OPP	DOM	LIQUID/LIQUID SHAKE	GCMS
TRIAZINE HERBS	DOM	LIQUID/LIQUID SHAKE	GCMS
PHENOLSMS	DOM	SOLID PHASE EXTRACTION	GCMS
TPH byINFRARED (IR)	TCE	LIQUID/LIQUID SHAKE	HPLC
MINERAL OIL by IR	TCE	LIQUID/LIQUID SHAKE	HPLC
GLYCOLS	NONE	DIRECT NJECTION	GCMS

<u>Identification of Asbestos in Bulk</u> <u>Materials</u>

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).

Asbestos Type	Common Name			
Chrysofile	WhiteAsbestos			
Amoste	BrownAsbestos			
Oroádolite	Blue Asbestos			
Fibrous Adindite	-			
Fibrous Anthophylite	-			
Fibrous Tremolite	-			

#### 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.

# ALcontrol Laboratories

#### PRELIMINARY/INTERIM REPORT

SDG: 150828-44 Location: Stag Brewery Order Number:

 Job:
 H\_URS\_WIM-273
 Customer:
 AECOM
 Report Number:
 329060

 Client Reference:
 Attention:
 Gary Marshall
 Superseded Report:

# Appendix General

- 1. Results are expressed on a dry weight basis (dried at  $35^{\circ}$ C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICS and SVOC 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 all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples 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 analysed 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. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible. The quantity of asbestos present is not determined unless specifically requested.
- 7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.
- 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 Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.
- 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 C5-C12 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.

# Sample Deviations

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
4	Holding time exceeded before sample received
5	Samples exceeded holding time before presevation was performed
§	Sampled on date not provided
•	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to sampled on date
&	Sample Holding Time exceeded - Late arrival of instructions.

#### **Asbestos**

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk 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).

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).

Asbestos Type	Common Name				
Chrysofile	White Asbestos				
Amoste	BrownAsbestos				
Orodobite	Blue Asbestos				
Fibrous Adinoite	-				
Fibrous Anthophylite	-				
Fibrous Trendile	-				

#### 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.

Unit 7-8 Hawarden Business Park Manor Road (off Manor Lane) Hawarden

Deeside CH5 3US Tel: (01244) 528700

Fax: (01244) 528701 email: mkt@alcontrol.com Website: www.alcontrol.com

AECOM St. George's House 2nd Floor 5 St. George's Road Wimbledon Greater London SW19 4DR

Attention: Gary Marshall

# **CERTIFICATE OF ANALYSIS**

 Date:
 09 September 2015

 Customer:
 H\_URS\_WIM

 Sample Delivery Group (SDG):
 150828-48

Your Reference:

Location:Stag BreweryReport No:329008

We received 4 samples on Friday August 28, 2015 and 4 of these samples were scheduled for analysis which was completed on Wednesday September 09, 2015. 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









Validated

329008

SDG: 150828-48 Location: Stag Brewery Order Number: H\_URS\_WIM-273 AECOM Job: **Customer:** Report Number: Client Reference:

Attention: Gary Marshall Superseded Report:

**Received Sample Overview** 

11977832     BH212     0.60     27/08/2015       11977833     BH212     1.80 - 2.50     27/08/2015       11977835     BH213     0.60     27/08/2015       11977837     BH213     1.70 - 2.00     27/08/2015	Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
11977835 BH213 0.60 27/08/2015	11977832	BH212		0.60	27/08/2015
	11977833	BH212		1.80 - 2.50	27/08/2015
11977837 BH213 1.70 - 2.00 27/08/2015	11977835	BH213		0.60	27/08/2015
	11977837	BH213		1.70 - 2.00	27/08/2015

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

06:10:17 09/09/2015

Validated

150828-48 SDG: Job:

H\_URS\_WIM-273

Location: Stag Brewery Customer:

AECOM Gary Marshall Order Number: Report Number: Superseded Report:

329008

Job: H_URS_\ Client Reference:	VIM-273	Custome Attention		COM ary Mars	shall	
SOLID Results Legend	Lab Sample I	No(s)	11977832	11977833	11977835	11977837
X Test			N	ω	O1	7
No Determination Possible	Custome Sample Refe		BH212	BH212	BH213	BH213
	AGS Refere	nce				
	Depth (m	<b>)</b>	0.60	.50	0.60	1.70 - 2.00
	Containe	r	60g VOC (ALE215) 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	60g VOC (ALE215) 400g Tub (ALE214) 250g Amber Jar (AL
Ammonium Soil by Titration	All	NDPs: 0 Tests: 4	X	×	×	x
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 2	X		×	
Easily Liberated Sulphide	All	NDPs: 0 Tests: 4	x	X	x	X
EPH CWG (Aliphatic) GC (S)	All	NDPs: 0 Tests: 4	X	X	x	X
EPH CWG (Aromatic) GC (S)	All	NDPs: 0 Tests: 4	X	X	x	X
GRO by GC-FID (S)	All	NDPs: 0 Tests: 4	X	×	×	x
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 4	x	×	×	x
Metals in solid samples by OES	All	NDPs: 0 Tests: 4	X	X	x	X
PAH by GCMS	All	NDPs: 0 Tests: 4	X	x	×	X
pН	All	NDPs: 0 Tests: 4	X	×	×	×
Sample description	All	NDPs: 0 Tests: 4	X	X	×	X
Total Organic Carbon	All	NDPs: 0 Tests: 4	x	X	x	×
Total Sulphate	All	NDPs: 0 Tests: 4	X	X	×	×
TPH CWG GC (S)	All	NDPs: 0 Tests: 4	X	X	×	×
VOC MS (S)	All	NDPs: 0 Tests: 4	X	×	×	×

Validated

**SDG:** 150828-48 **Job:** H\_URS\_WIM-273

Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall

Order Number: Report Number:

329008

Superseded Report:

# **Sample Descriptions**

#### **Grain Sizes**

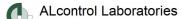
Client Reference:

very fine	<0.0	0.063mm fine 0		0.063mm - 0.1mm	medium	0.1mm	- 2mm	coarse	2mm - 1	0mm	very coars	e >10mr						
Lab Sample	No(s)	Custom	er Sample R	ef. Depth (m)	Со	lour	Descriptio	on G	Grain size	Inclu	isions	Inclusions 2						
119778	32		BH212	0.60	Dark	Brown	Sandy Loa	m 0	.1 - 2 mm	Sto	ones	None						
119778	1977833 BH212		BH212	1.80 - 2.50	Light	Brown	Sand	0	.1 - 2 mm	Sto	ones	None						
119778	35	BH213		BH213		BH213		BH213		0.60	Dark	Brown	Sandy Cla Loam	у 0	.1 - 2 mm	Sto	ones	Tile/Insulation Board
119778	37		BH213	1.70 - 2.00	Light	Brown	Sand	0	.1 - 2 mm	Sto	ones	None						

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 ocurring 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.



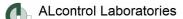
Validated

329008

150828-48 SDG: Location: Stag Brewery Order Number: Report Number:

Job: H\_URS\_WIM-273 Customer: AECOM Client Reference: Attention: Gary Marshall Superseded Report:

Results Legend # ISO17025 accredited.	•	Customer Sample R	BH212	BH212	BH213	BH213		
M mCERTS accredited.  aq Aqueous / settled sample.							l l	
aq Aqueous / settled sample. diss.filt Dissolved / filtered sample.		Depth (m)	0.60	1.80 - 2.50	0.60	1.70 - 2.00	l I	
tot.unfilt Total / unfiltered sample.		Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid		
* Subcontracted test.  ** % recovery of the surrogate standa		Date Sampled	27/08/2015	27/08/2015	27/08/2015	27/08/2015		
** % recovery of the surrogate standa check the efficiency of the method.		Sampled Time	00:00:00	00:00:00	00:00:00	00:00:00		
results of individual compounds wi		Date Received	28/08/2015	28/08/2015	28/08/2015	28/08/2015		
samples aren't corrected for the rec		SDG Ref	150828-48	150828-48	150828-48	150828-48		
(F) Trigger breach confirmed		Lab Sample No.(s)	11977832	11977833	11977835	11977837		
1-5&+§@ Sample deviation (see appendix)		AGS Reference						
Component	LOD/Units	s Method						
Moisture Content Ratio (%	%	PM024	7	5.7	17	6.5		
of as received sample)	, ,		•		• •			
						. –		
Exchangeable Ammonia	<15	TM024	18.2	<15	<15	<15		
as NH4	mg/kg		M	M	M	M		
Organic Carbon, Total	<0.2 %	TM132	<0.2	<0.2	2.07	<0.2		
Organic Carbon, Total	VO.2 /0	1101102						
			M	М	M	M		
pH	1 pH	TM133	8.95	7.72	8.04	7.84		
	Units		М	М	М	М		
Chromium Hovovolont	<0.6	TM151	<0.6	<0.6	<0.6	<0.6		
Chromium, Hexavalent		TIVITOT						
	mg/kg		#	#	#	#		
Sulphide, Easily liberated	<15	TM180	<15	<15	<15	<15		
	mg/kg		♦#	<b>♦</b> #	<b>*</b> #	<b>+</b> #	l I	
Argonio		TN/404			19.1		<del>                                     </del>	
Arsenic	<0.6	TM181	19.2	18.8		19.1	l I	
	mg/kg		M	M	M	M		
Cadmium	<0.02	TM181	1.44	0.393	0.547	0.389		
I	mg/kg		М	М	М	М	l I	
Chromium		TN4404					<del>                                     </del>	
Chromium	<0.9	TM181	6.94	16.9	17.1	20.2	<u> </u>	
	mg/kg		M	М	М	M		
Copper	<1.4	TM181	13.9	4.3	29.6	6.42		
	mg/kg		М	М	М	М		
Lead	<0.7	TM181	271	5.92	2910	6.91		
	mg/kg		M	M	M	M		
Mercury	<0.14	TM181	<0.14	<0.14	<0.14	<0.14		
Morodry		1111101						
	mg/kg		M	M	M	M		
Nickel	<0.2	TM181	6.81	19.2	14.7	22		
	mg/kg		M	М	M	М		
Selenium	<1 mg/k	g TM181	<1	<1	<1	<1		
Geleriidiri	- i ilig/k	g iwiioi					l I	
			#		#	#		
Zinc	<1.9	TM181	276	23.4	906	26.2		
	mg/kg		M	М	M	М		
Sulphate, Total	<48	TM221	1090	49.6	7440	80.7		
	mg/kg		М	М	М	M	l I	
	mg/kg		IVI	IVI	IVI	IVI		
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Validated

329008

Superseded Report:

150828-48 SDG: Location: Stag Brewery Order Number: Report Number:

Job: H\_URS\_WIM-273 Customer: AECOM Client Reference: Attention: Gary Marshall

PAH by GCMS							
Results Legend # ISO17025 accredited.		Customer Sample R	BH212	BH212	BH213	BH213	
M mCERTS accredited.							
aq Aqueous / settled sample. diss.filt Dissolved / filtered sample.		Depth (m)	0.60	1.80 - 2.50	0.60	1.70 - 2.00	
tot.unfilt Total / unfiltered sample.  * Subcontracted test.		Sample Type	Soil/Solid 27/08/2015	Soil/Solid 27/08/2015	Soil/Solid 27/08/2015	Soil/Solid 27/08/2015	
** % recovery of the surrogate standa		Date Sampled Sampled Time	00:00:00	00:00:00	00:00:00	00:00:00	
check the efficiency of the method. results of individual compounds wi		Date Received	28/08/2015	28/08/2015	28/08/2015	28/08/2015	
samples aren't corrected for the red		SDG Ref	150828-48 11977832	150828-48 11977833	150828-48 11977835	150828-48 11977837	
(F) Trigger breach confirmed 1-5&+§@ Sample deviation (see appendix)		Lab Sample No.(s) AGS Reference	11977032	11977055	11977055	11977037	
Component	LOD/Unit	_					
Naphthalene-d8 %	%	TM218	97.6	94.5	98.6	96.2	
recovery**							
Acenaphthene-d10 %	%	TM218	94.2	90.6	95	92.2	
recovery**							
Phenanthrene-d10 %	%	TM218	91.1	87.3	91.2	89.6	
recovery**							
Chrysene-d12 %	%	TM218	91.4	77.2	90.4	79	
recovery**							
Perylene-d12 %	%	TM218	97.3	78.4	95.7	80.7	
recovery**							
Naphthalene	<9 µg/k	g TM218	<9	<9	27.4	<9	
			M	M	M	M	
Acenaphthylene	<12	TM218	20.5	<12	27.8	<12	
	μg/kg		M	M	27.0 M	M	
Acenaphthene	<8 μg/k	g TM218	<8	<8	15.9	<8	
	~ mg/ N		M	M	М	M	
Fluorene	<10	TM218	<10	<10	12.1	<10	
	μg/kg	1141210	M	M	12.1 M	~10 M	
Phenanthrene	<15	TM218	218	<15	329	<15	
onammono	μg/kg	1141210	210 M	~13 M	329 M	~13 M	
Anthracene	<16	TM218	85.9	<16	71.8	<16	
Antinacene	μg/kg	1101210	03.3 M	110 M	7 1.0 M	M	
Fluoranthene	×17	TM218	1270	<17	820	<17	
Tidorantiferie	μg/kg	1101210	1270 M	M	M	M	
Pyrene	<15	TM218	975	<15	729	<15	
Fylene	μg/kg	1101210					
Ponz(a)anthracena	μg/kg <14	TM218	927	<14	449	<14	
Benz(a)anthracene	μg/kg	1101210	927 M	M	449 M	M	
Chrysono	×10	TM218	908	<10	414	<10	
Chrysene	μg/kg	1101210					
Benzo(b)fluoranthene	μg/kg <15	TM218	1460	M <15	588	<15	
Delizo(b)lidoraritrierie	μg/kg	1101210					
Benzo(k)fluoranthene	μg/kg <14	TM218	503	M <14	255	<14	
Delizo(k)iidolalitilelle	μg/kg	1101210	303 M	M	255 M	M	
Benzo(a)pyrene	<15	TM218	1050	<15	485	<15	
Delizo(a)pyrelie	μg/kg	1101210	1030 M	113 M	403 M	113 M	
Indeno(1,2,3-cd)pyrene	<18	TM218	668	<18	270	<18	
indeno(1,2,3-cd)pyrene	μg/kg	1101210	M	~10 M	270 M	~10 M	
Dibenzo(a,h)anthracene	<23	TM218	195	<23	73.2	<23	
Dibonzo(a,n/antinacene	μg/kg	I IVIZ IO	195 M	~23 M	73.2 M	^23 M	
Benzo(g,h,i)perylene	μg/kg <24	TM218	755	<24	358	<24	
Donzo(g,n,n)peryiene	ν24 μg/kg	I IVIZ IO	795 M	~24 M	336 M	<b>∼24</b> M	
PAH, Total Detected	<118	TM218	9030	<118	4920	<118	
USEPA 16	μg/kg	1210	5555	-110	1020	-110	
	שייש	+					
		+					
		+					
		+ -					
		+					
		+ -					
		+ -					
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Validated

150828-48 SDG: Location: Stag Brewery Order Number:

Report Number: 329008 Job: H\_URS\_WIM-273 Customer: AECOM Client Reference: Attention: Gary Marshall Superseded Report:

Olletti Kelerence.			Attention. Oa	iry Marshall		Ouperscueu repe	
TPH CWG (S)							
Results Legend		Customer Sample R	BH212	BH212	BH213	BH213	
# ISO17025 accredited.  M mCERTS accredited.							
aq Aqueous / settled sample.		Depth (m)	0.00	4.00 0.50	0.00	4.70 0.00	
diss.filt Dissolved / filtered sample.		Sample Type	0.60 Soil/Solid	1.80 - 2.50 Soil/Solid	0.60 Soil/Solid	1.70 - 2.00 Soil/Solid	
tot.unfilt Total / unfiltered sample.  * Subcontracted test.		Date Sampled	27/08/2015	27/08/2015	27/08/2015	27/08/2015	
** % recovery of the surrogate standa	rd to	Sampled Time	00:00:00	00:00:00	00:00:00	00:00:00	
check the efficiency of the method.	The	Date Received	28/08/2015	28/08/2015	28/08/2015	28/08/2015	
results of individual compounds w		SDG Ref	150828-48	150828-48	150828-48	150828-48	
samples aren't corrected for the re-	covery	Lab Sample No.(s)	11977832	11977833	11977835	11977837	
1-5&+§@ Sample deviation (see appendix)		AGS Reference					
Component	LOD/Units	_					
•		_					
GRO Surrogate %	%	TM089	114	127	76	110	
recovery**							
GRO TOT (Moisture	<44	TM089	<44	<44	<44	<44	
		1111000					
Corrected)	μg/kg		M	M	M	M	
Methyl tertiary butyl ether	<5 μg/kg	g TM089	<5	<5	<5	<5	
(MTBE)			М	М	М	М	
Benzene	<10	TM089	<10	<10	<10	<10	
Delizerie		110009					
	μg/kg		M	M	M	M	
Toluene	<2 μg/kg	g TM089	<2	<2	<2	<2	
		-	М	М	М	М	
Ethylhonzono	/2 ··-//	TN4000	<3	<3	<3	<3	
Ethylbenzene	<3 µg/k	g TM089					
			M	М	М	М	
m,p-Xylene	<6 µg/k	g TM089	<6	<6	<6	<6	
"	- 1.3.11						
<u> </u>			M	M	M	M	
o-Xylene	<3 µg/k	g TM089	<3	<3	<3	<3	
			М	М	М	М	
sum of detected mpo	<9 µg/kg	g TM089	<9	<9	<9	<9	
	~9 µg/K	y i ivioos	-9	\9	\9	-9	
xylene by GC							
sum of detected BTEX by	<24	TM089	<24	<24	<24	<24	
GC	μg/kg						
		T1 1000	.10	.40	.40	.10	
Aliphatics >C5-C6	<10	TM089	<10	<10	<10	<10	
	μg/kg						
Aliphatics >C6-C8	<10	TM089	<10	<10	<10	<10	
7 inprination 1 GG GG		1111000	-10	-10	-10	-10	
	μg/kg						
Aliphatics >C8-C10	<10	TM089	<10	<10	<10	<10	
	μg/kg						
Aliphatics >C10-C12	<10	TM089	<10	<10	<10	<10	
Aliphatics >C10-C12		1 101009	<10	<10	<10	<10	
	μg/kg						
Aliphatics >C12-C16	<100	TM173	<100	<100	<100	<100	
· ·	μg/kg						
45 4 5 40 004		T14470				400	
Aliphatics >C16-C21	<100	TM173	<100	<100	<100	<100	
	μg/kg						
Aliphatics >C21-C35	<100	TM173	<100	<100	6060	<100	
7			.00		0000		
	μg/kg						
Aliphatics >C35-C44	<100	TM173	<100	<100	<100	<100	
	μg/kg						
Total Aliphatics >C12-C44	<100	TM173	<100	<100	6060	<100	
Total Aliphatics >C12-C44		1101173	<100	<b>\100</b>	0000	<b>\100</b>	
	μg/kg						
Aromatics >EC5-EC7	<10	TM089	<10	<10	<10	<10	
	μg/kg						
Aromatics >EC7-EC8	<10	TM089	<10	<10	<10	<10	
AIUIIIalius ZEU/-EU8		I IVIU89	<b>~10</b>	<b>\10</b>	<b>\10</b>	<b>~10</b>	
	μg/kg						
Aromatics >EC8-EC10	<10	TM089	<10	<10	<10	<10	
	μg/kg						
A		T14000	-40	.40	.40	.40	
Aromatics >EC10-EC12	<10	TM089	<10	<10	<10	<10	
	μg/kg						
Aromatics >EC12-EC16	<100	TM173	<100	<100	2150	<100	
		1111173	-100	100	2100	*100	
	μg/kg						
Aromatics >EC16-EC21	<100	TM173	496	<100	10600	<100	
	μg/kg						
Aromatics >EC21-EC35	<100	TM173	4600	<100	31100	<100	
AIUIIIalius /EUZ I-EU33		TIVIT/3	4000	<b>\100</b>	31100	<b>\100</b>	
	μg/kg						
Aromatics >EC35-EC44	<100	TM173	<100	<100	10900	<100	
	μg/kg						
A		T111-1	-100	400	2072	100	
Aromatics >EC40-EC44	<100	TM173	<100	<100	3970	<100	
	μg/kg						
Total Aromatics	<100	TM173	5100	<100	54800	<100	
>EC12-EC44	μg/kg		0.00		3,000	-100	
					225		
Total Aliphatics &	<100	TM173	5100	<100	60900	<100	
Aromatics >C5-C44	μg/kg						
		_					

Validated

SDG: 150828-48 Location: Stag Brewery Order Number:

Job: H\_URS\_WIM-273
Client Reference:

Customer: AECOM
Attention: Gary Marshall

Report Number: 329008

Superseded Report:

VOC MS (S)				•			
Results Legend		Customer Sample R	BH212	BH212	BH213	BH213	
# ISO17025 accredited. M mCERTS accredited. aq Aqueous / settled sample. diss.fiit Dissolved filtered sample. tot.unflit Total / unflitered sample. * Subcontracted test. ** % recovery of the surrogate standicheck the efficiency of the method results of individual compounds w samples aren't corrected for the re Trigger breach confirmed 1-5&4\$@ Sample deviation (see appendix)	. The ithin	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.60 Soil/Solid 27/08/2015 00:00:00 28/08/2015 150828-48 11977832	1.80 - 2.50 Soil/Solid 27/08/2015 00:00:00 28/08/2015 150828-48 11977833	0.60 Soil/Solid 27/08/2015 00:00:00 28/08/2015 150828-48 11977835	1.70 - 2.00 Soil/Solid 27/08/2015 00:00:00 28/08/2015 150828-48 11977837	
Component	LOD/Unit						
Dibromofluoromethane**	%	TM116	114	124	121	116	
Toluene-d8**	%	TM116	102	111	108	110	
4-Bromofluorobenzene**	%	TM116	94.1	105	85.4	104	
Dichlorodifluoromethane	<6 µg/k	g TM116	<6 M	<6 M	<6 M	<6 M	
Chloromethane	<7 μg/k	g TM116	<7 #	<7	<7 #	<7 #	
Vinyl Chloride	<6 µg/k	g TM116	<6 M	<6	<6 M	<6 M	
Bromomethane	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M	
Chloroethane	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M	
Trichlorofluorormethane	<6 µg/k	g TM116	<6 M	<6 M	<6 M	<6 M	
1,1-Dichloroethene	<10 µg/kg	TM116	<10 #	<10 #	<10 #	<10 #	
Carbon Disulphide	<7 μg/k	g TM116	<7 M	<7 M	<7 M	<7 M	
Dichloromethane	<10 µg/kg	TM116	<10 #	<10 #	<10 #	<10 #	
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M	
trans-1,2-Dichloroethene	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M	
1,1-Dichloroethane	<8 µg/k	g TM116	<8 M	<8 M	<8 M	<8 M	
cis-1,2-Dichloroethene	<6 µg/k	g TM116	<6 M	<6 M	<6 M	<6 M	
2,2-Dichloropropane	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M	
Bromochloromethane	<10 µg/kg	TM116	<10 M		<10 M	<10 M	
Chloroform	<8 µg/k		<8 M		<8 M	<8 M	
1,1,1-Trichloroethane	<7 μg/k		<7 M		<7 M	<7 M	
1,1-Dichloropropene	<10 µg/kg	TM116	<10 M		<10 M	<10 M	
Carbontetrachloride	<10 µg/kg	TM116	<10 M		<10 M	<10 M	
1,2-Dichloroethane	<5 μg/k		<5 M		<5 M	<5 M	
Benzene	<9 μg/k		<9 M		<9 M	<9 M	
Trichloroethene	<9 μg/k		<9 #		<9 #	<9 #	
1,2-Dichloropropane	<10 µg/kg	TM116	<10 M		<10 M	<10 M	
Dibromomethane	<9 μg/k		<9 M		<9 M	<9 M	
Bromodichloromethane	<7 μg/k		<7 M		<7 M	<7 M	
cis-1,3-Dichloropropene	<10 µg/kg	TM116	<10 M		<10 M	<10 M	
Toluene	<7 μg/k		<7 M		<7 M	<7 M	
trans-1,3-Dichloropropene	<10 µg/kg	TM116	<10	<10	<10	<10	
1,1,2-Trichloroethane	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M	

Gary Marshall

Validated

Superseded Report:

329008

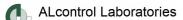
 SDG:
 150828-48
 Location:
 Stag Brewery
 Order Number:

 Job:
 H\_URS\_WIM-273
 Customer:
 AECOM
 Report Number:

Attention:

Client Reference:

/OC MS (S)							
Results Legend		Customer Sample R	BH212	BH212	BH213	BH213	
# ISO17025 accredited.  M mCERTS accredited.							
aq Aqueous / settled sample. diss.filt Dissolved / filtered sample.		Depth (m)	0.60	1.80 - 2.50	0.60	1.70 - 2.00	
tot.unfilt Total / unfiltered sample.		Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	
* Subcontracted test.  ** % recovery of the surrogate standa	rd to	Date Sampled Sampled Time	27/08/2015 00:00:00	27/08/2015 00:00:00	27/08/2015 00:00:00	27/08/2015 00:00:00	
check the efficiency of the method.	The	Date Received	28/08/2015	28/08/2015	28/08/2015	28/08/2015	
results of individual compounds wi samples aren't corrected for the rec		SDG Ref	150828-48	150828-48	150828-48	150828-48	
(F) Trigger breach confirmed 1-5&+§@ Sample deviation (see appendix)	·	Lab Sample No.(s)	11977832	11977833	11977835	11977837	
Component	LOD/Unit	AGS Reference					
			<7	<7	<7	<7	
1,3-Dichloropropane	<7 μg/k	g IIVIII0					
Total ablancathous	45	TM440	M	M	M	M	
Tetrachloroethene	<5 µg/k	g TM116	<5	<5	<5	<5	
D'harana dalamana dhara	:40	T14440	M	M	M	M	
Dibromochloromethane	<10	TM116	<10	<10	<10	<10	
1.2.50	μg/kg		M	M	M	M	
1,2-Dibromoethane	<10	TM116	<10	<10	<10	<10	
	μg/kg	=11112	M	M	M	M	
Chlorobenzene	<5 µg/k	g TM116	<5	<5	<5	<5	
		=11112	M	M	M	M	
1,1,1,2-Tetrachloroethane	<10	TM116	<10	<10	<10	<10	
	μg/kg	=11112	M	M	M	M	
Ethylbenzene	<4 µg/k	g TM116	<4	<4	<4	<4	
		=	M	M	M	M	
p/m-Xylene	<10	TM116	<10	<10	<10	<10	
	μg/kg		#	#	#	#	
o-Xylene	<10	TM116	<10	<10	<10	<10	
	μg/kg		M	M	M	M	
Styrene	<10	TM116	<10	<10	<10	<10	
	μg/kg		#	#	#	#	
Bromoform	<10	TM116	<10	<10	<10	<10	
	μg/kg		M	M	M	M	
Isopropylbenzene	<5 µg/k	g TM116	<5	<5	<5	<5	
			#	#	#	#	
1,1,2,2-Tetrachloroethane	<10	TM116	<10	<10	<10	<10	
	μg/kg		M	M	M	M	
1,2,3-Trichloropropane	<16	TM116	<16	<16	<16	<16	
	μg/kg		M	M	M	M	
Bromobenzene	<10	TM116	<10	<10	<10	<10	
	μg/kg		M	M	M	M	
Propylbenzene	<10	TM116	<10	<10	<10	<10	
	μg/kg		M	M	M	M	
2-Chlorotoluene	<9 µg/k	g TM116	<9	<9	<9	<9	
			M	M	M	M	
1,3,5-Trimethylbenzene	<8 µg/k	g TM116	<8	<8	<8	<8	
			M	M	M	M	
4-Chlorotoluene	<10	TM116	<10	<10	<10	<10	
	μg/kg		M	M	M	M	
tert-Butylbenzene	<14	TM116	<14	<14	<14	<14	
	μg/kg		M	M	M	M	
1,2,4-Trimethylbenzene	<9 µg/k	g TM116	<9	<9	<9	<9	
			#	#	#	#	
sec-Butylbenzene	<10	TM116	<10	<10	<10	<10	
	μg/kg		M	M	M	M	
4-Isopropyltoluene	<10	TM116	<10	<10	<10	<10	
	μg/kg		M	M	M	M	
1,3-Dichlorobenzene	<8 µg/k	g TM116	<8	<8	<8	<8	
			М	М	М	М	
1,4-Dichlorobenzene	<5 µg/k	g TM116	<5	<5	<5	<5	
			М	М	М	М	
n-Butylbenzene	<11	TM116	<11	<11	<11	<11	
	μg/kg						
1,2-Dichlorobenzene	<10	TM116	<10	<10	<10	<10	
	μg/kg		М	М	М	М	
1,2-Dibromo-3-chloroprop	<14	TM116	<14	<14	<14	<14	
ane	μg/kg		М	М	М	М	
Tert-amyl methyl ether	<10	TM116	<10	<10	<10	<10	
, , , , , , , , , , , , , , , , , , , ,	μg/kg		#	#	#	#	
1,2,4-Trichlorobenzene	<20	TM116	<20	<20	<20	<20	
.,_,	μg/kg		-20	-20			
Hexachlorobutadiene	<20	TM116	<20	<20	<20	<20	
	μg/kg		-20	-20			
Naphthalene	<13	TM116	<13	<13	<13	<13	
	μg/kg		M	М		М М	
<u> </u>	מייש		IVI	IVI	IVI	I IVI	



Validated

Superseded Report:

150828-48 SDG: Location: Stag Brewery Order Number: 329008 Job: H\_URS\_WIM-273 Customer: AECOM Report Number:

Gary Marshall

Attention:

Client Reference:

VOC MS (S)	/OC MS (S)							
Results Legend	С	ustomer Sample R	BH212	BH212	BH213	BH213		
# ISO17025 accredited.  M mCERTS accredited.								
aq Aqueous / settled sample. diss.filt Dissolved / filtered sample.		Depth (m)	0.60	1.80 - 2.50	0.60	1.70 - 2.00		
tot.unfilt Total / unfiltered sample.		Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid 27/08/2015		
** % recovery of the surrogate standa	ard to	Date Sampled Sampled Time	27/08/2015 00:00:00	27/08/2015 00:00:00	27/08/2015 00:00:00	00:00:00		
check the efficiency of the method results of individual compounds w	. The	Date Received	28/08/2015	28/08/2015	28/08/2015	28/08/2015		
samples aren't corrected for the re	covery	SDG Ref	150828-48 11977832	150828-48 11977833	150828-48 11977835	150828-48 11977837		
(F) Trigger breach confirmed 1-5&+§@ Sample deviation (see appendix)		Lab Sample No.(s) AGS Reference	11077002	11077000	11077000	11017001		
Component	LOD/Units							
1,2,3-Trichlorobenzene	<20	TM116	<20	<20	<20	<20		
	μg/kg		#	#	#	#		



150828-48

SDG:

**CERTIFICATE OF ANALYSIS** 

Validated

Order Number:

329008

H\_URS\_WIM-273 AECOM Job: **Customer:** Client Reference: Attention:

Report Number: Gary Marshall Superseded Report:

Stag Brewery

Location:

# **Asbestos Identification - Soil**

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH212 0.60 SOLID 27/08/2015 00:00:00 29/08/2015 13:54:20 150828-48 11977832 TM048	03/09/2015	Rebecca Rawlings	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH213 0.60 SOLID 27/08/2015 00:00:00 29/08/2015 13:59:40 150828-48 11977835 TM048	03/09/2015	Rebecca Rawlings	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

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Client Reference:

# **CERTIFICATE OF ANALYSIS**

Validated

**SDG:** 150828-48 **Job:** H\_URS\_WIM-273

Location:Stag BreweryCustomer:AECOMAttention:Gary Marshall

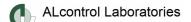
Order Number: Report Number: Superseded Report:

329008

**Table of Results - Appendix** 

Method No	Reference	Description	Wet/Dry Sample <sup>1</sup>	Surrogate Corrected
ASB_PREP				
PM001		Preparation of Samples for Metals Analysis		
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material		
TM024	Method 4500A & B, AWWA/APHA, 20th Ed., 1999	Determination of Exchangeable Ammonium and Ammoniacal Nitrogen as N by titration on solids		
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material		
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)		
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS		
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		
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser		
TM173	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GC-FID		
TM180	Sulphide in waters and waste waters 1991 ISBN 01 175 7186 SCA rec. 2007 (unpublished)'	The Determination Of Easily Liberated Sulphide In Soil Samples by Ion Selective Electrode Technique		
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		
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid extractable Sulphate in Soils by IRIS Emission Spectrometer		

<sup>&</sup>lt;sup>1</sup> Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.



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 SDG:
 150828-48
 Location:
 Stag Brewery
 Order Number:

 Job:
 H\_URS\_WIM-273
 Customer:
 AECOM
 Report Number:

Client Reference: Attention: Gary Marshall Superseded Report:

# **Test Completion Dates**

Lab Sample No(s)	11977832	11977833	11977835	11977837
Customer Sample Ref.	BH212	BH212	BH213	BH213
•				
AGS Ref.				
Depth	0.60	1.80 - 2.50	0.60	1.70 - 2.00
Туре	SOLID	SOLID	SOLID	SOLID
Ammonium Soil by Titration	08-Sep-2015	08-Sep-2015	09-Sep-2015	08-Sep-2015
Asbestos ID in Solid Samples	03-Sep-2015		03-Sep-2015	
Easily Liberated Sulphide	08-Sep-2015	07-Sep-2015	08-Sep-2015	08-Sep-2015
EPH CWG (Aliphatic) GC (S)	04-Sep-2015	03-Sep-2015	04-Sep-2015	03-Sep-2015
EPH CWG (Aromatic) GC (S)	04-Sep-2015	03-Sep-2015	04-Sep-2015	03-Sep-2015
GRO by GC-FID (S)	04-Sep-2015	02-Sep-2015	02-Sep-2015	02-Sep-2015
Hexavalent Chromium (s)	07-Sep-2015	07-Sep-2015	07-Sep-2015	07-Sep-2015
Metals in solid samples by OES	04-Sep-2015	04-Sep-2015	04-Sep-2015	04-Sep-2015
PAH by GCMS	03-Sep-2015	03-Sep-2015	03-Sep-2015	03-Sep-2015
pH	08-Sep-2015	08-Sep-2015	08-Sep-2015	08-Sep-2015
Sample description	29-Aug-2015	28-Aug-2015	29-Aug-2015	28-Aug-2015
Total Organic Carbon	07-Sep-2015	03-Sep-2015	07-Sep-2015	03-Sep-2015
Total Sulphate	04-Sep-2015	07-Sep-2015	04-Sep-2015	07-Sep-2015
TPH CWG GC (S)	04-Sep-2015	03-Sep-2015	04-Sep-2015	03-Sep-2015
VOC MS (S)	02-Sep-2015	02-Sep-2015	02-Sep-2015	02-Sep-2015

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**SDG:** 150828-48 **Job:** H\_URS\_WIM-273

Location: Customer: Attention:

Stag Brewery AECOM Gary Marshall Order Number: Report Number: Superseded Report:

329008

# **ASSOCIATED AQC DATA**

# Ammonium Soil by Titration

Client Reference:

Component	Method Code	QC 1292	QC 1205
Exchangeable Ammonium as NH4	TM024	<b>86.07</b> 79.30 : 104.61	<b>98.01</b> 79.30 : 104.61

# Easily Liberated Sulphide

Component	Method Code	QC 1262	QC 1219
Easily Liberated Sulphide	TM180	<b>88.38</b> 49.14 : 123.89	<b>93.21</b> 49.14 : 123.89

# EPH CWG (Aliphatic) GC (S)

Component	Method Code	QC 1165	QC 1197
Total Aliphatics >C12-C35	TM173	<b>97.92</b> 69.19 : 111.75	<b>92.08</b> 71.67 : 116.67

# EPH CWG (Aromatic) GC (S)

Component	Method Code	QC 1197
Total Aromatics >EC12-EC35	TM173	<b>85.33</b> 59.92 : 107.95

# GRO by GC-FID (S)

Component	Method Code	QC 1100	QC 1232
Benzene by GC	TM089	<b>110.0</b>	<b>104.0</b>
(Moisture Corrected)		82.67 : 117.96	76.33 : 121.87
Ethylbenzene by GC (Moisture Corrected)	TM089	<b>110.5</b> 80.45 : 118.61	<b>105.5</b> 75.73 : 123.83
m & p Xylene by GC (Moisture Corrected)	TM089	<b>110.0</b> 79.25 : 119.43	<b>104.5</b> 75.52 : 120.32
MTBE GC-FID (Moisture	TM089	<b>114.5</b>	<b>101.5</b>
Corrected)		79.10 : 122.51	77.89 : 119.70
o Xylene by GC (Moisture	TM089	<b>111.5</b>	<b>100.0</b>
Corrected)		80.03 : 117.19	74.15 : 124.59
QC	TM089	<b>102.79</b> 75.74 : 124.65	<b>101.18</b> 62.31 : 122.61
Toluene by GC (Moisture	TM089	<b>110.5</b>	<b>101.0</b>
Corrected)		82.06 : 117.54	77.91 : 122.33

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SDG: 150828-48 Location: Stag Brewery Job:

H\_URS\_WIM-273 AECOM **Customer:** Attention: Gary Marshall Report Number: Superseded Report: 329008

Order Number:

Hexavalent Chromium (s)

Client Reference:

Component	Method Code	QC 1299	QC 1285
Hexavalent Chromium	TM151	100.0	102.0
		92.20 : 106.60	92.20 : 106.60

# Metals in solid samples by OES

Component	Method Code	QC 1235	QC 1206
Aluminium	TM181	<b>98.46</b> 86.49 : 129.71	<b>99.23</b> 86.49 : 129.71
Antimony	TM181	<b>97.13</b> 77.50 : 122.50	<b>94.27</b> 77.50 : 122.50
Arsenic	TM181	<b>92.92</b> 82.63 : 117.37	<b>92.92</b> 82.63 : 117.37
Barium	TM181	<b>95.49</b> 79.45 : 120.55	<b>96.24</b> 79.45 : 120.55
Beryllium	TM181	<b>100.47</b> 85.92 : 121.27	<b>98.91</b> 85.92 : 121.27
Boron	TM181	<b>99.24</b> 77.41 : 143.83	<b>105.34</b> 77.41 : 143.83
Cadmium	TM181	<b>96.47</b> 81.95 : 118.05	<b>95.8</b> 81.95 : 118.05
Chromium	TM181	<b>93.73</b> 81.29 : 118.71	<b>93.33</b> 81.29 : 118.71
Cobalt	TM181	<b>96.5</b> 83.86 : 116.14	<b>95.83</b> 83.86 : 116.14
Copper	TM181	<b>99.46</b> 78.57 : 121.43	<b>97.7</b> 78.57 : 121.43
Iron	TM181	<b>97.24</b> 87.50 : 122.82	<b>95.86</b> 87.50 : 122.82
Lead	TM181	<b>94.09</b> 74.18 : 117.25	<b>93.7</b> 74.18 : 117.25
Manganese	TM181	<b>100.0</b> 82.91 : 117.09	<b>100.0</b> 82.91 : 117.09
Mercury	TM181	<b>92.46</b> 81.99 : 118.01	<b>94.3</b> 81.99 : 118.01
Molybdenum	TM181	<b>93.79</b> 81.45 : 118.55	<b>92.2</b> 81.45 : 118.55
Nickel	TM181	<b>95.93</b> 79.64 : 120.36	<b>95.93</b> 79.64 : 120.36
Phosphorus	TM181	<b>98.21</b> 81.03 : 118.97	<b>97.76</b> 81.03 : 118.97
Selenium	TM181	<b>108.21</b> 87.05 : 121.93	<b>105.3</b> 87.05 : 121.93
Strontium	TM181	<b>96.55</b> 83.64 : 116.36	<b>98.08</b> 83.64 : 116.36
Thallium	TM181	<b>88.72</b> 77.50 : 122.50	<b>87.56</b> 77.50 : 122.50
Tin	TM181	<b>92.69</b> 78.30 : 113.98	<b>92.03</b> 78.30 : 113.98
Titanium	TM181	<b>97.66</b> 71.02 : 128.98	<b>103.91</b> 71.02 : 128.98

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150828-48 SDG: Location: Stag Brewery H\_URS\_WIM-273 Job:

AECOM **Customer:** Attention: Gary Marshall

Report Number: Superseded Report:

Order Number:

329008

# Metals in solid samples by OES

		QC 1235	QC 1206
Vanadium	TM181	<b>93.53</b> 86.61 : 113.39	<b>93.53</b> 86.61 : 113.39
Zinc	TM181	<b>98.05</b> 89.82 : 114.54	<b>97.73</b> 89.82 : 114.54

# PAH by GCMS

Client Reference:

Component	Method Code	QC 1154	QC 1196
Acenaphthene	TM218	92.0	89.5
		77.34 : 118.20	78.75 : 116.25
Acenaphthylene	TM218	86.5	85.5
		62.65 : 116.35	76.45 : 110.05
Anthracene	TM218	89.5	89.0
Dane (a) and have a see	TN4040	73.54 : 114.21	67.15 : 124.45
Benz(a)anthracene	TM218	102.5	97.5
Benzo(a)pyrene	TM218	74.99 : 132.24	82.00 : 127.00
Denzo(a)pyrene	1101210	<b>102.0</b> 80.75 : 127.25	<b>99.5</b> 75.60 : 124.20
Benzo(b)fluoranthene	TM218	99.5	99.0
, ,		75.84 : 127.12	81.20 : 121.77
Benzo(ghi)perylene	TM218	97.0	96.0
		74.74 : 124.03	77.49 : 119.12
Benzo(k)fluoranthene	TM218	98.0	96.5
		80.00 : 125.00	83.50 : 116.50
Chrysene	TM218	98.0	95.5
		77.24 : 120.84	78.35 : 114.42
Dibenzo(ah)anthracene	TM218	96.5	95.0
Fluoranthene	TM218	76.00 : 122.50	77.15 : 122.45
Fluoranthene	1101218	<b>92.5</b> 78.51 : 118.75	<b>92.5</b> 79.08 : 114.40
Fluorene	TM218		
ridorene	1101210	<b>93.0</b> 76.95 : 117.18	<b>91.5</b> 79.03 : 113.38
Indeno(123cd)pyrene	TM218	98.5	96.5
		75.34 : 127.46	75.65 : 125.15
Naphthalene	TM218	95.0	92.5
		76.24 : 112.91	77.25 : 112.60
Phenanthrene	TM218	93.5	92.0
		76.49 : 119.30	78.25 : 115.44
Pyrene	TM218	91.0	91.0
		78.25 : 118.17	78.07 : 114.06

Component	Method Code	QC 1218	QC 1227
рН	TM133	<b>100.25</b> 97.19 : 102.81	<b>100.5</b> 97.19 : 102.81

# Total Organic Carbon

Validated

**SDG:** 150828-48 **Job:** H\_URS\_WIM-273

Location: Stag Brewery
Customer: AECOM

Attention:

 Stag Brewery
 Order Number:

 AECOM
 Report Number:
 329008

 Gary Marshall
 Superseded Report:

Client Reference:

# **Total Organic Carbon**

Component	Method Code	QC 1254	QC 1297
Total Organic Carbon	TM132	<b>100.46</b> 88.82 : 111.18	<b>97.72</b> 89.40 : 103.09

# Total Sulphate

Component	Method Code	QC 1235	QC 1273
Total Sulphate	TM221	<b>102.27</b> 78.49 : 121.51	<b>103.79</b> 78.49 : 121.51

# VOC MS (S)

Component	Method Code	QC 1172	QC 1128
1,1,1,2-tetrachloroethane	TM116	<b>101.0</b> 76.60 : 121.00	<b>95.6</b> 83.24 : 124.28
1,1,1-Trichloroethane	TM116	<b>96.2</b> 77.80 : 123.40	<b>100.8</b> 81.77 : 121.07
1,1,2-Trichloroethane	TM116	<b>90.6</b> 75.40 : 119.80	<b>100.4</b> 79.24 : 112.23
1,1-Dichloroethane	TM116	<b>99.8</b> 80.84 : 124.49	<b>103.0</b> 72.58 : 116.06
1,2-Dichloroethane	TM116	<b>104.8</b> 91.00 : 135.67	<b>118.8</b> 77.50 : 122.50
1,4-Dichlorobenzene	TM116	<b>105.6</b> 80.88 : 114.60	<b>96.2</b> 73.23 : 116.39
2-Chlorotoluene	TM116	<b>94.2</b> 74.00 : 117.20	<b>85.6</b> 69.22 : 110.64
4-Chlorotoluene	TM116	<b>90.2</b> 71.20 : 113.20	<b>89.0</b> 68.57 : 106.26
Benzene	TM116	<b>97.6</b> 79.60 : 125.20	<b>103.2</b> 84.33 : 124.27
Carbon Disulphide	TM116	<b>99.4</b> 74.91 : 122.14	<b>110.4</b> 77.20 : 122.80
Carbontetrachloride	TM116	<b>100.2</b> 76.80 : 121.20	<b>98.2</b> 84.20 : 119.90
Chlorobenzene	TM116	<b>102.0</b> 83.47 : 116.82	<b>102.4</b> 85.28 : 129.96
Chloroform	TM116	<b>98.4</b> 82.00 : 128.80	<b>108.2</b> 82.73 : 119.72
Chloromethane	TM116	<b>117.2</b> 74.62 : 135.86	<b>123.4</b> 55.16 : 145.46
Cis-1,2-Dichloroethene	TM116	<b>103.6</b> 81.20 : 128.00	<b>108.4</b> 73.56 : 118.93
Dibromomethane	TM116	<b>88.4</b> 73.40 : 116.60	<b>104.4</b> 73.40 : 116.60
Dichloromethane	TM116	<b>101.6</b> 86.60 : 137.00	<b>113.2</b> 76.16 : 121.98

Validated

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 SDG:
 150828-48
 Location:
 Stag Brewery

 Job:
 H\_URS\_WIM-273
 Customer:
 AECOM

Customer: AECOM Report Number:
Attention: Gary Marshall Superseded Report:

Order Number:

VOC MS (S)

Client Reference:

QC 1172         QC 1128           Ethylbenzene         TM116         96.6         94.0           73.60:115.60         80.07:125.98           Hexachlorobutadiene         TM116         444.0         60.0	
73.60 : 115.60 80.07 : 125.98	98
Harrist Land Table 1	98
Heyachlorobutadione TM116	
Hexachioroputadiene I M116   114.0   69.0	
33.65 : 130.56 30.92 : 132.28	28
Isopropylbenzene TM116 92.0 82.6	
72.52 : 117.52 69.27 : 125.32	32
Naphthalene TM116 107.0 110.0	
83.23 : 126.48 79.15 : 121.98	98
o-Xylene TM116 <b>92.4</b> 77.6	
69.60 : 110.40 75.46 : 111.52	52
p/m-Xylene TM116 <b>94.1 90.2</b>	
71.30 : 112.70 76.97 : 121.75	75
Sec-Butylbenzene TM116 <b>116.4 69.6</b>	
59.20 : 125.20 49.27 : 129.90	90
Tetrachloroethene TM116 104.6 102.2	
85.92 : 127.92 87.96 : 133.65	65
Toluene TM116 90.2 99.0	
76.08 : 110.17 79.23 : 114.58	58
Trichloroethene TM116 96.4 94.6	
78.17 : 121.37 84.09 : 114.2 <sup>4</sup>	24
Trichlorofluoromethane TM116 102.2 107.4	
83.78 : 132.82 76.22 : 114.82	82
Vinyl Chloride TM116 94.6 98.2	
66.81 : 138.46 59.68 : 118.68	68

The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.

The figure detailed is the percentage recovery result for the AQC.

The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

Validated

150828-48 SDG: Job:

Client Reference:

H\_URS\_WIM-273

Location: Stag Brewery **Customer:** AECOM Attention: Gary Marshall Order Number: Report Number: Superseded Report:

329008

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) Sample No : **Depth:** 1.80 - 2.50 11980853 Sample ID : BH212

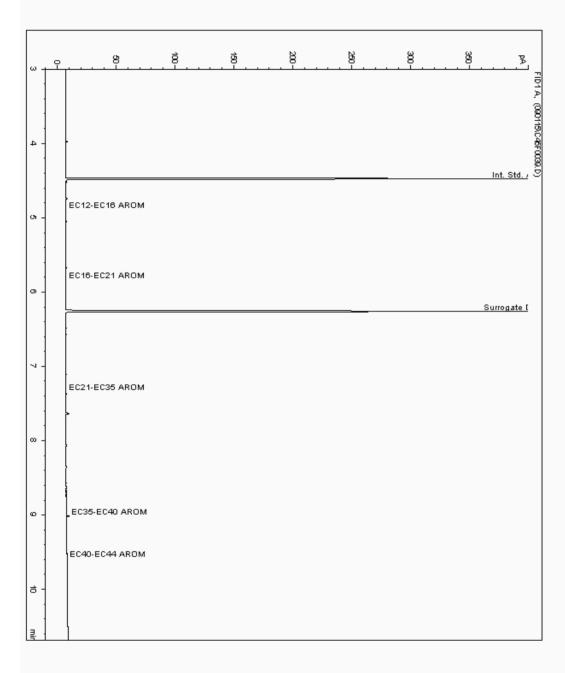
Alcontrol/Geochem Analytical Services Speciated TPH - AROM ( C12 - C40 )

Sample Identity:

11364041-02/09/15 04:50:05 PM Date Acquired : Units :

ppb BH212[1.80 - 2.50] Dilution:





Validated

150828-48 SDG: Job:

Client Reference:

H\_URS\_WIM-273

Location: Stag Brewery **Customer:** AECOM Attention: Gary Marshall Order Number: Report Number: Superseded Report:

329008

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) Sample No : **Depth:** 1.70 - 2.00 11980893 Sample ID : BH213

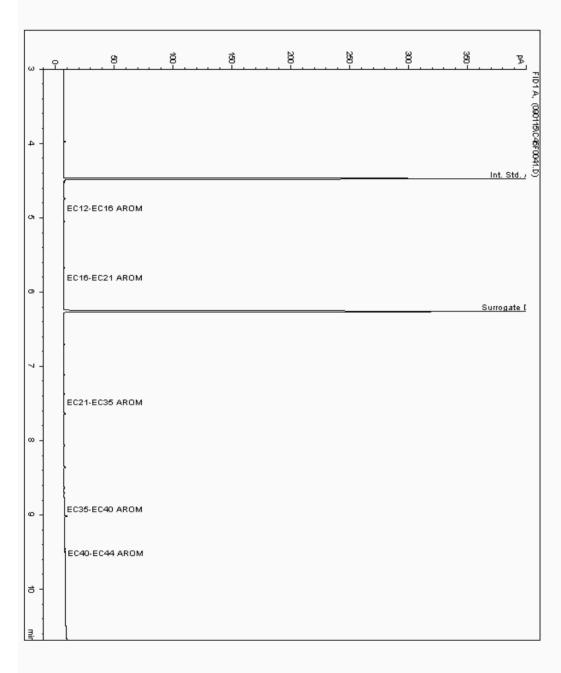
Alcontrol/Geochem Analytical Services Speciated TPH - AROM ( C12 - C40 )

Sample Identity:

11364075-02/09/15 05:29:55 PM Date Acquired : Units :

ppb BH213[1.70 - 2.00] Dilution:

->



Validated

SDG: 150828-48 Job: H\_URS\_WIM-273 Client Reference:

Location: **Customer:** Attention:

Stag Brewery AECOM Gary Marshall Order Number: Report Number: Superseded Report:

329008

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Depth**: 0.60 Sample No : 11984526 Sample ID : BH213

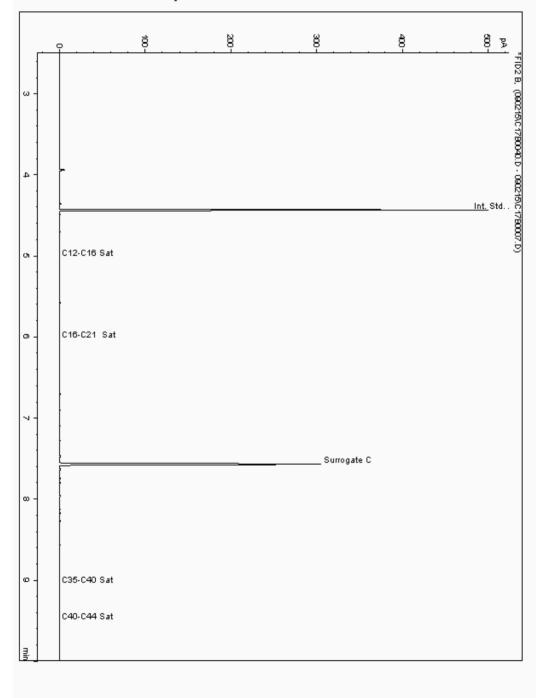
Alcontrol/Geochem Analytical Services Speciated TPH - SATS ( Cl2 - C40 )

11364051-

Sample Identity: Date Acquired : 03/09/2015 00:27:38 PM

Units ppb Dilution

CF 0.970 Multiplier



Validated

150828-48 SDG: Job: H\_URS\_WIM-273 Client Reference:

Location: **Customer:** Attention:

Stag Brewery AECOM Gary Marshall Order Number: Report Number: Superseded Report:

329008

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Depth**: 0.60 Sample No : 11984654 Sample ID : BH212

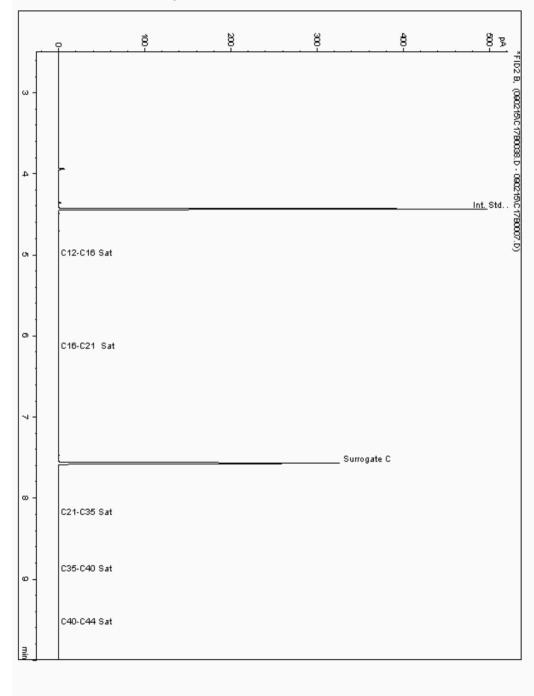
Alcontrol/Geochem Analytical Services Speciated TPH - SATS ( Cl2 - C40 )

11364026-

Sample Identity: Date Acquired : 02/09/2015 23:47:52 PM

Units ppb Dilution

CF 0.980 Multiplier



Validated

SDG: 150828-48 Job: H\_URS\_WIM-273 Client Reference:

Location: Stag Brewery **Customer:** AECOM Attention: Gary Marshall Order Number: Report Number: Superseded Report:

329008

Chromatogram

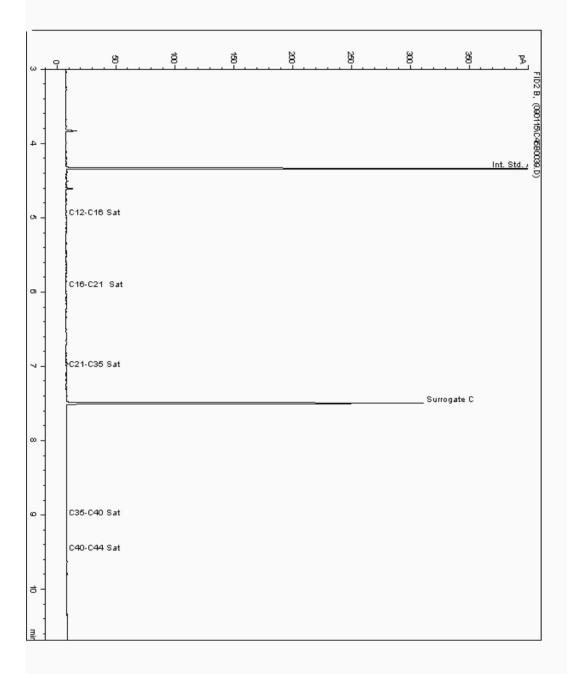
Analysis: EPH CWG (Aromatic) GC (S) **Depth**: 1.80 - 2.50 Sample No : 11980853 Sample ID : BH212

Alcontrol/Geochem Analytical Services Speciated TPH - SATS ( Cl2 - C40 )

11364042-02/09/15 04:50:05 PM Sample Identity: Date Acquired : Units :

ppb BH212[1.80 - 2.50] Dilution:





Analysis: EPH CWG (Aromatic) GC (S)

## **CERTIFICATE OF ANALYSIS**

Validated

SDG: 150828-48 Location: Stag Brewery Job: H\_URS\_WIM-273 **Customer:** AECOM Attention:

Order Number: Report Number: Superseded Report:

329008

Client Reference: Gary Marshall Chromatogram

> **Depth:** 1.70 - 2.00 Sample No : 11980893

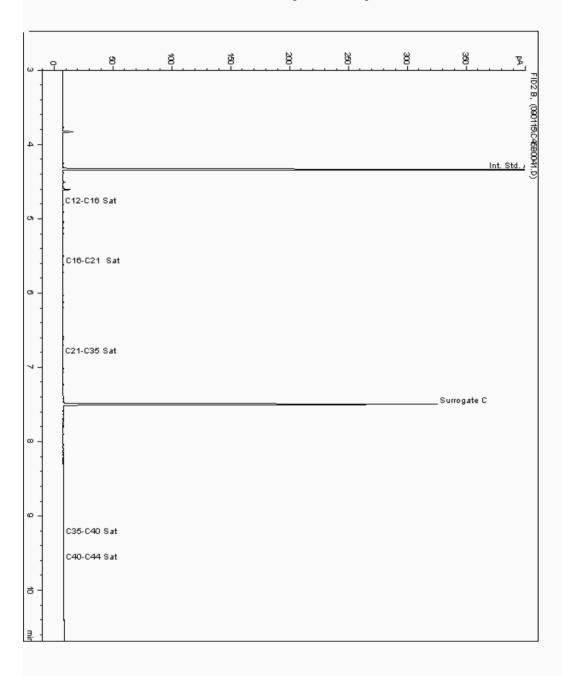
Sample ID : BH213

Alcontrol/Geochem Analytical Services Speciated TPH - SATS ( C12 - C40 )

11364076-02/09/15 05:29:55 PM Sample Identity: Date Acquired : Units :

ppb BH213[1.70 - 2.00] Dilution:

->



Validated

150828-48 SDG: Job: H\_URS\_WIM-273 Client Reference:

Location: **Customer:** Attention:

Stag Brewery AECOM Gary Marshall Order Number: Report Number: Superseded Report:

329008

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Depth**: 0.60 Sample No : 11984526 Sample ID : BH213

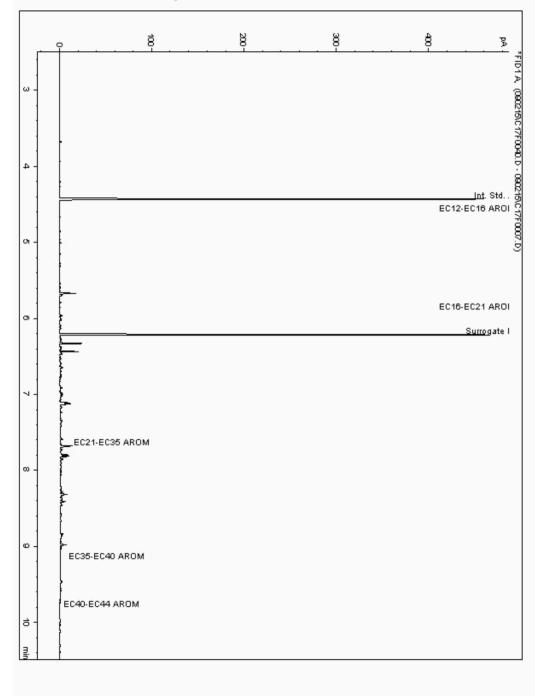
Alcontrol/Geochem Analytical Services Speciated TPH - AROM ( Cl2 - C40 )

11364052-

Sample Identity: Date Acquired : 03/09/2015 00:27:38 PM

Units ppb Dilution

CF 0.970 Multiplier



Validated

329008

 SDG:
 150828-48
 Location:
 Stag Brewery
 Order Number:

 Job:
 H\_URS\_WIM-273
 Customer:
 AECOM
 Report Number:

 Client Reference:
 Attention:
 Gary Marshall
 Superseded Report:

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) Sample No: 11984654 Depth: 0.60

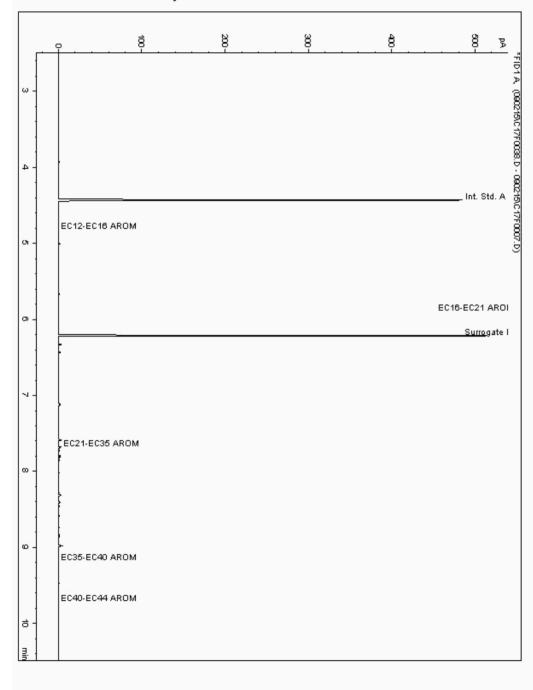
Sample ID : BH212

Alcontrol/Geochem Analytical Services Speciated TPH - AROM ( C12 - C40 )

Sample Identity: 11364027-Date Accoursed : 02/09/2015 23:47:52 PM

Units : ppb

CF : 1 Multiplier : 0.980





Validated

SDG: 150828-48 Job:

Client Reference:

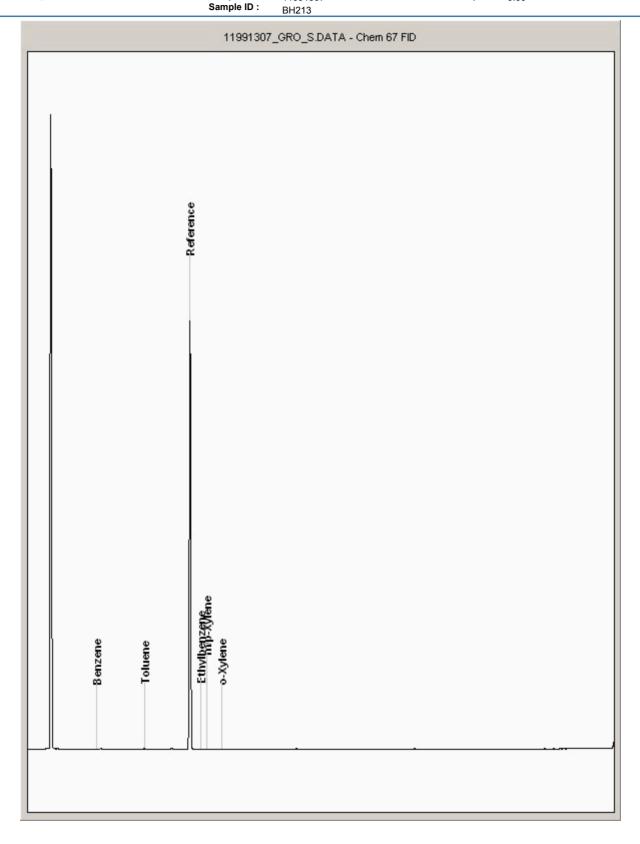
H\_URS\_WIM-273

Location: Stag Brewery AECOM **Customer:** Attention: Gary Marshall Order Number: Superseded Report:

329008

Chromatogram

Analysis: GRO by GC-FID (S)  $\textbf{Depth}: \quad 0.60$ Sample No : 11991307





Analysis: GRO by GC-FID (S)

Client Reference:

#### **CERTIFICATE OF ANALYSIS**

Validated

**SDG**: 150828-48 **Job**: H\_URS\_WIM-273 Location:Stag BreweryCustomer:AECOMAttention:Gary Marshall

Order Number: Report Number: Superseded Report:

**Depth**: 1.80 - 2.50

329008

Chromatogram

Sample No : 11991314 Sample ID : BH212

BH212 11991314\_GRO\_S.DATA - Chem 67 FID



Client Reference:

#### **CERTIFICATE OF ANALYSIS**

Validated

329008

**SDG:** 150828-48 **Job:** H\_URS\_WIM-273

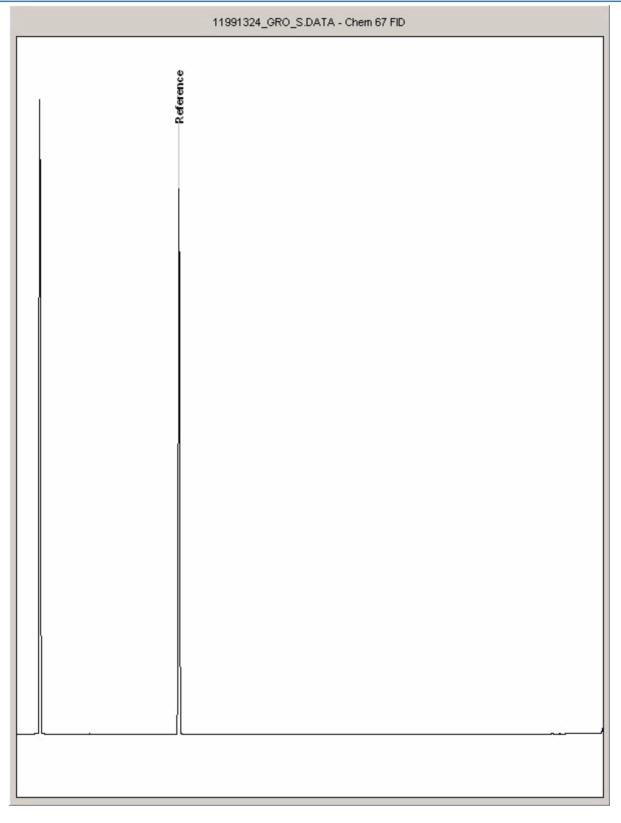
Location: Stag Bre
Customer: AECOM
Attention: Gary Ma

Stag Brewery Order Number:
AECOM Report Number:
Gary Marshall Superseded Report:

Chromatogram

**Analysis:** GRO by GC-FID (S) **Sample No:** 11991324 **Depth:** 1.70 - 2.00

Sample ID : BH213





Validated

SDG: 150828-48 Job:

Analysis: GRO by GC-FID (S)

Client Reference:

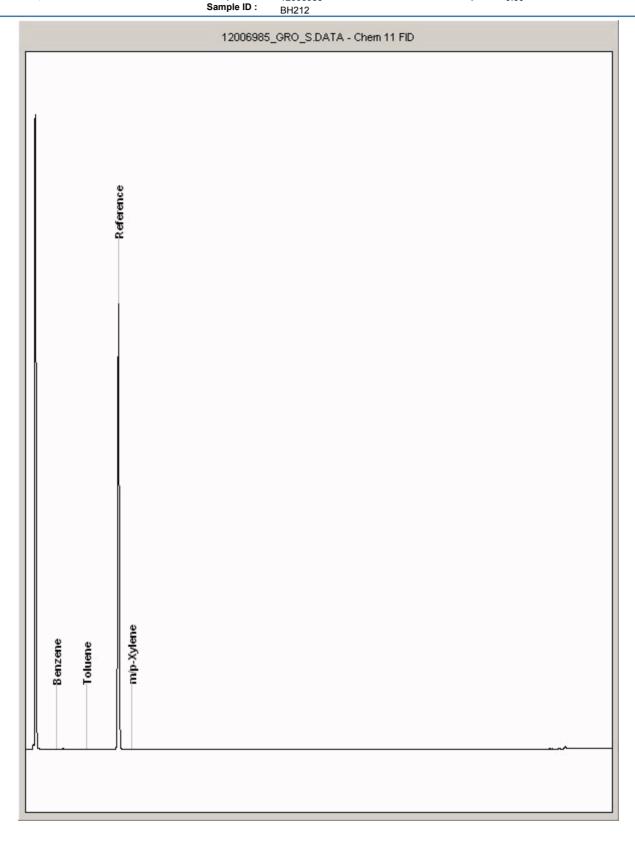
H\_URS\_WIM-273

Location: Stag Brewery AECOM **Customer:** Attention: Gary Marshall Order Number: Superseded Report:

329008

Chromatogram

 $\textbf{Depth}: \quad 0.60$ Sample No : 12006985



 150828-48
 Location:
 Stag Brewery
 Order Number:

 H\_URS\_WIM-273
 Customer:
 AECOM
 Report Number:

 nce:
 Attention:
 Gary Marshall
 Superseded Report:

Client Reference:

SDG

Job:

Appendix

 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. 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.
- 20. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.
- 21. 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.
- 22. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.
- 23. 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.
- 24. 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-C-10 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

#### SOLID MATRICES EXTRACTION SUMMARY

329008

ANALYSIS	D/C OR WET	EXTRACTION SOLVENT	EXTRACTION METHOD	SEYJANA
SOLVENT EXTRACTABLE MATTER	D&C	DOM	SOXTHERM	GRAVIMETRIC
CYCLOHEXANE EXT. MATTER	D&C	CYCLOHEXANE	SOXTHERM	GRAVIMETRIC
THIN LAYER CHROMATOGRAPHY	D&C	DOM	SOXTHERM	IATROSCAN
ELEMENTAL SULPHUR	D&C	DOM	SOXTHERM	HPLC
PHENOLSBYGOMS	WET	DOM	SOXTHERM	GCMS
HERBICIDES	D&C	HEXANEACETONE	SOXTHERM	GCMS
PESTICIDES	D&C	HEXANEACETONE	Soxtherm	GCMS
EPH (DRO)	D&C	HEXANEACETONE	END OVEREND	GCFID
EPH (MINOL)	D&C	HEXANEACETONE	END OVEREND	GCFID
EPH (OLEANED UP)	D&C	HEXANEACETONE	END OVEREND	GCFID
EPH CWG BYGC	D&C	HEXANEACETONE	END OVEREND	GCFID
POB TOT / POB CON	D&C	HEXANE:ACETONE	BND OVERBND	GCMS
POLYAROMATIC HYDROCARBONS (MS)	WET	HEXANEACETONE	MCROWAVE TM218.	GCMS
C8-C40(C6-C40) EZ FLASH	WET	HEXANEACETONE	SHAKER	GC-EZ
POLYAROMATIC HYDROCARBONS RAPID GC	WET	HEXANEACETONE	SHAKER	GC-EZ
SEM VOLATILEORGANIC COMPOUNDS	WET	DOMAGETONE	SONICATE	GCMS

#### LIQUID MATRICES EXTRACTION SUMMARY

ANALYSIS	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSS
PAHMS	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCMS
EPH .	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GC FID
EPH CWG	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GC FID
MINERALOIL	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GC FID
POB 700 NGENERS	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCMS
POB TOTAL	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCMS
svoc	DOM	LIQUID/LIQUID SHAKE	GCMS
FREESULPHUR	DOM	SOLID PHASE EXTRACTION	HPLC
PEST OCP/OPP	DOM	LIQUID/LIQUID SHAKE	GCMS
TRIAZINE HERBS	DOM	LIQUID/LIQUID SHAKE	GCMS
PHENOLSMS	DOM	SOLID PHASE EXTRACTION	GCMS
TPH byINFRARED (IR)	TCE	LIQUID/LIQUID SHAKE	HPLC
MINERALOIL by IR	TCE	LIQUID/LIQUID SHAKE	HPLC
GLYCOLS	NONE	DIRECT INJECTION	GCMS

<u>Identification of Asbestos in Bulk</u> <u>Materials</u>

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).

Asbestos Type	Common Name
Chrysofile	White Asbestos
Amoste	Brown Asbestos
Crododite	Blue Asbestos
Fibrous Adjindite	-
Fibrous Anthophylite	-
Fibrous Trendile	-

#### 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.

# **ALcontrol Laboratories**

#### **CERTIFICATE OF ANALYSIS**

150828-48 Location: SDG Stag Brewery Order Number: H URS WIM-273 **AECOM** 329008 **Customer:** Report Number: Attention: Gary Marshall Superseded Report:

Client Reference:

# **Appendix** General

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICS and SVOC 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 all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples 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 analysed 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. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible. The quantity of asbestos present is not determined unless specifically requested.
- 7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.
- 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 Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect
- 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 C5-C12 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.

# Sample Deviations

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
4	Holding time exceeded before sample received
5	Samples exceeded holding time before presevation was performed
§	Sampled on date not provided
•	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to sampled on date
&	Sample Holding Time exceeded - Late arrival of instructions.

#### **Asbestos**

Identification of Asbestos in Bulk Materials & Soils

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

Asbestos Type	Common Name
Chrysofile	White Asbestos
Amoste	BrownAsbestos
Orodobite	Blue Asbestos
Fibrous Adinoite	-
Fibrous Anhaphylite	-
Fibrous Trendile	=

#### 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.

Unit 7-8 Hawarden Business Park Manor Road (off Manor Lane) Hawarden

> Deeside CH5 3US Tel: (01244) 528700

Fax: (01244) 528701 email: mkt@alcontrol.com Website: www.alcontrol.com

AECOM St. George's House 2nd Floor 5 St. George's Road Wimbledon Greater London SW19 4DR

Attention: Gary Marshall

# **CERTIFICATE OF ANALYSIS**

 Date:
 09 September 2015

 Customer:
 H\_URS\_WIM

 Sample Delivery Group (SDG):
 150828-57

Your Reference:

Location:Stag BreweryReport No:329023

We received 5 samples on Friday August 28, 2015 and 4 of these samples were scheduled for analysis which was completed on Wednesday September 09, 2015. 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









Validated

 SDG:
 150828-57

 Job:
 H\_URS\_WIM-273

 Client Reference:

Location: Customer: Attention:

Stag Brewery AECOM Gary Marshall Order Number: Report Number: Superseded Report:

329023

# **Received Sample Overview**

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
11978081	BH8A		0.50	26/08/2015
11978082	BH8A		0.90	26/08/2015
11978083	BH8A		3.00 - 3.50	26/08/2015
11978079	ВН9А		0.50	26/08/2015
11978080	ВН9А		2.20 - 3.30	26/08/2015

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

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150828-57 SDG: Job:

H\_URS\_WIM-273

Location: Stag Brewery Customer: AECOM

Order Number: Report Number: Superseded Report:

329023

Job: H_URS_V Client Reference:	VIM-273	Custome: Attention			OM Mars	shall	
SOLID Results Legend X Test	Lab Sample N	No(s)		11978081	11978083	6708761.1	11978080
No Determination Possible	Custome Sample Refer		!	RISA	вн8А	ВПУА	ВН9А
	AGS Refere	nce					
	Depth (m	•		0 50	3.00 - 3.50	0.50	.30
	Containe	r	400g Tub (ALE214) 250g Amber Jar (AL	60g VOC (AL F215)	60g VOC (ALE215) 400g Tub (ALE214)	400g Tub (ALE214) 250g Amber Jar (AL	60g VOC (ALE215) 400g Tub (ALE214) 250g Amber Jar (AL
Ammonium Soil by Titration	All	NDPs: 0 Tests: 4	X		X	X	x
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 2	X			X	
Easily Liberated Sulphide	All	NDPs: 0 Tests: 4	X		X	X	x
EPH CWG (Aliphatic) GC (S)	All	NDPs: 0 Tests: 4	x	×	<u>.</u>	X	x
EPH CWG (Aromatic) GC (S)	All	NDPs: 0 Tests: 4	X	×	<u> </u>	X	X
GRO by GC-FID (S)	All	NDPs: 0 Tests: 4		x	x	×	( X
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 4	X		X	X	x
Metals in solid samples by OES	All	NDPs: 0 Tests: 4	X	×	<u>(</u>	X	x
PAH by GCMS	All	NDPs: 0 Tests: 4	x	×	<u>(</u>	X	X
рН	All	NDPs: 0 Tests: 4	X		X	X	x
Sample description	All	NDPs: 0 Tests: 4	X	×	<u>(</u>	X	X
Total Organic Carbon	All	NDPs: 0 Tests: 4	X	×	<u> </u>	X	x
Total Sulphate	All	NDPs: 0 Tests: 4	x	×	<u> </u>	X	x
TPH CWG GC (S)	All	NDPs: 0 Tests: 4	x	×	2	x	x
VOC MS (S)	All	NDPs: 0 Tests: 4		x	X	×	( x

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**SDG**: 150828-57 **Job**: H\_URS\_W

H\_URS\_WIM-273

Location: Stag Brewery
Customer: AECOM

Attention:

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329023

Gary Marshall Superseded Rep

# **Sample Descriptions**

#### **Grain Sizes**

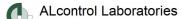
Client Reference:

very fine	<0.0	63mm	fine	0.063mm - 0.1mm	nedium	0.1mm	n - 2mm	coarse	2mm - 1	.0mm	very coar	se >10mr
Lab Sample	No(s)	Custom	er Sample R	ef. Depth (m)	Col	our	Descriptio	on (	Grain size	Incl	usions	Inclusions 2
119780	81		BH8A	0.50	Bla	ack	Sand	(	).1 - 2 mm	Sto	ones	None
119780	83		BH8A	3.00 - 3.50	Light	Brown	Sand	(	).1 - 2 mm	Sto	ones	None
119780	79		ВН9А	0.50	Light	Brown	Sand	(	).1 - 2 mm	Sto	ones	None
119780	80		ВН9А	2.20 - 3.30	Dark	Brown	Sandy Cla Loam	у (	).1 - 2 mm	Sto	ones	None

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 ocurring 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.



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150828-57 SDG: Location: Stag Brewery Order Number: Job:

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H\_URS\_WIM-273

Customer: AECOM Attention: Gary Marshall Report Number: Superseded Report:

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			Attention. Oa	iry iviai siraii		Ouperscaed Repo	<u> </u>
Results Legend	(	Customer Sample R	BH8A	BH8A	BH9A	BH9A	
# ISO17025 accredited.							
M mCERTS accredited.  aq Aqueous / settled sample.							
diss.filt Dissolved / filtered sample.		Depth (m)	0.50	3.00 - 3.50	0.50	2.20 - 3.30	
tot.unfilt Total / unfiltered sample.		Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	
* Subcontracted test.  ** % recovery of the surrogate standa		Date Sampled	26/08/2015	26/08/2015	26/08/2015	26/08/2015	
** % recovery of the surrogate standa check the efficiency of the method.		Sampled Time					
results of individual compounds w		Date Received	28/08/2015 150828-57	28/08/2015	28/08/2015	28/08/2015	
samples aren't corrected for the re-	covery	SDG Ref	11978081	150828-57 11978083	150828-57 11978079	150828-57 11978080	1
(F) Trigger breach confirmed 1-5&+§@ Sample deviation (see appendix)		Lab Sample No.(s) AGS Reference	11070001	11070000	11010010	1.070000	
	LOD/Units						
Component							
Moisture Content Ratio (%	%	PM024	17	9.5	7.3	14	
of as received sample)							
Exchangeable Ammonia	<15	TM024	<15	18.4	<15	71.4	
		1101024					
as NH4	mg/kg		M	M	M	M	
Organic Carbon, Total	<0.2 %	TM132	19.1	<0.2	<0.2	0.443	
			М	М	М	М	
рН	1 pH	TM133	8.38	7.66	10.2	11.2	
рп		1101133					
	Units		M	М	M	M	
Chromium, Hexavalent	<0.6	TM151	<0.6	<0.6	<0.6	<0.6	
,	mg/kg		#	#	#	#	
Outable E9-19		T14400					
Sulphide, Easily liberated	<15	TM180	40.4	<15	<15	252	1
	mg/kg		<b>♦</b> #	<b>♦</b> #	<b>♦</b> #	<b>♦</b> #	<u>                                       </u>
Arsenic	<0.6	TM181	13.7	14.7	16.5	15.5	
	mg/kg						1
			M	M	M	M	
Cadmium	<0.02	TM181	0.344	0.338	0.395	0.378	1
	mg/kg		М	М	М	М	1
Chromium	<0.9	TM181	13.9	19.1	18.9	21.1	
Gill Gill Gill		1 101 10 1					1
	mg/kg		M	М	M	M	
Copper	<1.4	TM181	80.7	5.98	8.36	12	
	mg/kg		М	М	M	М	
Land		TM404					
Lead	<0.7	TM181	41.4	6.89	12.4	23.7	
	mg/kg		M	M	M	M	
Mercury	<0.14	TM181	<0.14	<0.14	<0.14	<0.14	
,	mg/kg						
			M	M	M	M	
Nickel	<0.2	TM181	37.6	18.8	23.6	20.7	
	mg/kg		М	М	M	М	
Selenium	<1 mg/k	g TM181	<1	<1	<1	<1	
Geleriidiri	- i ilig/k	g ilwiioi					
			#	#	#	#	
Zinc	<1.9	TM181	24.4	25.5	34.5	62.4	
	mg/kg		М	М	М	М	
Sulphate, Total	<48	TM221	775	80.9	212	1040	
Sulphate, Total		1 10122 1					
	mg/kg		M	M	M	M	
							1
		+					<del>                                     </del>
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		+					<del>                                     </del>
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150828-57 SDG: Location: Stag Brewery Order Number: Job: H\_URS\_WIM-273

Client Reference:

Customer: AECOM Attention: Gary Marshall

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Superseded Report:

PAH by GCMS				•				
Results Legend # ISO17025 accredited.	•	Customer Sample R	BH8A	BH8A	ВН9А	ВН9А		
M mCERTS accredited.  aq Aqueous / settled sample.								
diss.filt Dissolved / filtered sample.		Depth (m) Sample Type	0.50 Soil/Solid	3.00 - 3.50 Soil/Solid	0.50 Soil/Solid	2.20 - 3.30 Soil/Solid		
tot.unfilt Total / unfiltered sample.  * Subcontracted test.		Date Sampled	26/08/2015	26/08/2015	26/08/2015	26/08/2015		
** % recovery of the surrogate standa check the efficiency of the method.	. The	Sampled Time Date Received	28/08/2015	28/08/2015	28/08/2015	28/08/2015		
results of individual compounds wi samples aren't corrected for the re-		SDG Ref	150828-57	150828-57	150828-57	150828-57		
(F) Trigger breach confirmed 1-5&+§@ Sample deviation (see appendix)		Lab Sample No.(s) AGS Reference	11978081	11978083	11978079	11978080		
Component	LOD/Units							
Naphthalene-d8 %	%	TM218	122	101	99	95.4		
recovery**								
Acenaphthene-d10 %	%	TM218	124	97.4	98.4	94.8		
recovery** Phenanthrene-d10 %	%	TM218	118	93.6	96.9	93.4		
recovery**	70	1101210	110	93.0	96.9	93.4		
Chrysene-d12 %	%	TM218	99.3	83.8	92.1	84.9		
recovery**								
Perylene-d12 %	%	TM218	96.2	83.6	99	91.4		
recovery**					-			
Naphthalene	<9 µg/k	g TM218	111	<9	<9	32.7		
Acenaphthylene	<12	TM218	M 16	<12	<12	15		
. Sonapharyiono	μg/kg	1101210	M		M	13 M		
Acenaphthene	<8 µg/kg	g TM218	<8	<8	<8	11		
			M		M	М		
Fluorene	<10	TM218	<10	<10	<10	54.6		
Dhananthara	μg/kg	TM040	M		M	M		
Phenanthrene	<15 µg/kg	TM218	215 M	<15 M	<15 M	360 M		
Anthracene	<16	TM218	33.2	<16	<16	105		
	μg/kg		M		М	М		
Fluoranthene	<17	TM218	237	<17	<17	400		
	μg/kg		M		M	M		
Pyrene	<15	TM218	186	<15	16.7	317		
Benz(a)anthracene	μg/kg <14	TM218	128	<14	24.7	M 283		
Deliz(a)antinacene	μg/kg	1101210	126 M		24.7 M	263 M		
Chrysene	<10	TM218	137	<10	<10	218		
·	μg/kg		М	М	М	М		
Benzo(b)fluoranthene	<15	TM218	193	<15	24.6	306		
Danie (IVII) and the are	μg/kg	TM040	M		M	M		
Benzo(k)fluoranthene	<14 µg/kg	TM218	59.9 M	<14 M	<14 M	108 M		
Benzo(a)pyrene	<15	TM218	122	<15	18.2	259		
( // /	μg/kg		М		М	М		
Indeno(1,2,3-cd)pyrene	<18	TM218	76.6	<18	<18	121		
<b>5</b> 11 (1) (1	μg/kg		M		M	M		
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	<23	<23	<23	40.4		
Benzo(g,h,i)perylene	μg/kg <24	TM218	M 108	M <24	M <24	M 144		
20.120(g,,./po. ).0.10	μg/kg		M		 M	м		
PAH, Total Detected	<118	TM218	1620	<118	<118	2780		
USEPA 16	μg/kg							
		+		1				
		+		+			-	
				-				
		+						
	I .	1		1			1	

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TPH CWG (S)								
Results Legend	Cu	ustomer Sample R	BH8A	BH8A	BH9A	BH9A		
# ISO17025 accredited.								
M mCERTS accredited.  aq Aqueous / settled sample.								
diss.filt Dissolved / filtered sample.		Depth (m)	0.50	3.00 - 3.50	0.50	2.20 - 3.30		
tot.unfilt Total / unfiltered sample.		Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid		
* Subcontracted test.  ** % recovery of the surrogate standa	and to	Date Sampled	26/08/2015	26/08/2015	26/08/2015	26/08/2015		
check the efficiency of the method		Sampled Time						
results of individual compounds w		Date Received	28/08/2015	28/08/2015	28/08/2015	28/08/2015		
samples aren't corrected for the re	covery	SDG Ref	150828-57 11978081	150828-57 11978083	150828-57 11978079	150828-57 11978080		
(F) Trigger breach confirmed		Lab Sample No.(s)	11970001	11970003	11970079	11970000		
1-5&+§@ Sample deviation (see appendix)		AGS Reference						
Component	LOD/Units	Method						
GRO Surrogate %	%	TM089	72	107	113	97		
recovery**								
GRO TOT (Moisture	<44	TM089	<44	<44	178	106		
Corrected)	μg/kg		M	N	I M	M		
Methyl tertiary butyl ether	<5 μg/kg	TM089	<5	<5	<5	<5		
	√5 μg/kg	110009						
(MTBE)			M	IV	I M	M		
Benzene	<10	TM089	<10	<10	<10	<10		
	μg/kg		M	N	М	М		
Toluene	<2 µg/kg	TM089	2.42	<2	<2	<2		
			M	N	I M	M		
Ethylbenzene	<3 µg/kg	TM089	<3	<3	<3	<3		
Laryidenzene	-5 µg/kg	i ivious						
			M			M		
m,p-Xylene	<6 µg/kg	TM089	<6	<6	<6	<6		
	.5 5	1	M			М		
. W. Israe	.0 "	T14000						
o-Xylene	<3 µg/kg	TM089	<3	<3	<3	<3		
		1	M	N	I М	M		
sum of detected mpo	<9 µg/kg	TM089	<9	<9	<9	<9		
	<9 μg/kg	110009	<b>&lt;</b> 9	\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \		
xylene by GC								
sum of detected BTEX by	<24	TM089	<24	<24	<24	<24		
GC	μg/kg							
Aliphatics >C5-C6	<10	TM089	<10	<10	<10	<10		
	μg/kg							
Aliabetics > C6 C9		TM089	14.5	<10	<10	19.7		
Aliphatics >C6-C8	<10	110089	14.5	<10	<10	19.7		
	μg/kg							
Aliphatics >C8-C10	<10	TM089	10.9	<10	11.9	22		
7 inprination * Co o 10		1111000	10.0	1	11.0			
	μg/kg							
Aliphatics >C10-C12	<10	TM089	<10	<10	87.4	25.5		
	μg/kg							
45 1 5 200 040		T14470		100	100	4000		
Aliphatics >C12-C16	<100	TM173	555	<100	<100	1290		
	μg/kg							
Aliphatics >C16-C21	<100	TM173	1230	<100	<100	3060		
Aliphatics >C10-C21		1101173	1230	100	100	3000		
	μg/kg							
Aliphatics >C21-C35	<100	TM173	5830	<100	<100	6690		
· '	μg/kg							
				122				
Aliphatics >C35-C44	<100	TM173	567	<100	<100	<100		
	μg/kg							
Total Aliphatics >C12-C44	<100	TM173	8180	<100	<100	11000		
10tal Aliphatics /012-044		TIVIT/3	0100	<b>\100</b>	100	11000		
	μg/kg							
Aromatics >EC5-EC7	<10	TM089	<10	<10	<10	<10		
	μg/kg	1						
		T1105			1			
Aromatics >EC7-EC8	<10	TM089	<10	<10	<10	<10		
	μg/kg	1						
Aromatics >EC8-EC10	<10	TM089	<10	<10	<10	15.1		
/ 40matics / LOO-EO 10		1 IVIUOS	~10	10	1	13.1		
	μg/kg							
Aromatics >EC10-EC12	<10	TM089	<10	<10	58.3	17.4		
	μg/kg		-	1				
==::				18:	125			
Aromatics >EC12-EC16	<100	TM173	<100	<100	<100	2810		
	μg/kg	1						
Aromatics >EC16-EC21	<100	TM173	<100	<100	<100	19400		
AIUIIIalius >EU 10-EU21		1 IVI 1 / 3	< 100	<100	\ \100	19400		
	μg/kg							
Aromatics >EC21-EC35	<100	TM173	<100	<100	<100	66300		
			100	1100				
	μg/kg	+						
Aromatics >EC35-EC44	<100	TM173	<100	<100	<100	16400		
	μg/kg	1						
Aramatics > FO40 FO44		TN 44 70	-100	-400	-400	5000	<del>                                     </del>	
Aromatics >EC40-EC44	<100	TM173	<100	<100	<100	5980		
	μg/kg							
Total Aromatics	<100	TM173	<100	<100	<100	105000		
		1101173	<b>~100</b>	100	100	103000		
>EC12-EC44	μg/kg							
Total Aliphatics &	<100	TM173	8220	<100	111	116000		
Aromatics >C5-C44	μg/kg	1						
	~9 <sup>,</sup> 1\9	+						
		1						
		1						
	l	1					[	

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150828-57 Stag Brewery SDG: Location: Order Number: Job: H\_URS\_WIM-273

Client Reference:

Customer: Attention:

AECOM Report Number: Gary Marshall Superseded Report:

Ollent Reference.			Attention.	Oa	i y iviai si iaii			Ouperseuc	u itcpt	J1 C.	
VOC MS (S)											
Results Legend		Customer Sample R	BH8A		BH8A		BH9A	BH9A			
# ISO17025 accredited.  M mCERTS accredited.											
aq Aqueous / settled sample. diss.filt Dissolved / filtered sample.		Depth (m)	0.50		3.00 - 3.50		0.50	2.20 - 3.3	80		
tot.unfilt Total / unfiltered sample.		Sample Type	Soil/Solid		Soil/Solid		Soil/Solid	Soil/Soli	d		
* Subcontracted test.  ** % recovery of the surrogate stand	lard to	Date Sampled Sampled Time	26/08/2015		26/08/2015		26/08/2015	26/08/20	15		
check the efficiency of the method results of individual compounds w		Date Received	28/08/2015		28/08/2015		28/08/2015	28/08/20			
samples aren't corrected for the re		SDG Ref Lab Sample No.(s)	150828-57 11978081		150828-57 11978083		150828-57 11978079	150828-5 1197808			
(F) Trigger breach confirmed 1-5&+§@ Sample deviation (see appendix)		AGS Reference									
Component	LOD/Unit	s Method									
Dibromofluoromethane**	%	TM116	114		109		120	112			
				_							
Toluene-d8**	%	TM116	102		101		102	102			
				_							
4-Bromofluorobenzene**	%	TM116	88.1		95		96.1	92.2			
Dieblorediffueremethene	∠6α/le	g TM116	<60	$\dashv$	<6		<6	<6		<del>                                     </del>	
Dichlorodifluoromethane	<6 µg/k	g ilviilo		м	<0	М		M ~ ~ O	М		
Chloromethane	<7 μg/k	g TM116	<70	IVI	<7	IVI	<7	<7	IVI		
omerementarie	l r pg/n	9   1111110		#	•	#		#	#		
Vinyl Chloride	<6 µg/k	g TM116	<60	"	<6		<6	<6			
1		~	1	М		М		и	М		
Bromomethane	<10	TM116	<100		<10		<10	<10			
	μg/kg		I	М		М		И	М		
Chloroethane	<10	TM116	<100		<10		<10	<10			
	μg/kg			М		М		И	M		
Trichlorofluorormethane	<6 µg/k	g TM116	<60		<6		<6	<6			
1.1 Diable as albana	-110	TM44C		М	-10	M		M	M	-	
1,1-Dichloroethene	<10 µg/kg	TM116	<100	_	<10	щ	<10	<b>~10</b>	ш		
Carbon Disulphide	49/kg <7 μg/k	g TM116	<70	#	<7	#	<7	# <7	#	<del>                                     </del>	
Carbon Bisaipinae	γ μg/K	9   1111110		м	-1	М		и ''	М		
Dichloromethane	<10	TM116	<100		<10		<10	<10			
	μg/kg			#		#		#	#		
Methyl Tertiary Butyl Ether	<10	TM116	<100		<10		<10	<10			
	μg/kg		l	М		М		И	M		
trans-1,2-Dichloroethene	<10	TM116	<100		<10		<10	<10			
	μg/kg	=		М		М		М	M		
1,1-Dichloroethane	<8 µg/k	g TM116	<80		<8		<8	<8			
cis-1,2-Dichloroethene	<6 µg/k	g TM116	<60	М	<6	М	<6	<6 <6	M	<del>                                     </del>	
dis 1,2 Didilioroctricite	io μg/it	9   1111110		м		М		И	М		
2,2-Dichloropropane	<10	TM116	<100		<10		<10	<10			
	μg/kg		ı	М		М		м	М		
Bromochloromethane	<10	TM116	<100		<10		<10	<10			
	μg/kg			М		М		И	M		
Chloroform	<8 µg/k	g TM116	<80		<8		<8	<8			
1,1,1-Trichloroethane	<7 μg/k	g TM116	<70	М	<7	М	<7	√/ <7	M		
1, 1, 1-THCHIOTOETHANE	γ μg/k	g   TWITTO		м	~1	М		м - '	М		
1,1-Dichloropropene	<10	TM116	<100	IVI	<10	171	<10	<10	101		
' ' '	μg/kg		1	М		М		м	М		
Carbontetrachloride	<10	TM116	<100		<10		<10	<10			
	μg/kg			М		М		И	M		
1,2-Dichloroethane	<5 μg/k	g TM116	<50		<5		<5	<5			
Benzene	<9 µg/k	g TM116	<90	М	<9	М	<9	VI <9	M	-	
Belizelle	-9 μg/k	g HWITTO		м	<b>\9</b>	М		И	М		
Trichloroethene	<9 µg/k	g TM116	<90	IVI	<9	171	<9	<9	101		
		~		#		#	-	#	#		
1,2-Dichloropropane	<10	TM116	<100		<10		<10	<10			
	μg/kg			М		М		И	M		
Dibromomethane	<9 µg/k	g TM116	<90		<9		<9	<9			
	- "	=		М		М		М	M		
Bromodichloromethane	<7 μg/k	g TM116	<70		<7	N 4	<7	<7			
cis-1,3-Dichloropropene	<10	TM116	<100	М	<10	М	<10	VI <10	M	<del>                                     </del>	+
Gio-1,0-Dictilotoptopene	µg/kg	TIVITIO		м	~10	М		M ~10	М		
Toluene	<7 μg/k	g TM116	<70		<7		<7	<7	141	<u> </u>	<del>                                     </del>
				М		М		М	М	<u> </u>	<u> </u>
trans-1,3-Dichloropropene	<10	TM116	<100	7	<10		<10	<10			
	μg/kg			_						<del></del>	<del>                                     </del>
1,1,2-Trichloroethane	<10	TM116	<100		<10		<10	<10			

μg/kg

М

Gary Marshall

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Superseded Report:

329023

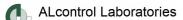
150828-57 Stag Brewery SDG Location: Order Number: Job: H\_URS\_WIM-273 **Customer: AECOM** Report Number:

Client Reference: Attention:

VOC MS (S) Customer Sample R BH8A BH8A ВН9А BH9A ISO17025 accredited.

mCERTS accredited.

Aqueous / settled sampl
Dissolved / filtered sampl aq diss.filt Depth (m) 3.00 - 3.50 2.20 - 3.30 0.50 0.50 Sample Type Soil/Solid 26/08/2015 Soil/Solid 26/08/2015 tot.unfilt Total / unfiltered sample 26/08/2015 26/08/2015 Subcontracted test Date Sampled % 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 28/08/2015 28/08/2015 28/08/2015 28/08/2015 Date Received 150828-57 150828-57 150828-57 150828-57 SDG Ref 11978081 11978083 11978079 11978080 nple No.(s) (F) Trigger breach confirmed 1-5&+§@ Sample deviation (see appendix) AGS Reference Component LOD/Units Method TM116 1,3-Dichloropropane <7 µg/kg <70 <7 <7 <7 M M M M Tetrachloroethene <5 µg/kg TM116 < 50 <5 <5 <5 М M M M Dibromochloromethane <10 TM116 <100 <10 <10 <10 µg/kg M M M M 1,2-Dibromoethane <10 TM116 <100 <10 <10 <10 μg/kg Μ Μ Μ Μ <5 Chlorobenzene <5 µg/kg TM116 <50 <5 <5 Μ Μ Μ Μ 1,1,1,2-Tetrachloroethane <10 TM116 <100 <10 <10 <10 μg/kg М Μ Μ М Ethylbenzene TM116 <40 <4 <4 <4 <4 µg/kg Μ Μ Μ Μ TM116 <100 <10 <10 <10 p/m-Xylene <10 µg/kg # # # # o-Xylene <10 TM116 <100 <10 <10 <10 µg/kg М М Μ M Styrene <10 TM116 <100 <10 <10 <10 μg/kg # Bromoform <10 TM116 <100 <10 <10 <10 μg/kg M M M M Isopropylbenzene TM116 <50 <5 <5 <5 <5 µg/kg # # # # 1,1,2,2-Tetrachloroethane TM116 <100 <10 <10 <10 <10 μg/kg Μ М Μ Μ 1,2,3-Trichloropropane <16 TM116 <160 <16 <16 <16 μg/kg Μ Μ Μ М TM116 <100 <10 <10 <10 Bromobenzene <10 µg/kg Μ М Μ М <100 <10 <10 Propylbenzene TM116 <10 <10 μg/kg Μ Μ М Μ 2-Chlorotoluene TM116 <90 <9 <9 <9 <9 µg/kg М М М M 1,3,5-Trimethylbenzene <8 µg/kg TM116 <80 <8 <8 <8 Μ M M M 4-Chlorotoluene <10 TM116 <100 <10 <10 <10 μg/kg Μ M M M tert-Butylbenzene <14 TM116 <140 <14 <14 <14 µg/kg Μ M M M 1,2,4-Trimethylbenzene TM116 <90 <9 <9 <9 <9 µg/kg # # # # TM116 <100 <10 <10 <10 sec-Butylbenzene <10 µg/kg Μ Μ Μ Μ <10 TM116 <100 <10 <10 <10 4-Isopropyltoluene µg/kg M М M М TM116 <80 <8 <8 1.3-Dichlorobenzene <8 <8 µg/kg Μ Μ Μ Μ 1,4-Dichlorobenzene TM116 <50 <5 <5 <5 <5 µg/kg M M M Μ n-Butylbenzene TM116 <110 <11 <11 <11 <11 µg/kg 1,2-Dichlorobenzene <10 TM116 <100 <10 <10 <10 μg/kg M M Μ M 1,2-Dibromo-3-chloroprop <14 TM116 <140 <14 <14 <14 μg/kg ane M M M M Tert-amyl methyl ether TM116 <100 <10 <10 <10 <10 µg/kg # # # # TM116 <200 <20 <20 <20 1,2,4-Trichlorobenzene <20 µg/kg Hexachlorobutadiene <200 <20 TM116 <20 <20 <20 µg/kg Naphthalene <13 TM116 <130 <13 <13 <13 μg/kg Μ Μ Μ



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329023

Superseded Report:

Stag Brewery 150828-57 Location: SDG: Order Number: H\_URS\_WIM-273 Job: **Customer:** AECOM Report Number:

Attention: Gary Marshall Client Reference:

VOC MS (S)

Customer Sample R BH8A BH8A ВН9А BH9A Results Legend
ISO17025 accredited.
mCERTS accredited.
Aqueous / settled sample.
Dissolved / filtered sample.
Total / unfiltered sample. aq diss.filt tot.unfilt 2.20 - 3.30 Depth (m) 3.00 - 3.50 0.50 0.50 Sample Type Soil/Solid 26/08/2015 Soil/Solid 26/08/2015 Soil/Solid 26/08/2015 Soil/Solid 26/08/2015 tot.unfit 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

1-58+\$@ Sample deviation (see appendix) Date Sampled Sampled Time 28/08/2015 28/08/2015 28/08/2015 28/08/2015 Date Received 150828-57 11978081 150828-57 150828-57 150828-57 SDG Ref b Sample No.(s) AGS Reference 11978083 11978079 11978080 Component LOD/Units Method 1,2,3-Trichlorobenzene TM116 <200 <20 <20 <20 <20 μg/kg #



SDG:

150828-57

**CERTIFICATE OF ANALYSIS** 

Validated

Order Number:

329023

H\_URS\_WIM-273 AECOM Job: **Customer:** Report Number:

Location:

Client Reference: Attention: Gary Marshall Superseded Report:

# **Asbestos Identification - Soil**

Stag Brewery

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH8A 0.50 SOLID 26/08/2015 00:00:00 01/09/2015 12:03:31 150828-57 11978081 TM048	4/9/15	Kevin Hughes	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH9A 0.50 SOLID 26/08/2015 00:00:00 01/09/2015 11:54:18 150828-57 11978079 TM048	4/9/15	Kevin Hughes	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

09:10:12 09/09/2015

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Client Reference:

# **CERTIFICATE OF ANALYSIS**

Validated

**SDG:** 150828-57 **Job:** H\_URS\_WIM-273 Location: Stag Brewery
Customer: AECOM
Attention: Gary Marshall

Order Number:
Report Number: 32:
Superseded Report:

329023

# **Table of Results - Appendix**

Method No	Reference	Description	Wet/Dry Sample <sup>1</sup>	Surrogat Correcte
ASB_PREP				
PM001		Preparation of Samples for Metals Analysis		
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material		
TM024	Method 4500A & B, AWWA/APHA, 20th Ed., 1999	Determination of Exchangeable Ammonium and Ammoniacal Nitrogen as N by titration on solids		
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material		
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)		
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS		
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		
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser		
TM173	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GC-FID		
TM180	Sulphide in waters and waste waters 1991 ISBN 01 175 7186 SCA rec. 2007 (unpublished)'	The Determination Of Easily Liberated Sulphide In Soil Samples by Ion Selective Electrode Technique		
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		
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid extractable Sulphate in Soils by IRIS Emission Spectrometer		
TM243		Mixed Anions In Soils By Kone		

<sup>&</sup>lt;sup>1</sup> Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.



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329023

 SDG:
 150828-57
 Location:
 Stag Brewery
 Order Number:

 Job:
 H\_URS\_WIM-273
 Customer:
 AECOM
 Report Number:

Client Reference: Attention: Gary Marshall Superseded Report:

# **Test Completion Dates**

				•
Lab Sample No(s)	11978081	11978083	11978079	11978080
Customer Sample Ref.	BH8A	BH8A	BH9A	BH9A
•				
AGS Ref.				
Depth	0.50	3.00 - 3.50	0.50	2.20 - 3.30
Туре	SOLID	SOLID	SOLID	SOLID
Ammonium Soil by Titration	09-Sep-2015	08-Sep-2015	09-Sep-2015	08-Sep-2015
Asbestos ID in Solid Samples	04-Sep-2015		04-Sep-2015	
Easily Liberated Sulphide	08-Sep-2015	07-Sep-2015	08-Sep-2015	07-Sep-2015
EPH CWG (Aliphatic) GC (S)	04-Sep-2015	03-Sep-2015	04-Sep-2015	03-Sep-2015
EPH CWG (Aromatic) GC (S)	04-Sep-2015	03-Sep-2015	04-Sep-2015	03-Sep-2015
GRO by GC-FID (S)	02-Sep-2015	02-Sep-2015	03-Sep-2015	02-Sep-2015
Hexavalent Chromium (s)	07-Sep-2015	07-Sep-2015	07-Sep-2015	07-Sep-2015
Metals in solid samples by OES	04-Sep-2015	04-Sep-2015	04-Sep-2015	04-Sep-2015
PAH by GCMS	03-Sep-2015	03-Sep-2015	08-Sep-2015	04-Sep-2015
pH	08-Sep-2015	08-Sep-2015	08-Sep-2015	04-Sep-2015
Sample description	01-Sep-2015	29-Aug-2015	01-Sep-2015	29-Aug-2015
Total Organic Carbon	07-Sep-2015	03-Sep-2015	07-Sep-2015	03-Sep-2015
Total Sulphate	07-Sep-2015	07-Sep-2015	07-Sep-2015	04-Sep-2015
TPH CWG GC (S)	04-Sep-2015	03-Sep-2015	04-Sep-2015	03-Sep-2015
VOC MS (S)	03-Sep-2015	02-Sep-2015	02-Sep-2015	02-Sep-2015

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**SDG**: 150828-57 **Job**: H\_URS\_W

Client Reference:

150828-57 **Loca** H\_URS\_WIM-273 **Custo** 

Location:Stag BreweryCustomer:AECOMAttention:Gary Marshall

Order Number: Report Number: Superseded Report:

329023

# **ASSOCIATED AQC DATA**

#### Ammonium Soil by Titration

Component	Method Code	QC 1292	QC 1205
Exchangeable Ammonium as NH4	TM024	<b>86.07</b> 79.30 : 104.61	<b>98.01</b> 79.30 : 104.61

# Easily Liberated Sulphide

Component	Method Code	QC 1262	QC 1219
Easily Liberated Sulphide	TM180	<b>88.38</b> 49.14 : 123.89	<b>93.21</b> 49.14 : 123.89

# EPH CWG (Aliphatic) GC (S)

Component	Method Code	QC 1182	QC 1194	QC 1146
Total Aliphatics >C12-C35	TM173	<b>85.21</b> 62.50 : 112.50	<b>87.08</b> 70.80 : 111.51	<b>90.21</b> 71.67 : 116.67

# EPH CWG (Aromatic) GC (S)

Component	Method Code	QC 1182	QC 1194	QC 1146
Total Aromatics >EC12-EC35	TM173	82.67	82.67	83.33
>EC12-EC35		60.62 : 126.95	65.21 : 121.32	59.92 : 107.95

# GRO by GC-FID (S)

Component	Method Code	QC 1105	QC 1173
Benzene by GC (Moisture Corrected)	TM089	<b>83.5</b> 79.00 : 121.00	<b>95.0</b> 76.33 : 121.87
Ethylbenzene by GC (Moisture Corrected)	TM089	<b>83.5</b> 79.00 : 121.00	<b>99.0</b> 75.73 : 123.83
m & p Xylene by GC (Moisture Corrected)	TM089	<b>83.75</b> 79.00 : 121.00	<b>97.5</b> 75.52 : 120.32
MTBE GC-FID (Moisture Corrected)	TM089	<b>85.5</b> 74.48 : 125.29	<b>94.0</b> 77.89 : 119.70
o Xylene by GC (Moisture Corrected)	TM089	<b>83.5</b> 79.00 : 121.00	<b>93.5</b> 74.15 : 124.59
QC	TM089	<b>112.68</b> 73.70 : 123.60	<b>99.2</b> 62.31 : 122.61
Toluene by GC (Moisture Corrected)	TM089	<b>83.5</b> 79.00 : 121.00	<b>93.5</b> 77.91 : 122.33

Gary Marshall

Validated

**SDG**: 150828-57 **Job**: H\_URS\_WIM-273

Location: Stag Brewery
Customer: AECOM

Attention:

Order Number: Report Number: Superseded Report:

329023

# Hexavalent Chromium (s)

Client Reference:

Component	Method Code	QC 1299	QC 1285
Hexavalent Chromium	TM151	100.0	102.0
		92.20 : 106.60	92.20 : 106.60

# Metals in solid samples by OES

Component	Method Code	QC 1272	QC 1286	QC 1235
Aluminium	TM181	<b>108.46</b> 86.49 : 129.71	<b>109.23</b> 86.49 : 129.71	<b>98.46</b> 86.49 : 129.71
Antimony	TM181	<b>98.92</b> 77.50 : 122.50	<b>98.21</b> 77.50 : 122.50	<b>97.13</b> 77.50 : 122.50
Arsenic	TM181	<b>94.69</b> 82.63 : 117.37	<b>93.81</b> 82.63 : 117.37	<b>92.92</b> 82.63 : 117.37
Barium	TM181	<b>99.25</b> 79.45 : 120.55	<b>99.25</b> 79.45 : 120.55	<b>95.49</b> 79.45 : 120.55
Beryllium	TM181	<b>101.09</b> 85.92 : 121.27	<b>101.24</b> 85.92 : 121.27	<b>100.47</b> 85.92 : 121.27
Boron	TM181	<b>112.21</b> 77.41 : 143.83	<b>115.27</b> 77.41 : 143.83	<b>99.24</b> 77.41 : 143.83
Cadmium	TM181	<b>97.65</b> 81.95 : 118.05	<b>97.31</b> 81.95 : 118.05	<b>96.47</b> 81.95 : 118.05
Chromium	TM181	<b>109.41</b> 81.29 : 118.71	<b>99.22</b> 81.29 : 118.71	<b>93.73</b> 81.29 : 118.71
Cobalt	TM181	<b>97.83</b> 83.86 : 116.14	<b>97.17</b> 83.86 : 116.14	<b>96.5</b> 83.86 : 116.14
Copper	TM181	<b>100.68</b> 78.57 : 121.43	<b>100.14</b> 78.57 : 121.43	<b>99.46</b> 78.57 : 121.43
Iron	TM181	<b>102.76</b> 87.50 : 122.82	<b>100.69</b> 87.50 : 122.82	<b>97.24</b> 87.50 : 122.82
Lead	TM181	<b>95.28</b> 74.18 : 117.25	<b>93.7</b> 74.18 : 117.25	<b>94.09</b> 74.18 : 117.25
Manganese	TM181	<b>100.0</b> 82.91 : 117.09	<b>100.0</b> 82.91 : 117.09	<b>100.0</b> 82.91 : 117.09
Mercury	TM181	<b>94.47</b> 81.99 : 118.01	<b>93.97</b> 81.99 : 118.01	<b>92.46</b> 81.99 : 118.01
Molybdenum	TM181	<b>100.64</b> 81.45 : 118.55	<b>94.75</b> 81.45 : 118.55	<b>93.79</b> 81.45 : 118.55
Nickel	TM181	<b>109.88</b> 79.64 : 120.36	<b>98.26</b> 79.64 : 120.36	<b>95.93</b> 79.64 : 120.36
Phosphorus	TM181	<b>99.11</b> 81.03 : 118.97	<b>97.91</b> 81.03 : 118.97	<b>98.21</b> 81.03 : 118.97
Selenium	TM181	<b>106.5</b> 87.05 : 121.93	<b>107.01</b> 87.05 : 121.93	<b>108.21</b> 87.05 : 121.93
Strontium	TM181	<b>102.3</b> 83.64 : 116.36	<b>102.68</b> 83.64 : 116.36	<b>96.55</b> 83.64 : 116.36
Thallium	TM181	<b>92.21</b> 77.50 : 122.50	<b>90.55</b> 77.50 : 122.50	<b>88.72</b> 77.50 : 122.50
Tin	TM181	<b>94.35</b> 78.30 : 113.98	<b>93.69</b> 78.30 : 113.98	<b>92.69</b> 78.30 : 113.98
Titanium	TM181	<b>103.91</b> 71.02 : 128.98	<b>103.13</b> 71.02 : 128.98	<b>97.66</b> 71.02 : 128.98

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150828-57 SDG: Location: Stag Brewery H\_URS\_WIM-273 Job:

AECOM **Customer:** Attention: Gary Marshall Order Number: 329023 Report Number: Superseded Report:

Metals in solid samples by OES

		QC 1272	QC 1286	QC 1235
Vanadium	TM181	<b>97.06</b> 86.61 : 113.39	<b>96.76</b> 86.61 : 113.39	<b>93.53</b> 86.61 : 113.39
Zinc	TM181	<b>100.97</b> 89.82 : 114.54	<b>100.32</b> 89.82 : 114.54	<b>98.05</b> 89.82 : 114.54

# PAH by GCMS

Client Reference:

Component	Method Code	QC 1191	QC 1196	QC 1106	QC 1137
Acenaphthene	TM218	<b>85.5</b> 70.00 : 130.00	<b>89.5</b> 78.75 : 116.25	<b>91.5</b> 78.84 : 114.36	<b>96.0</b> 78.84 : 114.36
Acenaphthylene	TM218	<b>78.0</b> 70.00 : 130.00	<b>85.5</b> 76.45 : 110.05	<b>85.5</b> 65.50 : 119.50	<b>90.0</b> 65.50 : 119.50
Anthracene	TM218	<b>79.0</b> 70.00 : 130.00	<b>89.0</b> 67.15 : 124.45	<b>91.0</b> 75.54 : 110.88	<b>97.5</b> 75.54 : 110.88
Benz(a)anthracene	TM218	<b>81.0</b> 70.00 : 130.00	<b>97.5</b> 82.00 : 127.00	<b>97.5</b> 78.02 : 127.38	<b>104.0</b> 78.02 : 127.38
Benzo(a)pyrene	TM218	<b>80.0</b> 70.00 : 130.00	<b>99.5</b> 75.60 : 124.20	<b>99.5</b> 79.21 : 128.01	<b>105.5</b> 79.21 : 128.01
Benzo(b)fluoranthene	TM218	<b>78.0</b> 70.00 : 130.00	<b>99.0</b> 81.20 : 121.77	<b>96.0</b> 86.21 : 131.42	<b>101.5</b> 86.21 : 131.42
Benzo(ghi)perylene	TM218	<b>83.0</b> 70.00 : 130.00	<b>96.0</b> 77.49 : 119.12	<b>95.0</b> 80.11 : 120.52	<b>100.0</b> 80.11 : 120.52
Benzo(k)fluoranthene	TM218	<b>79.0</b> 70.00 : 130.00	<b>96.5</b> 83.50 : 116.50	<b>97.0</b> 78.77 : 120.72	<b>103.0</b> 78.77 : 120.72
Chrysene	TM218	<b>77.5</b> 70.00 : 130.00	<b>95.5</b> 78.35 : 114.42	<b>94.5</b> 78.77 : 118.99	<b>100.5</b> 78.77 : 118.99
Dibenzo(ah)anthracene	TM218	<b>79.0</b> 70.00 : 130.00	<b>95.0</b> 77.15 : 122.45	<b>93.5</b> 76.39 : 122.63	<b>100.0</b> 76.39 : 122.63
Fluoranthene	TM218	<b>83.5</b> 70.00 : 130.00	<b>92.5</b> 79.08 : 114.40	<b>95.0</b> 77.25 : 117.75	<b>101.0</b> 77.25 : 117.75
Fluorene	TM218	<b>86.0</b> 70.00 : 130.00	<b>91.5</b> 79.03 : 113.38	<b>95.5</b> 79.28 : 117.35	<b>98.5</b> 79.28 : 117.35
Indeno(123cd)pyrene	TM218	<b>78.5</b> 70.00 : 130.00	<b>96.5</b> 75.65 : 125.15	<b>93.0</b> 78.87 : 122.50	<b>99.0</b> 78.87 : 122.50
Naphthalene	TM218	<b>91.5</b> 70.00 : 130.00	<b>92.5</b> 77.25 : 112.60	<b>93.0</b> 74.75 : 118.25	<b>95.0</b> 74.75 : 118.25
Phenanthrene	TM218	<b>84.0</b> 70.00 : 130.00	<b>92.0</b> 78.25 : 115.44	<b>95.0</b> 78.61 : 113.98	<b>100.5</b> 78.61 : 113.98
Pyrene	TM218	<b>82.5</b> 70.00 : 130.00	<b>91.0</b> 78.07 : 114.06	<b>94.0</b> 76.15 : 115.26	<b>99.5</b> 76.15 : 115.26

	Component	Method Code	QC 1208	QC 1218	QC 1227	QC 1293
Ì	pН	TM133	100.13	100.25	100.5	100.63
			97.19 : 102.81	97.19 : 102.81	97.19 : 102.81	97.19 : 102.81

# **Total Organic Carbon**

Validated

150828-57 SDG: Location: Stag Brewery Job: H\_URS\_WIM-273

AECOM **Customer:** Attention: Gary Marshall Order Number: Report Number: Superseded Report:

329023

Total Organic Carbon

Client Reference:

Component	Method Code	QC 1254	QC 1245
Total Organic Carbon	TM132	100.46	98.17
		88.82 : 111.18	89.40 : 103.09

# Total Sulphate

Component	Method Code	QC 1218	QC 1273
Total Sulphate	TM221	<b>115.15</b> 78.49 : 121.51	<b>103.79</b> 78.49 : 121.51

# VOC MS (S)

Component	Method Code	QC 1128	QC 1175
1,1,1,2-tetrachloroethane	TM116	<b>95.6</b> 83.24 : 124.28	<b>102.6</b> 83.24 : 124.28
1,1,1-Trichloroethane	TM116	<b>100.8</b> 81.77 : 121.07	<b>102.4</b> 81.77 : 121.07
1,1,2-Trichloroethane	TM116	<b>100.4</b> 79.24 : 112.23	<b>94.2</b> 79.24 : 112.23
1,1-Dichloroethane	TM116	<b>103.0</b> 72.58 : 116.06	<b>106.6</b> 72.58 : 116.06
1,2-Dichloroethane	TM116	<b>118.8</b> 77.50 : 122.50	<b>112.0</b> 77.50 : 122.50
1,4-Dichlorobenzene	TM116	<b>96.2</b> 73.23 : 116.39	<b>95.4</b> 73.23 : 116.39
2-Chlorotoluene	TM116	<b>85.6</b> 69.22 : 110.64	<b>86.6</b> 69.22 : 110.64
4-Chlorotoluene	TM116	<b>89.0</b> 68.57 : 106.26	<b>87.4</b> 68.57 : 106.26
Benzene	TM116	<b>103.2</b> 84.33 : 124.27	<b>106.0</b> 84.33 : 124.27
Carbon Disulphide	TM116	<b>110.4</b> 77.20 : 122.80	<b>107.4</b> 77.20 : 122.80
Carbontetrachloride	TM116	<b>98.2</b> 84.20 : 119.90	<b>102.8</b> 84.20 : 119.90
Chlorobenzene	TM116	<b>102.4</b> 85.28 : 129.96	<b>103.2</b> 85.28 : 129.96
Chloroform	TM116	<b>108.2</b> 82.73 : 119.72	<b>106.6</b> 82.73 : 119.72
Chloromethane	TM116	<b>123.4</b> 55.16 : 145.46	<b>117.2</b> 55.16 : 145.46
Cis-1,2-Dichloroethene	TM116	<b>108.4</b> 73.56 : 118.93	<b>108.4</b> 73.56 : 118.93
Dibromomethane	TM116	<b>104.4</b> 73.40 : 116.60	<b>98.0</b> 73.40 : 116.60
Dichloromethane	TM116	<b>113.2</b> 76.16 : 121.98	<b>108.2</b> 76.16 : 121.98

Validated

 SDG:
 150828-57
 Location:
 Stag Brewery

 Job:
 H\_URS\_WIM-273
 Customer:
 AECOM

Customer: AECOM
Attention: Gary Marshall

Order Number: Report Number: Superseded Report:

329023

# Client Reference:

	· ·	QC 1128	QC 1175
Ethylbenzene	TM116	94.0	99.2
		80.07 : 125.98	80.07 : 125.98
Hexachlorobutadiene	TM116	69.0	89.2
		30.92 : 132.28	30.92 : 132.28
Isopropylbenzene	TM116	82.6	92.6
		69.27 : 125.32	69.27 : 125.32
Naphthalene	TM116	110.0	107.4
		79.15 : 121.98	79.15 : 121.98
o-Xylene	TM116	77.6	84.8
		75.46 : 111.52	75.46 : 111.52
p/m-Xylene	TM116	90.2	96.6
		76.97 : 121.75	76.97 : 121.75
Sec-Butylbenzene	TM116	69.6	85.8
		49.27 : 129.90	49.27 : 129.90
Tetrachloroethene	TM116	102.2	110.6
		87.96 : 133.65	87.96 : 133.65
Toluene	TM116	99.0	100.6
		79.23 : 114.58	79.23 : 114.58
Trichloroethene	TM116	94.6	98.4
		84.09 : 114.24	84.09 : 114.24
Trichlorofluoromethane	TM116	107.4	104.4
		76.22 : 114.82	76.22 : 114.82
Vinyl Chloride	TM116	98.2	100.8
		59.68 : 118.68	59.68 : 118.68

The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.

The figure detailed is the percentage recovery result for the AQC.

The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

Validated

SDG: 150828-57 Job: H\_URS\_WIM-273 Client Reference:

Location: Stag Brewery **Customer:** AECOM Attention: Gary Marshall Order Number: Report Number: Superseded Report:

329023

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Depth:** 2.20 - 3.30 Sample No : 11982640 Sample ID :

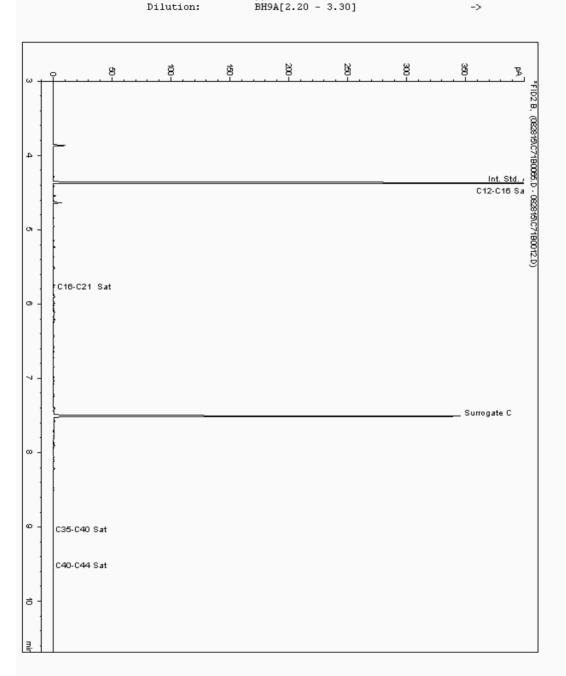
Alcontrol/Geochem Analytical Services Speciated TPH - AROM ( C12 - C40 )

Sample Identity:

11364862-02/09/2015 08:42:03 PM Date Acquired : Units :

ppb

BH9A[2.20 - 3.30] Dilution:



Validated

SDG: 150828-57 Job: H\_URS\_WIM-273 Client Reference:

Location: **Customer:** Attention:

Stag Brewery AECOM Gary Marshall Order Number: Report Number: Superseded Report:

329023

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Depth:** 3.00 - 3.50 Sample No : 11982647 Sample ID :

Alcontrol/Geochem Analytical Services Speciated TPH - AROM ( C12 - C40 )

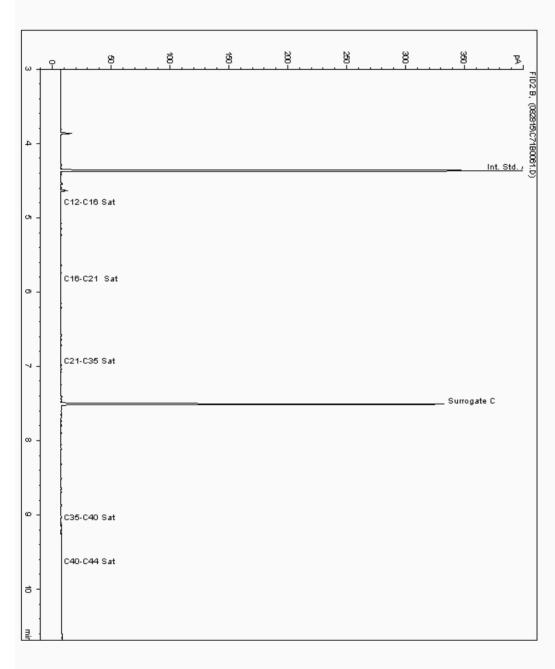
Sample Identity:

11364901-02/09/2015 07:22:34 PM

Date Acquired : Units : Dilution:

ppb BH8A[3.00 - 3.50]

->



Validated

329023

 SDG:
 150828-57
 Location:
 Stag Brewery
 Order Number:

 Job:
 H\_URS\_WIM-273
 Customer:
 AECOM
 Report Number:

 Client Reference:
 Attention:
 Gary Marshall
 Superseded Report:

Chromatogram

 Analysis:
 EPH CWG (Aliphatic) GC (S)
 Sample No : 11989024
 11989024
 Depth : 0.50

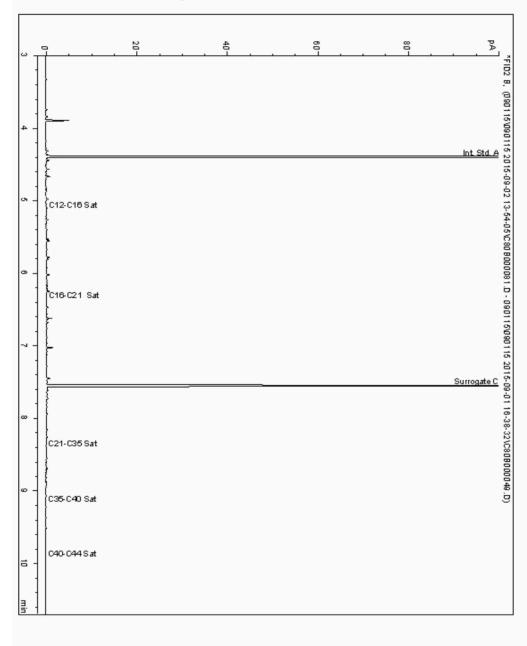
 Sample ID : 8H0Δ
 BH0Δ

Alcontrol/Geochem Analytical Services Speciated TPH - SATS ( C12 - C40 )

Sample Identity: 11364846-

Date Acquired : 02/09/15 15:29:04

Units : ppb
Dilution :
CF : 1
Multiplier : 0.980



Validated

SDG: 150828-57 Job: H\_URS\_WIM-273 Client Reference:

Analysis: EPH CWG (Aliphatic) GC (S)

Location: Stag Brewery **Customer:** AECOM Attention: Gary Marshall Order Number: Report Number: Superseded Report:

329023

Chromatogram

11989052 Sample No : Sample ID :

**Depth**: 0.50

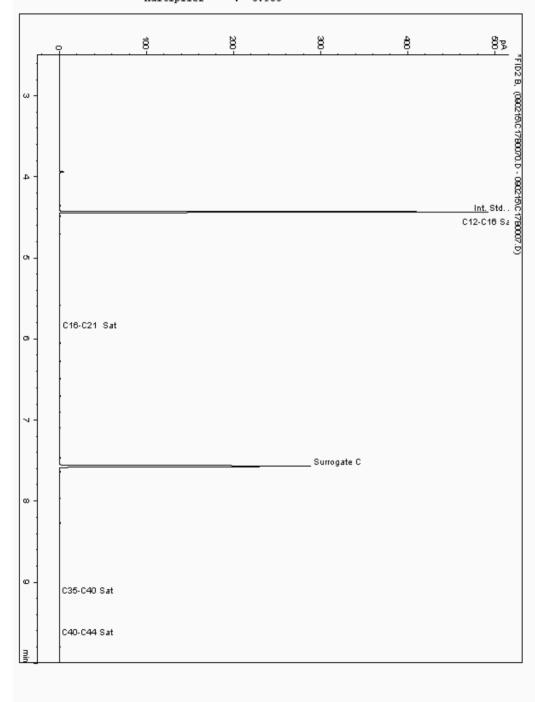
Alcontrol/Geochem Analytical Services Speciated TPH - SATS ( Cl2 - C40 )

11364879-

Sample Identity: Date Acquired : 03/09/2015 09:03:05 PM

Units ppb Dilution

CF 0.950 Multiplier



Validated

150828-57 Location: Stag Brewery SDG: Job: H\_URS\_WIM-273 **Customer:** AECOM Client Reference:

Attention: Gary Marshall Order Number: Report Number: Superseded Report:

329023

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Depth:** 2.20 - 3.30 Sample No : 11982640 Sample ID :

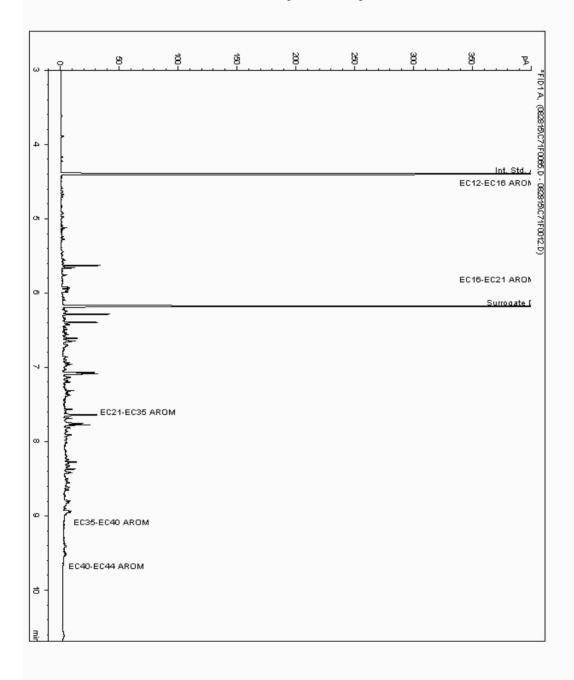
Alcontrol/Geochem Analytical Services Speciated TPH - AROM ( C12 - C40 )

Sample Identity:

11364863-02/09/2015 08:42:03 PM Date Acquired : Units :

ppb

BH9A[2.20 - 3.30] Dilution:



Validated

150828-57 Location: SDG: Job: H\_URS\_WIM-273 Client Reference:

Stag Brewery **Customer:** AECOM Attention: Gary Marshall Order Number: Report Number: Superseded Report:

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329023

Chromatogram

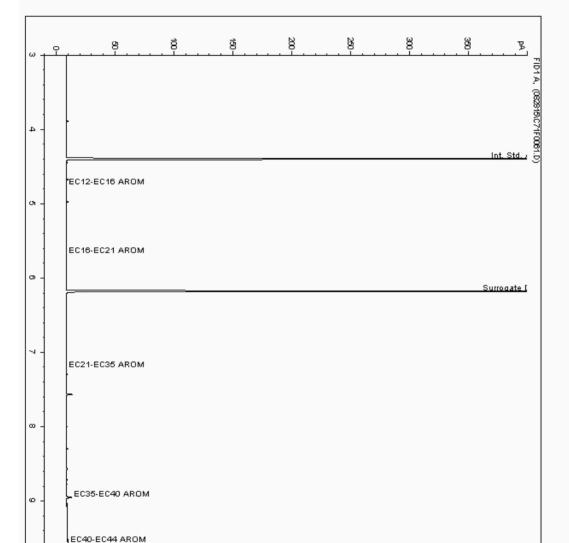
Analysis: EPH CWG (Aromatic) GC (S) **Depth:** 3.00 - 3.50 Sample No : 11982647 Sample ID :

Alcontrol/Geochem Analytical Services Speciated TPH - AROM ( C12 - C40 )

Sample Identity:

11364902-02/09/2015 07:22:34 PM Date Acquired : Units :

ppb BH8A[3.00 - 3.50] Dilution:



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Validated

 SDG:
 150828-57

 Job:
 H\_URS\_WIM-273

 Client Reference:

Location:Stag BreweryCustomer:AECOMAttention:Gary Marshall

Order Number: Report Number: Superseded Report:

329023

Chromatogram

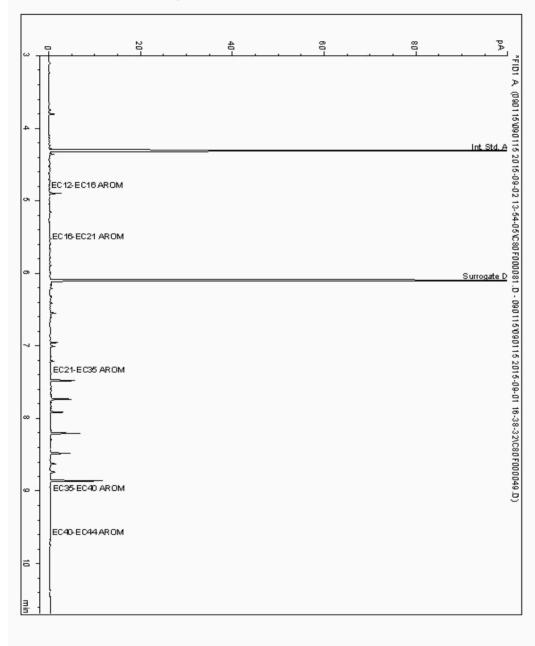
Analysis: EPH CWG (Aromatic) GC (S) Sample No : 11989024 Sample ID :  $8H0\Delta$ 

Alcontrol/Geochem Analytical Services Speciated TPH - AROMS ( C12 - C44)

Sample Identity: 11364847-

Date Acquired : 02/09/15 15:29:04

Units : ppb
Dilution :
CF : 1
Multiplier : 0.980



Validated

329023

150828-57 Location: Stag Brewery SDG: Order Number: Job: H\_URS\_WIM-273 **Customer:** AECOM Report Number: Client Reference: Attention: Gary Marshall Superseded Report:

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) Sample No : **Depth**: 0.50 11989052

Sample ID :

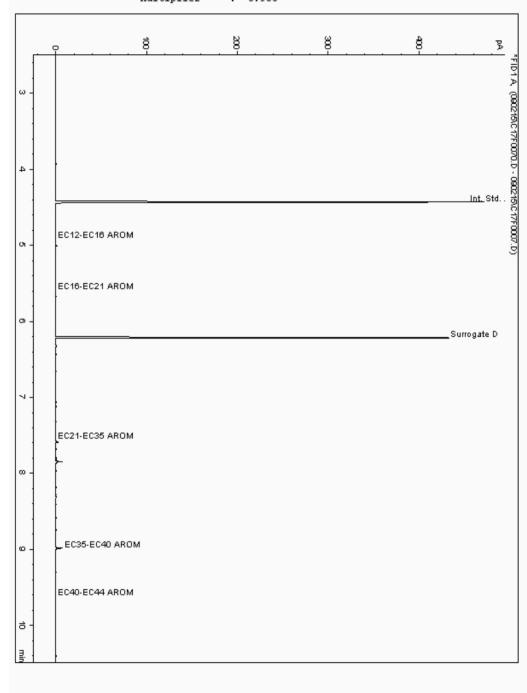
Alcontrol/Geochem Analytical Services Speciated TPH - AROM ( Cl2 - C40 )

11364880-

Sample Identity: Date Acquired : 03/09/2015 09:03:05 PM

Units ppb Dilution

CF 0.950 Multiplier





Validated

**SDG:** 150828-57 **Job:** H\_URS\_WIM-273

Location: Customer: Attention: Stag Brewery AECOM Gary Marshall Order Number: Report Number: Superseded Report:

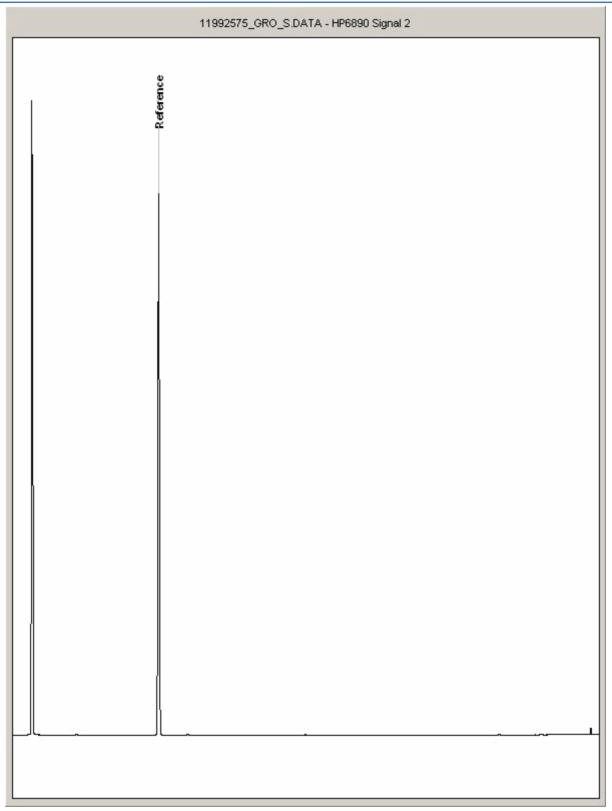
**Depth:** 3.00 - 3.50

329023

Client Reference:

Analysis: GRO by GC-FID (S)

Sample ID : BH8A





Validated

SDG: 150828-57 Job:

Analysis: GRO by GC-FID (S)

Client Reference:

H\_URS\_WIM-273 **Customer:** Attention:

Location: Stag Brewery AECOM Gary Marshall Order Number: Superseded Report:

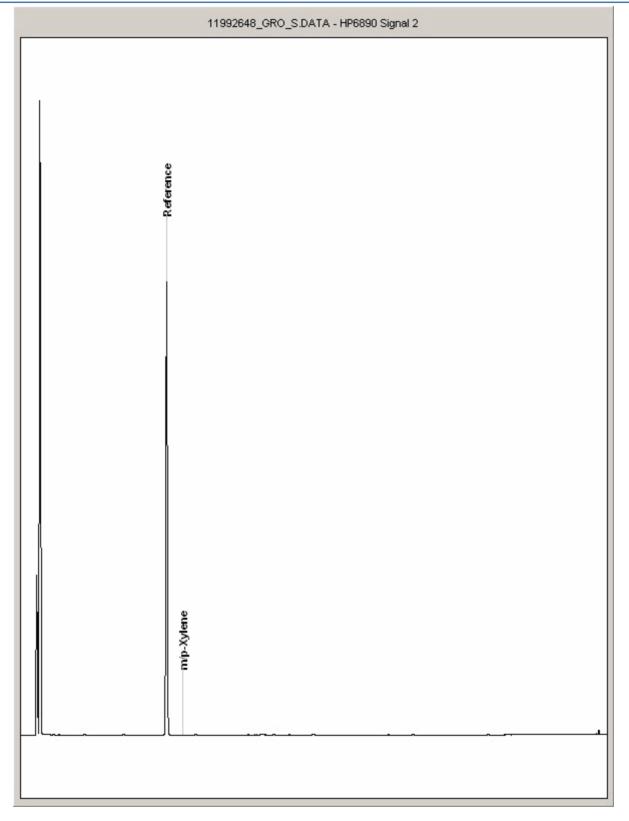
**Depth:** 2.20 - 3.30

329023

Chromatogram

11992648 Sample ID : вн9А

Sample No :





Analysis: GRO by GC-FID (S)

Client Reference:

#### **CERTIFICATE OF ANALYSIS**

Validated

SDG: 150828-57 Location: Stag Brewery H\_URS\_WIM-273 Job:

AECOM **Customer:** Attention: Gary Marshall Order Number: Superseded Report:

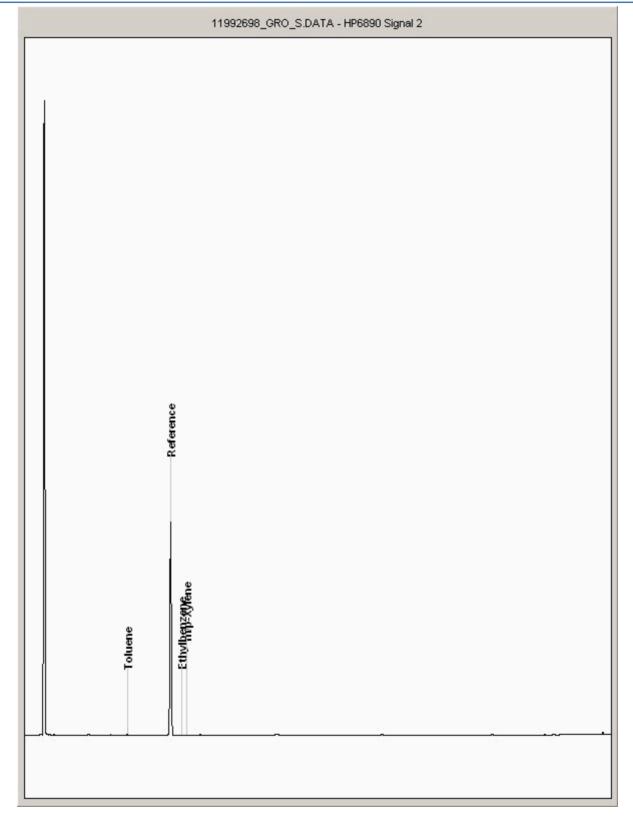
**Depth**: 0.50

329023

Chromatogram

11992698 Sample ID : BH8A

Sample No :





Validated

**SDG:** 150828-57 **Job:** H\_URS\_WIM-273

Analysis: GRO by GC-FID (S)

Client Reference:

Location: Customer: Attention: Stag Brewery AECOM Gary Marshall Order Number: Report Number: Superseded Report:

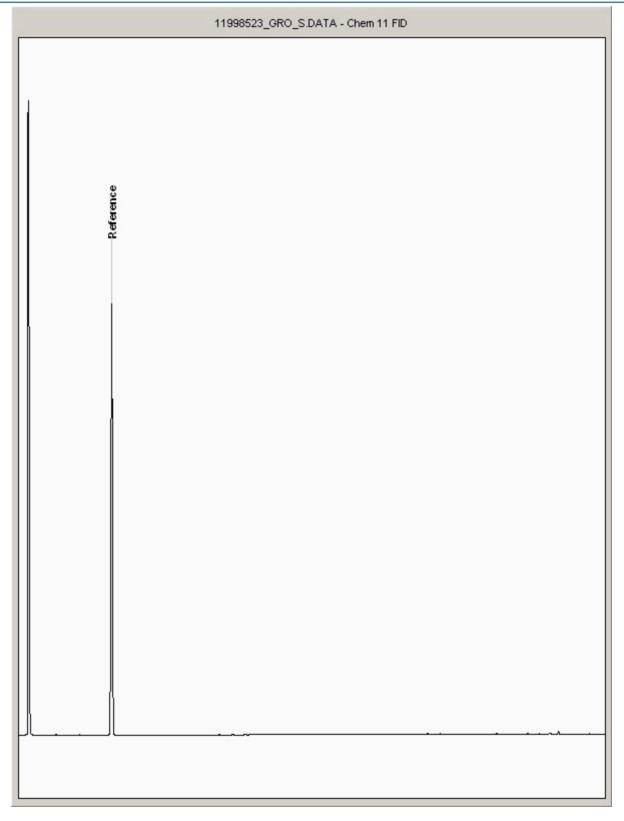
**Depth**: 0.50

329023

Chromatogram

Sample No: 11998523

Sample ID : BH9A



 150828-57
 Location:
 Stag Brewery
 Order Number:

 H\_URS\_WIM-273
 Customer:
 AECOM
 Report Number:

 Attention:
 Gary Marshall
 Superseded Report:

Job: Client Reference:

SDG

**Appendix** 

- 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/SFARCH 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, 2,5 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.
- 20. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.
- 21. 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.
- 22. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.
- 23. 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.
- 24. 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

329023

ANALYSIS	D/C OR WET	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYS
SOLVENT EXTRACTABLE MATTER	D&C	DOM	SOXTHERM	GRAVIMETRIC
CYCLOHEXANE EXT. MATTER	D&C	CYCLOHEXANE	SOXTHERM	GRAVIMETRIC
THIN LAYER CHROMATOGRAPHY	D&C	DOM	SOXTHERM	IATROSCAN
ELEMENTALSULPHUR	D&C	DOM	SOXTHERM	HPLC
PHENOLSBYGOVIS	WET	DOM	SOXTHERM	GCMS
HERBICIDES	D&C	HEXANEACETONE	SOXTHERM	GCMS
PESTICIDES	D&C	HEXANEACETONE	Soxtherm	GCMS
EPH (DRO)	D&C	HEXANEACETONE	END OVEREND	GCFID .
EPH (MNOL)	D&C	HEXANEACETONE	END OVEREND	GC:FID
EPH (OLEANED UP)	D&C	HEXANEACETONE	END OVEREND	GCFID
EPH CWG BYGC	D&C	HEXANEACETONE	END OVEREND	GCFID
POB TOT / POB CON	D&C	HEXANEACETONE	END OVEREND	GCMS
POLYAROMATIC HYDROCARBONS (MS)	WET	HEXANEACETONE	MCROWAVE TM218.	GCMS
C8-C40(C6-C40) EZ FLA9H	WET	HEXANEACETONE	SHAKER	GC-EZ
POLYAROMATIC HYDROCARBONS RAFID GC	WET	HEXANEACETONE	SHAKER	GC-EZ
SEM VOLATILEORGANIC COMPOUNDS	WET	DOMACETONE	SONCATE	GCMS

#### LIQUID MATRICES EXTRACTION SUMMARY

ANALYSIS	EXTRACTION SOLVENT	extraction Method	SEYJANA
PAHMS	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCMS
₽H	HEXANE	STIRREDEXTRACTION(STIR-BAR)	©CFID
EPH CWG	HEXANE	STIRREDEXTRACTION(STIR-BAR)	€CFID
MNERALOIL	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GC FID
POB 7 CONGENERS	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCMS
POB TOTAL	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCMS
svoc	DOM	LIQUID/LIQUID SHAKE	GCMS
FREESULPHUR	DOM	SOLID PHASE EXTRACTION	HPLC
PEST OOP/OPP	DOM	LIQUID/LIQUID SHAKE	GCMS
TRIAZINE HERBS	DOM	LIQUID/LIQUID SHAKE	GCMS
PHENOLSMS	DOM	SOLID PHASE EXTRACTION	GCMS
TPH byINFRARED (IR)	TCE	LIQUID/LIQUID SHAKE	HPLC
MINERAL OIL by IR	TCE	LIQUID/LIQUID SHAKE	HPLC
GLYCOLS	NONE	DIRECT INJECTION	GCMS

#### <u>Identification of Asbestos in Bulk</u> <u>Materials</u>

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).

Asbestos Type	Common Name
Orrysofile	WhiteAsbestos
Amoste	BrownAsbestos
Crodddite	Blue Asbestos
Fibrous Adindite	=
Fibrous Anthophylite	-
Fibrous Trendite	-

#### 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.

# ALcontrol Laboratories

#### **CERTIFICATE OF ANALYSIS**

 SDG:
 150828-57
 Location:
 Stag Brewery
 Order Number:

 Job:
 H\_URS\_WIM-273
 Customer:
 AECOM
 Report Number:
 329023

 Client Reference:
 Attention:
 Gary Marshall
 Superseded Report:

# Appendix General

- 1. Results are expressed on a dry weight basis (dried at  $35^{\circ}$ C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICS and SVOC 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 all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples 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 analysed 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. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible. The quantity of asbestos present is not determined unless specifically requested.
- 7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.
- 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 Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.
- 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).
- $16. \quad Total \quad of \quad 5 \ speciated \quad phenols \quad by \quad HPLC \quad includes \quad Phenol, \quad 2,3,5-Trimethyl \quad Phenol, \\ 2-Isopropylphenol, \ Cresols \ and \ Xylenols \ (as \ detailed \ in \ 15).$
- 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 C5-C12 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.

# Sample Deviations

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
4	Holding time exceeded before sample received
5	Samples exceeded holding time before presevation was performed
§	Sampled on date not provided
•	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to sampled on date
&	Sample Holding Time exceeded - Late arrival of instructions.

#### **Asbestos**

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk 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).

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).

Asbestos Type	Common Name
Chrysofile	White Asbestos
Amoste	BrownAsbestos
Orodobite	Blue Asbestos
Fibrous Adinoite	-
Fibrous Anthophylite	-
Fibrous Trendile	-

#### 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.

Unit 7-8 Hawarden Business Park Manor Road (off Manor Lane) Hawarden

> Deeside CH5 3US Tel: (01244) 528700

Fax: (01244) 528701 email: mkt@alcontrol.com Website: www.alcontrol.com

AECOM St. George's House 2nd Floor 5 St. George's Road Wimbledon Greater London SW19 4DR

Attention: Gary Marshall

# **CERTIFICATE OF ANALYSIS**

 Date:
 10 September 2015

 Customer:
 H\_URS\_WIM

 Sample Delivery Group (SDG):
 150829-68

Your Reference:

Location:Stag BreweryReport No:329373

We received 4 samples on Saturday August 29, 2015 and 4 of these samples were scheduled for analysis which was completed on Thursday September 10, 2015. 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









Validated

 SDG:
 150829-68
 Location:
 Stag Brewery
 Order Number:

 Job:
 H\_URS\_WIM-273
 Customer:
 AECOM
 Report Number

Client Reference: Attention: Gary Marshall

Report Number: Superseded Report:

329373

# **Received Sample Overview**

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
11984669	ВНЗА		0.50	28/08/2015
11984670	ВНЗА		1.50 - 2.00	28/08/2015
11984671	BH5A		0.50	28/08/2015
11984672	BH5A		2.50 - 3.00	28/08/2015

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

16:04:17 10/09/2015

Validated

150829-68 SDG: Job:

H\_URS\_WIM-273

Location: Stag Brewery Customer: AECOM

Order Number: Report Number: Superseded Report:

329373

Job: H_URS_\ Client Reference:	VIM-273	Custome Attention				MC Ma	ırsh	all	
SOLID Results Legend  X Test	Lab Sample I	No(s)		11984669	11984670		11984671		11984672
No Determination Possible	Custome Sample Refei	BH3A		ВНЗА	BH5A BH3A			вн5А	
	AGS Refere	nce							
	Depth (m				1.50 - 2.00		0.50		2.50 - 3.00
	Containe	r	250g Amber Jar (AL	60g VOC (ALE215)	250g Amber Jar (AL	250g Amber Jar (AL	400g Tub (ALE214)	250g Amber Jar (AL	60g VOC (ALE215)
Ammonium Soil by Titration	All	NDPs: 0 Tests: 3		X			X	×	
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 3		x			x	×	<u> </u>
Easily Liberated Sulphide	All	NDPs: 0 Tests: 3		x			x	×	
EPH CWG (Aliphatic) GC (S)	All	NDPs: 0 Tests: 3	X			X		X	
EPH CWG (Aromatic) GC (S)	All	NDPs: 0 Tests: 3	X			X		x	
GRO by GC-FID (S)	All	NDPs: 0 Tests: 3		X			X		X
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 3		x			x	×	<u> </u>
Metals in solid samples by OES	All	NDPs: 0 Tests: 3	X			X		x	
PAH by GCMS	All	NDPs: 0 Tests: 3	X			X		X	
рН	All	NDPs: 0 Tests: 3		X			×	×	<u>.</u>
Sample description	All	NDPs: 0 Tests: 4	x		X	X		X	
Total Organic Carbon	All	NDPs: 0 Tests: 3	X			X		×	
Total Sulphate	All	NDPs: 0 Tests: 3	X			X		×	
TPH CWG GC (S)	All	NDPs: 0 Tests: 3	X			X		X	
VOC MS (S)	All	NDPs: 0 Tests: 3		X			X		X

Validated

**SDG**: 150829-68 **Job**: H\_URS\_W

H\_URS\_WIM-273 Cus

Location:Stag BreweryCustomer:AECOMAttention:Gary Marshall

Order Number: Report Number:

329373

Superseded Report:

# **Sample Descriptions**

#### **Grain Sizes**

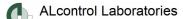
Client Reference:

very fine	<0.063m	m fine	0.063mm - 0.1mm medium 0.1r		edium 0.1mm - 2mm coarse 2mm -		0mm very co	arse >10mm
Lab Sample	e No(s)	Customer Sample R	tef. Depth (m)	Colour	Description	Grain size	Inclusions	Inclusions 2
119846	69	ВН3А	0.50	Dark Brown	Sand	0.1 - 2 mm	Stones	None
119846	70	ВН3А	1.50 - 2.00	Dark Brown	Sandy Loam	0.1 - 2 mm	Stones	None
119846	11984671 BH5A		0.50	Light Brown	Sand	0.1 - 2 mm	Stones	Vegetation
119846	72	BH5A	2.50 - 3.00	Dark Brown	Sandy Loam	0.1 - 2 mm	Stones	None

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 ocurring 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.



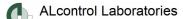
Validated

SDG: 150829-68 Location: Stag Brewery Order Number:

 Job:
 H\_URS\_WIM-273
 Customer:
 AECOM
 Report Number:
 329373

 Client Reference:
 Attention:
 Gary Marshall
 Superseded Report:

Results Legend # ISO17025 accredited.	C	ustomer Sample R	ВН3А	BH5A	П	BH5A			
M mCERTS accredited.									
aq Aqueous / settled sample. diss.filt Dissolved / filtered sample.		Depth (m)	0.50	0.50		2.50 - 3.00			
tot.unfilt Total / unfiltered sample.  * Subcontracted test.		Sample Type Date Sampled	Soil/Solid 28/08/2015	Soil/Solid 28/08/2015		Soil/Solid 28/08/2015			
** % recovery of the surrogate standa		Sampled Time							
check the efficiency of the method. results of individual compounds wi		Date Received	29/08/2015	29/08/2015		29/08/2015			
samples aren't corrected for the re-	covery	SDG Ref	150829-68 11984669	150829-68 11984671		150829-68 11984672			
(F) Trigger breach confirmed 1-5&+§@ Sample deviation (see appendix)		Lab Sample No.(s) AGS Reference	11004000	11004071		11004072			
Component	LOD/Units								
Moisture Content Ratio (%	%	PM024	6.3	7	$\neg$	5.8			
of as received sample)									
Exchangeable Ammonia	<15	TM024	<15	27.7	$\neg$	<15			
as NH4	mg/kg	1 1	M		М		М		
Organic Carbon, Total	<0.2 %	TM132	1.52	1.33	-	<0.2			
,		1 1	M		М		М		
рН	1 pH	TM133	8.22	7.86	-	7.86			
	Units		М		М		М		
Chromium, Hexavalent	<0.6	TM151	<0.6	<0.6	$\neg$	<0.6			
, , , , , , , , , , , , , , , , , , , ,	mg/kg		#		#		#		
Sulphide, Easily liberated	<15	TM180	<15	<15		<15			
	mg/kg		&#</td><td></td><td>k #</td><td></td><td>&#</td><td></td><td></td></tr><tr><td>Arsenic</td><td><0.6</td><td>TM181</td><td>18.9</td><td>19.1</td><td></td><td>22.4</td><td>2. 11</td><td></td><td></td></tr><tr><td></td><td>mg/kg</td><td>  ""  </td><td>M</td><td></td><td>М</td><td></td><td>М</td><td></td><td></td></tr><tr><td>Cadmium</td><td><0.02</td><td>TM181</td><td>0.475</td><td>1.13</td><td></td><td>0.533</td><td></td><td></td><td></td></tr><tr><td>  "</td><td>mg/kg</td><td> </td><td>М</td><td></td><td>М</td><td>2.200</td><td>М</td><td></td><td></td></tr><tr><td>Chromium</td><td><0.9</td><td>TM181</td><td>19.5</td><td>25.4</td><td></td><td>21.6</td><td></td><td></td><td></td></tr><tr><td>om om and</td><td>mg/kg</td><td>1</td><td>M</td><td></td><td>М</td><td>21.0</td><td>М</td><td></td><td></td></tr><tr><td>Copper</td><td><1.4</td><td>TM181</td><td>49.3</td><td>28</td><td></td><td>3.56</td><td>141</td><td></td><td></td></tr><tr><td></td><td>mg/kg</td><td> </td><td>49.5 M</td><td></td><td>М</td><td>0.00</td><td>М</td><td></td><td></td></tr><tr><td>Lead</td><td><0.7</td><td>TM181</td><td>178</td><td>85.7</td><td>IVI</td><td>9.05</td><td>IVI</td><td></td><td></td></tr><tr><td>Load</td><td>mg/kg</td><td>1101101</td><td>170</td><td></td><td>М</td><td>0.00</td><td>М</td><td></td><td></td></tr><tr><td>Mercury</td><td><0.14</td><td>TM181</td><td>0.151</td><td>1.9</td><td>IVI</td><td><0.14</td><td>IVI</td><td></td><td></td></tr><tr><td>Wereary</td><td>mg/kg</td><td>1101101</td><td>0.101 M</td><td></td><td>М</td><td>٠٥.١٦</td><td>М</td><td></td><td></td></tr><tr><td>Nickel</td><td><0.2</td><td>TM181</td><td>29.2</td><td>17.1</td><td>IVI</td><td>20.7</td><td>IVI</td><td></td><td></td></tr><tr><td>Nickei</td><td>mg/kg</td><td>1101101</td><td>29.2 M</td><td></td><td>М</td><td>20.7</td><td>М</td><td></td><td></td></tr><tr><td>Selenium</td><td><1 mg/kg</td><td>TM181</td><td><1</td><td><1</td><td>IVI</td><td><1</td><td>IVI</td><td></td><td></td></tr><tr><td>Seleman</td><td>~ i ilig/kç</td><td>] 1101101</td><td>#</td><td>`'</td><td>#</td><td>~1</td><td>#</td><td></td><td></td></tr><tr><td>Zinc</td><td><1.9</td><td>TM181</td><td>89.3</td><td>101</td><td>#</td><td>28.6</td><td>#</td><td></td><td></td></tr><tr><td>ZITIC</td><td>mg/kg</td><td>TIVITOT</td><td></td><td></td><td>М</td><td>20.0</td><td>N 4</td><td></td><td></td></tr><tr><td>Sulphate, Total</td><td><48</td><td>TM221</td><td>579</td><td>356</td><td>IVI</td><td>95.9</td><td>M</td><td></td><td></td></tr><tr><td>Sulphate, Total</td><td>mg/kg</td><td>TIVIZZI</td><td>379 M</td><td></td><td>м</td><td>93.9</td><td>М</td><td></td><td></td></tr><tr><td></td><td>mg/kg</td><td>+</td><td>IVI</td><td></td><td>IVI</td><td></td><td>IVI</td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td>+</td><td></td><td></td><td><math>\dashv</math></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td>+</td><td></td><td></td><td><math>\dashv</math></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td>+</td><td></td><td></td><td><math>\dashv</math></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td>+</td><td></td><td></td><td><math>\dashv</math></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td>1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td>+</td><td></td><td></td><td><math>\dashv</math></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td>1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td>+</td><td></td><td></td><td><math>\dashv</math></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td>1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td><del> 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Validated

150829-68 SDG: Location: Stag Brewery Order Number:

Job: H\_URS\_WIM-273 Customer: AECOM Report Number: 329373 Client Reference: Attention: Gary Marshall Superseded Report:

Companies   Continues   Cont	PAH by GCMS							
Section   Control of	Results Legend	C	Customer Sample R	ВНЗА	BH5A	BH5A		
	M mCERTS accredited.							
1 - Standwell-relative in Microbian Profession and Component	diss.filt Dissolved / filtered sample.							
Semiple of the company of the control of the cont								
Social Component	** % recovery of the surrogate standar	d to	Sampled Time					
1998-8072   1998	results of individual compounds wit	hin						
Component   CoDUNISTS   Method   September   Septem	(F) Trigger breach confirmed		Lab Sample No.(s)					
Naphthalened 8 % recovery**		I OD/Unite						
Recovery"				95	96.9	07.3		
Acenaphthene-d10 % recovery"  Phenanthrene-d10 % recovery Mathrene-d10 % recov		70	1101210	93	30.9	37.5		
Perceit   Perc		%	TM218	90.7	92.6	96		
Tecovery"								
Chrysene-d12 %   %   TM218   83.6   85   86.6		%	TM218	89.2	90.5	94.6		
recovery**								
Perylene-dit 2 % recovery**   Secondary		%	TM218	83.6	85	86.6		
Naphthalene		0/_	TM219	97 7	02.4	00.2		
Naphthalene		70	1101210	01.1	92.4	90.2		
Acenaphthylene		<9 µg/kg	TM218	34.7	15.9	<9		
Acenaphthylene							<u> </u>	 
Acenaphthene   <8 μg/kg   TM218   <8	Acenaphthylene		TM218		28.9			
Fluorene								
Fluorene	Acenaphthene	<8 µg/kg	7M218					
Phenanthrene	Eluorene	~10	TM240				-	
Phenanthrene	riuorene		ı IVI∠18					
Mathracene   Ma	Phenanthrene		TM218					
Anthracene       <16 μg/kg μg/kg								
Fluoranthene	Anthracene		TM218					
Pyrene		μg/kg		M	М	М		
Pyrene         <15 μg/kg         TM218 μg/kg         384 M         359 M         29.8 M         M           Benz(a)anthracene         <14 μg/kg	Fluoranthene		TM218			<17		
High Residual Notes	_							
Benze (a) anthracene	Pyrene		I M218					
μg/kg	Renz(a)anthracene		TM219					
Chrysene         <10 μg/kg	Denz(a)antinacene		1101210					
μg/kg	Chrysene		TM218					
μg/kg	j							
Benzo(k)fluoranthene         <14 μg/kg	Benzo(b)fluoranthene		TM218	459	391	23.5		
Hg/kg   Hg/								
Benzo(a)pyrene       <15 μg/kg	Benzo(k)fluoranthene		TM218					
μg/kg	Ponzo(a)nyrono		TM210					
Indeno(1,2,3-cd)pyrene	Benzo(a)pyrene		1101210					
μg/kg	Indeno(1.2.3-cd)pyrene		TM218					
μg/kg   M   M   M	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,							
Benzo(g,h,i)perylene     <24 μg/kg	Dibenzo(a,h)anthracene		TM218	63.4	46.8	<23		
μg/kg   M M M M     PAH, Total Detected   <118   TM218   3050   2660   <118			1_					
PAH, Total Detected <118 TM218 3050 2660 <118	Benzo(g,h,i)perylene		TM218					
	PAH Total Detected		TM219					
			I IVIZ IO	3030	2000	-110		
		. 0 0	1					
			1					
			+					
			1					
			+					

Validated

150829-68 SDG: Location: Stag Brewery Order Number:

Job: H\_URS\_WIM-273 Customer: AECOM Report Number: 329373 Attention: Gary Marshall Superseded Report:

Client Reference:

Client Reference:			Attention: G	ary Marshall		Superseded Report:	
TPH CWG (S)							
Results Legend # ISO17025 accredited.		Customer Sample R	ВНЗА	BH5A	BH5A		
M mCERTS accredited. aq Aqueous / settled sample. diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample. * Ubcontracted test. ** % recovery of the surrogate stand check the efficiency of the method results of individual compounds w samples aren't corrected for the ref.  (F) Trigger breach confirmed	i. The vithin	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s)	0.50 Soil/Solid 28/08/2015 29/08/2015 150829-68 11984669	0.50 Soil/Solid 28/08/2015 29/08/2015 150829-68 11984671	2.50 - 3.00 Soil/Solid 28/08/2015 29/08/2015 150829-68 11984672		
1-5&+§@ Sample deviation (see appendix)	LOD/Unit	AGS Reference ts Method					
GRO Surrogate %	% LOD/UII	TM089	69	72	99		
recovery**	70	110000		12	39		
GRO TOT (Moisture Corrected)	<44 µg/kg	TM089	<44 M	<44 M	<44 M		
Methyl tertiary butyl ether (MTBE)	<5 μg/k	rg TM089	<5 M	<5	<5 M		
Benzene	<10 µg/kg	TM089	<10 M	<10	<10 M		
Toluene	<2 μg/k		<2 M	<2	<2 M		
Ethylbenzene	<3 µg/k	kg TM089	5.34 M	<3 M	<3 M		
m,p-Xylene	<6 µg/k		<6 M		<6 M		
o-Xylene	<3 µg/k		<3 M		<3 M		
sum of detected mpo xylene by GC	<9 µg/k		<9	<9	<9		
sum of detected BTEX by GC	<24 µg/kg	TM089	<24	<24	<24		
Aliphatics >C5-C6	<10 µg/kg	TM089	<10	<10	<10		
Aliphatics >C6-C8	<10 µg/kg	TM089	<10	<10	<10		
Aliphatics >C8-C10	<10 µg/kg	TM089	<10	<10	<10		
Aliphatics >C10-C12	<10 µg/kg	TM089	<10	<10	<10		
Aliphatics >C12-C16	<100 µg/kg	TM173	<100	<100	<100		
Aliphatics >C16-C21	<100 µg/kg	TM173	3140	234	<100		
Aliphatics >C21-C35	<100 µg/kg	TM173	9790	6660	<100		
Aliphatics >C35-C44	<100 µg/kg		3030	968	<100		
Total Aliphatics >C12-C44	<100 µg/kg		15900	7860	<100		
Aromatics >EC5-EC7	<10 µg/kg	_	<10	<10	<10		
Aromatics >EC7-EC8	<10 µg/kg	_	<10	<10	<10		
Aromatics >EC8-EC10	<10 µg/kg		<10	<10	<10		
Aromatics >EC10-EC12	<10 µg/kg		<10	<10	<10		
Aromatics >EC12-EC16	<100 µg/kg		714	358	<100		
Aromatics >EC16-EC21	<100 µg/kg		4780	2620	<100		
Aromatics >EC21-EC35	<100 µg/kg		24700	16100	<100		
Aromatics >EC35-EC44	<100 µg/kg		12700	8050	<100		
Aromatics >EC40-EC44	<100 µg/kg		5160	2870	<100		
Total Aromatics >EC12-EC44	<100 µg/kg		42900	27100	<100		
Total Aliphatics & Aromatics >C5-C44	<100 µg/kg		58900	35000	<100		

Validated

SDG: 150829-68 Location: Stag Brewery Order Number:

Job: H\_URS\_WIM-273 Custor Client Reference: Attenti

Customer: AECOM
Attention: Gary Marshall

Report Number: 329373

Superseded Report:

VOC MS (S)							
Results Legend		Customer Sample R	BH3A	BH5A	BH5A		
# ISO17025 accredited.  M mCERTS accredited.		·		·			
aq Aqueous / settled sample.		Depth (m)	0.50	0.50	2.50 - 3.00		
diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample.		Sample Type	Soil/Solid	Soil/Solid	Soil/Solid		
* Subcontracted test.		Date Sampled	28/08/2015	28/08/2015	28/08/2015		
** % recovery of the surrogate standa check the efficiency of the method.		Sampled Time Date Received	29/08/2015	29/08/2015	29/08/2015		
results of individual compounds wi samples aren't corrected for the re-		SDG Ref	150829-68	150829-68	150829-68		
(F) Trigger breach confirmed	Jovery	Lab Sample No.(s)	11984669	11984671	11984672		
1-5&+§@ Sample deviation (see appendix)		AGS Reference					
Component	LOD/Unit	_					
Dibromofluoromethane**	%	TM116	116	122	120		
Toluene-d8**	%	TM116	104	103	113		
4-Bromofluorobenzene**	%	TM116	69.3	72.4	102		
Dichlorodifluoromethane	<6 µg/k	g TM116	<6	<6	<6		
			M	М	М		
Chloromethane	<7 µg/k	g TM116	<7	<7	<7		
		·	#	#	#		
Vinyl Chloride	<6 µg/k	g TM116	<6	<6	<6		
		·	М	М	М		
Bromomethane	<10	TM116	<10	<10	<10		
	μg/kg		М	М	М		
Chloroethane	<10	TM116	<10	<10	<10		
	μg/kg		M	M	M		
Trichlorofluorormethane	<6 µg/k	g TM116	<6	<6	<6		
memoroination	το μg/it	ig   IWIIIO	M	M	M		
1,1-Dichloroethene	<10	TM116	<10	<10	<10		
1, 1-Dictiloroetherie	μg/kg	1101110					
Carbon Diaulahida		g TM116	<7	<b>*</b>	<b>*</b>		
Carbon Disulphide	<7 µg/k	g ilviilo					
Dishlanasahan	:40	T14440	M	M	M		
Dichloromethane	<10	TM116	<10	<10	<10		
N. 11 11 11 11 11 11 11 11 11 11 11 11 11	μg/kg	T14440	#	#	#		
Methyl Tertiary Butyl Ether	<10	TM116	<10	<10	<10		
	μg/kg		M	М	M		
trans-1,2-Dichloroethene	<10	TM116	<10	<10	<10		
	μg/kg		M	M	M		
1,1-Dichloroethane	<8 µg/k	g TM116	<8	<8	<8		
			M	М	M		
cis-1,2-Dichloroethene	<6 µg/k	g TM116	<6	<6	<6		
			M	M	M		
2,2-Dichloropropane	<10	TM116	<10	<10	<10		
	μg/kg		M	М	M		
Bromochloromethane	<10	TM116	<10	<10	<10		
	μg/kg		M	М	М		
Chloroform	<8 µg/k	g TM116	<8	<8	<8		
			M	М	М		
1,1,1-Trichloroethane	<7 μg/k	g TM116	<7	<7	<7		
			M	М	М		
1,1-Dichloropropene	<10	TM116	<10	<10	<10		
	μg/kg		M	М	М		
Carbontetrachloride	<10	TM116	<10	<10	<10		
	μg/kg		M	М	М		
1,2-Dichloroethane	<5 µg/k	g TM116	<5	<5	<5		
		·	М	М	М		
Benzene	<9 µg/k	g TM116	<9	<9	<9		
	10	Ĭ	М	М	М		
Trichloroethene	<9 µg/k	g TM116	<9	<9	<9		
	5 1-3		#	#	#		
1,2-Dichloropropane	<10	TM116	<10	<10	<10		
1,2 2.0	μg/kg		M	. б	M		
Dibromomethane	<9 µg/k	g TM116	<9	<9	<9		
Bibromonicalane	о руж	9   1111110	М	M	M		
Bromodichloromethane	<7 µg/k	g TM116	<7	<7	<7		
Bromodicilioromethane	∼r μg/κ	g I IWITIO	M	M	-7 M		
cis-1,3-Dichloropropene	<10	TM116	<10	<10	<10		
เลอ- 1,อ-มเติกเดิก opropene	<10 μg/kg	TIVITO					
Toluono		TN4440	M	<7	<7		
Toluene	<7 µg/k	g TM116	<7				
teens 4.0 Districts	.10	T14440	M	M	M		
trans-1,3-Dichloropropene	<10	TM116	<10	<10	<10		
4.4.0 Triaklana (II)	μg/kg	T14440	-40	.40	-40		
1,1,2-Trichloroethane	<10	TM116	<10	<10	<10		
	μg/kg		M	M	M		

Validated

 SDG:
 150829-68
 Location:
 Stag Brewery
 Order Number:

 Job:
 H\_URS\_WIM-273
 Customer:
 AECOM
 Report Number

Client Reference:

VOC MS (S)									
Results Legend # ISO17025 accredited.		Customer Sample R	ВНЗА	BH5A		BH5A			
M mCERTS accredited.  aq Aqueous / settled sample.									
diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample.		Depth (m) Sample Type	0.50 Soil/Solid	0.50 Soil/Solid		2.50 - 3.00 Soil/Solid			
* Subcontracted test.		Date Sampled	28/08/2015	28/08/2015		28/08/2015			
check the efficiency of the method.	. The	Sampled Time Date Received	29/08/2015	29/08/2015		29/08/2015			
results of individual compounds wi samples aren't corrected for the re-		SDG Ref	150829-68	150829-68		150829-68			
(F) Trigger breach confirmed 1-5&•§@ Sample deviation (see appendix)		Lab Sample No.(s) AGS Reference	11984669	11984671		11984672			
Component	LOD/Unit								
1,3-Dichloropropane	<7 μg/k	g TM116	<7	<7		<7			
			M		М		М		
Tetrachloroethene	<5 µg/k	g TM116	<5	<5		<5			
Dibasas shipsas shipsas	-110	TNAAC	M		М	-10	M		
Dibromochloromethane	<10 µg/kg	TM116	<10 M	<10	М	<10	М		
1,2-Dibromoethane	<10	TM116	<10	<10	IVI	<10	IVI		
1,2 Bibromodulano	μg/kg	1	M	1	М	110	М		
Chlorobenzene	<5 μg/kg	g TM116	<5	<5		<5			
			M		М		М		
1,1,1,2-Tetrachloroethane	<10	TM116	<10	<10		<10			
F	μg/kg	T14440	M		M		M		
Ethylbenzene	<4 µg/k	g TM116	4.45	<4		<4	N 4		
p/m-Xylene	<10	TM116	<10	<10	M	<10	M		
p 7.910110	μg/kg	1101110	×10 #	1	#	-10	#		
o-Xylene	<10	TM116	<10	<10		<10			
·	μg/kg		М	1	М		М		
Styrene	<10	TM116	<10	<10		<10			
	μg/kg		#		#		#		
Bromoform	<10	TM116	<10	<10		<10			
loopropylhonzono	μg/kg	g TM116	M	<5	М	<5	M		
Isopropylbenzene	<5 µg/k	g INITIO	<b>~5</b>	1	#	<5	#		
1,1,2,2-Tetrachloroethane	<10	TM116	<10	<10	#	<10	#		
, , ,	μg/kg		М	1	М		М		
1,2,3-Trichloropropane	<16	TM116	<16	<16		<16			
	μg/kg		M	+	М		М		
Bromobenzene	<10	TM116	<10	<10		<10			
Describerance	μg/kg	TNAAC	M		М	-10	M		
Propylbenzene	<10 µg/kg	TM116	<10 M	<10	М	<10	М		
2-Chlorotoluene	<9 μg/kg	g TM116	<9	<9	IVI	<9	IVI		
	- F.S	9	М		М	_	М		
1,3,5-Trimethylbenzene	<8 µg/k	g TM116	<8	<8		<8			
			M		М		М		
4-Chlorotoluene	<10	TM116	<10	<10		<10			
to d. D. d. Ill. common	μg/kg	T14440	<14	<14	М	<14	М		
tert-Butylbenzene	<14 µg/kg	TM116	<14 M	1	М	<14	М		
1,2,4-Trimethylbenzene	<9 μg/kg	g TM116	<9	<9	IVI	<9	IVI		
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	- F.S		#	1	#	_	#		
sec-Butylbenzene	<10	TM116	<10	<10		<10			
	μg/kg		M		М		М		
4-Isopropyltoluene	<10	TM116	<10	<10		<10			
1,3-Dichlorobenzene	μg/kg	g TM116	M	<8	M	<8	M		
1,3-DICHIOTODENZENE	<8 µg/k	y IIVIIIO	<8 M	1	М	٧٥	М		
1,4-Dichlorobenzene	<5 µg/k	g TM116	<5	<5	IVI	<5	IVI		
, , , , , , , , , , , , , , , , , , , ,	- 1-5.11		М		М	ŭ	М		
n-Butylbenzene	<11	TM116	<11	<11		<11			
	μg/kg								
1,2-Dichlorobenzene	<10	TM116	<10	<10		<10			
1.2 Dibrores 2 shlores	μg/kg	T14440	M		M	4 ادر	М		
1,2-Dibromo-3-chloroprop ane	<14 µg/kg	TM116	<14 M	<14	М	<14	М		
Tert-amyl methyl ether	μg/kg <10	TM116	<10	<10	IVI	<10	IVI		
. Sr. umyi mounyi sunsi	μg/kg	1101110	×10 #	1	#	-10	#		
1,2,4-Trichlorobenzene	<20	TM116	<20	<20		<20	.,		
	μg/kg								
Hexachlorobutadiene	<20	TM116	<20	<20		<20			
Nauhthalass	μg/kg	T14440	.40	- 10		-40			
Naphthalene	<13 µg/kg	TM116	<13	<13	N 4	<13	N.4		
	µg/kg		M	<u> </u>	M		М	<u> </u>	



Validated

 SDG:
 150829-68
 Location:
 Stag Brewery
 Order Number:

 Job:
 H\_URS\_WIM-273
 Customer:
 AECOM
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VOC MS (S)

Client Reference:

VOC	/OC MS (S)							
	Results Legend ISO17025 accredited. mCERTS accredited. Aqueous / settled sample. Dissolved / filtered sample.	С	Depth (m)	0.50	0.50	BH5A 2.50 - 3.00		
	Total / unfiltered sample. Subcontracted test.		Sample Type Date Sampled	Soil/Solid 28/08/2015	Soil/Solid 28/08/2015	Soil/Solid 28/08/2015		
**	% recovery of the surrogate standa check the efficiency of the method.		Sampled Time					
	results of individual compounds wi	thin	Date Received SDG Ref	29/08/2015 150829-68	29/08/2015 150829-68	29/08/2015 150829-68		
(F)	samples aren't corrected for the rec Trigger breach confirmed	covery	Lab Sample No.(s)	11984669	11984671	11984672		
Compo	Sample deviation (see appendix)	LOD/Units	AGS Reference Method					
	Trichlorobenzene	<20	TM116	<20	<20	<20		
1,2,0		μg/kg		#		#		



SDG:

150829-68

**CERTIFICATE OF ANALYSIS** 

Validated

Order Number:

329373

H\_URS\_WIM-273 AECOM Job: **Customer:** Report Number:

Location:

Client Reference: Attention: Gary Marshall Superseded Report:

# **Asbestos Identification - Soil**

Stag Brewery

			731		iaciitii	ication	- 0011				
		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH3A 0.50 SOLID 28/08/2015 00:00:00 01/09/2015 10:13:47 150829-68 11984669 TM048	2/9/15	Kevin Hughes	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH5A 0.50 SOLID 28/08/2015 00:00:00 01/09/2015 10:15:44 150829-68 11984671 TM048	2/9/15	Kevin Hughes	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH5A 2.50 - 3.00 SOLID 28/08/2015 00:00:00 03/09/2015 03:31:51 150829-68 11984672 TM048	09/09/2015	Rebecca Rawlings	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

Validated

**SDG**: 150 **Job**: H\_U

Client Reference:

150829-68 H\_URS\_WIM-273 Location:Stag BreweryCustomer:AECOMAttention:Gary Marshall

Order Number: Report Number: Superseded Report:

329373

# **Table of Results - Appendix**

Method No	Reference	Description	Wet/Dry Sample <sup>1</sup>	Surrogate Corrected
ASB_PREP				
PM001		Preparation of Samples for Metals Analysis		
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material		
TM024	Method 4500A & B, AWWA/APHA, 20th Ed., 1999	Determination of Exchangeable Ammonium and Ammoniacal Nitrogen as N by titration on solids		
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material		
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)		
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS		
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		
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser		
TM173	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GC-FID		
TM180	Sulphide in waters and waste waters 1991 ISBN 01 175 7186 SCA rec. 2007 (unpublished)'	The Determination Of Easily Liberated Sulphide In Soil Samples by Ion Selective Electrode Technique		
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		
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid extractable Sulphate in Soils by IRIS Emission Spectrometer		

<sup>&</sup>lt;sup>1</sup> Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.



Validated

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 SDG:
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 H\_URS\_WIM-273
 Customer:
 AECOM
 Report Number:

Client Reference: Attention: Gary Marshall Superseded Report:

**Test Completion Dates** 

Lab Sample No(s)	11984669	11984670	11984671	11984672		
Customer Sample Ref.	BH3A	ВН3А	BH5A	BH5A		
AGS Ref.						
Depth	0.50	1.50 - 2.00	0.50	2.50 - 3.00		
Туре	SOLID	SOLID	SOLID	SOLID		
Ammonium Soil by Titration	09-Sep-2015		09-Sep-2015	09-Sep-2015		
Asbestos ID in Solid Samples	02-Sep-2015		02-Sep-2015	09-Sep-2015		
Easily Liberated Sulphide	08-Sep-2015		08-Sep-2015	08-Sep-2015		
EPH CWG (Aliphatic) GC (S)	02-Sep-2015		02-Sep-2015	03-Sep-2015		
EPH CWG (Aromatic) GC (S)	02-Sep-2015		02-Sep-2015	03-Sep-2015		
GRO by GC-FID (S)	02-Sep-2015		02-Sep-2015	02-Sep-2015		
Hexavalent Chromium (s)	04-Sep-2015		04-Sep-2015	10-Sep-2015		
Metals in solid samples by OES	07-Sep-2015		07-Sep-2015	04-Sep-2015		
PAH by GCMS	03-Sep-2015		03-Sep-2015	03-Sep-2015		
pН	09-Sep-2015		09-Sep-2015	09-Sep-2015		
Sample description	01-Sep-2015	29-Aug-2015	01-Sep-2015	29-Aug-2015		
Total Organic Carbon	07-Sep-2015		10-Sep-2015	07-Sep-2015		
Total Sulphate	04-Sep-2015		04-Sep-2015	04-Sep-2015		
TPH CWG GC (S)	02-Sep-2015		02-Sep-2015	03-Sep-2015		
VOC MS (S)	02-Sep-2015		02-Sep-2015	02-Sep-2015		

Validated

SDG: 150829-68 Job:

Client Reference:

H\_URS\_WIM-273

Location: Stag Brewery **Customer:** AECOM Attention: Gary Marshall Order Number: Report Number: Superseded Report:

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# **ASSOCIATED AQC DATA**

#### Ammonium Soil by Titration

Component	Method Code	QC 1205
Exchangeable Ammonium as NH4	TM024	<b>98.01</b> 79.30 : 104.61

#### Easily Liberated Sulphide

Component	Method Code	QC 1231
Easily Liberated Sulphide	TM180	<b>94.71</b> 49.14 : 123.89

#### EPH CWG (Aliphatic) GC (S)

Component	Method Code	QC 1182	QC 1194
Total Aliphatics >C12-C35	TM173	<b>85.21</b> 62.50 : 112.50	<b>87.08</b> 70.80 : 111.51

#### EPH CWG (Aromatic) GC (S)

Component	Method Code	QC 1182	QC 1194
Total Aromatics >EC12-EC35	TM173	<b>82.67</b> 60.62 : 126.95	<b>82.67</b> 65.21 : 121.32

### GRO by GC-FID (S)

Component	Method Code	QC 1141
Benzene by GC (Moisture Corrected)	TM089	<b>93.0</b> 76.33 : 121.87
Ethylbenzene by GC (Moisture Corrected)	TM089	<b>91.5</b> 75.73 : 123.83
m & p Xylene by GC (Moisture Corrected)	TM089	<b>92.0</b> 75.52 : 120.32
MTBE GC-FID (Moisture Corrected)	TM089	<b>95.0</b> 77.89 : 119.70
o Xylene by GC (Moisture Corrected)	TM089	<b>91.0</b> 74.15 : 124.59
QC	TM089	<b>93.51</b> 62.31 : 122.61
Toluene by GC (Moisture Corrected)	TM089	<b>92.0</b> 77.91 : 122.33

Validated

 SDG:
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 329373

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 Gary Marshall
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Hexavalent Chromium (s)

Component	Method Code	QC 1187	QC 1229
Hexavalent Chromium	TM151	96.0	100.0
		92.20 : 106.60	92.20 : 106.60

### Metals in solid samples by OES

Component	Method Code	QC 1293	QC 1251
Aluminium	TM181	<b>96.15</b> 86.49 : 129.71	<b>118.46</b> 86.49 : 129.71
Antimony	TM181	<b>95.34</b> 77.50 : 122.50	<b>94.62</b> 77.50 : 122.50
Arsenic	TM181	<b>90.27</b> 82.63 : 117.37	<b>95.58</b> 82.63 : 117.37
Barium	TM181	<b>100.75</b> 79.45 : 120.55	<b>100.75</b> 79.45 : 120.55
Beryllium	TM181	<b>98.76</b> 85.92 : 121.27	<b>101.55</b> 85.92 : 121.27
Boron	TM181	<b>88.55</b> 77.41 : 143.83	<b>129.01</b> 77.41 : 143.83
Cadmium	TM181	<b>93.28</b> 81.95 : 118.05	<b>94.29</b> 81.95 : 118.05
Chromium	TM181	<b>90.2</b> 81.29 : 118.71	<b>102.75</b> 81.29 : 118.71
Cobalt	TM181	<b>92.33</b> 83.86 : 116.14	<b>98.17</b> 83.86 : 116.14
Copper	TM181	<b>99.32</b> 78.57 : 121.43	<b>99.05</b> 78.57 : 121.43
Iron	TM181	<b>96.55</b> 87.50 : 122.82	<b>104.83</b> 87.50 : 122.82
Lead	TM181	<b>93.7</b> 74.18 : 117.25	<b>91.34</b> 74.18 : 117.25
Manganese	TM181	<b>98.0</b> 82.91 : 117.09	<b>103.4</b> 82.91 : 117.09
Mercury	TM181	<b>90.28</b> 81.99 : 118.01	<b>93.63</b> 81.99 : 118.01
Molybdenum	TM181	<b>91.24</b> 81.45 : 118.55	<b>91.88</b> 81.45 : 118.55
Nickel	TM181	<b>92.44</b> 79.64 : 120.36	<b>100.0</b> 79.64 : 120.36
Phosphorus	TM181	<b>94.34</b> 81.03 : 118.97	<b>97.32</b> 81.03 : 118.97
Selenium	TM181	<b>102.05</b> 87.05 : 121.93	<b>102.91</b> 87.05 : 121.93
Strontium	TM181	<b>90.04</b> 83.64 : 116.36	<b>103.07</b> 83.64 : 116.36
Thallium	TM181	<b>93.03</b> 77.50 : 122.50	<b>86.57</b> 77.50 : 122.50
Tin	TM181	<b>90.03</b> 78.30 : 113.98	<b>91.69</b> 78.30 : 113.98
Titanium	TM181	<b>90.63</b> 71.02 : 128.98	<b>114.06</b> 71.02 : 128.98

Validated

150829-68 SDG: Job:

H\_URS\_WIM-273 Client Reference:

Location: Stag Brewery AECOM **Customer:** 

Gary Marshall

Attention:

Order Number: Report Number: Superseded Report:

329373

Metals in solid samples by OES

	· ·	QC 1293	QC 1251
Vanadium	TM181	<b>89.12</b> 86.61 : 113.39	<b>97.94</b> 86.61 : 113.39
Zinc	TM181	<b>95.29</b> 89.82 : 114.54	<b>101.14</b> 89.82 : 114.54

### PAH by GCMS

Component	Method Code	QC 1179	QC 1161
· ·	TM218		
Acenaphthene	1M218	92.5	85.0
		79.96 : 117.68	76.50 : 121.50
Acenaphthylene	TM218	87.0	84.5
		76.25 : 113.75	73.50 : 118.50
Anthracene	TM218	92.0	86.0
		75.14 : 109.30	74.25 : 117.75
Benz(a)anthracene	TM218		
Denz(a)antinacene	TIVIZ 10	96.0	95.5
		82.90 : 120.19	82.07 : 118.33
Benzo(a)pyrene	TM218	96.0	92.0
		82.80 : 121.21	79.75 : 116.97
Benzo(b)fluoranthene	TM218	96.0	98.5
		81.11 : 119.79	82.41 : 117.15
Benzo(ghi)perylene	TM218	00 5	90.0
20.120(9.11)(0.1)(0.1)	2.0	88.5	89.0
D (1) (1	T14040	81.23 : 116.67	77.09 : 114.38
Benzo(k)fluoranthene	TM218	92.0	95.5
		79.07 : 114.76	81.43 : 115.17
Chrysene	TM218	93.5	94.5
		77.94 : 118.46	82.50 : 113.51
Dibenzo(ah)anthracene	TM218	92.0	92.5
, ,		79.94 : 120.03	81.00 : 120.00
Fluoranthene	TM218		
riuorantinene	TIVIZIO	94.0	90.0
		77.89 : 110.15	78.67 : 117.61
Fluorene	TM218	95.0	87.5
		80.93 : 113.54	76.50 : 121.50
Indeno(123cd)pyrene	TM218	92.5	91.0
		80.37 : 120.17	79.19 : 117.60
Naphthalene	TM218		
Hapitalaioilo	1111210	94.5	90.0
B1 "	T142/2	79.70 : 112.37	77.00 : 117.50
Phenanthrene	TM218	95.0	88.5
		78.44 : 113.95	75.00 : 123.00
Pyrene	TM218	92.0	88.0
		81.17 : 112.33	77.82 : 116.98

Component	Method Code	QC 1220	QC 1256
рН	TM133	<b>101.39</b> 96.22 : 103.78	<b>100.88</b> 97.19 : 102.81

#### **Total Organic Carbon**

Validated

150829-68 SDG: Job:

H\_URS\_WIM-273

Location: Stag Brewery AECOM **Customer:** 

Gary Marshall

Attention:

Order Number: Report Number:

329373 Superseded Report:

Total Organic Carbon

Client Reference:

Component	Method Code	QC 1297	QC 1208	QC 1227
Total Organic Carbon	TM132	97.72	99.54	95.89
		90 40 - 102 00	90 40 - 102 00	90 40 - 102 00

#### Total Sulphate

Component	Method Code	QC 1235	QC 1298
Total Sulphate	TM221	<b>102.27</b> 78.49 : 121.51	<b>117.42</b> 78.49 : 121.51

## VOC MS (S)

Component	Method Code	QC 1154
1,1,1,2-tetrachloroethane	TM116	<b>105.0</b> 76.60 : 121.00
1,1,1-Trichloroethane	TM116	<b>102.2</b> 77.80 : 123.40
1,1,2-Trichloroethane	TM116	<b>94.4</b> 75.40 : 119.80
1,1-Dichloroethane	TM116	<b>107.0</b> 80.84 : 124.49
1,2-Dichloroethane	TM116	<b>109.4</b> 91.00 : 135.67
1,4-Dichlorobenzene	TM116	<b>105.4</b> 80.88 : 114.60
2-Chlorotoluene	TM116	<b>102.8</b> 74.00 : 117.20
4-Chlorotoluene	TM116	<b>97.2</b> 71.20 : 113.20
Benzene	TM116	<b>100.6</b> 79.60 : 125.20
Carbon Disulphide	TM116	<b>104.4</b> 74.91 : 122.14
Carbontetrachloride	TM116	<b>101.4</b> 76.80 : 121.20
Chlorobenzene	TM116	<b>103.4</b> 83.47 : 116.82
Chloroform	TM116	<b>108.0</b> 82.00 : 128.80
Chloromethane	TM116	<b>129.8</b> 74.62 : 135.86
Cis-1,2-Dichloroethene	TM116	<b>113.4</b> 81.20 : 128.00
Dibromomethane	TM116	<b>94.4</b> 73.40 : 116.60
Dichloromethane	TM116	<b>111.8</b> 86.60 : 137.00

Validated

SDG: 150829-68 Location: Stag Brewery Order Number:

 Job:
 H\_URS\_WIM-273
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 AECOM
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 329373

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 Gary Marshall
 Superseded Report:

VOC MS (S)

	,	QC 1154
Ethylbenzene	TM116	<b>97.8</b> 73.60 : 115.60
Hexachlorobutadiene	TM116	<b>86.2</b> 33.65 : 130.56
Isopropylbenzene	TM116	<b>101.0</b> 72.52 : 117.52
Naphthalene	TM116	<b>106.0</b> 83.23 : 126.48
o-Xylene	TM116	<b>92.2</b> 69.60 : 110.40
p/m-Xylene	TM116	<b>93.6</b> 71.30 : 112.70
Sec-Butylbenzene	TM116	<b>105.0</b> 59.20 : 125.20
Tetrachloroethene	TM116	<b>105.8</b> 85.92 : 127.92
Toluene	TM116	<b>92.6</b> 76.08 : 110.17
Trichloroethene	TM116	<b>101.2</b> 78.17 : 121.37
Trichlorofluoromethane	TM116	<b>109.0</b> 83.78 : 132.82
Vinyl Chloride	TM116	<b>101.6</b> 66.81 : 138.46

The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.

The figure detailed is the percentage recovery result for the AQC.

The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

Validated

SDG: 150829-68 Job: H\_URS\_WIM-273 Client Reference:

Location: **Customer:** Attention:

Stag Brewery AECOM Gary Marshall Order Number: Report Number: Superseded Report:

329373

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Depth:** 2.50 - 3.00 Sample No : 11985336

Sample ID :

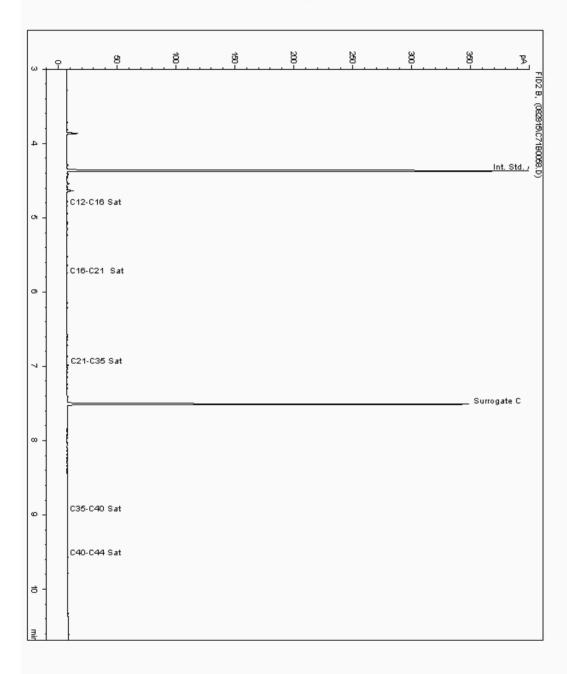
Alcontrol/Geochem Analytical Services Speciated TPH - AROM ( C12 - C40 )

Sample Identity:

11368744-02/09/2015 06:23:01 PM Date Acquired : Units :

ppb BH5A[2.50 - 3.00] Dilution:

->



Validated

 SDG:
 150829-68
 Location:
 Stag Brewery
 Order Number:

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 H\_URS\_WIM-273
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 AECOM
 Report Number:
 329373

 Client Reference:
 Attention:
 Gary Marshall
 Superseded Report:

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) Sample No: 11987620 Depth: 0.50

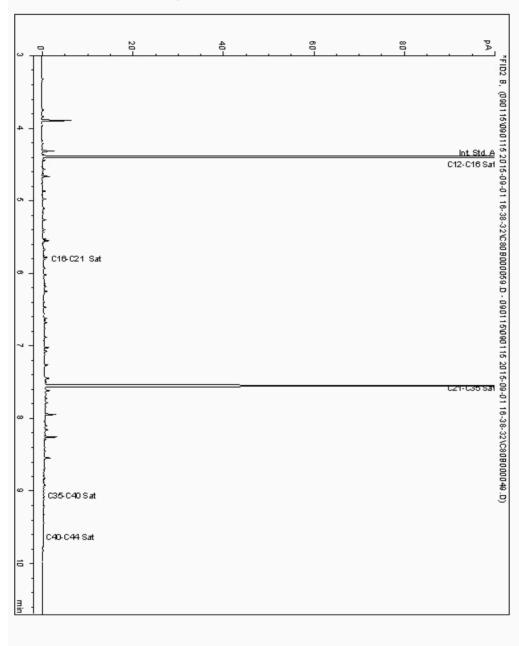
Sample ID : BH3A

Alcontrol/Geochem Analytical Services Speciated TPH - SATS ( C12 - C40 )

Sample Identity: 11368708-

Date Acquired : 02/09/15 09:07:08

Units : ppb
Dilution :
CF : 1
Multiplier : 0.950



Validated

329373

 SDG:
 150829-68
 Location:
 Stag Brewery
 Order Number:

 Job:
 H\_URS\_WIM-273
 Customer:
 AECOM
 Report Number:

 Client Reference:
 Attention:
 Gary Marshall
 Superseded Report:

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) Sample No: 11988122 Depth: 0.50

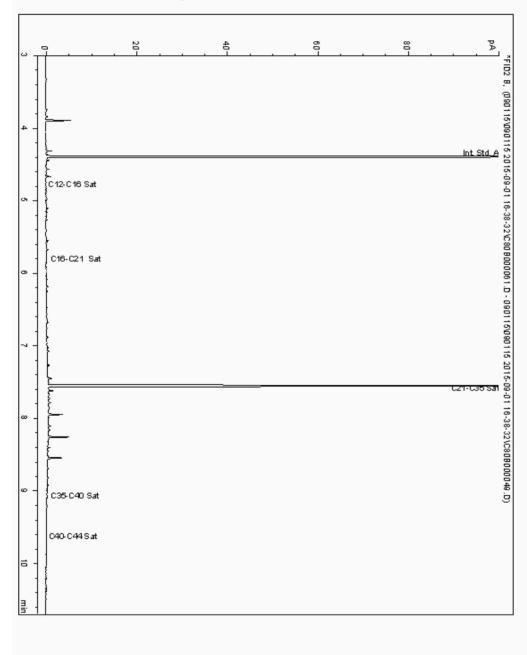
Sample ID : BH5A

Alcontrol/Geochem Analytical Services Speciated TPH - SATS ( C12 - C40 )

Sample Identity: 11368731-

Date Acquired : 02/09/15 09:38:12

Units : ppb
Dilution :
CF : 1
Multiplier : 0.960



Analysis: EPH CWG (Aromatic) GC (S)

Client Reference:

#### **CERTIFICATE OF ANALYSIS**

Validated

150829-68 SDG: Job: H\_URS\_WIM-273

Location: Stag Brewery **Customer:** AECOM Attention: Gary Marshall Order Number: Report Number: Superseded Report:

329373

Chromatogram

**Depth:** 2.50 - 3.00

Alcontrol/Geochem Analytical Services Speciated TPH - AROM ( C12 - C40 )

11985336

Sample Identity:

Sample No :

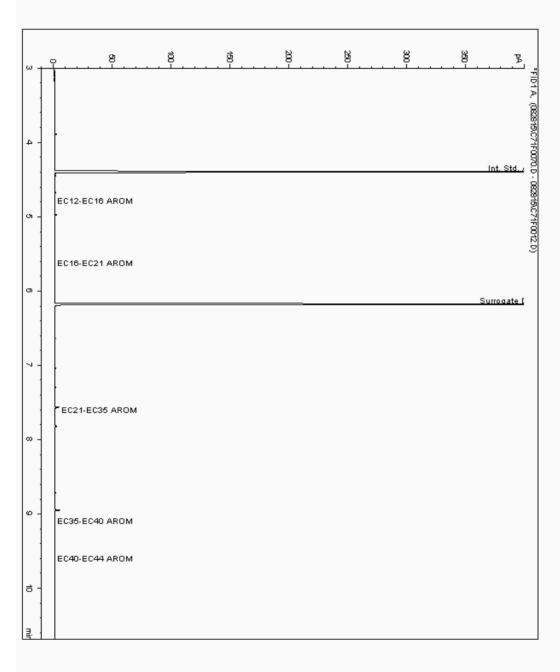
Sample ID :

11368745-03/09/2015 11:49:12 PM

Date Acquired : Units : ppb

BH5A[2.50 - 3.00] Dilution:

->



Validated

 SDG:
 150829-68

 Job:
 H\_URS\_WIM-273

 Client Reference:

Location:Stag BreweryCustomer:AECOMAttention:Gary Marshall

Order Number: Report Number: Superseded Report:

**Depth**: 0.50

329373

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S)

Sample No: 11987620

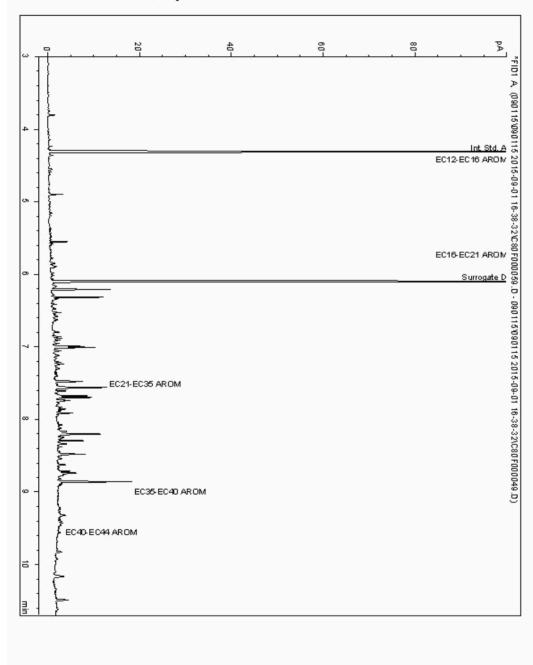
Sample ID : BH3A

Alcontrol/Geochem Analytical Services Speciated TPH - AROMS ( C12 - C44)

Sample Identity: 11368709-

Date Acquired : 02/09/15 09:07:08

Units : ppb
Dilution :
CF : 1
Multiplier : 0.950



Validated

 SDG:
 150829-68

 Job:
 H\_URS\_WIM-273

 Client Reference:

Location:Stag BreweryCustomer:AECOMAttention:Gary Marshall

Order Number: Report Number: Superseded Report:

329373

Chromatogram

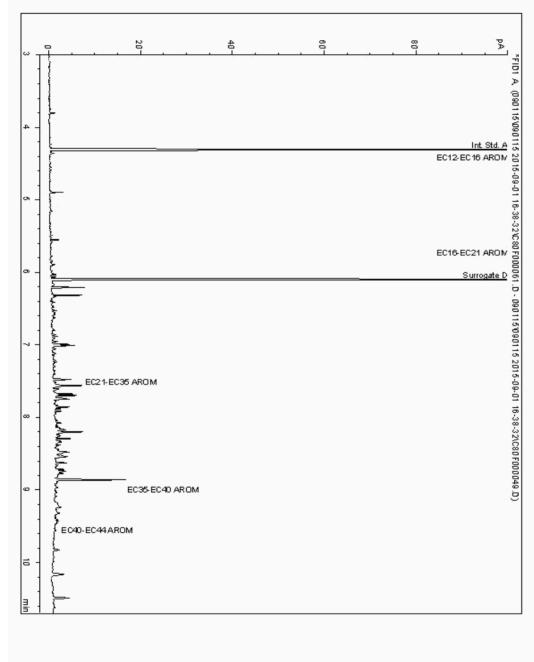
Analysis: EPH CWG (Aromatic) GC (S) Sample No : 11988122 Depth : 0.50 Sample ID :  $8H5\Delta$ 

Alcontrol/Geochem Analytical Services Speciated TPH - AROMS ( C12 - C44)

Sample Identity: 11368732-

Date Acquired : 02/09/15 09:38:12

Units : ppb
Dilution :
CF : 1
Multiplier : 0.960





Analysis: GRO by GC-FID (S)

Client Reference:

#### **CERTIFICATE OF ANALYSIS**

Validated

SDG: 150829-68 Job:

H\_URS\_WIM-273

Location: Stag Brewery AECOM **Customer:** Attention: Gary Marshall Order Number:

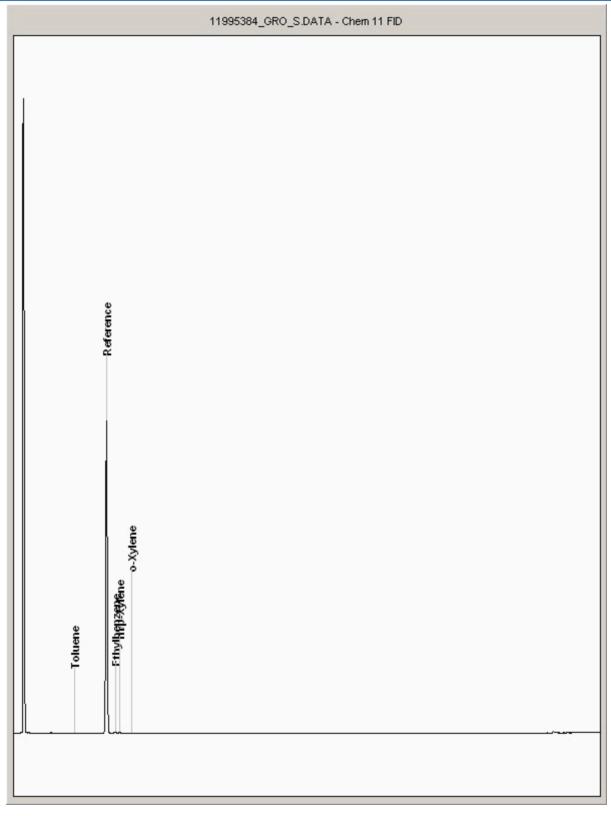
329373

Superseded Report:

Chromatogram

**Depth**: 0.50 Sample No : 11995384

Sample ID : внза





Validated

SDG: 150829-68 Job:

H\_URS\_WIM-273

Location: Stag Brewery AECOM **Customer:** Attention: Gary Marshall Order Number: Superseded Report:

329373

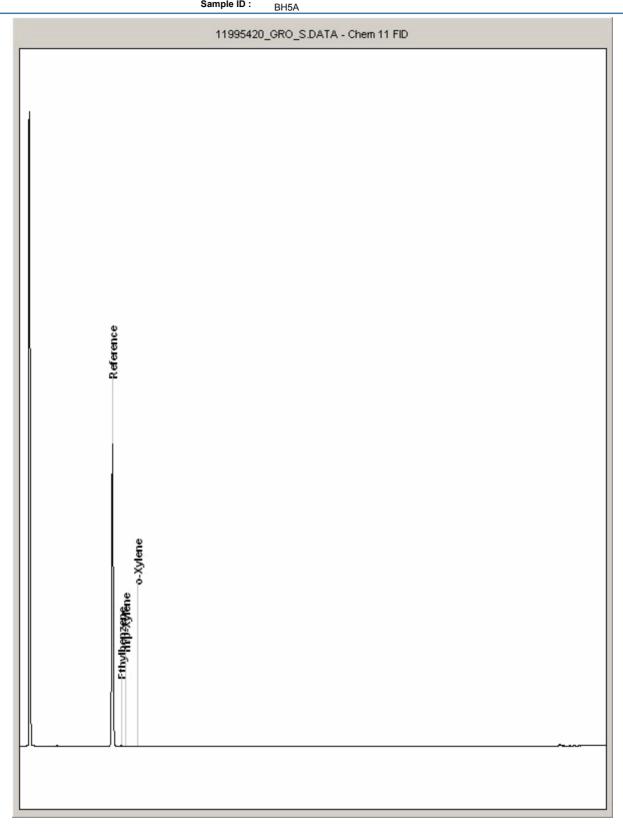
Chromatogram

Analysis: GRO by GC-FID (S)

Client Reference:

Sample No : 11995420 Sample ID :

**Depth**: 0.50





Validated

**SDG:** 150829-68 **Job:** H\_URS\_WIM-273

Analysis: GRO by GC-FID (S)

Client Reference:

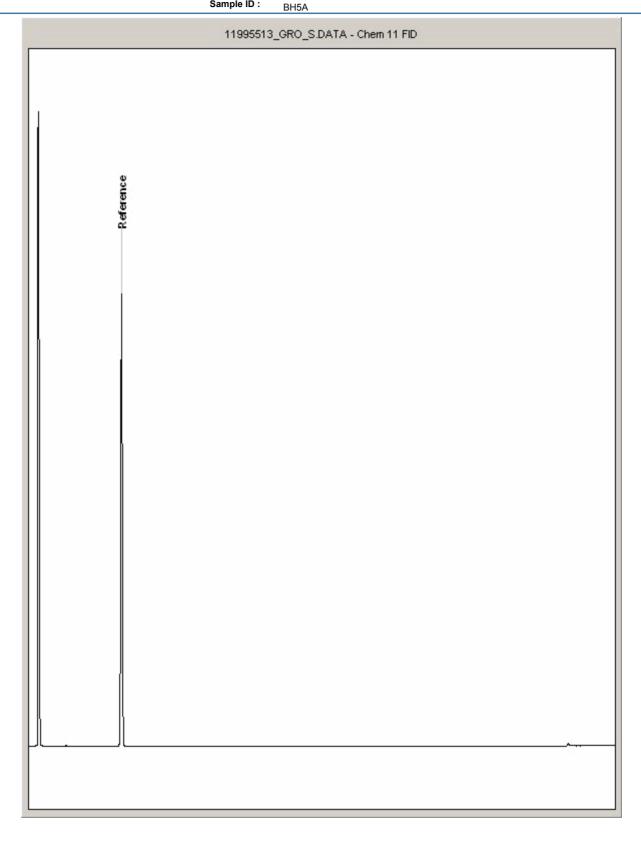
Location:Stag BreweryCustomer:AECOMAttention:Gary Marshall

Order Number: Report Number: Superseded Report:

329373

Chromatogram

Sample No: 11995513 Sample ID: BH5A Depth: 2.50 - 3.00



150829-68 Location: SDG Stag Brewery Order Number: H URS WIM-273 **AECOM** 329373 Job: **Customer:** Report Number: Attention: Gary Marshall Superseded Report:

Client Reference:

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 quaranteed 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
- . 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
- monohydric by HPLC include phenol, cresols (2-Methylphenol, bl) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 3-Methylphenol 4-Methylphenol) 2.5 Dimethylphenol. Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).
- 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.
- 20. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample
- 21. 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
- 22. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction
- 23. 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.
- 24. 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

#### SOLID MATRICES EXTRACTION SUMMARY

ANALYSIS	D/C OR WET	EXTRACTION SOLVENT	EXTRACTION METHOD	SEYJANA
SOLVENT EXTRACTABLE MATTER	D&C	DOM	SOXTHERM	GRAVIMETRIC
CYCLOHEXANE EXT. MATTER	D&C	CYCLOHEXANE	SOXTHERM	GRAVIMETRIC
THIN LAYER CHROMATOGRAPHY	D&C	DOM	SOXTHERM	IATROSCAN
ELEMENTALSULPHUR	D&C	DOM	SOXTHERM	HPLC
PHENOLSBYGOMS	WET	DOM	SOXTHERM	GCMS
HERBICIDES	D&C	HEXANEACETONE	SOXTHERM	GCMS
PESTICIDES	D&C	HEXANEACETONE	Soxtherm	GCMS
EPH (DRO)	D&C	HEXANEACETONE	END OVEREND	GCFID
EPH (MINOL)	D&C	HEXANEACETONE	END OVEREND	GCFID
EPH (OLEANED UP)	D&C	HEXANEACETONE	END OVEREND	GCFID
EPH CWG BYGC	D&C	HEXANEACETONE	END OVEREND	GCFID
POB TOT / POB CON	D&C	HEXANE:ACETONE	BND OVERBND	GCMS
POLYAROMATIC HYDROCARBONS (MS)	WET	HEXANEACETONE	MCROWAVE TM218.	GCMS
C8-C40(C6-C40) EZ FLASH	WET	HEXANEACETONE	SHAKER	GC-EZ
POLYAROMATIC HYDROCARBONS RAPID GC	WET	HEXANEACETONE	SHAKER	GC-EZ
SEM VOLATILEORGANIC COMPOUNDS	WET	DOMAGETONE	SONICATE	GCMS

#### LIQUID MATRICES EXTRACTION SUMMARY

ANALYSIS	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSS
PAHMS	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCMS
EPH .	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GC FID
EPH CWG	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GC FID
MINERALOIL	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GC FID
POB 700 NGENERS	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCMS
POB TOTAL	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCMS
svoc	DOM	LIQUID/LIQUID SHAKE	GCMS
FREESULPHUR	DOM	SOLID PHASE EXTRACTION	HPLC
PEST OCP/OPP	DOM	LIQUID/LIQUID SHAKE	GCMS
TRIAZINE HERBS	DOM	LIQUID/LIQUID SHAKE	GCMS
PHENOLSMS	DOM	SOLID PHASE EXTRACTION	GCMS
TPH byINFRARED (IR)	TCE	LIQUID/LIQUID SHAKE	HPLC
MINERALOIL by IR	TCE	LIQUID/LIQUID SHAKE	HPLC
GLYCOLS	NONE	DIRECT INJECTION	GCMS

#### Identification of Asbestos in Bulk

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

Asbestos Type	Common Name
Chrysofile	WhiteAsbestos
Amoste	Brown Asbestos
Crodddite	Blue Asbestos
Fibrous Adindite	-
Fibrous Anthophylite	-
Fibrous Trendite	-

#### 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.

# ALcontrol Laboratories

#### **CERTIFICATE OF ANALYSIS**

 SDG:
 150829-68
 Location:
 Stag Brewery
 Order Number:

 Job:
 H\_URS\_WIM-273
 Customer:
 AECOM
 Report Number:
 329373

 Client Reference:
 Attention:
 Gary Marshall
 Superseded Report:

## Appendix General

- 1. Results are expressed on a dry weight basis (dried at  $35^{\circ}$ C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICS and SVOC 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 all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples 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 analysed 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. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible. The quantity of asbestos present is not determined unless specifically requested.
- 7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.
- 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 Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.
- 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 C5-C12 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.

### Sample Deviations

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
4	Holding time exceeded before sample received
5	Samples exceeded holding time before presevation was performed
§	Sampled on date not provided
•	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to sampled on date
&	Sample Holding Time exceeded - Late arrival of instructions.

#### **Asbestos**

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk 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).

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).

Asbestos Type	Common Name
Chrysofile	White Asbestos
Amoste	BrownAsbestos
Orodolite	Blue Asbestos
Fibrous Adinoite	-
Fibrous Anhaphylite	-
Fibrous Tremdile	-

#### 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.

Unit 7-8 Hawarden Business Park Manor Road (off Manor Lane) Hawarden

> Deeside CH5 3US Tel: (01244) 528700

Fax: (01244) 528701 email: mkt@alcontrol.com Website: www.alcontrol.com

AECOM St. George's House 2nd Floor 5 St. George's Road Wimbledon Greater London SW19 4DR

Attention: Gary Marshall

### **CERTIFICATE OF ANALYSIS**

 Date:
 14 September 2015

 Customer:
 H\_URS\_WIM

 Sample Delivery Group (SDG):
 150902-38

Your Reference:

Location:Stag BreweryReport No:329713

We received 8 samples on Wednesday September 02, 2015 and 8 of these samples were scheduled for analysis which was completed on Monday September 14, 2015. 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





Client Reference:

**CERTIFICATE OF ANALYSIS** 

Validated

**SDG**: 150902-38 **Job**: H\_URS\_WIM-273

Location: Customer: Attention: Stag Brewery AECOM Gary Marshall Order Number: Report Number: Superseded Report:

329713

# **Received Sample Overview**

Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
BH3			01/09/2015
BH4			01/09/2015
BH5			01/09/2015
BH8			01/09/2015
BH109			01/09/2015
BH110			01/09/2015
BH111			01/09/2015
DUP01			01/09/2015
	BH3 BH4 BH5 BH8 BH109 BH110 BH111	BH3 BH4 BH5 BH8 BH109 BH111	BH3 BH4 BH5 BH8 BH109 BH111

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

Validated

150902-38 Stag Brewery SDG Location: Order Number: 329713 Job: H\_URS\_WIM-273 **Customer: AECOM** Report Number: Attention: Superseded Report: Client Reference: Gary Marshall **LIQUID** 11995366 11995369 11995368 11995367 1995371 **Results Legend** Lab Sample No(s) X Test No Determination Possible Customer BH109 BH110 BH3 BH4 Sample Reference **AGS Reference** Depth (m) Vial (ALE297)
HNO3 Filtered (ALE
H2SO4 (ALE244)
Dissolved Metals Pr
500ml Plastic (ALE2
250ml BOD (ALE297)
No3 Filtered (ALE
Vial (ALE297)
HNO3 Filtered (ALE
H2SO4 (ALE244)
Dissolved Metals Pr
500ml Plastic (ALE2
250ml BOD (ALE297)
HNO3 Filtered (ALE
H2SO4 (ALE297)
HNO3 Filtered (ALE
Vial (ALE297)
HNO3 Filtered (ALE
Usial (ALE297)
HNO3 Filtered (ALE
H2SO4 (ALE244)
Dissolved Metals Pr
500ml Plastic (ALE2
250ml BOD (ALE21
0.51 glass bottle (AL HNO3 Filtered (ALE
H2SO4 (ALE244)
Dissolved Metals Pr
500ml Plastic (ALE2
250ml BOD (ALE21
0.51 glass bottle (AL Vial (ALE297)
HN03 Filtered (ALE
H2SO4 (ALE244)
Dissolved Metals Pr
500ml Plastic (ALE2
250ml Bob (ALE2
0.51 glass botte (AL
Vial (ALE297) Container Ammoniacal Nitrogen All NDPs: 0 Tests: 8 All Anions by Kone (w) NDPs: 0 Tests: 8 COD Unfiltered All NDPs: 0 Tests: 8 Dissolved Metals by ICP-MS All NDPs: 0 Tests: 8 X All Dissolved W, Nb and Zr by ICP-MS NDPs: 0 Tests: 8 X EPH (DRO) (C10-C40) Aqueous All NDPs: 0 (W) Tests: 8 EPH CWG (Aliphatic) Aqueous GC All NDPs: 0 (W) Tests: 8 X X X EPH CWG (Aromatic) Aqueous GC All NDPs: 0 Tests: 8 GRO by GC-FID (W) All NDPs: 0 Tests: 8 All Mercury Dissolved NDPs: 0 Tests: 8 pH Value All NDPs: 0 Tests: 8 SVOC MS (W) - Aqueous All NDPs: 0 Tests: 7 Total EPH (aq) All NDPs: 0 Tests: 8

TPH CWG (W)

VOC MS (W)

All

All

NDPs: 0 Tests: 8

NDPs: 0 Tests: 8 Х

X

Validated

150902-38 H\_URS\_WIM-273 SDG: Location: Stag Brewery Order Number: Customer: AECOM Report Number:

Job: 329713 Client Reference: Attention: Gary Marshall Superseded Report:

Results Legend  X Test No Determination Possible  Ammoniacal Nitrogen  All  Anions by Kone (w)  All  COD Unfiltered  Dissolved Metals by ICP-MS  All  Dissolved W, Nb and Zr by ICP-MS  All  EPH (DRO) (C10-C40) Aqueous (W)  EPH CWG (Aliphatic) Aqueous GC (W)  EPH CWG (Aromatic) Aqueous GC (All	Custome Sample Reference  AGS Reference  Depth (m	Prrence  Pence  NDPs: 0 Tests: 8  NDPs: 0 Tests: 8	<b>=</b>	11995369 BH110 Vial (ALE297)	250ml BOD (ALE21	500ml Plastic (ALE2	Dissolved Metals Pr	HNO3 Filtered (ALE	11995372 BH1111 Vial (ALE29		250ml BOD	500ml Plac	Discolved	HNO3 Filtered (ALE	11995373 DUP01 Vial (A
Ammoniacal Nitrogen All  Anions by Kone (w) All  COD Unfiltered All  Dissolved Metals by ICP-MS All  Dissolved W, Nb and Zr by ICP-MS All  EPH (DRO) (C10-C40) Aqueous (W)  EPH CWG (Aliphatic) Aqueous GC (W)  EPH CWG (Aromatic) Aqueous GC All	AGS Refere	Pence  NDPs: 0 Tests: 8  NDPs: 0 Tests: 8			250ml BOD (ALE21	500ml Plastic (ALE2	Dissolved Metals Pr	HNO3 Filtered (AL			250ml BOD	SOOM Place	Dissolved	HNO3 Filt	
Anions by Kone (w)  COD Unfiltered  All  Dissolved Metals by ICP-MS  All  Dissolved W, Nb and Zr by ICP-MS  All  EPH (DRO) (C10-C40) Aqueous (W)  EPH CWG (Aliphatic) Aqueous GC  (W)  EPH CWG (Aromatic) Aqueous GC  All	Depth (m	NDPs: 0 Tests: 8 NDPs: 0 Tests: 8 NDPs: 0 Tests: 8	HNO3 Filtered (ALE	Vial (ALE297)	250ml BOD (ALE21	500ml Plastic (ALE2	Dissolved Metals Pr	HNO3 Filtered (AL	Vial (ALE29	0.5l glass bo	250ml BOD	500ml Plac	Dissolved	HNO3 File	Vial (A
Anions by Kone (w)  All  COD Unfiltered  All  Dissolved Metals by ICP-MS  All  Dissolved W, Nb and Zr by ICP-MS  All  EPH (DRO) (C10-C40) Aqueous (W)  EPH CWG (Aliphatic) Aqueous GC  (W)  EPH CWG (Aromatic) Aqueous GC  All		NDPs: 0 Tests: 8 NDPs: 0 Tests: 8 NDPs: 0 Tests: 8	HNO3 Filtered (ALE	Vial (ALE297)	250ml BOD (ALE21	500ml Plastic (ALE2	Dissolved Metals Pr	HNO3 Filtered (AL	Vial (ALE29	0.5l glass bo	250ml BOD	500ml Plac	Dissolved	HNO3 Filt	Vial (A
Anions by Kone (w)  COD Unfiltered  All  Dissolved Metals by ICP-MS  All  Dissolved W, Nb and Zr by ICP-MS  All  EPH (DRO) (C10-C40) Aqueous (W)  EPH CWG (Aliphatic) Aqueous GC  (W)  EPH CWG (Aromatic) Aqueous GC  All	Containe	NDPs: 0 Tests: 8 NDPs: 0 Tests: 8 NDPs: 0 Tests: 8	HNO3 Filtered (ALE	Vial (ALE297)	250ml BOD (ALE21	500ml Plastic (ALE2	Dissolved Metals Pr	HNO3 Filtered (AL	Vial (ALE29	0.5l glass bo	250ml BOD	500ml Plac	Dissolved	HNO3 Fill	Vial (A
Anions by Kone (w)  All  COD Unfiltered  All  Dissolved Metals by ICP-MS  All  Dissolved W, Nb and Zr by ICP-MS  All  EPH (DRO) (C10-C40) Aqueous (W)  EPH CWG (Aliphatic) Aqueous GC  (W)  EPH CWG (Aromatic) Aqueous GC  All		Tests: 8  NDPs: 0 Tests: 8  NDPs: 0 Tests: 8					+	Ήm	7	ttle (AL	(ALE21	tic (Al E2	Metals Pr	tered (ALE	(LE297)
COD Unfiltered All  Dissolved Metals by ICP-MS All  Dissolved W, Nb and Zr by ICP-MS All  EPH (DRO) (C10-C40) Aqueous (W)  EPH CWG (Aliphatic) Aqueous GC (W)  EPH CWG (Aromatic) Aqueous GC All		NDPs: 0 Tests: 8				П	>						)		
Dissolved Metals by ICP-MS All  Dissolved W, Nb and Zr by ICP-MS All  EPH (DRO) (C10-C40) Aqueous (W)  EPH CWG (Aliphatic) Aqueous GC (W)  EPH CWG (Aromatic) Aqueous GC All		Tests: 8				x						x			
Dissolved W, Nb and Zr by ICP-MS All  EPH (DRO) (C10-C40) Aqueous (W)  EPH CWG (Aliphatic) Aqueous GC (W)  EPH CWG (Aromatic) Aqueous GC All					X						X	1	1		
EPH (DRO) (C10-C40) Aqueous (W)  EPH CWG (Aliphatic) Aqueous GC (W)  EPH CWG (Aromatic) Aqueous GC All		NDPs: 0 Tests: 8	X				<u> </u>	X				1	1	X	
(W)  EPH CWG (Aliphatic) Aqueous GC (W)  EPH CWG (Aromatic) Aqueous GC All		NDPs: 0 Tests: 8	X				<u> </u>	X				1	1	X	
(W)  EPH CWG (Aromatic) Aqueous GC All		NDPs: 0 Tests: 8		)	4		Ŧ			X		1	1		
		NDPs: 0 Tests: 8		<b>)</b>	<u> </u>			<u> </u>	F	X		1	Ŧ		
		NDPs: 0 Tests: 8		<b>)</b>	<u> </u>					X		1	1		
GRO by GC-FID (W) All		NDPs: 0 Tests: 8		x					X						X
Mercury Dissolved All		NDPs: 0 Tests: 8					X						x		
pH Value All		NDPs: 0 Tests: 8				x						x			
SVOC MS (W) - Aqueous All		NDPs: 0 Tests: 7		<b>)</b>	<u> </u>		#	†					#		
Total EPH (aq) All		NDPs: 0 Tests: 8		>	<u> </u>		+	<u> </u>	F	X		+	#		
TPH CWG (W)		NDPs: 0 Tests: 8		<b>)</b>	<u> </u>		#			X		†	#		
VOC MS (W)		NDPs: 0 Tests: 8		X			+	+	X			+	+		Н

Validated

150902-38 SDG: Job:

H\_URS\_WIM-273 Client Reference:

Location: Customer: Attention:

Stag Brewery AECOM Gary Marshall Order Number: Report Number:

Superseded Report:

329713

Results Legend # ISO17025 accredited.		Customer Sample R	BH3	BH4	BH5	BH8	BH109	BH110
M mCERTS accredited.  aq Aqueous / settled sample.								
diss.filt Dissolved / filtered sample.		Depth (m) Sample Type	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)
tot.unfilt Total / unfiltered sample.  * Subcontracted test.		Date Sampled	01/09/2015	01/09/2015	01/09/2015	01/09/2015	01/09/2015	01/09/2015
** % recovery of the surrogate standa check the efficiency of the method.		Sampled Time	02/09/2015	00:00:00 02/09/2015	02/09/2015	02/09/2015	02/09/2015	02/09/2015
results of individual compounds with samples aren't corrected for the re-	ithin	Date Received SDG Ref	150902-38	150902-38	150902-38	150902-38	150902-38	150902-38
(F) Trigger breach confirmed	Lovery	Lab Sample No.(s)	11995368	11995366	11995367	11995371	11995370	11995369
1-5&+§@ Sample deviation (see appendix)  Component	LOD/Unit	AGS Reference						
Ammoniacal Nitrogen as	<0.2 mg	_	<0.2	<0.2	0.508	0.619	1.23	<0.2
N	~0.2 III	g/1 110099	~0. <u>2</u> #	~0. <u>2</u> #	#	0.019	1.25	~0. <u>2</u> #
Ammoniacal Nitrogen as	<0.3 mg	g/I TM099	<0.3	<0.3	0.653	0.796	1.58	<0.3
NH4	0.0,		#	#	#	#	#	#
COD, unfiltered	<7 mg.	/I TM107	<7	8.09	21.2	10.5	190	<7
			#	#	#	#	#	#
Antimony (diss.filt)	<0.16	TM152	0.415	0.36	<0.16	0.726	0.64	0.464
	μg/l							
Arsenic (diss.filt)	<0.12	TM152	7.32	5.08	5.12	15.7	32.6	14
	μg/l	=111=2	#	#	#	#	#	#
Barium (diss.filt)	<0.03	TM152	64.2	22.1	47.9	83.4	18.2	40.7
Beryllium (diss.filt)	μg/l	TM152	<0.07	<b>*</b>	<0.07	<0.07	<0.07	<0.07
Dei ymum (uiss.iiit)	<0.07 µg/l	1101152	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
Boron (diss.filt)	- μg/i - <9.4 μg	ı/l TM152	152	52.7	99.2	130	107	137
	#8	,	#	#	#	#	#	#
Cadmium (diss.filt)	<0.1 µç	g/l TM152	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
			#	#	#	#	#	#
Chromium (diss.filt)	<0.22	TM152	3.62	1.53	2.26	3.98	3.56	3.44
	μg/l		#	#	#	#	#	#
Cobalt (diss.filt)	<0.06	TM152	2.33	0.594	3.15	2.77	9.39	4.36
Conner (dies filt)	μg/l <0.85	TM152	1.13	0.939	1.09	# 1.4	1.26	1.29
Copper (diss.filt)	νυ.δ5 μg/l	1101152	1.13	0.939	1.09	1.4	1.26 #	1.29
Lead (diss.filt)	<0.02	TM152	0.034	0.066	0.057	0.033	0.085	0.04
	μg/l		#	#	#	#	#	#
Manganese (diss.filt)	<0.04	TM152	91.2	8.89	860	169	1320	126
	μg/l		#	#	#	#	#	#
Nickel (diss.filt)	<0.15	TM152	6.92	1.77	5.5	7.03	11	6.1
	μg/l		#	#	#	#	#	#
Selenium (diss.filt)	<0.39	TM152	9.06	0.781	1.67	1.92	3 "	13.2
Thallium (diss.filt)	μg/l <0.96	TM152	<0.96	<0.96	<0.96	<0.96	<0.96	<0.96
Triallium (diss.ilit)	-0.90 μg/l	1101132	<b>~</b> 0.90	<b>~</b> 0.90	<b>~</b> 0.90	<b>~</b> 0.90	<b>~</b> 0.90	<b>~</b> 0.90
Vanadium (diss.filt)	<0.24	TM152	1.56	1.61	1.33	1.56	1.57	1.33
, ,	μg/l		#	#	#	#	#	#
Zinc (diss.filt)	<0.41	TM152	8.79	12.6	5.59	9.92	27.4	4.62
	μg/l		#	#	#	#	#	#
EPH Range >C10 - C40	<46 µg	/I TM172	<46	<46	<46	<46	159	<46
(aq)	.400		#	#	#	#	#	#
Total EPH (C6-C40) (aq)	<100 μ	g/I TM172	<100	<100	<100	<100	159	<100
Mercury (diss.filt)	<0.01	TM183	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
(3.00)	μg/l		#	#	#	#	#	#
Sulphate	<2 mg.	/I TM184	57.4	43	79.9	61.6	75	55.2
·			#	#	#	#	#	#
Phosphate (ortho) as PO4	<0.05	TM184	0.465	7.3	1.55	0.302	0.297	0.216
	mg/l		#	#	#	#	#	#
Nitrate as NO3	<0.3 m	g/l TM184	5.18	21.5	6.42	4.42	0.942	5.64
nH	<1 pH	TM256	7.45	7.1	7.39	7.38	7.49	7.52
pH	Units	i ivi∠50	7.45 #	7.1	7.39	7.38	7.49	7.52
Silver (diss.filt)	<1.5 µg	ı/l TM283	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5



Validated

SDG: 150902-38 Location: Stag Brewery Order Number:

Results Legend		Customer Sample R	BH111	DUP01			
# ISO17025 accredited.  M mCERTS accredited.							
aq Aqueous / settled sample. diss.filt Dissolved / filtered sample.		Depth (m)					
tot.unfilt Total / unfiltered sample.		Sample Type	Water(GW/SW)	Water(GW/SW)			
* Subcontracted test.  ** % recovery of the surrogate standa	ard to	Date Sampled Sampled Time	01/09/2015	01/09/2015			
check the efficiency of the method.	The	Date Received	02/09/2015	02/09/2015			
results of individual compounds with samples aren't corrected for the re-		SDG Ref	150902-38	150902-38			
(F) Trigger breach confirmed	,	Lab Sample No.(s)	11995372	11995373			
1-5&+§@ Sample deviation (see appendix)	10001	AGS Reference					
Component	LOD/Unit						
Ammoniacal Nitrogen as	<0.2 m	g/I TM099	4.74	<0.2			
N			#		#		
Ammoniacal Nitrogen as	<0.3 m	g/I TM099	6.09	<0.3			
NH4	_		#		#		
COD, unfiltered	<7 mg	/I TM107	43.5	<7			
			#		#		
Antimony (diss.filt)	<0.16	TM152	0.199	0.816			
	μg/l						
Arsenic (diss.filt)	<0.12	TM152	22	4.8			
	μg/l		#		#		
Barium (diss.filt)	<0.03	TM152	104	21.4			
5 III ( II 500	µg/l		#		#		
Beryllium (diss.filt)	<0.07	TM152	<0.07	<0.07			
D (1) 500	μg/l	, <del></del>	#		#		
Boron (diss.filt)	<9.4 µg	g/l TM152	65.1	52.2			
			#		#		
Cadmium (diss.filt)	<0.1 μς	g/l TM152	<0.1	<0.1			
			#		#		
Chromium (diss.filt)	<0.22	TM152	3.75	1.22			
	μg/l		#		#		
Cobalt (diss.filt)	<0.06	TM152	1.79	0.262			
	μg/l		#		#		
Copper (diss.filt)	<0.85	TM152	<0.85	1.13			
	μg/l		#		#		
Lead (diss.filt)	<0.02	TM152	<0.02	0.028			
	μg/l		#		#		
Manganese (diss.filt)	<0.04	TM152	2270	7.19			
	μg/l		#		#		
Nickel (diss.filt)	<0.15	TM152	3.85	1.81			
	μg/l		#		#		
Selenium (diss.filt)	<0.39	TM152	2.87	0.897			
	μg/l		#		#		
Thallium (diss.filt)	<0.96	TM152	<0.96	<0.96			
	μg/l						
Vanadium (diss.filt)	<0.24	TM152	1.07	1.45			
	μg/l		#		#		
Zinc (diss.filt)	<0.41	TM152	6	5.01			
	μg/l		#		#		
EPH Range >C10 - C40	<46 µg	/I TM172	65.8	<46			
(aq)			#		#		
Total EPH (C6-C40) (aq)	<100 µ	g/l TM172	<100	<100			
Mercury (diss.filt)	<0.01	TM183	<0.01	<0.01			
	μg/l		#		#		
Sulphate	<2 mg	/I TM184	37.5	42.3			
			#		#		
Phosphate (ortho) as PO4	<0.05	TM184	<0.05	7.28			
	mg/l		#		#		
Nitrate as NO3	<0.3 mg	g/l TM184	0.94	21.9			
			#		#		
рН	<1 pH	TM256	7.32	7.14			
	Units		#		#		
Silver (diss.filt)	<1.5 μς	J/I TM283	<1.5	<1.5			

Validated

150902-38 SDG: Location: Stag Brewery Job:

Client Reference:

H\_URS\_WIM-273

**Customer:** Attention:

AECOM Gary Marshall Order Number: Report Number: Superseded Report:

329713

SVOC MS (W) - Aqueous	s								
Results Legend # ISO17025 accredited.		Sustomer Sample R	BH3	BH4	BH	5	BH8	BH109	BH110
M mCERTS accredited.  aq Aqueous / settled sample. diss.filit Dissolved / filtered sample. tot.unfilt Total / unfiltered sample. * Subcontracted test. ** % recovery of the surrogate stands check the efficiency of the method. results of individual compounds w	. The ithin	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref	Water (GW/SW) 01/09/2015 02/09/2015 150902-38	Water (GW/SW) 01/09/2015 00:00:00 02/09/2015 150902-38	Water(G) 01/09/2 02/09/2 150902	2015	Water (GW/SW) 01/09/2015 	Water(GW/SW) 01/09/2015 02/09/2015 150902-38	Water (GW/SW) 01/09/2015 02/09/2015 150902-38
samples aren't corrected for the re- (F) Trigger breach confirmed 1-5&+§@ Sample deviation (see appendix)	covery	Lab Sample No.(s)	11995368	11995366	11995		11995371	11995370	11995369
1-5&+§@ Sample deviation (see appendix)  Component	LOD/Units	AGS Reference Method							
1,2,4-Trichlorobenzene	<1 µg/l	TM176	<1	<1	<1		<1	<2	<1
(aq)	44//	TM470	#	#		#	#	#	#
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1	#	<1 #	<2 #	<1 #
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176	<1 #		<1		<1 #	<2 #	<1 #
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176	<1	<1	<1		<1	<2	<1
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<1	#	<1 #	<2 #	<1 #
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<1		<1 #	<2 #	<1 #
2,4-Dichlorophenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<1	#	<1 #	<2 #	<1 #
2,4-Dimethylphenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<1		<1 #	<2 #	<1 #
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1		<1 #	<2 #	<1 #
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1	#	<1 #	<2 #	<1 #
2-Chloronaphthalene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1	#	<1 #	<2 #	<1 #
2-Chlorophenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<1	#	<1 #	<2 #	<1 #
2-Methylnaphthalene (aq)	<1 µg/l	TM176	<1 #	<1 #	<1	#	<1 #	<2 #	<1 #
2-Methylphenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<1	#	<1 #	<2 #	<1 #
2-Nitroaniline (aq)	<1 µg/l	TM176	<1 #	<1 #	<1	#	<1 #	<2 #	<1 #
2-Nitrophenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<1	#	<1 #	<2 #	<1 #
3-Nitroaniline (aq)	<1 µg/l	TM176	<1 #	<1 #	<1	#	<1 #	<2 #	<1 #
4-Bromophenylphenylethe r (aq)	<1 µg/l	TM176	<1 #	<1 #	<1	#	<1 #	<2 #	<1 #
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<1	#	<1 #	<2 #	<1 #
4-Chloroaniline (aq)	<1 µg/l		<1	<1	<1		<1	<2	<1
4-Chlorophenylphenylethe r (aq)	<1 µg/l	TM176	<1 #	<1 #		#	<1 #	<2 #	<1 #
4-Methylphenol (aq)	<1 µg/l	TM176	<1 #	<1 #		#	<1 #	<2 #	<1 #
4-Nitroaniline (aq)	<1 µg/l	TM176	<1 #	<1 #		#	<1 #	<2 #	<1 #
4-Nitrophenol (aq)	<1 µg/l	TM176	<1	<1	<1		<1	<2	<1
Azobenzene (aq)	<1 µg/l	TM176	<1 #	<1 #		#	<1 #	<2 #	<1 #
Acenaphthylene (aq)	<1 µg/l	TM176	<1 #	<1 #		#	<1 #	<2 #	<1 #
Acenaphthene (aq)	<1 µg/l	TM176	<1 #	<1 #		#	<1 #	<2 #	<1 #
Anthracene (aq)	<1 µg/l	TM176	<1 #	<1 #		#	<1 #	<2 #	<1 #
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176	<1 #	<1 #		#	<1 #	<2 #	<1 #
bis(2-Chloroethoxy)metha ne (aq)	<1 µg/l		<1 #	<1 #		#	<1 #	<2 #	<1 #
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l		<2 #	<2 #		#	<2 #	<4 #	<2 #
Butylbenzyl phthalate (aq)	<1 µg/l	TM176	<1 #	<1 #	<1	#	<1 #	<2 #	<1 #

Validated

150902-38 SDG: Location: Stag Brewery Job: H\_URS\_WIM-273

Customer: AECOM Attention: Gary Marshall Order Number: Report Number: Superseded Report:

329713

Client Reference:

Client Reference:			Attention: Ga	ary Marshall		Superseded Repo	/i t.	
SVOC MS (W) - Aqueous	S							
Results Legend		Customer Sample R	BH3	BH4	BH5	BH8	BH109	BH110
# ISO17025 accredited.								
M mCERTS accredited.  aq Aqueous / settled sample.								
diss.filt Dissolved / filtered sample.		Depth (m)						
tot.unfilt Total / unfiltered sample.  * Subcontracted test.		Sample Type Date Sampled	Water(GW/SW) 01/09/2015	Water(GW/SW) 01/09/2015	Water(GW/SW) 01/09/2015	Water(GW/SW) 01/09/2015	Water(GW/SW) 01/09/2015	Water(GW/SW) 01/09/2015
** % recovery of the surrogate standa	ard to	Sampled Time	01/09/2013	00:00:00	01/09/2013	01/09/2013	01/03/2013	01/03/2013
check the efficiency of the method	. The	Date Received	02/09/2015	02/09/2015	02/09/2015	02/09/2015	02/09/2015	02/09/2015
results of individual compounds w samples aren't corrected for the re		SDG Ref	150902-38	150902-38	150902-38	150902-38	150902-38	150902-38
(F) Trigger breach confirmed	covery	Lab Sample No.(s)	11995368	11995366	11995367	11995371	11995370	11995369
1-5&+§@ Sample deviation (see appendix)		AGS Reference						
Component	LOD/Un	its Method						
Benzo(a)anthracene (aq)	<1 µg	ı/l TM176	<1	<1	<1	<1	<2	<1
Bonzo(a)antinadono (aq)	1 48	,,, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,						
5 (1)		" T14470	#	#	#	#	#	#
Benzo(b)fluoranthene (aq)	<1 µg	μ/I TM176	<1	<1	<1	<1	<2	<1
			#	#	#	#	#	#
Benzo(k)fluoranthene (aq)	<1 µg	ı/l TM176	<1	<1	<1	<1	<2	<1
	'	´	#	#	#	#	#	#
Danas (a) a una na (a a)	44	.// TN4470						<1
Benzo(a)pyrene (aq)	<1 µg	ι/l TM176	<1	<1	<1	<1	<2	
			#	#	#	#	#	#
Benzo(g,h,i)perylene (aq)	<1 µg	g/l TM176	<1	<1	<1	<1	<2	<1
			#	#	#	#	#	#
Carbazole (ag)	<1 uc	ı/l TM176	<1	<1	<1	<1	<2	<1
Carbazole (aq)	<1 µg	J/1 11V1176						
			#	#	#	#	#	#
Chrysene (aq)	<1 µg	g/l TM176	<1	<1	<1	<1	<2	<1
	]		#	#	#	#	#	#
Dibenzofuran (aq)	<1 µg	ı/l TM176	<1	<1	<1	<1	<2	<1
Diberizorarari (aq)	- 1 μg	j,, 1 IVI I / O					l I	
			#	#	#	#	#	#
n-Dibutyl phthalate (aq)	<1 µg	g/l TM176	<1	<1	<1	<1	<2	<1
	]		#	#	#	#	#	#
Diethyl phthalate (aq)	<1 µg	ı/l TM176	<1	<1	<1	<1	<2	<1
Dietriyi pritrialate (aq)	νι μς	j/1   11V1170						
			#	#	#	#	#	#
Dibenzo(a,h)anthracene	<1 µg	g/l TM176	<1	<1	<1	<1	<2	<1
(aq)			#	#	#	#	#	#
Dimethyl phthalate (aq)	<1 µg	ı/l TM176	<1	<1	<1	<1	<2	<1
Billioury printate (aq)	1 48	,,, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,						
	_		#	#	#	#	#	#
n-Dioctyl phthalate (aq)	<5 µg	ı/l TM176	<5	<5	<5	<5	<10	<5
			#	#	#	#	#	#
Fluoranthene (aq)	<1 µg	ı/l TM176	<1	<1	<1	<1	<2	<1
r idorariarono (aq)	1 48	,,, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,						
			#	#	#	#	#	#
Fluorene (aq)	<1 µg	g/l TM176	<1	<1	<1	<1	<2	<1
			#	#	#	#	#	#
Hexachlorobenzene (aq)	<1 µg	ı/l TM176	<1	<1	<1	<1	<2	<1
(-4)	"	´	#	#	#	#	#	#
Have able as by to display (2.5)	.4	// TN4470						
Hexachlorobutadiene (aq)	<1 µg	g/l TM176	<1	<1	<1	<1	<2	<1
			#	#	#	#	#	#
Pentachlorophenol (aq)	<1 µg	ı/l TM176	<1	<1	<1	<1	<2	<1
	'	´						
Phonol (ag)	<1 uc	ı/l TM176	<1	<1	<1	<1	<2	<1
Phenol (aq)	<1 µg	1101170	\ \ \	<b>\</b>	\ \ \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	`1	^4	<b>\1</b>
n-Nitroso-n-dipropylamine	<1 µg	g/l TM176	<1	<1	<1	<1	<2	<1
(aq)			#	#	#	#	#	#
Hexachloroethane (aq)	<1 µg	ı/l TM176	<1	<1	<1	<1	<2	<1
	- ης	, I IVI I / O						
No. 1	-	n =	#	#	#	#	#	#
Nitrobenzene (aq)	<1 µg	μ/I TM176	<1	<1	<1	<1	<2	<1
	<u></u>		#	#	#	#	#	#
Naphthalene (aq)	<1 µg	g/l TM176	<1	<1	<1	<1	<2	<1
	. 48	,	#	#	#	#	#	#
loophoron = (==)		// TN4470						
Isophorone (aq)	<1 µg	ι/l TM176	<1	<1	<1	<1	<2	<1
			#	#	#	#	#	#
Hexachlorocyclopentadien	<1 µg	J/I TM176	<1	<1	<1	<1	<2	<1
e (aq)	' `							
	<1 µg	ı/l TM176	<1	<1	<1	<1	<2	<1
Phenanthrene (aq)	- 1 μg	J/1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1					l I	
			#	#	#	#	#	#
Indeno(1,2,3-cd)pyrene	<1 µg	g/l TM176	<1	<1	<1	<1	<2	<1
(aq)			#	#	#	#	#	#
	~1 ···	ı/l TM176	<1	<1	<1	<1	<2	<1
Pyrene (aq)	<1 µg	J/1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1					I I	
			#	#	#	#	#	#
	I .	1		I .	l	I	1	



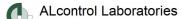
Validated

150902-38 SDG: Location: Stag Brewery Order Number: Job: H\_URS\_WIM-273 329713

Client Reference:

Customer: AECOM Attention: Gary Marshall Report Number: Superseded Report:

Olletti Reference.			Attention. Of	ary Marshall	Ouperscaed Repe		
SVOC MS (W) - Aqueous							
Results Legend # ISO17025 accredited.		Customer Sample R	BH111				
M mCERTS accredited.							
aq Aqueous / settled sample. diss.filt Dissolved / filtered sample.		Depth (m)					
tot.unfilt Total / unfiltered sample.		Sample Type	Water(GW/SW)				
* Subcontracted test.  ** % recovery of the surrogate standa	ard to	Date Sampled	01/09/2015				
check the efficiency of the method	. The	Sampled Time Date Received	02/09/2015				
results of individual compounds w samples aren't corrected for the re		SDG Ref	150902-38				
(F) Trigger breach confirmed	covery	Lab Sample No.(s)	11995372				
1-5&+§@ Sample deviation (see appendix)		AGS Reference					
Component	LOD/Unit	s Method					
1,2,4-Trichlorobenzene	<1 µg/l	TM176	<1				
(aq)			#				
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176	<1				
, "	'		#				
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176	<1				
1,6 216111616261126116 (44)	. 49		. #				
1,4-Dichlorobenzene (aq)	<1 ua/l	TM176	<1				
1,4-Dichioroberizerie (aq)	<1 µg/l	1101170	<b>\</b> 1				
0.45.7:11	4 0	T14470					
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176	<1				
			#				
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176	<1				
			#				
2,4-Dichlorophenol (aq)	<1 µg/l	TM176	<1				
			#				
2,4-Dimethylphenol (aq)	<1 µg/l	TM176	<1				
7 (2.4)	"3"		. #				
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176	<1				
2,4-Dillitotoldene (aq)	γιμg/ι	1101170	#				
2 C Dinitratalyana (an)	44//	TN4470					
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176	<1				
			#				
2-Chloronaphthalene (aq)	<1 µg/l	TM176	<1				
			#				
2-Chlorophenol (aq)	<1 µg/l	TM176	<1				
			#				
2-Methylnaphthalene (aq)	<1 µg/l	TM176	<1				
, , , , , , , , , , , , , , , , , , , ,	"3		#				
2-Methylphenol (aq)	<1 µg/l	TM176	<1				
z-ivietriyiprierior (aq)	- 1 μg/1	1101176					
0.1111	4 0	T14470	#				
2-Nitroaniline (aq)	<1 µg/l	TM176	<1				
			#				
2-Nitrophenol (aq)	<1 µg/l	TM176	<1				
			#				
3-Nitroaniline (aq)	<1 µg/l	TM176	<1				
			#				
4-Bromophenylphenylethe	<1 µg/l	TM176	<1				
r (aq)	'		#				
4-Chloro-3-methylphenol	<1 µg/l	TM176	<1				
(aq)	1 P9/1	'''''	#				
4-Chloroaniline (aq)	<1 µg/l	TM176	<1				
4-Chloroanline (aq)	- 1 μg/1	1101170	<b>\</b> 1				
1.511	4 "						
4-Chlorophenylphenylethe	<1 µg/l	TM176	<1				
r (aq)			#				
4-Methylphenol (aq)	<1 µg/l	TM176	5.42				
			#				
4-Nitroaniline (aq)	<1 µg/l	TM176	<1				
			#				
4-Nitrophenol (aq)	<1 µg/l	TM176	<1				
	, ha,,		•				
Azobenzene (aq)	<1 µg/l	TM176	<1				
Azoberizerie (aq)	- 1 μg/1	1101176					
A 101 ( )	4 0	T14470	#				
Acenaphthylene (aq)	<1 µg/l	TM176	<1				
			#				
Acenaphthene (aq)	<1 µg/l	TM176	<1				
			#				
Anthracene (aq)	<1 µg/l	TM176	<1				
1			#				
bis(2-Chloroethyl)ether	<1 µg/l	TM176	<1				
(aq)	μ9/1	1	#				
bis(2-Chloroethoxy)metha	<1 µg/l	TM176	<1				
	< 1 μg/l	1101176					
ne (aq)		T111==	#				
bis(2-Ethylhexyl) phthalate	<2 µg/l	TM176	<2				
(aq)			#				
Butylbenzyl phthalate (aq)	<1 µg/l	TM176	<1				
	l		#				



Validated

150902-38 SDG: Location: Stag Brewery Order Number:

Job: H\_URS\_WIM-273 Customer: AECOM 329713 Report Number: Attention: Gary Marshall Superseded Report:

Client Reference:

SVOC MS (W) - Aqueous	S					
Results Legend # ISO17025 accredited.		Customer Sample R	BH111			
M mCERTS accredited. aq Aqueous / settled sample.						
diss.filt Dissolved / filtered sample.		Depth (m) Sample Type	Water(GW/SW)			
tot.unfilt Total / unfiltered sample.  * Subcontracted test.		Date Sampled	01/09/2015			
** % recovery of the surrogate stands check the efficiency of the method		Sampled Time	. 02/09/2015			
results of individual compounds w samples aren't corrected for the re	ithin	Date Received SDG Ref	150902-38			
(F) Trigger breach confirmed	,	Lab Sample No.(s)	11995372			
1-5&+§@ Sample deviation (see appendix)  Component	LOD/Unit	AGS Reference ts Method				
Benzo(a)anthracene (aq)	<1 µg/	_	<1			
Benzo(a)antinacene (aq)	γι μθ/	1 111170	#			
Benzo(b)fluoranthene (aq)	<1 µg/	/I TM176	<1			
			#			
Benzo(k)fluoranthene (aq)	<1 µg/	/I TM176	<1			
			#			
Benzo(a)pyrene (aq)	<1 µg/	/I TM176	<1			
			. #			
Benzo(g,h,i)perylene (aq)	<1 µg/	/I TM176	<1			
Carbazole (aq)	<1 µg/	/I TM176	<1			
Carbazoic (aq)	γι μθ/	1 111170	#			
Chrysene (aq)	<1 µg/	/I TM176	<1			
			#			
Dibenzofuran (aq)	<1 µg/	/I TM176	<1			
			#			
n-Dibutyl phthalate (aq)	<1 µg/	/I TM176	<1			
Diothyl phthalata (ag)	<1 ua	/I TM176	<1			
Diethyl phthalate (aq)	<1 µg/	1101170	#			
Dibenzo(a,h)anthracene	<1 µg/	/I TM176	<1			
(aq)	. 49	.	. #			
Dimethyl phthalate (aq)	<1 µg/	/I TM176	<1			
			#			
n-Dioctyl phthalate (aq)	<5 µg/	/I TM176	<5			
Electronic (co.)		// TN4470	#			
Fluoranthene (aq)	<1 µg/	/I TM176	<1 #			
Fluorene (aq)	<1 µg/	/I TM176	<1			
Tradiona (aq)	l ri pg/		#			
Hexachlorobenzene (aq)	<1 µg/	/I TM176	<1			
			#			
Hexachlorobutadiene (aq)	<1 µg/	/I TM176	<1			
D ( 11 )		// T14470	#			
Pentachlorophenol (aq)	<1 µg/	/I TM176	<1			
Phenol (aq)	<1 µg/	/I TM176	<1			
Thenor (aq)	γι μθ/	111170	-1			
n-Nitroso-n-dipropylamine	<1 µg/	/I TM176	<1			
(aq)			#			
Hexachloroethane (aq)	<1 µg/	/I TM176	<1			
NPtershauer ( )		n T144-5	#			
Nitrobenzene (aq)	<1 µg/	/I TM176	<1			
Naphthalene (aq)	<1 µg/	/I TM176	<1			
reaprilitation (aq)	- ' μg/	TIVIT/O	<u> </u>			
Isophorone (aq)	<1 µg/	/I TM176	<1			
			#			
Hexachlorocyclopentadien	<1 µg/	/I TM176	<1			
e (aq)						
Phenanthrene (aq)	<1 µg/	/I TM176	<1			
Indeno(1,2,3-cd)pyrene	<1 µg/	/I TM176	<1			
(aq)	- ' μg/	. IIVII70	-1			
Pyrene (aq)	<1 µg/	/I TM176	<1			
. , "			#			
		+				

Validated

150902-38 SDG: Location: Stag Brewery Order Number: Job:

Client Reference:

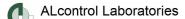
H\_URS\_WIM-273 Customer: AECOM Attention: Gary Marshall

Report Number:

329713

Superseded Report:

TPH CWG (W)				•				
Results Legend # ISO17025 accredited.		Customer Sample R	ВН3	BH4	BH5	BH8	BH109	BH110
M mCERTS accredited.								
diss.filt Dissolved / filtered sample.		Depth (m) Sample Type	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)
tot.unfilt Total / unfiltered sample.  * Subcontracted test.		Date Sampled	01/09/2015	01/09/2015	01/09/2015	01/09/2015	01/09/2015	01/09/2015
** % recovery of the surrogate standa check the efficiency of the method		Sampled Time Date Received	02/09/2015	00:00:00 02/09/2015	02/09/2015	02/09/2015	02/09/2015	02/09/2015
results of individual compounds w samples aren't corrected for the re	ithin	SDG Ref	150902-38	150902-38	150902-38	150902-38	150902-38	150902-38
(F) Trigger breach confirmed  1-5&+§@ Sample deviation (see appendix)	,	Lab Sample No.(s)	11995368	11995366	11995367	11995371	11995370	11995369
Component	LOD/Unit	AGS Reference ts Method						
Methyl tertiary butyl ether	<3 μg/		<3	<3	<3	<3	<3	<3
(MTBE)	- ο μg/	1101240	#	#	#	#	#	#
Benzene	<7 μg/	/I TM245	<7	<7	<7	<7	<7	<7
			#	#	#	#	#	#
Toluene	<4 µg/	/I TM245	<4	<4	<4	<4	<4	<4
			#	#	#	#	#	#
Ethylbenzene	<5 µg/	/I TM245	<b>&lt;</b> 5	<5	<b>&lt;</b> 5	<5	<b>&lt;</b> 5	<5
m,p-Xylene	<0 ua	/I TM245	<b>*</b>	<b>*</b>	<b>*</b>	<b>*</b>	# <8	<b>*</b>
III,p-Aylerie	<8 µg/	1 111245	<b>~</b> 0				<b>~</b> 0	<b>~</b> 0 #
o-Xylene	<3 µg/	/I TM245	<3	<3	<3	<3	<3	<3
			#	#	#	#	#	#
Sum of detected BTEX	<28 µg	ı/l TM245	<28	<28	<28	<28	<28	<28
Aliphatics >C12-C16 (aq)	<10 µg	ı/l TM174	<10	<10	<10	<10	<10	<10
			1.5					
Aliphatics >C16-C21 (aq)	<10 µg	ı/l TM174	<10	<10	<10	<10	<10	<10
Aliphatics >C21-C35 (aq)	<10 µg	ı/l TM174	<10	<10	<10	<10	<10	<10
Aliphatics > 02 1-000 (aq)	- 10 μg	)/I IIVII/ <del>-</del>	~10	110	110	110	~10	110
Total Aliphatics >C12-C35	<10 µg	ı/I TM174	<10	<10	<10	<10	<10	<10
(aq)								
Aromatics >EC12-EC16	<10 µg	ı/l TM174	<10	<10	<10	<10	<10	<10
(aq)								
Aromatics >EC16-EC21	<10 µg	ı/l TM174	<10	<10	<10	<10	<10	<10
(aq)	.10	.// TN4474	:40	-40	-40	-40	.40	.40
Aromatics >EC21-EC35 (aq)	<10 µg	ı/l TM174	<10	<10	<10	<10	<10	<10
Total Aromatics	<10 µg	ı/l TM174	<10	<10	<10	<10	<10	<10
>EC12-EC35 (aq)		,						.0
Total Aliphatics &	<10 µg	J/I TM174	<10	<10	<10	<10	<10	<10
Aromatics >C5-35 (aq)								
GRO >C5-C10	<10 µg	ı/l TM245	<10	<10	<10	<10	<10	<10
EDIT (00 040)	1100	-/L TM245	-1100	*400	-100	-100	*100	-100
EPH (C6-C10)	<100 μ	g/l TM245	<100	<100	<100	<100	<100	<100
		_						
	<u></u>							
		_						
	I			I	l	I		



Validated

150902-38 SDG: Location: Stag Brewery Order Number: Job:

H\_URS\_WIM-273

Customer:

AECOM

Report Number: Superseded Report: 329713

Client Reference: Attention: Gary Marshall

Ollent Reference.			Attention. Oa	Ty Marshall	Ouperscaed Repe	
TPH CWG (W)						
Results Legend		Customer Sample R	BH111	DUP01		
# ISO17025 accredited.						
M mCERTS accredited.  aq Aqueous / settled sample.						
diss.filt Dissolved / filtered sample.		Depth (m)				
tot.unfilt Total / unfiltered sample.		Sample Type	Water(GW/SW)	Water(GW/SW)		
* Subcontracted test.     ** % recovery of the surrogate standa	ard to	Date Sampled	01/09/2015	01/09/2015		
check the efficiency of the method.		Sampled Time Date Received	02/09/2015	02/09/2015		
results of individual compounds wi		SDG Ref	150902-38	150902-38		
samples aren't corrected for the rec (F) Trigger breach confirmed	covery	Lab Sample No.(s)	11995372	11995373		
1-5&+§@ Sample deviation (see appendix)		AGS Reference				
Component	LOD/Unit					
	_	_	<3	<3		
Methyl tertiary butyl ether	<3 µg/	I TM245				
(MTBE)			#	#		
Benzene	<7 μg/	I TM245	<7	<7		
			#	#		
Toluene	<4 µg/	I TM245	<4	<4		
Toluene	\4 μg/	1 1101245				
			#	#		
Ethylbenzene	<5 µg/	I TM245	<5	<5		
			#	#		
m,p-Xylene	<8 µg/	I TM245	<8	<8		
III,p-Aylerie	-to μg/	1 1101243				
			#	#		
o-Xylene	<3 µg/	I TM245	<3	<3		
I			#	#		
Sum of detected BTEX	<28 µg	/I TM245	<28	<28		
Tames detected by Ex			_~			
Albertan CAO CAO	110	n ====================================	-10	-10		
Aliphatics >C12-C16 (aq)	<10 µg	/I TM174	<10	<10		
Aliphatics >C16-C21 (aq)	<10 µg	/I TM174	<10	<10		
Aliahatiaa 2004 005 (as)	.40	() T14474	.40	-40		
Aliphatics >C21-C35 (aq)	<10 µg	/I TM174	<10	<10		
Total Aliphatics >C12-C35	<10 µg	/I TM174	<10	<10		
(aq)	10					
	-10	// TN4474	-110	-40		
Aromatics >EC12-EC16	<10 µg	/I TM174	<10	<10		
(aq)						
Aromatics >EC16-EC21	<10 µg	/I TM174	<10	<10		
(aq)	'					
	.40	// TN4474	.40	-40		
Aromatics >EC21-EC35	<10 µg	/I TM174	<10	<10		
(aq)						
Total Aromatics	<10 µg	/I TM174	<10	<10		
>EC12-EC35 (aq)						
Total Aliphatics &	<10 µg	/I TM174	<10	<10		
	- 10 μg	/	10	110		
Aromatics >C5-35 (aq)						
GRO >C5-C10	<10 µg	/I TM245	<10	<10		
EPH (C6-C10)	<100 μς	g/l TM245	<100	<100		
(33.3.7)		'				

Validated

150902-38 SDG: Location: Stag Brewery Order Number: H\_URS\_WIM-273 Job:

Client Reference:

AECOM **Customer:** Attention: Gary Marshall

329713 Report Number:

Superseded Report:

VOC MS (W)													
# ISO17025 accredited.  M mCERTS accredited.		Customer Sample R	BH3	BH4		BH5		BH8		BH109		BH110	
aq Aqueous / settled sample. diss.filt Dissolved / filtered sample. total / unfiltered sample. Subcontracted test. ** % recovery of the surrogate standard to check the efficiency of the method. The		Depth (m) Sample Type Date Sampled Sampled Time	Water(GW/SW) 01/09/2015	Water(GW/SW) 01/09/2015 00:00:00		Water(GW/SW) 01/09/2015		Water(GW/SW) 01/09/2015		Water(GW/SW) 01/09/2015		Water(GW/SW) 01/09/2015	
results of individual compounds within samples aren't corrected for the recovery  Trigger breach confirmed  1-5&+§@ Sample deviation (see appendix)		Date Received SDG Ref Lab Sample No.(s) AGS Reference	02/09/2015 150902-38 11995368	02/09/2015 150902-38 11995366		02/09/2015 150902-38 11995367		02/09/2015 150902-38 11995371		02/09/2015 150902-38 11995370		02/09/2015 150902-38 11995369	
Component	LOD/Uni												
Dibromofluoromethane**	%	TM208	88.6 1	92.5	4	89.5	1	88.4	4	88.2	1	87.9	1
Toluene-d8**	%	TM208	81.8	82.6	1	81.9	1	81.5	1	82.2	1	83.1	<u>1</u> 1
4-Bromofluorobenzene**	%	TM208	81.4 1	79.4	1	80.6	1	77.1	1	79.5	1	81	1
Dichlorodifluoromethane	<1 µg	/I TM208	<1 1	<1	1	<1	1	<1	1	<1	1	<1	1
Chloromethane	<1 µg	/I TM208	<1 1 ‡	<1	1#	<1	1#	<1	1#	<1	1#	<1	#
Vinyl chloride	<1 µg		<1 1 ‡		1#	<1	1#	<1	1#	<1	1#		#
Bromomethane	<1 µg		<1 1 ‡		1#	<1	1#	<1	1#	<1	1#		#
Chloroethane	<1 µg	/I TM208	<1 1 #	<1 #	1#	<1	1#	<1	1#	<1	1#	<1 1	#
Trichlorofluoromethane	<1 µg	/I TM208	<1 1 ‡	<1	1#	<1	1#	<1	1#	<1	1#	<1	#
1,1-Dichloroethene	<1 µg.	/I TM208	<1 1 #	<1 #	1#	<1	1#	<1	1#	<1	1#	<1 1	#
Carbon disulphide	<1 µg	/I TM208	<1 1 ‡	<1 #	1#	<1	1#	<1	1#	<1	1#	<1 1	#
Dichloromethane	<3 µg	/I TM208	<3 1 ‡	<3	1#	<3	1#	<3	1#	<3	1#	<3	#
Methyl tertiary butyl ether (MTBE)	<1 µg	/I TM208	<1 1 ‡	<1	1#	<1	1#	<1	1#	<1	1#	<1	#
trans-1,2-Dichloroethene	<1 µg	/I TM208	<1 1 ‡	<1 ±	1#	<1	1#	<1	1#	<1	1#	<1 1	#
1,1-Dichloroethane	<1 µg	/I TM208	<1 1 #	<1	1#	<1	1#	<1	1#	<1	1#	<1	#
cis-1,2-Dichloroethene	<1 µg	/I TM208	<1 1 ‡	<1	1#	<1	1#	<1	1#	<1	1#	<1	#
2,2-Dichloropropane	<1 µg	/I TM208	<1 1	<1	1	<1	1	<1	1	<1	1	<1	1
Bromochloromethane	<1 µg	/I TM208	<1 1 ‡	<1	1#	<1	1#	<1	1#	<1	1#	<1	#
Chloroform	<1 µg	/I TM208	<1 1‡	1.57	1#	<1	1#	<1	1#	<1	1#	<1	#
1,1,1-Trichloroethane	<1 µg	/I TM208	<1 1 ‡	<1 ‡	1#	<1	1#	<1	1#	<1	1#	<1	#
1,1-Dichloropropene	<1 µg	/I TM208	<1 1 ‡	<1 #	1#	<1	1#	<1	1#	<1	1#	<1	#
Carbontetrachloride	<1 µg.	/I TM208	<1 1 ‡	<1 #	1#	<1	1#	<1	1#	<1	1#	<1	#
1,2-Dichloroethane	<1 µg	/I TM208	<1 1	<1	1	<1	1	<1	1	<1	1	<1	1
Benzene	<1 µg.	/I TM208	<1 1 ‡		1#	<1	1#	<1	1#	<1	1#	<1 1	#
Trichloroethene	<1 µg		<1 1 #	<1 #	1#	<1	1#	<1	1#	<1	1#	<1 1	#
1,2-Dichloropropane	<1 µg	/I TM208	<1 1 ‡	<1 #	1#	<1	1#	<1	1#	<1	1#	<1	#
Dibromomethane	<1 µg	/I TM208	<1 1 ‡	<1	1#	<1	1#	<1	1#	<1	1#	<1	#
Bromodichloromethane	<1 µg	/I TM208	<1 1 #	<1 #	1#	<1	1#	<1	1#	<1	1#	<1	#
cis-1,3-Dichloropropene	<1 µg		<1 1‡	_	1#	<1	1#	<1	1#	<1	1#	<1 1	#
Toluene	<1 µg.	/I TM208	<1 1 ‡		1#	<1	1#	<1	1#	<1	1#	<1 1	#
trans-1,3-Dichloropropene	<1 µg	/I TM208	<1 1 ‡	<1	1#	<1	1#	<1	1#	<1	1#	<1	#
1,1,2-Trichloroethane	<1 µg	/I TM208	<1 1 ‡	<1 ‡	1#	<1	1#	<1	1#	<1	1#	<1	#

Validated

150902-38 H\_URS\_WIM-273 SDG: Job:

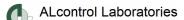
Location: Stag Brewery Customer: AECOM Gary Marshall Attention:

Order Number: Report Number: Superseded Report:

329713

Client Reference:

Client Reference:			Attention: Ga	ry Marshall				
VOC MS (W)								
Results Legend		Customer Sample R	BH3	BH4	BH5	BH8	BH109	BH110
# ISO17025 accredited.  M mCERTS accredited.								
aq Aqueous / settled sample.		Depth (m)						
diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample.		Sample Type	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)
* Subcontracted test.		Date Sampled	01/09/2015	01/09/2015	01/09/2015	01/09/2015	01/09/2015	01/09/2015
** % recovery of the surrogate stands check the efficiency of the method		Sampled Time		00:00:00				
results of individual compounds w		Date Received	02/09/2015 150902-38	02/09/2015 150902-38	02/09/2015 150902-38	02/09/2015 150902-38	02/09/2015 150902-38	02/09/2015 150902-38
samples aren't corrected for the re	covery	SDG Ref Lab Sample No.(s)	11995368	11995366	11995367	11995371	11995370	11995369
(F) Trigger breach confirmed 1-5&•§@ Sample deviation (see appendix)		AGS Reference						
Component	LOD/Un							
1,3-Dichloropropane	<1 µg	/I TM208	<1	<1	<1	<1	<1	<1
1,0 Biomoropropario	11 29	71111200	1#	1#		1#	1#	1#
Tatrachlaracthana	z1 110	/I TM208	<1	<1	<1	<1	<1	<1
Tetrachloroethene	<1 µg	/1 1101200						
			1#	1#		1#	1#	1#
Dibromochloromethane	<1 µg	/I TM208	<1	<1	<1	<1	<1	<1
			1#	1 #		1#	1#	1#
1,2-Dibromoethane	<1 µg	/I TM208	<1	<1	<1	<1	<1	<1
			1#	1 #	1#	1#	1#	1#
Chlorobenzene	<1 µg	/I TM208	<1	<1	<1	<1	<1	<1
			1#	1 #	1#	1#	1#	1#
1,1,1,2-Tetrachloroethane	<1 µg	/I TM208	<1	<1	<1	<1	<1	<1
	'		1#	1#	1#	1#	1#	1#
Ethylbenzene	<1 µg	/I TM208	<1	<1	<1	<1	<1	<1
	. 53		1#	1#		1#	1#	1#
m,p-Xylene	<1 µg	/I TM208	<1	<1	<1	<1	<1	<1
III,p-Aylerie	- 1 μ9	/1 1101200						
V 1		// T14000	1#	1#		1#	1#	1#
o-Xylene	<1 µg	/I TM208	<1	<1	<1	<1	<1	<1
			1#	1 #		1#	1#	1#
Styrene	<1 µg	/I TM208	<1	<1	<1	<1	<1	<1
			1#	1 #	1#	1#	1#	1#
Bromoform	<1 µg	/I TM208	<1	<1	<1	<1	<1	<1
			1#	1#	1#	1#	1#	1#
Isopropylbenzene	<1 µg	/I TM208	<1	<1	<1	<1	<1	<1
			1#	1 #		1#	1#	1#
1,1,2,2-Tetrachloroethane	<1 µg	/I TM208	<1	<1	<1	<1	<1	<1
1, 1,2,2 Tetraemorocularie	, μ9	71 1101200	1	1	1	1	1	1
4.0.0 Triablements	44.00	/I TM208	<1	<1	<1	<1	<1	<1
1,2,3-Trichloropropane	<1 µg	/1 1101206						
		// T14000	1#	1#		1#	1#	1#
Bromobenzene	<1 µg	/I TM208	<1	<1	<1	<1	<1	<1
			1#	1 #		1#	1#	1#
Propylbenzene	<1 µg	/I TM208	<1	<1	<1	<1	<1	<1
			1#	1 #	1#	1#	1#	1#
2-Chlorotoluene	<1 µg	/I TM208	<1	<1	<1	<1	<1	<1
			1#	1 #	1#	1#	1#	1#
1,3,5-Trimethylbenzene	<1 µg	/I TM208	<1	<1	<1	<1	<1	<1
1	'		1#	1#	1#	1#	1#	1#
4-Chlorotoluene	<1 µg	/I TM208	<1	<1	<1	<1	<1	<1
			1#	1#			1#	1#
tert-Butylbenzene	<1 µg	/I TM208	<1	<1	<1	<1	<1	<1
tert-butyiberizerie	¬ i μg	/1 1101200						
4.0.4 Trime the theorem	.4	// TM000	1#	1#			1#	1#
1,2,4-Trimethylbenzene	<1 µg	/I TM208	<1	<1	<1	<1	<1	<1
			1#	1#		1#	1#	1#
sec-Butylbenzene	<1 µg	/I TM208	<1	<1	<1	<1	<1	<1
			1#	1 #		1#	1#	1#
4-iso-Propyltoluene	<1 µg	/I TM208	<1	<1	<1	<1	<1	<1
			1#	1#	1#	1#	1#	1#
1,3-Dichlorobenzene	<1 µg	/I TM208	<1	<1	<1	<1	<1	<1
	'		1#	1#	1#	1#	1#	1#
1,4-Dichlorobenzene	<1 µg	/I TM208	<1	<1	<1	<1	<1	<1
1,1 2.6	. 53		1#	1#			1#	1#
n-Butylbenzene	<1 µg	/I TM208	<1	<1	<1	<1	<1	<1
11-Butylberizerie	¬ i μg	/1 1101200						
4.0 Diablambanana	.4	// TM000	1#	1#			1#	1#
1,2-Dichlorobenzene	<1 µg	/I TM208	<1	<1	<1	<1	<1	<1
			1	1		1	1	1
1,2-Dibromo-3-chloroprop	<1 µg	/I TM208	<1	<1	<1	<1	<1	<1
ane			1	1	1	1	1	1
1,2,4-Trichlorobenzene	<1 µg	/I TM208	<1	<1	<1	<1	<1	<1
			1#	1#	1#	1#	1#	1#
Hexachlorobutadiene	<1 µg	/I TM208	<1	<1	<1	<1	<1	<1
	. 29		1#	1#			1#	1#
tert-Amyl methyl ether	<1 µg	/I TM208	<1	<1	<1	<1	<1	<1
(TAME)	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	71 I IVIZUO		1 #			1#	
Naphthalene	~1 ···	/I TM208	1 # <1	1 <del>7</del> <1	<1 + 1 +	<1	<1	1 # <1
i vapitutalette	<1 µg	/ı I IVI∠Uδ						
			1 #	1 #	1#	1#	1#	1#



Validated

150902-38 SDG: Location: Stag Brewery Order Number: Job:

H\_URS\_WIM-273 Customer: AECOM 329713 Report Number: Client Reference: Attention: Gary Marshall Superseded Report:

VOC MS (W)

VOC	DC MS (W)								
# M	Results Legend ISO17025 accredited. mCERTS accredited.	C	ustomer Sample R	BH3	BH4	BH5	BH8	BH109	BH110
aq diss.filt tot.unfilt * **	Aqueous / settled sample. Dissolved / filtered sample.	The thin covery	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s)	Water(GW/SW) 01/09/2015  02/09/2015 150902-38 11995368	Water (GW/SW) 01/09/2015 00:00:00 02/09/2015 150902-38 11995366	Water(GW/SW) 01/09/2015 	Water (GW/SW) 01/09/2015 	Water(GW/SW) 01/09/2015  02/09/2015 150902-38 11995370	Water(GW/SW) 01/09/2015 02/09/2015 150902-38 11995369
1-5&+§@	Sample deviation (see appendix)		AGS Reference						
Comp		LOD/Units							
	Trichlorobenzene	<1 µg/l		<1 1#	<1 1#	<1 1#	<1 1#	<1 1 #	<1 1#
1,3,5-	Trichlorobenzene	<1 µg/l	TM208	<1 1	<1 1	<1 1	<1 1	<1 1	<1 1



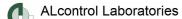
Validated

SDG: 150902-38 Location: Stag Brewery Order Number:

H\_URS\_WIM-273 Customer: AECOM 329713 Job: Report Number: Attention: Gary Marshall Superseded Report:

Client Reference:

Client Reference:			Attention: Ga	iry Marshall		Superseaea	тероп.	
VOC MS (W)								
Results Legend	С	ustomer Sample R	BH111	DUP01				
# ISO17025 accredited. M mCERTS accredited. aq Aqueous / settled sample. diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample. * Subcontracted test. * % recovery of the surrogate stands check the efficiency of the method. results of individual compounds was samples aren't corrected for the re- Trigger breach confirmed 1-5&45@ Sample deviation (see appendix)	. The ithin covery	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	Water(GW/SW) 01/09/2015 02/09/2015 150902-38 11995372	Water(GW/SW/ 01/09/2015 02/09/2015 150902-38 11995373	)			
Component	LOD/Units							
Dibromofluoromethane**	%	TM208	91.7 1	90.5	1			
Toluene-d8**	%	TM208	80.4 1	80.1	1			
4-Bromofluorobenzene**	%	TM208	77.9 1	78	1			
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 1#	<3	1#			
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#			
Chloroform	<1 µg/l	TM208	<1 1#	1.41	1#			
1,1,1-Trichloroethane	<1 µg/l	TM208	<1 1 #	<1	1#			
1,1-Dichloropropene	<1 µg/l	TM208	<1 1 #		1#			
Carbontetrachloride	<1 µg/l	TM208	<1 1#	<1	1#			
1,2-Dichloroethane	<1 µg/l	TM208	<1 1	<1	1			
Benzene	<1 µg/l	TM208	<1 1#		1#			
Trichloroethene	<1 µg/l	TM208	<1 1#		1#			
1,2-Dichloropropane	<1 µg/l	TM208	<1 1#		1#			
Dibromomethane	<1 µg/l	TM208	<1 1 #	<1	1#			
Bromodichloromethane	<1 µg/l		<1 1 #		1#			
cis-1,3-Dichloropropene	<1 µg/l	TM208	<1 1 #	<1	1#			
Toluene	<1 µg/l	TM208	<1 1 #	<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#			



Validated

150902-38 H\_URS\_WIM-273 SDG: Location: Stag Brewery Job:

Client Reference:

Customer: Attention:

AECOM Gary Marshall

Order Number: Report Number: Superseded Report:

329713

Client Reference:			Attention: Ga	iry warshall		Superseded Repo	л.	
VOC MS (W)								
Results Legend		Customer Sample R	BH111	DUP01				
# ISO17025 accredited.  M mCERTS accredited.								
aq Aqueous / settled sample.		Depth (m)						
tot.unfilt Total / unfiltered sample.		Sample Type	Water(GW/SW)	Water(GW/S				
* Subcontracted test.     ** % recovery of the surrogate stand	ard to	Date Sampled	01/09/2015	01/09/201	15			
check the efficiency of the method	i. The	Sampled Time Date Received	02/09/2015	02/09/201	15			
results of individual compounds v samples aren't corrected for the re		SDG Ref	150902-38	150902-3	18			
(F) Trigger breach confirmed	·	Lab Sample No.(s)	11995372	11995373	3			
1-5&+§@ Sample deviation (see appendix)	LODAL	AGS Reference						
Component	LOD/Unit		.4					
1,3-Dichloropropane	<1 µg/	/I TM208	<1	<1				
			1#		1#			
Tetrachloroethene	<1 µg/	/I TM208	<1	<1				
			1#		1#			
Dibromochloromethane	<1 µg/	/I TM208	<1	<1				
			1#		1#			
1,2-Dibromoethane	<1 µg/	/I TM208	<1	<1				
			1#		1#			
Chlorobenzene	<1 µg/	/I TM208	<1	<1				
			1#		1#			
1,1,1,2-Tetrachloroethane	<1 µg/	/I TM208	<1	<1				
			1#		1#			
Ethylbenzene	<1 µg/	/I TM208	<1	<1				
			1#		1#			
m,p-Xylene	<1 µg/	/I TM208	<1	<1				
			1#		1#			
o-Xylene	<1 µg/	/I TM208	<1	<1				
			1#		1#			
Styrene	<1 µg/	/I TM208	<1	<1				
			1#		1#			
Bromoform	<1 µg/	/I TM208	<1	<1				
			1#		1#			
Isopropylbenzene	<1 µg/	/I TM208	<1	<1				
' ',			1#		1#			
1,1,2,2-Tetrachloroethane	<1 µg/	/I TM208	<1	<1				
, , ,			1		1			
1,2,3-Trichloropropane	<1 µg/	/I TM208	<1	<1				
1,2,6 11161116166166	l r pg/	1111200	1#	''	1#			
Bromobenzene	<1 µg/	/I TM208	<1	<1	1 17			
Bromobenzene	1 μ9/	1101200	1#	''	1#			
Propylbenzene	<1 µg/	/I TM208	<1	<1	1 #			
Fropyiberizerie	- τ μg/	1 111200		`'	4 #			
2-Chlorotoluene	<1 µg/	/I TM208	1 # <1	<1	1#			
2-Ciliorotoidene	- τ μg/	1 111200		`'	4 #			
4.2.5 Trimedhalle are are	44	// TN4000	1#	<1	1#			
1,3,5-Trimethylbenzene	<1 µg/	/I TM208	<1	<1	4.41			
4 Ohlandalisana	.4	// TN 4000	1#	.4	1#			
4-Chlorotoluene	<1 µg/	/I TM208	<1	<1				
test Details are as	.4	// TN 4000	1#		1#			
tert-Butylbenzene	<1 µg/	/I TM208	<1	<1				
1017: " "		" T14000	1#		1#			
1,2,4-Trimethylbenzene	<1 µg/	/I TM208	<1	<1				
			1#		1#			
sec-Butylbenzene	<1 µg/	/I TM208	<1	<1				
			1#		1#			
4-iso-Propyltoluene	<1 µg/	/I TM208	<1	<1				
			1#		1#			
1,3-Dichlorobenzene	<1 µg/	/I TM208	<1	<1				
			1#		1#			
1,4-Dichlorobenzene	<1 µg/	/I TM208	<1	<1				
			1#		1#			
n-Butylbenzene	<1 µg/	/I TM208	<1	<1				
			1#		1#			
1,2-Dichlorobenzene	<1 µg/	/I TM208	<1	<1				
			1		1			
1,2-Dibromo-3-chloroprop	<1 µg/	/I TM208	<1	<1				
ane			1		1	 		
1,2,4-Trichlorobenzene	<1 µg/	/I TM208	<1	<1				
			1#		1#			
Hexachlorobutadiene	<1 µg/	/I TM208	<1	<1				
			1#		1#			
tert-Amyl methyl ether	<1 µg/	/I TM208	<1	<1				
(TAME)			1#		1#			
Naphthalene	<1 µg/	/I TM208	<1	<1				
			1#		1#			



Validated

150902-38 SDG: Location: Stag Brewery Order Number: Job:

H\_URS\_WIM-273 Customer: AECOM 329713 Report Number: Client Reference: Attention: Gary Marshall Superseded Report:

VOC MS (W)

voc	MS (W)								
# M	Results Legend ISO17025 accredited. mCERTS accredited.	C	Customer Sample R	BH111	DUP01				
	Aqueous / settled sample. Dissolved / filtered sample.		Depth (m)						
*	Total / unfiltered sample. Subcontracted test.		Sample Type Date Sampled	Water(GW/SW) 01/09/2015	Water(GW/SW) 01/09/2015				
**	% recovery of the surrogate standa check the efficiency of the method.		Sampled Time	02/09/2015	02/09/2015				
	results of individual compounds wi samples aren't corrected for the red	ithin	Date Received SDG Ref	150902-38	150902-38				
(F) 1-5848@	Trigger breach confirmed Sample deviation (see appendix)	,	Lab Sample No.(s)	11995372	11995373				
Compo		LOD/Units	AGS Reference Method						
	Trichlorobenzene	<1 μg/l		<1	<1				
1,3,5-	Trichlorobenzene	<1 µg/l	TM208	1 # <1	1 # <1				
				1	1				
			1			<u> </u>	<u> </u>	<u> </u>	

Order Number:

Validated

329713

 SDG:
 150902-38
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 Stag Brewery

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 Customer:
 AECOM

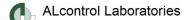
 Job:
 H\_URS\_WIM-273
 Customer:
 AECOM
 Report Number:

 Client Reference:
 Attention:
 Gary Marshall
 Superseded Report:

**Table of Results - Appendix** 

Method No	Reference	Description	Wet/Dry Sample <sup>1</sup>	Surrogate Corrected
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		
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS		
TM172	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	EPH in Waters		
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		
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		
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		
TM283		Determination of Dissolved Niobium, Tungsten, and Zirconium in Water Matrices by ICP-MS		

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



Validated

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Client Reference: Attention: Gary Marshall Superseded Report:

# **Test Completion Dates**

Lab Sample No(s)	11995368	11995366	11995367	11995371	11995370	11995369	11995372	11995373
Customer Sample Ref.	BH3	BH4	BH5	BH8	BH109	BH110	BH111	DUP01
AGS Ref.								
Depth								
Туре	LIQUID							
Ammoniacal Nitrogen	08-Sep-2015	08-Sep-2015	07-Sep-2015	08-Sep-2015	08-Sep-2015	08-Sep-2015	08-Sep-2015	08-Sep-2015
Anions by Kone (w)	09-Sep-2015							
COD Unfiltered	05-Sep-2015							
Dissolved Metals by ICP-MS	09-Sep-2015	09-Sep-2015	09-Sep-2015	09-Sep-2015	09-Sep-2015	08-Sep-2015	09-Sep-2015	09-Sep-2015
Dissolved W, Nb and Zr by ICP-MS	08-Sep-2015							
EPH (DRO) (C10-C40) Aqueous (W)	10-Sep-2015							
EPH CWG (Aliphatic) Aqueous GC (W)	14-Sep-2015							
EPH CWG (Aromatic) Aqueous GC (W)	14-Sep-2015							
GRO by GC-FID (W)	04-Sep-2015	08-Sep-2015						
Mercury Dissolved	07-Sep-2015							
Nitrite by Kone (w)	06-Sep-2015							
pH Value	10-Sep-2015							
SVOC MS (W) - Aqueous	08-Sep-2015							
Total EPH (aq)	11-Sep-2015							
TPH CWG (W)	14-Sep-2015							
VOC MS (W)	04-Sep-2015	04-Sep-2015	04-Sep-2015	03-Sep-2015	04-Sep-2015	04-Sep-2015	03-Sep-2015	03-Sep-2015

14:19:25 14/09/2015

Validated

**SDG**: 150902-38 **Job**: H\_URS\_WI

 150902-38
 Location:
 Stag Brewery

 H\_URS\_WIM-273
 Customer:
 AECOM

 Attention:
 Gary Marshall

Order Number: Report Number:

329713

Superseded Report:

# **ASSOCIATED AQC DATA**

#### Ammoniacal Nitrogen

Client Reference:

Component	Method Code	QC 1224	QC 1233	QC 1270	
Ammoniacal Nitrogen as	TM099	96.0	102.8	102.0	
.,		91.84 : 108.16	91.84 : 108.16	91.84 : 108.16	

# Anions by Kone (w)

Component	Method Code	QC 1236	QC 1219
Chloride	TM184		
		94.64 : 106.82	94.23 : 107.50
Phosphate (Ortho as	TM184		105.6
PO4)		96.40 : 108.40	96.41 : 109.80
Sulphate (soluble)	TM184	99.6	
		96.47 : 104.74	94.38 : 108.93
TON as NO3	TM184	102.5	
		93.05 : 112.12	93.93 : 110.49

# COD Unfiltered

Component	Method Code	QC 1264	QC 1268	QC 1273
COD	TM107	100.57	100.19	99.43
		95.90 : 102.57	95.90 : 102.57	95.90 : 102.57

# Dissolved Metals by ICP-MS

Component	Method Code	QC 1270	QC 1278
Aluminium	TM152	406.42	
7 1101111110111	52	<b>106.13</b> 88.58 : 117.87	<b>104.93</b> 88.58 : 117.87
Authorom	T14450		
Antimony	TM152	101.73	101.73
		87.01 : 109.33	87.01 : 109.33
Arsenic	TM152	102.4	98.67
		89.45 : 113.51	89.45 : 113.51
Barium	TM152	102.4	102.67
		90.47 : 113.85	90.47 : 113.85
Beryllium	TM152	96.27	105.6
		84.68 : 120.26	84.68 : 120.26
Boron	TM152	95.6	100.13
		82.95 : 121.47	82.95 : 121.47
Cadmium	TM152	101.47	103.6
		90.40 : 113.29	90.40 : 113.29
Chromium	TM152	100.13	102.53
		90.01 : 114.05	90.01 : 114.05
Cobalt	TM152	100.67	100.93
		87.14 : 117.85	87.14 : 117.85
Copper	TM152	100.67	103.6
		88.43 : 114.27	88.43 : 114.27
Lead	TM152	95.33	96.0
		89.53 : 109.90	89.53 : 109.90

Validated

SDG: 150902-38 Location: Stag Brewery Order Number:

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 H\_URS\_WIM-273
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 Gary Marshall
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Dissolved Metals by ICP-MS

		QC 1270	QC 1278
Lithium	TM152	97.07	105.33
		84.32 : 123.11	84.32 : 123.11
Manganese	TM152	99.87	103.2
		91.43 : 113.17	91.43 : 113.17
Molybdenum	TM152	102.13	101.2
		80.73 : 113.85	80.73 : 113.85
Nickel	TM152	100.0	100.53
		87.68 : 113.94	87.68 : 113.94
Phosphorus	TM152	106.67	100.8
		86.68 : 118.34	86.68 : 118.34
Selenium	TM152	101.33	100.93
		91.03 : 113.34	91.03 : 113.34
Strontium	TM152	101.07	102.13
		90.44 : 114.09	90.44 : 114.09
Tellurium	TM152	104.53	102.53
		80.93 : 116.91	80.93 : 116.91
Thallium	TM152	96.13	96.4
		90.27 : 111.31	90.27 : 111.31
Tin	TM152	100.27	100.53
		83.07 : 112.37	83.07 : 112.37
Titanium	TM152	102.53	101.87
		92.65 : 111.58	92.65 : 111.58
Uranium	TM152	92.13	97.33
		88.60 : 110.35	88.60 : 110.35
Vanadium	TM152	100.4	103.07
		88.43 : 116.60	88.43 : 116.60
Zinc	TM152	99.87	105.33
		89.84 : 113.06	89.84 : 113.06

# Dissolved W, Nb and Zr by ICP-MS

Component	Method Code	QC 1290
Bismuth	TM283	<b>92.13</b> 66.55 : 123.56
Niobium	TM283	<b>107.6</b> 85.00 : 115.00
Silver	TM283	<b>105.33</b> 81.37 : 112.35
Tungsten	TM283	<b>85.87</b> 85.00 : 115.00
Zirconium	TM283	<b>102.27</b> 85.00 : 115.00

# EPH (DRO) (C10-C40) Aqueous (W)

Component	Method Code	QC 1208	QC 1212
EPH (DRO) (C10-C40)	TM172	<b>96.5</b> 59.22 : 112.78	<b>77.0</b> 59.47 : 106.15

# EPH CWG (Aliphatic) Aqueous GC (W)

Validated

SDG: 150902-38 Job:

Client Reference:

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#### EPH CWG (Aliphatic) Aqueous GC (W)

Component	Method Code	QC 1219
Total Aliphatics >C12-C35	TM174	<b>79.17</b> 66.67 : 110.42

# EPH CWG (Aromatic) Aqueous GC (W)

Component	Method Code	QC 1220
Total Aromatics >EC12-EC35	TM174	<b>88.67</b> 63.00 : 121.00

# GRO by GC-FID (W)

Component	Method Code	QC 1199	QC 1175	QC 1286
Benzene by GC	TM245	<b>95.5</b> 76.72 : 118.62	<b>104.5</b> 79.00 : 121.00	<b>90.0</b> 77.50 : 122.50
Ethylbenzene by GC	TM245	<b>90.0</b> 74.74 : 116.76	<b>104.0</b> 79.00 : 121.00	<b>87.5</b> 77.50 : 122.50
m & p Xylene by GC	TM245	<b>89.75</b> 73.06 : 114.58	<b>103.5</b> 79.00 : 121.00	<b>87.75</b> 77.50 : 122.50
MTBE GC-FID	TM245	<b>98.5</b> 80.00 : 121.03	<b>108.0</b> 79.00 : 121.00	<b>92.0</b> 77.50 : 122.50
o Xylene by GC	TM245	<b>90.0</b> 70.00 : 130.00	<b>103.0</b> 79.00 : 121.00	<b>87.5</b> 77.50 : 122.50
QC	TM245	<b>101.89</b> 70.00 : 130.00	<b>104.28</b> 79.00 : 121.00	<b>102.19</b> 74.88 : 125.54
Toluene by GC	TM245	<b>92.0</b> 79.35 : 119.27	<b>105.0</b> 79.00 : 121.00	<b>88.5</b> 77.50 : 122.50

# Mercury Dissolved

Component	Method Code	QC 1262	QC 1200
Mercury Dissolved (CVAF)	TM183	<b>98.5</b> 73.51 : 120.83	<b>95.5</b> 73.51 : 120.83

#### pH Value

Component	Method Code	QC 1201	QC 1215
рН	TM256	<b>101.08</b> 99.20 : 102.85	<b>100.54</b> 99.37 : 102.65

# SVOC MS (W) - Aqueous

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 Customer

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SVOC MS (W) - Aqueous

Client Reference:

Component	Method Code	QC 1208	QC 1247
4-Bromophenylphenyleth er	TM176	<b>87.2</b> 55.04 : 128.00	<b>82.4</b> 65.62 : 120.95
Benzo(a)anthracene	TM176	<b>87.2</b> 52.64 : 123.68	<b>82.4</b> 62.83 : 114.26
Benzo(a)pyrene	TM176	<b>79.68</b> 49.60 : 114.40	<b>80.8</b> 54.19 : 105.67
Butylbenzyl phthalate	TM176	<b>93.6</b> 49.04 : 127.76	<b>82.4</b> 45.10 : 118.90
Hexachlorobutadiene	TM176	<b>77.52</b> 42.80 : 108.20	<b>61.28</b> 43.12 : 110.32
Naphthalene	TM176	<b>92.0</b> 47.20 : 116.80	<b>85.6</b> 69.48 : 118.94
Nitrobenzene	TM176	<b>88.8</b> 58.70 : 110.90	<b>79.52</b> 69.13 : 107.62
Phenol	TM176	<b>50.08</b> 30.25 : 79.75	<b>49.12</b> 30.92 : 74.19

# VOC MS (W)

		22.4422	22.442
Component	Method Code	QC 1188	QC 1162
1,1,1,2-Tetrachloroethan e	TM208	91.0	94.5
C		84.25 : 114.84	87.29 : 112.22
1,1,1-Trichloroethane	TM208	90.0	91.5
		84.67 : 111.97	83.02 : 113.68
1,1-Dichloroethane	TM208	93.5	95.0
		80.19 : 121.45	77.85 : 123.56
1,2-Dichloroethane	TM208	94.0	96.5
,		<b>94.0</b> 77.68 : 127.05	80.96 : 124.37
2-Chlorotoluene	TM208		
2-Chiorotoluene	1101208	91.0	96.5
		85.81 : 116.77	84.42 : 112.35
4-Chlorotoluene	TM208	92.0	96.5
		87.22 : 115.45	88.70 : 113.67
Benzene	TM208	91.0	95.0
		82.30 : 120.49	85.85 : 118.22
Bromomethane	TM208	101.0	103.0
		76.16 : 123.35	78.68 : 126.84
Carbontetrachloride	TM208	02.0	02.5
ou.somonuo	200	<b>93.0</b> 83.96 : 117.98	<b>93.5</b> 82.06 : 117.49
Chlorobenzene	TM208		
Chiorobenzene	I IVIZUO	93.0	97.5
		85.75 : 114.88	77.50 : 122.50
Chloroform	TM208	95.0	100.0
		84.84 : 119.97	77.50 : 122.50
Chloromethane	TM208	117.5	113.0
		53.63 : 141.38	64.99 : 145.80
Cis-1,2-Dichloroethene	TM208	104.0	108.0
		81.65 : 120.44	82.70 : 120.11
Dichloromethane	TM208	94.0	99.5
		79.31 : 122.56	80.45 : 125.21
Ethylbenzene	TM208		
Lutylochzene	TIVIZOO	89.5	90.0
	T14000	80.74 : 110.74	81.00 : 111.00
Hexachlorobutadiene	TM208	98.5	99.0
		68.91 : 121.59	79.39 : 111.07
o-Xylene	TM208	91.0	95.0
		85.43 : 113.21	84.32 : 113.42
-			

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150902-38 Location: Stag Brewery Order Number: Job:

H\_URS\_WIM-273 **Customer: AECOM** Report Number: Client Reference: Attention: Gary Marshall Superseded Report:

VOC MS (W)

	'	QC 1188	QC 1162
p/m-Xylene	TM208	<b>89.25</b> 80.94 : 113.51	<b>92.75</b> 82.25 : 112.25
Tert-butyl methyl ether	TM208	<b>98.0</b> 59.77 : 129.51	<b>93.0</b> 76.57 : 125.98
Tetrachloroethene	TM208	<b>91.0</b> 83.21 : 115.40	<b>93.5</b> 84.88 : 110.14
Toluene	TM208	<b>90.0</b> 86.02 : 114.04	<b>93.0</b> 85.71 : 113.18
Trichloroethene	TM208	<b>91.0</b> 83.50 : 113.50	<b>94.0</b> 87.32 : 112.88
Vinyl Chloride	TM208	<b>92.5</b> 63.71 : 124.88	<b>88.0</b> 67.57 : 130.24

The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.

The figure detailed is the percentage recovery result for the AQC.

The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

Validated

SDG: 150902-38 Job:

Client Reference:

H\_URS\_WIM-273

Location: Stag Brewery **Customer:** AECOM Attention: Gary Marshall Order Number: Report Number: Superseded Report:

329713

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

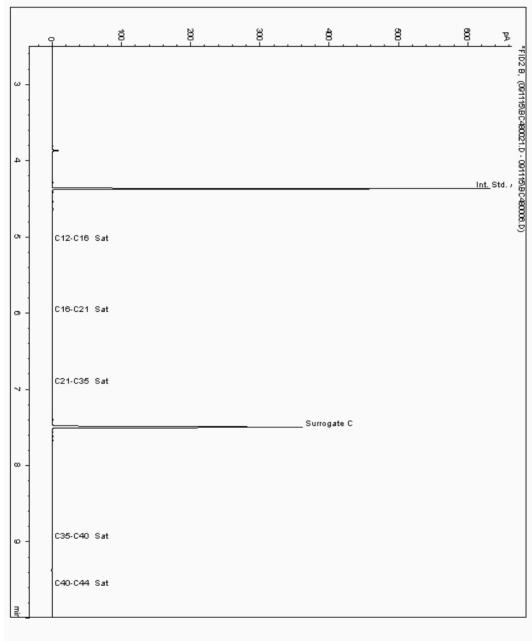
Sample No : 12041687 Sample ID :

Depth:

Alcontrol/Geochem Analytical Services Speciated TPH - SATS ( C12 - C40 )

Sample Identity:

11416099-11/09/2015 21:08:44 PM Date Acquired : Units :



Validated

SDG: 150902-38 Job:

Client Reference:

H\_URS\_WIM-273

Location: Stag Brewery **Customer:** AECOM Attention: Gary Marshall Order Number: Report Number: Superseded Report:

329713

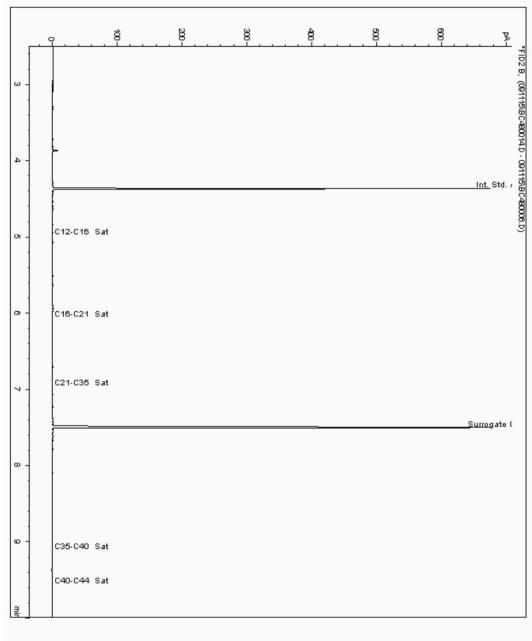
Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) Sample No : Depth: 12041693 Sample ID : BH111

Alcontrol/Geochem Analytical Services Speciated TPH - SATS ( C12 - C40 )

Sample Identity:

11416113-11/09/2015 18:56:51 PM Date Acquired : Units :



Validated

SDG: 150902-38 Job:

Client Reference:

H\_URS\_WIM-273

Location: Stag Brewery **Customer:** AECOM Attention: Gary Marshall Order Number: Report Number: Superseded Report:

Depth:

329713

Chromatogram

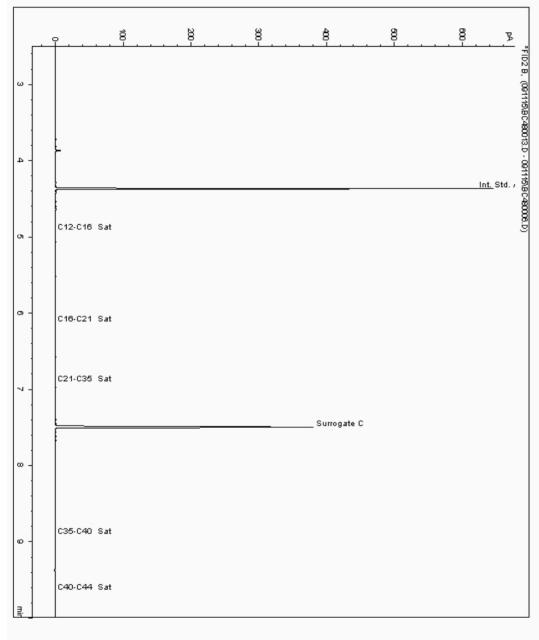
Analysis: EPH CWG (Aliphatic) Aqueous GC (W) Sample No : 12041696 Sample ID :

Alcontrol/Geochem Analytical Services Speciated TPH - SATS ( C12 - C40 )

Sample Identity:

11416120-11/09/2015 18:38:02 PM

Date Acquired : Units : ppb Dilution CF 1 0.008 Multiplier



Validated

SDG: 150902-38 Job:

Client Reference:

H\_URS\_WIM-273

Location: Stag Brewery **Customer:** AECOM Attention: Gary Marshall Order Number: Report Number: Superseded Report:

329713

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

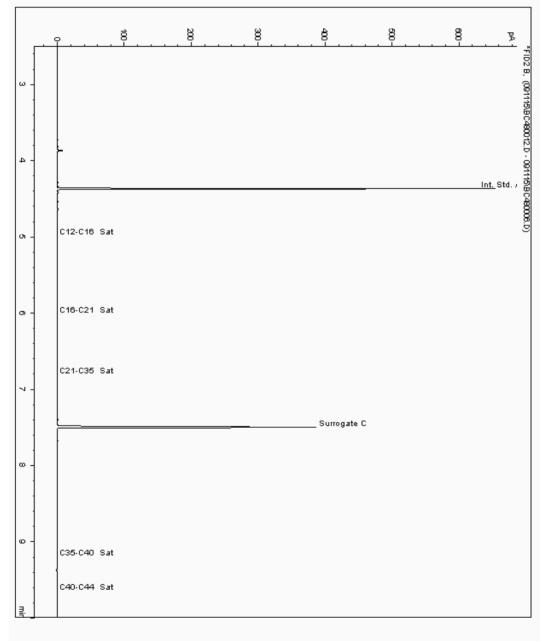
Sample No : 12041700 Sample ID : BH110

Depth:

Alcontrol/Geochem Analytical Services Speciated TPH - SATS ( C12 - C40 )

11416094-11/09/2015 18:19:01 PM

Sample Identity: Date Acquired : Units : ppb Dilution CF 1 0.008 Multiplier



Validated

SDG: 150902-38 Job:

Client Reference:

H\_URS\_WIM-273

Location: Stag Brewery **Customer:** AECOM Attention: Gary Marshall Order Number: Report Number: Superseded Report:

329713

Chromatogram

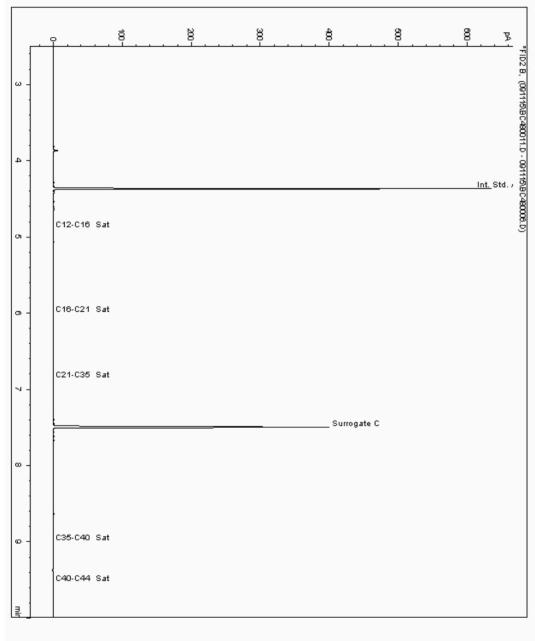
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

12041705 Sample No : Sample ID :

Depth:

Alcontrol/Geochem Analytical Services Speciated TPH - SATS ( C12 - C40 )

11416104-11/09/2015 18:00:15 PM Sample Identity: Date Acquired : Units :



Validated

SDG: 150902-38 Job:

Client Reference:

H\_URS\_WIM-273

Location: Stag Brewery **Customer:** AECOM Attention: Gary Marshall Order Number: Report Number: Superseded Report:

329713

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

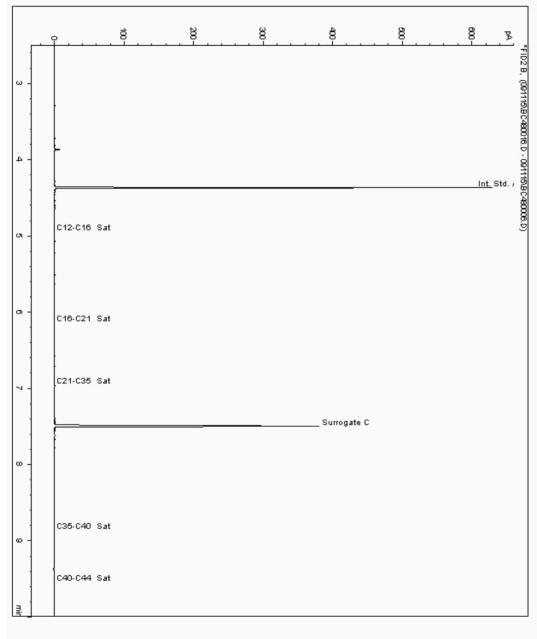
12041823 Sample No : Sample ID :

Depth:

Alcontrol/Geochem Analytical Services Speciated TPH - SATS ( C12 - C40 )

Sample Identity:

11416073-11/09/2015 19:34:23 PM Date Acquired : Units :



Validated

SDG: 150902-38 Job:

Client Reference:

H\_URS\_WIM-273

Location: Stag Brewery **Customer:** AECOM Attention: Gary Marshall Order Number: Report Number: Superseded Report:

329713

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) Sample No : 12041835

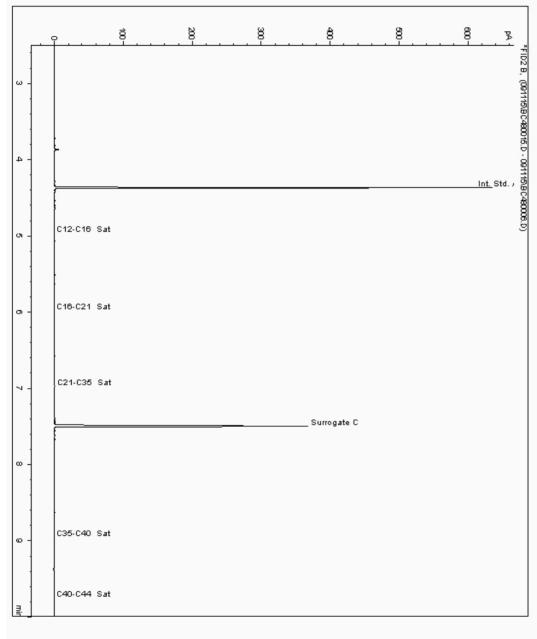
Sample ID :

Depth:

Alcontrol/Geochem Analytical Services Speciated TPH - SATS ( C12 - C40 )

Sample Identity:

11416089-11/09/2015 19:15:37 PM Date Acquired : Units :



Validated

SDG: 150902-38 Job:

Client Reference:

H\_URS\_WIM-273

Location: Stag Brewery **Customer:** AECOM Attention: Gary Marshall Order Number: Report Number: Superseded Report:

329713

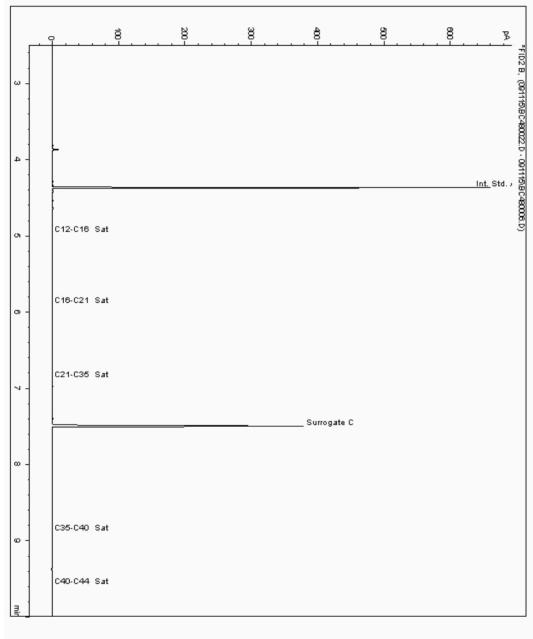
Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) Sample No : Depth: 12041844 Sample ID :

Alcontrol/Geochem Analytical Services Speciated TPH - SATS ( C12 - C40 )

Sample Identity:

11416079-11/09/2015 21:27:30 PM Date Acquired : Units :



Validated

150902-38 SDG: Job:

Client Reference:

H\_URS\_WIM-273

Location: Stag Brewery **Customer:** AECOM Attention: Gary Marshall Order Number: Report Number: Superseded Report:

329713

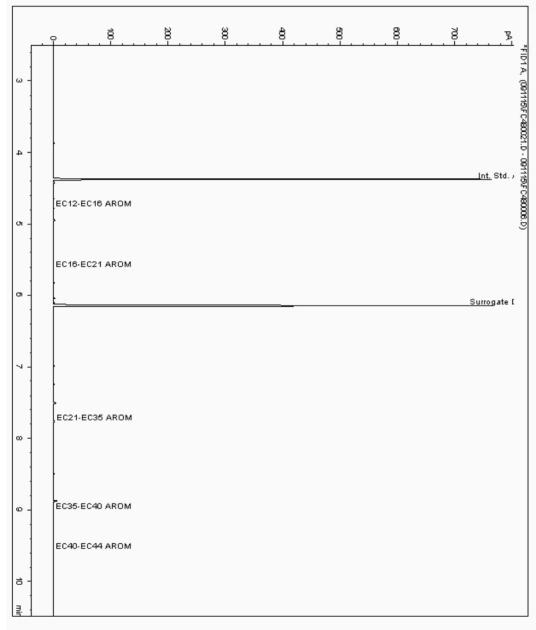
Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) Sample No : Depth: 12041687 Sample ID :

Alcontrol/Geochem Analytical Services Speciated TPH - AROM ( C12 - C40 )

Sample Identity:

11416100-11/09/2015 21:08:44 PM ppb Date Acquired : Units :



Validated

150902-38 SDG: Job:

Client Reference:

H\_URS\_WIM-273

Location: **Customer:** AECOM Attention:

Stag Brewery Order Number: Report Number: Gary Marshall

Superseded Report:

329713

Chromatogram

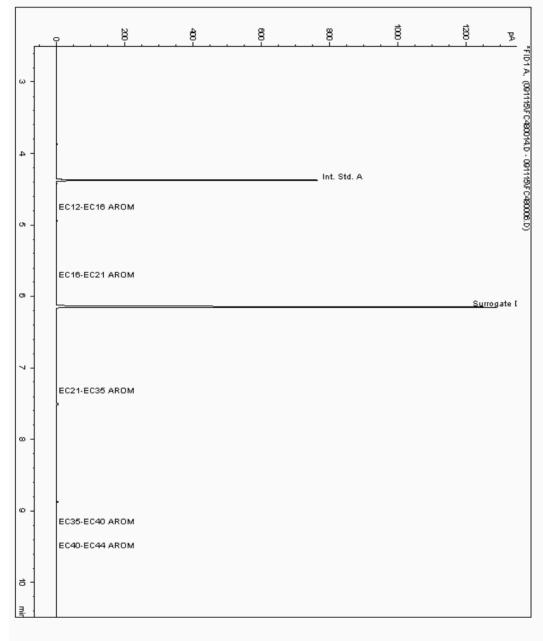
Analysis: EPH CWG (Aromatic) Aqueous GC (W) Sample No : Depth: 12041693 Sample ID : BH111

Alcontrol/Geochem Analytical Services Speciated TPH - AROM ( C12 - C40 )

Sample Identity:

11416114-11/09/2015 18:56:50 PM ppb

Date Acquired : Units : Dilution CF 1 0.008 Multiplier



Validated

150902-38 SDG: Job:

Client Reference:

H\_URS\_WIM-273

Location: Stag Brewery **Customer:** AECOM Attention: Gary Marshall Order Number: Report Number:

329713

Superseded Report:

Chromatogram

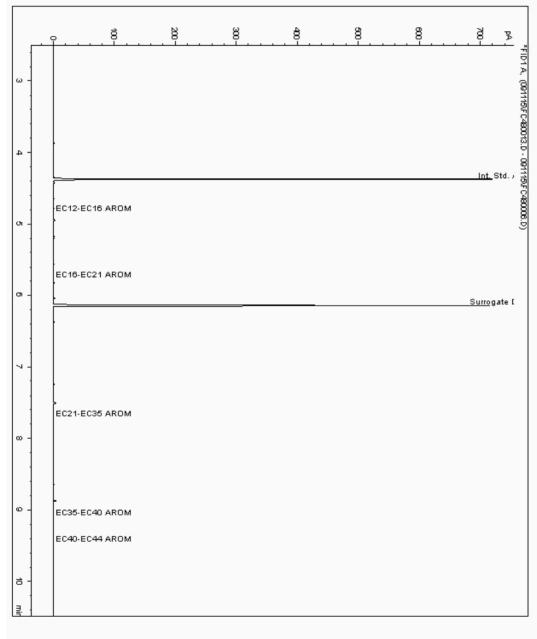
Analysis: EPH CWG (Aromatic) Aqueous GC (W) Sample No : Depth: 12041696

Sample ID :

Alcontrol/Geochem Analytical Services Speciated TPH - AROM ( C12 - C40 )

Sample Identity:

11416121-11/09/2015 18:38:02 PM ppb Date Acquired : Units :



Validated

150902-38 SDG: Job:

Client Reference:

H\_URS\_WIM-273

Location: Stag Brewery **Customer:** AECOM Attention: Gary Marshall Order Number: Report Number: Superseded Report:

329713

Chromatogram

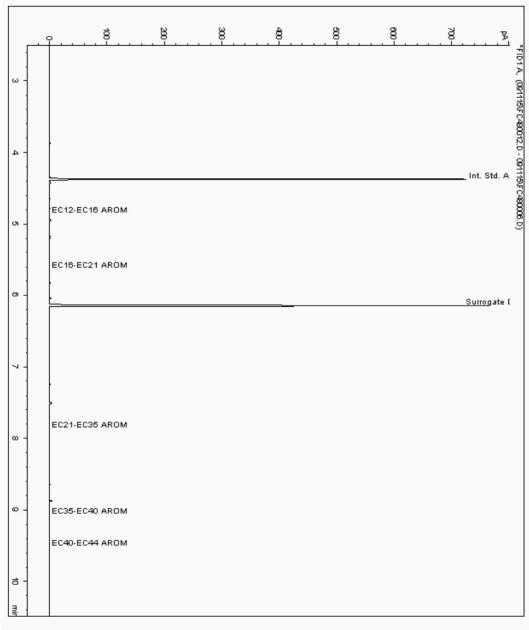
Analysis: EPH CWG (Aromatic) Aqueous GC (W) Sample No : 12041700

Sample ID : BH110 Depth:

Alcontrol/Geochem Analytical Services Speciated TPH - AROM ( C12 - C40 )

Sample Identity:

11416095-11/09/2015 18:19:02 PM Date Acquired : Units :



Validated

150902-38 SDG: Job:

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Location: **Customer:** Attention:

Stag Brewery AECOM Gary Marshall Order Number: Report Number:

329713

Superseded Report:

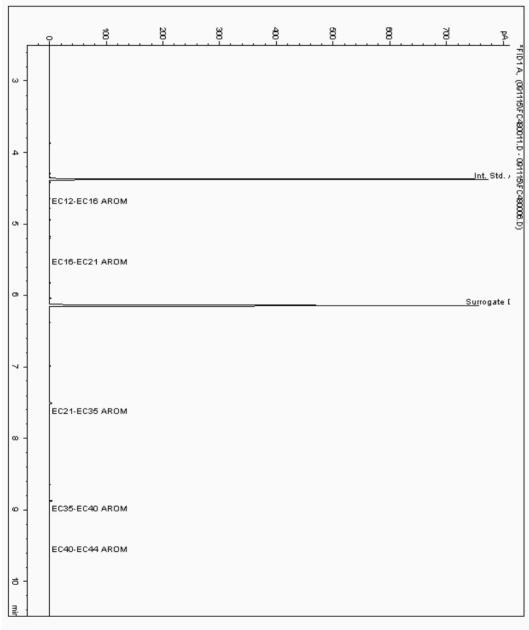
Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) 12041705 Sample No : Depth:

Sample ID :

Alcontrol/Geochem Analytical Services Speciated TPH - AROM ( C12 - C40 )

Sample Identity: Date Acquired : Units : 11416105-11/09/2015 18:00:16 PM



Validated

150902-38 SDG: Job:

Client Reference:

H\_URS\_WIM-273

Location: Stag Brewery **Customer:** AECOM Attention: Gary Marshall Order Number: Report Number: Superseded Report:

329713

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) Sample No : 12041823

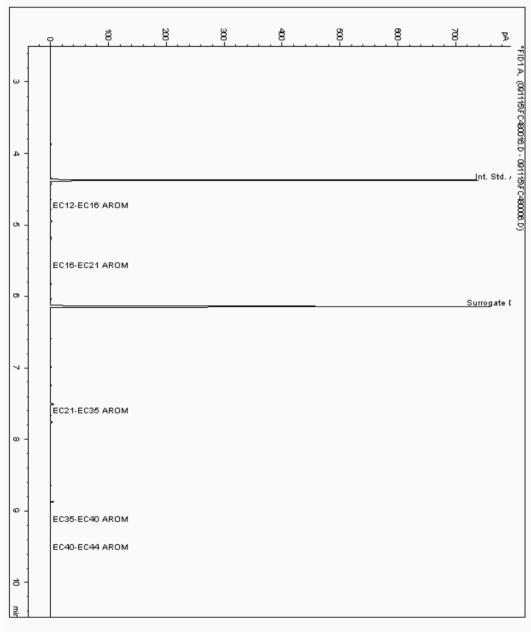
Sample ID :

Depth:

Alcontrol/Geochem Analytical Services Speciated TPH - AROM ( C12 - C40 )

Sample Identity:

11416074-11/09/2015 19:34:23 PM ppb Date Acquired : Units :



Validated

150902-38 SDG: Job:

Client Reference:

H\_URS\_WIM-273

Location: Stag Brewery **Customer:** AECOM Attention: Gary Marshall Order Number: Report Number: Superseded Report:

329713

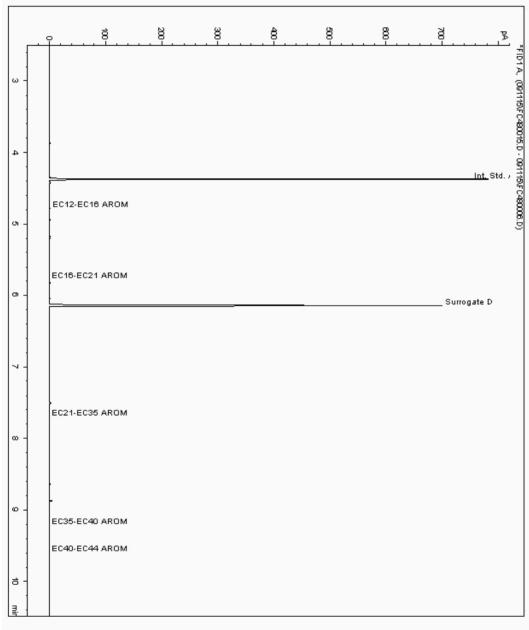
# Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) Sample No : Depth: 12041835 Sample ID :

Alcontrol/Geochem Analytical Services Speciated TPH - AROM ( C12 - C40 )

Sample Identity:

11416090-11/09/2015 19:15:37 PM Date Acquired : Units :



Validated

150902-38 SDG: H\_URS\_WIM-273 Job:

Client Reference:

Location: **Customer:** Attention:

Stag Brewery AECOM Gary Marshall Order Number: Report Number: Superseded Report:

329713

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W)

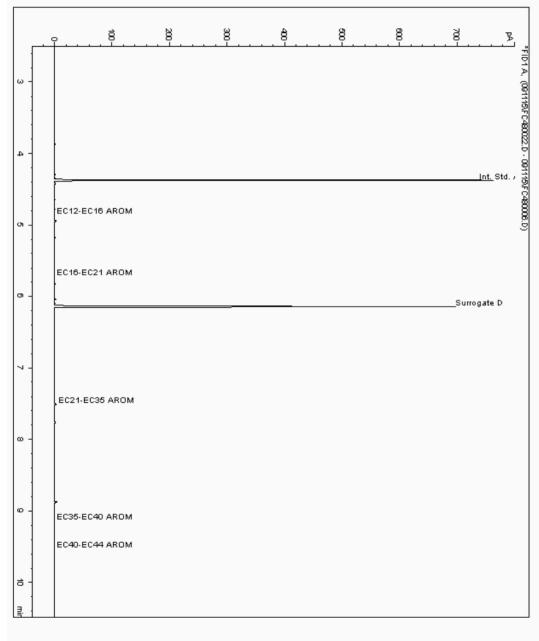
Sample No : 12041844 Sample ID :

Depth:

Alcontrol/Geochem Analytical Services Speciated TPH - AROM ( C12 - C40 )

Sample Identity:

11416080-11/09/2015 21:27:30 PM Date Acquired : Units :



Client Reference:

# **CERTIFICATE OF ANALYSIS**

Validated

150902-38 SDG: Job:

H\_URS\_WIM-273

Location: Stag Brewery **Customer:** AECOM Attention: Gary Marshall Order Number: Report Number:

329713

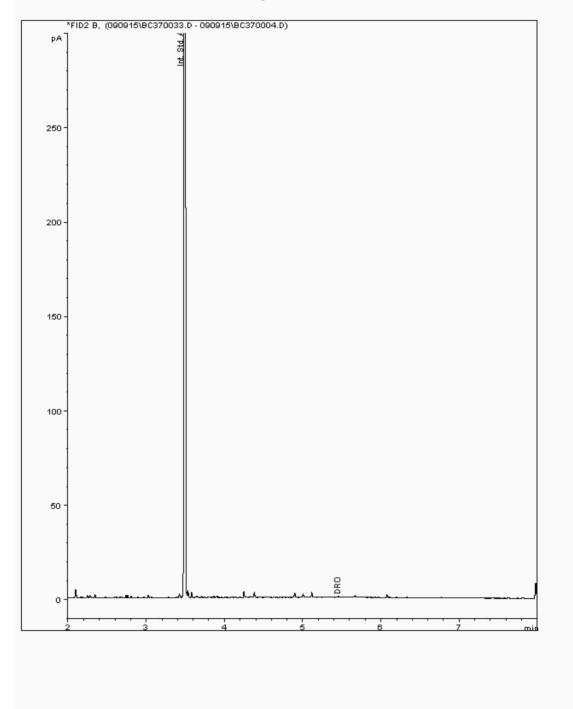
Superseded Report:

Chromatogram

Analysis: EPH (DRO) (C10-C40) Aqueous (W) Sample No : Depth: 12010785 Sample ID :

Alcontrol/Geochem Analytical Services EPH Range Organics ( C10 - C40 )

Sample Identity: 11378749Date Acquired : 10/09/2015 03:40:25 PM
Units : mg/1



Validated

150902-38 SDG: Job:

Location: Stag Brewery AECOM **Customer:** 

Order Number: Report Number:

329713

Client Reference:

H\_URS\_WIM-273 Attention: Gary Marshall

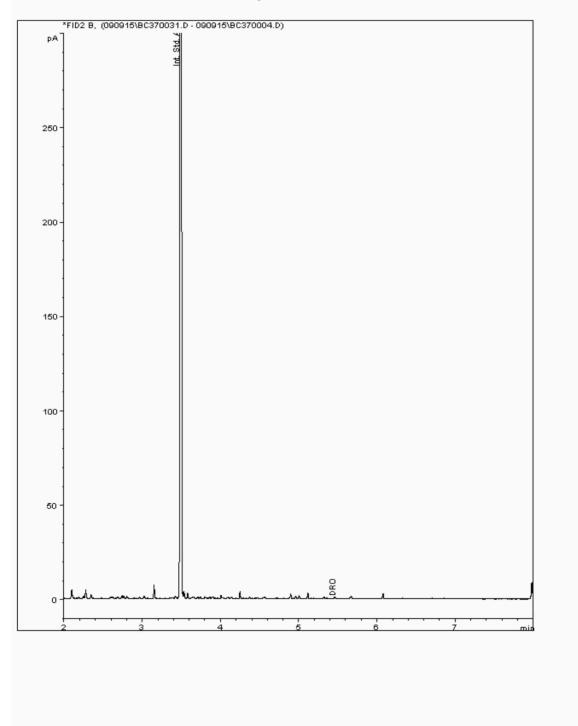
Superseded Report:

Chromatogram

Analysis: EPH (DRO) (C10-C40) Aqueous (W) 12010813 Sample No : Depth: Sample ID :

Alcontrol/Geochem Analytical Services EPH Range Organics ( C10 - C40 )

Sample Identity: 11378785-Date Acquired : 10/09/2015 02:56:26 PM Units : mg/l



Validated

150902-38 Location: Stag Brewery SDG: Order Number: Job:

Client Reference:

H\_URS\_WIM-273

**Customer:** AECOM Attention: Gary Marshall

Report Number: Superseded Report:

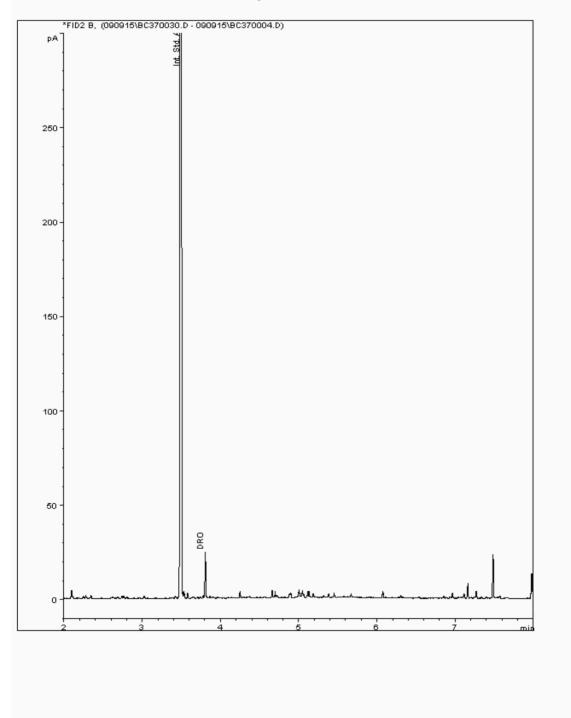
329713

Chromatogram

Analysis: EPH (DRO) (C10-C40) Aqueous (W) Sample No : Depth: 12010836 Sample ID : BH111

Alcontrol/Geochem Analytical Services EPH Range Organics ( C10 - C40 )

Sample Identity: 11378767Date Acquired : 10/09/2015 02:34:21 PM
Units : mg/1



Client Reference:

# **CERTIFICATE OF ANALYSIS**

Validated

150902-38 Location: SDG: Job: H\_URS\_WIM-273

Stag Brewery **Customer:** AECOM Attention: Gary Marshall Order Number: Report Number: Superseded Report:

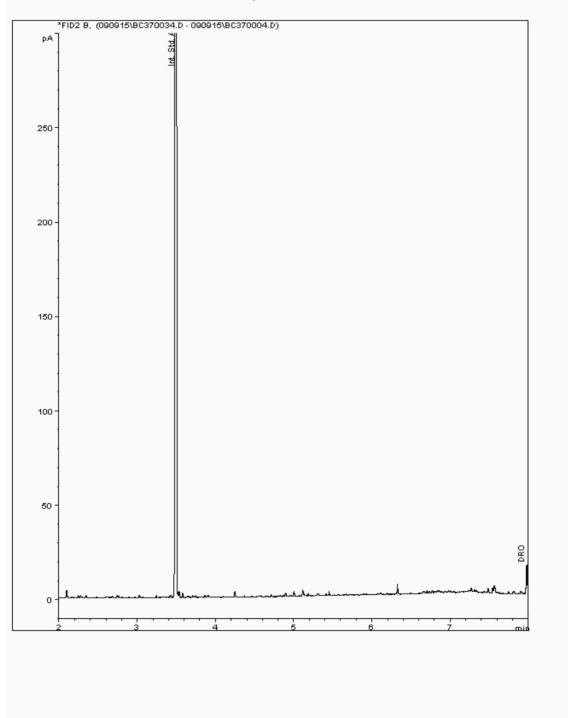
329713

Chromatogram

Analysis: EPH (DRO) (C10-C40) Aqueous (W) Sample No : Depth: 12010862 Sample ID :

BH109 Alcontrol/Geochem Analytical Services EPH Range Organics ( C10 - C40 )

Sample Identity: 11378728Date Acquired : 10/09/2015 04:02:28 PM
Units : mg/1



Validated

150902-38 Location: Stag Brewery SDG: Order Number: H\_URS\_WIM-273 Job:

Client Reference:

**Customer:** AECOM Attention: Gary Marshall

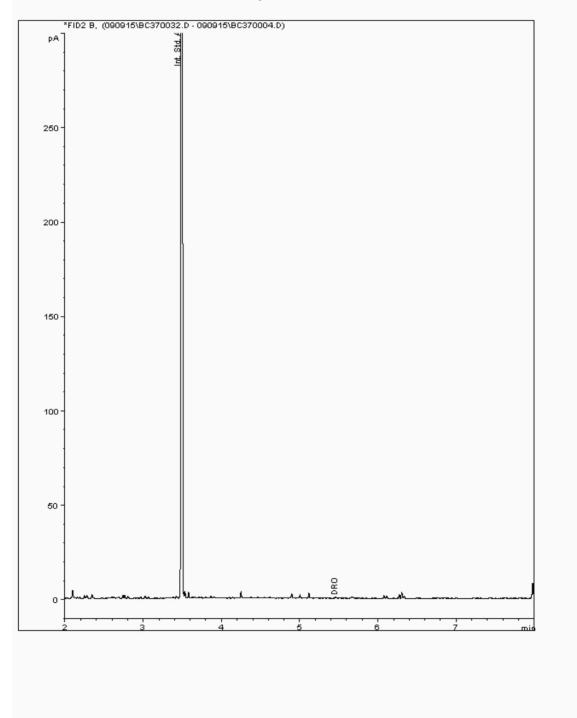
Report Number: Superseded Report: 329713

Chromatogram

Analysis: EPH (DRO) (C10-C40) Aqueous (W) Sample No : Depth: 12010877 Sample ID : BH110

Alcontrol/Geochem Analytical Services EPH Range Organics ( C10 - C40 )

Sample Identity: 11378714Date Acquired : 10/09/2015 03:18:35 PM
Units : mg/1



Client Reference:

#### **CERTIFICATE OF ANALYSIS**

Validated

329713

Superseded Report:

150902-38 Location: Stag Brewery SDG: Order Number: H\_URS\_WIM-273 AECOM Job: **Customer:** Report Number: Attention:

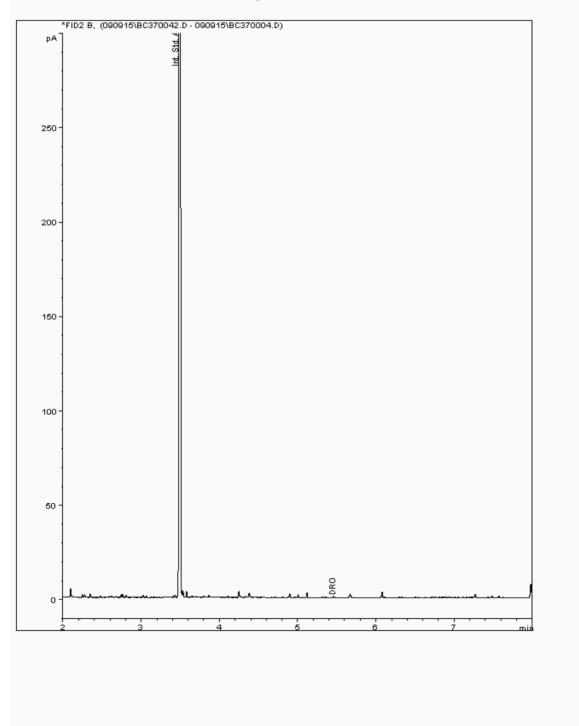
Chromatogram

Gary Marshall

Analysis: EPH (DRO) (C10-C40) Aqueous (W) Sample No : 12012900 Depth: Sample ID :

Alcontrol/Geochem Analytical Services EPH Range Organics ( C10 - C40 )

Sample Identity: 11378677Date Acquired : 10/09/2015 06:59:22 PM
Units : mg/1



Client Reference:

#### **CERTIFICATE OF ANALYSIS**

Validated

150902-38 SDG: H\_URS\_WIM-273 Job:

Location: Stag Brewery AECOM **Customer:** Attention: Gary Marshall Order Number: Report Number: Superseded Report:

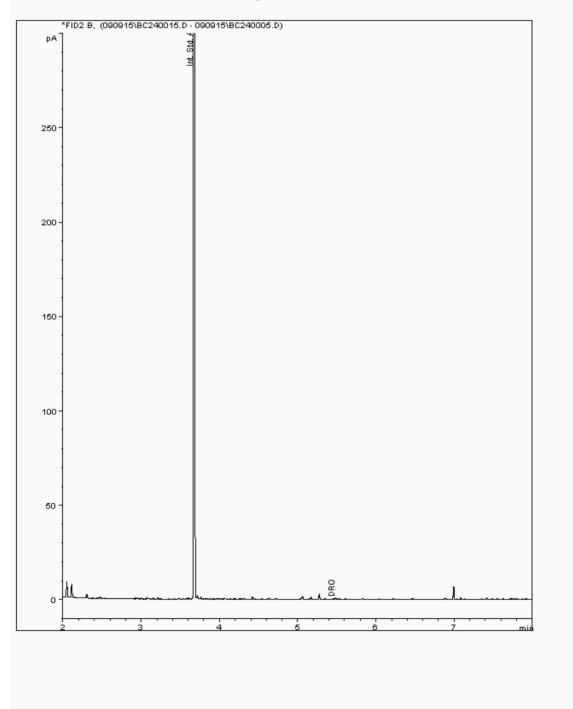
329713

Chromatogram

Analysis: EPH (DRO) (C10-C40) Aqueous (W) Sample No : 12012997 Depth: Sample ID :

Alcontrol/Geochem Analytical Services EPH Range Organics ( C10 - C40 )

Sample Identity: 11378700-Date Acquired : 09/09/2015 21:21:25 PM Units : mg/1



Validated

329713

Superseded Report:

 SDG:
 150902-38
 Location:
 Stag Brewery
 Order Number:

 Job:
 H\_URS\_WIM-273
 Customer:
 AECOM
 Report Number:

Client Reference: Attention:

Chromatogram

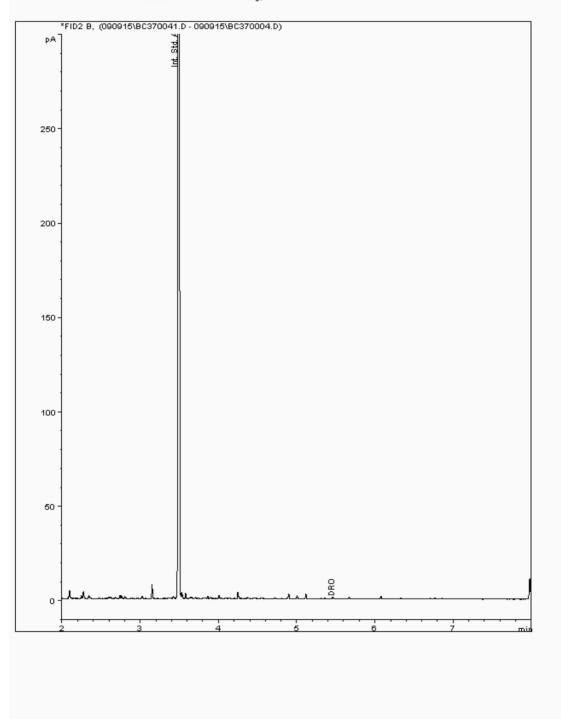
Gary Marshall

 Analysis:
 EPH (DRO) (C10-C40) Aqueous (W)
 Sample No: 12013027
 Depth:

Sample ID : BH4

Alcontrol/Geochem Analytical Services EPH Range Organics ( C10 - C40 )

Sample Identity: 11378662-Date Acquired : 10/09/2015 06:37:21 PM Units : mg/1





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SDG: 150902-38 Job:

Location: **Customer:**  Order Number: Report Number:

329713

Client Reference:

H\_URS\_WIM-273 Attention:

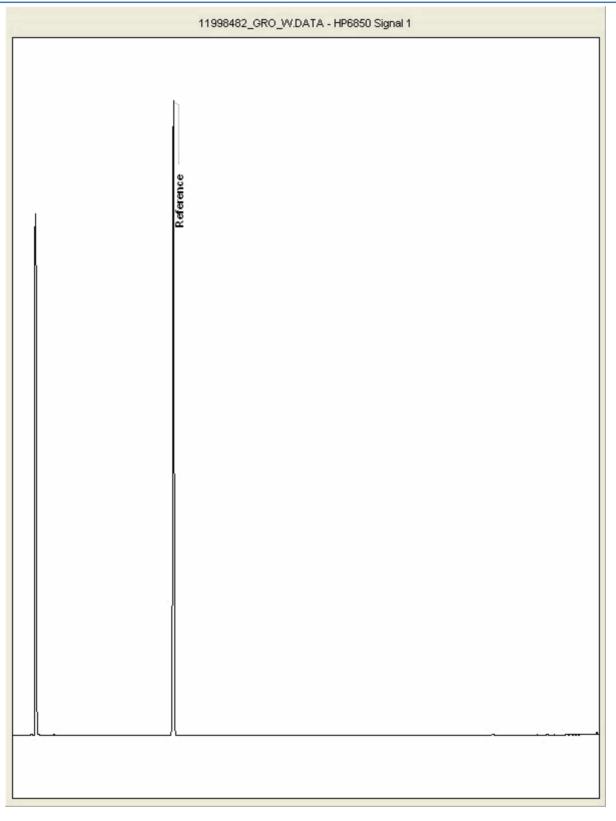
AECOM Gary Marshall

Stag Brewery

Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W) Sample No : 11998482 Depth:





Validated

SDG: 150902-38 Job:

Location: Stag Brewery AECOM **Customer:** Attention: Gary Marshall Order Number: Report Number: Superseded Report:

Depth:

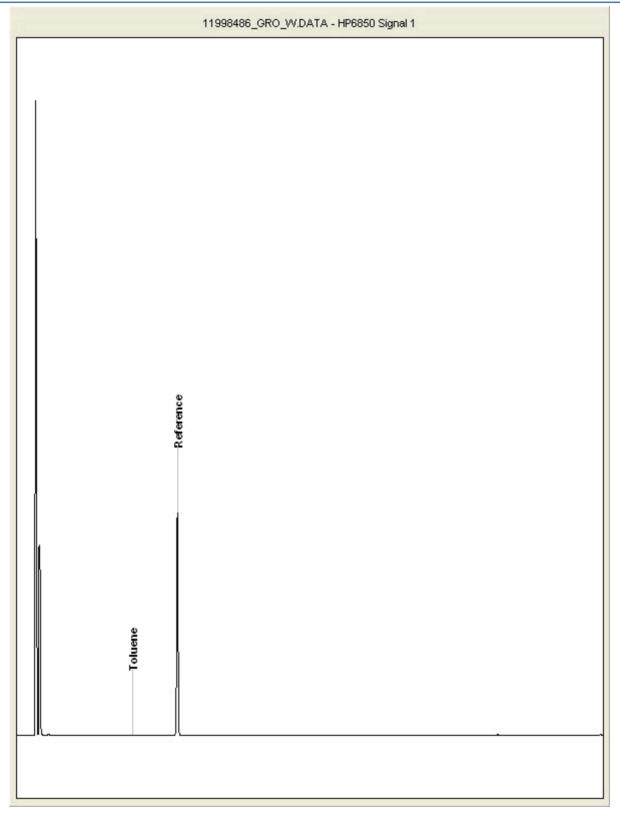
329713

Client Reference:

H\_URS\_WIM-273

Chromatogram

Analysis: GRO by GC-FID (W) 11998486 Sample No :





Validated

SDG: 150902-38 Job:

Client Reference:

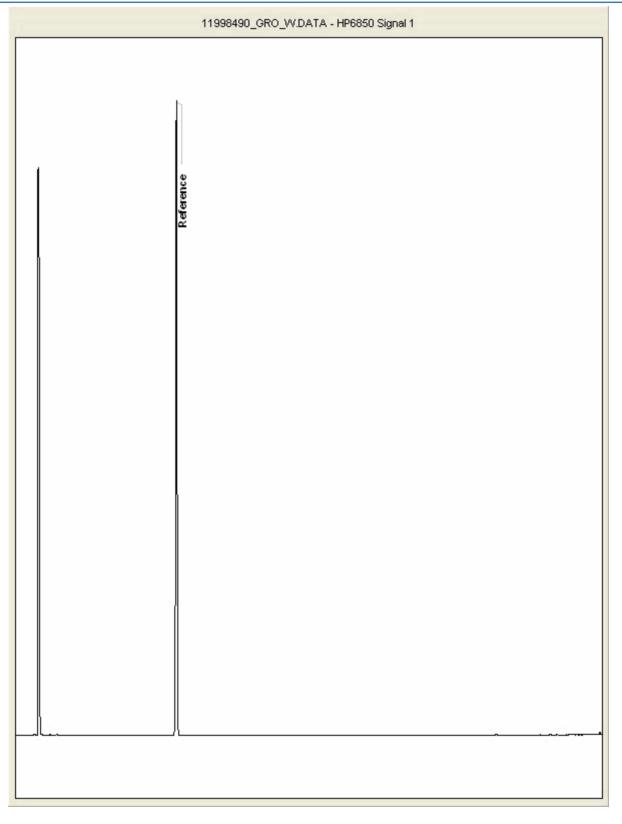
H\_URS\_WIM-273

Location: Stag Brewery AECOM **Customer:** Attention: Gary Marshall Order Number: Report Number: Superseded Report:

329713

Chromatogram

Analysis: GRO by GC-FID (W) Sample No : 11998490 Depth:





Validated

**SDG:** 150902-38 **Job:** H\_URS\_WIM-273

Client Reference:

Location:
Customer:
Attention:

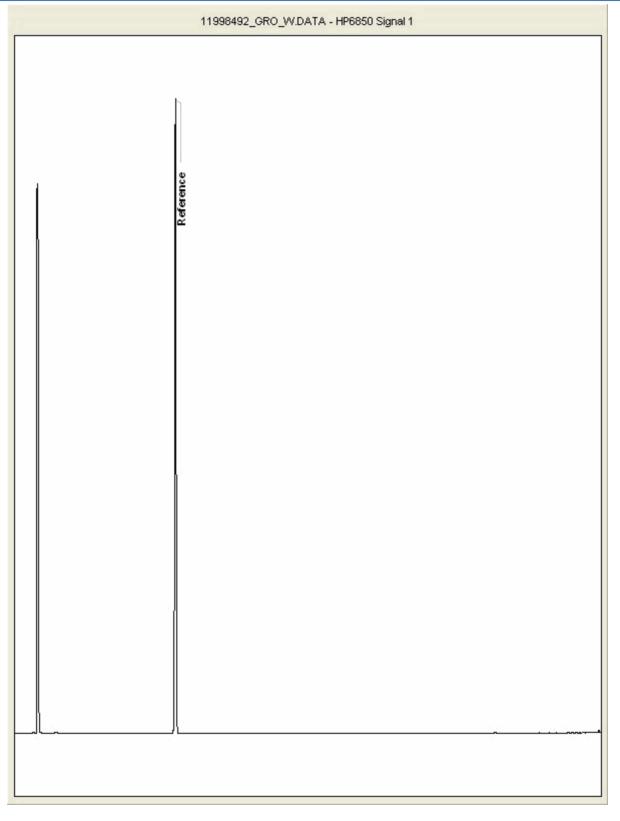
Stag Brewery AECOM Gary Marshall Order Number: Report Number:

329713

Superseded Report:

Chromatogram

 Analysis:
 GRO by GC-FID (W)
 Sample No: 11998492
 Depth:





Validated

**SDG:** 150902-38 **Job:** H\_URS\_WIM-273

Location: Customer: Attention: Stag Brewery AECOM Gary Marshall Order Number: Report Number: Superseded Report:

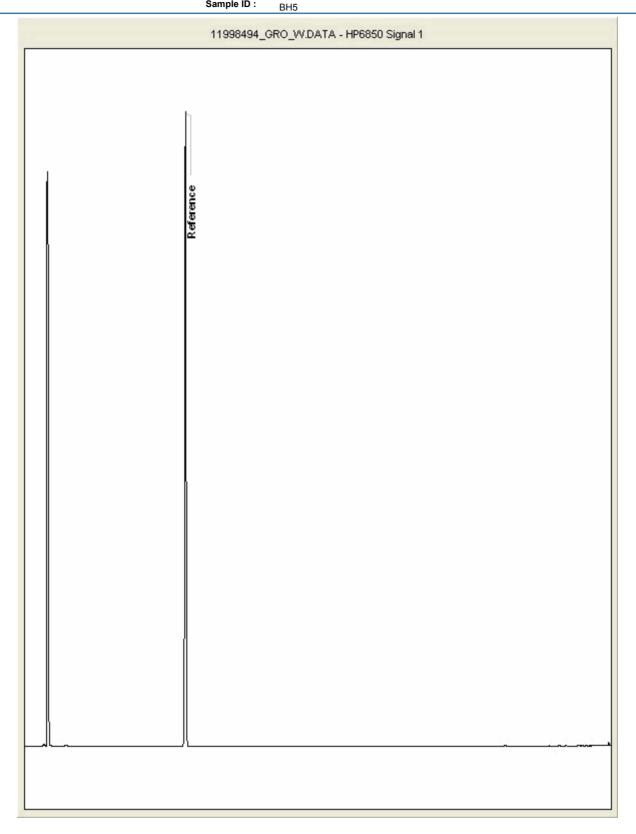
329713

Client Reference:

Analysis: GRO by GC-FID (W)

Chromatogram

Sample No: 11998494 Sample ID: BH5 Depth:





Validated

SDG: 150902-38 H\_URS\_WIM-273 Job:

Location: Stag Brewery AECOM **Customer:** 

Order Number: Report Number:

329713

Client Reference:

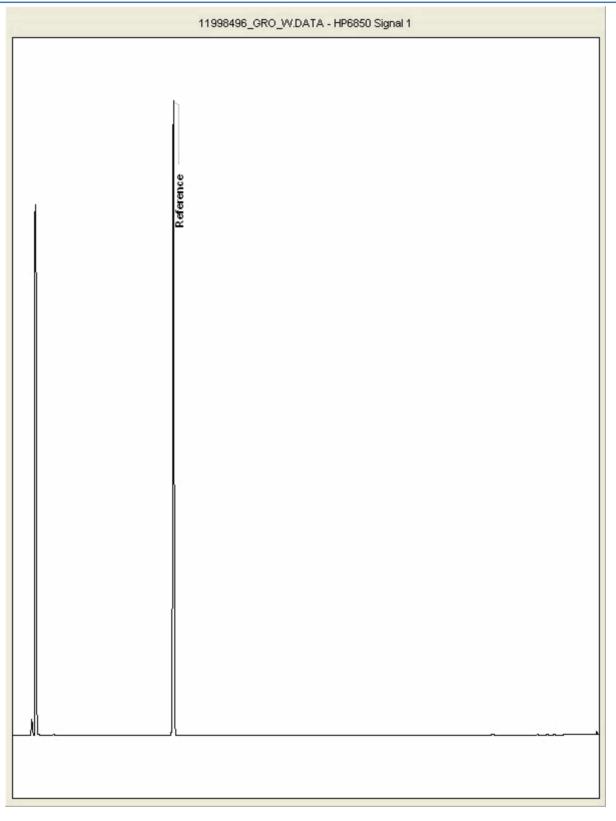
Attention: Gary Marshall

Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W) Sample No : 11998496 Depth:

Sample ID : ВН3





Validated

SDG: 150902-38 H\_URS\_WIM-273 Job:

Client Reference:

Location: **Customer:** Attention:

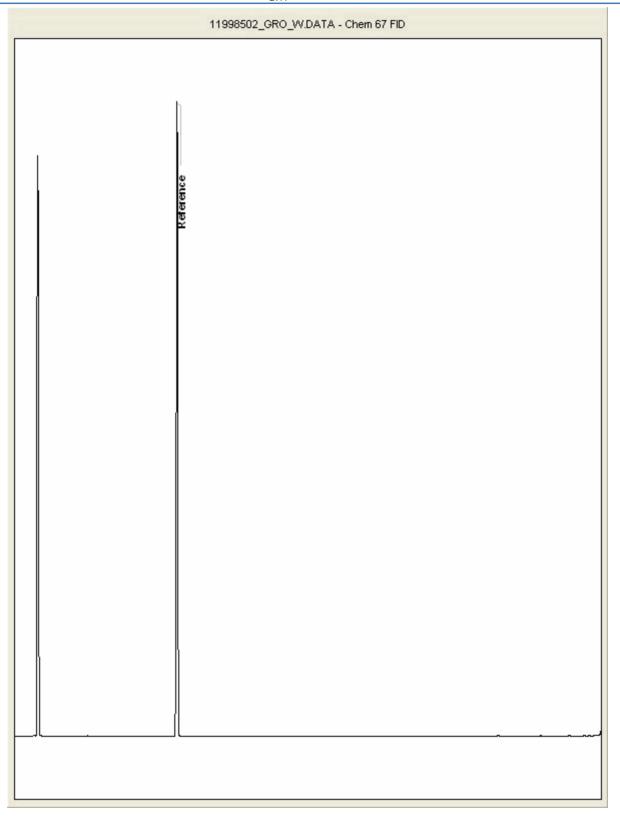
Stag Brewery Order Number: AECOM Report Number: Gary Marshall

Superseded Report:

329713

Chromatogram

Analysis: GRO by GC-FID (W) Sample No : 11998502 Depth:





Validated

**SDG:** 150902-38 **Job:** H\_URS\_WIM

Client Reference:

150902-38 H\_URS\_WIM-273

Location:Stag BreweryCustomer:AECOMAttention:Gary Marshall

Order Number: Report Number: Superseded Report:

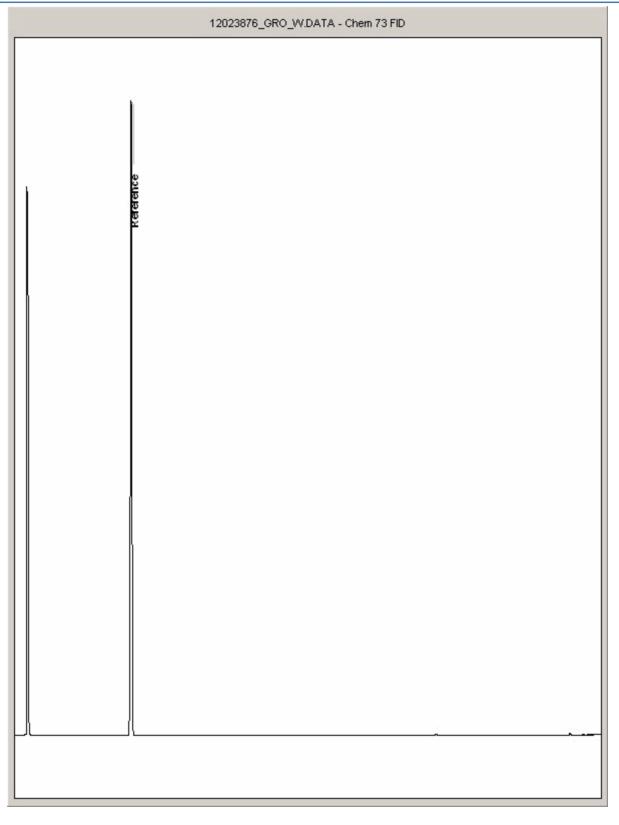
Depth:

329713

Chromatogram

Analysis: GRO by GC-FID (W) Sample No: 12023876

Sample ID: DUP01



 150902-38
 Location:
 Stag Brewery
 Order Number:

 H\_URS\_WIM-273
 Customer:
 AECOM
 Report Number:
 329713

 erence:
 Attention:
 Gary Marshall
 Superseded Report:

Client Reference:

SDG

Job:

## **Appendix**

 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.
- 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, 2,5 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.
- 20. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.
- 21. 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.
- 22. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.
- 23. 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.
- 24. 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 WET	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
SOLVENT EXTRACTABLE MATTER	D&C	DOM	SOXTIHERM	GRAMMETRIC
CYCLOHEXANE EXT. MATTER	D&C	CYCLOHEXANE	SOXTHERM	GRAVIMETRIC
THIN LAYER CHROMATOGRAPHY	D&C	DOM	SOXTHERM	IATROSCAN
ELEMENTAL SULPHUR	D&C	DOM	SOXTHERM	HPLC
PHENOLSBYGOMS	WET	DOM	SOXTHERM	GCMS
HERBICIDES	D&C	HEXANEACETONE	SOXTHERM	GCMS
PESTICIDES	D&C	HEXANEACETONE	SOXTHERM	GCMS
EPH (DRO)	D&C	HEXANEACETONE	END OVEREND	GCFID
EPH (MINOL)	D&C	HEXANEACETONE	END OVEREND	GCFID
EPH (CLEANED UP)	D&C	HEXANEACETONE	END OVEREND	GCFID
EPH CWG BYGC	D&C	HEXANEACETONE ENDOWEREND		GCFID
POB TOT / POB CON	D&C	HEXANEACETONE ENDOWEREND		GCMS
POLYAROMATIC HYDROCARBONS (MS)	WET	HEXANEACETONE	MCROWAVE TM218.	GCMS
C8-C40(C6-C40) EZ FLASH			SHAKER	GC-EZ
POLYAROMATIC HYDROCARBONS RAPID GC	WET	HBXANEACETONE	SHAKER	GC-EZ
SEM VOLATILEORGANIC COMPOUNDS	WET	DOMACETONE	SONICATE	GCMS

#### LIQUID MATRICES EXTRACTION SUMMARY

ANALYSIS	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSS
PAHMS	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCMS
EPH .	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GC FID
EPH CWG	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GC FID
MINERALOIL	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GC FID
POB 700 NGENERS	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCMS
POB TOTAL	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCMS
svoc	DOM	LIQUID/LIQUID SHAKE	GCMS
FREESULPHUR	DOM	SOLID PHASE EXTRACTION	HPLC
PEST OCP/OPP	DOM	LIQUID/LIQUID SHAKE	GCMS
TRIAZINE HERBS	DOM	LIQUID/LIQUID SHAKE	GCMS
PHENOLSMS	DOM	SOLID PHASE EXTRACTION	GCMS
TPH byINFRARED (IR)	TCE	LIQUID/LIQUID SHAKE	HPLC
MINERALOIL by IR	TCE	LIQUID/LIQUID SHAKE	HPLC
GLYCOLS	NONE	DIRECT INJECTION	GCMS

<u>Identification of Asbestos in Bulk</u> <u>Materials</u>

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).

Asbestos Type	Common Name				
Chrysofile	White Asbestos				
Amoste	Brown Asbestos				
Crodddite	Blue Asbestos				
Fibrous Adindite	=				
Fibrous Anthophylite	=				
Fibrous Trentalite	-				

#### 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.

## ALcontrol Laboratories

#### **CERTIFICATE OF ANALYSIS**

 SDG:
 150902-38
 Location:
 Stag Brewery
 Order Number:

 Job:
 H\_URS\_WIM-273
 Customer:
 AECOM
 Report Number:
 329713

 Client Reference:
 Attention:
 Gary Marshall
 Superseded Report:

## **Appendix**

## General

- 1. Results are expressed on a dry weight basis (dried at  $35^{\circ}$ C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICS and SVOC 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 all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 month 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 analysed 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. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible. The quantity of asbestos present is not determined unless specifically requested.
- 7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.
- 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 Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.
- 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 C5-C12 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.

## Sample Deviations

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
4	Holding time exceeded before sample received
5	Samples exceeded holding time before presevation was performed
§	Sampled on date not provided
•	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to sampled on date
&	Sample Holding Time exceeded - Late arrival of instructions.

#### **Asbestos**

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk 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).

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).

Asbestos Type	Common Name			
Chrysofile	White Asbestos			
Amoste	BrownAsbestos			
Orodobite	Blue Asbestos			
Fibrous Adinoite	-			
Fibrous Anthophylite	-			
Fibrous Trendile	-			

#### 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.

Unit 7-8 Hawarden Business Park Manor Road (off Manor Lane) Hawarden

Deeside CH5 3US Tel: (01244) 528700

Fax: (01244) 528701 email: mkt@alcontrol.com Website: www.alcontrol.com

AECOM St. George's House 2nd Floor 5 St. George's Road Wimbledon Greater London SW19 4DR

Attention: Gary Marshall

#### **CERTIFICATE OF ANALYSIS**

 Date:
 09 September 2015

 Customer:
 H\_URS\_WIM

 Sample Delivery Group (SDG):
 150903-66

Your Reference:

Location:Stag BreweryReport No:329161

We received 6 samples on Thursday September 03, 2015 and 6 of these samples were scheduled for analysis which was completed on Wednesday September 09, 2015. 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







Validated

329161

SDG: 150903-66 Location: Stag Brewery Order Number: H\_URS\_WIM-273 AECOM Job: **Customer:** 

Report Number: Client Reference: Attention: Gary Marshall Superseded Report:

**Received Sample Overview** 

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
12003516	BH2			02/09/2015
12003511	BH7			01/09/2015
12003512	ВН9			02/09/2015
12003513	BH10			01/09/2015
12003515	BH201A			02/09/2015
12003514	BH104B			02/09/2015

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

SDG:

150903-66

### **CERTIFICATE OF ANALYSIS**

Order Number:

Stag Brewery

Location:

Validated

Job: H\_URS\_WIM-273 **Customer: AECOM** Report Number: 329161 Attention: Gary Marshall Superseded Report: Client Reference: **LIQUID** 12003511 12003514 12003516 12003512 12003513 **Results Legend** Lab Sample No(s) X Test No Determination Possible Customer BH104B BH201A BH2 BH7 Sample Reference **AGS Reference** Depth (m) Vial (ALE297)
HNO3 Filtered (ALE
H2SO4 (ALE244)
Dissolved Metals Pr
500ml Plastic (ALE2
250ml BOD (ALE297)
No3 Filtered (ALE
Vial (ALE297)
HNO3 Filtered (ALE
H2SO4 (ALE244)
Dissolved Metals Pr
500ml BoD (ALE297)
HNO3 Filtered (ALE
H2SO4 (ALE244)
Dissolved Metals Pr
500ml Plastic (ALE2
250ml Plastic (ALE2
10.51 glass bottle (AL
Vial (ALE297)
HNO3 Filtered (ALE
H2SO4 (ALE244)
Dissolved Metals Pr
500ml Plastic (ALE2
250ml BOD (ALE21
0.51 glass bottle (AL HNO3 Filtered (ALE
H2SO4 (ALE244)
Dissolved Metals Pr
500ml Plastic (ALE2
250ml BOD (ALE21
0.51 glass bottle (AL H2SO4 (ALE244)
Dissolved Metals Pr
500ml Plastic (ALE2
250ml BOD (ALE21
0.51 glass botte (AL
Vial (ALE297)
HNO3 Filtered (ALE
H2SO4 (ALE244)
Dissolved Metals Pr
500ml BOD (ALE21
0.51 glass botte (AL
Vial (ALE297) Container Ammoniacal Nitrogen All NDPs: 0 Tests: 6 Anions by Kone (w) All NDPs: 0 Tests: 6 COD Unfiltered All NDPs: 0 Tests: 6 Dissolved Metals by ICP-MS All NDPs: 0 Tests: 6 X All Dissolved W, Nb and Zr by ICP-MS NDPs: 0 Tests: 6 X EPH (DRO) (C10-C40) Aqueous All NDPs: 0 (W) Tests: 6 GRO by GC-FID (W) All NDPs: 0 Tests: 6 X Mercury Dissolved All NDPs: 0 Tests: 6 pH Value All NDPs: 0 Tests: 6 SVOC MS (W) - Aqueous All NDPs: 0 Tests: 6 Total EPH (aq) All NDPs: 0 Tests: 6 VOC MS (W) All NDPs: 0 Tests: 6



Validated

 SDG:
 150903-66
 Location:
 Stag Brewery
 Order Number:

 Job:
 H\_URS\_WIM-273
 Customer:
 AECOM
 Report Number:
 329161

 Client Reference:
 Attention:
 Gary Marshall
 Superseded Report:

Oliche (Colorellec.		Attention			
LIQUID Results Legend X Test	Lab Sample No(s)				
No Determination Possible	Custome Sample Refer	BH104B			
	AGS Refere	nce			
	Depth (m	)			
	Containe	r	Vial (ALE297) HNO3 Filtered (ALE		
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 6	x		
Dissolved W, Nb and Zr by ICP-MS	All	NDPs: 0 Tests: 6	x		
GRO by GC-FID (W)	All	NDPs: 0 Tests: 6	X		
VOC MS (W)	All	NDPs: 0 Tests: 6	X		

Validated

150903-66 SDG: Job:

H\_URS\_WIM-273

Location: Stag Brewery Customer: AECOM

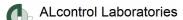
Order Number: Report Number:

329161

Client Reference:

Attention: Gary Marshall Superseded Report:

Results Legend  # ISO17025 accredited.  M mCERTS accredited. aq Aqueous / settled sample.		Customer Sample R	BH2	BH7	BH9	BH10	BH201A	BH104B
diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample. * Subcontracted test.		Depth (m) Sample Type Date Sampled	Water(GW/SW) 02/09/2015	Water(GW/SW) 01/09/2015	Water(GW/SW) 02/09/2015	Water(GW/SW) 01/09/2015	Water(GW/SW) 02/09/2015	Water(GW/SW) 02/09/2015
check the efficiency of the method results of individual compounds w samples aren't corrected for the re	l. The vithin	Sampled Time Date Received SDG Ref	03/09/2015 150903-66 12003516	03/09/2015 150903-66 12003511	03/09/2015 150903-66 12003512	03/09/2015 150903-66 12003513	03/09/2015 150903-66 12003515	03/09/2015 150903-66 12003514
(F) Trigger breach confirmed 1-5&+§@ Sample deviation (see appendix)		Lab Sample No.(s) AGS Reference	1200010	12000011	12000012	12000010	.200010	.2000.
Ammoniosel Nitrogen ee	LOD/Un		0.269	0.707	F 66	<0.2	<b>~</b> 0.2	<b>40.2</b>
Ammoniacal Nitrogen as N	<0.2 m	ıg/l TM099	0.268 #	0.707 #	5.66 #	<0.2 #	<0.2 #	<0.2 #
Ammoniacal Nitrogen as NH4	<0.3 m	ng/l TM099	0.345 #	0.909 #	7.28 #	<0.3	<0.3 #	<0.3 #
COD, unfiltered	<7 m	g/l TM107	<7 #	10.1 #	3330 #	<7 #	<7 #	7.65 #
Antimony (diss.filt)	<0.16 µg/l	5 TM152	0.171	0.681	2.06	0.27	0.306	0.172
Arsenic (diss.filt)	<0.12 μg/l	2 TM152	39.4 #	45.4 #	14.4	3.79 #	6.51 #	17.3
Barium (diss.filt)	<0.03	3 TM152	116	73.4	39.9	15.4	79.1	66
Beryllium (diss.filt)	μg/l <0.07	7 TM152	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
Boron (diss.filt)	μg/l <9.4 μ	g/l TM152	133	138	27.8	82.3	106	140
Cadmium (diss.filt)	<0.1 µ	g/l TM152	<0.1	<0.1	0.228	<0.1	<b>*</b>	<0.1
Chromium (diss.filt)	<0.22	2 TM152	2.23	5.24	7.52	1.21	2.27	1.71
Cobalt (diss.filt)	μg/l <0.06	5 TM152	0.3	3.29	9.27	0.337	# 11.8	1.25
Copper (diss.filt)	μg/l <0.8	5 TM152	# 1.95	1.59	61.3	1.16	# 1.08	1.74
Lead (diss.filt)	μg/l <0.02		0.059	0.072	22.8	<b>*</b>	0.098	0.057
	μg/l		#	#	#	#	#	#
Manganese (diss.filt)	<0.04 µg/l		772 #	1200 #	983 #		1180 #	665
Nickel (diss.filt)	<0.18 µg/l		6.63 #	8.43 #	12.3 #	2.26 #	18.4 #	8.43 #
Selenium (diss.filt)	<0.39 µg/l	9 TM152	9.71 #	1.13 #	1.87 #	1.86 #	1.76 #	7.19 #
Thallium (diss.filt)	<0.96 µg/l	5 TM152	<0.96	<0.96	<0.96	<0.96	<0.96	<0.96
Vanadium (diss.filt)	<0.24 µg/l	1 TM152	0.657 #	2.35 #	7.67 #	0.759 #	0.941 #	0.67 #
Zinc (diss.filt)	<0.4 <sup>-</sup> µg/l	I TM152	15.7 #	11.2 #	280 #	1.27	17.5 #	11.9 #
EPH Range >C10 - C40 (aq)	<46 µ	g/l TM172	<46 #	<46 #	1430 #	<46	<46 #	<46 #
Total EPH (C6-C40) (aq)	<100 µ	ıg/l TM172	<100	<100	1430	<100	<100	<100
Mercury (diss.filt)	<0.0°	I TM183	<0.01	<0.01	0.0171	<0.01	<0.01	<0.01
Sulphate	42 mg/1	g/l TM184	457 #	74.5	<2 #	70.1	# 82.2 #	287
Phosphate (ortho) as PO4	<0.09 mg/l		* <0.05	0.07	14.1	4.46	0.056	<0.05
Nitrate as NO3	<0.3 m		<0.3	0.926	<0.3	18.7	9.17	2.01
pH	<1 pł		7.59	7.9	7.55	7.56	8.09	7.22
Silver (diss.filt)	Units <1.5 µ		<1.5	* <1.5	<1.5	<1.5	* <1.5	<1.5



Validated

329161

SDG: 150903-66 Location: Stag Brewery Order Number:

Job: H\_URS\_WIM-273 Customer: AECOM Report Number:
Client Reference: Attention: Gary Marshall Superseded Report:

GRO by GC-FID (W)				.,				
GRO by GC-FID (W) Results Legend	0	Customer Sample R	BH2	BH7	BH9	BH10	BH201A	BH104B
# ISO17025 accredited. M mCERTS accredited. aq Aqueous / settled sample. diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample.		Depth (m) Sample Type	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)
* Subcontracted test.  ** % recovery of the surrogate standa		Date Sampled	02/09/2015	01/09/2015	02/09/2015	01/09/2015	02/09/2015	02/09/2015
check the efficiency of the method.	. The	Sampled Time Date Received	03/09/2015	03/09/2015	03/09/2015	03/09/2015	03/09/2015	03/09/2015
samples aren't corrected for the re-		SDG Ref	150903-66 12003516	150903-66 12003511	150903-66 12003512	150903-66 12003513	150903-66 12003515	150903-66 12003514
(F) Trigger breach confirmed 1-5&+§@ Sample deviation (see appendix)		Lab Sample No.(s) AGS Reference	12000010	12000011	12000012	1200010	12000010	.2000.1
Component	LOD/Units							
Methyl tertiary butyl ether (MTBE)	<3 µg/l		<3 #	<3 #	<3 #	<3 #	<3 #	<3 #
Benzene	<7 µg/l		<7 #	<7 #	<7 #	<7 #	<7 #	<7 #
Toluene	<4 µg/l		<4 #	<4 #	<4 #	<4 #	<4 #	<4 #
Ethylbenzene	<5 µg/l	TM245	<5 #	<5 #	<5 #	<5 #	<5 #	<5 #
m,p-Xylene	<8 µg/l		<8 #	<8 #	<8 #	<8 #	<8 #	<8 #
o-Xylene	<3 µg/l		<3 #	<3 #	<3 #	<3 #	<3 #	<3 #
Sum of detected BTEX	<28 µg/	TM245	<28	<28	<28	<28	<28	<28
GRO >C5-C10	<10 µg/	TM245	<10	<10	281	<10	<10	<10
EPH (C6-C10)	<100 µg	/I TM245	<100	<100	<100		<100	<100

Validated

150903-66 SDG: Job:

H\_URS\_WIM-273

Location: Stag Brewery Customer:

Attention:

AECOM Gary Marshall Order Number: Report Number: Superseded Report:

329161

Client Reference:

SVOC MS (W) - Aqueou	s							
Results Legend # ISO17025 accredited.		Customer Sample R	BH2	BH7	ВН9	BH10	BH201A	BH104B
M mCERTS accredited. aq Aqueous / settled sample. diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample. Subcontracted test. ** % recovery of the surrogate stand.		Depth (m) Sample Type Date Sampled Sampled Time	Water(GW/SW) 02/09/2015	Water(GW/SW) 01/09/2015	Water(GW/SW) 02/09/2015	Water(GW/SW) 01/09/2015	Water(GW/SW) 02/09/2015	Water(GW/SW) 02/09/2015
check the efficiency of the method results of individual compounds w samples aren't corrected for the re (F) Trigger breach confirmed 1-5&+§@ Sample deviation (see appendix)	rithin	Date Received SDG Ref Lab Sample No.(s) AGS Reference	03/09/2015 150903-66 12003516	03/09/2015 150903-66 12003511	03/09/2015 150903-66 12003512	03/09/2015 150903-66 12003513	03/09/2015 150903-66 12003515	03/09/2015 150903-66 12003514
Component	LOD/Uni							
1,2,4-Trichlorobenzene	<1 µg	/I TM176	<1	<1	<4	<1	<1 ,,,	<1 "
1,2-Dichlorobenzene (aq)	<1 µg	/I TM176	**************************************	** <1 **	** <4 **	<1 #	*1 *1 *#	** <1 **
1,3-Dichlorobenzene (aq)	<1 µg	/I TM176	<1 #	<1 #	<4 #	<1 #	<1 #	<1 #
1,4-Dichlorobenzene (aq)	<1 µg	/I TM176	<1	<1	<4	<1	<1	<1
2,4,5-Trichlorophenol (aq)	<1 µg	/I TM176	<1 "	<1	<4 #	<1	<1	<1
2,4,6-Trichlorophenol (aq)	<1 µg	/I TM176	# <1 #	* <1	** <4	* <1	*1 *1	*1 *1
2,4-Dichlorophenol (aq)	<1 µg	/I TM176	<1 **	<1 **	<4	<1 **	<1 **	<1 "
2,4-Dimethylphenol (aq)	<1 µg	/I TM176	* <1	* <1	* <4	* <1	*1 *1	<1 #
2,4-Dinitrotoluene (aq)	<1 µg	/I TM176	**************************************	*1 *1 *	** <4 **	** <1 **	*1 *1 *#	# <1 #
2,6-Dinitrotoluene (aq)	<1 µg	/I TM176	<1 #	<1 #	<4 #	<1 #	<1 #	<1 #
2-Chloronaphthalene (aq)	<1 µg	/I TM176	<1 #	<1 #	<4 #	<1 #	<1 #	<1 #
2-Chlorophenol (aq)	<1 µg	/I TM176	<1 #	<1 #	<4 #	<1 #	<1 #	<1 #
2-Methylnaphthalene (aq)	<1 µg	/I TM176	<1 #	<1 #	<4 #	<1 #	<1 #	<1 #
2-Methylphenol (aq)	<1 µg	/I TM176	<1 #	<1 #	<4 #	<1 #	<1 #	<1 #
2-Nitroaniline (aq)	<1 µg	/I TM176	<1 #	<1 #	<4 #	<1 #	<1 #	<1 #
2-Nitrophenol (aq)	<1 µg	/I TM176	<1 #	<1 #	<4 #	<1 #	<1 #	<1 #
3-Nitroaniline (aq)	<1 µg	/I TM176	<1 #	<1 #	<4 #	<1 #	<1 #	<1 #
4-Bromophenylphenylethe r (aq)	<1 µg	/I TM176	<1 #	<1 #	<4 #	<1 #	<1 #	<1 #
4-Chloro-3-methylphenol (aq)	<1 µg	/I TM176	<1 #	<1 #	<4 #	<1 #	<1 #	<1 #
4-Chloroaniline (aq)	<1 µg	/I TM176	<1	<1	<4	<1	<1	<1
4-Chlorophenylphenylethe r (aq)	<1 µg	/I TM176	<1 #	<1 #	<4 #	<1 #	<1 #	<1 #
4-Methylphenol (aq)	<1 µg	/I TM176	<1 #	<1 #	172 #	<1 #	<1 #	<1 #
4-Nitroaniline (aq)	<1 µg	/I TM176	<1 #	<1 #	<4 #	<1 #	<1 #	<1 #
4-Nitrophenol (aq)	<1 µg	/I TM176	<1	<1	<4	<1	<1	<1
Azobenzene (aq)	<1 µg	/I TM176	<1 #	<1 #	<4 #	<1 #	<1 #	<1 #
Acenaphthylene (aq)	<1 µg	/I TM176	<1 #	<1 #	<4 #	<1 #	<1 #	<1 #
Acenaphthene (aq)	<1 µg	/I TM176	<1 #	<1 #	<4 #	<1 #	<1 #	<1 #
Anthracene (aq)	<1 µg	/I TM176	<1 #	<1 #	<4 #	<1 #	<1 #	<1 #
bis(2-Chloroethyl)ether (aq)	<1 µg	/I TM176	<1 #	<1 #	<4 #	<1 #	<1 #	<1 #
bis(2-Chloroethoxy)metha ne (aq)	<1 µg	/I TM176	<1 #	<1 #	<4 #	<1 #	<1 #	<1 #
bis(2-Ethylhexyl) phthalate (aq)	<2 µg	/I TM176	<2 #	<2 #	<8 #	<2 #	<2 #	<2 #
Butylbenzyl phthalate (aq)	<1 µg	/I TM176	<1 #	<1 #	<4 #	<1 #	<1 #	<1 #
<u> </u>			#	. #	. #	. #	#	#

Validated

150903-66 SDG: Location: Stag Brewery Order Number: Job: H\_URS\_WIM-273 Customer: AECOM

Client Reference:

Attention:

Gary Marshall

Report Number: Superseded Report:

329161

SVOC	MS (	(W)	- Aqueous
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SVOC MS (W) - Aqueous								
# ISO17025 accredited. M mCERTS accredited.		Customer Sample R	BH2	BH7	BH9	BH10	BH201A	BH104B
aq Aqueous / settled sample. diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample. * Subcontracted test.		Depth (m) Sample Type Date Sampled	Water(GW/SW) 02/09/2015	Water(GW/SW) 01/09/2015	Water(GW/SW) 02/09/2015	Water(GW/SW) 01/09/2015	Water(GW/SW) 02/09/2015	Water(GW/SW) 02/09/2015
** % recovery of the surrogate standa check the efficiency of the method.		Sampled Time						
results of individual compounds w	ithin	Date Received SDG Ref	03/09/2015 150903-66	03/09/2015 150903-66	03/09/2015 150903-66	03/09/2015 150903-66	03/09/2015 150903-66	03/09/2015 150903-66
samples aren't corrected for the re-	covery	Lab Sample No.(s)	12003516	12003511	12003512	12003513	12003515	12003514
1-5&+§@ Sample deviation (see appendix)  Component	LOD/Unit	AGS Reference S Method						
Benzo(a)anthracene (aq)	<1 µg/	_	<1	<1	<4	<1	<1	<1
Benzo(b)fluoranthene (aq)	<1 µg/	I TM176	<1	# <1	6.42	* <1	# <1	# <1
Benzo(k)fluoranthene (aq)	<1 µg/	I TM176	<1	<1	# <4	<1	# <1	# <1
Benzo(a)pyrene (aq)	<1 µg/	I TM176	<1	<1	4.69	<1	* <1	<1
Benzo(g,h,i)perylene (aq)	<1 µg/	I TM176	<1	<1	4.05	<1	<1	<1
Carbazole (aq)	<1 µg/	I TM176	<1	<1	<4	<1	<1 **	<1
Chrysene (aq)	<1 µg/	I TM176	<1	<1	# <4	<1	# <1	<b>*</b>
Dibenzofuran (aq)	<1 µg/	TM176	<b>*</b>	<b>*</b>	# <4	<b>*</b>	# <1	# <1
n-Dibutyl phthalate (aq)	<1 µg/		# <1	# <1	# <4	# <1	# <1	# <1
Diethyl phthalate (aq)	<1 μg/		# <1	# <1	# <4	# <1	# <1	# <1
Dibenzo(a,h)anthracene	<1 μg/		<b>#</b>	# <1	# <4	# <1	# <1	# <1
(aq) Dimethyl phthalate (aq)	<1 μg/		* <1	# <1	# <4	# <1	# <1	# <1
n-Dioctyl phthalate (aq)	<5 μg/		<b>*</b>	# <5	<20 #	# <5	# <5	# <5
			#	#	#	#	#	#
Fluoranthene (aq)	<1 µg/		<1 #	<1 #	6.12	<1 #	<1 #	<1 #
Fluorene (aq)	<1 µg/		<1 #	<1 #	<4 #	<1 #	<1 #	<1 #
Hexachlorobenzene (aq)	<1 µg/		<1 #	<1 #	<4 #	<1 #	<1 #	<1 #
Hexachlorobutadiene (aq)	<1 µg/		<1 #	<1 #	<4 #	<1 #	<1 #	<1 #
Pentachlorophenol (aq)	<1 µg/		<1	<1	<4	<1	<1	<1
Phenol (aq)	<1 µg/		<1	<1	10.7	<1	<1	<1
n-Nitroso-n-dipropylamine (aq)	<1 µg/		<1 #	<1 #	<4 #	<1 #	<1 #	<1 #
Hexachloroethane (aq)	<1 µg/		<1 #	<1 #	<4 #	<1 #	<1 #	<1 #
Nitrobenzene (aq)	<1 µg/	I TM176	<1 #	<1 #	<4 #	<1 #	<1 #	<1 #
Naphthalene (aq)	<1 µg/	I TM176	<1 #	<1 #	<4 #	<1 #	<1 #	<1 #
Isophorone (aq)	<1 µg/	I TM176	<1 #	<1 #	<4 #	<1 #	<1 #	<1 #
Hexachlorocyclopentadien e (aq)	<1 µg/	I TM176	<1	<1	<4	<1	<1	<1
Phenanthrene (aq)	<1 µg/	I TM176	<1 #	<1 #	<4 #	<1 #	<1 #	<1 #
Indeno(1,2,3-cd)pyrene (aq)	<1 µg/	I TM176	<1 #	<1 #	<4 #	<1 #	<1 #	<1 #
Pyrene (aq)	<1 µg/	I TM176	<1 #	<1 #	4.78	<1 #	<1 #	<1 #
				·	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			

Validated

150903-66 SDG: Job:

H\_URS\_WIM-273 Client Reference:

Location: Stag Brewery Customer: AECOM Attention: Gary Marshall Order Number: 329161 Report Number: Superseded Report:

VOC MS	(W)
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Design   Process   Design	VOC MS (W)								
Description		•	Customer Sample R	BH2	BH7	ВН9	BH10	BH201A	BH104B
Secretary   Composed   Composed			Donath (m)						
Decision			Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	
Second Composers   Second Comp	* Subcontracted test.	ard to		02/09/2015	01/09/2015	02/09/2015	01/09/2015	02/09/2015	02/09/2015
Description	check the efficiency of the method.	. The							
Tolognose   Tolo	samples aren't corrected for the re-								
Debromorbane				.2000010	12000011	1200012	1200010	1200010	12000011
TollamenedB**   5	Component		s Method						
Afternontunocheruner**   %   TM208   78.8   78.1   78.6   96.2   80.2   97.4	Dibromofluoromethane**	%	TM208	89.4	87.9	83	117	90.6	119
Chichorofithoromethane	Toluene-d8**	%	TM208	80.2	80.5	81.6	99.4	81.4	99.8
Chiloromethane	4-Bromofluorobenzene**	%	TM208	78.8	78.1	78.6	96.2	80.2	97.4
Methyl terlary buly ether   Clup   TM208   Clup   TM208   Clup   TM208   Clup   TM208   Clup   Club   Clu	Dichlorodifluoromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1
Virty Christophe	Chloromethane	<1 µg/l	TM208						<1 #
Chloropthane	Vinyl chloride	<1 µg/l	TM208		<1	<1			
Tinchlorofloromethane	Bromomethane	<1 µg/l	TM208						<1 #
Trichlorobucomethane	Chloroethane	<1 µg/l	TM208						<1 #
1,1-Dichioroethene	Trichlorofluoromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Cathon disulphide	1,1-Dichloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Dichloromethane	Carbon disulphide	<1 µg/l	TM208	<1	<1	2.28	<1	<1	
Methy lettiary buly lether	Dichloromethane	<3 µg/l	TM208	<3	<3	<3	<3	<3	
Trans-1,2-Dichloroethene		<1 µg/l	TM208	<1	<1	<1	<1	<1	
# # # # # # # # # #   #   #   #   #	trans-1,2-Dichloroethene	<1 µg/l	TM208						<1 #
Carbontetrachioride	1,1-Dichloroethane	<1 µg/l	TM208						<1 #
Bromochloromethane	cis-1,2-Dichloroethene	<1 µg/l	TM208						<1 #
Chloroform	2,2-Dichloropropane	<1 µg/l	TM208	<1			<1		
1,1,1-Trichloroethane	Bromochloromethane	<1 µg/l	TM208						<1 #
Tichloropropene	Chloroform	<1 µg/l	TM208						<1 #
Carbontetrachloride	1,1,1-Trichloroethane	<1 µg/l	TM208						<1 #
# # # # # # # # # # # # # # # # # # #	1,1-Dichloropropene	<1 µg/l	TM208						<1 #
Benzene	Carbontetrachloride								<1 #
# # # # # # # # # # # # # # # # # # #	1,2-Dichloroethane	<1 µg/l	TM208	<1	<1	<1	<1		<1
1,2-Dichloropropane   <1 μg/l   TM208   <1     <1   <1   <1   <1   <1   <1						#	#		<1 #
# # # # # # # # # # # # # # # # # # #						#	#	#	#
# # # # # # # # # # # # # # # # # # #				#	#	#	#	#	#
# # # # # # # # #   #   #   #   #   #				#	#	#	#	#	#
# # # # # # # # # Toluene						#	#	#	#
# # # # # # # # # # # # # # # # # # #	cis-1,3-Dichloropropene			#	#	#	#	#	#
# # # # # # # 1,1,2-Trichloroethane <1 µg/l TM208 <1 <1 <1 <1 <1 <1 <1				#	#	#	#	#	#
				#	#	#	#	#	#
	1,1,2-Trichloroethane	<1 μg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #

Validated

150903-66 SDG: Job:

H\_URS\_WIM-273

Location: Stag Brewery Customer: AECOM

Gary Marshall

Attention:

Order Number: Report Number:

329161

Superseded Report:

Client Reference:

VOC MS (W)								
Results Legend		Customer Sample R	BH2	BH7	BH9	BH10	BH201A	BH104B
# ISO17025 accredited.  M mCERTS accredited.								
aq Aqueous / settled sample. diss.filt Dissolved / filtered sample.		Depth (m)						
tot.unfilt Total / unfiltered sample.  * Subcontracted test.		Sample Type Date Sampled	Water(GW/SW) 02/09/2015	Water(GW/SW) 01/09/2015	Water(GW/SW) 02/09/2015	Water(GW/SW) 01/09/2015	Water(GW/SW) 02/09/2015	Water(GW/SW) 02/09/2015
** % recovery of the surrogate standar		Sampled Time						
results of individual compounds w samples aren't corrected for the re	ithin	Date Received SDG Ref	03/09/2015 150903-66	03/09/2015 150903-66	03/09/2015 150903-66	03/09/2015 150903-66	03/09/2015 150903-66	03/09/2015 150903-66
(F) Trigger breach confirmed  1-5&+\$@ Sample deviation (see appendix)	COVERY	Lab Sample No.(s)	12003516	12003511	12003512	12003513	12003515	12003514
Component	LOD/Unit	AGS Reference s Method						
1,3-Dichloropropane	<1 µg/	I TM208	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#
Tetrachloroethene	<1 µg/	I TM208	<1	<1	<1	<1	<1	<1
D''		T14000	#	#	#	#	#	#
Dibromochloromethane	<1 µg/	I TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
1,2-Dibromoethane	<1 µg/	I TM208	<1	<1	<1	<1	<1	<1
,,= =	"		#	#	#	#	#	#
Chlorobenzene	<1 µg/	I TM208	1.7	1.77	1.89	<1	1.8	<1
			#	#	#	#	#	#
1,1,1,2-Tetrachloroethane	<1 µg/	I TM208	<1	<1	<1	<1	<1	<1
Ethylbenzene	<1 µg/	I TM208	<1	# <1	# <1	<b>*</b>	<b>*</b>	# <1
Lutyibenzene	η η μθ/	1 1111200	#	#	#	#	#	#
m,p-Xylene	<1 µg/	I TM208	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#
o-Xylene	<1 µg/	I TM208	<1	<1	<1	<1	<1	<1
Chirono	<1 ua/	I TM208	<1	# <1	<b>*</b>	# <1	# <1	<b>#</b>
Styrene	<1 µg/	1 111/200	-1	- "	-1	- "	- " #	#
Bromoform	<1 µg/	I TM208	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#
Isopropylbenzene	<1 µg/	I TM208	<1	<1	<1	<1	<1	<1
4.4.0.0 Televelle verther	.4	T 1000	#	#	#	#	#	#
1,1,2,2-Tetrachloroethane	<1 µg/	I TM208	<1	<1	<1	<1	<1	<1
1,2,3-Trichloropropane	<1 µg/	I TM208	<1	<1	<1	<1	<1	<1
1,=,=			#	#	#	#	#	#
Bromobenzene	<1 µg/	I TM208	<1	<1	<1	<1	<1	<1
D "		T14000	#	#	#	#	#	#
Propylbenzene	<1 µg/	I TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
2-Chlorotoluene	<1 µg/	I TM208	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#
1,3,5-Trimethylbenzene	<1 µg/	I TM208	<1	<1	<1	<1	<1	<1
1011		T14000	#	#	#	#	#	#
4-Chlorotoluene	<1 µg/	I TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
tert-Butylbenzene	<1 µg/	I TM208	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#
1,2,4-Trimethylbenzene	<1 µg/	I TM208	<1	<1	<1	<1	<1	<1
and Data Manager	.4	T 1000	#	#	#	#	# <1	#
sec-Butylbenzene	<1 µg/	I TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
4-iso-Propyltoluene	<1 µg/	I TM208	<1	<1	<1	<1	<1	<1
. iso repyriciaens	. 49		. #	. #	. #	. #	. #	. #
1,3-Dichlorobenzene	<1 µg/	I TM208	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#
1,4-Dichlorobenzene	<1 µg/	I TM208	<1	<1 "	<1	<1 ,	<1	<1 "
n-Butylbenzene	<1 µg/	I TM208	<b>*</b>	# <1	<b>*</b>	# <1	# <1	<b>#</b>
Daty isonizone	. 49		. #	. #	. #	. #	. #	. #
1,2-Dichlorobenzene	<1 µg/	I TM208	<1	<1	<1	<1	<1	<1
1271								
1,2-Dibromo-3-chloroprop ane	<1 µg/	I TM208	<1	<1	<1	<1	<1	<1
1,2,4-Trichlorobenzene	<1 µg/	I TM208	<1	<1	<1	<1	<1	<1
.,2,1 111011010001126116	- ' μg/	. 1101200	#	#	#	- "	#	"#
Hexachlorobutadiene	<1 µg/	I TM208	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#
tert-Amyl methyl ether (TAME)	<1 µg/	I TM208	<1	<1	<1	<1	<1	<1
Naphthalene	<1 µg/	I TM208	<1	<b>*</b>	<b>*</b>	<b>*</b>	<b>*</b>	# <1
. apriliaiono	, µg/	. 1101200	#	#	#	1#	#	#
	-							



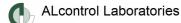
Validated

150903-66 SDG: Location: Stag Brewery Order Number: Job:

H\_URS\_WIM-273 Customer: AECOM 329161 Report Number: Client Reference: Attention: Gary Marshall Superseded Report:

VOC MS (W)

VOC	MS (W)				-				
# M aq diss.filt	Results Legend ISO17025 accredited. mCERTS accredited. Aqueous / settled sample. Dissolved / filtered sample.		Customer Sample R  Depth (m)	BH2	BH7	BH9	BH10	BH201A	BH104B
tot.unfilt	Total / unfiltered sample. Subcontracted test.		Sample Type Date Sampled	Water(GW/SW) 02/09/2015	Water(GW/SW) 01/09/2015	Water(GW/SW) 02/09/2015	Water(GW/SW) 01/09/2015	Water(GW/SW) 02/09/2015	Water(GW/SW) 02/09/2015
**	% recovery of the surrogate standa check the efficiency of the method.		Sampled Time Date Received	03/09/2015	03/09/2015	03/09/2015	03/09/2015	03/09/2015	03/09/2015
	results of individual compounds wi samples aren't corrected for the red	thin	SDG Ref	150903-66	150903-66	150903-66	150903-66	150903-66	150903-66
(F) 1-5&+§@	Trigger breach confirmed Sample deviation (see appendix)	·	Lab Sample No.(s) AGS Reference	12003516	12003511	12003512	12003513	12003515	12003514
Compo	nent	LOD/Uni							
1,2,3-	Trichlorobenzene	<1 µg/	/I TM208	<1	<1	<1	<1	<1	<1
135	Trichlorobenzene	<1 µg/	/I TM208	<b>*</b>	# <1	# <1	<b>*</b>	# <1	# <1
1,3,5-	Trichiorobenzene	~1 μg/	1101208	~1	`'				
			-						



Validated

329161

 SDG:
 150903-66
 Location:
 Stag Brewery
 Order Number:

 Job:
 H\_URS\_WIM-273
 Customer:
 AECOM
 Report Number:

Client Reference: Attention: Gary Marshall Superseded Report:

**Table of Results - Appendix** 

Method No	Reference	Description	Wet/Dry Sample <sup>1</sup>	Surrogat Correcte
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		
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS		
TM172	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	EPH in Waters		
TM176	EPA 8270D Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of SVOCs in Water by GCMS		
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		
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		
TM283		Determination of Dissolved Niobium, Tungsten, and Zirconium in Water Matrices by ICP-MS		

<sup>&</sup>lt;sup>1</sup> Applies to Solid samples only. DRY indicates samples have been dried at 35°C.

NA = not applicable.



Validated

150903-66 SDG: Location: Stag Brewery Order Number: H\_URS\_WIM-273 Customer: AECOM Job: Report Number:

329161 Client Reference: Attention: Gary Marshall Superseded Report:

## **Test Completion Dates**

Lab Sample No(s)	12003516	12003511	12003512	12003513	12003515	12003514
Customer Sample Ref.	BH2	BH7	BH9	BH10	BH201A	BH104B
AGS Ref.						
Depth						
Туре	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID
Ammoniacal Nitrogen	04-Sep-2015	04-Sep-2015	04-Sep-2015	04-Sep-2015	04-Sep-2015	04-Sep-2015
Anions by Kone (w)	07-Sep-2015	07-Sep-2015	07-Sep-2015	07-Sep-2015	07-Sep-2015	09-Sep-2015
COD Unfiltered	04-Sep-2015	04-Sep-2015	04-Sep-2015	04-Sep-2015	04-Sep-2015	05-Sep-2015
Dissolved Metals by ICP-MS	06-Sep-2015	08-Sep-2015	06-Sep-2015	07-Sep-2015	08-Sep-2015	06-Sep-2015
Dissolved W, Nb and Zr by ICP-MS	08-Sep-2015	08-Sep-2015	08-Sep-2015	08-Sep-2015	08-Sep-2015	08-Sep-2015
EPH (DRO) (C10-C40) Aqueous (W)	07-Sep-2015	07-Sep-2015	08-Sep-2015	07-Sep-2015	07-Sep-2015	08-Sep-2015
GRO by GC-FID (W)	07-Sep-2015	07-Sep-2015	07-Sep-2015	07-Sep-2015	07-Sep-2015	07-Sep-2015
Mercury Dissolved	07-Sep-2015	07-Sep-2015	07-Sep-2015	07-Sep-2015	07-Sep-2015	08-Sep-2015
Nitrite by Kone (w)	06-Sep-2015	06-Sep-2015	06-Sep-2015	06-Sep-2015	06-Sep-2015	09-Sep-2015
pH Value	08-Sep-2015	08-Sep-2015	08-Sep-2015	08-Sep-2015	08-Sep-2015	07-Sep-2015
SVOC MS (W) - Aqueous	07-Sep-2015	07-Sep-2015	08-Sep-2015	07-Sep-2015	07-Sep-2015	08-Sep-2015
Total EPH (aq)	08-Sep-2015	08-Sep-2015	08-Sep-2015	09-Sep-2015	08-Sep-2015	09-Sep-2015
VOC MS (W)	07-Sep-2015	07-Sep-2015	07-Sep-2015	09-Sep-2015	07-Sep-2015	09-Sep-2015

Validated

SDG: 150903-66 Job:

H\_URS\_WIM-273

Location: Stag Brewery AECOM **Customer:** Attention: Gary Marshall Order Number: Report Number: Superseded Report:

329161

## **ASSOCIATED AQC DATA**

#### Ammoniacal Nitrogen

Client Reference:

Component	Method Code	QC 1214	QC 1207
Ammoniacal Nitrogen as N	TM099	<b>102.8</b> 91.84 : 108.16	<b>104.4</b> 91.84 : 108.16

### Anions by Kone (w)

Component	Method Code	QC 1269	QC 1243
Chloride	TM184	99.4	
		94.64 : 106.82	94.23 : 107.50
Phosphate (Ortho as	TM184		102.4
PO4)		96.40 : 108.40	96.41 : 109.80
Sulphate (soluble)	TM184	101.2	
		96.47 : 104.74	94.38 : 108.93
TON as NO3	TM184	98.5	
		93.05 : 112.12	93.93 : 110.49

#### COD Unfiltered

Component	Method Code	QC 1200	QC 1252
COD	TM107	<b>97.91</b> 95.90 : 102.57	<b>100.38</b> 95.90 : 102.57

### Dissolved Metals by ICP-MS

Component	Method Code	QC 1282	QC 1276
Aluminium	TM152	<b>103.33</b> 88.58 : 117.87	<b>100.53</b> 88.58 : 117.87
Antimony	TM152	<b>100.4</b> 87.01 : 109.33	<b>100.53</b> 87.01 : 109.33
Arsenic	TM152	<b>99.87</b> 89.45 : 113.51	<b>100.67</b> 89.45 : 113.51
Barium	TM152	<b>99.33</b> 90.47 : 113.85	<b>98.53</b> 90.47 : 113.85
Beryllium	TM152	<b>102.13</b> 84.68 : 120.26	<b>102.4</b> 84.68 : 120.26
Boron	TM152	<b>98.93</b> 82.95 : 121.47	<b>99.73</b> 82.95 : 121.47
Cadmium	TM152	<b>102.93</b> 90.40 : 113.29	<b>101.73</b> 90.40 : 113.29
Chromium	TM152	<b>102.27</b> 90.01 : 114.05	<b>102.27</b> 90.01 : 114.05
Cobalt	TM152	<b>102.0</b> 87.14 : 117.85	<b>100.8</b> 87.14 : 117.85
Copper	TM152	<b>97.6</b> 88.43 : 114.27	<b>100.53</b> 88.43 : 114.27
Lead	TM152	<b>96.67</b> 89.53 : 109.90	<b>96.53</b> 89.53 : 109.90

Validated

SDG: 150903-66 Location: Stag Brewery Order Number: Job:

H\_URS\_WIM-273 AECOM 329161 **Customer:** Report Number: Client Reference: Attention: Gary Marshall Superseded Report:

#### Dissolved Metals by ICP-MS

		QC 1282	QC 1276
Lithium	TM152	<b>103.07</b> 84.32 : 123.11	<b>102.8</b> 84.32 : 123.11
Manganese	TM152	<b>102.13</b> 91.43 : 113.17	<b>102.13</b> 91.43 : 113.17
Molybdenum	TM152	<b>98.27</b> 80.73 : 113.85	<b>98.93</b> 80.73 : 113.85
Nickel	TM152	<b>100.27</b> 87.68 : 113.94	<b>100.13</b> 87.68 : 113.94
Phosphorus	TM152	<b>88.93</b> 86.68 : 118.34	<b>100.93</b> 86.68 : 118.34
Selenium	TM152	<b>100.4</b> 91.03 : 113.34	<b>100.53</b> 91.03 : 113.34
Strontium	TM152	<b>102.0</b> 90.44 : 114.09	<b>100.67</b> 90.44 : 114.09
Tellurium	TM152	<b>90.27</b> 80.93 : 116.91	<b>85.6</b> 80.93 : 116.91
Thallium	TM152	<b>96.27</b> 90.27 : 111.31	<b>98.93</b> 90.27 : 111.31
Tin	TM152	<b>101.47</b> 83.07 : 112.37	<b>99.6</b> 83.07 : 112.37
Titanium	TM152	<b>102.93</b> 92.65 : 111.58	<b>101.07</b> 92.65 : 111.58
Uranium	TM152	<b>94.13</b> 88.60 : 110.35	<b>94.53</b> 88.60 : 110.35
Vanadium	TM152	<b>102.27</b> 88.43 : 116.60	<b>102.53</b> 88.43 : 116.60
Zinc	TM152	<b>95.73</b> 89.84 : 113.06	<b>101.6</b> 89.84 : 113.06

### Dissolved W, Nb and Zr by ICP-MS

Component	Method Code	QC 1290
Bismuth	TM283	<b>92.13</b> 66.55 : 123.56
Niobium	TM283	<b>107.6</b> 85.00 : 115.00
Silver	TM283	<b>105.33</b> 81.37 : 112.35
Tungsten	TM283	<b>85.87</b> 85.00 : 115.00
Zirconium	TM283	<b>102.27</b> 85.00 : 115.00

### EPH (DRO) (C10-C40) Aqueous (W)

Component	Method Code	QC 1284	QC 1280
EPH (DRO) (C10-C40)	TM172	<b>80.5</b> 59.47 : 106.15	<b>72.5</b> 59.22 : 112.78

### GRO by GC-FID (W)

Validated

 SDG:
 150903-66
 Location:
 Stag Brewery
 Order Number:

 Job:
 H\_URS\_WIM-273
 Customer:
 AECOM
 Report Number

 Job:
 H\_URS\_WIM-273
 Customer:
 AECOM
 Report Number:
 329161

 Client Reference:
 Attention:
 Gary Marshall
 Superseded Report:

GRO by GC-FID (W)

Component	Method Code	QC 1234
Benzene by GC	TM245	<b>98.0</b> 77.50 : 122.50
Ethylbenzene by GC	TM245	<b>97.5</b> 77.50 : 122.50
m & p Xylene by GC	TM245	<b>97.75</b> 77.50 : 122.50
MTBE GC-FID	TM245	<b>101.0</b> 77.50 : 122.50
o Xylene by GC	TM245	<b>97.0</b> 77.50 : 122.50
QC	TM245	<b>104.67</b> 74.88 : 125.54
Toluene by GC	TM245	<b>98.5</b> 77.50 : 122.50

#### Mercury Dissolved

Component	Method Code	QC 1282	QC 1248
Mercury Dissolved (CVAF)	TM183	<b>108.0</b> 73.51 : 120.83	<b>96.1</b> 73.51 : 120.83

#### pH Value

Component	Method Code	QC 1280	QC 1258
рН	TM256	101.62	101.08
		99.37 : 102.65	99.20 : 102.85

### SVOC MS (W) - Aqueous

Component	Method Code	QC 1255	QC 1208	QC 1247
4-Bromophenylphenyleth er	TM176	<b>65.28</b> 55.04 : 128.00	<b>87.2</b> 55.04 : 128.00	<b>82.4</b> 65.62 : 120.95
Benzo(a)anthracene	TM176	<b>66.0</b> 52.64 : 123.68	<b>87.2</b> 52.64 : 123.68	<b>82.4</b> 62.83 : 114.26
Benzo(a)pyrene	TM176	<b>58.24</b> 49.60 : 114.40	<b>79.68</b> 49.60 : 114.40	<b>80.8</b> 54.19 : 105.67
Butylbenzyl phthalate	TM176	<b>70.32</b> 49.04 : 127.76	<b>93.6</b> 49.04 : 127.76	<b>82.4</b> 45.10 : 118.90
Hexachlorobutadiene	TM176	<b>59.36</b> 42.80 : 108.20	<b>77.52</b> 42.80 : 108.20	<b>61.28</b> 43.12 : 110.32
Naphthalene	TM176	<b>67.92</b> 47.20 : 116.80	<b>92.0</b> 47.20 : 116.80	<b>85.6</b> 69.48 : 118.94
Nitrobenzene	TM176	<b>69.36</b> 58.70 : 110.90	<b>88.8</b> 58.70 : 110.90	<b>79.52</b> 69.13 : 107.62
Phenol	TM176	<b>38.08</b> 30.25 : 79.75	<b>50.08</b> 30.25 : 79.75	<b>49.12</b> 30.92 : 74.19

Validated

ALcontrol Laboratories

150903-66 H\_URS\_WIM-273 Location:Stag BreweryCustomer:AECOMAttention:Gary Marshall

Order Number: Report Number: Superseded Report:

329161

# Client Reference:

SDG:

Job:

Component	Method Code	QC 1272	QC 1223	QC 1239
1,1,1,2-Tetrachloroethan e	TM208	<b>91.5</b> 84.25 : 114.84	<b>94.5</b> 77.50 : 122.50	<b>100.5</b> 84.25 : 114.84
1,1,1-Trichloroethane	TM208	<b>90.0</b> 84.67 : 111.97	<b>96.5</b> 77.50 : 122.50	<b>96.0</b> 84.67 : 111.97
1,1-Dichloroethane	TM208	<b>92.0</b> 80.19 : 121.45	<b>107.0</b> 77.50 : 122.50	<b>99.5</b> 80.19 : 121.45
1,2-Dichloroethane	TM208	<b>93.0</b> 77.68 : 127.05	<b>98.0</b> 77.50 : 122.50	<b>99.0</b> 77.68 : 127.05
2-Chlorotoluene	TM208	<b>93.0</b> 85.81 : 116.77	<b>97.0</b> 77.50 : 122.50	<b>99.0</b> 85.81 : 116.77
4-Chlorotoluene	TM208	<b>92.5</b> 87.22 : 115.45	<b>97.5</b> 77.50 : 122.50	<b>100.0</b> 87.22 : 115.45
Benzene	TM208	<b>90.5</b> 82.30 : 120.49	<b>103.0</b> 77.50 : 122.50	<b>101.0</b> 82.30 : 120.49
Bromomethane	TM208	<b>99.0</b> 76.16 : 123.35	<b>104.0</b> 75.87 : 132.10	<b>90.0</b> 76.16 : 123.35
Carbontetrachloride	TM208	<b>92.5</b> 83.96 : 117.98	<b>98.5</b> 77.50 : 122.50	<b>99.5</b> 83.96 : 117.98
Chlorobenzene	TM208	<b>94.5</b> 85.75 : 114.88	<b>99.5</b> 77.50 : 122.50	<b>100.0</b> 85.75 : 114.88
Chloroform	TM208	<b>94.0</b> 84.84 : 119.97	<b>103.0</b> 77.50 : 122.50	<b>104.5</b> 84.84 : 119.97
Chloromethane	TM208	<b>96.0</b> 53.63 : 141.38	<b>131.0</b> 77.12 : 138.43	<b>113.5</b> 53.63 : 141.38
Cis-1,2-Dichloroethene	TM208	<b>102.5</b> 81.65 : 120.44	<b>111.0</b> 77.50 : 122.50	<b>111.0</b> 81.65 : 120.44
Dichloromethane	TM208	<b>93.5</b> 79.31 : 122.56	<b>113.0</b> 77.50 : 122.50	<b>104.0</b> 79.31 : 122.56
Ethylbenzene	TM208	<b>89.5</b> 80.74 : 110.74	<b>96.0</b> 78.88 : 104.73	<b>94.0</b> 80.74 : 110.74
Hexachlorobutadiene	TM208	<b>101.5</b> 68.91 : 121.59	<b>81.5</b> 72.12 : 118.38	<b>91.5</b> 68.91 : 121.59
o-Xylene	TM208	<b>91.0</b> 85.43 : 113.21	<b>96.0</b> 82.27 : 108.61	<b>95.0</b> 85.43 : 113.21
p/m-Xylene	TM208	<b>90.0</b> 80.94 : 113.51	<b>97.0</b> 74.83 : 118.29	<b>95.0</b> 80.94 : 113.51
Tert-butyl methyl ether	TM208	<b>102.5</b> 59.77 : 129.51	<b>87.0</b> 75.13 : 130.32	<b>88.5</b> 59.77 : 129.51
Tetrachloroethene	TM208	<b>91.5</b> 83.21 : 115.40	<b>95.0</b> 82.93 : 109.54	<b>101.5</b> 83.21 : 115.40
Toluene	TM208	<b>90.0</b> 86.02 : 114.04	<b>96.5</b> 80.95 : 110.35	<b>98.5</b> 86.02 : 114.04
Trichloroethene	TM208	<b>92.0</b> 83.50 : 113.50	<b>96.5</b> 82.90 : 111.55	<b>96.5</b> 83.50 : 113.50
Vinyl Chloride	TM208	<b>84.5</b> 63.71 : 124.88	<b>105.5</b> 64.36 : 126.94	<b>82.0</b> 63.71 : 124.88

The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.

The figure detailed is the percentage recovery result for the AQC.

The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

Validated

150903-66 Location: Stag Brewery SDG: Order Number: H\_URS\_WIM-273 Job:

Client Reference:

AECOM **Customer:** Attention: Gary Marshall

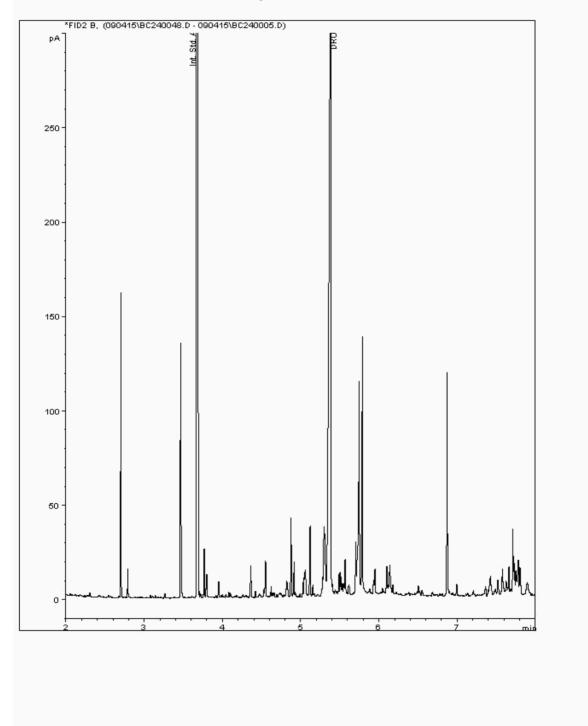
Report Number: Superseded Report: 329161

Chromatogram

Analysis: EPH (DRO) (C10-C40) Aqueous (W) Sample No : Depth: 12008285 Sample ID :

Alcontrol/Geochem Analytical Services EPH Range Organics ( C10 - C40 )

Sample Identity: 11385279Date Acquired : 07/09/2015 18:32:19 PM
Units : mg/1



Validated

150903-66 Location: Stag Brewery SDG: Order Number: Job: H\_URS\_WIM-273

Client Reference:

**Customer:** AECOM Attention: Gary Marshall Report Number: Superseded Report: 329161

Chromatogram

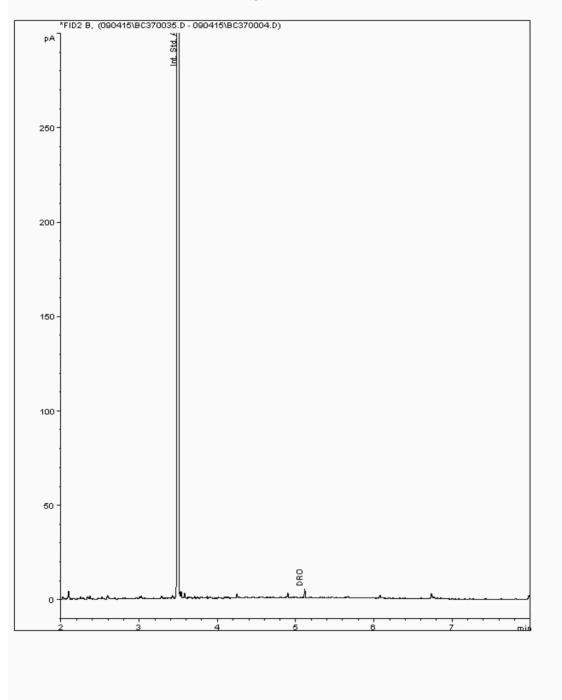
Analysis: EPH (DRO) (C10-C40) Aqueous (W)

12008287 Sample No : Sample ID :

Depth:

Alcontrol/Geochem Analytical Services EPH Range Organics ( C10 - C40 )

Sample Identity: 11385265-Date Acquired : 05/09/2015 04:02:39 PM Units : mg/l



Validated

150903-66 Location: Stag Brewery SDG: H\_URS\_WIM-273 AECOM Job: **Customer:** 

Report Number:

Client Reference: Attention: Gary Marshall Superseded Report:

Order Number:

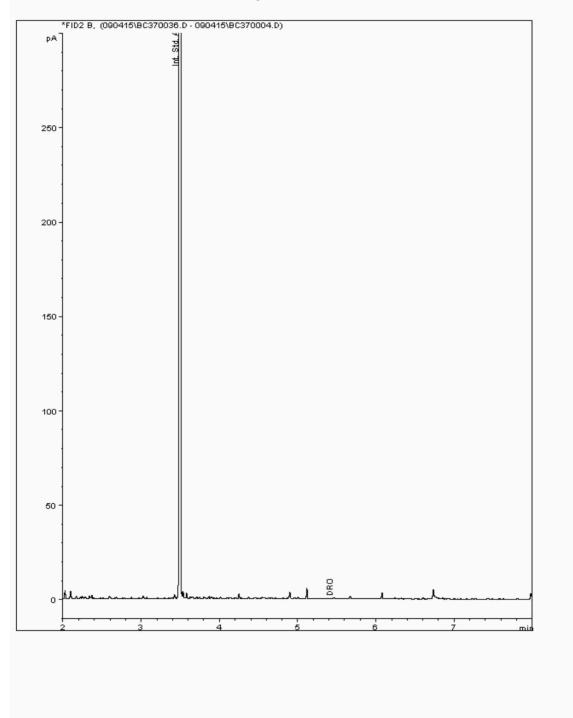
329161

Chromatogram

Analysis: EPH (DRO) (C10-C40) Aqueous (W) Sample No : Depth: 12008289 Sample ID : BH201A

Alcontrol/Geochem Analytical Services EPH Range Organics ( C10 - C40 )

Sample Identity: 11385324Date Acquired : 05/09/2015 04:25:24 PM
Units : mg/1



Validated

150903-66 SDG: Job:

Client Reference:

H\_URS\_WIM-273

Location: Stag Brewery AECOM **Customer:** Attention: Gary Marshall Order Number: Report Number: Superseded Report:

Depth:

329161

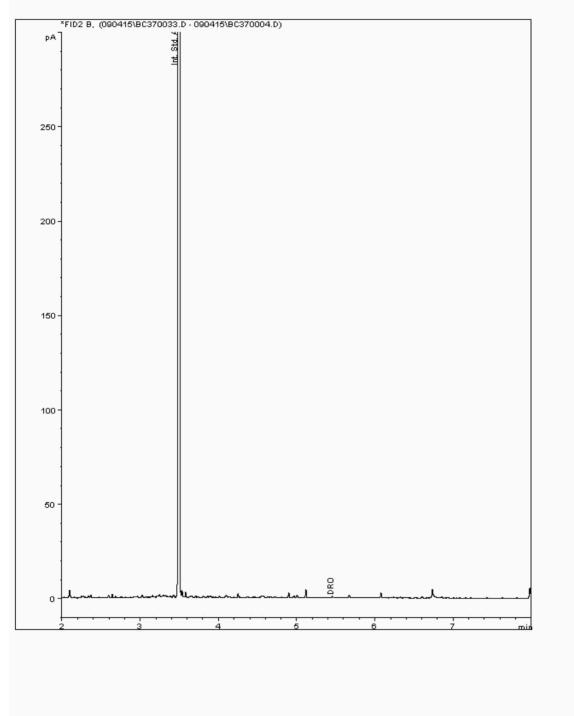
Chromatogram

Analysis: EPH (DRO) (C10-C40) Aqueous (W) Sample No : 12008291

Sample ID :

Alcontrol/Geochem Analytical Services EPH Range Organics ( C10 - C40 )

Sample Identity: 11385370-Date Acquired : 05/09/2015 03:17:44 PM Units : mg/l



Client Reference:

#### **CERTIFICATE OF ANALYSIS**

Validated

150903-66 Location: Stag Brewery SDG: Job:

H\_URS\_WIM-273 AECOM **Customer:** Attention: Gary Marshall Order Number: Report Number: Superseded Report:

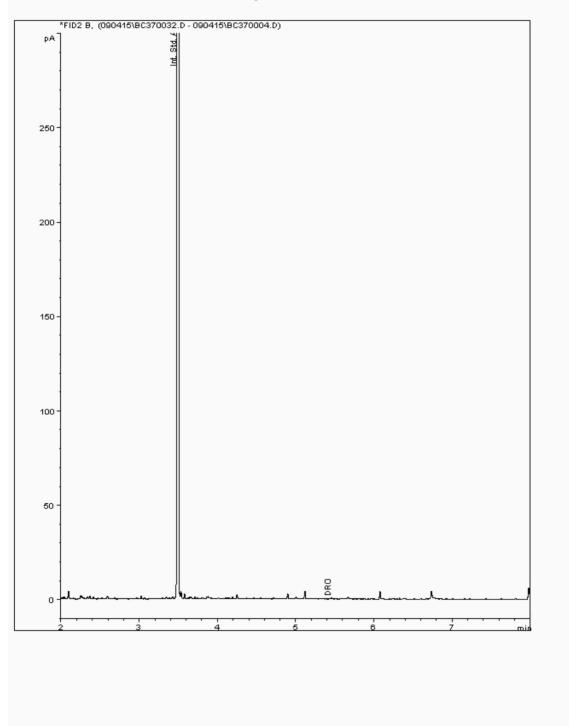
329161

Chromatogram

Analysis: EPH (DRO) (C10-C40) Aqueous (W) Sample No : Depth: 12008293 Sample ID : BH10

Alcontrol/Geochem Analytical Services EPH Range Organics ( C10 - C40 )

Sample Identity: 11385293Date Acquired : 05/09/2015 02:55:03 PM
Units : mg/1



Validated

150903-66 Location: Stag Brewery SDG: Job: H\_URS\_WIM-273

Client Reference:

**Customer:** AECOM Attention: Gary Marshall Order Number: Report Number: Superseded Report:

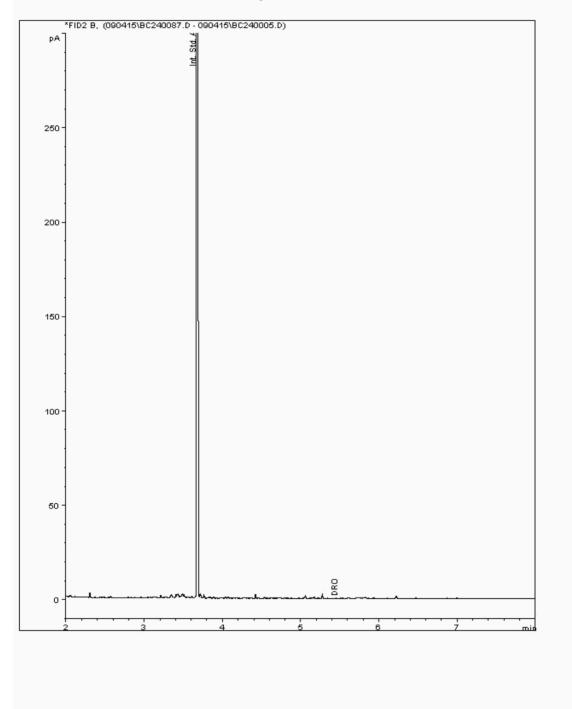
329161

Chromatogram

Analysis: EPH (DRO) (C10-C40) Aqueous (W) Sample No : Depth: 12015642 Sample ID : BH104B

Alcontrol/Geochem Analytical Services EPH Range Organics ( C10 - C40 )

Sample Identity: 11389081-Date Acquired : 08/09/2015 12:08:27 PM Units : mg/l





Validated

**SDG**: 150903-66 **Job**: H\_URS\_WIM-273

Client Reference:

IM-273 Custom

Location:Stag BreweryCustomer:AECOMAttention:Gary Marshall

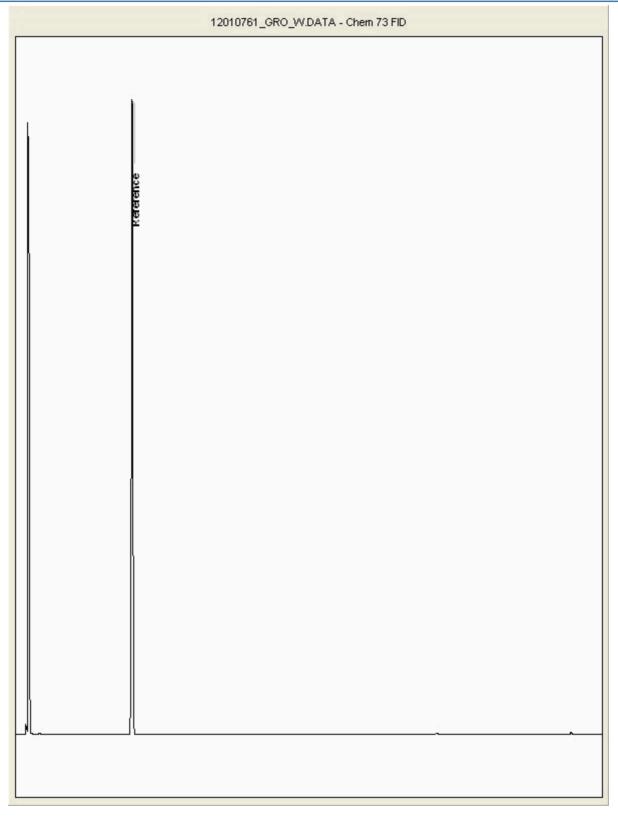
Order Number: Report Number: Superseded Report:

329161

Chromatogram

 Analysis:
 GRO by GC-FID (W)
 Sample No: 12010761
 Depth :

Sample ID : BH104B





Validated

**SDG**: 150903-66 **Job**: H\_URS\_WIM-273

Client Reference:

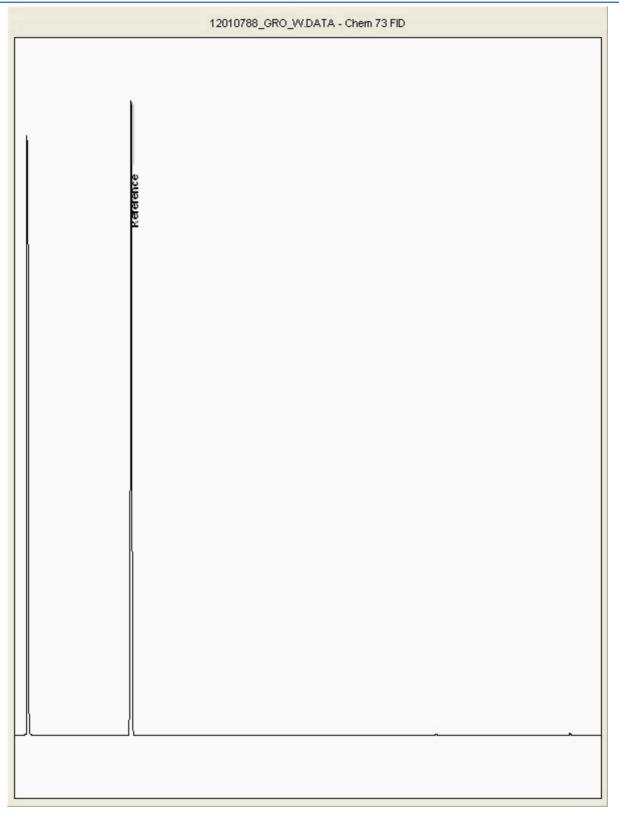
Location: S Customer: A Attention: G

Stag Brewery AECOM Gary Marshall Order Number: Report Number: Superseded Report:

329161

Chromatogram

 Analysis:
 GRO by GC-FID (W)
 Sample No: 12010788
 Depth :





Validated

SDG: 150903-66 Job:

Analysis: GRO by GC-FID (W)

Client Reference:

H\_URS\_WIM-273

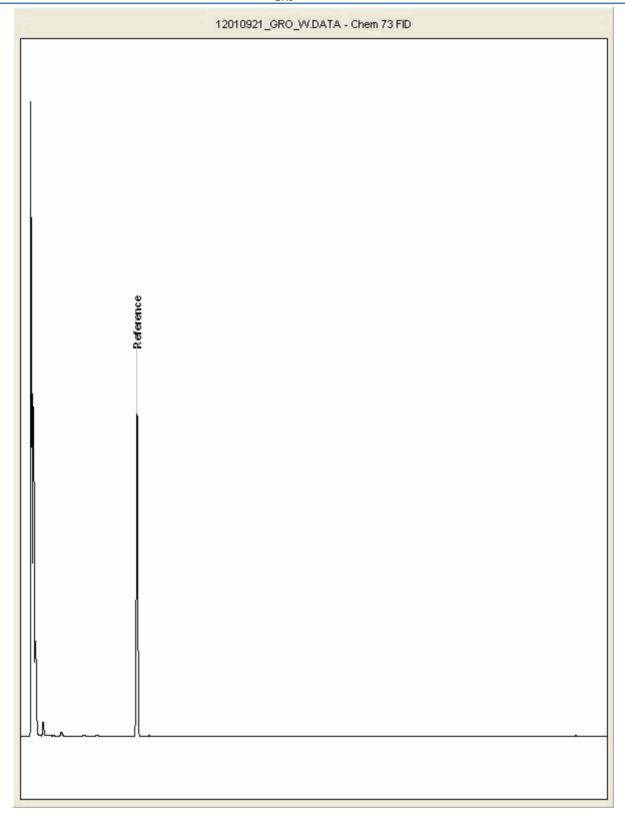
Location: Stag Brewery AECOM **Customer:** Attention: Gary Marshall Order Number: Report Number: Superseded Report:

329161

Chromatogram

12010921 Sample No : Depth:

Sample ID : ВН9





Validated

**SDG**: 150903-66 **Job**: H\_URS\_WIM-

Client Reference:

H\_URS\_WIM-273

Location:Stag BreweryCustomer:AECOMAttention:Gary Marshall

Order Number: Report Number: Superseded Report:

329161

Chromatogram

 Analysis:
 GRO by GC-FID (W)
 Sample No : 12010946
 Depth : BH7

12010946\_GRO\_W.DATA - Chem 73 FID



Validated

**SDG**: 150903-66 **Job**: H\_URS\_WIM-2

Client Reference:

H\_URS\_WIM-273

Location:Stag BreweryCustomer:AECOMAttention:Gary Marshall

Order Number: Report Number: Superseded Report:

Depth:

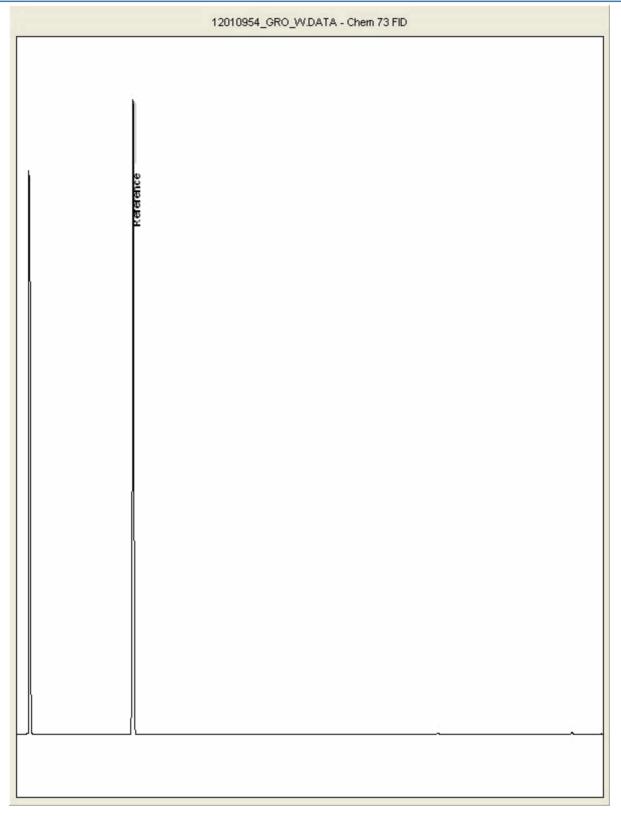
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## Chromatogram

Analysis: GRO by GC-FID (W) Sample No: 12010954

Sample ID : BH201A





Validated

**SDG**: 150903-66 **Job**: H\_URS\_WIM

Analysis: GRO by GC-FID (W)

Client Reference:

H\_URS\_WIM-273

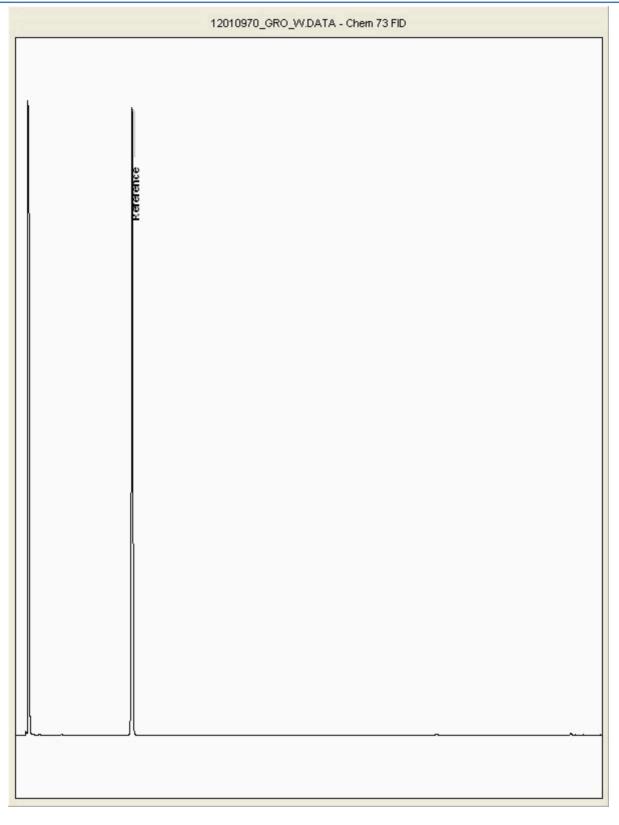
Location:Stag BreweryCustomer:AECOMAttention:Gary Marshall

Order Number: Report Number: Superseded Report:

329161

Chromatogram

Sample No: 12010970 Depth:



150903-66 Location: SDG Stag Brewery Order Number: H URS WIM-273 **AECOM** 329161 Job: **Customer:** Report Number: Attention: Gary Marshall Superseded Report:

Client Reference:

## 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 quaranteed 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
- 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
- monohydric by HPLC include phenol, cresols (2-Methylphenol, bl) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 3-Methylphenol 4-Methylphenol) 2.5 Dimethylphenol. Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).
- 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.
- 20. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample
- 21. 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
- 22. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction
- 23. 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.
- 24. 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

SOLID MATRICES EXTRACTION SUMMARY

ANALYSIS	D/C OR WET	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYS
SOLVENT EXTRACTABLE MATTER	D&C	DOM	SOXTHERM	GRAVIMETRIC
CYCLOHEXANE EXT. MATTER	D&C	CYCLOHEXANE	SOXTHERM	GRAVIMETRIC
THIN LAYER CHROMATOGRAPHY	D&C	DOM	SOXTHERM	IATROSCAN
ELEMENTAL SULPHUR	D&C	DOM	SOXTHERM	HPLC
PHENOLSBYGOMS	WET	DOM	SOXTHERM	GCMS
HERBICIDES	D&C	HEXANEACETONE	SOXTHERM	GCMS
PESTICIDES	D&C	HEXANEACETONE	SOXTHERM	GCMS
EPH (DRO)	D&C	HEXANEACETONE	END OVEREND	GCFID
EPH (MINOL)	D&C	HEXANEACETONE	END OVEREND	GCFID
EPH (CLEANED UP)	D&C	HEXANEACETONE	END OVEREND	GCFID
EPH CWG BYGC	D&C	HEXANEACETONE	END OVEREND	GCFID
POB TOT / POB CON	D&C	HEXANEACETONE	END OVEREND	GCMS
POLYAROMATIC HYDROCARBONS (MS)	WET	HEXANEACETONE	MCROWAVE TM218.	GCMS
C8-C40(C6-C40) EZ FLASH	WET	HEXANEACETONE	SHAKER	GC-EZ
POLYAROMATIC HYDROCARBONS RAPID GC	WET	HEXANEACETONE	SHAKER	GC-EZ
SEM VOLATILEORGANIC COMPOUNDS	WET	DOMACETONE	SONCATE	GCMS

#### LIQUID MATRICES EXTRACTION SUMMARY

ANALYSIS	EXTRACTION SOLVENT	extraction Method	ANALYSS
PAHMS	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCMS
EPH .	HEXANE	STIRREDEXTRACTION(STIR-BAR)	€ FID
EPHCWG	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GC FID
MINERALOIL	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GC FID
POB 7 CONGENERS	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCMS
POB TOTAL	HEXANE	STIRREDEXTRACTION(STIR-BAR)	GCMS
svoc	DOM	LIQUID/LIQUID SHAKE	GCMS
FREESULPHUR	DOM	SOLID PHASE EXTRACTION	HPLC
PEST OCP/OPP	DOM	LIQUID/LIQUID SHAKE	GCMS
TRIAZINE HERBS	DOM	LIQUID/LIQUID SHAKE	GCMS
PHENOLSMS	DOM	SOLID PHASE EXTRACTION	GCMS
TRH byINFRARED (IR)	TCE	LIQUID/LIQUID SHAKE	HPLC
MINERAL OIL by IR	TCE	LIQUID/LIQUID SHAKE	HPLC
GLYCOLS	NONE	DIRECT NJECTION	GCMS

Identification of Asbestos in Bulk

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

Asbestos Type	Common Name
Chrysofile	White Asbestos
Amoste	BrownAsbestos
Oroádolite	Blue Asbestos
Fibrous Adindite	-
Fibrous Anthophylite	-
Fibrous Tremolite	-

#### 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.

## ALcontrol Laboratories

#### **CERTIFICATE OF ANALYSIS**

 SDG:
 150903-66
 Location:
 Stag Brewery
 Order Number:

 Job:
 H\_URS\_WIM-273
 Customer:
 AECOM
 Report Number:
 329161

 Client Reference:
 Attention:
 Gary Marshall
 Superseded Report:

## Appendix General

- 1. Results are expressed on a dry weight basis (dried at  $35^{\circ}$ C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICS and SVOC 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 all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 month 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 analysed 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. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible. The quantity of asbestos present is not determined unless specifically requested.
- 7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.
- 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 Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.
- 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 C5-C12 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.

## Sample Deviations

1	Container with Headspace provided for volatiles analysis	
2	Incorrect container received	
3	Deviation from method	
4	Holding time exceeded before sample received	
5	Samples exceeded holding time before presevation was performed	
§	Sampled on date not provided	
•	Sample holding time exceeded in laboratory	
@	Sample holding time exceeded due to sampled on date	
&	Sample Holding Time exceeded - Late arrival of instructions.	

#### **Asbestos**

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk 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).

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).

Asbestos Type	Common Name
Chrysofile	White Asbestos
Amoste	BrownAsbestos
Orodobite	Blue Asbestos
Fibrous Adinoite	-
Fibrous Anthophylite	-
Fibrous Trendile	-

#### 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.



# UK and Ireland Office Locations







# UK and Ireland Office Locations

